ASX ANNOUNCEMENT

6 December 2022

Etango-8 Definitive Feasibility Study

Bannerman Energy Ltd (ASX:BMN, OTCQX:BNNLF) (**Bannerman** or the **Company**) advises of the results from the Definitive Feasibility Study (**DFS**) completed on its 95%-owned Etango-8 Uranium Project (**Etango-8**) in Namibia.

HIGHLIGHTS

- Definitive-level confirmation of strong technical and economic viability of conventional open pit mining and heap leach processing of the world-class Etango deposit at 8Mtpa throughput.
- Significant LOM operating cost efficiencies captured (-5% AISC), particularly in power, strongly mitigating approx. 15% increase in pre-production capex estimate (general inflationary factors) compared with the August 2021 Etango-8 Pre-Feasibility Study (**PFS**).
- Strong projected Etango-8 returns:
  - DFS base pricing (US$65/lb U_3O_8) generates US$209M $NPV_{8\%}$ (post-tax, real, ungeared) and 17% IRR (same basis).
  - DFS upside pricing (US$80/lb U_3O_8) generates US$436M $NPV_{8\%}$ and 25% IRR (all same basis).
  - Long-term scalability of Etango Project (up to 20Mtpa) confirmed by previous definitive level studies; provides strong optionality and further leverage to upside-case uranium market.
- Long-life 3.5 Mlbs pa U_3O_8 development further de-risked with acid supply infrastructure options, more conservative construction schedule and higher accuracy (+/-15%) cost estimation.
- Etango-8 moving towards financing and construction with Front End Engineering and Design, offtake and project finance processes progressing in parallel:
  - Mining Licence (ML) application submitted in August 2022.
  - Targeted positive Final Investment Decision (FID) during H2 CY2023.

Bannerman Energy Ltd
Suite 7, 245 Churchill Avenue, Subiaco, Western Australia 6008
PO Box 1973, Subiaco, Western Australia 6008

W bannermanenergy.com
T +61 8 9381 143
E info@bannermanenergy.com

ETANGO-8 PROJECT (100% basis)	Unit	DFS – Base (Dec 2022)	PFS (Aug 2021)	Change (DFS – PFS)	Scoping Study (Aug 2020)
Total ore throughput	Mt	**113.5**	117.6	- 4%	114.1
Nameplate annual process throughput	Mtpa	**8.0**	8.0	-	8.0
Initial life-of-mine	years	**15.0**	15.0	-	14.4
Average uranium head grade	ppm U_3O_8	**240**	232	**+ 3%**	232
Forecast uranium recovery	% U_3O_8	**87.8%**	87.8%	-	87.8%
Total production	Mlbs U_3O_8	**52.6**	52.9	- 1%	51.1
Average annual production	Mlbs pa	**3.5**	3.5	- 1%	3.5
Pre-production capital expenditure	US$M	**317**	274	+ 16%	254
Cash operating cost (ex-royalties/levies)	US$/lb U_3O_8	**35.0**	37.3	**- 6%**	37.4
All-In-Sustaining-Cost (AISC)	US$/lb U_3O_8	**38.1**	40.3	**- 5%**	40.9
Uranium price	US$/lb U_3O_8	**65**	65	-	65
$NPV_{8\%}$ (post-tax, real basis, ungeared)	US$M	**209**	222	- 6%	212
IRR (post-tax, real basis, ungeared)	%	**17.0**	20.3	- 3.3%	21.2
Project net cashflow (post-tax)	US$M	**695**	642	**+ 8%**	604

Etango-8: A premium uranium development

World-class endowment

- Top 10 uranium development resource that delivers embedded scalability option value.
- Updated Etango-8 Ore Reserve declaration of 113.5 Mt at 240 ppm U_3O_8 for 59.9 Mlbs U_3O_8 delivers initial 15-year operating life.
- Long-term scalability of Etango Project (up to 20Mtpa) confirmed by previous definitive level studies; provides strong optionality and leverage to upside-case uranium market.

Low technical risk

- Simple, low-strip open-pit mining with heap leach process route.
- Project comprehensively de-risked via operation of Etango Heap Leach Demonstration Plant.
- Project rigour further bolstered through DFS with acid supply infrastructure options, more conservative construction schedule and higher accuracy (+/-15%) cost estimation.

Established uranium operating jurisdiction

- Namibia has 45 year uranium mining and export history, currently the world's third largest supplier of uranium.

Strong in-country presence and engagement

- Bannerman operating in Namibia since 2006.

Excellent supporting infrastructure

- Ready power and water availability from established suppliers.
- Approximately 30% low-cost, low-emissions solar penetration in total site electricity usage.
- Planned assessment of future lower-emissions contract mining fleet options as part of FEED process leading into targeted FID.

Robust economics

- Forecast pre-production capital expenditure of US$317M (incl. contingency) provides an attractive upfront capital intensity of approx. US$90/lb average annual U_3O_8 production.
- Life-of-mine All-In-Sustaining-Cost (AISC) reduced to US$38/lb following capture of significant operating cost efficiencies, particularly in power and water usage and purchasing.
- Further upside potential from future life extension and/or scale-up expansion.

Commenting on the Etango-8 DFS, Bannerman CEO, Brandon Munro, said:

"The Bannerman team has delivered a robust Definitive Feasibility Study of world-class quality, with input from leading experts in each facet of mining uranium in Namibia. I am proud of their exceptional work represented by the Etango-8 DFS.

"The DFS has confirmed, to a definitive level of study, that the Etango-8 Project firmly warrants development. At a base-case uranium price of US$65/lb, Etango-8 delivers attractive projected returns from a development that has been heavily de-risked via deep prior technical and demonstration plant activity. Underscoring Etango's impressive leverage, the projected NPV_8 more than doubles at a uranium price assumption of US$80/lb. Whilst the Etango-8 economics are robust at US$65/lb, we believe a number closer to US$80/lb will be necessary to incentivise sufficient production across the industry to meet uranium demand this decade.

"Given the challenging global supply chain environment, we are pleased to have kept the increase in pre-production capex to approximately 15%, which includes contingency and anticipated investment in port acid-handling infrastructure. Within that context, we are especially pleased to have captured a 5% reduction in forecast All-In-Sustaining-Cost through more efficient power usage and purchasing arrangements.

"We have commenced Front End Engineering and Design and are moving firmly down the path towards production at the precise moment the world wakes up to the essential role of nuclear power. Our Mining Licence application was submitted in August 2022 and we are well underway with parallel offtake and project finance workstreams. All of this activity is driving towards a targeted positive Final Investment Decision on Etango-8, uranium market conditions permitting, during H2 CY2023."

Etango Uranium Project, Namibia, showing Etango Heap Leach Demonstration Plant

ETANGO-8 DFS: KEY NOTICES

Of the Mineral Resources scheduled for extraction and recovery in the DFS production plan, 100% are classified as Measured or Indicated. Bannerman confirms that there are no Inferred Resources included in the DFS production schedule, and that the schedule is comprised 100% of Ore Reserves.

The Mineral Resources underpinning the Ore Reserve and production target in the DFS have been prepared by a competent person in accordance with the requirements of the JORC Code (2012). The Competent Person's Statement(s) are found in the section of this ASX release titled *"Competent Person's Statement(s)"*. For full details of the Mineral Resources estimate, please refer to Section 2 (Geology) of the DFS Executive Summary. Bannerman confirms that it is not aware of any new information or data that materially affects the information included in that release. All material assumptions and technical parameters underpinning the estimates in that ASX release continue to apply and have not materially changed.

This release contains a series of forward-looking statements. Generally, the words "expect," "potential", "intend," "estimate," "will" and similar expressions identify forward-looking statements. By their very nature forward-looking statements are subject to known and unknown risks and uncertainties that may cause our actual results, performance or achievements, to differ materially from those expressed or implied in any of our forward-looking statements, which are not guarantees of future performance. Statements in this release regarding Bannerman's business or proposed business, which are not historical facts, are forward-looking statements that involve risks and uncertainties, such as Mineral Resource estimates, Ore Reserve estimates, market prices of metals, capital and operating costs, changes in project parameters as plans continue to be evaluated, continued availability of capital and financing and general economic, market or business conditions, and statements that describe Bannerman's future plans, objectives or goals, including words to the effect that Bannerman or management expects a stated condition or result to occur. Forward-looking statements are necessarily based on estimates and assumptions that, while considered reasonable by Bannerman, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies. Since forward-looking statements address future events and conditions, by their very nature, they involve inherent risks and uncertainties. Actual results in each case could differ materially from those currently anticipated in such statements. Investors are cautioned not to place undue reliance on forward-looking statements, which speak only as of the date they are made.

Bannerman has concluded that it has a reasonable basis for providing these forward-looking statements and the forecast financial information included in this ASX release. This includes a reasonable basis to expect that it will be able to fund the development of Etango-8 upon successful delivery of key development milestones and when required. The detailed reasons for these conclusions are outlined in the section of this ASX release titled *"Funding pathway"*. While Bannerman considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the DFS will be achieved.

To achieve the range of outcomes indicated in the DFS, pre-production funding in excess of US$320M will likely be required. There is no certainty that Bannerman will be able to source that amount of funding when required. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Bannerman's shares. It is also possible that Bannerman could pursue other value realisation strategies such as a sale, partial sale or joint venture of the Etango Project. These could materially reduce Bannerman's proportionate ownership of the Etango Project.

This ASX release has been prepared in compliance with the current JORC Code (2012) and the ASX Listing Rules. All material assumptions, including consideration of all JORC modifying factors on the Ore Reserve, production target and forecast financial information are based have been included in this ASX release, including the DFS Executive Summary (and summarised again in Appendix A).

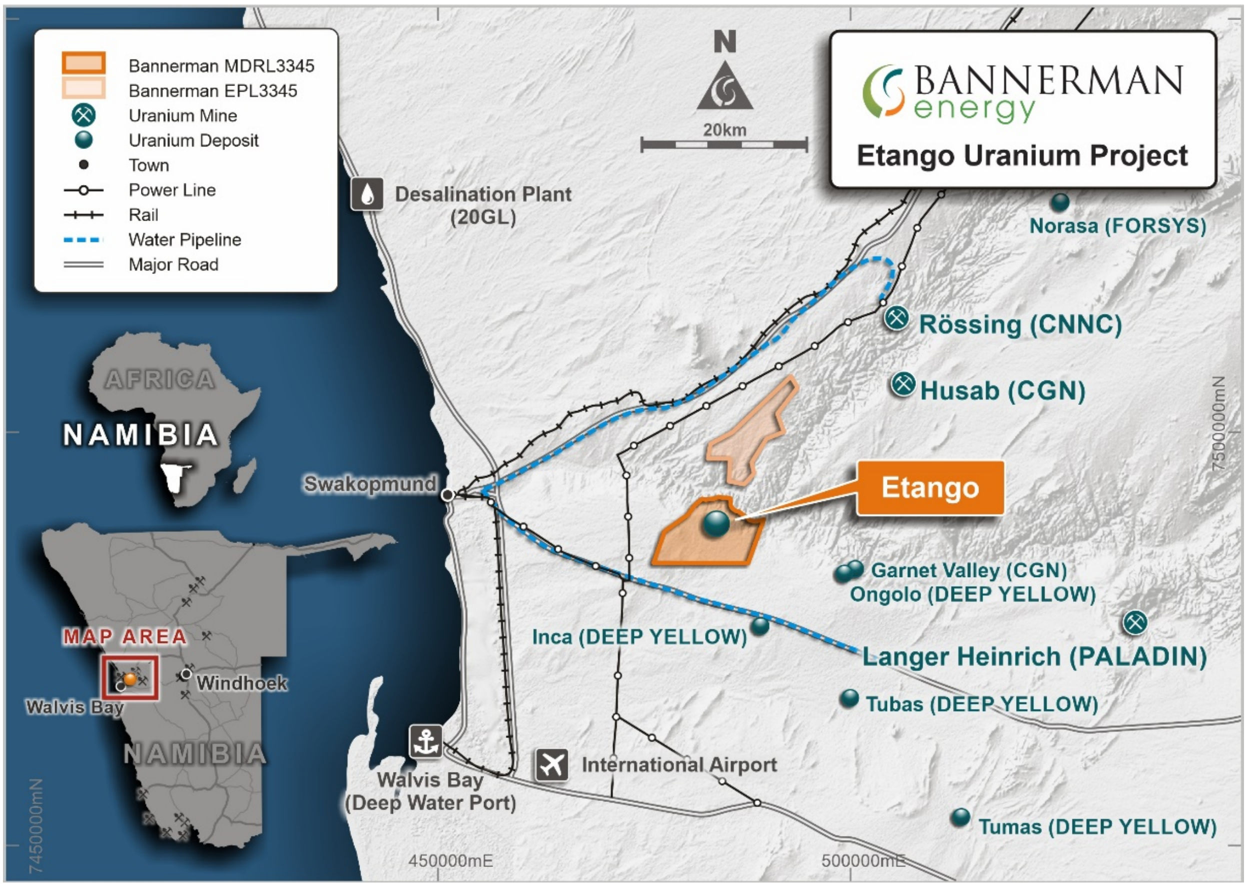
Etango-8: Definitive Feasibility Study (DFS) snapshot

Brief overview

The Etango Uranium Project (**Etango Project**) is located in the Erongo Region of Namibia, approximately 30 kilometres to the east-south-east of Swakopmund. It is positioned within a highly established uranium mining jurisdiction, where the mining and export of uranium via the Walvis Bay deep-sea port facility has been ongoing for over 45 years.

The Etango Project is owned by Bannerman Energy Ltd, through its 95%-owned subsidiary Bannerman Mining Resources (Namibia) (Pty) Ltd. The remaining 5% is owned by Namibian charitable body, One Economy Foundation.

Figure 1: Location of the Etango Project



Planned development of the Etango Project involves bulk open pit mining of a large, relatively homogenous uranium deposit followed by crushing, acid heap leaching, Ion Exchange (**IX**) with Nano Filtration (**NF**), and uranium recovery into yellowcake product (UO_3).

In April 2012, Bannerman completed a DFS (**DFS 2012**) for the Etango Project. The DFS 2012 was based on a 20Mtpa mine and heap leach process throughput. Mine planning, engineering design and capital and operating cost estimation was undertaken to an accuracy of ±15%.

In March 2015, Bannerman commissioned an industrial scale plant to demonstrate the heap leach configuration and assumptions. The results of the trials demonstrated strong support for the DFS 2012 metallurgical parameters.

In November 2015, Bannerman completed a DFS Optimisation Study (**OS 2015**). The OS 2015 saw a pre-production capital cost estimate of US$793M for average life-of-mine (LOM) production of 7.2 Mlbs U_3O_8 per annum at a LOM average C1 cash cost of US$38/lb.

In 2019, Bannerman commenced an evaluation of various project scaling and scope opportunities under a range of potential development parameters and market conditions. Indicative outcomes of this work highlighted strong potential for a scaled-down initial development of the Etango Project. As a result, Bannerman commenced work on a Scoping Study into such a development.

The Etango-8 Scoping Study (August 2020) provided an early-stage confirmation of the technical and commercial viability for development of the Etango Project at an 8Mtpa throughput rate. Importantly, much of this Scoping Study evaluation was heavily informed by the detailed study work undertaken across all relevant disciplines as part of the DFS 2012 and OS 2015.

Following the Scoping Study, the Etango-8 Pre-Feasibility Study (**PFS**) process was commenced in October 2020 and completed in August 2021. The Etango-8 DFS was commenced in October 2021 and concluded in December 2022. All Technical studies maintained the real option of modular expansion, up to potentially the 20Mtpa scale envisaged by the DFS 2012 and OS 2015.

The Etango-8 DFS

The Etango-8 DFS has been completed to a ±15% level of accuracy. Key external study consultants include:

- **Wood plc** (Study Lead) – process plant design and related infrastructure, plant capital and operating cost estimates.
- **Qubeka Mining Consultants** – geology review, Mining Reserve estimate, mine planning and mining cost estimates.
- **Snowden Optiro** – Mineral Resource Estimate.
- **Creo Engineering Solutions** – engineering support for Bannerman owner's team.
- **MineTechnics** – open pit geotechnical parameters.
- **Lund Consulting Engineers** – water supply infrastructure.
- **Addiza Energy Solutions** – external electrical supply infrastructure.
- **A.Speiser Environmental Consultants** – environmental impact assessments.
- **Namisun Environmental Projects & Developments** – conceptual mine closure plan.

A Technical Steering Committee was appointed to provide support and advice to the owner's team. The committee consisted of Norman Green (Chair), John Turney, Mike Leech, Steve Herlihy and Brandon Munro.

The DFS has further confirmed the strong technical and economic viability of conventional open pit mining and heap leach processing of the world-class Etango deposit at 8Mtpa throughput. It has been informed by the vast body of previous technical work completed on the Etango Project with extensive resource drilling, geotechnical, metallurgical and environmental work already completed prior to commencement of the DFS process. The heap leach process route has also been comprehensively de-risked via the prior operation of the Etango Heap Leach Demonstration Plant.

The level of development rigour for Etango-8 has also been bolstered through the DFS process via several facets including:

- Adoption of a more conservative construction schedule to reflect the current project development environment.
- Incorporation of additional acid supply infrastructure options in planning and capital cost estimation.
- Higher accuracy cost estimation mechanisms.

Table 1 outlines the key physical and economic outcomes from the Etango-8 DFS.

Table 1: Etango-8 DFS summary

ETANGO-8 PROJECT (100% basis)	Unit	DFS – Base (Dec 2022)	PFS (Aug 2021)	Change (DFS – PFS)	Scoping Study (Aug 2020)
Total ore throughput	Mt	**113.5**	117.6	- 4%	114.1
Nameplate annual process throughput	Mtpa	**8.0**	8.0	-	8.0
Initial life-of-mine	years	**15.0**	15.0	-	14.4
Average strip ratio (waste:ore)	x	**2.22**	2.07	+ 7%	1.93
Average uranium head grade	ppm U_3O_8	**240**	232	**+ 3%**	232
Forecast uranium recovery	% U_3O_8	**87.8%**	87.8%	-	87.8%
Total production	Mlbs U_3O_8	**52.6**	52.9	- 1%	51.1
Average annual production	Mlbs pa	**3.5**	3.5	-	3.5
Pre-production capital expenditure	US$M	**317**	274	+ 16%	254
Cash operating cost (ex-royalties/levies)	US$/lb U_3O_8	**35.0**	37.3	**- 6%**	37.4
All-In-Sustaining-Cost (AISC)	US$/lb U_3O_8	**38.1**	40.3	**- 5%**	40.9
Uranium price	US$/lb U_3O_8	**65**	65	-	65
$NPV_{8\%}$ (post-tax, real basis, ungeared)	US$M	**209**	222	- 6%	212
IRR (post-tax, real basis, ungeared)	%	**17.0**	20.3	- 3.3%	21.2
Payback period (post-tax, ungeared)	Years	**4.1**	3.8	- 9%	3.6
Project net cashflow (post-tax)	US$M	**695**	642	**+ 8%**	604

Key Etango-8 physical outcomes

The November 2021 Etango Project Mineral Resource estimate model has been reported within a US$75/lb optimal pit (generated in 2015) and above a cut-off of 55 ppm U_3O_8, as detailed in Table 2, and, for reference, above 100 ppm U_3O_8, as detailed in Table 3. The Mineral Resource estimates are reported in accordance with the JORC Code (2012).

The November 2021 Mineral Resource estimates are immaterially changed from the previous estimates (see Bannerman ASX release dated 2 August 2021, *Etango-8 Pre-Feasibility Study*).

Table 2: November 2021 Etango Mineral Resource estimate (55ppm U_3O_8 cut-off)

Nov 2021 Mineral Resource Estimate JORC (2012) reported within a US$75 pit shell above a 55 ppm U_3O_8 cut-off	Tonnes (Mt)	Grade (ppm U_3O_8)	Contained U_3O_8 (Mlbs)
Resource Category			
Measured	32.4	201	14.3
Indicated	345.7	195	148.5
Inferred	140.6	200	62.0
Total	**540.2**	**197**	**224.9**

Table 3: November 2021 Etango Mineral Resource estimate (100ppm U_3O_8 cut-off)

Nov 2021 Mineral Resource Estimate JORC (2012) reported within a US$75 pit shell above a 100 ppm U_3O_8 cut-off	Tonnes (Mt)	Grade (ppm U_3O_8)	Contained U_3O_8 (Mlbs)
Resource Category			
Measured	26.6	226	13.3
Indicated	276.9	223	136.4
Inferred	112.5	230	57.1
Total	**428.7**	**225**	**206.8**

The Etango-8 DFS saw Qubeka undertake a further optimisation of the Etango-8 mine schedule. An updated Etango-8 Ore Reserve estimate has been declared of 113.5 Mt at 240 ppm U_3O_8 for 59.9 Mlbs U_3O_8. This aligns fairly closely with the July 2021 Ore Reserve estimate of 117.6 Mt at 232 ppm U_3O_8 for 60.3 Mlbs U_3O_8 (which showed slightly higher tonnage at slightly lower grade).

All uranium output within the Etango-8 DFS production schedule is derived from the updated Ore Reserve estimate. The detail of this estimate is provided in Table 4.

Table 4: Etango-8 Ore Reserve estimate (at a cut-off grade of 100ppm U_3O_8)

JORC (2012) Ore Reserve estimate for Etango-8 Project (June 2022)	Tonnes (Mt)	Grade (ppm U_3O_8)	Contained U_3O_8 (Mlbs)
Proved	15.6	237	8.2
Probable	97.9	240	51.8
Total Ore Reserve	**113.5**	**240**	**59.9**

All modifying factors were taken into account in the declaration of this updated Ore Reserve estimate, with full detail on these factors provided through this cover release and the attached DFS Executive Summary (and summarised in Appendix A). The key physical outcomes of the DFS mine and process schedule are outlined in Table 5.

Table 5: Etango-8 DFS key physical outcomes

Key physical parameters	Unit	Total / LOM		Annual average	
		DFS	PFS	DFS	PFS
Operations					
Construction period	months	34	24	NA	NA
Initial production life	years	15.0	15.0	NA	NA
Mining					
Ore mined	Mt	113.5	117.6	7.6	7.8
Strip ratio	x	2.22	2.07	2.22	2.07
Waste mined	Mt	253.3	243.2	16.9	16.2
Processing					
Ore processed	Mt	113.5	117.6	7.6	7.8
Average uranium head grade	ppm U_3O_8	240	232	240	232
Forecast uranium recovery	%	87.8%	87.8%	87.8%	87.8%
Output					
Uranium production	**Mlbs U_3O_8**	**52.6**	**52.9**	**3.51**	**3.53**

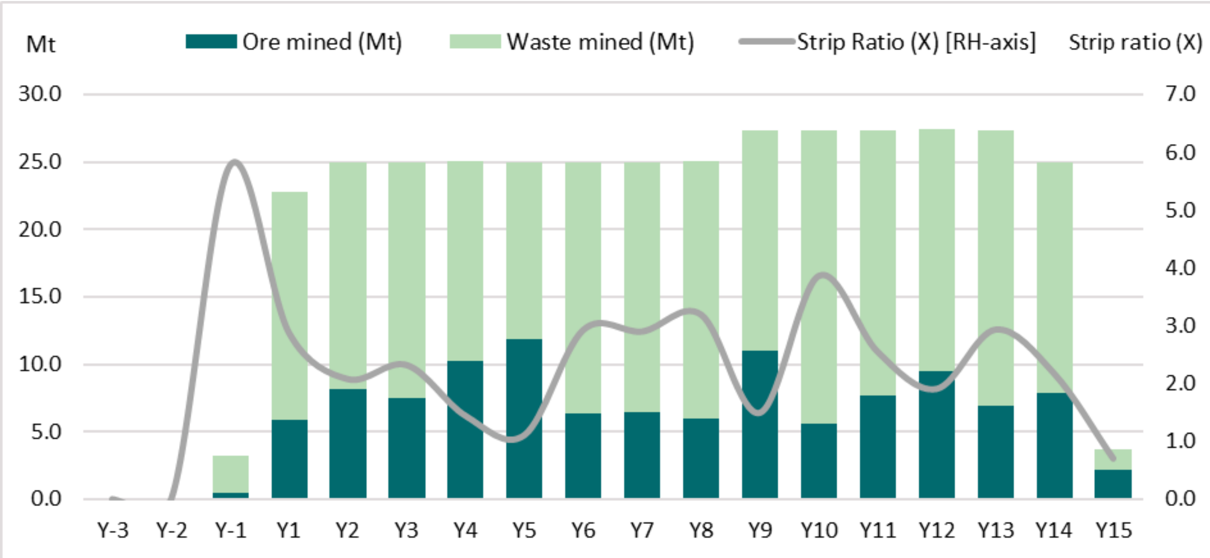
Key physical differentials versus the Etango-8 PFS include a more conservative project construction schedule given the current development environment (34 months vs 24 months PFS estimate), and slightly lower mined and processed ore tonnage at a slightly higher grade, yielding similar total LOM metal production.

Mining

The Etango deposit is to be mined as a conventional truck and shovel open pit operation via contract mining. Maximum annual mining rates are 27 Mtpa material, with average annual ore mined of approximately 7.6 Mtpa at a life-of-mine (**LOM**) average stripping ratio of 2.22.

Radiometric truck scanning (discrimination) will be employed as the definitive grade control process, as is common practice in large scale open pit uranium mines in Australia and Namibia. This means that the Standard Mining Unit (**SMU**) in the mining process will be a single truck load.

Figure 2: Etango-8 mine schedule



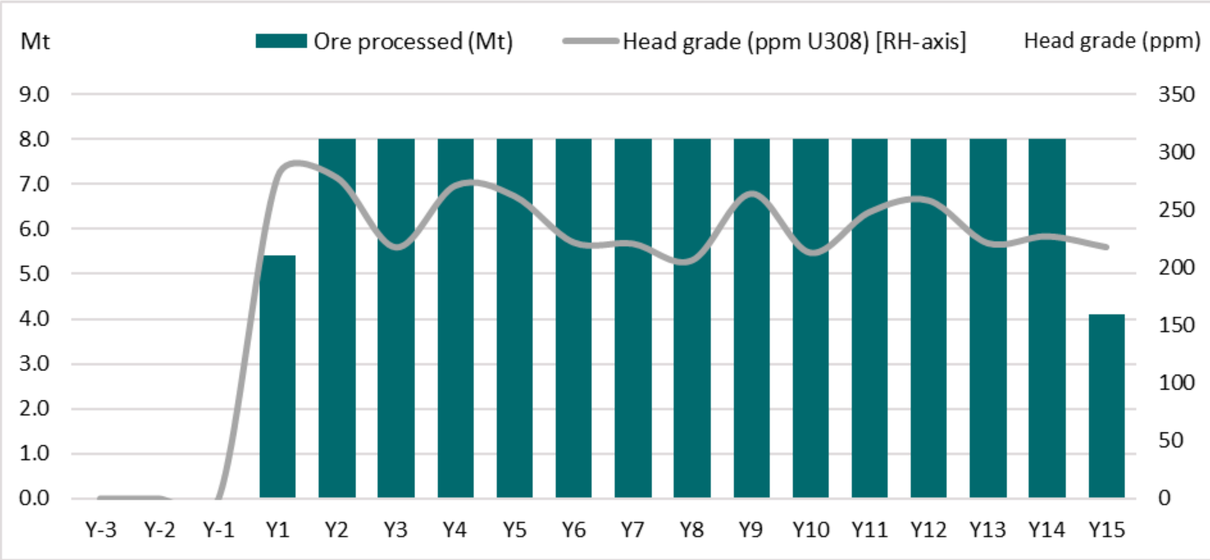
The mine schedule incorporates a pre-strip phase (Y-1) of 6 months comprising approximately 3.18 Mt material.

Processing

The Etango-8 flowsheet remains substantively unchanged from the PFS – crushing, acid heap leaching, Ion Exchange (**IX**) with Nano Filtration (**NF**), and uranium recovery into yellowcake product (UO_3). Following previous extensive acid consumption testwork with columns and cribs, plus the data set gained from operation of the Etango Heap Leach Demonstration Plant, combined with the acid recovery process via nano-filtration, and applying scale-up factors, total sulphuric acid consumption of 17.14 kg/t is projected. This is slightly lower than the PFS (18.0 kg/t) due to further analysis demonstrating additional acid recovery was expected through the NF process.

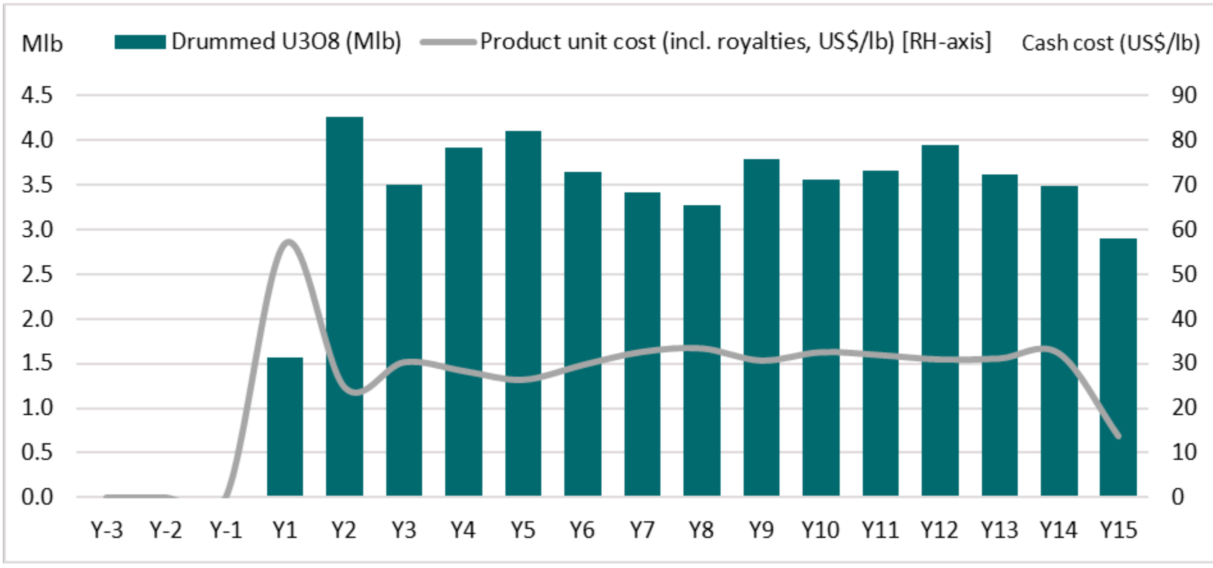
An initial ramp-up period of 9 months following commissioning has been incorporated for the processing plant to attain nameplate capacity of 8 Mtpa. Four ROM ore stockpiles (high, medium, low and marginal grade) will be used to manage tonnage and grade of the ore feed to the processing plant. Figure 3 presents the Etango-8 LOM processing schedule.

Figure 3: Etango-8 processing schedule



The DFS utilises an overall uranium recovery of 87.8% (unchanged from the PFS). This is based on the extensive testwork done with columns (2m, 4m, 5m and 7m) and cribs (2m x 2m x 5m), as well as applying appropriate scale-up factors to simulate performance on a commercial heap.

Figure 4: Etango-8 output schedule

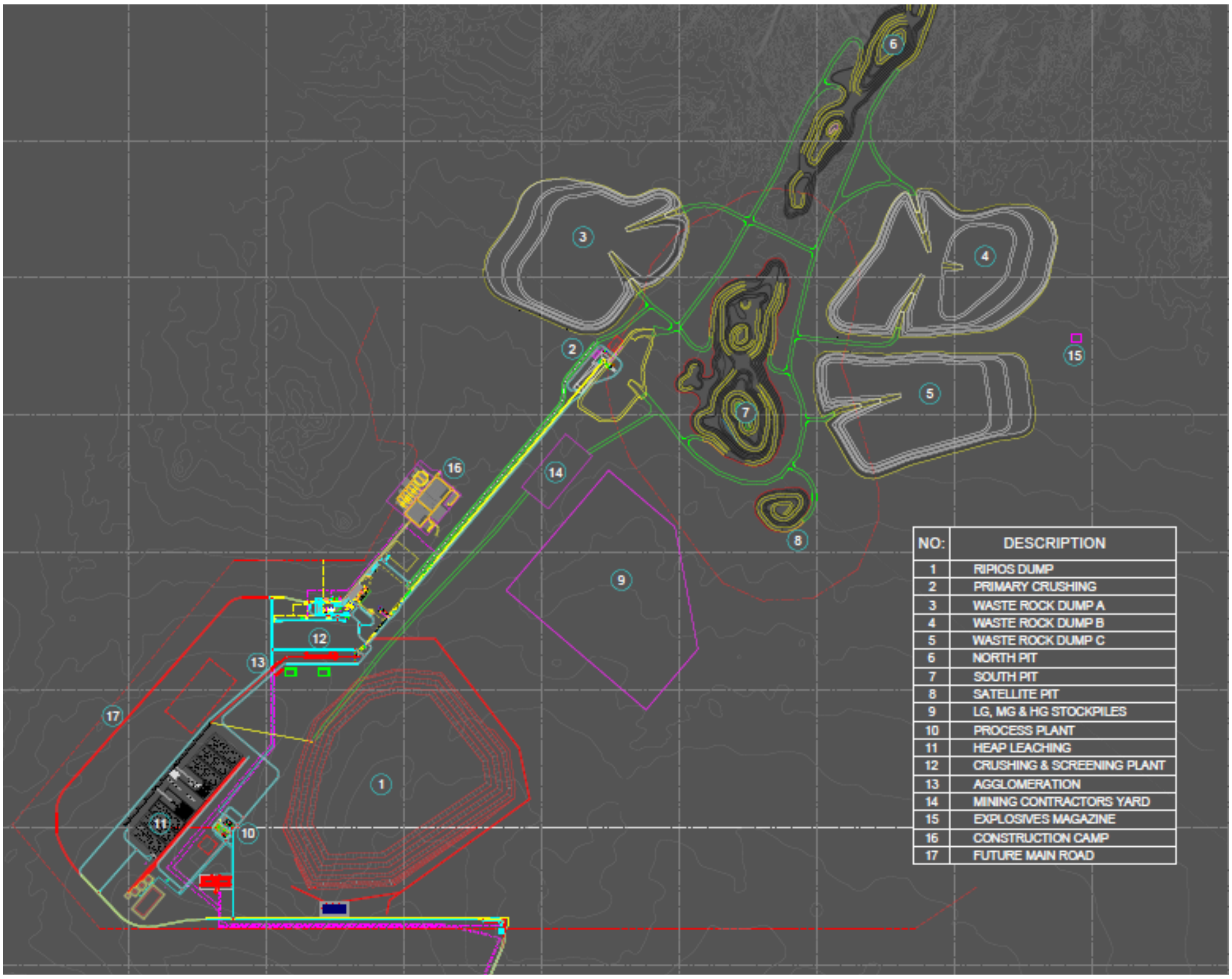


Forecast average LOM U_3O_8 production and sales is 3.51 Mlb per annum, with a peak sales projection of 4.3 Mlb in Year 2.

Site layout and access

The site layout is shown in Figure 5 and remains similar to the DFS 2012, OS 2015, and Etango-8 Scoping Study and PFS. The selected location is driven largely by the typical economic imperative to restrict waste and ore haulage distances.

Figure 5: Etango-8 site layout



The C28 sealed road from Swakopmund heads east approximately 5 km south of the Etango site. This is the main road that services the Langer Heinrich Mine and ultimately reaches Windhoek. Access to the Etango site from the C28 is via a 7 km spur road to be constructed as part of Etango-8.

Power and water supply

Power for the Etango site is to be sourced from the 220 kV national grid through Nampower's Kuiseb substation. Electricity will be purchased from NamPower and an existing independent solar power producer. Approximately 30% of total Etango-8 site electricity requirements are expected to be sourced from this solar power provider.

Nampower proposes a 29 km, 132 kV transmission line from the Kuiseb substation to the Etango site where a 132/11 kV switchyard, two 20 MVA 132/33 kV step-down transformers and indoor Etango substation will be installed.

Water is to be sourced from NamWater and is set to be supplied from desalinated sources to the Base Reservoir in Swakopmund. The Etango-8 water infrastructure consists of a pipeline and pumping system to transport the water to the Etango site, and terminal water storage system on site.

Product transport and export

As a sealed double highway with a safe fly-over onto the C28, the C34 provides a safe route for the trucking of final product for shipment from Walvis Bay, as well as transportation of sulphuric acid (along with rail routes) and other reagents from the Walvis Bay port to site.

The Port of Walvis Bay is a highly established uranium export facility. It has been handling Class 7 cargo for over 40 years both from Namibia and neighbouring countries such as Malawi. Specific areas within the controlled port environment have been designated for Class 7 cargo, which Bannerman is set to utilise.

Key Etango-8 financial projections

Operating cost estimate

The DFS is based on a contract mining operation, inline with the Etango-8 PFS. This includes drilling, blasting, loading and hauling of ore and waste. The forecast unit mining cost of US$2.36/t material mined (inclusive of minor owner's costs) (PFS: US$2.45/t) is based on firm quotations sourced from regional mining contractors.

The forecast cost of sulphuric acid (delivered to Etango site) is US$100/t (PFS: US$97/t). This is based on a Memorandum of Understanding (MOU) recently signed with a local Namibian acid producer. It is also readily comparable with the approximate 10-year average FOB price from Asia (US$35/t) after the addition of sea freight and overland transport estimates.

The utility power cost assumed is US$0.075 per kWh, which is the blended energy cost based on Nampower's Time of Use tariff schedule for customers taking energy directly from Nampower. This includes all fixed charges, capacity charges and energy charges. This input has reduced significantly from the PFS (US$0.115 per kWh) due to the adoption of independent solar power purchasing, reduced forecast total project power requirements with refined DFS operational estimation, and N$/US$ exchange rate movement.

The water tariff of US$3.0/$m^3$ used in the DFS is based on Namwater's indicative cost to supply the Etango Mine. Namwater undertook a comprehensive supply assessment following an application by Bannerman for bulk water supply and provided a written confirmation of water availability for the Project over its life of mine. It reflects the estimated cost of desalination and water transport operating and maintenance costs included in the delivery to site.

Table 6: Etango-8 operating cost estimate

Operating cost segment	LOM US$M	US$/t ore	US$/lb	%
Mining (contract)	**857**	**7.55**	**16.29**	**47%**
Processing	**785**	**6.92**	**14.92**	**43%**
Sulphuric acid	199			
Other reagents/consumables	189			
Power	87			
Water	83			
Maintenance	47			
Diesel	4			
Ripios trucking	51			
Labour	83			
Process G&A	43			
G&A and external infrastructure	**118**	**1.04**	**2.23**	**6%**
Owner's G&A	53			
External infrastructure and site services	65			
Closure costs	**17**	**0.15**	**0.32**	**1%**
Product transport and selling cost	**65**	**0.58**	**1.24**	**3%**
Total operating cost (ex-royalties/levies)	**1,842**	**16.23**	**35.01**	**100%**

Applicable royalties applied to gross sales revenue are a 3.0% Namibian government royalty and a 0.25% export levy. There are no non-governmental royalties applicable to the project.

Capital cost estimate

Total forecast pre-production capital expenditure for the Etango-8 DFS is US$317.5M (to a ±15% level of accuracy) inclusive of contingency. This compares with an estimate of US$274M in the PFS (±20% accuracy).

The differential with the PFS estimate is predominantly a function of incorporating a more conservative construction period duration (34 months vs 24 months PFS estimate), additional acid supply infrastructure (delivering further embedded optionality), and refinement of cost estimation and other parameters in line with a definitive level of study. As would be expected at the conclusion of a DFS-level process, this has considerably further de-risked the Etango-8 development proposition.

The composition of the pre-production capital estimate is outlined in Table 7. It includes a total contingency allowance of US$27.3M.

Table 7: Etango-8 pre-production capital expenditure estimate (US$M)

Pre-production capital expenditure	US$M
Mining	**12.7**
Contractor mobilisation	4.9
Owner's team equipment and labour	0.8
Pre-strip	5.4
Contingency	1.6
Process plant	**240.1**
Concrete civils (incl architectural) and mechanical	98.9
P&G and electrical	26.9
Steel, piping, fittings, instrumentation, tanks and liners	30.6
Infrastructure and earthworks	36.7
EPCM	26.5
Contingency	20.6
External infrastructure	**39.6**
Access road extension (and other)	1.0
Power supply	9.2
Water supply	16.8
Acid infrastructure	8.9
Contingency	3.7
General and administration	**25.1**
Admin and site services	9.1
Pre-production labour and processing costs	11.0
Insurance	3.7
Contingency	1.3
Total pre-production capital expenditure (incl. contingency)	**317.5**
Total pre-production capital expenditure (excl. contingency)	**290.2**

Forecast sustaining capital requirements across the Etango-8 LOM (including restoration and closure capital expenses) are approximately US$51M (approximately US$0.45/t ore).

Uranium price input

The realised LOM uranium base price forecast adopted for the DFS is US$65/lb U_3O_8. This is the same price estimate as utilised for the PFS (and Scoping Study). A LOM upside price forecast of US$80/lb U_3O_8 is also presented for comparison purposes.

For more detailed uranium market analysis and the rationale for utilisation of these price assumptions, refer to Section 11 (Marketing) of the DFS Executive Summary.

Forecast economic outcomes

Forecast key financial metrics for the development of Etango-8 as reflected in the DFS are summarised in Table 8 (all projections are on a 100% project basis).

Table 8: Etango-8 DFS key financial metrics

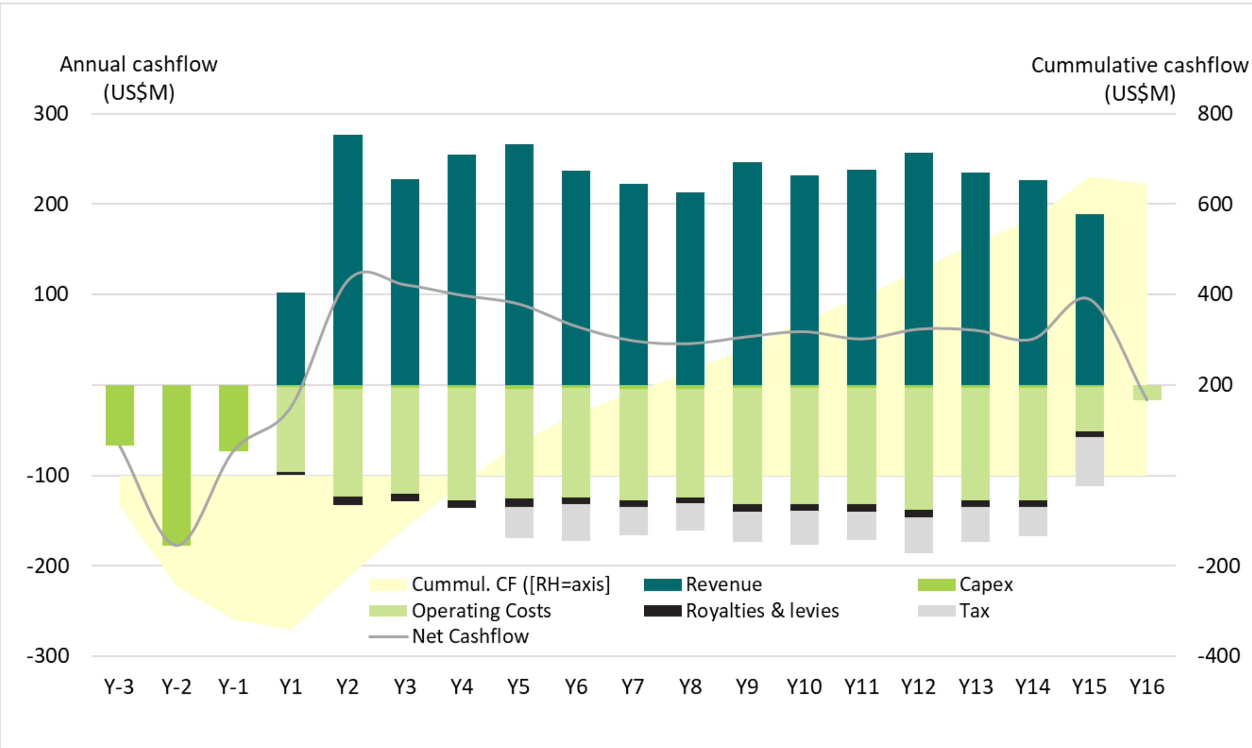
Key financial outcomes	Unit	DFS – base	DFS – upside	PFS
Price inputs				
LOM average uranium price	**US$/lb U_3O_8**	**65**	**80**	**65**
Exchange rate (US$/N$)	N$	17.56	17.56	16
Valuation, returns and key ratios				
NPV8% (post-tax, real basis, ungeared)	**US$M**	**209**	**435**	**222**
NPV8% (pre-tax, real basis, ungeared)	US$M	369	724	386
IRR (post-tax, real basis, ungeared)	**%**	**17.0**	**24.6**	**20.3**
IRR (pre-tax, real basis, ungeared)	%	21.0	30.0	25.3
Payback period (post-tax, from first prod.)	**years**	**4.1**	**2.9**	**3.8**
Payback period (pre-tax, from first prod.)	years	4.1	2.9	3.8
Pre-tax NPV / Pre-production capex	x	1.2	2.3	1.4
Pre-production capital intensity	US$/lb U_3O_8 pa cap.	90	90	78
Cashflow summary				
Sales revenue (gross)	**US$M**	**3,421**	**4,210**	**3,440**
Mining opex	US$M	(857)	(857)	(885)
Processing opex	US$M	(785)	(785)	(911)
G&A and closure opex	US$M	(134)	(134)	(122)
Product transport, port, freight, conversion	US$M	(65)	(65)	(58)
Royalties and export levies	US$M	(111)	(137)	(112)
Project operating surplus	**US$M**	**1,467**	**2,232**	**1,352**
Pre-production capital expenditure	US$M	(317)	(317)	(274)
LOM sustaining capital expenditure	US$M	(51)	(51)	(43)
Project net cashflow (pre-tax)	**US$M**	**1,099**	**1,863**	**1,034**
Tax paid	US$M	(404)	(690)	(392)
Project net cashflow (post-tax)	**US$M**	**695**	**1,172**	**642**
Unit cash operating costs				
Mining	US$/t material mined	2.36	2.36	2.45
Mining	US$/lb U_3O_8	16.29	16.29	16.7
Processing	US$/t ore	6.92	6.92	7.74

Key financial outcomes	Unit	DFS – base	DFS – upside	PFS
Processing	US$/lb U_3O_8	14.92	14.92	17.2
G&A and closure	US$/lb U_3O_8	2.55	2.55	2.3
Product transport, port, freight, conversion	US$/lb U_3O_8	1.24	1.24	1.1
Total cash operating cost (ex-royt/levies)	**US$/lb U_3O_8**	**35.01**	**35.01**	**37.3**
Royalties and export levies	US$/lb U_3O_8	2.11	2.60	2.1
Total cash operating cost	US$/lb U_3O_8	37.12	37.61	39.5
All-in-sustaining-cost (AISC)	**US$/lb U_3O_8**	**38.09**	**38.57**	**40.3**

Key financial differentials versus the Etango-8 PFS include a lower life-of-mine AISC (-5%) balanced against a bolstered pre-production capital estimate (+16%), delivering 8% higher total project net cashflow (post tax).

The projected LOM cashflow is shown in Figure 6. The Etango-8 development is expected to achieve a post-tax payback in approximately 4 years from first production.

Figure 6: Etango-8 forecast LOM net cashflows



Sensitivity analysis

Figures 7 and 8 outline the results of sensitivity analysis on post-tax NPV and IRR outcomes.

Figure 7: Sensitivity analysis – post-tax NPV (US$M)

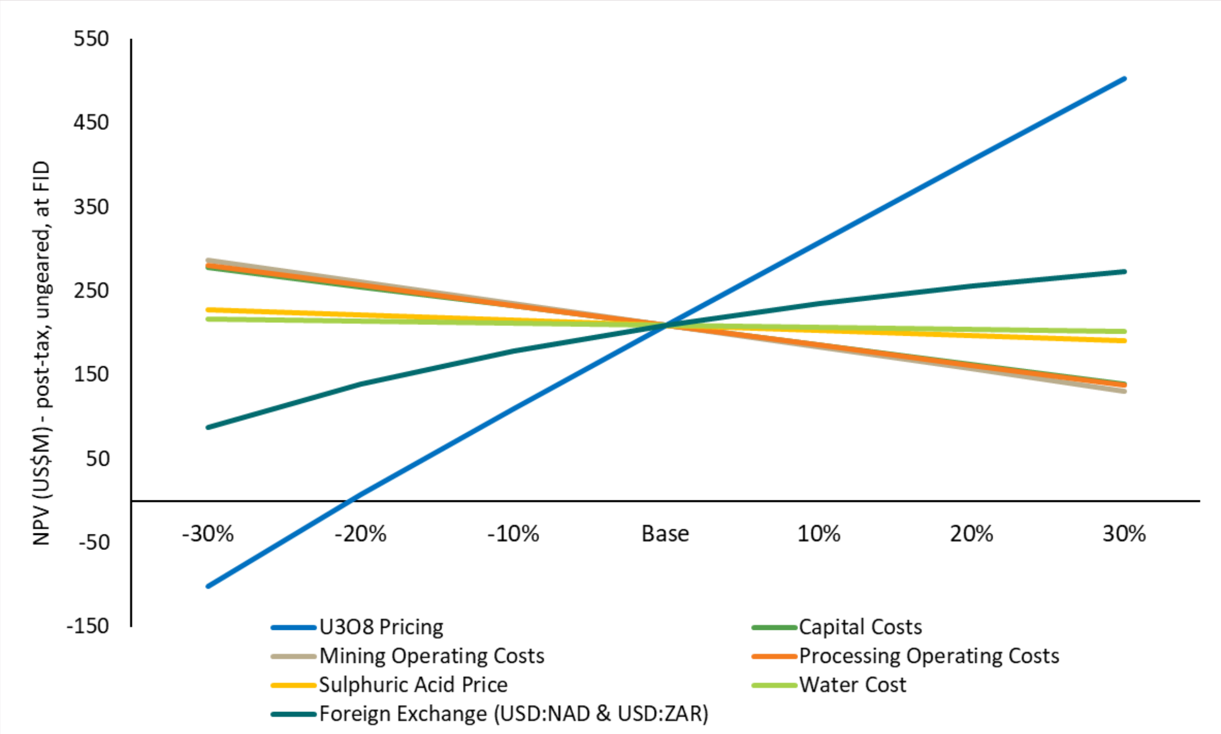
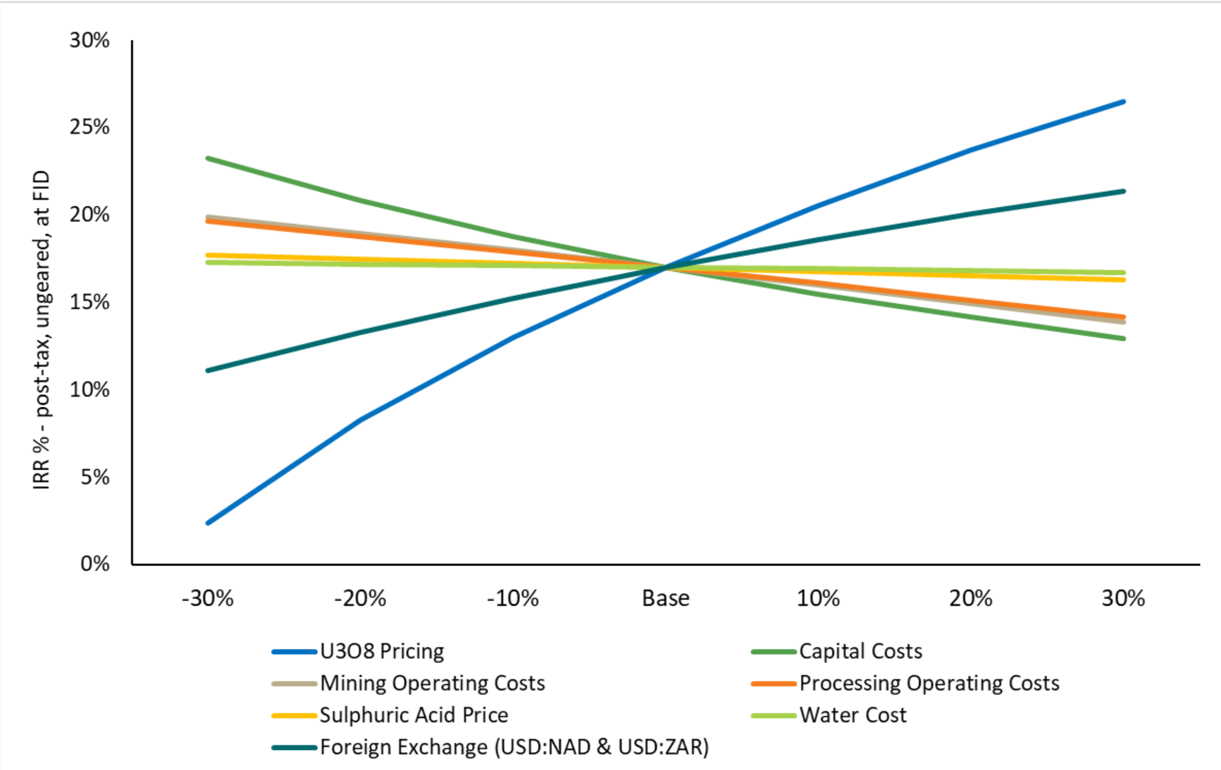


Figure 8: Sensitivity analysis – post-tax IRR (%)



Regulatory and social licence to operate

Environmental and permitting

Bannerman received its Environmental Clearance in March 2010 for the Etango Project. The Environmental Clearance was based on the Environmental and Social Impact Assessment (**ESIA**) and Environmental and Social Management Plan (**ESMP**).

The Environmental Clearance for the location and design of infrastructure ancillary to the Etango Project (including the access road, water pipeline and power lines) was granted by the Ministry of Environment and Tourism in July 2011.

A revised ESIA, reflecting the project detailed in the DFS 2012, was prepared and submitted in April 2012, with the Environmental Clearance granted in July 2012, valid for an initial period of three years. This has subsequently been renewed on three further occasions and is currently valid until September 2024. Environmental Clearance for linear infrastructure was granted in February 2013 (valid for three years) – it has also been renewed three times and is currently valid until May 2025. Environmental Clearances for the permanent water pipeline from Swakopmund to the C28 turn-off to the site and the Environmental Clearance for the electrical transmission line from the Kuiseb substation to site have been granted and both are valid until August 2025. The application for the Environmental Clearance for the temporary construction water pipeline was submitted to the Ministry of Environment, Forestry & Tourism in November 2022.

Baseline monitoring of groundwater and air quality started in 2008 and has continued over subsequent years.

The Minerals Act requires the submission of a Mining Licence (**ML**) application to be supported by an ESIA, including completion of an ESMP to manage the adverse impacts identified, as well as a Feasibility Study. As noted above, an Environmental Clearance has already been received for the Etango Project as well as the linear infrastructure (access road, power lines and water pipeline to site).

Bannerman holds a Mineral Deposit Retention Licence (**MDRL**) over the Etango Project area. In August 2022, the Company submitted a ML application (ML250) to the Namibian Ministry of Mines and Energy (**MME**). Following subsequent submission of this DFS, Bannerman will now work with the MME towards targeted grant of the ML during Q2 CY2023.

Social and community

Bannerman has a core value to build enduring and mutually beneficial relationships with its neighbouring communities in Namibia. It has invested in Namibia since 2006 and in this time has contributed substantially to the communities in which it operates. Selected initiatives include:

- Early Learner Assistance Program – 3,300 primary learners in remote communities have received assistance via this program including school clothing and basic necessities.
- Bannerman pioneered cooperation with the Hospitality Association of Namibia (HAN) and Coastal Tourism Association of Namibia and has supported the tourism sector in numerous ways. In recognition of Bannerman' positive impact, in 2019 Bannerman's Managing Director - Namibia, Mr Werner Ewald, received the HAN accolade of 'Tourism Personality of the Year'.

Future expansion and / or life extension

The Etango-8 development has been designed to retain the flexibility to expand to larger throughput (up to 20Mtpa) post operations commencing. This would be enabled via subsequent construction of a second processing stream and undertaking of cutbacks 7 and 8 of the OS 2015 20Mtpa pit shells.

In this way, the scalability of the world-class Etango deposit, including the potential leveraging of such a large resource base into higher production volumes at higher potential uranium price levels, is not removed by construction of an 8Mtpa project initially.

By way of example, if the modifying factors applied to the Etango-8 DFS pit shell derivation are unchanged, other than an increase in the assumed pricing to US$80/lb, the optimisation exercise delivers a pit shell containing approximately 130.1 Mlbs (DFS mine plan: 59.9 Mlbs).

In addition, there are opportunities to extend the initial 15-year mine life, either in conjunction with or instead of an expansion to the operating scale. The Etango-8 development is based on an initial Ore Reserve of 59.9 Mlbs U_3O_8, compared with Measured and Indicated Resources of approximately 150Mlbs U_3O_8 and additional Inferred Resources at the Etango deposit and potential satellite pits.

Next steps and development schedule

The DFS has demonstrated, to a higher level of accuracy again, that Etango-8 is a technically robust and highly economic mine project that warrants development.

Initial Front End Engineering and Design (**FEED**) work is already underway, with the Bannerman Board now approving progression to full-scope FEED on Etango-8.

The Etango ML application was submitted to the MME in August 2022. Following submission of the DFS, Bannerman will work with the MME towards targeted grant of the ML during Q2 CY2023.

Parallel contract offtake and project finance workstreams for Etango-8 have also commenced.

These activities are advancing towards, uranium market permitting, a targeted positive Final Investment Decision on Etango-8 during H2 CY2023

Construction of the Etango-8 Project is expected to take approximately 34 months (including detailed design).

No further exploration drilling is planned for the Etango ore body, with approximately 150 Mlbs U_3O_8 already contained in Measured and Indicated resource classification.

Key risks

A range of economic, engineering and other technical risks to Etango-8 have been considered. These risks include:

- **Uranium prices:** Lower than assumed prices of U_3O_8.
- **Key input prices:** Higher than expected prices of sulphuric acid, diesel, electricity or water.
- **Capital cost:** Unpredicted increases in equipment, materials or labour capital costs.
- **Geology:** Typical industry uncertainties with respect to interpretation of drill results and geology.
- **Utility supply:** Late or reduced supply of key utility inputs, including water and power.
- **Labour and training:** Inability to identify suitably trained personnel across all positions.
- **Fiscal impost:** Unexpected changes in royalties, government levies or company taxes.
- **Permitting:** Unforeseen issues of title, permitting, licences, access to land or right to mine.
- **Exchange rate:** Unfavourable movements in the N$/US$ exchange rate relative to forecast.

A fuller exploration of these key risks, and their potential controls/mitigants, is provided in Section 16 (Risk management) of the DFS Executive Summary.

Funding pathway

To achieve the range of outcomes indicated in the Etango-8 DFS, pre-production funding in excess of US$320M will likely be required.

There is no certainty that Bannerman will be able to source that amount of funding when required. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Bannerman's shares. It is also possible that Bannerman could pursue other value realisation strategies such as a sale, partial sale or joint venture of the Etango Project. This could materially reduce Bannerman's proportionate ownership of the Etango Project.

An assessment of various funding alternatives for Etango-8 has been made based on precedent funding transactions in the uranium and broader metals mining industry. Bannerman has formed the view that there is a reasonable basis to believe that requisite future funding for development of Etango-8 will be available when required. There are a number of grounds on which this reasonable basis is established:

- Global debt and equity finance for uranium projects is available, with counterparty appetite for this development funding supply growing strongly following the significant increase in market uranium prices over the past 12-18 months.
- The technical and financial parameters detailed in the Etango-8 DFS are robust and economically attractive (US$209M $NPV_{8\%}$ (post-tax, ungeared, real basis) and 17% IRR). The Etango Project is located in Namibia, a leading uranium mining and export jurisdiction globally. Namibia possesses a well-established and clearly understood legal tenure and project permitting regulation. Release of these DFS fundamentals now provides a further platform for Bannerman to advance discussions with potential strategic partners, off-taker partners, debt providers and equity investors with respect to the Etango-8 development.
- Bannerman has a current market capitalisation of approximately A$300 million and zero debt. The Company owns 95% of the Etango Project and has an uncomplicated, clean corporate and capital structure. Finally, 100% of the forecast uranium production from the Etango Project remains uncommitted. These are all factors expected to be highly attractive to potential strategic investors, offtake partners and conventional equity investors. These factors also deliver considerable flexibility in engagement with potential debt or quasi-debt providers.
- The Bannerman Board and management team has extensive experience in the global uranium, and broader resources, industry. They have played leading roles previously in the exploration and development, including project financing, of several large and diverse mining projects in Africa and elsewhere. In this regard, key Bannerman personnel have a demonstrated track record of success in identifying, acquiring, defining, funding, developing and operating quality mineral assets of significant scale.
- The Company has a strong track record of raising equity funds as and when required to further the evaluation and advancement of the Etango Project. Bannerman's prior equity raising was a A$41M institutional/sophisticated investor placement plus A$15M Share Purchase Plan (total A$56M new equity funds) that was successfully undertaken in March/April 2022.
- Bannerman is targeting total pre-production and working capital funding being comprised of one, some or all of: senior project debt, mezzanine debt, offtake prepayment, sale of a strategic asset interest, equity issuance and/or royalty/stream funding. As noted earlier, total pre-production funding (or equivalent) in excess of US$320M will likely be required. The final mix will depend on general market and mineral industry conditions, specific counterparty appetite and terms, and the Bannerman Board's prevailing views on optimal funding mix and balance sheet configuration.

It should be noted that this funding strategy is subject to change at the Bannerman Board's discretion at any point. It should also be noted that, while the Bannerman Board holds a reasonable basis to believe that funding will be available as required, there is no assurance that the requisite funding for Etango-8 will be secured.

Competent Person's Statement(s)

Mineral Resources

The information in this release, including the DFS Executive Summary, relating to the Mineral Resources (November 2021) for the Etango Project is based on a resource estimate compiled or reviewed by Mr Ian Glacken, Principal Consultant at Snowden Optiro Pty Ltd and a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Glacken has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves", is an independent consultant to Bannerman. Mr Glacken consents, and provides corporate consent for Snowden Optiro Pty Ltd, to the inclusion in this release of the matters based on his information in the form and context in which it appears.

Ore Reserves

The information in this release, including the DFS Executive Summary, relating to the Ore Reserves (June 2022) of the Etango-8 DFS Project is based on information compiled or reviewed by Mr Werner K Moeller, a Director since 2016 of Qubeka Mining Consultants CC based in Klein Windhoek, Namibia. Prior to 2016 Mr. Moeller was a Director of VBKom Consulting Engineers (Pty) Ltd based in Centurion, South Africa from 2008. Mr Moeller is a Member of The Australasian Institute of Mining and Metallurgy (MAusIMM nr. 329888), a Member of the South African Institute of Mining and Metallurgy (MSAIMM nr. 704793) and a Member of the Canadian Institute of Mining, Metallurgy and Petroleum (MCIM nr. 708163). He graduated from the University of Pretoria, South Africa and holds a Bachelor degree, majoring in Mine Engineering (2001) and an Honours degree, majoring in Industrial Engineering (2002). Mr Moeller is a practising mining engineer, having practiced his profession continuously since 2002, and has sufficient experience relevant to the style of mineralisation and types of deposits under consideration and to the activity which is being undertaken to qualify him as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". He has read and understood the requirements of the 2012 Edition of the Australasian Code for Reporting of Exploration Results and the Technical Report has been prepared in compliance with that code. Mr Moeller consents to the filing of this release with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public. Mr Moeller furthermore does not have nor does he expect to receive a direct or indirect interest in the Etango property of Bannerman, and he does not beneficially own, directly or indirectly, any securities of Bannerman or any associate or affiliate of such company. Mr Moeller consents to the inclusion in this release of the matters based on his information in the form and context in which it appears.

This ASX release was authorised on behalf of the Bannerman Board by:
Brandon Munro, Chief Executive Officer

CONTACT DETAILS:

Investors

Brandon Munro
Chief Executive Officer
+61 8 9381 1436
bmunro@bannermanresources.com.au

Media

Michael Vaughan
Fivemark Partners
+61 422 602 720
michael.vaughan@fivemark.com.au

Bannerman Energy

Etango-8 Uranium Project
Definitive Feasibility Study

Study Report
Section 1 - Executive Summary

Document No. **158700-0000-BA00-RPT-0001**

Revision: E

Overview

This Executive Summary summarises the key outcomes of the broader Etango-8 Definitive Feasibility Study (DFS), which spans more than 950 pages, excluding attachments.

The Table below outlines the Chapters of the DFS Report.

DFS Chapters

1.	**Executive Summary**
2.	**Namibia**
3.	**Project History**
4.	**General Project Description**
5.	**Geology and Resources**
6.	**Mining**
7.	**Metallurgical Testwork**
8.	**Process Development**
9.	**Process Plant Description - Comminution and Heap Leach**
10.	**Process Plant Description - Ion Exchange, Nano-filtration and Metal Recovery**
11.	**Engineering Design**
12.	**Site Infrastructure**
13.	**External Infrastructure**
14.	**Project Implementation**
15.	**Operations and Training**
16.	**Environmental and Social Impact**
17.	**Capital Cost Estimate**
18.	**Operating Cost Estimate**
19.	**Market Studies**
20.	**Financial Analysis**
21.	**Risk Management**

Table of Contents

List of Figures

List of Tables

0. Introduction

The Etango-8 Project (the Project) is located in the Erongo region of Namibia. There are several major existing and prospective developments in the Erongo region including the Rössing, Langer Heinrich and Husab uranium mines, and the Etango, Tubas/Tumas and Valencia uranium prospects. The site itself is situated in the Namib-Naukluft National Park (NNNP), located approximately 37 km east of Swakopmund and 67 km northeast of the deep-water port of Walvis Bay.

The mining schedule covers a period of approximately fifteen years. Mining operations will be carried out by a contractor based on a fleet of mine haul trucks engaged in conventional open pit mining techniques. The process plant will process 8Mtpa.

The processing route includes comminution through three stages of crushing (P_{80} = 5.3 mm), with agglomeration (using a combination of sulphuric acid and binder) ahead of an on-off heap leach pad. Recovery of uranium from solution is via Ion Exchange (IX), Nano Filtration (NF) and hydrogen peroxide precipitation.

The project footprint of this Definitive Feasibility Study (DFS) originated from the outcomes of the Pre-Feasibility Study (PFS) that was completed in 2021. The Work Breakdown Structure (WBS) developed for the PFS has been used for the DFS. Figure 0-1 below confirms the Level 1 and 2 definition of the WBS.

L1	Etango-8 Project						
L2	02	03	04	06	08	09	10
	Mining	Process Plant	Waste Handling	Infra-structure	Project Management	Operations & Support	Facilities at Port Site

Figure 0-1: Work Breakdown Structure (WBS) Level 1 & 2 (L1, L2)

The Etango-8 DFS commenced in October 2021 with the DFS team led and managed by Bannerman personnel with the following key external contributors and consultants:

Table 0-1: Key External Contributors and Consultants	
Wood PLC	Process plant design and related infrastructure, plant capital and operating cost estimate
Snowden Optiro	Resource estimate
Qubeka Mining Consultants	Geology review, reserve estimate, mine planning, mining capital and operating estimate;
MineTechnics	Geotechnical Review of Open Pit
Creo Engineering Solutions	Engineering support to owner’s team
Lund Consulting Engineers	Water supply infrastructure
Addiza Energy Solutions	External electrical supply infrastructure
A. Speiser Environmental Consultants	Environmental Impact Assessments
Namisun Environmental Projects	Conceptual Mine Closure Plan

Wood PLC (Wood) is a global leader in the delivery of project, engineering, and technical services, with offices in all major resource centres including Perth and Johannesburg. Wood, through its legacy companies Amec and Amec Foster Wheeler, has been involved with the Etango Project since 2009, including the DFS of 2012, as well as a DFS Optimisation Study (2015), a Processing Options Study (2017) and the PFS (2021). In addition to the value of this continuity and context, Wood has ensured that the key technical experts involved in that work, who are all leaders in their respective fields, were engaged during the DFS.

Qubeka Mining Consultants CC (Qubeka) is a specialist mining engineering firm with extensive experience in deposits similar to Etango. Qubeka was engaged to complete the geological review, pit inventory estimates, mine planning and financial analysis for the PFS completed in 2021.

The key parameters associated with the DFS evaluation of the Etango-8 Project are summarised in Table 0-2.

Table 0-2: Project Summary

Etango Mineral Resources @100 ppm lower cut-off	Measured	Mt @ ppm U_3O_8	26.6 @ 226	
	Indicated	Mt @ ppm U_3O_8	276.9 @ 223	
	Inferred	Mt @ ppm U_3O_8	112.5 @ 230	
Etango-8 Mineral Reserves @100ppm cut-off	Proven or Proved	Mt @ ppm U_3O_8	15.6 @ 237	
	Probable	Mt @ ppm U_3O_8	97.9 @ 240	
Mine Production	Plant Feed scheduled	Mt	113.5	
	Mined Grade	ppm	240	
	Mined Grade (first 5 years)	ppm	259	
Deposit	Uraniferous leucogranites (alaskites) intrude the metasediments of the Damara Supergroup, often occurring as cross-cutting dykes and as bedding and/or foliation parallel sills. These intrusions can be up to 100 m in width.			
Mining Methods	Conventional open pit truck and shovel operation, using 130-250 t excavators on 3 m x 4 m flitches to mine the deposit, 100 t trucks for haulage. Drilling undertaken using 165 mm DTH drills.			
Mine Life	15 years, with potential to increase.			
Manning	Approximately 700			
Schedule	Project Commencement Milestone (detail design and execution)	Month No.	0	
	Project Detail Design	Month No.	1 – 19	
	Procurement (including Fabrication and Delivery)	Month No.	1 – 21	
	Construction	Month No.	7 – 33	
	Commissioning	Month No.	27 – 34	
Production and Operating Costs			'000 lb U_3O_8	US$/lb U_3O_8
	Year 1		2 781	33.83
	Year 2		4 299	27.74
	Year 3		3 367	35.02
	Year 4		4 195	29.60
	Year 5		4 054	30.07
	Average – first 5 years		3 739	30.88
Operating Statistics	Rate	Mt/a		8.0
	Metallurgical Recovery	%		87.8
	Cash operating cost (first 5 years)	US$/lb		30.88
	Cash operating cost (LOM)	US$/lb		33.76
Capital Costs	Initial capital	US$M		317
	Deferred and Sustaining capital expenditure	US$M		51

Table 0-2: Project Summary			
Economic Results	Financial Model U_3O_8 Selling Price	US$/lb	65
	Internal rate of return	%	17
	NPV $_{8\%}$	US$M	209

1. Project History

In March 2015 Bannerman commissioned an industrial scale plant to demonstrate the heap leach configuration and assumptions. The results of the test work strongly supported the previous studies' metallurgical parameters and allowed Bannerman to do additional test work to improve the Etango flowsheet.

Early in 2015, Bannerman commenced collation of work initiated immediately following completion of the DFS (for a 20Mtpa operation) in April 2012 into an Optimisation Study. The objectives of the Optimisation Study were to:

- Update the 2012 DFS to ensure currency and compliance with statutory codes (JORC 2012 and NI43-101).
- Identify further opportunities to improve project economics and reduce project risk.
- Reduce the timeline to a development decision.

This Optimisation Study built on the 2012 DFS and complemented it in a number of key areas. Firstly, by way of a comprehensive review of the geological interpretation and modelling methodology in the context of the proven practice of radiometric truck scanning, which in effect results in the SMU size being reduced to that of a 220t truckload of ore. Secondly, economic parameters were updated reflecting the post-mining boom economic climate, including:

- Capital cost for mobile and fixed plant.
- Operating cost estimates for utilities, consumables, and maintenance.
- Namibian labour rates.
- Foreign exchange rates.
- Owners cost and EPCM.

Costs were updated by sourcing updated quotes from vendors.

Thirdly, further multiple mine planning iterations incorporated the updated resource model and updated 2015 cost assumptions. Sophisticated but proven mine planning concepts such as variable cut-off grade policies were included in the work.

The key outcomes from the 2015 Optimisation Study, when compared to the 2012 DFS, were the following:

- NPV_8 at US$75/lb increased from US$69M to US$419M representing an increase of over 500% with a payback period of 4.4 years after production commences.
- Total pre-production capital costs for the mine, process plant, infrastructure and working capital reduced by US$77M to US$793M, whilst sustaining capital (including mine closure) over the Life of Mine (LOM) reduced by US$99M to US$282M. This equated to a development capital intensity of US$110 per annual lb for the period of sustained operations, or US$9.5/lb produced over the LOM.
- Operating costs in the first 5 years estimated to be US$15.37/t of ore or US$33.41/lb of U_3O_8 produced, whilst costs average US$14.15/t or US$37.99/lb of U_3O_8 over the LOM. These numbers compared favourably to the 2012 DFS equivalents of US$16.21/t of ore or US$40.85/lb of U_3O_8 for the first five years, and US$16.93/t of ore and US$45.71/lb of U_3O_8 for the LOM.
- The large-scale metallurgical test work demonstrated uniform and rapid leach kinetics with identified opportunities for further optimisation of reagent consumption.

During 2017 Bannerman, together with Amec Foster Wheeler, revisited the processing flowsheet following the encouraging uranium recovery results achieved at the Heap Leach Demonstration Plant and the nano-filtration work conducted at Bannerman. The Processing Optimisation Study of 2017 resulted in a flowsheet change from solvent extraction (SX) to ion-exchange (IX) followed by nano-filtration (NF). This change together with some other equipment changes in the flowsheet resulted in a potential reduction of the capital cost by US$73M.

Further IX and NF test work were conducted at the Demonstration Plant during 2017 and 2018.

In 2019 Bannerman started the evaluation of project scaling and scope opportunities under various development parameters and market conditions as an alternative streamlined development model to the 20Mtpa development assessed to DFS level in 2015 (2015 DFS Optimisation Study). Developing the world-class Etango Project at an initial 8Mtpa throughput offers significant advantages. It sharply reduces the upfront capital and funding hurdle compared to that associated with the original 20Mtpa Etango development evaluated in the DFS in 2012, and the DFS Optimisation Study in 2015.

The Etango-8 Scoping Study was completed in August 2020. While the Etango-8 Project provides a reduced scale of production entry, it does so without removing the option of subsequent expansion, including to the originally envisaged 20Mtpa Etango scale. As such, the overall scalability of the world class Etango resource remains robust even with a more modular approach to development of the project. Some of the key results of the Scoping Study were:

- Life-of-mine (LOM) production of 51.1 Mlbs U_3O_8 with annual average production of 3.5Mlbs U_3O_8.
- Forecast pre-production capital expenditure of US$254M, delivering an attractive upfront capital intensity of approx. US$71/lb average annual U_3O_8 production.
- Life-of-mine (LOM) of approx. 14 years (114.1 Mt plant feed at 232 ppm U_3O_8).
- Average final product cash operating cost (ex-royalties) of US$37/lb U_3O_8.
- Attractive projected economics at forecast US$65/lb U_3O_8 realised price: Ungeared, real, post-tax $NPV_{8\%}$ of US$212M, post-tax internal rate of return (IRR) of 21.2% and payback of 3.6 years with a forecast net project cashflow (post-capex, post-tax) of US$604M.

Following the positive outcome of the Scoping Study Bannerman commenced the Etango-8 PFS in October 2020.

The Etango-8 PFS was completed in August 2021 and confirmed the strong technical and economic viability of conventional open pit mining and heap leach processing of the deposit at 8Mtpa throughput. The level of planning rigour was bolstered through the PFS process via the inclusion of dual pit ramps in the northern and central pits, detailed plant design and higher accuracy estimation. The key outcomes were the following:

- Life-of-mine (LOM) production of 53 Mlbs U_3O_8 with annual average production of 3.5Mlbs U_3O_8.
- Life-of-mine (LOM) of 15 years.
- Plant throughput capacity of 8Mpta with a processing yield of 87.8%.
- Forecast pre-production capital expenditure of US$274M.
- Projected economics at forecast US$65/lb U_3O_8 realised price: Ungeared, real, post-tax $NPV_{8\%}$ of US$222M, post-tax internal rate of return (IRR) of 20.3% and payback of 3.8 years.
- Forecast net project cashflow (post-capex, post-tax) of US$642M.

In October 2021 the Etango-8 DFS commenced to further develop the technical deliverables of the Project and to obtain more accurate, market-tested costing. A value engineering and capital optimisation process were followed to improve the project returns. The key outcomes are discussed in further detail in this Executive Summary.

2. Geology

Uranium mineralisation at Etango is predominantly hosted by a stacked sequence of leucogranitic bodies that have intruded the host Damara Sequence of metasedimentary rocks. The main mineralised bodies are associated with the Khan Formation and the lower part of the Chuos Formation but also occur within 400 m of the contact between the Etusis and Khan Formations. Uranium mineralisation at Etango is defined within an approximately >5km long zone trending SE to NE that dips moderately (30° to 50°) to the west. These leucogranitic bodies are generally referred to as alaskite, which is defined petrologically as a granitic rock that contains less than 5% mafic minerals.

The dominant primary uranium mineral at Etango is uraninite (UO_2), with minor primary uranothorite ($(Th,U)SiO_4$) as well as some uranium in solid solution in thorite (ThO_2). Minor uranium is also present in the minerals monazite, xenotime and zircon, either as minute inclusions or in crystal lattice substitution. Secondary uranium-bearing minerals observed include coffinite and betauraniphane (both uranium silicate minerals).

The 2015 Optimisation Study for Etango had the following key aspects regarding the resource:

- Uranium mineralisation was defined inside a grade envelope defined by Categorical Indicator Kriging, using a lower cut-off of 55 ppm U_3O_8 and a lithological constraint to ensure that the majority of samples in the Alaskite dominant (AD) category have a dominant Alaskite lithology.
- The Alaskite sub-dominant (ASD) mineralisation, which has the same cut-off grade but not the same Alaskite constraint, was modelled outside of the AD and is mutually exclusive with the AD mineralisation.
- For both the AD and ASD mineralisation a Uniform Conditioning (UC) estimation approach was adopted.
- This is a recoverable resource estimation technique based upon ordinary kriging into large blocks (panels), which seeks to predict the resources available at the time of mining using the assumption of a Selective Mining Unit (SMU) related to the production rate and equipment.

The SMU chosen at the time was 6.25 mE by 12.5 mN by 4 mRL following initial grade estimation into 25 mE by 25 mN by 8 mRL panels. This was in line with the truck size of 220 tonne for the larger Etango Project.

In 2021 Bannerman requested a change of support to reflect a smaller selective mining unit (SMU), in line with the recommendations of the 2021 Etango-8 PFS. In this case the SMU chosen was 2.5 mE by 5 mN by 4 mRL following initial grade estimation into 25 mE by 25 mN by 8 mRL panels. This SMU size reflects the smaller trucks (100 tonne class) proposed for the Etango-8 Project. The November 2021 model has been reported within a US$75 optimal pit generated in 2015 and above a cut-off of 55 ppm U_3O_8, as detailed in Table 2-1, and above 100 ppm in Table 2-2.

Both the 2015 declaration of resources and the 2021 declaration (below) have been reported in accordance with the JORC Code (2012), which is mandatory for reporting by ASX-listed entities such as Bannerman.

Table 2-1: Etango November 2021 Mineral Resource, reported within a US$75 pit shell above a 55 ppm U_3O_8 cut-off

Etango Project Mineral Resource Estimate November 2021 Reported at a cut-off grade of 55 ppm U_3O_8, Constrained within the resource pit shell			
Resource Category	**Tonnes (Mt)**	**Grade (U_3O_8 ppm)**	**Contained U_3O_8 (Mlbs)**
Measured	32.4	201	14.3
Indicated	345.7	195	148.5
Inferred	140.6	200	62.0
Total	**540.2**	**197**	**224.9**

Table 2-2: Etango November 2021 Mineral Resource, reported within a US$75 pit shell and 100 ppm U_3O_8 cut-off

Etango Project Mineral Resource Estimate November 2021 Reported at a cut-off grade of 100 ppm U_3O_8, Constrained within the resource pit shell			
Resource Category	**Tonnes (Mt)**	**Grade (U_3O_8 ppm)**	**Contained U_3O_8 (Mlbs)**
Measured	26.6	226	13.3
Indicated	276.9	223	136.4
Inferred	112.5	230	57.1
Total	**428.7**	**225**	**206.8**

3. Waste Management

3.1 Summary

The movement, treatment and storage of material generated from the open pit mine-operation will ultimately be classified as some form of waste material:

- Pre-stripping during the mining process involves the excavation of topsoil and highly weathered soft material overlying the rock strata or overburden.
- Removal of waste rock – to be stockpiled on surface and / or relocated back to the mining pit as part of the rehabilitation (establishment of access control berm). Three waste rock dumps (A, B & C) will be utilised to stockpile in excess of 253 Mt of waste based on an overall strip ratio of 2.2.
- Removal of the Uranium (U_3O_8) ore from the three open pit areas (an elongated north pit, centrally located south pit, and the smaller satellite pit). The material will initially be stockpiled as ROM material or be temporarily stored on low / medium / high grade stockpiles, and then be crushed and agglomerated prior to being loaded onto a heap leach pad. The material will ultimately be reclaimed as ripios from the heap leach pad to be stockpiled on surface. A total of 113.51 Mt of ore will be processed via the on-off heap leach pad.

3.2 Mine Waste

The three waste rock dumps (A, B, C) have all been designed with three tiers of 15 m height each – a total height of 45 m for each dump.

- Waste rock dump A – a base perimeter of 4.31 km, a footprint area of 1.16 km^2 and a volume of 43 Mm^3
- Waste rock dump B – a base perimeter of 4.94 km, a footprint area of 1.47 km^2 and a volume of 45 Mm^3
- Waste rock dump C - a base perimeter of 4.53 km, a footprint area of 1.26 km^2 and a volume of 47 Mm^3

3.3 Ripios (Heap Leach Residue)

Reclaim of ripios from the heap leach pad will commence approximately 48 days after the first ore has been placed on the heap leach pad. The ripios is recovered from the leach pad by Front End Loader (FEL) and a series of conveyors for delivery to a load-out bin. The bin has a total capacity of 120 m^3, designed to hold a minimum live capacity of 2.5 x load truck capacity of 40 - 100 ton. The 8 million ton per annum equates to 21 918 ton per day, 913 ton per hour (nominal annualised). This load out cycle will be optimised together with a time and motion study during the FEED phase.

The physical characteristics of the ripios material are as follows:

- Bulk density – ranges between 1.75 to 1.85 t/m^3. An average of 1.80 t/m^3 has been used for the design.
- Particle size – P_{80} of 5.3 mm.
- Moisture content typically of 7 to 9%; fresh material recovered from the heap could be up to 12%.
- The moisture associated with the heap will be mildly acidic in nature.

The deposition strategy to the ripios dump is based on a phased approach.

- Evolution of the ripios dump is aligned to the mining schedule – 5.4 million dry tonnes for year 1, and 8.0 million dry tonnes for the subsequent years up to year 15.
- The first lift of the heap (years 1 to 2) is 10 m, the second lift (years 2 to 6) is 12 m, the third lift (years 6 to 11) is 15 m, the fourth lift (years 11 to 15) is 15 m. This reaches a total height for the dump of 52 m.
- Approximate deposition volumes for development of the stockpile: Bench 1 = 5.22 Mm^3, Bench 2 = 17.8 Mm^3; Bench 3 = 22.2 Mm^3; Bench 4 = 20.0 Mm^3. Total deposition volume = 65.2 Mm^3.

4. Mining

The Etango-8 Project DFS has been undertaken using the November 2021 Etango Mineral Resource model developed by Snowden Optiro (Perth, Australia) using the local Uniform Conditioning (UC) algorithm and excluding Inferred Resources. From a resource and reserve perspective, the study has complied with guidelines as defined within the Australian Code for the Reporting of Identified Mineral Resources and Reserves issued by the Joint Committee for the Australian Institute of Geoscientists and the Australian Mining Industry Council (JORC Code, 2012 Edition) and the estimates have been prepared by appropriately experienced and qualified competent persons with a thorough knowledge of the Project.

The deposit is a large, shallow uranium deposit that is amenable to bulk open pit mining, followed by crushing, heap leaching, ion-exchange, nano-filtration, and uranium recovery. The heap leaching operation can treat approximately 8Mtpa dry ROM feed material to produce on average 3.5 million pounds of triuranium octoxide (U_3O_8) per annum to be drummed and shipped.

For the purpose of the Etango-8 DFS, it was assumed that mining would take place by conventional open pit methods and that the whole mining operation, except for the mine technical services function, will be outsourced to a reputable mining contractor company. This includes drilling, blasting, loading, and hauling of ore and waste.

Drilling and blasting will be performed on 12 m high benches. Waste benches will be excavated in a bulk mining fashion with shovels on a single 12 m bench while mineralised benches will be selectively loaded in three 4m flitches using backhoe excavators to minimise ore loss and dilution. The truck and shovel match on the ore and waste benches have been considered as follows:

- A 130t hydraulic backhoe shovel would be employed for selective loading purposes.
- The waste benches would be mined in a bulk mining approach where 250t hydraulic face shovels will be utilised to load the full 12 m bench.
- In both cases, 100t capacity, off-highway rigid haul trucks would be used, and standard open-cut drilling and auxiliary equipment will be required.

Radiometric truck scanning (discrimination) and downhole gamma probing will be employed as the definitive grade control process as is common practise in large scale open pit uranium mines. The objective of the pit design process was to transform the pit shells obtained from the optimisation into a practical pit, with the inclusion of ramps, bench, and berm configurations, by taking all the required inputs into account. The practical pit design forms part of a critical input for the scheduling and reserving processes.

The Etango-8 DFS ultimate pit design is depicted in Figure 4-1 and was designed with a dual pit access strategy along the eastern and western pit highwalls. The ultimate pit will be mined in eight pushbacks, which represent areas that the optimisation process considers to be of high value.

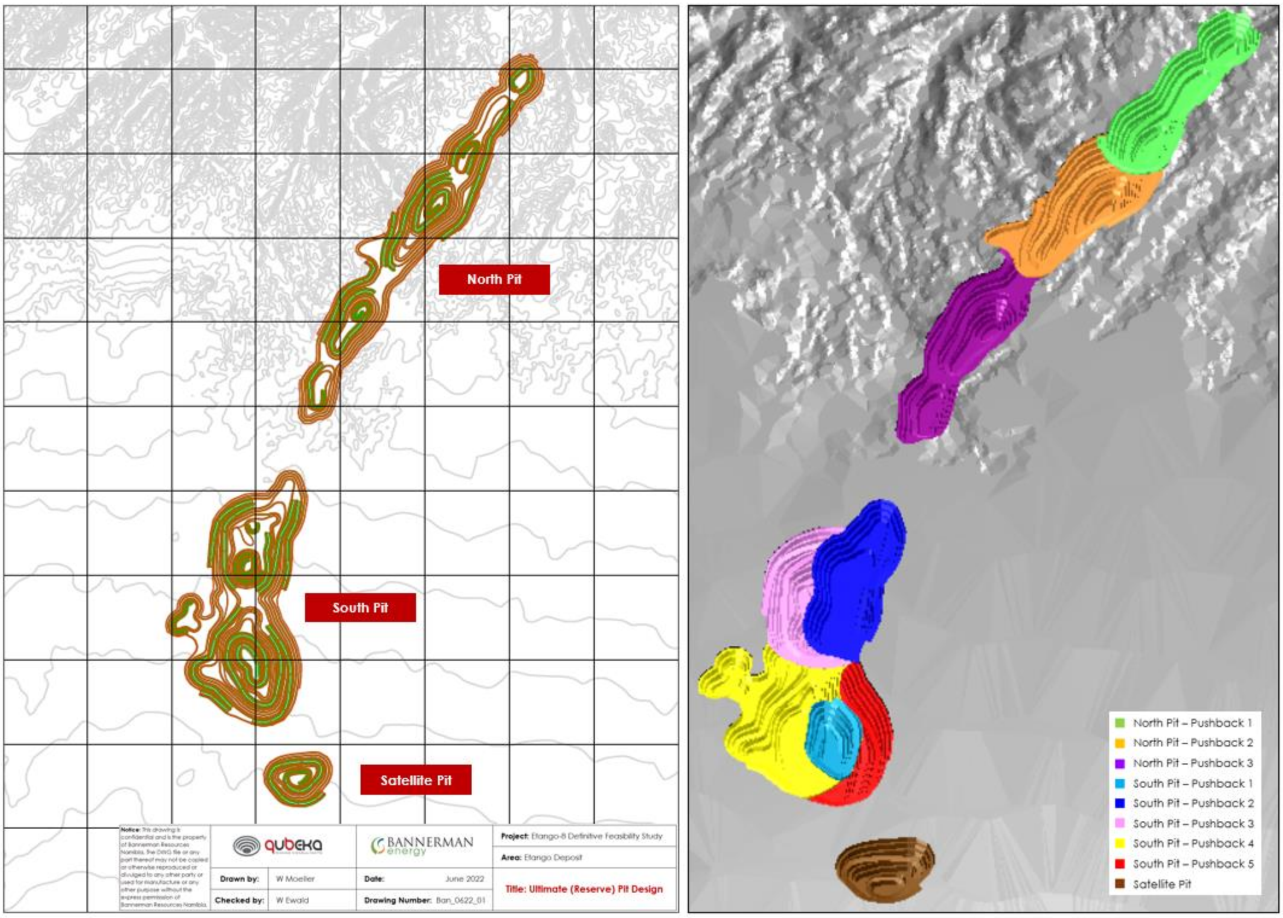


Figure 4-1: Etango-8 DFS ultimate pit and push-back design

The Etango-8 Reserve estimate has been determined and reported in accordance with the guidelines provided by the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code), effective December 2012. The Etango-8 Ore Reserve was determined as of 30 June 2022 based on a uranium cut-off grade of 100ppm and is summarised in Table 4-1.

Table 4-1: Declared JORC (2012) Etango-8 Reserves as on the 30th June 2022 at a U_3O_8 cut-off grade of 100ppm

Mine Project	Classification	Tonnes (Mt)	Grade (U_3O_8 ppm)	Contained Metal (Mlb)
Etango-8 DFS	Proven	15.6	237	8.2
	Probable	97.9	240	51.8
	Total Ore Reserve	**113.5**	**240**	**59.9**

The final Etango-8 mine production schedule (BAN_8mtpa_pfs_design_v05_25.0Mt_100ppm_small.xls) was produced with a total material movement of 25Mtpa (Figure 4-2), providing approximately 15 years supply of ore at 8Mtpa.

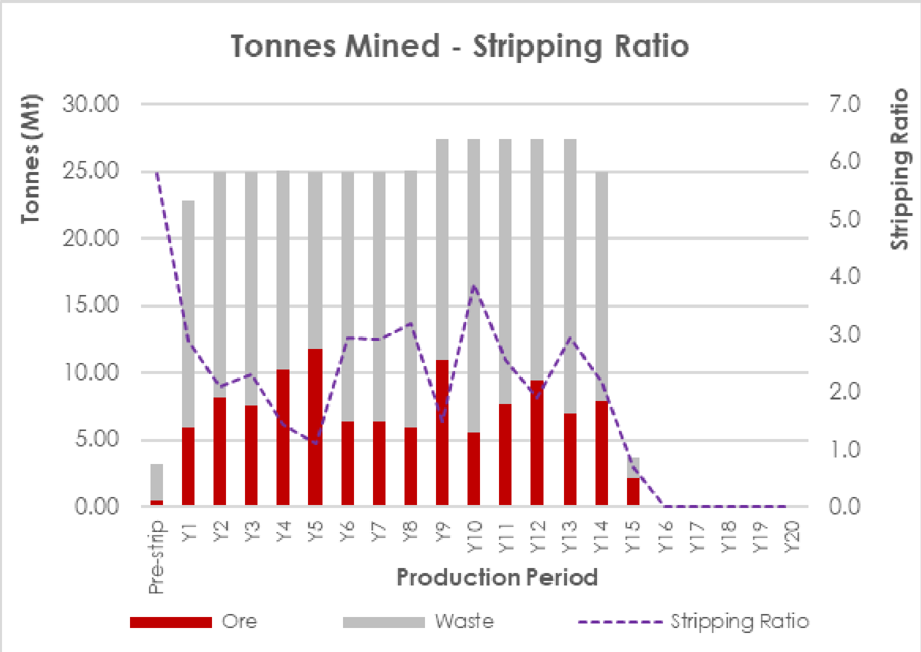


Figure 4-2: Etango-8 total tonnes mined over the LOM

The pre-strip period is 6 months with a total of 3.18 Mt mined from the first pushback. After the pre-strip period the ore inventory on the grade control and ROM stockpiles is 470 kt. The plant production (heap leach stacking) ramp-up is nine months after commissioning.

The Etango-8 DFS utilises an estimated average contractor unit mining cost of US$2.31/t material mined (US$2.36/t inclusive of mining owner team's costs). All pre-strip (start-up) production costs up to processing plant commissioning were regarded as capital cost. This encompasses contractor mobile plant, fixed facilities, and personnel mobilisation costs. It also caters for the establishment costs of the owner team management and technical services department. The mining start-up CAPEX estimate for the Etango-8 DFS is US$11.1M. The key Etango-8 mining parameters are summarised in Table 4-2.

Table 4-2: Key Etango-8 Mining Parameters

Key mining parameters	Unit	Total / LOM	Annual average
Operations			
Mining pre-strip period	months	3	NA
Initial production life	years	15	NA
Mining			
Ore mined	Mt	113.5	7.6
Strip ratio	x	2.22	2.22
Waste mined	Mt	253.3	16.9
Processing			
Ore processed	Mt	113.5	7.6
Average uranium head grade	ppm U_3O_8	240	240
Forecast uranium recovery	%	87.8%	87.8%
Output			
Uranium production	Mlbs U_3O_8	52.6	3.5
Mining start-up CAPEX	US$M	11.09	NA
Mining OPEX (average)	US$/t	2.36	NA

5. Process and Metallurgy

5.1 Metallurgical Test work

Bannerman has performed an extensive metallurgical test work program to: (i) support the Definitive Feasibility Study (DFS) of 2012 and now also the Etango-8 Definitive Feasibility Study (DFS) of its Etango uranium resource; (ii) to de-risk the Project parameters by demonstrating at a larger scale the robustness of the assumed parameters; and (iii) to identify any improvements that can be included in the design of the Project.

Earlier programs of work identified that heap leaching is the most cost-effective method of extracting uranium from the Etango ores, and the metallurgical test work program has continued to develop the technical understanding of the heap leaching process.

Mineralogical assessment suggested that the uranium resource was amenable to extraction by sulphuric acid heap leach, with potentially high uranium recoveries from acid leaching of relatively coarse particles. This assessment was confirmed by high extractions from crushed ore samples initially in column test work and later, at a larger scale, in the Heap Leach Demonstration Plant (HLDP – established at the Etango mine site) which simulated a heap leach operation.

The resultant information defined ore breakage characteristics sufficiently to design a three-stage crushing facility with High Pressure Grinding Rolls (HPGR) as the tertiary stage of crushing. Specifically, the comminution characteristics of the ore make it amenable to conventional and/or HPGR crushing. As a result, the comminution circuit design can assess a broad range of equipment with the aim of finding the most efficient and practical design that will deliver the target processing feed distribution. In summary, the comminution characteristics suggest:

- The ore is amenable to conventional and HPGR crushing.
- Moderate abrasion indices – low to moderate wear rates in comminution.
- Low variability in comminution indices of the samples tested.

Previous test work investigated a range of pre-concentration options such as screening, gravity, flotation, and combinations of these. The reports concluded that pre-concentration is not likely to be cost effective.

Since then, smaller scale metallurgical test work in Australia, and subsequently in Namibia, has progressed and provided:

- An increased technical understanding of the heap leaching process.
- Estimates of operational parameters (extraction, acid consumption, leaching time, etc) that could be expected from a heap leach process on the Etango ore.
- Performance expectations for ion-exchange followed by nano-filtration.

Additional test work identified during the 2021 PFS was completed in parallel to this DFS. These test work campaigns focused on:

- Verifying earlier test work and scaling the IX circuit from bench to pilot scale.
- Confirming iron scrub efficiency from resin prior to elution.
- Improving acid recovery across the NF circuit.
- Verifying literature-based process parameters for the uranium precipitation circuit.

From preliminary IX test work results the scope was expanded to include the development of an iron precipitation circuit to improve expected final product quality.

5.2 Study Phase Flowsheet Development

The 2012 DFS was completed by Amec Foster Wheeler Australia Pty Ltd (Amec Foster Wheeler) based on a Run of Mine (ROM) throughput of 20 Mtpa. Test work carried out at the HLDP, run over five distinct phases, was completed in 2016. In parallel, Bannerman initiated a DFS optimisation phase which primarily focused on mining improvements and this work was completed in November 2015. The optimisation phase included an update of the DFS capital cost but excluded any processing modifications.

During 2017 Bannerman, together with Amec Foster Wheeler, revisited the processing flowsheet following the encouraging uranium recovery results achieved at the HLDP and the nano-filtration work conducted by Bannerman. The Processing Optimisation Study 2017 resulted in a flowsheet change from Solvent Extraction (SX) to Ion-Exchange (IX) followed by Nano-Filtration (NF). This change together with some other equipment changes in the flowsheet resulted in a potential reduction of the capital cost.

Further IX and NF test work were conducted at the Demonstration Plant during 2017 and 2018. In 2019 Bannerman started the evaluation of project scaling and scope opportunities under various development parameters and market conditions as an alternative streamlined development model to the 20 Mtpa throughput assessed to DFS level in 2015.

The Etango-8 Scoping Study (SS) was completed in August 2020 and then progressed into a PFS at a ROM throughput of 8Mtpa. During the PFS a pilot scale test work campaign was recommended to optimise the IX, nano filtration and uranium precipitation circuits.

With the change to an IX circuit, it was also recommended to change the ADU circuit to a hydrogen peroxide precipitation circuit with a product dryer. The Etango-8 Scoping Study 2020, PFS 2021, as well as the current DFS, have proceeded on this basis.

High levels of iron observed in the IX feed led to the inclusion of an additional iron removal circuit in the DFS to ensure the feasibility of producing a final product which will not attract impurity penalties.

The high-level process design flowsheet for the DFS is included in Figure 5-1.

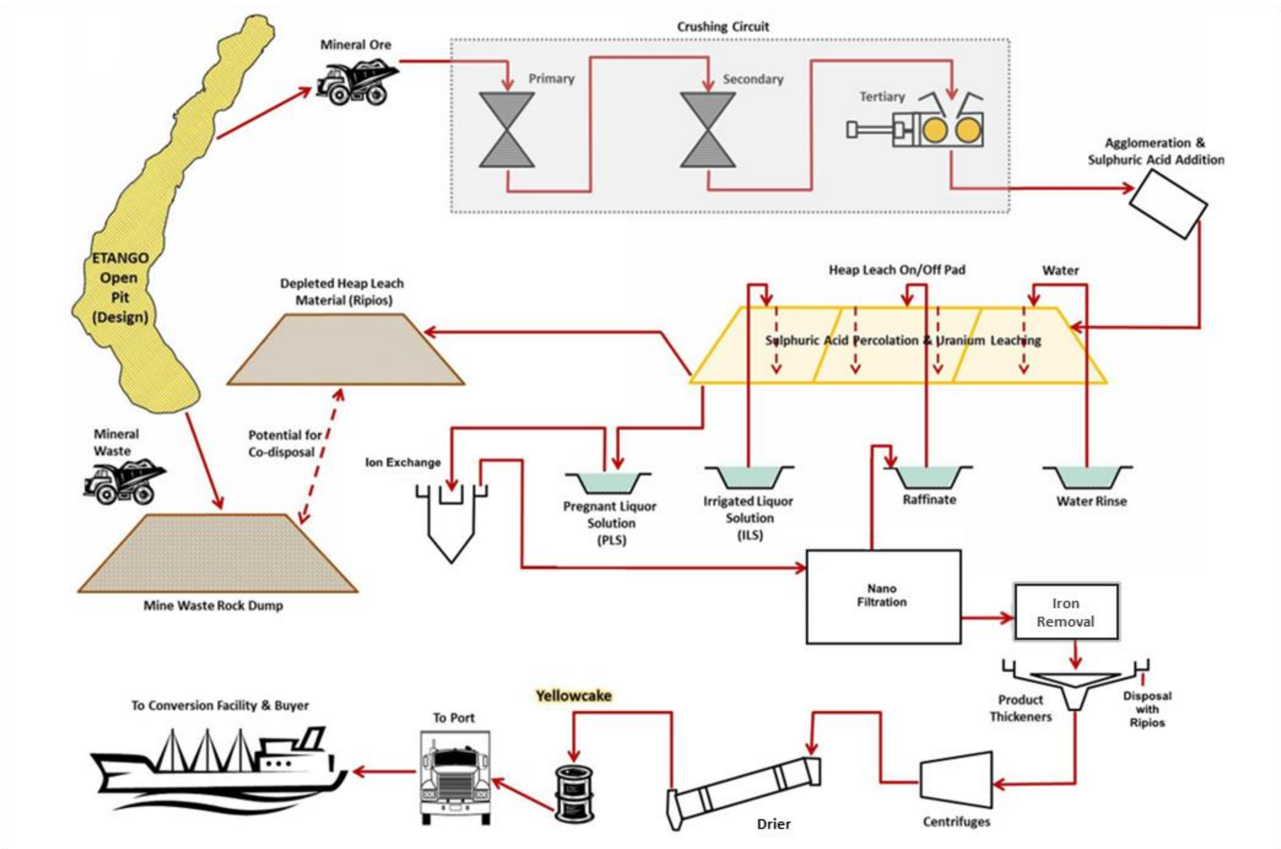


Figure 5-1: Block flow diagram

5.3 Process Design Basis

A key consideration during the development of the process design for the Etango-8 PFS and current DFS was the design availabilities (and throughput of individual process areas) throughout the circuit. Table 5-1 confirms availabilities adopted for the main unit operations. The consideration of surge capacity requirements for the materials handling / comminution circuits has been dictated by these design availabilities.

Table 5-1: Process Design Availabilities

Area	Availability (%)	Operating time (h/a)	Design capacity (t/h)
Primary crushing	70%	6133	1304
Secondary and tertiary crushing	80%	7008	1142
Stacking	*80%	7008	1142
Leach residue reclaiming	*80%	7008	1142
Process plant, services, and utilities	95%	8322	961

* Operating strategies for the stacking / reclaiming equipment dictate an operating availability approaching 90%

The variation in design capacity for the comminution / materials handling circuits is managed through stockpiles and intermediate storage bins.

- A coarse ore stockpile with a live capacity of approximately 8 hours (9 132 dry tonnes) is specified between the primary and secondary crushing circuits.
- A reserve stockpile with a live capacity of approximately 10 436 tonnes ensures that the downstream plant can be operated during periods of primary crusher maintenance.
- A secondary screening circuit feed bin with a total capacity of 357 m^3 live volume (30 minutes).
- A secondary crushing feed bin with a total capacity of 162 m^3 live volume (15 minutes).
- A tertiary crushing feed bin with a live capacity of 357 m^3 live volume (15 minutes).
- Tertiary screening feed bins with a total live capacity of 357 m^3 (15 minutes).
- Comminution circuit product is delivered to an agglomeration circuit fine ore bin with a 535 m^3 live volume surge capacity (45 minutes).
- The stacking and reclaiming plans associated with the operation of the heap have considered minimisation of lead times required to move and re-position equipment.

5.4 Process Design and Mass Balance Modelling

5.4.1 Comminution and Agglomeration Circuits

5.4.1.1 Comminution and Agglomeration

Mass balance modelling for the comminution and agglomeration circuits included a combination of excel and supplier specific simulation software. This included Bruno, Metso's comminution simulation software, to mimic the steady state solution based on the selected equipment configuration. The comminution circuit was also modelled utilising the appropriate Sandvik software allowing for preliminary comparative costing.

The comminution circuit is constrained to 8 Mtpa capacity by the secondary crushers. Expansion above this would require a second processing line, focused on the secondary and tertiary circuits. The selected primary gyratory crusher operates at 60% of capacity, therefore above 10Mtpa is possible through the selected unit.

During the 2021 PFS and the current DFS, the ROM Particle Size Distribution (PSD) used for the comminution circuit sizing, was a Metso simulated PSD based on database values of the surrounding areas' ore.

5.4.1.2 Comminution Dust Suppression

An integrated dust suppression design for the materials handling / comminution circuits was developed as part of the DFS. Nalco was engaged and submitted a proposal that included the following:

- An overall flowsheet / indicative Process Control Diagram (PCD).
- Point addition suppression requirements based for both a nominal and maximum solids throughput.
- Inclusion of an additive dosing system as an option to reduce dust levels and water consumption.

The current DFS Piping and Instrumentation Diagrams (P&IDs) captures the split in scope between the fresh water and dust suppression water supply systems.

5.4.2 Heap Leach Pad

The heap leach and hydrometallurgical process plant is modelled in SysCAD to simulate the nominal, steady state process.

The stacking system comprises a fixed stacking feed conveyor with tripper along the length of the pad. A wing rotative conveyor facilitates the transfer of ore to a mobile stacking system consisting of 8 (maximum) grasshoppers and 2 stackers in line, where one of them will function for adjusting the continuous stacking to the grasshopper withdrawal. The reclaim system is similar to the stacking system. A time-in-motion study confirms that two CAT 980 H Front End Loaders (FELs) are required for reclaim of the leached ore, depositing it into a mobile reclaim hopper feeder. Seven (maximum) grasshopper conveyors are required – transferring the ripios to a heap leach reclaim conveyor, a fixed conveyor running along the length of the pad and equipped with a hopper adjacent to each of the nine cells. The ripios is then transferred via a second conveyor (equipped with a weightometer) to the ripios load out bin.

The overall heap leach pad dimensions are 260 m x 1000 m – based on a 5 m lift height, 9 cells (each 260 m x 100 m), 10 m separation distance between adjacent cells. The pad corridor width including the stacking (65 m) and reclaim (35 m) conveyors is a total of ± 370 m.

5.4.3 Leach Residue Stacking

Reclaimed leach residue is transferred from the heap leach reclaiming overland conveyors to the leach residue ripios truck loading bin. This bin will be a 120 m^3 bin designed to hold a minimum live capacity of 2.5 x load truck capacity of 40 - 100 tonne. Clamshell gates will facilitate rapid loading. The trucks will dump the material on the leach residue pad.

The tiers (benches) of the stockpile will be constructed in phases – the extension of the material deposited will progress in successive tiers of uniform thickness. The waste material will be placed by mining haul truck and the surface graded to a cross slope of approximately 4% in order to allow for surface run-off and to minimize erosion. Table 5-2 outlines the lift heights planned over the LOM.

Table 5-2: Ripios Facility Lift Heights

Year	Lift per Year	Total Lift
1 to 2	10	10
2 to 6	12	22
6 to 11	15	37
11 to 15	15	52

Drainage from the leach residue facility is collected in the leach residue emergency pond and returned to the heap leaching system.

5.4.4 Heap Leach Irrigation

The heap leach solution system includes the ponds listed below:

- Pregnant Leach Solution (PLS – 5000 m^3) – serviced by two PLS transfer pumps (running / standby).
- Intermediate Leach Solution (ILS – 5000 m^3) - serviced by two ILS transfer pumps (running / standby).
- Raffinate (5000 m^3) – serviced by two raffinate transfer pumps (running / standby).
- Rinse water (1000 m^3) serviced by two rinse water transfer pumps (running / standby).
- Emergency containment (60 000 m^3) serviced by a single mobile transfer pump.

A design residence time of 6 hours is specified for the raffinate, ILS, and PLS ponds, and 4 hours for the rinse water pond. The emergency pond is designed to contain 24 hours drainage from the heap and a 24-hour maximum rainfall event run-off.

The ponds are connected via a series of overflows: PLS to ILS; ILS to raffinate; rinse to raffinate; raffinate to emergency pond. Emergency pond return solution will be delivered back to either the ILS, rinse or PLS ponds dependent on solution composition and tenor.

Delivery of solution to the leach pad is from the ILS pond (primary leach), the raffinate pond (secondary leach) and the rinse pond. Design irrigation rate is 15 L/h/m^2. Solution collection from the individual heap leach pad cells is to either the PLS, ILS or rinse water collection trenches, which gravitates back to the corresponding solution pond.

Table 5-3: Heap Leach Cycle Time

Leach Cycle Phase	**Days**
Stacked and Cured	3
Primary Leach	16
Secondary Leach	16
Drain 1	2
Rinse	5
Drain 2	5
Reclaim	3
Empty	22
Total	**72**

Table 5-3 confirms the proposed heap leach design cycle time, with stacking / reclaiming advancing down the pad. Constraints affecting pad operation include the following:

- Each cell is stacked (and reclaimed) in modules – 8 modules per cell. Each module represents one day of stacking ± 21 918 dry tonnes of ore. Between 11 and 12 cells will be stacked / reclaimed per quarter.
- The strategy for reclaim of stacked ore will be modified slightly to allow for removal of irrigation piping headers – accommodated by using up to 6 days within the 22 day 'empty' cell allowance.

- Movement of stacking / reclaim equipment over different areas of the pad, with slightly longer lead times associated with moving back from cell 9 to cell 1.

5.4.4.1 Heap Leach Solution Composition

For the DFS, the assumptions made during the PFS of relatively clean solutions have been maintained with respect to total suspended solids (TSS - 260 ppm, and particle size in the range of P_{100} 130 - 200 µm). The maximum particle size may also affect the dripper selection and in an extreme case could also lead to requirement of automatic filters after the ILS and raffinate pumps. Management of TSS has also been mitigated in the design of the ponds, including sedimentation wells and pump extraction point on the far side from the liquor inlets to the ponds.

The dissolved composition of the leach solution may have a significant impact on the performance of both the heap leach and IX circuits. If one or more components reach saturation and precipitation, scale formation may occur within liquor distribution systems (pipes, pumps, etc.) or within the heap itself, negatively impacting on percolation characteristics.

As recommended, further continuous heap leach-IX test work was completed to characterise the steady-state liquor composition and confirm the following:

- Approach of impurity levels to reaching saturation and precipitation during leaching.
- Total Dissolved Solids (TDS) levels.

Closed-circuit column leach tests, using acidified barren solution returned from pilot scale IX tests, confirmed an increase in dissolved iron and silica across the column leach – IX circuits. These outcomes demonstrated the need for impurity control across the heap leach and IX circuits.

5.4.4.2 Heap Solutions Bleed

For the PFS, it was assumed that no bleed of solutions to control impurities was required, and the only bleed stream was the solution contained within the leach residue. During the DFS development of the water balance it was however found that a small bleed stream would be required.

The SysCAD modelling considered various process streams to identify the most optimal bleed stream. The barren streams from the uranium precipitation circuit are the most likely bleed point. Additionally, barren liquor from the IX circuit would also be bled to close the overall water balance.

These selected bleed streams and the modelled impurity concentration profiles will be compared to the closed-circuit test work completed. This will allow for the establishment of impurity concentration profiles and investigation of the effect on the heap (precipitation of compounds, such as jarosite, in the driplines, or within the heap) and to the final product specification. Further evaluation and implementation (if required) will be done during the FEED phase.

5.4.4.3 Ferrous Sulphate Addition

The dissolution of uranium from the ore requires reaction of the uraninite with ferric (Fe^{3+}) in solution to promote oxidation of uranium to its hexavalent state and improve dissolution extent and kinetics. The initial provision of ferric in solution for the DFS design is through the addition of ferrous sulphate to the relevant streams.

However, it is expected that further addition would not be required during operation after reaching steady state. The engineering design caters for ferrous sulphate additions on an as-required basis to compensate for iron losses within the remaining solution in the leach residue stream – however, test work to date does not indicate that this will be required. Further evaluation and implementation (if required) will be done during the FEED phase.

5.4.4.4 Oxidant Agent

The oxidant agent used in all test work performed to date, and considered in the design, is hydrogen peroxide. Oxidant consumption has been based on the test work performed in 2009. Further evaluation and implementation (if required) will be done during the FEED phase.

5.4.5 Ion Exchange Circuit

The ion exchange circuit was sized and designed in Excel based on a NIMCIX flowsheet. The process was then simulated in SysCAD to provide a steady state solution for integration into the balance of the plant. The key design criteria implemented in the SysCAD model are:

- Uranium loading of 27 g/L_{WSR} U_3O_8 equivalent.
- 0.96 g/L total iron loading onto resin.
- 0.99 g/L silica loading onto resin.
- Chloride loading efficiency of 5.75%.
- Minimum eluent grade of 3.5 g/L_{WSR} U_3O_8 equivalent.
- Stripped resin grade of 1 g/L_{WSR} U_3O_8 equivalent.
- pH 1.4 weak acid rinse to remove 67% iron from the resin prior to elution.
- Uranium co-strip of approximately 1.2% for the weak acid rinse step, returned to the raffinate pond.

Refer to Section 7.12 for a full overview of the test work completed to date.

5.4.5.1 Ion Exchange Options

Literature reviews (as compiled in Ion Exchange and Nano Filtration (158700-0000-DC00-RPT-0862 - Appendix 8.6) indicated that there is a potential to save on capital and operational cost, should moving bed ion exchange be selected above NIMCIX as the ion exchange technology. This technology is widely applied in Kazakhstan with a few applications in eastern Europe and a single application in the DRC. The project reference list did not differentiate between elution liquors which could be critical in performance evaluation.

The preliminary test work completed by Bannerman during the PFS on moving bed ion exchange units did not indicate a sufficient grade recovery. As such, an industry standard design of NIMCIX columns were implemented in the development of this DFS. The use of NIMCIX columns is also not subject to any licensing fees.

5.4.6 Nano Filtration

From the Options Study (2017) Nano Filtration was included for acid recovery in the flowsheet to optimise the overall circuit's sulphuric acid balance. A process review by Building Membrane Solutions (BMS) Engineers indicated that a further sulphuric acid saving could be realised through incorporating a second nano filtration stage .

A two-stage nano filtration pilot campaign was conducted to establish the respective recoveries that can be achieved for the current DFS. The nano filtration circuit was modelled in SysCAD based on experimental volumetric and mass flow recovery rates achieved during the pilot campaign. These are summarised in Table 5-4 below.

Table 5-4: Acid Proof Membrane Recovery Rates

Stage 1	
Components	**Membrane recovery %**
U_3O_8	20.3
Fe	20.0
H_2SO_4	85.9
Volumetric rejection	**90**

Stage 2	
U_3O_8	9.55
Fe	9.60
H_2SO_4	81.8
Volumetric rejection	**90**

5.4.7 Iron Removal

Pending the finalisation of the iron removal test work campaign at Mintek, an iron precipitation step has been allowed for in the costing to the 2022 DFS to ensure that a saleable product can be produced. The possible removal of this circuit will be reviewed during the FEED phase. The key design parameters implemented in the iron removal circuit are:

- Pre-neutralisation to pH 3 using NaOH.
- 37% iron removal.
- 6% uranium co-precipitation, recycled back to the leach circuit.

Refer to Section 7.12 for a full overview of the test work completed to date.

5.4.8 Uranium Precipitation and Drying

5.4.8.1 Precipitation

Precipitation test work was conducted on nano filtration concentrate to identify the optimal circuit configuration and design criteria. The key design parameters implemented in the SysCAD model are:

- Precipitation by hydrogen peroxide.
- 99.9% uranium recovery.
- Drying the uranyl peroxide at 450ºC producing the final uranium trioxide product (UO_3).

5.4.8.2 Product Purity

Given the use of IX, costed inclusion of an iron removal circuit, and the use of hydrogen peroxide as precipitant, it is reasonable to expect that the current process will deliver a product of suitable quality. This is set to be confirmed via detailed FEED work.

5.4.9 Sulphuric Acid Consumption

The bulk of the sulphuric acid is consumed in the heap leach circuit, dictating an acid management strategy for heap leach operation, generally driven by a trade-off between uranium extraction and gangue acid consumption.

The outcomes of previous study phases have highlighted the following with respect to acid consumption (reported per tonne of ROM feed):

- The 20 Mtpa DFS 2012: 17.97 kg/t for the heap leach; 0.056 kg/t for the Solvent Extraction (SX) circuit; a combined total of 18.02 kg/t.
- The Options Study Report (2017 – for a 20 Mtpa feed) where a trade-off between SX and Ion Exchange (IX) technologies were considered:
  - Total stated acid consumption for the SX option: 19.01 kg/t.

- Total acid consumption for the IX option (which also included Nano Filtration (NF) technology): 19.40 kg/t.
- The trade-off confirmed the selection of the IX/NF technology as the preferred option based on both reduced overall capital and operating costs.

For the current DFS, the heap leach design parameters were based on the test work and scale-up assessment generated by Arturo Gutierrez in 2017. This can be summarised as follow:

- Confirming 16.8 kg/t as the revised estimate of the non-recoverable acid consumption by gangue acid consumers for the heap.
- The assessment is based on a total leach cycle of 32 days, a dual drain and single rinse philosophy, a head grade of 205 ppm U_3O_8 (against the 240 ppm U_3O_8 head grade utilised in the DFS) and an extraction of 87.8%.

The fresh acid make-up to the heap leach circuit supplements the recycled sulphuric acid leach solutions. The acid leach solutions are returned as barren liquor from the ion exchange adsorption circuit, and as recovered permeate from the nano filtration acid recovery circuit.

Fresh acid is utilised in the ion exchange circuit as either iron wash or eluant make-up to ensure that no trace mineral build-up associated with internal recycle streams occur. This acid addition is partially recovered in the nano filtration circuit for re-use in the heap leach circuit.

An additional acid loss is incurred in the uranium precipitation circuit. This acid loss is set by two parameters:

- Overall sulphuric acid recovery over a two stage NF plant of 97% (stage 1: 85.9%, stage 2: 81.8%).
- Uranium precipitation pH.

With the improved acid recovery over the two stage NF plant, the sulphuric acid consumption reduced from a total of 18.01 kg/tonne ROM in the PFS to 17.14 kg/tonne in the DFS. The greatest contributor to this overall acid saving is the increased sulphuric acid recovery across NF. These numbers are based on a 100% sulphuric acid concentration.

Table 5-5 below confirms the stated fresh acid addition / acid consumption of 17.14 kg/tonne ROM.

Table 5-5: Sulphuric Acid Addition and Consumption

Acid make-up point	Addition (kg/t)	Consumption point	Consumption (kg/t)
Heap leach	8.99	Pad gangue consumption	16.8
Ferric elution make-up	0.02	Ripios entrainment loss	0.04
Uranium elution make-up	8.12	Precipitation loss/bleed	0.30
Total	17.14	Total	17.14

5.4.9.1 Sulphuric Acid Cost

Spot prices for sulphuric acid have highlighted the Project's sensitivity to the cost of sulphuric acid. For the purposes of the evaluation of the current DFS, the acid price used for the operating cost assessment was US$100/t as advised by Bannerman, based on their long-term take-off agreement negotiations.

Bannerman has in place a Memorandum of Understanding with a local acid supplier to supply the required quantities of sulphuric acid according to a price formula with price floors and ceilings. An acid storage facility within the Walvis Bay port has been incorporated into the DFS to access international acid markets and provide acid supply options.

5.5 Sampling and Laboratory

The assay laboratory will be designed, equipped, and operated by SGS Laboratory Services. Consequently, the labour cost is included as a component of the fixed cost of the assay laboratory.

SGS has in consideration of the laboratory scope tailored the laboratory building design, analytical equipment, and testing methodology, to support the mine and processing plant. Their proposal will deliver continuity of laboratory service, operating 24/7/365 with 26 staff members working 12-hour shifts per day, seven days per week on a 7-shift panel.

To facilitate project cash flow, SGS proposed to fund the purchase of the analytical equipment, amortizing the capital cost plus financing fees over the 5-year life of the initial contract. SGS is also prepared to allow the client capital flexibility to fund the purchase of the laboratory equipment. SGS' laboratories incorporate the latest in design and equipment to ensure the health and safety of workers and environmentally sustainable practices.

The expected labour complement (26 personnel) provided by SGS is included in the overall site labour complement.

5.6 Process Optimisation and Forward Work Plan

The DFS included a value engineering and CAPEX optimisation phase where the study deliverables were reviewed and opportunities for optimisation and cost saving were identified. These opportunities were incorporated in the final CAPEX estimates. The changes attributed to the optimisation opportunities were captured in the relevant design drawings, calculations, and bills of quantities to ensure traceability of the capital estimates. However, the downstream documents influenced by these changes will only be updated during the FEED phase of the project.

The following process documentation will be updated during the FEED:

- DFS Study Report: Section 8 – Process Development (158700-0000-BA00-RPT-0008 Rev E).
- DFS Study Report: Section 9 – Process Plant Description Comminution and Heap Leach (158700-0000-BA00-RPT-0009 Rev C).
- DFS Study Report: Section 10 – Process Plant Description Ion Exchange, Nano Filtration and Metal Recovery (158700-0000-BA00-RPT-0010 Rev C).
- DFS Process Design Basis and Design Criteria (1587F1-0000-DC00-DSC-0001 Rev C).
- DFS Process Flow Diagrams.
- DFS Piping and Instrumentation Diagrams.
- DFS Process Description (1587F1-0000-DC00-PRD-0001 Rev C).
- DFS Process Control Philosophy (1587F1-0000-DC00-PHL-0001 Rev C).
- DFS Mass and Water Balance (1587F1-0000-DC00-PMB-0001 Rev C).

6. Site and Infrastructure

6.1 Summary

The infrastructure footprint for the Etango-8 Project is defined by the overall site plan (refer to Figure 6-1 overleaf). The key infrastructure features associated with the overall Project include the following:

- Haul roads in addition to conveyors to facilitate the movement, treatment and storage of mine-operation generated raw ore and waste material. Waste material will result from stripping of topsoil and soft overlying material, waste rock not suitable as ore and ripios from the heap leach pads.
- Plant access roads that will facilitate entrance into the plant and access to the various areas of the mine. The access road network will be gravel-surfaced with certain parking areas paved with heavy duty interlocking concrete blocks. The majority of the construction roads will be upgraded towards the end of the construction period for use as plant access roads during mine operation.
- Supply of power, water and sanitation bulk services across the plant. Certain areas of the plant such as the administration area, the contractor's camp and process plant will see the bulk services transition into network service reticulation.
- The mine is likely to be serviced by more than one Sewage Treatment Plants (STP). The STP system will comprise of modular containerised and/or tanks that can be upscaled or downscaled in capacity, in accordance with quasi-permanent changes to occupant numbers and inflow volumes. It is envisaged that the STP will utilise trickle filter technology as this can accommodate large fluctuations in inflow quality and volume as well as shock loads. Due to the plant size, it is believed that septic tanks and conservancy tanks will still be required at selected locations.
- Stormwater (contact and non-contact) management and control will be achieved through berms, channels, and ponds. Due consideration has been given to the environment as well as cognizance taken of the local climate. As a result, containment ponds for stormwater are minimal, optimally located at low points and lined with a HDPE liner (when expected to receive contact stormwater). Non-contact storm water will be diverted away from the plant by way of berms and rock lined channels.
- The site, as well as localised areas within the plant, will be fenced with diamond wire mesh fencing. Designated contractor laydown areas will also be fenced and may be utilised as storage yards during operation and/or as future contractor yards.

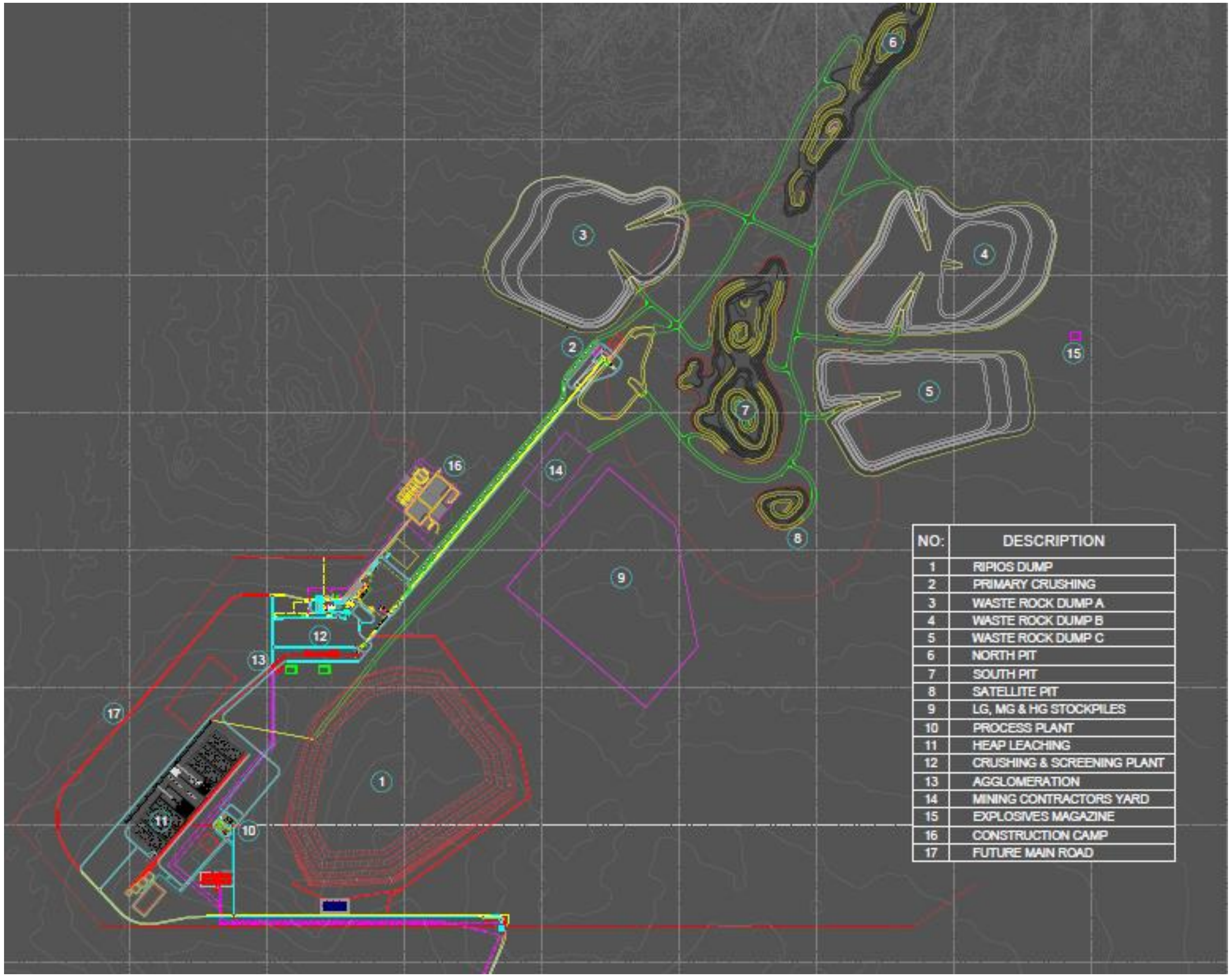


Figure 6-1: Project Site Plan

6.2 Roads

The plant roads network was developed based on the optimised mechanical layout and these roads will facilitate entrance into the plant and access to the various areas of the mine. The construction roads network is a mirror of the plant roads network except for a few routes and the construction camp roads. The majority of the construction roads will evolve into plant roads towards the end of the construction period and then become mine operation roads. The construction roads will be constructed to the full plant roads specifications thereby eliminating the upgrade of the construction roads evolving to plant roads towards the end of the construction period or early into the operational phase of the mine.

Plant/construction roads, construction camp roads and parking areas comprise of gravel and interlocking block pavers surfaced specifications as detailed on the drawing (158700-00000-DD10-SDD-0011 Rev D) and are as follows:

- Gravel plant roads shall be 8m wide.
- Parking areas shall have 60mm thick interlocking block pavers.
- Construction camp gravel roads shall be 6m wide.

The in-situ material will be utilised as layer works and wearing course for roads from the cut and fill balancing of the bulk earthworks from the terraces and the roads combined. This was based on the final Geotech investigation report which classified the material in most areas as G6 minimum from 50mm below the ground level going downwards, although there might be pockets of areas with bad in-situ material which would need attention. It was also assumed that shortfall regarding the material for the layer works and wearing course material will be available from borrow pits within a free haul distance of 5 km.

6.3 Terraces

The outline of the terraces and earthworks for the plant area, construction camp and laydown areas were developed and generated based on the optimised mechanical layout. The footprints of the terraces were reduced to suit the individual infrastructure such as building footprints to lower the bulk earthworks and the layer works quantities. The terraces were designed as non-load bearing in general except for the plant area where cranes will be utilised. If load bearing is required, such as for heavy loads foundations local/restricted excavations will be done on the terraces to required bearing capacity levels and backfilling in layers with selected material where necessary.

The in-situ material will be utilised as layer works and wearing course for terraces from the cut and fill balancing of the bulk earthworks from the terraces and the roads combined. This was based on the final Geotech investigation report which classified the material in most areas as G6 minimum from 50mm below the ground level going downwards, although there might be pockets of areas with bad in-situ material. The free haul distance from borrow pits and stockpiles was set at 5 km.

6.4 Power Supply

NamPower has offered a 15 MVA 132 kV supply for the Project, linked by a new 132 kV overhead line to its Kuiseb substation.

An outdoor 132/33 kV switchyard is part of the Etango supplied system including two 20 MVA 132/33 kV step-down transformers.

The plant reticulation will be at 33 kV with a 33 kV Main Substation – see Plant Overall Single Line Diagram 1587F1-0000-DF00-SLD-0001.

Approximately 30% of power requirements will be sourced from PhotoVoltaic (Solar) electricity generated by independent power producers and wheeled to site. Proposals received from reputable operators in Namibia have been incorporated into the DFS, resulting in substantial improvements in the average power cost over the life of mine.

A high-level summary of the electrical loading for the project site is detailed in Table 6-1.

Table 6-1: Estimated Electrical Load – Etango-8		
Description	**kW**	**kVA**
Total Connected Plant load	18821.6	20173.4
Estimated Running Plant load (without PFC)	11420.4	12165.7
Estimated Running Plant Load (with PFC to 0.98)	11420.4	11496.7

Standby diesel generators have been included for the process plant critical loads (in addition to UPS units for control system interfaces). A 1250 kVA, 250 kVA and 125 kVA units have been allowed for. Each emergency light comes equipped with a battery backup for service during power outage.

6.5 Water Supply and Storage

The overall site consumption of water for operating cost purposes is an estimated 1.96 Mm^3 per annum (0.245 m^3/t of ore feed to the process plant). See Table 6-2 below:

Table 6-2: Operational Water Requirements	
	Annual Usage (Mm^3/annum)
Dust Suppression	0.3
Process Plant	1.42
Mine Water	0.24
Total	**1.96**

Water supply to the site will be by overland pipeline from the Erongo Desalination Plant via the NamWater Swakopmund base station:

- Two pump stations will be utilised – one at Swakopmund and one along the pipe route to the mine (located at kilometre 11.0). Each pump station will include four vertical spindle type pump-sets, 3 duty plus 1 standby set.
- The delivery pipeline is expected to be a total of 33.578 km long. A 450 mm Ductile Cast Iron (DCI) cement mortar lined pipeline is proposed. Some 6.680 km of pipe will be installed below ground, polyethylene wrapped, and 26.900 km above ground on pedestals.
- The water pipeline will run along the C28 and mine access roads, and discharge into two covered freshwater ponds (17 500 m^3 each). From the raw water ponds, water is abstracted to the first of three raw water tanks (located in the Precipitation, IX and product packaging area) from where it is further distributed to the central process plant and primary crusher/tip.

The water delivered to site will be of potable water quality.

The water tariff assumed for the Etango-8 DFS is US$2.98/$m^3$ and reflects the estimated cost of desalination and water transport operating and maintenance costs included in the delivery to site. An indicative cost was provided by NamWater, together with a written confirmation of water availability for the Project over its life of mine.

A capital cost is also included in the total CAPEX estimate, for the complete pipeline, pumping stations and reservoirs inclusive of all civil, mechanical, electrical and instrumentation costs.

6.6 Fire Water Design

The fire water protection system has been preliminarily designed and then optimised based on the requirements from the client. A fire risk study was done to optimise the layout and associated costs. A fire protection and detection systems design criteria document were developed addressing all areas of required fire protection for the process plant and general infrastructure areas with hybrid design criterion for areas. The fire protection and detection systems bill of quantities was updated based on defined requirements.

The fire water protection system includes a dedicated fire water tank for each main process area with an overlap in coverage for the heap leach pad area. The fire water pumps, and associated control systems specified are based on an Automatic Sprinkler Inspection Bureau (ASIB) approved standard. Fire water is supplied via three fire water pumps per system, which include a jockey, an electrically driven pump, and a diesel-powered pump, which withdraw water from fire water tanks to supply fire water for the fire water ring mains.

The design basis for the DFS will be further reviewed and optimized or upgraded in consultation with the client’s fire insurance agents to meet the required fire protection standards for maximum insurance coverage, during the FEED stage of the Project.

6.7 Site Access

The C28 sealed road from Swakopmund heads east and passes approximately 5 km south of the Etango mine site. This is the main road that services the Langer Heinrich Mine and ultimately reaches Windhoek. Access to the Etango site from the C28 is via a 7 km spur road to be constructed as part of the Project.

6.8 Acid Infrastructure

Approximately 140,000 tonnes of acid will be required on site per annum. It is envisaged that acid will be obtained from a local source and delivered to site by truck. Bannerman has signed a Memorandum of Understanding with a local acid supplier whereby the acid will be railed to a storage facility within the Walvis Bay port and then trucked to site. The facility in the port will also be able to receive sulphuric acid from international markets. The facility in the port is designed to have four 10,000 tonne acid storage tanks. Approximately 28 days acid storage capacity on site is allowed for and is part of the processing plant design.

7. Engineering Design

The engineering component inputs to the DFS are as follows:

- Mining – which includes the following:
  - A review of the geological resources associated with the Project.
  - A review of the geo-hydrological site work and modelling and the impact on mining.
  - Geotechnical data capture and design.
  - Mining strategy and scheduling.
  - Pit design and optimisation.
  - Material movement strategies and schedules.
- Process & Metallurgy which considers the metallurgical processing of ore with the following engineering inputs:
  - The Process Design Criteria (PDC) – utilised as the Basis of Design (BOD) for the process engineering.
  - The iterative process design outputs: Process Flow Diagrams (PFDs), mass balance, water balance and associated calculations, as well as the Piping and Instrumentation Diagrams (P&IDs), mechanical equipment lists, and process data sheets have provided input for the other engineering disciplines.
- Site & Infrastructure which considers the site wide / external infrastructure requirements including interfaces associated with the mining and waste management facilities.
- Design of structural elements considered equipment forces (static and dynamic) associated with the mining and waste management facilities, wind loading specific to the area and relevant impact loading and seismic action.

Engineering Design Criteria (EDC) have been developed covering the mechanical (& conveyor designs), piping, civil & structural, electrical, control & instrumentation and infrastructure disciplines. The EDC confirms the engineering basis for the PFS (covering mainly the process plant and surface infrastructure).

The progressive development of engineering discipline design deliverables against the proposed scope over the study timeline is captured in a detailed engineering drawing register.

7.1 Value engineering, CAPEX optimisation and forward work plan

Upon the completion of the preliminary design and first draft of the capital estimate for the Project, a value engineering and CAPEX optimisation exercise was undertaken. The value engineering and optimisation initiatives considered were:

- Process Plant Layout optimisation.
- Road and Terrace layer works design optimisation.
- Fire Protection & Detection System optimisation.
- Belt Conveyors installation strategy review.
- Platework optimisation.
- Spares strategy optimisation.
- Pump rationalisation.
- Supplier strategy review considering alternative suppliers.
- Installation contracting strategy review.

- Electrical distribution equipment standardisation and optimisation.
- Emergency power generation strategy review.
- Modular vs permanent structures review.
- Review of control philosophy to rationalise instrumentation and belt scales.

The changes attributed to the optimisation opportunities were captured in the relevant design drawings, calculations, and bills of quantities to ensure traceability of the capital estimates. The downstream documents influenced by these changes will be updated during the FEED phase of the Project.

The next phase of the project is the Front-End Engineering and Design (FEED) phase which allows for the further detailing and development of the engineering deliverables until such time that the Project can tollgate into execution. The FEED phase will include the review and update of:

- All mechanical, electrical, civil, and structural layout drawings.
- All single line diagrams.
- All specifications.
- Mechanical Equipment List.
- Electrical Equipment List.
- Instrument List.
- Conveyor Schedule.
- Belt Magnets Schedule.
- Hoists and Cranes Schedule.

8. Capital Estimate

8.1 Capital Cost (CAPEX) Basis

The CAPEX estimate for the Etango-8 Project comprises the following components:

- Mining.
- Process Plant and associated internal infrastructure.
- External infrastructure including:
  - The site access road extension.
  - Power supply to the site.
  - Water supply to the site.
  - Acid supply infrastructure.
- Owner's General and Administration (G&A).
- Sustaining CAPEX confirmed per major scope area:
  - Mining.
  - Process plant.
  - Surface water runoff / drainage system.
- The cost of rehabilitation – as defined in the restoration and closure strategy.

Key components of the mining / processing facilities can be summarised as follows:

- Reserves were based on the Whittle Four-X pit optimisation that used Measured and Indicated Resources only. The mine design consists of three open pits – an elongated north pit, a south pit (adjacent to the Run of Mine (ROM) tip) and a smaller satellite pit.
- The project evaluation is based on open pit contract mining and road haulage to the metallurgical processing facility.
- A significant amount of waste material is generated over the fifteen-year Life-of–Mine (LOM), with an overall strip ratio of 2.22.
- A total of 113.5 Mt of ore at an average grade of 240 ppm U_3O_8 will be processed via the on-off heap leach pad producing a total of 52.6 Mlbs U_3O_8.
- Ripios reclaimed from the heap leach pad will be recovered from a load out bin by a fleet of haulage trucks – deposition of ripios is to a surface stockpile based on phased deposition design strategy.
- The economic cut-off grade for the deposit is 100 ppm U_3O_8. The mine schedule however employs a variable cut-off grade approach to maximise the NPV. Subsequently, the mining schedule dictates the establishment of intermediate ore stockpiles classified as follows:
  - Marginal – with a grade between 75 – 100 ppm U_3O_8 (to be stockpiled separately on the waste rock dumps).
  - Low Grade – 100 to 150 ppm U_3O_8.
  - Medium Grade – 150 to 250 ppm U_3O_8.
  - High Grade – > 250 ppm U_3O_8.

The estimating base date for both capital and operating costs is Q2 2022. All costs are stated in United States dollars (US$).

For the mining scope, the following split has been adopted between capital and operating costs:

- Capital costs have been defined as all costs related to mining before the production of the first tonne of ore. Capital costs therefore include:
  - The cost of the mobilisation of the mining contractor.
  - The cost of any infrastructure related to the mining operation including mine contractor site establishment.
  - The variable and fixed costs related to the pre-strip of the open pit, up to the production of the first tonne of ore.
  - The cost of the owner's team prior to the production of ore.
- Operating costs have been defined as all costs related to mining after the first tonne of ore is produced. This includes:
  - The variable and fixed costs related to the open pit after the pre-strip.
  - The cost of the owner's team after the production of the first tonne of ore.

The process plant and internal infrastructure CAPEX estimate components were developed based on defining an overall scope and WBS. The CAPEX estimate was based on the associated process flow diagrams and mechanical equipment lists. Layout drawings and the overall site plot plan and block plan were generated to assist in the development of the estimates.

The following documents provided the basis for the CAPEX estimate:

- Block Plans and Layouts.
- Process Flow Diagrams.
- Process Design Criteria.
- Engineering Design Criteria.
- General Layout Drawings.
- Supplemental Sketches.
- Equipment Quotations from Vendors.
- Fabrication and Erection Rates from Historical Projects.
- Mechanical Equipment List.
- Electrical Motor List.
- HT Single Line Diagram.
- Instrument Lists.
- Preliminary Level 3 Project Execution Schedule.

The general approach to estimating was to measure and quantify each cost element from the engineering drawings, process flow diagrams, mechanical equipment list, motor lists, cable schedules and instrument lists.

Where the capital cost was influenced by value engineering and CAPEX optimisation initiatives the BOQs and main layouts were updated where applicable to ensure traceability. In the instances where pricing was updated due to obtaining quotations form alternative suppliers those costs were updated directly in the estimate with supporting information included in report appendices.

The EPCM costs cover the project management, detailed engineering, procurement, and construction management costs associated with the implementation of the Project. The EPCM costs were derived from detailed engineering deliverable lists and the execution schedule.

8.2 Capital Expenditure (CAPEX) Summary

The CAPEX for the development of the Project (refer to Table 8-1) is broken up into the following categories:

- Mining including pre-strip.
- Process plant and internal infrastructure.
- External infrastructure.
- General and Administration (G & A).

Table 8-1: Pre-Production Capital Expenditure Breakdown

Cost Category	Cost Sub-Category	Capital Cost (US$)
Mining		
	Pre-strip	5,364,218
	Contractor Mobilisation	4,882,729
	Owners Team – infrastructure	501,651
	Owners Team Labour	338,299
Process Plant & infrastructure		
	Mechanical and Process Equipment	75,464,607
	Site Preparation and Bulk Earthworks	36,726,693
	EPCM	26,539,421
	Civils	17,573,652
	P&Gs	15,414,657
	Structural Steel	11,636,504
	Electrical	11,458,184
	Instrumentation	8,496,627
	Platework, Tanks & Liners	7,097,050
	Architectural	5,827,751
	Piping, Valves & Fittings	3,223,808
External Infrastructure		
	Water Supply	14,989,688

Table 8-1: Pre-Production Capital Expenditure Breakdown

Cost Category	**Cost Sub-Category**	**Capital Cost (US$)**
	Power Supply	8,897,104
	Acid Infrastructure (Port handling)	8,884,981
	Temporary water & electricity	2,147,316
	Access Road Extension	858,271
	Communications infrastructure	73,241
General & Administration		
	Pre-production Processing Opex	10,981,312
	G & A Owner's cost	9,111,421
	Insurance	3,699,763
Sub-total		**290,188,950**
Contingency		27,282,261
TOTAL		**317,471,211**

8.3 Ongoing Capital Expenditure

Ongoing capital expenditure (Sustaining CAPEX) items after the construction phase over the LOM have been identified for the mining and process plant components and are summarised below in Table 8-2.

Table 8-2: Sustaining CAPEX

Description	**Amount (US$)**
Mining	4,473,870
Rehabilitation of ripios dump	1,160,962
Process Plant & Infrastructure, comprising of:	45,231,685
• Comminution Circuit Spares	22,145,258
• Leach Residue Pad & Pond System	13,161,180
• Preparation of Aggregate	2,565,207
• Heap Leach Stacking & Reclaiming Conveyors	1,721,123
• Civils	1,526,817

Table 8-2: Sustaining CAPEX	
Description	**Amount (US$)**
• Conveyor Component Replacement	1,155,143
• Platework	886,431
• Heap Irrigation	823,052
• Structural Steel	808,443
• Miscellaneous Packages	369,286
• Packing & Drying	38,304
• Agglomeration Drum	31,440
TOTAL	**50,866,517**

The process plant and infrastructure sustaining CAPEX have been assessed by taking cognisance of the following:

- Operating cost consumable / maintenance components and replacement intervals.
- Conveyor component replacement intervals.
- Capital cost spares components (with due consideration for consignment spares options offered for specific mechanical packages).

8.4 Rehabilitation and Closure CAPEX

The closure CAPEX is summarised below in Table 8-3 and makes allowance for the mining contractor demobilisation costs.

Table 8-3: Restoration & Closure Capital Estimate		
No.	**Description**	**Amount (US$)**
1	Domain 1: Mining	1,255,853
2	Domain 2: WRDSs	1,541,205
3	Domain 3: Ripios Dump	425,499
4	Domain 4: Processing Plant	6,148,530
5	Domain 5: Linear Infrastructure	174,580
6	Maintenance and monitoring costs (based on an estimated $20,000 per year for ten years	200,000
7	Subtotal	9,745,667
8	Engineering Costs	1,635,994

Table 8-3: Restoration & Closure Capital Estimate		
No.	**Description**	**Amount (US$)**
9	Management and supervision overheads	1,635,994
10	Subtotal excluding contingency	13,017,655
11	Contingency	2,126,793
12	**Total**	**15,144,448**

9. Human Resources

The Etango-8 mine will be a Bannerman managed operation, with Bannerman responsible for the operation of the process plant, mine planning, grade control management, survey, geotechnical aspects, and product security. Selected operations such as the mining operation, grade control drilling, mining equipment maintenance, transport, freight, utilities (comprising water, power, and rail) and cleaning at site may be contracted out to local or regional service providers.

The total labour complement including long-term contractors for the Etango-8 Project is 700. Of this complement, 500 people would be involved in shift work while 200 would work weekdays only.

The aim of the Project will be to first recruit locally where possible, with additional sources of labour being recruited from the African continent, and thereafter globally. The project is thus seeking a high contingent of local employees that will be supplemented by non-Namibians. It is intended that a small percentage of overseas nationals be sourced for critical core business positions in the start-up of the Project, continuing for 3 to 5 years (depending on position) where necessary. Overseas nationals will be required to train and develop several suitably skilled local personnel to provide successful succession into their positions.

The Etango-8 mine will be managed by a General Manager, who will reside in the local area and will have their principal office on site. The General Manager will report to the Chief Executive Officer of Bannerman Energy Limited. It is proposed that the mine will be responsible for its own purchasing, accounts, and human resources functions. It will rely on the corporate office in Perth for treasury and legal functions.

10. Operating Cost

10.1 Operating Cost (OPEX) Cost Basis

Including the mining component, the operating cost estimate for the Project comprises the following:

- Mining.
- Process plant.
- General & Administrative (G&A).

The estimating base date for both capital and operating costs is Q2 2022. All costs are stated in United States dollars (US$).

For the mining scope, operating costs have been defined as all costs related to mining after the first tonne of ore is produced. This includes:

- The variable and fixed costs related to the open pit after the pre-strip.
- The cost of the owner's team after the production of the first tonne of ore.

The process plant OPEX costs include:

- Labour – the operating, management, and engineering labour components.
- Utilities – power and water costs.
- Stores – the main plant consumables including reagents, comminution consumables, filtration consumables (filter plates and cloths), conveyor consumables and screen panels.
- Sundries – general plant maintenance, mobile equipment rental and analytical laboratory.

The G&A operating costs include:

- Overhead G&A component of the process plant, mining, and infrastructure costs.
- General admin costs components including PPE, consulting fees, training, communication, office & travel expenses, legal, public relations, insurance, and security.

10.2 OPEX Summary

The summarised operating costs for the Project are included in Table 10-1 below:

Table 10-1: Operating Cost Summary

Cost Category	US$ over project life	US$ per tonne ROM Feed	US$ per pound U_3O_8 produced
Mining Cost	857,195,009	7.55	16.29
Processing Cost	785,274,577	6.92	14.92
External Infrastructure, G&A and closure costs	134,285,291	1.18	2.55
Selling Cost	65,479,181	0.58	1.24
Total (excl. royalties)	**1,842,234,058**	**16.23**	**35.01**

11. Marketing

11.1 Product specifications

The processed product from the Etango Project will be uranium oxide (in the form of UO_3), known as "yellowcake", contained in standard drums each holding up to 400 kg of UO_3 depending on the density of the final product. Yellowcake is inert and mildly radioactive emitting alpha radiation, which is absorbed by the drum. It is non-toxic and would be dangerous to humans only if ingested in quantity. A range of regulations govern the transport of the drums, including Namibian and international transportation regulations.

Arrangements for the sampling and assaying of the yellowcake within the shipped drums will be made with the relevant conversion facilities. Refer to Section 11.2.2 for further detail.

11.2 Product shipping and conversion

11.2.1 Shipping

The drums of yellowcake will be packed into sea containers at the mine site and transported by road to the deep-water port of Walvis Bay. Drums of uranium oxide have been exported from Namibia through the Walvis Bay deep-water port, located approximately 71 km by road from the Project, for approximately 45 years. From there, regular class 7 shipping container services operate from Walvis Bay to Europe, Asia and North America. Such services have operated for the Rössing and Husab uranium mines and have also operated to transport uranyl peroxide, $(UO_2)O_2$, from the Langer Heinrich operation.

Specialist shipping agents exist for yellowcake and other nuclear materials. Yellowcake from the Project will be delivered in drums to the container terminal at Walvis Bay, utilising the services of an experienced freighting agent. Following Russia's invasion in Ukraine, transportation issues have taken centre stage in the nuclear fuel market, with Class 7 material transport experiencing both increased costs and trade restrictions. In this context, the Project's location only 71 km by road from Walvis Bay and an established secure route for Namibian uranium material over decades represents an important attribute. The cost estimates for the DFS have been estimated by Bannerman in consultation with industry shipping consultants on the assumption there is a significant, although not total, abatement of the current supply-chain challenges being experienced in global shipping in consequence of COVID-19 disruption and the Ukraine war.

Consistent with standard practice, Bannerman expects to pay for all shipping and transport to the conversion facility, and then for the weighing, sampling and assaying at the converter.

11.2.2 Conversion

The drums of uranium oxide must be shipped to one of the established conversion facilities throughout the world, the most relevant of which are located in France (Orano/Comurhex), US (ConverDyn), Canada (Cameco/Port Hope/Blind River) and China (CNNC). At the conversion facility, the uranium oxide is converted into a purified gas (uranium hexafluoride, UF_6), placed in canisters and either stored or shipped to an enrichment facility.

Most light water nuclear reactors use oxide fuel where the natural uranium first needs to be enriched so that the quantity of fissile U-235 atoms is above the naturally occurring level (some types of nuclear power reactors such as the Canadian Candu type utilise unenriched uranium). At the enrichment facility, UF_6 gas is enriched through various processes to increase the naturally-occurring incidence of U-235 atoms in the material from 0.7% to 3.5-5.0% such that the enriched material can then be fabricated into fuel rods before final delivery to a nuclear power utility for loading into a reactor.

Title to the uranium oxide typically passes from the producer to the buyer upon delivery to the conversion facility. The producer receives a credit to its metal account at the conversion facility for the vast majority of the delivered quantity soon after delivery, with the balance determined after weighing, sampling and assaying. Sale of the final determined quantity of uranium occurs in accordance with the producer's relevant sales contracts.

All conversion facilities have pre-set specifications for yellowcake. When establishing an account with a particular conversion facility, sample quantities will be sent to the conversion facility for analysis and acceptance. Ultimately, a contract will be negotiated between the producer and each of the utilised conversion facilities. The contract covers the procedures for weighing, sampling and assaying of the yellowcake, and the terms for storage, as well as the details of surcharges for deleterious mineral content. There is typically a free storage period with additional charges for longer-term storage.

The specifications for the conversion facilities are similar but not identical because the process at each of the conversion plants is different, and because the regulations are different in the different countries, particularly regarding the allowable metal contents of waste water from each conversion plant facility. In all cases, there is a maximum allowable percentage for certain elements, particularly heavy metals, with a financial penalty for higher contents and then absolute maxima above which the yellowcake shipment is rejected. Penalties typically apply for above-threshold quantities of potassium, iron, sodium, sulfate (SO_4), vanadium and excess quantities of the U-234 isotope.

Test work carried out on the Etango ore does not indicate that the final yellowcake product will contain above-threshold quantities of impurities and, accordingly, no allowance has been made for penalty surcharges at the relevant conversion facilities.

11.3 Sales and marketing

11.3.1 Sales and marketing strategy

Bannerman will form an in-house sales and marketing function to administer the Etango Project's uranium sales arrangements and revenues. This function will be supported by specialist uranium marketing advisers as required.

Cost allowances for the operation of the in-house marketing function, including employee costs, fixed costs, consultant and legal fees, have been included in the selling cost estimates for the Project.

The uranium oxide sold from the Project will be sold under a mix of spot (short-term sales and delivery), medium-term (1 to 2 years to delivery) and long-term (3+ years to delivery) sales contracts. It is expected that approximately 10 key sales contracts will be required at any one time to cover the majority of the expected annual production of 3.5 Mlbs of U_3O_8. Prior to commencement of construction, a sufficient proportion of production is expected to be contracted with high-quality counterparties to enable conventional financing of the project, potentially in combination with off-take related financing. Initial marketing efforts are expected to involve the negotiation of sales contracts with "ramp up" features allowing for some flexibility in the development timetable as production and sales volumes increase with the establishment of stable operations.

The long-term contract price has typically traded at a premium to spot prices of between 10% and 20% over the long term. Bannerman's long-term contracting portfolio is expected to comprise a mix of pricing mechanisms, including fixed/base-escalated prices and market-related pricing with appropriate floors and ceilings. The appropriate portfolio blend of pricing risk will change over the life of mine but will initially be determined with regard to prevailing market conditions, Bannerman's market outlook and the debt coverage requirements of financiers. Additionally, the scalability of the project offers significant advantage. It allows for low risk and opportunity to ensure placement of produced pounds while allowing for increased production to seize upside potential.

The buyers of the uranium oxide product from the Project will largely comprise nuclear power utilities in various nations and regions which generate nuclear power, including USA, China, South Korea, Europe, Japan, and the Middle East. In addition to nuclear power utilities, sales are expected to occur to nuclear fuel intermediaries, and potentially other producers or financial entities seeking to build inventories for their own contractual obligations or investment purposes.

Bannerman believes that the Project has a number of positive, non-financial attributes that will be attractive to nuclear fuel buyers. These include: the large-scale, long-life nature of the Etango ore body; the relative technical simplicity of conventional mining and processing, similar to the well-known Rossing multi-decades uranium mine; the geopolitical diversity offered by Namibian exported uranium; and the positive social (ESG) and infrastructural impacts on the surrounding community that can be achieved through developing and operating the Etango mine.

Bannerman has established a significant profile within the nuclear power industry and is an active member of World Nuclear Association, World Nuclear Fuel Market and Namibian Uranium Association. The Company's profile notably benefitted from Bannerman Energy Ltd's Chief Executive Officer, Brandon Munro, being elected in 2018 as Co-Chair of the World Nuclear Association's Nuclear Fuel Report uranium demand working group and being appointed in 2021 to the World Nuclear Association's Advisory Panel. Accordingly, Bannerman is well positioned to enter into contractual negotiations at the appropriate time.

11.3.2 Sales and marketing costs

Tabulated below are the estimated sales-related costs incorporated in the DFS:

Table 11-1: Sales and Marketing Costs

Item	Basis	US$/lb U_3O_8
Freight and Shipping		
(i) From mine gate to Walvis Bay port	Quote obtained from experienced local transport contractor, Wesbank Transport per sea container (40 drums per sea container).	US$0.01
(ii) From Walvis Bay port to UF6 conversion facilities.	Rates estimated in consultation with industry shipping consultants assuming current supply chain challenges caused by COVID and Ukraine war subside and shipping rates normalise to a significant degree. The assumed rates are at a premium to long term historical rates to recognise the potential for ongoing operational challenges.	US$0.67
(iii) Marine and transport insurance	Indicative estimates obtained from insurance broker.	US$0.01
Conversion facility charges and penalties		
Conversion facility charges	The weighing and sampling fee is generally expressed as a rate per kilogram, including the weight of the loaded drums. Fees vary depending on converter, so an estimate is applied.	US$0.26
Impurity penalties	Extensive testwork undertaken during the DFS has determined the detailed specifications of the final yellowcake product from the Etango ore. These results do not indicate that the final product will exceed any impurity allowances and, accordingly, no impurity penalties have been applied.	US$0.00
Sales and Marketing	Allowance of US$1 million per annum made for costs of in-house marketing team, fixed costs, consultant and legal fees for average annual sales of 3.5 Mlb U_3O_8.	US$0.29
Total		**US$1.24**

11.4 Uranium demand and supply forecasts

11.4.1 Uranium market

Uranium concentrate, predominantly in the form of U_3O_8 or UO_3, is sold by mining companies to nuclear power utilities and fuel traders for use in the generation of electricity within nuclear power facilities. Based on data from the World Nuclear Association, shown in Figure 11-2 below, there is currently a substantial deficit between the amount of uranium mined and consumed in nuclear power plants globally. The supply deficit was previously filled from secondary supplies (such as spent nuclear fuel recycled as mixed oxide (MOX) fuel and secondary supplies generated from “underfeeding” and tails re-enrichment) and the consumption or drawdown of commercial inventories. As a result of several years of supply deficits – and in part due to the absorption of substantial volumes of inventories by financial buyers - the availability of commercial inventory has normalised after a period of build-up following 2011. The recent invasion of Ukraine by Russia has caused Western enrichers to adjust their operations thereby reducing underfeeding in order to free up enrichment capacity due to the increased demand from utilities for Western enrichment supply. This has resulted in further demand pressure on natural uranium feed due to the loss of secondary supply generated from historical underfeeding.

11.4.2 Uranium market outlook

After a protracted bear market caused by the nuclear accident at Fukushima-Daiichi nuclear power plant in 2011, the uranium spot price has partially recovered in recent years due to supply disruption (both planned and unplanned) and the influence of financial buyers of uranium. Figure 11-1 shows the uranium price in nominal and real terms since 1970.

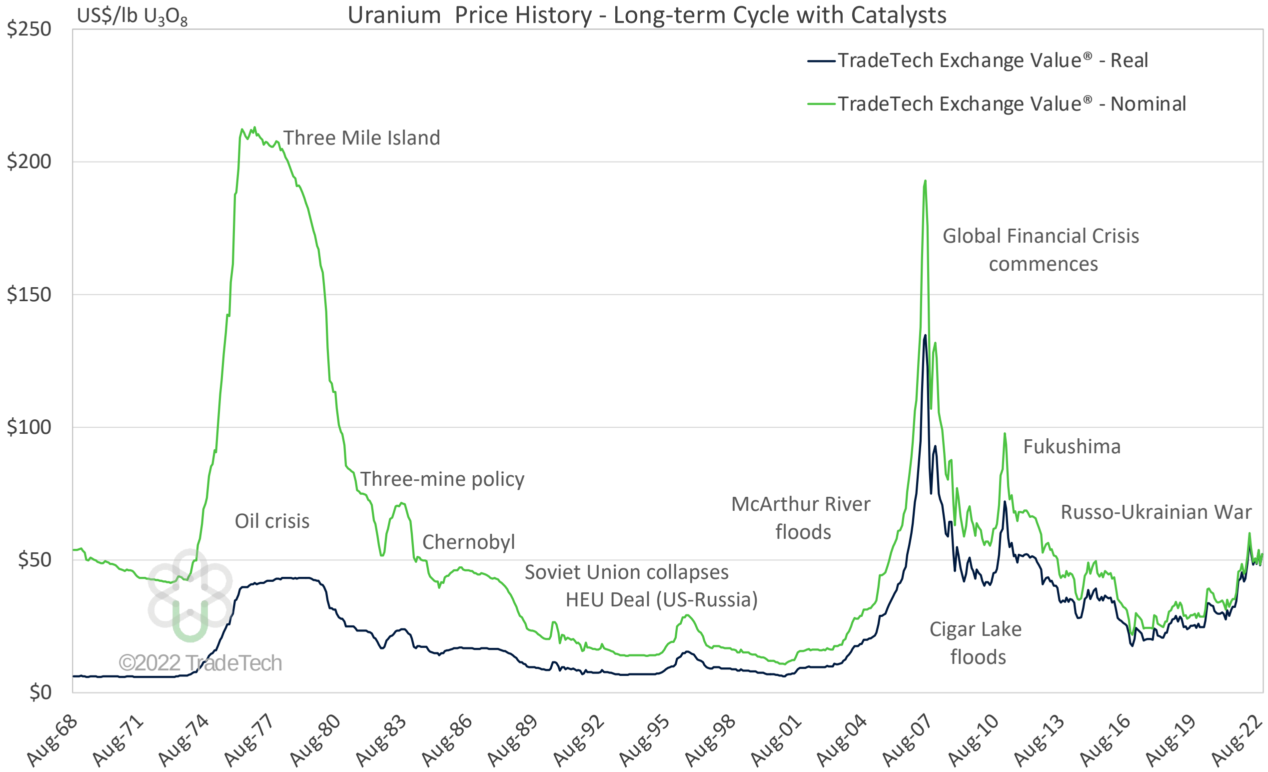


Figure 11-1: Historical uranium spot prices

Over the past 12-18 months, the prospects for nuclear power have strengthened significantly as a result of nuclear energy’s superior emissions, land-use and reliability credentials coming into focus at COP26 in Scotland last year and the recent COP27 in Egypt. Those prospects strengthened further as policymakers globally have been forced to focus on energy security in consequence of the tragic events in Ukraine and the increasing cost of competing fossil fuel energy.

The current World Nuclear Association Nuclear Fuel Report 2021 provides three forecast scenarios for nuclear fuel (i.e. uranium) demand and supply: lower, reference and upper. Bannerman has selected the upper scenario as most appropriate, having regard to numerous demand improvements since publication of the report including: the reversal of numerous reactor closures in the US and Europe, bipartisan support for nuclear energy in the US and UK, the abandonment of nuclear closure plans in South Korea and France, accelerated restarts of Japanese reactors and the potentially faster emergence of small modular reactors.

This upper scenario (see Figure 11.2) forecasts the sustained growth in demand for uranium and shows the anticipated depletion in current sources of primary and secondary supply over the forecast period. Despite the upper supply forecast assuming the incentivisation of supply from planned mines, mines under development (including Etango) and prospective mines, from 2027 a substantial volume of annual uranium supply must be developed and produced from currently unspecified supply sources. Bannerman anticipates that market conditions – and therefore long-term contract uranium prices - will be forced to substantially and sustainably increase in order to provide a market incentive for the investment in new exploration, discovery, development and construction of a sufficient number of new uranium mines to meet this deficit over the next 15-20 years.

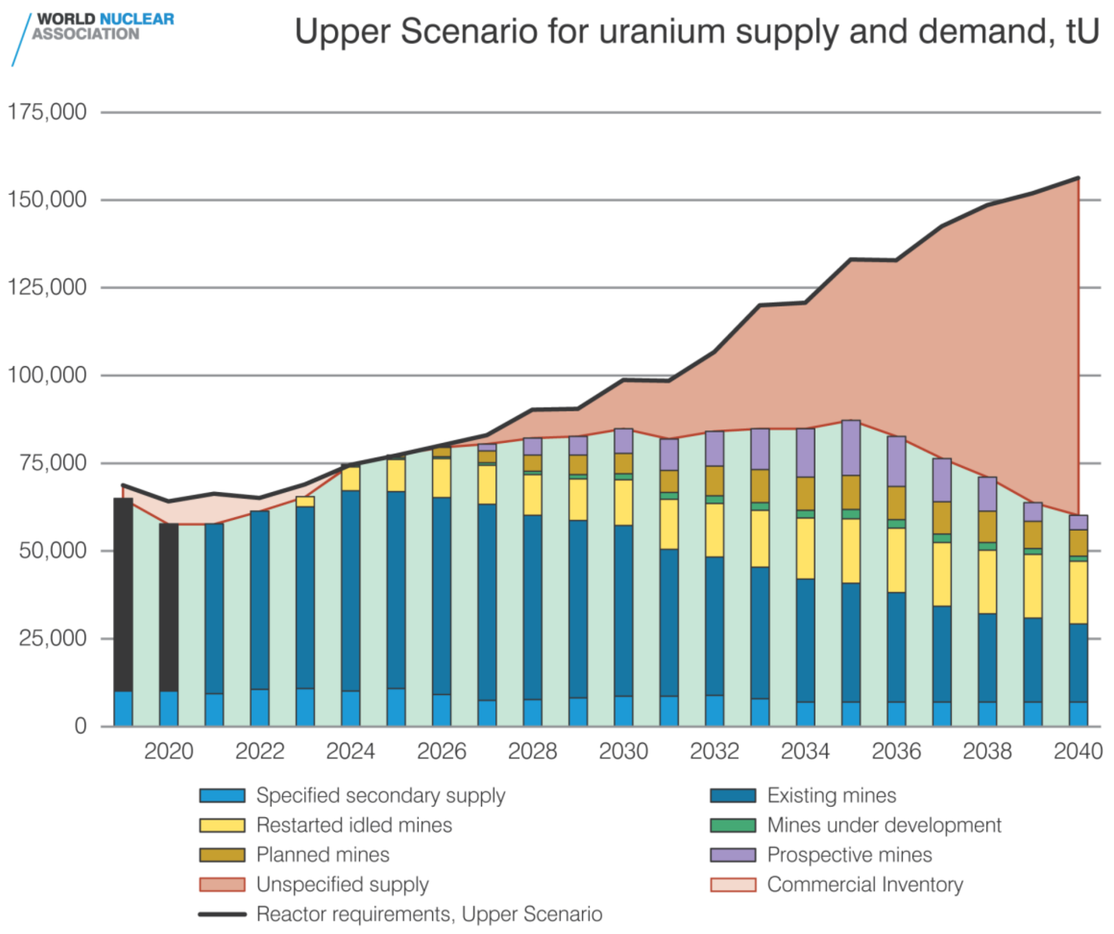


Figure 11-2: World Nuclear Association Uranium Supply-Demand (Upper Scenario)

11.4.3 Uranium long-term price forecasts

The realised LOM base uranium long-term price forecast adopted for this DFS is US$65/lb U_3O_8, which is consistent with the price assumption adopted for the PFS. An upside case uranium price forecast of US$80/lb is presented for comparison purposes.

Bannerman undertook its own industry analysis and consulted with leading uranium markets consultant TradeTech, LLC in order to satisfy itself that the base and upside uranium price assumptions were reasonable.

The LOM base uranium price assumption for this DFS was estimated by:

- Reviewing the uranium price assumptions generated by TradeTech's proprietary Forward Availability Model 1 (FAM1) and Forward Availability Model 2 (FAM2);
- Applying Bannerman's own uranium sector knowledge to preferentially favour the assumptions underlying the FAM2, most notably the assumption of delays and/or stoppages to a number of global uranium projects, compared with those projects' publicly stated development plans;
- Averaging the FAM2 uranium price assumptions over the years 2025/2026/2027 to generate an average price of US$85/lb (nominal) and US$75/lb (real), recognising that the price assumption for this delivery window will influence the realised price that Bannerman is able to achieve for its initially contracted supply; and
- Applying a significant discount to the average uranium price assumptions to generate a base case price of US$65/lb.

Bannerman maintains the view that the demand prospects for nuclear fuel beyond 2027 are sufficiently strong that the above uranium pricing assumptions are reasonable for the initial life of mine.

11.4.4 Production cost and the impact of inflation

Bannerman has undertaken a full review of its costs and the potential impact of inflation on its future operations. As part of this effort, Bannerman has reviewed its costs relative to production costs associated with what will be needed to bring other new production forward. One of the benchmarks for this evaluation was the Production Cost Indicator (PCI™) published by uranium markets consultant TradeTech, LLC. The PCI assimilates what it would cost the most competitive (Re)Emerging projects to produce (not sell) one pound of uranium oxide to:

1) Augment annual primary uranium production above that currently attributable to existing production; and

2) Satisfy future reactor requirements to balance supply and demand.

The PCI is TradeTech's proprietary judgment of the life-of-mine cost necessary to incentivize and support new primary uranium production needed to sustain the global nuclear fuel industry. The Indicator has been subject to significant upward-moving cost pressure through 2021 and 2022 as macroeconomic and geopolitical tensions collide. This has exerted pressure on the future production cohort in tandem to idiosyncratic risk(s) pertinent to specific (Re)Emerging projects, especially in regard to their associated mining economics, their development plans, and their production scheduling.

Between January and March 2022, the PCI increased 11.4% (or ~US$5.90) from US$46.10 per pound U_3O_8 to US$52.00 per pound U_3O_8. The increase reconciled an increasingly complex and evolving dynamic unfolding in the wake of Cameco's decision to bring McArthur River Mine back online at sub-optimal capacity, and increased tension concerning the Russia-Ukraine conflict (Figure 11-1).

Following the first quarter of 2022, between April and September, the PCI continued its rise, increasing 7.5% (US$4.20) from US$52.00 per pound U_3O_8 to US$56.20 per pound U_3O_8. The primary driver behind the increase was inflation in predicted production costs combined with the decision to weight FAM 2 costs more heavily in calculating the monthly PCI value.

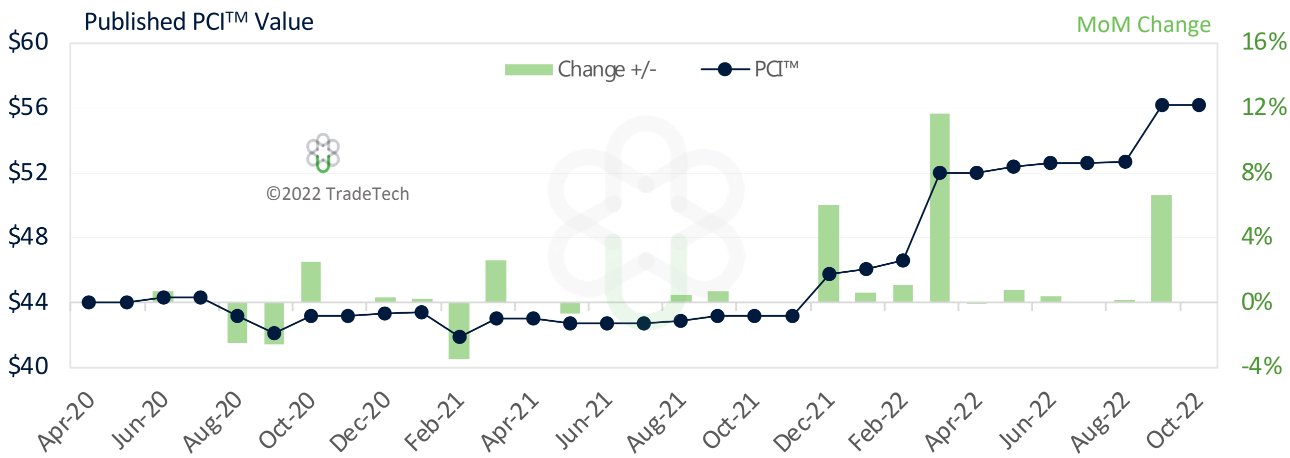


Figure 11-3: TradeTech Production Cost Indicator (PCI™) with Month-on-Month Percent Change

Among the drivers of the monthly PCI value is TradeTech's Mine-Cost Inflation (MCI™) Index, which tracks multiple indices relevant to chemical and commodities prices as a means of evaluating all underlying cost pressures pertinent to uranium producers. Taken a step further, the *Weighted MCI Index* evaluates the change in the price of key consumables, reagents, and materials – on a year-to-date (YTD) basis – against a weighted assessment of their consumption rates derived from cost structures in feasibility studies. For example, reagents such as sulfuric acid, which are used to leach uranium metal from host geologies, typically represent a greater proportion of consumables costs than lime, for instance, which is used in construction and to control the acidity of tailings.

Through H1 2022, TradeTech's Weighted MCI Index reflects a picture of sustained increases to the cost of consumables across all mining types, including conventional open-pit, underground, and *in-situ* recovery (ISR) operations. Between January and June 2022, the weighted indicator increased almost 30%, echoing inflationary trends affecting the industry during the previous year, in 2021.

However, since June 2022, the upward moving momentum that characterized the past 18 months-or-so showed signs of abating as key contributors to the Index, like sulfuric acid and thermoplastics, declined in price. All considered, the YTD performance of the weighted MCI Index through October 2022 measured 20.5%, 8.9% lower than its 29.4% peak in June.

This compares to the previous year where TradeTech's 2021 weighted MCI Index increased linearly from a low of 7.9% in March to a high of 48.6% in December 2021.

TradeTech's independent and iterative assessment of mining economics together with the impact of inflation on uranium production costs indicates that the 5% decrease in Etango-8's updated all in sustaining costs (AISC) metric and the 16% increase in the Project's revised pre-production capital cost estimate, are towards the lower echelons of increases experienced by other projects competing in a similar delivery window.

12. Permitting

The Project requires government approval under the Minerals (Prospecting and Mining) Act 1992. The Minerals Act requires the submission of a Mining Licence (ML) application to be supported by an Environmental and Social Impact Assessment (ESIA), including completion of an Environmental and Social Management Plan (ESMP) to manage the adverse impacts identified, as well as a feasibility study. The ML application has been submitted to the Ministry of Mines & Energy while the Environmental Clearance Certificates (ECCs) for the Etango Project and the Linear Infrastructure i.e., access road, data lines and water pipeline from the C28 road to site have been approved. The ECC for the Etango Project is valid until September 2024 and the ECC for the Linear Infrastructure is valid until May 2025.

Environmental Clearances have also been obtained for the water pipeline from Swakopmund to the C28 turn-off to the site and for the electrical transmission line from the Kuiseb substation to the Etango site. Both Environmental Clearances are valid until August 2025.

An Environmental Clearance application for the temporary construction water pipeline was submitted in November 2022.

The Etango-8 Project is located on the Mineral Deposit Retention Licence 3345 (MDRL 3345). In August 2022 Bannerman submitted the Mining Licence application (ML250) covering the same area as MDRL 3345.

13. Environmental and Radiological Impact and Management

The Project is located in the Namib-Naukluft National Park and close to some of the park's tourist attractions, namely the Moon Landscape (dramatic landscapes) and the Swakop River (dramatic landscape and linear oasis for plants and animals).

The major negative impact findings are summarised in Table 13-1. Of these, the impact of reduction in the invertebrate population and the loss of jobs post-closure are considered to be the only long-term major impacts once planned mitigation measures are in place.

Table 13-1: Major Negative Environmental Impacts

Area	Issue	Pre-mitigation (Phase)	Post-mitigation Impact
Surface water	Restricted flow	C, O, D	Moderate
Dust (PM_{10})	Health	O	Minor
Fauna	Reduction of populations	C, O, D	Major
Flora	Habitat loss/degeneration	C, O, D	Moderate
Road access	Access via D1991	C, O, D	Moderate
Employment	Job losses on closure		Major
Visual – mine	Pit, dust, blasting	C, O, D	Major
Visual – primary crusher		C, O	Negligible
Visual – waste dumps		O, D	Moderate
Noise	Impact "sense of place"	O	Moderate

Note: C – Construction, O – Operation and D - Decommissioning

An Environmental and Social Impact Assessment (ESIA), reflecting the larger 20Mtpa Etango Project, was prepared by Alex Speiser Environmental Consultants (ASEC) and Environmental Resources Management (ERM) and submitted in April 2012 to the Ministry of Environment, Forestry & Tourism (MEFT) and an Environmental Clearance Certificate (ECC) granted in July 2012. This ECC has regularly been renewed and remains current. The ECC is currently valid until September 2024. An approved ECC for linear infrastructure is also in place and currently valid until May 2025.

The people involved in the ESIA are listed in Table 13-2 and as indicated involved a number of specialist studies.

Table 13-2: ESIA Project Team

Activity	Person and Company
• Overall project management	• Ms Alex Speiser (ASEC)
• Compilation of reports, assessments, and management plans	• Ms Alex Speiser & Ms Auriol Ashby (Ashby Associates cc)
• Desert ecology study	• Mr John Pallett (Desert Research Foundation Namibia)
• Vegetation specialist study	• Ms Coleen Mannheimer (freelance consultant)
• Entomology specialist study	• Dr John Irish (Biodata) & Mr. P. Hawkes (Afribug)
• Hydrogeological specialist study	• Mr Hugo Marais, Mr Andreas Stoll, and Dr Meris Mills (Environmental Resources Management Pty Ltd (ERM)
• Radiation specialist study	• Dr Japie van Blerk (ERM
• Health and Safety specialist study	• Mr Russell Powell (ERM)
• Weather data compilation	• Ms Hanlie Enslin-Liebenberg (Airshed Planning Professionals (Pty) Ltd)
• Archaeological specialist study	• Dr John Kinahan (J & J Kinahan t/a Quaternary Research Services cc)
• Socio-economic specialist study & public participation process facilitator	• Ms Auriol Ashby (Ashby Associates cc)
• Avifauna specialist study	• Dr Chris Brown (Namibia Nature Foundation)
• Dust monitoring & air dispersion model	• Ms Hanlie Enslin-Liebenberg (Airshed Planning Professionals (Pty) Ltd)
• Noise study	• Mr Francois Malherbe (Acoustic Consultants cc)

Table 13-2: ESIA Project Team

Activity	Person and Company
• Visual study	• Mr Stephen Stead (VRM Africa)
• Economic study	• Mr Heiko Binding (freelance consultant)
• Conceptual Mine Closure Plan	• Dr. Pierré Smit (Namisun Environmental Project)

Consistent with the Atomic Energy and Radiation Protection Act (Act No. 5, 2005) and the requirements and recommendations of the International Atomic Energy Agency (IAEA) and the International Commission on Radiological Protection (ICRP), human health and the environment must be protected against the adverse effect of radiation exposure from mining and processing of minerals containing Naturally Occurring Radioactive Materials (NORM). The specialist study on the radiological impact of the larger Etango Project to members of the public was evaluated and concluded that the radiological risk is of low significance with no immediate mitigation measures to be implemented to reduce the radiation exposure levels.

Bannerman, in line with the Act, will have a comprehensive Radiation Management Plan (RMP) which will include all the aspects to manage exposure to radiation for employees, contractors, and the public. The principle of keeping the exposure 'As Low As Reasonably Achievable' (ALARA) will be followed.

A Conceptual Mine Closure Plan has been developed for the Etango-8 Project by Namisun Environmental Projects and Development and includes (but is not limited to):

- A water treatment facility as part of the mine closure capital cost (to be located in the vicinity of the process plant hydrometallurgical facility footprint). This has been included to negate any long-term risk associated with ripios dump run-off water.
- The ripios stockpile will be suitably covered with additional waste rock material.
- All economically valuable equipment will be separated, cleaned, and sold (tanks, pumps, and major equipment).
- In-plant piping will be demolished / salvaged.
- All areas that are contaminated with waste oil during the demolition operation will be disposed and sent to a licensed waste disposal facility.
- All items that may be contaminated with radiation will be either disposed of in one of the open pits and covered with waste rock or sent to a licensed waste disposal site should this be available at the time of closure.
- Economically valuable steel constructions and other metals will be recycled.
- All concrete structures and foundations will be demolished, and the area will be rehabilitated.

Separate allowance has been made for the demolition of the infrastructure buildings associated with the process plant.

14. Restoration and Closure

14.1 Restoration and Closure Description

As part of the commitments made on the Environmental and Social Management Plan (ESMP) of 2009 for the Etango Project a conceptual mine closure plan was developed by specialist consultants, Namisun Environmental Projects and Development. The closure plan adheres to the Mine Closure Framework which conceptualizes the closure planning process of Bannerman and covers the full project life cycle, namely planning, construction, commissioning, operations, decommissioning and post closure.

The main components or domains of the physical scope that require due consideration for closure and rehabilitation requirements are:

- Open pit mining operation.
- Surface Waste Rock Dump's / Low Grade Ore Stockpiles.
- Process Plant Area.
- Buildings & Infrastructure.
- Ripios stockpile.

The following broad minimum closure and restoration guidelines have been set:

Physical Stability: After the mine closure, the Waste Rock Dump (WRD) and Ripios Dump (RD) slopes should be physically stable in the long term. The closure design for each of the stockpiles should thus consider the long-term physical stability requirements and will also consider intermittent surface run-off requirements.

Chemical Stability: Throughout the mine closure period, project units such as the waste rock dump area, open pit, and ripios stockpile, should meet chemical stability requirements. Additional mitigation measures will be implemented if the project units do not meet the chemical stability requirements. The objective is to protect surface water and groundwater in a manner that allows the re-establishment of natural background, hydrological and hydrogeological characteristics of the area in the long term. There must be adequate seepage control and detection around heap leach pads, heap leach residue facilities and effluent ponds to prevent contamination of surface and groundwater, both during mining operations and after closure. A modified groundwater level and quality monitoring plan following a close-out audit will be implemented, to monitor natural attenuation up to 50 years post closure.

Socio Economic Aspect Management: consideration of protocols for all phases of the project lifecycle.

Human Health and Safety: The main purpose of the rehabilitation is the long-term protection of the local community's health and safety. The closure design will minimize the necessity for long-term maintenance. Access to the site in general, and to the radiation sources, will be restricted in all mine phases to prevent third parties from being near operations and radiation sources that could have negative health impacts.

14.2 Restoration and Closure Scope

Mine closure objectives will be progressively updated over the course of mining operations as more site-specific information is acquired. It is also intended that progressive remediation will be implemented throughout the mine life, including the re-grading, cover placement, and 're-vegetation' of exposed final surfaces. A suitably qualified visual practitioner has already been involved in the ESIA and ongoing assistance will be required in the definition of the closure plan and to ensure that recommendations are adequately implemented, and that landscaping and rehabilitation mitigations are progressively fulfilled. The ESIA makes specific reference to steps needed to minimize visual impact, e.g. shaping of waste dumps.

Mine closure activities are systematic and start with repairing the landscape structure by means of mechanical activities (Intervention 1), followed by restoration activities to reinstate the ecological functioning of the landscape (Intervention 2), as illustrated in the following tables.

ACTIVITIES REQUIRED TO REPAIR THE LANDSCAPE STRUCTURE		
ISSUE	**CLOSURE ACTIVITIES**	**SUCCESS CRITERIA-BASED EXPECTED OUTCOMES**
Infrastructure	Demolish redundant built structures and infrastructure with no agreed future use and remove demolition waste to best practice standard Restrict access to operational activities Profile affected areas after demolition Clean-up laydown areas and scrap yard(s) Remove and salvage recyclable waste Dispose of demolition waste in prepared areas (e.g., the open pits) Ensure that radioactive waste is handled in compliance with legislation Ensure that hazardous waste is handled in compliance with legislation Remove and remediate hydrocarbon polluted soil Leave behind only infrastructure with a post-closure uses as agreed upon with stakeholders	No redundant infrastructure remains behind No access into unsafe areas, no hazards and unsafe routes No new roads or tracks are created, and only existing roads are used No waste is visible Zero non-compliances with the handling and management of non-hazardous, hazardous and radioactive waste No occurrence of contamination No polluted soil visible No hydrocarbon content remaining Agreed end land use is met
Man-made landforms	Restrict access to operational areas	No unauthorized access to prevent further disturbance Place berms where necessary
	Barricade all landforms under mechanical repair	No unwanted access to rehabilitated areas and processes to prevent re-disturbance
	Landscaping of man-made landforms with slopes	No angular shapes, no colouration, no dust pollution is created Slopes are geotechnical safe and stable (subsidence, slippage and failure is not possible) Height of man-made landforms is not exceeding the heights in the LOM plan No straight horizontal lines, top sections are contoured. Drainage channels are created
	Cover the surfaces of the mineral waste facilities	The surfaces of the Ripios Dump are capped with waste rock

ACTIVITIES REQUIRED TO REPAIR THE LANDSCAPE STRUCTURE		
ISSUE	**CLOSURE ACTIVITIES**	**SUCCESS CRITERIA-BASED EXPECTED OUTCOMES**
		The surfaces of the WRDs are covered with growth medium

ACTIVITIES TO REINSTATE THE ECOLOGICAL FUNCTIONING OF THE LANDSCAPE		
ISSUE	**CLOSURE ACTIVITIES**	**SUCCESS CRITERIA-BASED EXPECTED OUTCOMES**
Biodiversity	Scarify redundant roads and compacted areas and cover with growth medium where necessary Backfill excavations and holes (other than the open pits) to make passive revegetation possible Prepare an uneven surface on all mechanically repaired areas so that water, soil, and seeds can be trapped Cover mechanical repaired surfaces with growth medium where necessary Barricade all areas under restoration Monitor, review, conduct research, and adapt techniques accordingly Monitor alien invasive plants and remove infestations	Trajectory trends towards passive revegetation are recorded Self-perpetuating indigenous vegetation is enabled Re-disturbance is prevented Alien invasive species are absent
Surface Water	Prevent unnatural erosion or potential impoundment Monitor water quality	Natural drainage lines are intact, or re-established where it has been disturbed to enable flowing water As per legislation, and or licence conditions Until trends towards geochemical competent, safe, stable and non-polluting are demonstrated.

15. Project Finance

An assessment of various funding alternatives for Etango-8 has been made based on precedent funding transactions in the uranium and broader metals mining sector.

Bannerman has formed the view that there is a reasonable basis to believe that requisite future funding for development of Etango-8 will be available when required.

Bannerman is targeting total pre-production and working capital funding being comprised of one, some, or all of:

- Senior project debt;
- Mezzanine debt;
- Offtake prepayment;
- Sale of a strategic asset interest;
- Equity issue, and/or;
- Royalty or stream funding.

The final mix will depend on general market and mineral industry conditions, specific counterparty appetite and terms and Bannerman's prevailing views on optimal funding mix and balance sheet configuration.

Senior project debt may be sourced from a number of alternate providers including commercial banks, export credit agencies, development finance institutions / multilaterals, credit funds and the project bond market.

Bannerman has engaged the services of a debt advisor, ICA Capital Partners, to assist with the financing process and is advancing work streams critical to the financing process, including offtake strategy and environmental and social plans.

Bannerman notes the renewed investor interest and recent market activity in the uranium sector and considers such activity to be positive for prospective liquidity. Recent utility contracting activity and the announcement of the restart of several uranium mines and the development of others are indicative of such interest. In addition, interest from Government in the nuclear sector continues to build driven by nuclear energy's role in achieving net-zero carbon emissions. Governments have historically been involved in the funding of the nuclear sector and renewed Government interest is also considered important support for sector liquidity.

16. Risk Management

The risk management strategy for the DFS was to complete a review and update of the baseline risk assessment using the PFS baseline risk assessment as basis. A stand-alone report has been generated and included in the DFS report. Classification of risk for the DFS was based on five main areas:

- External risks.
- Technical risk.
- Safety and Sustainable Development Risks (S&SD).
- Project Management Risks.
- Commercial Risks.

The risk workshop reviewed the risks identified previously in PFS and re-assessed to determine the current residual risk. It also identified emerging risks not identified previously. The consolidated (updated) Bannerman risk matrix as used in the PFS phase was retained in completing the risk assessment for the DFS.

16.1 High Level Risk Review

The objectives of the risk assessment workshop were to:

- Identify the key project risks associated with the Etango-8 Project.
- Discuss the risks identified and ensure common understanding of these risks amongst participants.
- Prioritise the key risks using agreed criteria as documented in the Project Risk Matrix
- Identify mitigation actions for the key risks identified and conclusions drawn based on these.
- Prepare a risk assessment document for inclusion in the study report.

The 57 risks as identified during the PFS were reviewed and to ensure the principle MECE (Mutually Exclusive, Collectively Exhaustive) were rationalised to 39. 16 new risks were identified. A total of 55 risks are included in the baseline risks assessment.

The risks were analysed based on impact and likelihood and adjustments to the residual risk rating were made based on the progression of engineering detail from the PFS to the DFS.

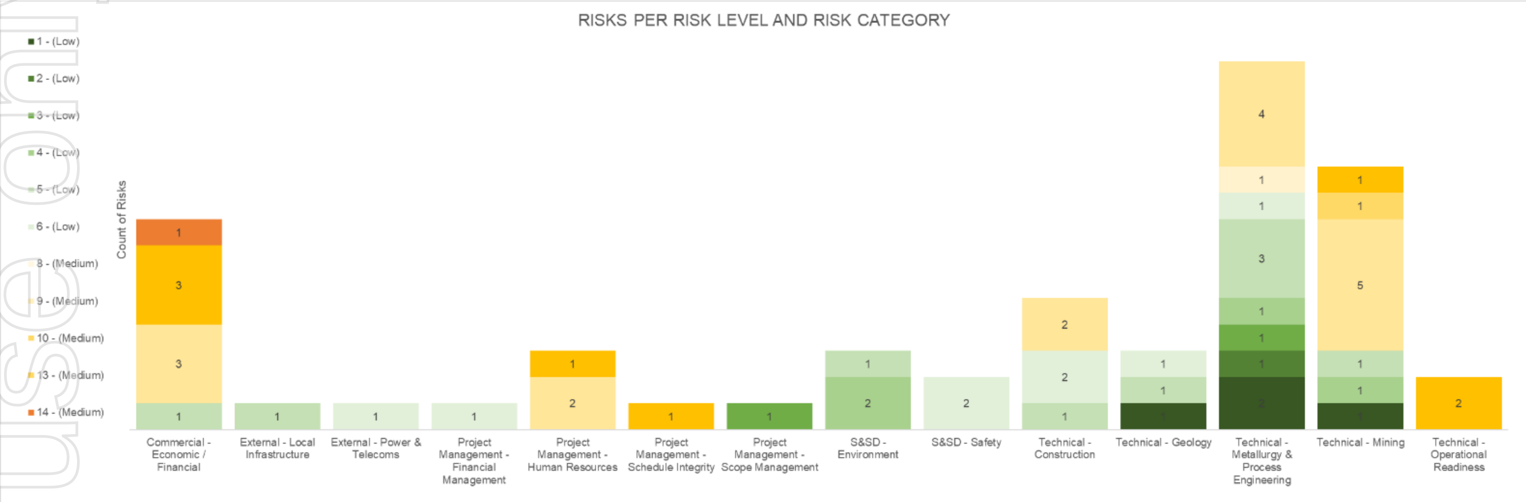
External risks over which the project team has no control e.g. rate of exchange and escalation, were not evaluated during the risk review.

The following figure shows the revised risk “heatmap” i.e., the distribution of residual risks per risk category.

COUNT OF RESIDUAL RISK PER CATEGORY
JUNE 2022

	(A) *Negligible*	***(B)*** *Minor*	***(C)*** *Moderate*	***(D)*** *Major*	***(E)*** *Catastrophic*
(5) Almost certain					
(4) Likely					
(3) Possible	4	1	8		
(2) Unlikely	1	9	16	1	
(1) Rare	4	2	8	1	

The following diagram shows the number of risks per risk level and category:



There are no remaining "high" risks. The following table shows the top 10 project risks.

Table 16-1: Top 10 Project Risks

RISK CATEGORY	RISK DESCRIPTION	CAUSE	RESIDUAL RISK RATING
Commercial - Economic / Financial	Price reduction in uranium price (below breakeven)	Sensitivity to Uranium price - profit and loss	14 - (Medium)
Commercial - Economic / Financial	Price of sulphuric acid and long-term supply fluctuations.	Based on supply & demand. Local availability also possibility of immediate supply)	13 - (Medium)
Technical - Operational Readiness	Insufficient water for start-up.	Insufficient supply by NamWater. Demand from other mines in the area.	13 - (Medium)
Technical - Operational Readiness	Sub-optimal logistics around ripios dump.	Rate of ripios disposal too high for equipment to handle. Material too abrasive for equipment to handle. High traffic volumes.	13 - (Medium)
Commercial - Economic / Financial	Mining contractor rates much higher than owner mining costs.	Owner underestimates mining costs. Tenderer uses high level costing model, does not use detailed models.	13 - (Medium)

Table 16-1: Top 10 Project Risks

RISK CATEGORY	RISK DESCRIPTION	CAUSE	RESIDUAL RISK RATING
		Prevailing economic conditions. High level of consistent escalation.	
Technical - Mining	Scheduling/planned production time not achieved.	Not meeting schedule due to shift change over, blast delays, i.e., longer delays than planned.	13 - (Medium)
Commercial - Economic / Financial	Unstable market conditions affecting cost estimates accuracy	Escalation world-wide on materials and equipment as well as air/sea freight costs. Use of budgetary quotations.	13 - (Medium)
Project Management - Human Resources	Lack of skilled labour – inability to hire or retain key personnel.	Competing with other mines in the area. Loss of Owners' Team and EPCM staff.	13 - (Medium)
Project Management - Schedule Integrity	Missing key project milestones.	Overly optimistic scheduling. Reliance on external permissions e.g., environmental authorisations.	13 - (Medium)
Technical - Mining	Inappropriate geotechnical slope.	Slope design - geotechnical recommendations. Access ramp constitutes a potential single point-of-failure.	10 - (Medium)

16.2 Risk Planning Activities

The risk management strategy for the PFS made allowance for the completion of HAZOP 1. The HAZOP 2 will be completed once the flow sheets are finalised and HAZOP 3 when equipment adjudications are complete. The HAZOP 2 and 3 are earmarked for the transition into the project execution phase / Front End Engineering Design (FEED) phase (HAZOP 4 to 6 would be completed as part of execution project hand over and close out).

A Risk Management Plan for the execution phase has also been included as part of the DFS deliverables.

A hazardous area classification aligned to the final fire protection design for the process plant facility will be addressed as part of the detailed design.

17. Project Implementation

Following the completion of the DFS, Bannerman has immediately proceeded into a FEED phase. The strategy is to progress seamlessly from the FEED into Implementation.

Recommended focus areas coming out of the DFS include the following:

- Obtaining mining licence grant based on DFS.
- Optimisation of the process flow and fixing of the plant scope based on test work results.
- Value engineering and optimisation of the DFS through trade-offs:
  - De-bottlenecking.
  - Green study.
- Detail construction and operational readiness planning.
- Gap analysis of the environmental permissions.

The scope of the FEED phase will include the following:

- Finalisation of process engineering including PFDs and P&IDs.
- Detailed planning of early-works and construction services.
- Finalisation of contractor laydown areas for all site erection activities for mining, process plant and infrastructure areas.
- Procurement optimisation covering the following aspects:
  - Mechanical supply packages – The focus will be on major packages (for both the ‘dry’ and ‘wet’ process circuits) as well as items that will need the placement of orders to secure certified drawings for key structures on the critical path.
  - Electrical supply packages – critical packages identified during the DFS.
  - Control and instrumentation – critical packages identified during the DFS.
  - Site erection packages - Bulk Earthworks, Civils, Infrastructure, Liner Supply & Installation, SMPP and E&I.
- Engineering design definition / strategy and for the following two-unit processes:
  - The supply for uranium drying / drumming facility.
  - The Ion Exchange (IX) / Nano Filtration (NF) scope and optimisation.
- Further definition on final BOQs and contracting strategy for:
  - General infrastructure including initial site establishment – access roads, water ponds and pumps / piping.
  - Setup for site wide surface drainage including establishment of diversion channels.
  - Bulk earthworks for process plant area.
  - Restricted excavations and civils for the process plant area.
  - Liner supply & installation.
  - Structural steel, platework and piping & valves.
  - Electrical, control & instrumentation.

This means that major contract negotiations can be finalised during the FEED for the Bulk Earthworks, Civils, Liner Supply & Installation, SMPP and E&I site erection packages for the execution project.

In addition to this, the enquiry for the mining contract will be finalised (on a binding tender basis). The bulk earthworks scope of work will be then rationalised / finalised between the mining contract and the bulk earthworks / civils contracts.

17.1 Project Execution Plan (PEP) Deliverables

The FEED phase will include an update of the elements of the Project Execution Plan (PEP) delivered as part of the PFS and DFS (listed below):

- Project Execution Organogram.
- Project Execution Schedule.
- Work Breakdown Structure.
- Procurement Operating Plan.
- Risk Management Plan.

The detailed project implementation schedule (developed in Prima Vera (P6) – Appendix 14.2) will be updated based on further alignment between the construction and commissioning activities for the Project as a whole. The Project schedule will include all tasks from detailed engineering, procurement, fabrication, transportation to site, site establishment of contractors, construction, and commissioning of the plant through to handover to Bannerman.

The PEP will be updated during the FEED phase and will also be updated to include the following additional management plans:

- Procurement & Expediting Plan.
- Cost Management Plan.
- Responsibility Assignment Matrix (RACI).
- Construction Management Plan.
- Commissioning Plan.
- Communications Management Plan.
- Quality Management Plan.
- Operational Readiness Plan.
- Design & Engineering Management Plan.
- Materials Handling Management Plan.

17.2 Prime Goals for Project Execution

Table 17-1: Prime Goals for Project Execution		
Safety, Health, Environmental (SHE)	**Description**	The project will create a culture where the safety and health of the workforce and other affected persons is paramount. Safety management systems and outcomes are targeted to be equal to or better than current best practice in the industry. The project is to ensure compliance with the environmental obligations set out in the approved Environmental and Social Management Plan (ESMP).
	Measure	Zero Fatalities LTIFR = 0 Meet environmental commitments described in the ESMP. Ensure health of client, project employees and public are not detrimentally affected by project activities.
Time	**Description**	The initial development of the project area is to be achieved within the proposed overall project time frame.
	Measure	Achieve critical interim milestones.
Capital cost	**Description**	The agreed estimated project cost must be demonstrated to represent value for money.
	Measure	The actual project cost must be equal to or less than the estimated project cost.
Operations interface	**Description**	The various unit operation associated with the overall project scope must be delivered to operate at their specific design throughputs / availabilities.
	Measure	Minimal unscheduled disruptions during commissioning ramp up.
Facilities Performance		An agreed measure of overall performance for project handover.

17.3 Project Time-Lines

A high-level construction timeline is included in Figure 17-1: High Level Construction Schedule. The planned construction is dependent on the approval of the Mining Licence and any delay in that approval will push out the plant commissioning date.

The tables overleaf include the current estimated key dates for study timeline phases, external infrastructure, and the process facility & supporting infrastructure.

Table 17-2: External Infrastructure Construction Timelines	
ACTIVITY	**TIME-LINE / DURATION**
Raw Water Supply	21 months including detail design
Power Supply	24 months including detail design, wayleave applications and deep connection
Access Road	9 months including detail design

Table 17-3: Process Facility & Supporting Infrastructure Key Dates		
Activity ID	**Start**	**Finish**
Milestones	**Month no**	**Month no**
Project Start / Notice to Proceed FEED	1-Aug-22	
Internal EPCM Team Kick-off Meeting Complete		29-Aug-22
EPCM Project Team Mobilization Complete (Initial Design Team)		12-Sep-22
DFS Optimization Complete		5-Oct-22
Process Design Criteria - Issued for Approval		24-Jan-23
All PFD's issued for Approval	2-Feb-23	
HAZOP 2 Workshop (PFD's & Mass Balance Review Workshop) Complete		3-Apr-23
Project Setup Complete		12-Apr-23
Final investment decision date not yet determined		
Milestones*	**Start**	**Finish**
Onboarding and Site Establishment Complete - Early Works Contractor		1
Notice to Proceed - PO Award for Detail Design Phase	3	
Contract Award - Bulk Earthworks		5
Onboarding and Site Establishment Complete - Construction Camp Contractor		5
Onboarding and Site Establishment Complete - Bulk Earthworks Contractor		6
Onboarding and Site Establishment Complete - Wood Team		6
Early Works Construction Complete		6
All Piping & Instrumentation Diagrams issued for Approval		8
Contract Award - Concrete Works		9
Onboarding and Site Establishment Complete - Civil Works Contractor		10

HAZOP 3 Workshop (P&ID's Control Philosophy and Functional Spec) Complete		11
Contract Award - Structural, Mechanical, Platework and Piping (SMPP) Works		14
Onboarding and Site Establishment Complete - SMPP Contractor		15
Construction Camp Construction Complete		15
Bulk Earthworks Construction Complete - Plant Wide		15
Process Plant Civil Work Complete		22
Infrastructure Buildings Construction Complete		22
Contract Award - Electrical & Instrument Works		22
Onboarding and Site Establishment Complete - EC&I Installation Contractor		23
Process Plant SMPP Construction Complete		23
EC&I Installation Complete		28
C1 Construction Complete Process Plant		29
C2 Commissioning Complete Process Plant		29
C3 Cold Commissioning Complete Process Plant		29
Commissioning Assistance C4 - Inventory Build-up Circuits Complete		29
Commissioning Assistance C4 - Balance of Plant Complete		31

***Month 1 is taken as first month of construction on site.**

		Month																														
	Overall Duration (months)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Overall Construction & Commissioning Period (excludes Site Establishment)	**31**																															
Bulk Earthworks - Early Works	5																															
Construction Camp	12																															
Bulk Earthworks - Plant Wide	10																															
Civil Works	12																															
Infrastructure - Buildings	10																															
Structural Installation	11																															
Mechanical Installation	9																															
Platework Installation	7																															
Piping Installation	6																															
Electrical Installation	7																															
C&I Installation	6																															
Final Punching	4																															
C1 Construction Complete	4																															
C2 Commissioning	4																															
C3 Commissioning	4																															
C4 Hot Commissioning Assistance	3																															

Figure 17-1: High level construction schedule (months from Final Investment Decision)

18. Conclusions / Recommendations

The Etango-8 Project DFS confirms that it remains technically and economically feasible using conventional mining and metallurgical techniques to extract the uranium and there are no fatal flaws in the mining and process design. During the DFS some further optimisation opportunities have been identified to improve the overall economics of the Project and these will be pursued as the Etango-8 Project progresses through the FEED phase.

18.1 Geology and Mineral Resources

The Project hosts significant uranium resources which are predominantly hosted by a stacked sequence of leucogranitic bodies (generally referred to as alaskite) that have intruded the host Damara Sequence of metasedimentary rocks. The resource stretches over a prospective strike length of greater than 15km along the western flank of the Palmenhorst Dome which incorporates the Anomaly A, Oshiveli, Onkelo, Ondjamba and Hyena deposits. The June 2021 Etango Mineral Resource estimate has been classified in accordance with the JORC Code (2012) and confirms that the Etango resource is globally significant. The 2021 Etango Mineral Resource closely reflects the proposed grade control and mining approach, which involves gamma probing of relatively widely spaced blastholes supplemented by a truck scanning station. This approach has been shown to be highly effective at major open pit uranium deposits.

18.2 Mining and Reserves

The Etango-8 Ore Reserve contains 113.5Mt of ore at a grade of 240ppm U_3O_8 for 59.9Mlb U_3O_8. The Ore Reserve is derived from the Measured and Indicated resource only, in line with the JORC Code (2012) guidelines for generating Ore Reserves.

The Etango-8 DFS proposes a contract mining operation. This includes drilling, blasting, loading, and hauling of ore and waste. The mining method being open pit extraction utilising a conventional mining fleet comprising of 130 - 250t diesel hydraulic excavators/shovels backed up by 100t off-road dump trucks mining at a peak mining rate of 25Mtpa to supply 8Mtpa ore. The mine schedule employs a variable cut-off grade approach to maximise the NPV; the cut-off grade is flexed during mine schedule to maximise metal production as early as possible.

18.3 Process and Engineering Design

18.3.1 Process Optimisation

The DFS process design was completed based on the latest available test work and preliminary outcomes of the latest test work campaign that was executed in parallel. During the FEED the process design will be reviewed to implement the recommendations from the test work campaign. This may impact the heap leach pad, ion exchange and nanofiltration steps. The main focus of the FEED will be to finalise the flowsheet and finalise the PFDs and P&IDs

A capacity or debottlenecking study will be done to optimise the throughput of the plant and identify any future expansion opportunities.

18.3.2 Value Engineering

The following value engineering will be done during the FEED:

- Intelligent 3D design that utilises an integrated design database to set up the Project and perform design in 3D. Once the model is developed this will allow for 2D drawings to be extracted. The benefit will be improved traceability, auditability, quality control in engineering, interfaces and expediting of 2D detailing.
- A power study to determine the viability of embedded Photovoltaic (Solar) power generation vs solar power generated off-site with additional NamPower supply.
- Further detailing and updates of all documents affected by the outcomes of the value engineering and CAPEX optimisation work that was done during the DFS.

18.4 Environmental and Social

The Mining Licence (ML250) application for the Etango-8 Project was submitted to the Ministry of Mines and Energy in August 2022. All permissions and clearances need to be in place before any construction activities can commence for either the mine, plant, or linear infrastructure.

18.5 Economic Analysis Outcomes

The financial projections for the Etango-8 DFS were developed by Qubeka, Wood and Bannerman using a discounted cash flow model. The modelling assumes contract mining while the rest of the operation is owner operated.

The financial estimates were prepared under the following assumptions:

- A real discount rate of 8% was used for discounted cash flow modelling;
- Costs are quoted in real US dollar 2022 terms;
- Cash flow periods are expressed monthly for construction and quarterly for operations;
- Uranium sales revenue is assumed to be realised 3 months after drummed production;
- All financial assessments have been undertaken on a 100% project ownership basis (noting that Bannerman's attributable interest in the Etango Project is 95%);
- All costs are stated exclusive of VAT;
- Namibian Government royalties (3%) and export levy (0.25%) have been applied to gross revenue and Namibian corporate tax (37.5%) has been applied to pre-tax post-royalty cash flow;
- Quantities stated are metric (SI units), excepting the final product which is converted to pounds (lbs).

Forecast key financial metrics for the development of Etango-8 as reflected in the DFS are summarised in Table 18-1 (all projections are on a 100% project basis).

The NPV of the Project, at an 8% real discount rate, is estimated to be US$369M before tax and US$209M after tax. The internal rate of return of the Project is estimated at 21% before tax and 17% after tax.

Table 18-1: Etango-8 Financial Projections

KEY FINANCIAL OUTCOMES	UNIT	DFS	PFS	SCOPING STUDY
Price Inputs				
LOM average uranium price	US$/lb U_3O_8	65	65	65
US$/N$	N$	17.56	16	16
Valuation, Returns and Key Ratios				
$NPV_{8\%}$ (post-tax, real basis, ungeared)	US$M	209	222	212
$NPV_{8\%}$ (pre-tax, real basis, ungeared)	US$M	369	386	373
IRR (post-tax, real basis, ungeared)	%	17.0%	20.3%	21.2%
IRR (pre-tax, real basis, ungeared)	%	21.0%	25.3%	26.8%
Payback period (post-tax, from production)	years	4.1	3.8	3.6
Payback period (pre-tax, from production)	years	4.1	3.8	3.4
Pre-tax NPV / Pre-production capex	x	1.2	1.4	1.5
Pre-production capital intensity	US$/lb U_3O_8 pa cap.	90	78	71
Cashflow Summary				
Sales revenue (gross)	US$M	3421	3440	3320
Mining opex	US$M	-857	-885	-856
Processing opex	US$M	-785	-911	-859
G&A opex	US$M	-118	-122	-143
Product transport, port, freight, conversion	US$M	-65	-58	-56
Royalties and export levies	US$M	-111	-112	-146
Project operating surplus	US$M	1484	1352	1260
Pre-production capital expenditure	US$M	-317	-274	-254
LOM sustaining capital expenditure	US$M	-51	-43	-31
Project net cashflow (pre-tax)	US$M	1099	1034	975
Tax paid	US$M	-404	-392	-371
Project net cashflow (post-tax)	US$M	695	642	604
Unit Cash Operating Costs				
Mining	US$/t mat. mined	2.4	2.5	2.6
Mining	US$/lb U_3O_8	16.3	16.7	16.8
Processing	US$/t ore	5.4	7.7	7.5
Processing	US$/lb U_3O_8	14.9	17.2	16.8
G&A	US$/lb U_3O_8	2.2	2.3	2.8
Product transport, port, freight, conversion, marketing costs	US$/lb U_3O_8	1.2	1.1	1.1
Total cash operating cost (ex-royalties/levies)	US$/lb U_3O_8	35.0	37.3	37.4
Royalties and export levies	US$/lb U_3O_8	2.1	2.1	2.9
Total cash operating cost	US$/lb U_3O_8	37.1	39.5	40.3
All-in-sustaining-cost (AISC)	US$/lb U_3O_8	38.1	40.3	40.9

Forecast pre-production capital intensity for the Etango-8 Project is attractive at approximately US$90 per lb of average annual production capacity.

The projected LOM cashflow is shown in Figure 18-1. The Etango-8 Project is expected to achieve a post-tax payback in approximately 4.1 years from first production.

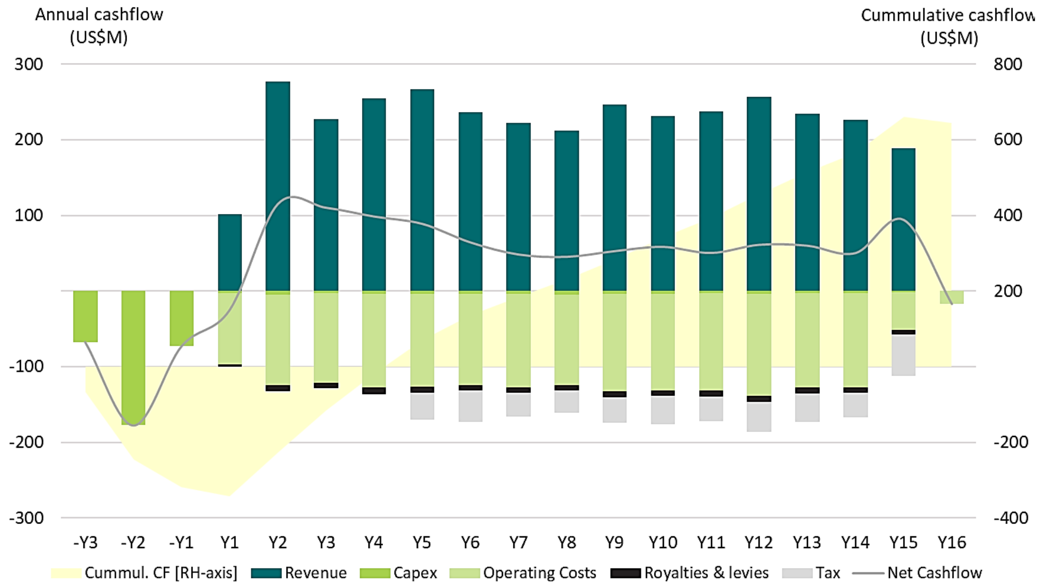


Figure 18-1: Etango-8 Forecast Life-of-Mine Net Cashflows

18.5.1 Sensitivity Analysis

The financial sensitivity analyses undertaken on the Etango-8 Project examined variations in each of the following parameters:

- U_3O_8 Price.
- Capital Costs.
- Mining Operating Costs.
- Processing Operating Costs.
- Water Cost.
- NAD & ZAR Foreign Exchange Rate Movements.
- Discount Rate.

In assessing the sensitivity of the Etango-8 Project economics, each of the above parameters has been varied independently of the others. Accordingly, combined positive or negative variations in any of these parameters will have a more marked effect on the forecast economics of the Etango-8 Project than will the individual variations considered, while variations in opposite directions could naturally have a negating effect on each other.

The sensitivity analysis demonstrates the economic performance of the Etango-8 Project is most sensitive to changes in the uranium price with a financial breakeven price (the price at which NPV8 = zero, ie the project pays all LOM costs and an imputed 8% return on capital) occurring at ~US$52/lb U_3O_8, and +/-10% NPV impact of +/-US$95M. High sensitivity to U_3O_8 is unsurprising given the large scale and relatively modest grade of the deposit.

The Project is affected by factors which have the greatest bearing upon cash operating margins. Accordingly, the highest sensitivity following the uranium price is sensitivity to foreign exchange, with a +/-10% movement delivering a +/-US$25-30M impact on NPV. Subsequently, operating costs have the largest impact on the NPV, with Mining and Processing being almost equal in weighting (+/- 10% impact to NPV: Mining +/-US$26M and Processing +/-US$24M).

Capital costs are the next most sensitive cost parameter (+/-10% impact to NPV: +/-US$23M), followed by sulphuric acid (+/-10% NPV impact: US$6M) and Water (+/-10% NPV impact: US$3M).

Figure 18-2,

Figure 18-3, and Figure 18-4 outline the results of the sensitivity analysis across post-tax NPV and IRR outcomes.

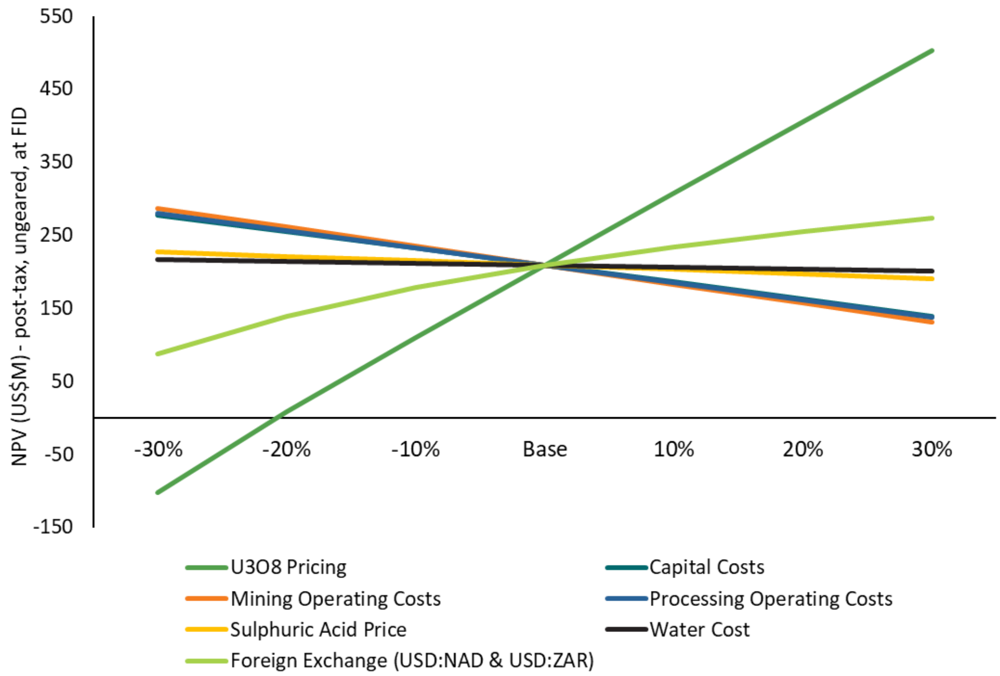


Figure 18-2: Sensitivity Analysis – post-tax NPV (US$M)

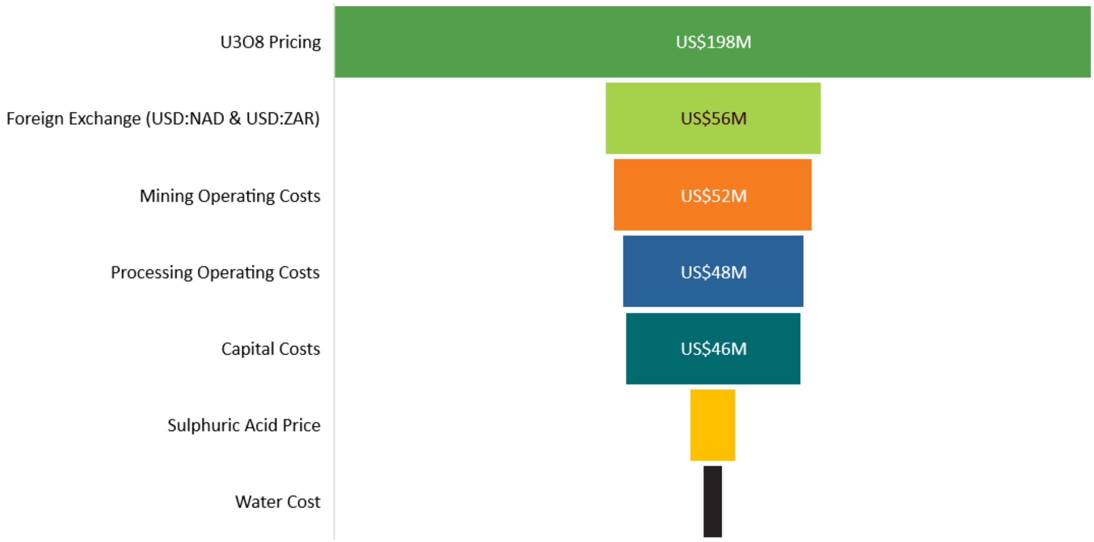


Figure 18-3: NPV Sensitivity to Key Inputs +/-10%

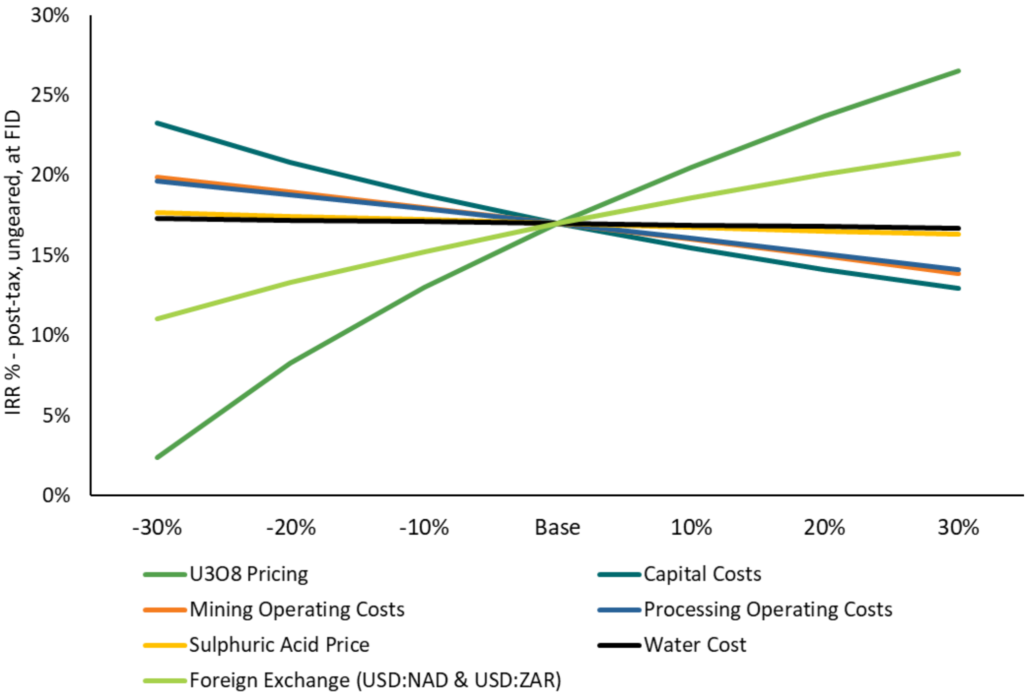


Figure 18-4: Sensitivity Analysis – post-tax IRR (%)

As noted, the Etango-8 Project is most sensitive to changes in uranium prices. Positive movements of 10% and 20% from the base case assumption of US$65/lb U_3O_8 produce significant changes in the post-tax NPV from US$209M to US$308M and US$406M respectively, the latter with a post-tax IRR of 23.7%.

Should higher prices than the base case assumption be available to the Project, then the economics naturally become significantly more attractive.

Table 18-2 displays the potential financial outcomes at U_3O_8 prices of US$65/lb, US$70/lb, US$80/lb, and US$90/lb.

Table 18-2: Sensitivity of Project Financial Metrics to U_3O_8 Price

Financial Metric	Unit	U_3O_8 Price			
		US$65 /lb	**US$70 /lb**	**US$80 /lb**	**US$90 /lb**
Total revenue	US$M	3,420.7	3,683.8	4,210.1	4,736.3
Total EBITDA	US$M	1,484.0	1,738.6	2,247.7	2,756.9
Project free cashflow (pre-tax)	US$M	1,098.9	1,353.5	1,862.6	2,371.8
Project free cashflow (post-tax)	US$M	694.9	854.0	1,172.3	1,490.5
Project IRR (ROIC) - pre-tax, ungeared, at FID	%	21.0%	24.2%	30.0%	35.2%
Project IRR (ROIC) - post-tax, ungeared, at FID	%	17.0%	19.7%	24.6%	28.7%
Project $NPV_{8\%}$ - pre-tax, ungeared, at FID	US$M	368.9	487.5	724.6	961.7
Project $NPV_{8\%}$ - post-tax, ungeared, at FID	US$M	209.1	285.0	435.5	584.4
AISC	US$M	2,004.3	2,012.8	2,029.9	2,047.1
AISC	US$/t ore	17.66	17.73	17.88	18.03
AISC	US$/lb U_3O_8 prod.	38.09	38.25	38.57	38.90
Payback period - post-tax, from first production	years	4.07	3.58	2.84	2.59

18.6 Risk Management

There are no “high” risks as identified in the risk register. The highest risk rating is 14-Medium relating to Uranium price. No fatal flaws have been identified relating to technical and engineering design.

HAZOP 2 and 3 will be done once the process PFDs are final.

Appendix A - JORC Code, 2012 Edition – Table 1 report

Appendix A - JORC Code, 2012 Edition – Table 1 report

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• Samples were obtained using both reverse circulation (RC) and diamond drilling (DD) methods. • RC drill samples were collected off the rig cyclone in large plastic bags at 1m intervals. The 1m sample was split in the field by Bannerman staff using a 75/25 riffle splitter. The 75% sample was placed into a bulk sample bag from which rock chip samples were taken and placed into a chip tray for logging by the geologist. The primary sample sent to the laboratory was obtained by splitting the 25% sample until a sample of approximately 500g to 1kg was obtained. A count per minute (CPM) reading was taken from this sample using a handheld scintillometer and recorded along with the sample condition (wet, dry, and moist). If the bulk sample was wet, a spear sample was taken. Intervals of recovered samples selected for analysis were based on alaskite lithology or intersections in non-alaskites that had a CPM greater than 300. • Diamond drill core was placed in core trays after drilling and taken to the Bannerman core logging and storage facility on site at Etango, where it was orientated, measured, logged and marked for sampling by the staff geologist. Sample intervals were determined by the geologist after logging. The sample lengths were nominally 1m; however, sample lengths ranging from 0.5 to 1.49m were selected where a lithological boundary was intersected. No sampling was undertaken across lithological boundaries. • For both RC and core, each sampled interval was generally preceded and followed by 2.0m of shoulder samples extending out beyond the interval of interest.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• Bannerman has completed a total of 945 RC (215,480m), 137 diamond (37,392m) and 21 RAB (1,875m) drillholes, for a total of approximately 254,747m, in and around the Etango Project. This drilling provided the geotechnical, hydrological, structural, lithological and uranium grade data over the Anomaly A, Oshiveli and Onkelo prospects and the plant site area that are the subject of this resource. • The RC holes for resource definition purposes were drilled using a bit diameter of 4.72" to 5.5". • Most of the diamond drillholes for resource delineation and grade estimation purposes were drilled using NQ diameter core barrels (47.6 mm core), with the bulk of the core being orientated by spearing after each run. A total of 29 diamond drillholes were drilled for geotechnical purposes using a NQ3 core barrel (45.1 mm core) • Twenty eight drillholes were also completed using HQ core diameter (63.5 mm core) for metallurgical testwork.

Criteria	JORC Code explanation	Commentary
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• RC samples observed in the field were of suitable size and generally of consistent high recovery. Coffey International Limited (Coffey Mining) previously recommended that the RC sample recovery be routinely recorded and entered into the drillhole database. Based on this recommendation, Bannerman field staff undertook an analysis of the RC sample recovery in 2008. The samples were weighed before they were split and all samples returned a weight of ±20kg. The rocks in the mineral resource area are competent with very little cavities. Based on the results of the investigation Bannerman determined that routine recording of this data was superfluous as the RC sample recoveries were very high. • Diamond drill core recoveries and RQD were recorded during logging, with measurements taken downhole between drill runs which were generally in 3m increments. Recoveries were generally good, with the majority > 95%. From this data it is clear that the rock is very competent with very low levels of core sample loss.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• RC drill chips were logged for geological variables including lithology, colour, texture, hardness, degree of weathering, alteration, alteration intensity etc., and a small sample was kept from each meter in plastic chip trays as a logging record. • Diamond drill core was also logged for the same geological variables as RC samples. • Core was photographed in the trays at Bannerman's sample storage facility after logging and was securely stored after sampling. • The logging of geological features in both RC chips and core was mainly qualitative, with parameters such as degree of weathering, hardness, alteration intensity etc., being visually estimated by the logging geologist. • The entire length of all holes was logged from collar to end of hole.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• RC drill samples were collected off the rig cyclone in large plastic bags at 1m intervals. The 1m sample was split in the field by Bannerman staff using a 75/25 riffle splitter. The 75% sample was placed into a bulk sample bag from which rock chip samples were taken and placed into a chip tray for logging by the geologist. The primary sample sent to the laboratory was obtained by splitting the 25% sample until a sample of approximately 500g to 1kg was obtained. A count per minute (CPM) reading was taken from this sample using a handheld scintillometer and recorded along with the sample condition (wet, dry, and moist). If the bulk sample was wet, a spear sample was taken. Intervals of recovered samples, selected for analysis, were based on alaskite lithology or intersections in non-alaskites that had a CPM greater than 300. • Up to drillhole GOADH0022, core was cut longitudinally with a diamond saw and half core sampled for analysis. The residual half core was retained in the core box for reference whereas the primary core sample was sent to SGS Lakefield in Johannesburg (SGS Johannesburg) for crushing and analysis. Subsequent to GOADH0022, only quarter core was used for primary analysis. The core depths (in metres), sample intervals and sample numbers were marked on the core for later identification. • For both RC and core, each sampled interval was preceded and followed by 2.0m of shoulder samples extending out beyond the interval of interest.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	• Initially all primary RC and diamond core samples were sent to SGS Johannesburg for crushing, pulverisation and chemical analysis. SGS Johannesburg is a SANAA accredited laboratory (T0169). • The samples were analysed by pressed pellet X-ray fluorescence (XRF) for uranium (and then converted to uranium

Criteria	JORC Code explanation	Commentary
	• *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	oxide (U3O8) by calculation), niobium (Nb) and thorium (Th); and by borate fusion with XRF for calcium (Ca) and potassium (K). • Since December 2008, the sample preparation stages have been completed at SGS Swakopmund and pulp samples have then been forwarded to SGS Johannesburg for the analysis. Analysis for Ca and K was discontinued in March 2009. • Since December 2007, standards and blanks have routinely been inserted into the sampling stream at a nominal rate of 1:20. • RC field duplicate samples were sourced from the 75% reject as well as diamond core duplicates taken at the rate of 1 in every 20 primary samples. The sampling method was the same as used for the primary sample. Field duplicate samples were sent to Genalysis Johannesburg, and since January 12 2009 to SGS Johannesburg for assaying. • Based upon Coffey Mining's analysis of the duplicates data and the laboratory-based standards data, the Bannerman assaying is considered to meet acceptable industry standards for sample accuracy and precision and is acceptable for use in resource estimation studies. • From November 2007, Bannerman has used the Acquire commercial database software system to manage its drillhole data. The use of such database management software is considered to be of high industry standard as it enables the incorporation of large datasets into an organised, auditable structure. • Checks by Coffey Mining have identified no material issues with the database and it is considered acceptable for use in resource estimation.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• Drilling and sampling operations were supervised by Bannerman geologists and samples were promptly bagged and taken to the onsite storage facility at Etango prior to shipment to the assay laboratory. It is considered that Bannerman has appropriate provisions in place to safeguard the sample security. • Bannerman has drilled eight pairs of Diamond/RC twinned-holes at its Anomaly A deposit since the commencement of exploration activities in 2006. The twinned-holes were drilled as a means of verifying mineralization intersection thicknesses as well as mineralization grades. Analysis has shown that there is no bias in the thicknesses of matching intersections of Diamond and RC twinned-holes as they are very similar and compare very well to each other across all thickness ranges. • Analysis of matching pairs of composite Diamond and RC length-weighted assay grades within a 5m radius of each other indicated that Diamond U3O8 grades are generally higher than those of RC. • Coffey Mining has visited the SGS Johannesburg facility and considered it to be well run and that the preparation and analytical methods used by SGS Johannesburg are appropriate. • Coffey Mining visited the Etango Project site during April 2008 and collected samples for the purposes of independent sampling. A total of 40 RC samples were collected directly after drilling and splitting and placed into plastic bags with numbered security tags attached. Once tagged, the bags were sent to Bannerman's sample storage yard for processing. • Ten diamond samples were also collected at Bannerman's core shed, and then placed in plastic bags with numbered security tags attached. The tagged samples were then sent to the SGS Johannesburg laboratories, where the security tags were inspected by Coffey Mining personnel, prior to sample preparation. • The results illustrated typical examples of mineralisation from the property.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine*	• All drillholes were surveyed for collar position and downhole deviation. • Bannerman uses Ellipsoid WGS84 and Projection UTM Zone 33 South as the coordinate system.

Criteria	JORC Code explanation	Commentary
	workings and other locations used in Mineral Resource estimation. • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• All but eight (8) drillhole collars were surveyed by licensed surveyors after drilling. The remaining eight holes were surveyed by Bannerman employees using a handheld Garmin GPS. • Drillhole azimuths were measured with reference to magnetic north. Drillholes have been surveyed with either a Leica Total Station or Leica GPS. All recorded coordinates are to within +/- 5cm in XYZ, with a greater accuracy for collars surveyed using the Leica Total Station. Collar coordinates surveyed by Bannerman with the handheld Garmin 60CSx GPS are to within +/- 3m in the XYZ. • Downhole directional surveys were initially taken using an Eastman single shot camera at nominal 30 m intervals (the first few holes only); however, for the vast majority of holes the practice has been to survey drillholes using a three component Fluxgate Magnetometer survey tool following completion of the drilling.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• Drilling has been conducted on a nominal 50 m x 50 m, to 50 m x 100 m drill spacing, with the bulk of the 50 m x 50 m drilling being completed in the area of the likely open-pittable resource. • A relatively small area of 25 x 50 m spaced drilling has also been completed in the centre of the Project area. • Drilling along strike and down-dip of the main mineralisation has targeted extensions to the mineralised zones and has been drilled on a nominal 100 m x 50 m spacing. • Composite RC drill samples were collected off the rig cyclone at 1m intervals, whereas diamond core was also sampled at 1m composite intervals; however, in core, sample lengths ranging from 0.5 to 1.49m were selected where a lithological boundary was intersected. No sampling was undertaken across lithological boundaries.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• Due to the relatively shallow dip of the mineralised alaskite bodies (approximately 15-40° to the west) and the inclination of the RC and diamond drillholes (generally -60° to the east), the length of the drillhole intercepts are regarded as being close to the true thickness of the mineralised intervals. There is considered to be no bias due to the orientation of the drilling.
Sample security	• *The measures taken to ensure sample security.*	• Diamond drill core and RC samples (after initial splitting in the field) were taken daily from the field to Bannerman's secure storage facility on site at Etango. • The prepared and packaged diamond core and RC samples for assaying were stored in the facility prior to pick up via courier. • All crushing, pulverising and splitting of the samples, subsequent to the original field splitting, was performed by a reputable assaying laboratory (SGS).
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Auditing and review of sample techniques and data has been carried out by Coffey Mining, an Australian-based international consulting firm specialising in the areas of geotechnical engineering, hydrogeology, hydrology, tailings disposal, environmental science and social and physical infrastructure. • The drilling, sampling and storage procedures used by Bannerman meet industry acceptable standards and the samples were considered by Coffey Mining to be of good quality and accuracy for the purposes of mineral resource estimation.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The Etango Project MDRL 3345 is owned by the Namibian company Bannerman Mining Resources (Namibia) (Pty) Ltd (Bannerman Namibia), previously called Turgi Investments (Pty) Ltd (Turgi), which manages the Project. Bannerman Energy owns 95% of Bannerman Namibia, while the remaining 5% is held by the One Economy Foundation (OEF), a not-for-gain organisation in Namibia. • EPL 3345 (part of which has now been converted to the Mineral Deposit Retention Licence, MDRL 3345 where the Etango Project is located) was granted to Turgi Investments (Pty) Ltd, now Bannerman Namibia, on 27 April 2006, for an initial three year period to explore for Nuclear Fuels. The first application for renewal for EPL 3345 was granted on 26 April 2009 for an additional two years without any reduction in area. The second application for renewal for EPL 3345 was granted on 27 April 2011 for an additional two years, with a 2.7% reduction in area followed by a third application for renewal with a 50% reduction in size granted from 27 April 2013. The fourth renewal was granted on the 27 April 2015 with no reduction in size. The fifth renewal was granted on the 27 April 2017 with a 25% reduction is size. On the 7 August 2017 part of the EPL 3345 was granted as a Mineral Deposit Retention Licence (MDRL 3345) for five year extendable term with an area of 7 295 ha in size. The Retention Licence providing exclusive rights to tenure and the right (without obligation) to continue with exploration or development work. Bannerman has submitted a Mining Licence (ML250) application on 3 August 2022 over the same area as the MDRL3345. The MDRL3345 remains valid while the Mining Licence application is processed by the Ministry of Mines & Energy. • On 17 December 2008, Bannerman announced that its Namibian subsidiary, Bannerman Namibia, had entered into an agreement to settle the litigation previously brought by Savanna Marble CC (Savanna) and certain associated parties. Under the terms of the settlement agreement, Savanna agreed to discontinue its review application in the High Court of Namibia by which Savanna had sought a declaration that the grant by the Minister of Mines and Energy of Namibia of EPL 3345, on which the Etango Project is situated, was void. This settlement involves payments and the issue of shares to Savanna (as Bannerman has previously disclosed in public documents) and has removed any disputes to Bannerman's title to the Etango Project. • The mining royalty is currently stipulated by the Namibian Government to be 3% of revenue and the export levy on uranium at 0.25%. • Bannerman lodged an Environmental and Social Impact Assessment (ESIA) with the Namibian Ministry of Environment, Forestry and Tourism for open pit mining and heap leach processing. Formal Environmental Clearance was received in July 2012 valid for three years. The Environmental Clearance was renewed in 2015, in 2018 and then again in 2021 and is currently valid until 09 September 2024. Environmental clearance for the location and design of an infrastructure corridor for the access road, and water pipeline to the Etango Project was granted by the Ministry of Environment and Tourism in February 2013 valid for three years. This was renewed in 2016, 2019 and 2022 and is currently valid until 14 May 2025. Additional Environmental Clearances include: (i) the Environmental Clearance for an Electrical Transmission Line to the Etango Project currently valid until 23 August 2025, and (ii) the Environmental Clearance for a water pipeline from Swakopmund to the access turn-off the Etango Project currently valid until 10 August 2025. An Environmental Clearance application for the construction water pipeline was submitted on 5 September 2022 while

Criteria	JORC Code explanation	Commentary
		the complete EIA documentation was submitted on 25 November 2022 for the Environmental Clearance process.The Environmental Clearance to conduct exploration activities and operate the Heap Leach Demonstration Plant on MDRL 3345 is valid until 4 August 2024. • No substantiative legislative, environmental, or social impacts have been identified for development of the Etango-8 Project. The Erongo region already hosts several other large uranium producing operations, and uranium mining and processing is well understood in the local communities and by Government regulatory authorities. • The Etango-8 Project enjoys local community support and is expected to have a significant positive impact on the Erongo Region and Namibian national economies, including local employment and skill training.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• In the 1970s the then South West African Geological Survey conducted a regional reconnaissance airborne radiometric survey that was followed by a further detailed spectrometer-magnetometer survey in 1974 over an area exceeding 100,000ha. Analysis of the airborne survey identified a broad thorium and uranium/thorium anomaly along the western flank of the Palmenhorst Dome. Prospect scale exploration within the Etango project area commenced in 1975 with 134 percussion holes being drilled in the Anomaly A area. The exploration by previous owners was not conducted on behalf of or by Bannerman and little information remains available on this work. • From 1976 to 1978, Omitara Mines (a joint venture between Elf Aquitaine SWA and B & O Minerals) (Omitara) drilled 224 mostly vertical percussion drillholes on a reconnaissance grid of 400m north by 75m to 100m east along the western Palmenhorst Dome position and a reduced grid in some areas of 200m to 100m by 75m near the Anomaly A area. The percussion drillholes totalled 13,383m with depths ranging from 50 to 100m. An additional 9 diamond drillholes were drilled for a total of 2,100m. Holes drilled during this period were analysed variably by chemical assaying (X-ray fluorescence) and downhole gamma-ray spectrometry (calibrated at Pelindaba). Chemical assay results in the region of Anomaly A ranged up to the low thousands of ppm U3O8. • A total of 6,800m of trenching was completed using a Poclain Excavator to obtain exposure of the alaskites which were under the superficial cover of the Namib plain in the southwest of the Project area. The remnants of the trenching can still be seen today. Omitara also performed airborne radiometric surveys. • Mouillac, et al. (1986) mentions that by the beginning of 1978 "potential reserves are estimated to be several tens of millions of tons with a low average ore-grade". • From 1982 to 1986 Western Mining Group (Pty) Ltd conducted regional mapping and drilled 22 percussion drillholes for 1,017m and conducted surface scintillometer surveys. A resource was estimated in 1986, but no historic figures are available. As a result of a dramatic decrease in the price of uranium in the 1980s exploration for this commodity all but ceased until 2005. • The exact sampling methods used for the historic drilling are not available and are not considered relevant to this report, as this drilling has not been included in any modelling or mineral resource work.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• Primary uranium mineralisation in the Etango-8 Project area is related to chloritized leucogranites, locally referred to as alaskites. The alaskites are often sheet-like, and occur both as cross-cutting dykes and as bedding and/or foliation-parallel sills, which can amalgamate to form larger, composite granite plutons or granite stockworks, made up of closely-spaced dykes and sills. These alaskite intrusions can be in the form of thin cm-wide stringers or thick bodies up to 200 m in width.

Criteria	JORC Code explanation	Commentary
		• The alaskite bodies have intruded into the metasediments of the Nosib and Swakop Groups of the Damara Supergroup. These metasediments and alaskite intrusions flank the Palmenhorst Dome which is cored by Mesoproterozoic (1.7 2.0 Ga) gneisses, intrusive rocks and meta-sediments of the Abbabis Metamorphic Complex. • Uranium mineralisation in the Etango-8 Project area occurs almost exclusively in the alaskite intrusives. Minor uranium mineralisation is also found in the metasedimentary sequences close to the alaskite contacts, probably from metasomatic alteration and in minor thin alaskite stringers within the metasediments. • The dominant primary uranium mineral is uraninite (UO_2), with minor primary uranothorite ($(Th,U)SiO_4$) and some uranium in solid solution in thorite (ThO_2). The uraninite is commonly associated with chloritized biotite in the alaskites and with ilmenite and magnetite within foliated alaskites. The primary uranium mineralisation occurs as microscopic disseminations throughout the alaskite, at crystal interfaces, and as inclusion within other minerals. Secondary uranium minerals such as coffinite ($U(SiO_4)(OH)_4$) and betauranophane ($Ca(UO_2)_2(SiO_3OH)_2\ 5H_2O$) occur as replacements of the primary minerals or as coatings along fractures. • QEMSCAN analysis indicates that about 81% of the uranium present is in primary uraninite, while 13% is in secondary coffinite and 5% is in secondary betauranophane (Freemantle, 2009). The remaining 1% of the uranium occurs in various minor phases including brannerite, betafite and thorite. Very minor amounts of uranium are also present in solid solution in monazite, xenotime and zircon. A very minor amount of primary betafite $(Ca,U)_2(Ti,Nb,Ta)_2O_6(OH)$ is also present.

Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*
	  ○ *easting and northing of the drill hole collar*
	  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  ○ *dip and azimuth of the hole*
	  ○ *down hole length and interception depth*
	  ○ *hole length.*
	• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*
		• Most drillholes at Etango since Bannerman's ownership have been detailed in ongoing market releases.

Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short*	• Since a constant density is used, average intercept grades are simply length-weighted composites with no other cutting applied for reporting purposes. • Summary statistics of the sample length indicates that approximately 97.5% of the samples were collected at 1m intervals. Of the remainder, 1.5% were sampled at intervals <1m and 1% at intervals >1m. • No metal equivalents have been or are required to be reported.

Criteria	JORC Code explanation	Commentary
	lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• Due to the shallow dip of the mineralised alaskite bodies (approximately 15-40º to the west) and the inclination of the RC and diamond drillholes (generally -60° to the east), the length of the drillhole intercepts are close to the true thickness of the mineralised intervals.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Relevant figures and tabulations are presented in the main text and Appendices.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• Relevant significant intercepts encountered in various exploration drill holes have been disclosed in prior public releases. • The data used in the current resource estimation is representative of mineralisation at the Etango-8 Project. • Sample intercepts have been composited to 3m during resource estimation to ensure that all data is appropriately weighted. • Appropriate top cutting was applied to manage the impact of high grade outliers on the resource estimates.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Bannerman constructed a Heap Leach Demonstration Plant during Q4 2014 and Q1 2015 with the official opening on 24 March 2015. The Plant allows large column leach testing to be performed on ~30t samples. • A bulk sample consisting of approximately 3,000 tonnes of uranium bearing alaskite (ore) and approximately 300 tonnes of non-uranium bearing diamictite (waste) from the Chuos formation was collected at two separate locations approximately 300m apart. The ore sample covered an area of 12m x 26m situated over outcropping alaskites and the waste sample covered an area of 5m x 10m situated over outcropping metasediments of the Chuos formation. • A total of 98 blast holes were drilled to 4.5m depth at the ore sample site on a grid of 1.8m x 2.0m. All the holes on the ore sample were sampled in order to get a good indication of the grade of the ore sample. Drilling was done using a conventional blast hole drill rig (open hole percussion drilling) with a 89mm button bit. One composite sample was collected for each blast hole by collecting all the drill cuttings from the hole on a plastic sheet and splitting it through a 75/25 riffle splitter till a sample of approximately 1kg was obtained. All samples (98) were submitted to the Bureau Veritas Laboratory in Swakopmund for ICP-MS analysis for U, Th, Nb.

Criteria	JORC Code explanation	Commentary
		• A total of 35 blast holes were drilled at the waste sample site to depths ranging from 1.5m to 4.5m. Only 5 holes were sampled (in the same way as at the ore sample) in order to be sure that there is no significant mineralisation in the waste sample. All samples (5) were submitted to the Bureau Veritas Laboratory in Swakopmund for ICP-MS analysis for U, Th, Nb. • Extensive metallurgical testwork has been performed at the Heap Leach Demonstration Plant the results of which have all been disclosed in prior public releases.
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Following the completion of the Etango-8 Project Definitive Feasibility Study, the Front-End Engineering Design process (started in August 2022) will continue into Q1 2023. Once the Mining Licence is issued and financing is secured the project construction will start. At this stage it is estimated that early work at the construction site of the mine will commence in the second half of 2023. • Further exploration drilling is being considered to bring the current JORC 2004 inferred resources at the Hyena and Ondjamba deposits to JORC 2012 categories.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• The database was supplied by Bannerman in csv format, which was then combined into a geological database for use in the resource estimation. • Data was assumed by Optiro to be correct. Optiro has verified a selection of drillhole collars during a site visit with a handheld GPS and found no errors.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• Optiro carried out a site visit to the Etango Project on the 3rd of September 2015. Ian Glacken (Director), who is acting as Competent Person, inspected the deposit area, the core logging and sampling facility, and diamond core and RC chips were also viewed. During this time, notes and photos were taken along with discussions held with site personnel regarding the available drill core and procedures. A number of minor recommendations were made on procedures but no material issues were encountered.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• The confidence in the geological interpretation is considered moderate, but has been mitigated to a degree by the modelling approach chosen. Geological domains used to constrain the grade estimation were generated using a Categorical Indicator Kriging (CIK) approach based on a two-stage flagging approach which used the lithology and grade information from downhole logging. Wireframes were generated from the probability estimates and were validated by visual inspection, volumetric assessment and statistical investigation. A secondary wireframe was also used to restrict the grade estimation to areas covered by drilling and consequently limit the uncertainty in the interpretation. • The drillhole data was coded on lithology prior to compositing. For the alaskite dominant (AD) mineralisation, if a composite contained more than 1/3 alaskite and ≥ 50ppm U3O8 then composite was retained. For the alaskite sub-dominant (ASD) mineralisation, no constraint on the lithology was used. The Etango deposit was separated into 3 domains. These areas are based on local changes in strike and dip directions of the mineralised trend throughout the deposit. The North Domain is defined as areas >7,488,950mN, the Mid Domain is defined as ≤7,488,950mN and ≥7,487,450mN and the South Domain as <7,487,450mN. • The selection of a different probability threshold for the grade shell would affect the volume of the mineralisation envelopes; however, they reflect the broad trends of the alaskite bodies. • Lithology logging codes were used to flag the drillhole data used in the creation of the estimation domain shells. • Utilisation of a CIK approach to generate the estimation domains includes a small percentage of below cut-off composites into the estimate. Assessing the amount of sub-grade material forms one of the criteria in assessing the selection of an appropriate probability grade shell. The shell is designed to reflect the broad continuity of both the alaskites and the grade continuity of the mineralised zones within the alaskite host.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• The Etango Project Mineral Resource area has dimensions of 7,000 m (north) by 4,200 m (east) and 500 m (elevation). It primarily includes the Etango deposit, as well as the smaller Hyena and Ondjamba deposits, which are not described in this Table 1 as they have been reported under JORC 2004.

Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• Domaining: A Categorical Indicator Kriging (CIK) modelling approach was used to model the mineralisation domains used to constrain the grade estimation. For the main Alaskite Dominant (AD) mineralisation, drillhole sample data was flagged on the presence of alaskite (the host lithology) prior to compositing to 3 m. Compositing to 3 m was completed using a best fit method and there were no residuals. If more than 1/3 of the composite contained alaskite the composite was retained. A second flag, where U3O8 ≥50 ppm, was then applied. The probability estimate was completed on each of the three orientation domains, using a single search pass with a minimum of 1 and a maximum of 8 samples. A series of wireframes at various probability cut-offs were generated. The wireframe representing the 0.4 probability grade shell was deemed the most appropriate to represent the AD mineralisation after analysis by visual inspection, volumetric assessment and statistical investigation. For the Alaskite Sub-Dominant (ASD) mineralisation, all samples outside of the AD grade shell were retained (regardless of lithology) and were composited to 3 m. A threshold of 50 ppm was then used to code the composites. A probability estimate was completed on each of the three orientation domains using a single search pass of no more than 185 m (X) by 135 m (Y) by 18 m (Z) with a minimum of 4 and a maximum of 24 samples. A series of probability cut-offs was analysed and the wireframe representing the 0.4 probability was deemed the most appropriate in delineating the ASD mineralisation on the basis of statistical analysis and visual comparison. • Grade Estimation: Grade estimation for Etango was completed using Ordinary Kriging (OK) within the CIK grade shells for the AD and ASD domains. Grade estimation was carried out in Isatis and Datamine Studio 3 using a parent block of 25 m E by 25 m N by 8 m RL. A regular 3 m composite length was selected based on the geological setting and mining, including likely mining selectivity and bench/flitch height. For the AD mineralisation, compositing was stopped at the grade shell boundary and residuals of less than 1.2 m were retained by combining with the previous composite. Compositing within the ASD mineralisation was completed prior to flagging within the probability wireframes and composites were selected if the centroid of the sample composite was within the ASD grade shell wireframe. Top cuts were applied to all estimation domains; 1700 ppm to the mid AD and north AD domain, and 1300ppm to the south AD domain, and a top cut of 900ppm was applied to all ASD domains. For the AD mineralisation, two search passes were used with progressively larger and less restrictive searches. The search parameters were defined based on the variography of each AD domain as well as the data spacing. In general, for the AD domains, the first search was 100 m (X) by 100 m (Y) by 40 m (Z) and utilised 24 to 36 samples. This was extended up to 500 m (X) by 500 m (Y) by 120 m (Z) using 12 to 24 samples in the successive pass. For the minor ASD mineralisation, three search passes were utilised; the first and second search both averaged 200 m (X) by 120 m (Y) by 6 m (Z) and utilised a minimum of 3 (or 2) to 24 samples. This was extended to 10 times these ranges by the third pass and a minimum of 2 samples used. Over 90% of the ASD estimate was informed by the second pass. Soft domain boundaries were used between the orientation domains for both mineralisation styles. Discretisation was set to 7 (X) by 7 (X) by 5 (Z) for the AD domains and 10 (X) by 10 (Y) by 4 (Z) for the ASD domains. • Post-Processing: Local Uniform Conditioning (LUC) was applied to the Etango estimate using a SMU of 2.5m E by 5m N by 4 m RL. An Information Effect correction, assuming 3 m E by 3 m N by 1 m RL drilling, was applied, reflecting the likely grade control spacing. LUC was completed in Isatis for the AD domains and in Datamine Studio 3 using an in-house program for the ASD domains. The Mineral Resource quoted is the LUC estimate. • The Mineral Resource for Etango was completed by Optiro in June 2015 and was subject to pit optimisation using a uranium price of US$75/lb with reporting above a cut-off of 55ppm U_3O_8. No additional resource drilling campaigns or modelling work has been conducted since the June 2015 Mineral Resource update. In November 2021, Optiro

		nevertheless was commissioned to review the June 2015 Mineral Resource, using the same 2015 pit optimisation shell, but this time reporting the Mineral Resource Estimate above a cut-off of 100ppm U_3O_8, labelled as the November 2021 Mineral Resource. The November 2021 Mineral Resource Estimate formed the basis of the Etango-8 Definitive Feasibility Study, which uses a marginal cut-off grade of 100ppm U_3O_8. The Mineral Resource Estimates are shown below reflecting the different cut-off grades:

Etango June 2015 Mineral Resource, reported within a US$75 pit shell above a 55 ppm U_3O_8 cut-off

Etango Project Mineral Resource Estimate June 2015 Reported at a cut-off grade of 55 ppm U_3O_8, Constrained within the resource pit shell			
Resource Category	**Tonnes (Mt)**	**Grade (U_3O_8 ppm)**	**Contained U_3O_8 Mlbs**
Measured	33.7	194	14.4
Indicated	362.0	188	150.2
Inferred	144.5	196	62.5
Total	**540.2**	**191**	**227.1**

Etango Project Mineral Resource Estimate November 2021 Reported at a cut-off grade of 100 ppm U_3O_8, Constrained within the resource pit shell			
Resource Category	**Tonnes (Mt)**	**Grade (U_3O_8 ppm)**	**Contained U_3O_8 Mlbs**
Measured	26.6	226	13.3
Indicated	276.9	223	136.4
Inferred	112.5	230	57.1
Total	**416.1**	**225**	**206.8**

- There are no by-products.
- There are no relevant deleterious elements or non-grade variables of any major significance.
- The parent block used for the OK panel estimate was 25 m E by 25 m N by 8 m RL. The average drill spacing across the deposit is between 50 x 50 and 200 x 200. Subcelling was completed down to 2.5 m E by 5 m N by 4 m RL, which was the size of the SMU used in the post-processing routines.

		• There is only one variable of interest, U3O8 (ppm). • The geological interpretation of the grade shells was used to define the estimation domains for both the ASD and AD mineralisation domains. • Statistical analysis showed the populations in each domain to generally have a low coefficients of variation (between 0.92 and 1.41), but it was noted that some of the estimation domains included outlier values that required grade cutting to be applied. Top cuts were chosen based on a combination of analysis techniques, including statistical analysis, population disintegration and review of statistical plots. • Validation of the block model included global comparison of the OK block model domain grades to the declustered and top cut input data and swath (profile) plots showing northing, easting and elevation comparisons. Visual validation of LUC and OK grade trends and metal distribution was carried out. The LUC block model was compared to the OK block model at a 0 ppm cut-off on a domain basis.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Tonnes were estimated on a dry basis.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• The Etango Mineral Resource was modelled using a 50 ppm U_3O_8 grade threshold. The resource has been reported above a 55 ppm U_3O_8 cut-off in the June 2015 Mineral Resource Estimate and above a 100 ppm U_3O_8 cut-off in the November 2021 Mineral Resource Estimate reflecting the marginal cut-off grade defined in Etango-8 mining optimisation studies.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• The SMU of 2.5 m E by 5 m N by 4 m RL has been chosen based on a review of a range of sizes and the response of the estimate to those sizes. This SMU size is considered to be in line with similar deposits and similar mining methods in the local vicinity (e.g. Rössing). • The recoverable resource methodology (OK-LUC) is believed to partially incorporate mining dilution. In addition to the grade control approach (radiometric probing of blastholes) a further highly selective discriminant will be the use of truck scanning technology.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with*	• The planned metallurgical process was determined following extensive metallurgical test work. The metallurgical process comprises three stages of crushing, agglomeration, followed by sulfuric acid heap leaching on an industry standard on/off heap leach pad followed by ion-exchange and nano-filtration extraction and drying. • Key metallurgical assumptions include: ○ Plant throughput of 8 Mt per annum. ○ Metallurgical Recovery of 87.8% ○ Total Sulphuric Acid consumption of 17.14 kg/t ore leached. (based on 100% concentration)

	an explanation of the basis of the metallurgical assumptions made.	
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• Detailed waste and process residue designs were conducted during the 2012 DFS. This process included geochemical characterisation and modelling of surface water and ground water impacts. Further details are reported in Section 4. • Bannerman lodged an Environmental and Social Impact Assessment (ESIA) with the Namibian Ministry of Environment and Tourism for open pit mining and heap leach processing. Formal Environmental Clearance was received in July 2012 valid for three years. Further renewals were granted in2015, 2018 and 2021. The current Environmental clearance is valid until September 2024. Environmental clearance for the location and design of an infrastructure corridor to the Etango Project was granted by the Ministry of Environment and Tourism in February 2013 and has been renewed in 2016, 2019 and 2022. The current Environmental clearance for the infrastructure is valid until May 2025. Further Environmental Clearances have been granted – (i) an Environmental Clearance for a 132kV electrical transmission line to the project valid until August 2025 and (ii) an Environmental Clearance for a main fresh water pipeline from the town of Swakopmund to the infrastructure corridor leading to the mine also valid until August 2025.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• There has been extensive density testing of both the alaskites and the metasediments from the Etango project and the density is largely invariant. A default value of 2.64 t/m^3 has therefore been applied to all rock units and weathering types. The degree of surface weathering is minimal. Density measurements have been taken on core samples using a water-displacement approach. Voids or cavities in the rock are almost non-existent, so the specific gravity can be used as a proxy for the bulk density.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• The Mineral Resource has been classified into Measured, Indicated and Inferred categories on the basis of geological and grade continuity, drillhole spacing and estimation quality. The Measured category was applied to blocks which were informed either in pass one or two, where the drill spacing was 25m x 25m or 25m x 50m, and where the slope of regression statistic was generally greater than 0.9. The Indicated category was applied to blocks estimated in the first or second pass, where the drill spacing was nominally 50m x 50m or 100m x 100m, where the grade tenor was moderately consistent and where the slope of regression was between 0.3 and 0.9. Any material which did not meet the criteria for Measured or Indicated was allocated to the Inferred category, apart from extrapolated or laterally-extensive mineralisation which was set to potential using a number of 'unclassify' solids. All of the ASD material was classified as Inferred, reflecting the lower confidence in the geological continuity of these zones. The classification does consider data quality, geological confidence and grade continuity. • The classification applied does reflect the Competent Person's view of the deposit, and indeed was applied by the

		Competent Person.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• The Mineral Resource Estimate of June 2015 at Etango reflects work carried out by International Resource Solutions, a consultant to Bannerman, which has been thoroughly reviewed by Optiro. A number of changes were made as a consequence of the review, including the modelling of the ASD mineralisation, which was carried out by Optiro. The classification incorporated the work of Optiro and Bannerman staff. In November 2021 Optiro reviewed the existing June 2015 Mineral Resource and re-declared the 2015 Mineral Resource at a cut-off grade above 100ppm U_3O_8, termed as the November 2021 Mineral Resource
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The Mineral Resource Estimate has not been subject to rigorous assessment of accuracy and confidence using any numerical or probabilistic approach. Areas of potential uncertainty are the detailed morphology of the alaskite bodies, the degree to which the current volume may change upon infill drilling, and the continuity of the ASD zones, which have been assumed to be relatively discontinuous in this estimate. Grade confidence, as defined by grade continuity modelling, is believed to be high. Data quality is high as reflected by the QAQC work. • The current Mineral Resource classification is believed to represent estimates suitable for scheduling on a minimum quarterly or six-monthly production interval, i.e. the production scale required for a DFS once reserve conversion has been achieved. • In November 2021 Optiro reviewed the Etango Mineral Resource estimate, first signed-off by Optiro in 2015 as part of a 2015 Etango Optimisation Study. There are no changes between the 2015 and 2021 Mineral Resource model, both being reported within a US$75/lb pit shell. The June 2015 Mineral Resource Estimate was reported above a cut-off grade of 55ppm U3O8 while the November 2021 Mineral Resource Estimate was constrained to the same pit shell, this time reported above a cut-off grade of 100ppm U3O8. Both estimates are reported in accordance with the JORC Code (2012). • No production data is available other than detailed grade control from a small trial mining exercise, which demonstrated a greater degree of grade continuity than currently assumed.

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria		Commentary
Mineral Resource estimate for conversion to Ore Reserves	• *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* • *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	• The November 2021 Mineral Resource Estimate as described in preceding sections of this Table was used as the basis of the Etango-8 Ore Reserve Estimate. • The 2021 model employed a Uniform Conditioning (UC) estimation approach. This is a recoverable resource estimation technique, based upon ordinary kriging into large blocks (panels), which seeks to predict the resources available at the time of mining using the assumption of a selective mining unit (SMU) related to the production rate and equipment. This technique was used to model the selective mining unit consistent with the mining method, which employs radiometric truck scanning as currently adopted at neighbouring open pit uranium mines. • Mineral Resources are inclusive of Ore Reserves.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• A site visit to the Etango deposit was undertaken by Mr Werner Moeller from Qubeka Mining Consultants, who is the Competent Person, and has been involved with the Project since 2011. Mr Moeller did the complete mining study for the Etango-8 Project which forms the basis of this ore reserve declaration. This included discussions with technical personnel and conducting an inspection of the geology and the terrain.

Study status	• *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.*
	• *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*
		• A number of studies have been completed on the Etango project including a definitive feasibility study (DFS) completed in 2012 and an Optimisation Study in 2015. The Etango-8 has benefited from this previous detailed work by :
		    ○ Utilising the geological model as described in the preceding sections of this table.
		    ○ Updating the capital and operating cost estimates to ensure that these are current.
		    ○ Updating the mining study to reflect the above changes in geological and economic parameters.
		• The updated cost estimates and mine planning have been done to an accuracy of definitive feasibility study level.
		• A PFS was completed in 2021.
		• The financial model developed by Sydney based Mazars Global Infrastructure Finance (Australia) was utilised for the Etango-8 DFS.

Cut-off parameters	• *The basis of the cut-off grade(s) or quality parameters applied.*	• The mill limiting cut-off grade (sometimes referred to as the marginal cut-off grade) for the project was calculated based on the economic parameters stated below
		    ○ Processing Cost
		    ○ Selling Cost
		    ○ G&A costs
		    ○ Government Royalty
		    ○ U_3O_8 price
		    ○ Metallurgical Recovery
		• The resultant cut-off grade used for ore reserve estimation was 100ppm U_3O_8.
		• During mine scheduling a variable cut-off grade approach was undertaken whereby the cut-off grade was changed on a period by period basis to enhance the project value.

Criteria		Commentary
Mining factors or assumptions	• *The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).* • *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.* • *The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.* • *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* • *The mining dilution factors used.* • *The mining recovery factors used.* • *Any minimum mining widths used.* • *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* • *The infrastructure requirements of the selected mining methods.*	• The mineral resource model applied local uniform conditioning (to a panels of 25mE x 25mN x 8mRL estimated utilizing ordinary kriging) to estimate the grade in an SMU of 2.5 m E by 5 m N by 4 m RL which was chosen to represent the selectivity associated with radiometric truck scanning. • No further dilution and mining loss were applied to model as the SMU (of 2.5 m E by 5 m N by 4 m RL) utilized in the model is greater than the proposed mining method selectivity utilizing radiometric truck scanning. The ratio of SMU to truck size corresponds well with what neighbouring and other open pit uranium mines that employ this technique as reported in the literature. • Pit optimisations utilising the Lerchs-Grossmann algorithm (with Whittle Four-X) were undertaken to determine the economic limits of the open pit. The optimisation utilised the resource model described in preceding sections of this table, together with cost, revenue and geotechnical inputs. The resultant pit shells were used to develop detailed pit designs with due consideration for the geotechnical, geometric and access constraints. These pit designs were used as the basis for production scheduling and economic valuation utilising discounted cash flow methods to confirm economic viability. • Pit optimisation was confined to Measured and Indicated Resources with Inferred Resources treated as waste during this process. • Conventional drill, blast, loads & haul open pit operations were assumed consistent with operations in nearby located uranium mines. The mining was modelled based on mining equipment comprising 100 tonne class off-road haul trucks and 130 tonne excavators employed in back-hoe configuration for ore mining and 250 tonne face shovels for waste mining. • Capital and operating cost assumptions were based on contractor mining. • The geotechnical parameters applied during the mine design process was based on a detailed geotechnical study conducted by Coffey mining in 2012 as part of the then DFS and which was informed by 26 geotechnical drill holes drilled to collect rock quality and structural data. In June 2022 Mine Technics did a geotechnical review and the resultant geotechnical recommendations are suitable for implementation at DFS level of reliability and are shown for the three pits of the Etango-8 Mine below

Criteria		Commentary

Small Satelite Pits

	From-To Level	BH	BFA	BW	ISA toe-to-toe	Stack Height	12m Benches	Ramps on Slope	Stack Height	15m-wide De-couple Berms	
	mRL	m	deg	m	deg	m	No	No	m	mRL	
ALL SLOPES	280	12									Favourably tight concave slopes.
	136	24	80	9.6	60	144.0	12	2	48	N/R	**BUT: Single ramp access: Widen 20% to 30m** in larger southern satelite pit

Legend

mRL	Mining Level
BH	Bench Height
BFA	Bench Face Angle
BW	Berm Width
ISA	Inter-ramp Slope Angle
RW	Ramp Width
HW	Hanging-wall / Highwall Slopes
FW	Footwal Slopes
N/R	Not Required
Pb	Pushback
WS	Western Slopes (=HW)
ES	Eastern Slopes (=FW)
NS	Northern (Concave) End Slopes
SS	Southern (Concave) End Slopes

SOUTH PIT (E8_P2_pb1-5)
(Anomaly A, South)
Mining Years 1 and 7 to 14

Slope Direction	From-To Level	BH	BFA	BW	ISA toe-to-toe	Stack Height	12m Benches	Ramps on Slope	Stack Height	15m-wide De-couple Berms	
095°±30°	mRL	m	deg	m	deg	m	No	No	m	mRL	**HW design applies in CGN (+GR+GA)**
HW	292	12									Average surface elevation
	268	24	70	10.4	51	24.0	2	1		N/R	Local HW + MW zones (deeper in places)
	184	24	75	10.4	55	84.0	7	1	42	N/R	Faults along and below the ramps
	100	24	80	9.6	60	84.0	7	1	42	N/R	Favourably tight concave slopes.
	4	24	80	9.6	60	96.0	8	1	48	N/R	**BUT: Single ramp access: Widen 20% to 30m**

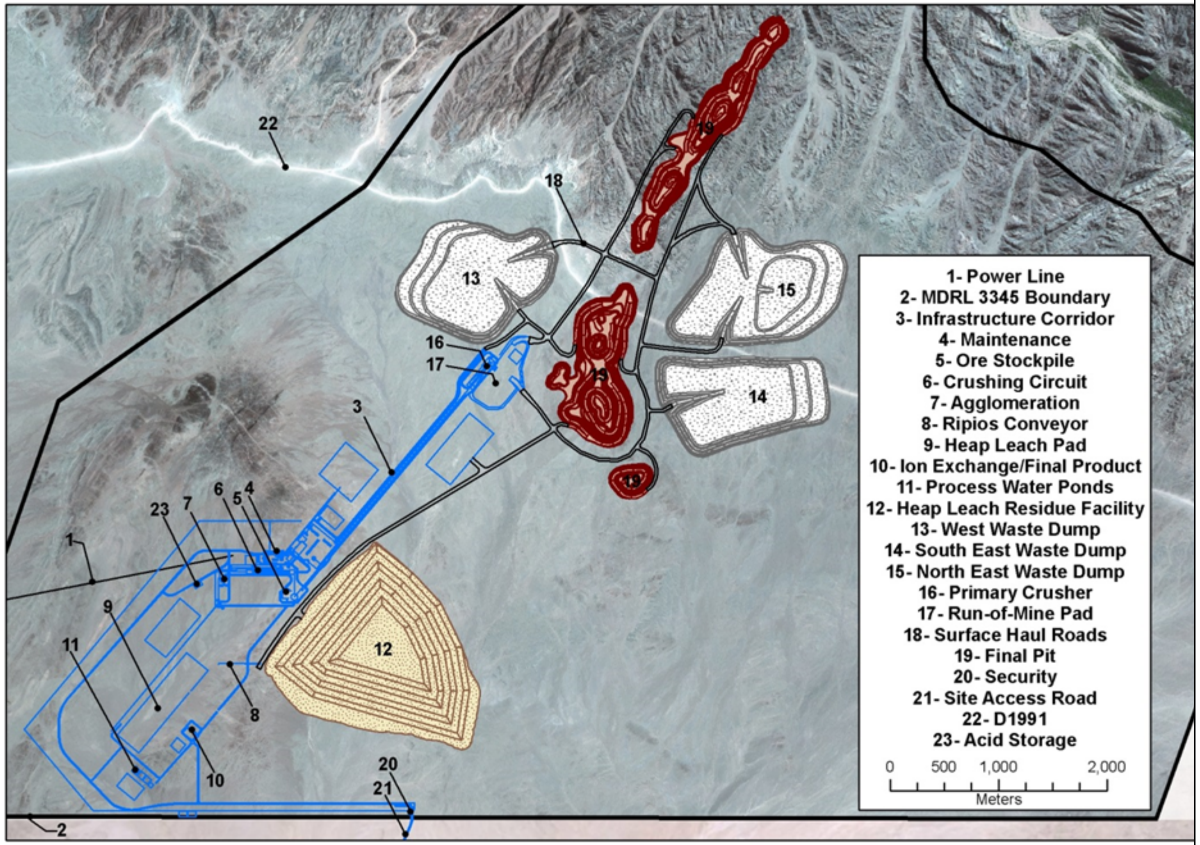
Slope Direction	From-To Level	BH	BFA	BW	ISA toe-to-toe	Stack Height	12m Benches	Ramps on Slope	Stack Height	15m-wide De-couple Berms	
285°±30°	mRL	m	deg	m	deg	m	No	No	m	mRL	**FW design applies in KGN+EGN (+GR+GA)**
FW	292	12									Average surface elevation
	268	24	70	10.4	51	24.0	2	1		N/R	Local HW + MW anticipated; lack of data
	184	24	75	10.4	55	84.0	7	1	42	N/R	Strike-faults possible; lack of data
	100	24	80	9.6	60	84.0	7	1	42	N/R	Favourably tight concave slopes.
	4	24	80	9.6	60	96.0	8	2	32	N/R	**BUT: Single ramp access: Widen 20% to 30m**

Criteria		Commentary

NORTH PIT (E8_P2_pb1-3)
Onkelo and Oshiveli
Mining Years 4 to 15

	From-To	Level	BH	BFA	BW	ISA toe-to-toe	Stack Height	12m Benches	Ramps on Slope	Stack Height	15m-wide De-couple Berms	
		mRL	m	deg	m	deg	m	No	No	m	mRL	
HW												**HW design applies in CGN (+GR+GA)**
	From	268	12									Average surface / top bench elevation
pb1	To	136	24	75	10.4	55	132	11	1	66	N/R	Recommend 30m-wide ramp from 196mRL
	From	268										Average surface / top bench elevation
pb2	To	76	24	75	10.4	55	192	16	3	48	N/R	Recommend 30m-wide ramp from 172mRL
	From	88										Average surface / top bench elevation
pb3	To	136	24	75	10.4	55	-48	-4	3	-12	N/R	Recommend 30m-wide ramp from 244mRL
	From-To	Level	BH	BFA	BW	ISA toe-to-toe	Stack Height	12m Benches	Ramps on Slope	Stack Height	15m-wide De-couple Berms	
		mRL	m	deg	m	deg	m	No	No	m	mRL	
FW												**FW design applies in KGN+EGN (+GR+GA)**
	From	268	12									Average surface / top bench elevation
pb1	To	136	24	70	9.5	53	132	11	2	44	N/R	Recommend 30m-wide ramp from 196mRL
	From	292										Average surface / top bench elevation
pb2	To	76	24	70	9.5	53	216	18	2	72	N/R	Recommend 30m-wide ramp from 172mRL
	From	316										Average surface / top bench elevation
pb3	To	136	24	70	9.5	53	180	15	2	60	N/R	Recommend 30m-wide ramp from 244mRL

- The open pit mining configuration is based on 12 metre benches mined in three 4-4.5 metre flitches.
- A minimum mining width of 35 metres was applied during mine design.
- During the above process inferred mineral resources were excluded from mine schedules and economic valuations utilized to validate the economic viability of the Ore Reserves.
- Mining methods assumed grade control will be based on radiometric down-the-hole logging systems (gamma logging) and supplemented by radiometric truck scanning which will determine the destination of the truck.
- Waste rock dump designs done during the 2015 Optimisation Study were utilised for this study. Due to the significantly smaller pit and lower stripping ratio, there is sufficient space on the existing waste rock dump designs.
- The study considered all the infrastructure requirements associated with a conventional truck and shovel mining operation including crushing and conveying systems, heap leach pad, waste dump and stockpile location, access routes, explosive storage, workshops, offices, change houses, crib rooms water and power. A schematic is shown below.

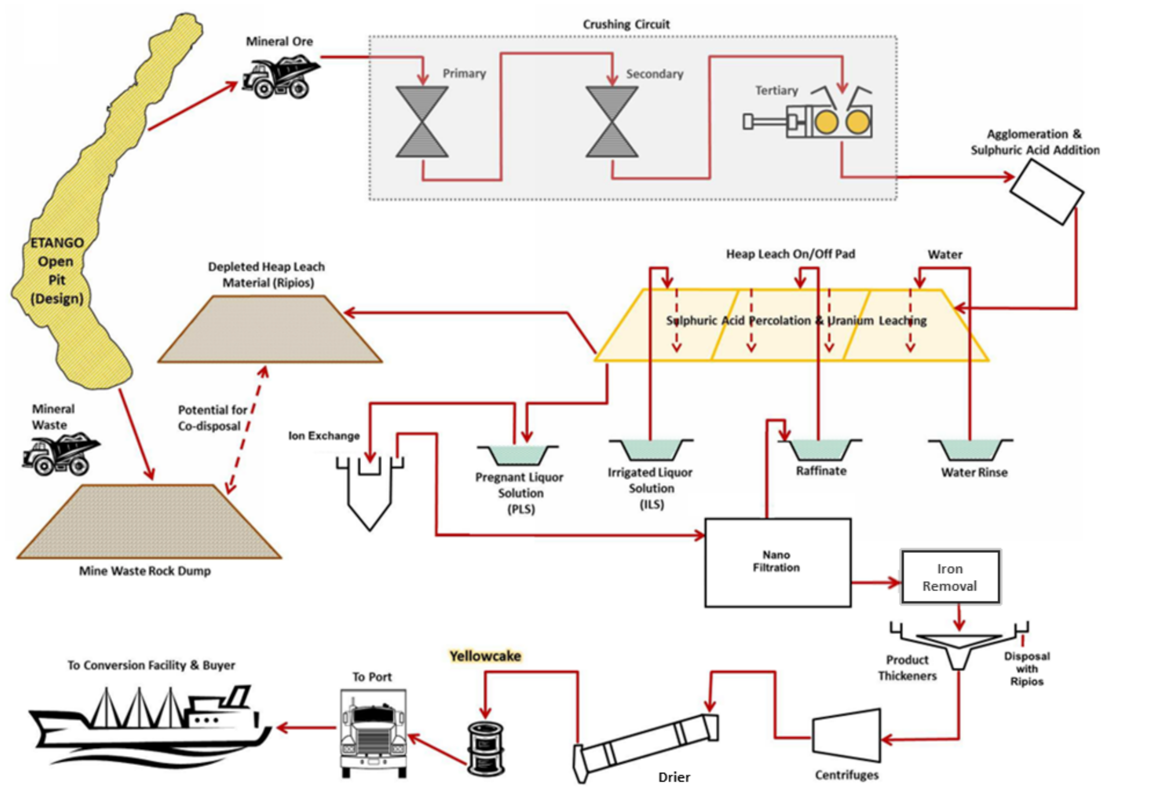
Criteria		Commentary
		
Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* • *Whether the metallurgical process is well-tested technology or novel in nature.* • *The nature, amount and representativeness of metallurgical test work undertaken, the nature of*	• The front-end metallurgical process proposed during the 2015 Optimisation Study remains unchanged in the Etango-8 DFS. The metallurgical process was determined following extensive metallurgical test work during the previous studies. The back-end of the metallurgical process has changed from a solvent extraction process to an ion-exchange followed by nano-filtration. Metallurgical testwork on the ion-exchange and nano-filtration was done at the Heap Leach Demonstration Plant. The metallurgical process thus comprises of a three stages of crushing, agglomeration, followed by sulfuric acid heap leaching on an industry standard on/off heap leach pad followed by ion-exchange, nano-filtration and calcination. A simplified flow sheet is shown below.

<table>
<tr><th>Criteria</th><th></th><th>Commentary</th></tr>
<tr><td></td><td>

the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.

- *Any assumptions or allowances made for deleterious elements.*
- *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.*
- *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*

</td><td>



- The Etango-8 project is located in a well-established uranium mining district and the metallurgical process is, in general, a conventional uranium recovery circuit utilizing ion-exchange and nano-filtration extraction. While the ion-exchange process has been used for decades to extract uranium, nano-filtration is a bit more recent but has been employed by several uranium extraction plants. The heap leaching aspect can also no longer be considered novel in the context of the mineral district as several test heaps have been run by various uranium operators. However, this aspect has also been subjected to larger scale pilot plant testing as discussed below.
- During the 2012 DFS an extensive metallurgical test work campaign was undertaken comprising of
  - Mineralogy analysis utilizing SEM/EDS and QEMSCAN
  - Comminution characterization including UCS, Bond (Crushing index, Ai test, RWi test, BWi test), JK (DWi,

</td></tr>
</table>

Criteria		Commentary
		SMC) and dedicated High Pressure Grinding Roll (HPGR) testing. ○ Column leach testing including column leach variability testing and diagnostic testing. ○ Geotechnical testing of leach residue, ○ Solvent extraction test work, ○ Miscellaneous testing such as chloride analysis. • The above mentioned tests were based on samples obtained from HQ core (28 holes were drilled specifically for metallurgical characterization purposes) together with ½ NQ core and ¼ NQ core retained for variability testing. • Column leach testing was based on a 15 392 kg composite sample obtained from 17 HQ drill holes across the deposit. • Column leach variability testing was based on a composite of 479 kg of samples from 45 drill holes across the deposit. • A demonstration plant was commissioned in 2015 comprising four large section (2mx2m) cribs designed to; ○ demonstrate the current proposed technology, ○ confirm scale-up assumptions and ○ test sensitivity to closed-circuit operation. • Each of the cribs allows the leaching of a ~30 tonne sample. The program included trial mining an area of the ore body including drilling, blasting, loading and hauling of a bulk sample (totalling ~3000 tons) to the demonstration plant location. • The results of the pilot plant (demonstration plant) test work confirmed the validity of the 2012 DFS processing parameters but also demonstrated that certain parameters were too conservative e.g. metallurgical recovery for the 2012 DFS and the 2015 Optimisation Study being 86.9% while the testwork indicated that this can confidently be put to 87.8%. The acid consumption on the other hand has increased slightly due to the back-end change from solvent extraction to ion-exchange/nano-filtration. The key parameters for the Etango-8 DFS were thus: ○ Plant throughput of 8 Mt per annum. ○ Metallurgical Recovery of 87.8% ○ Sulphuric Acid consumption of 17.14 kg/t ore leached. (based on 100% concentration) • The final product must conform to certain specifications covering grade and impurities content and consistent with the capability of the downstream refinery to process it further. Penalty schedules will reflect the increase in downstream converter costs in the presence of high impurities content in the yellow cake product. Current specifications however vary depending on buyer. The potential deleterious elements in terms of final product are usually defined as defined as Th, V, Cl and Zr. • The pregnant leach solution (PLS) resulting from the heap leach contains the uranium and other impurities dissolved during the leaching process. These are treated in the ion-exchange exaction (IX) circuit; iron wash with diluted sulphuric acid and the nano-filtration plant. The selected flowsheet is already in use in the Uranium industry and thus includes tested technology and as such no project risk is anticipated from potential deleterious impurities. Furthermore the demonstration plant test work programs have confirmed that there are no deleterious materials in the final product. • A design for a Ripios (leach residue) dump was conducted by Wood plc to accommodate the Life of Mine process plant throughput.
• *Environmenta l*	• *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the*	• The project is located in the Namib-Naukluft National Park and close to tourist attractions, such as the Moon landscape. The current land use is conservation and eco-tourism. It is noted that a number of precedents exist for uranium mining within the Namib-Nauklauft National Park, including the Langer Heinrich mine and the Husab uranium mine.

Criteria		Commentary
	consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	• Bannerman lodged an Environmental and Social Impact Assessment (ESIA) with the Namibian Ministry of Environment, Forestry and Tourism for open pit mining and heap leach processing. Formal Environmental Clearance was received in July 2012 valid for three years. This Environmental clearance has been renewed on three further occasions in 2015, 2018 and 2021. The current permit is valid until September 2024. Environmental clearance for the location and design of infrastructure corridor to the Etango Project was granted by the Ministry of Environment, Forestry and Tourism in February 2013 and has also been renewed on three further occasions in 2016, 2019 and 2022 and is currently valid until August 2025. • The project is located in an extremely arid region of the Namib Desert. Rainfall in the Namib Desert is highly variable and unpredictable, varying from 0mm/annum to approximately 100mm/annum. • Hydrological, hydrogeological and geochemical characterisations were conducted by external consultants as part of the 2012 DFS. Geochemical characterization of waste rock indicated that the waste is not potentially acid-forming and that there is no significant elemental enrichment in the leachate. • Natural groundwater within the Bannerman lease area is highly saline with various metalloid levels such as Al, As, B, Ba, Cd, Cr, Fe, Mn, Mo, Pb, Sb, Se, U and V exceeding WHO DWQG (2008). None of the natural ground water sources are fit for domestic, agricultural or livestock use. • Modelling of waste rock seepage is expected to blend in with the natural ground water in a 1:100 (seepage:groundwater) volumetric ratio and will, therefore, have little effect on the quality of the ground water. The ground water model indicates that seepage will migrate to the open pit; increasing as the pit deepens and the hydraulic gradient steepen.
Infrastructure	• *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	• Power for the Etango-8 site will be fed by NamPower (the national power utility) from the 220 kV national grid through its substation located at Kuiseb. A 29km 132kV transmission line from the Kuiseb substation to the project site where a 132/33kV switchyard, two 20MVA transformers will be installed. • Water for the Etango-8 project will be supplied by NamWater. Regional water capacity comprises of 13 million m^3/annum from regional aquifers and 20 million m^3/annum from the Orano owned desalination plant. The Government of Namibia is currently also investigated the building of a second desalination plant to ensure adequate water supply for the coastal region and possibly pumping water to some inland settlements. The Etango-8 water scheme will comprise two pump stations. The above-ground pipe line will be 32 km long and 450mm in diameter. • The C28 gravel road from Swakopmund to Windhoek passes approximately 5km from the project. A 6km spur road will be constructed to link the existing road to the Etango-8 site. • The Etango-8 project is located in close proximity (73km by road) to Namibia's largest port utilized by neighbouring uranium mines to export their product. • A number of regional towns are located close to the Etango-8 project including Swakopmund and Walvis Bay and represent the regional hubs servicing the Namibian uranium mining industry.
Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study.* • *The methodology used to estimate operating costs.* • *Allowances made for the content of deleterious*	• Capital costs for the process plant and site infrastructure was obtained by Wood plc to an accuracy of ±15%. The costs were primarily obtained by quotes for major pieces of equipment or by using existing databases within Wood plc as well as costs from recently constructed process plants. The estimate also included updates in bulk material costs, labour costs, freights rates, EPCM and accuracy provisions. • Mining operating costs were provided by reputable mining contractors via a Request for Quotations (RFQ) campaign. This

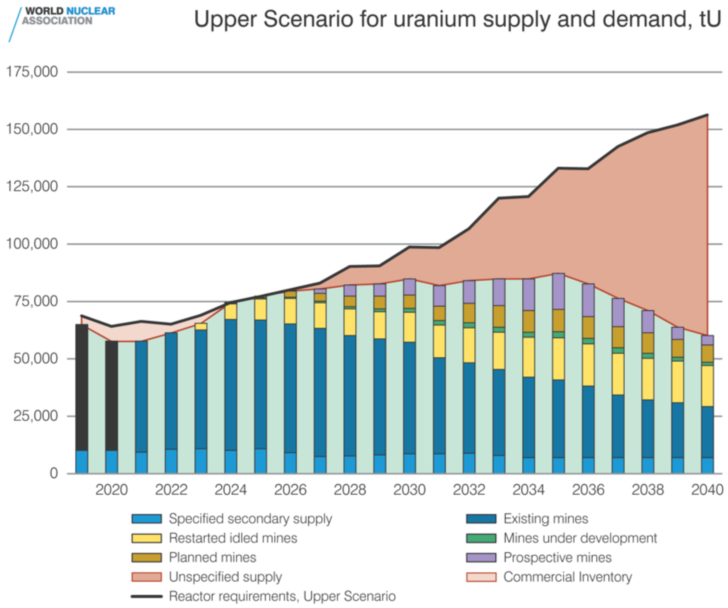
Criteria		Commentary

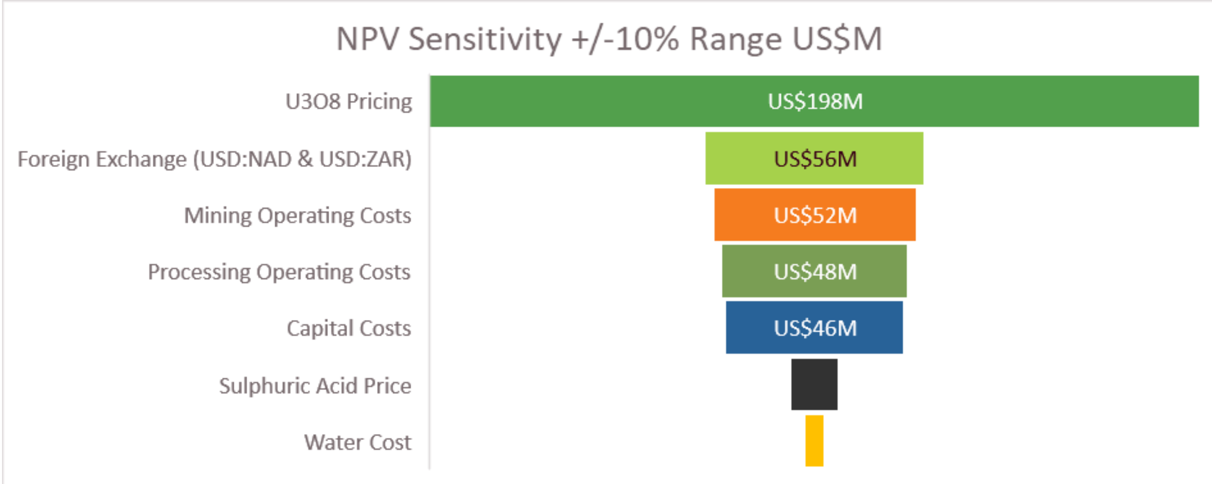
	elements.
	• *The source of exchange rates used in the study.*
	• *Derivation of transportation charges.*
	• *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.*
	• *The allowances made for royalties payable, both Government and private.*
		includes the drilling, blasting, loading and hauling costs. The average cost being taken from the RFQs received. The owner's cost for mine planning, grade control etc. have also been included.
		• Wood plc determined the operating costs of the process plant. The consumables and utility consumption rates were determined from the design process and updated cost for reagents and consumables by RFQ to suppliers. A Memorandun of Understanding with a local sulphuric acid producer has been signed. The cost of sulphuric acid either from the local supplier or landed in the Walvis Bay port was taken as the average cost.
		• Water costs were based on the current water prices provided by Namwater in their letter specifying that adequate water will be available from the current Desalination Plant.
		• The electricity costs were obtained from Nampower's rate schedule and the use of independent power producers taking into account the Modified Single Buyer Model of Nampower.
		• Labour costs were based on 2022 labour cost surveys conducted in Namibia.
		• Exchange rates assumed in the study were based on 2021-2022 historical and long-term consensus price forecast and include:
		  ○ 1USD:N$17.56
		  ○ 1USD:AUD1.63
		  ○ 1€:N$18.45
		  ○ 1USD:¥:150.50
		• The average mining cost over the Life of Mine amounted to USD 2.36/t mined whilst the average plant processing cost over the Life of Mine was USD 6.92/t processed. Overhead costs are USD 2.23/lb of U3O8 produced.
		• The resultant average unit production cost of uranium oxide (excluding royalties) was USD 35.17/lb U3O8 over the life of the project.

Revenue factors	• *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* • *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	• The head grade and U3O8 production was derived from the mine schedule. A three month lag was allowed from production revenue to account for the time taken to transport the product to the conversion facilities. The average head grade of the life of mine was 240 ppm U3O8. • This U3O8 price used for economic evaluation was USD 65/lb U3O8 in 2022 terms. The price was determined as described below under "Market assessment". • The selling costs which include product transport, insurance and weighing and assaying charges at the converters were included as per the 2015 optimisation study assumptions at USD 1.24/lb U3O8. • The Namibian government currently levies a mining royalty of 3% and 0.25% export levy on revenue (less allowable deductions) which has been included in the financial modelling.
Market assessment	• *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* • *A customer and competitor analysis along with the identification of likely market windows for the product.*	• After a protracted bear market caused by the nuclear accident at Fukushima-Daiichi nuclear power plant in 2011, the uranium spot price has partially recovered in recent years due to supply disruption (both planned and unplanned) and the influence of financial buyers of uranium. • Over the past 12-18 months, the prospects for nuclear power have strengthened significantly as a result of nuclear energy's superior emissions, land-use and reliability credentials coming into focus at COP26. Those prospects strengthened further as policy makers globally have been forced to focus on energy security in consequence of the tragic events in Ukraine and the increasing cost of competing fossil fuel energy.

Criteria		Commentary

	• *Price and volume forecasts and the basis for these forecasts.*
	• *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*
		• The current World Nuclear Association Nuclear Fuel Report 2021 provides three forecast scenarios for nuclear fuel (ie uranium) demand and supply: lower, reference and upper. Bannerman has selected the upper scenario as most appropriate, having regard to numerous demand improvements since publication of the report including: the reversal of numerous reactor closures in US and Europe, bi-partisan support for nuclear energy in the US and UK, the abandonment of nuclear closure plans in South Korea and France, accelerated restarts of Japanese reactors and the potentially faster emergence of small modular reactors.
		• This upper scenario (see Figure below) forecasts the sustained growth in demand for uranium and shows the anticipated depletion in current sources of primary and secondary supply over the forecast period. Despite the upper supply forecast assuming the incentivisation of supply from planned mines, mines under development (including Etango) and prospective mines, from 2027 a substantial volume of annual uranium supply must be developed and produced from currently unspecified supply sources. Bannerman anticipates that market conditions – and therefore long term contract uranium prices - will be forced to substantially and sustainably increase in order to provide a market incentive for the investment in new exploration, discovery, development and construction of a sufficient number of new uranium mines to meet this deficit over the next 15-20 years.
		• The realised LOM base uranium price forecast adopted for this DFS is US$65/lb U3O8, which is consistent with the price assumption adopted for the PFS. An upside case uranium price forecast of US$80/lb is presented for comparison purposes.
		• Bannerman undertook its own industry analysis and consulted with leading uranium markets consultant, TradeTech, LLC in order to satisfy itself that the base and upside uranium price assumptions were reasonable.
		    ○ The LOM base uranium price assumption for this DFS was estimated by:
		    ○ Reviewing the uranium price assumptions generated by TradeTech's proprietary Forward Availability Model 1 (FAM1) and Forward Availability Model 2 (FAM2);
		    ○ Applying Bannerman's own uranium sector knowledge to preferentially favour the assumptions underlying the FAM2, most notably the assumption of delays and/or stoppages to a number of global uranium projects, compared with those projects' publicly stated development plans;
		    ○ Averaging the FAM2 uranium price assumptions over the years 2025/2026/2027 to generate an average price of US$85/lb (nominal) and US$75/lb (real), recognising that the price assumption for this delivery window will influence the realised price that Bannerman is able to achieve for its initially contracted supply; and
		    ○ Applying a significant discount to the average uranium price assumptions to generate a base case price of US$65/lb.
		• Bannerman maintains the view that the demand prospects for nuclear fuel beyond 2027 are sufficiently strong that the above uranium pricing assumptions are reasonable for the initial life of mine.

Criteria		Commentary
		 Figure: World Nuclear Association Uranium Supply-Demand (Upper Scenario)
Economic	• *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.* • *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	• Discounted cash flow analysis was undertaken utilizing the capital cost, operating cost and revenue parameters as described above. A government tax rate of 37.5% was applied to the model. For the purpose discounted cash flow calculations a discount rate of 8% was utilized. Cash flow calculation was done in 2021 financial terms. • Sensitivity testing was conducted on a range of economic parameters. The project is most sensitive to the uranium price with a financial breakeven price (the price at which NPV8 = zero, that is the project pays all LOM costs and an imputed 8% return on capital) occurring at ~USD 52/lb U_3O_8, and +/-10% NPV impact of +/-US$95M. Price is followed by Foreign Exchange, with a with a +/-10% movement delivering a US$25M-US$30M impact on NPV. • Thereafter the project is most sensitive to changes in Operating cost costs with Mining and Processing being almost equal in weighting (+/- 10% impact to NPV: Mining +/-US$26M and Processing +/-US$24M). Capital costs are the next most sensitive cost parameter (+/-10% impact to NPV: +/-US$23M). (+/-10% Sulphuric Acid US$6M and +/-10% Water US$3M).

Criteria		Commentary
		

Social	• *The status of agreements with key stakeholders and matters leading to social licence to operate.*	• There are no Native Title claims or equivalent over the MDRL 3345 and therefore are no other land holders over the proposed mine site, and as such no land access agreements are required. There are privately owned small holdings outside the area of MDRL 3345. However, these are not expected to be impacted by mining activities.
		• The proposed new Project access road will not cross any tenement held by others.
		• Extensive consultation with key stakeholders have been undertaken since 2008 including;
		  ○ newspaper adverts requesting comments on the project,
		  ○ public meetings (2008, 2009, 2010, 2011 and 2012) in the regional towns of Arandis, Swakopmund, Walvis Bay and the capital of Windhoek.
		  ○ meetings with regional and local government.
		  ○ focus group meetings (2008, 2009, 2010, 2011, 2012, 2014 and 2020) with Coastal Tourism Association of Namibia and/or neighbours.
		• The Etango-8 Project enjoys local community support and is expected to have a significant positive impact on the Erongo Region and Namibian national economies, including local employment and skills training.

Other	• *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* • *Any identified material naturally occurring risks.* • *The status of material legal agreements and marketing arrangements.* • *The status of governmental agreements and*	• The Etango-8 project Mineral Deposit Retention License (MDRL) 3345 is held by the Namibian company Bannerman Mining Resources (Namibia) (Pty) Ltd which manages the project. Bannerman owns 95% of Bannerman Mining Resources. • The Exclusive Prospecting Licence (EPL) 3345 was granted to Bannerman (previously known as Turgi Investments (PTY) Ltd) with effect from 27 April 2006 to explore for Nuclear Fuel. Following an extensive drilling campaign, a Pre-feasibility Study, a Definitive Feasibility Study, an Optimisation Study and the construction of a Heap Leach Demonstration Plant, part of EPL 3345 was converted to a MDRL 3345 which provides strong and exclusive rights to tenure and the right (without obligation) to continue with exploration or development work. The MDRL 3345 covers an area of 7,295 hectares, which

Criteria		Commentary
	approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	includes the Etango-8 ore body, two satellite deposits at Hyena and Ondjamba and all planned mine infrastructure • Qualitative risk assessment have been undertaken throughout the Etango-8 project study phases, no material naturally occurring risks have been identified through the above mentioned risk management process.
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories.* • *Whether the result appropriately reflects the Competent Person's view of the deposit.* • *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	• The Ore Reserves consist of 14% Proved Reserves and 86% Probable Reserves. The Proved Ore Reserves is a sub-set of Measured Mineral Resources, and the Probable Ore Reserve is derived from Indicated Mineral Resources. Inferred resources were treated as waste with no economic contribution to the project. • The Competent Person is satisfied that the stated Ore Reserve classification reflects the outcome of technical and economic studies. • No Measured Resources were downgraded to Probable Ore Reserves due to uncertainty in modifying factors.
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates.*	• Aspects of the study was conducted by independent parties including: ○ Resource Modelling completed by International Resource Solutions and reviewed by Optiro Pty Ltd. Optiro also conducted aspects of the resource modelling and classification. Ian Glacken of Optiro is acting as Competent Person for the Mineral Resources. ○ Qubeka Mining Consultants conducted mine planning activities and the reserves statement. Mr. Werner Moeller of Qubeka Mining Consultants is acting as Competent Person for the Ore Reserves. ○ Mr. Abraham Saayman from Mine Technics did the geotechnical review and provided the relevant parameters for the pit design. ○ Wood plc reviewed the results of the demonstration plant trials. ○ Wood plc developed operating cost and capital cost estimates for the process plant. ○ Financial Modelling was undertaken by Bannerman with assistance from Fivemark Partners utilising a model developed by Mazars Global Infrastructure Finance (Australia)
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors*	• Production activities for the Etango-8 project have not yet commenced. As such, there are no production data available for the purposes of reconciliation. Below is the Etango-8 JORC 2012 June 2022 Ore Reserve:

Mine Project	Classification	Tonnes (Mt)	Grade (U_3O_8 ppm)	Contained Metal (Mlb)
Etango-8 DFS	Proven	15.6	237	8.2
	Probable	97.9	240	51.8
	Total Ore Reserve	**113.5**	**240**	**59.9**

Criteria		Commentary
	which could affect the relative accuracy and confidence of the estimate. • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* • *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The Mineral Resource Estimate has not been subject to rigorous assessment of accuracy and confidence using any numerical or probabilistic approach. Areas of potential uncertainty are the detailed morphology of the alaskite bodies and the degree to which the current volume may change upon infill drilling, and the continuity of the ASD zones, which have been assumed to be relatively discontinuous in this estimate. Grade confidence, as defined by grade continuity modelling is believed to be high. Data quality is high as reflected by the QAQC work. • The accuracy and confidence of modifying factors are generally consistent with feasibility level accuracy with many of the technical factors remaining unchanged from the previous studies. The capital cost estimate for the fixed plant was done to an accuracy of ±15% which is consistent with a Definitive Feasibility study level of accuracy (typically -15% +15%).