



ALKANE
RESOURCES LTD
ABN 35 000 689 216

ANNUAL ENVIRONMENTAL MANAGEMENT REPORT

for the

PEAK HILL GOLD MINE 2021



Peak Hill Gold Mine Proprietary Pit looking north from viewing platform 8 October 2021



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2021

Prepared by:

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16 February 2022

Peak Hill Gold Mine

Annual Environmental Management Report 1 January to 31 December 2021

Name of Mine: Peak Hill Gold Mine

MOP Commencement Date: 1 July 2014

MOP Completion Date: 17 January 2022

Mining Authorisations (Lease / License No.): MLs1351, 1364, 6036, 6042, 6277, 6310, 6389, 6406, 1479, GL5884

Land Owner/Occupier: Alkane Resources Ltd

Tenure: Freehold (Lot 81) and leasehold

Pre-mining Landuse; Lot 81 – Agriculture with remainder mining 1889-1917 and easements in favour of Parkes Shire Council

Name of Authorisation / Authorisation holder(s): Alkane Resources Ltd

Name of Mine Operator (if different): N/A

Name and Contact Details of the Mine Manager (or equivalent):

Michael Sutherland

General Manager NSW

PO Box910

Dubbo, NSW, 2830

Phone: (02) 6882 2866 Mob: 0427 691733

Name and Contact Details of Environmental Representative:

As above

Name of Representative(s) of the Authorisation Holder(s): Michael Sutherland

Title of Representative(s) of the Authorisation Holder(s): General Manager NSW

Signature of Representative(s) of the Authorisation Holder(s):



Due Date 1 March 2021

Final

Version: 1

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1. INTRODUCTION

1.1. SCOPE AND FORMAT

1.1.1. Scope

This Annual Environmental Management Report (AEMR) for the Peak Hill Gold Mine (“the Mine”) has been prepared by Alkane Resources Ltd (“the Company”) following the EDG12 Small Mine AEMR Guide (2012).

The reporting period for the Peak Hill Gold Mine AEMR is 1 January to 31 December.

A letter from NSW Planning & Environment (dated 8 May 2017) established a due date for annual reporting as 1st March.

The mine had an approved (30 March 2016) Mining Operations Plan 2014-2022 for the Peak Hill Gold Mine (MOP) to take the site through to relinquishment or renewal by 17 January 2022.

An application for an extension of the MOP was approved by the Resources Regulator on 17 January 2022 to extend until 2 July 2022.

An application to renew the Mining Leases was lodged 6 July 2021.

A new MOP (Jul 2022) will be prepared using the latest guideline. The 2022 Annual Rehabilitation Report and Forward Program will follow the Form and Way (2 July 2021).

The Mine is located immediately east and northeast of the township of Peak Hill, in the Central West of NSW (**Figure 1** and **Plan 1A**).

The key MLs for the Peak Hill Gold Mine were issued to Alkane by the Minister for Mineral Resources in 1993 (see **Plan 1C**). As additional resources were identified through exploration drilling, additional MLs were granted to form a contiguous area for mining and gold processing for the purpose of this document the area covered by MLs is referred to as the “Mine Site”. Freehold agricultural land (now Lot 81 in DP 12155789) was purchased to accommodate the mine infrastructure

Consent Conditions Development Application 648/93, issued by the Parkes Shire Council on 2 September 1993 are contained in Appendix II of the MOP.

The MOP incorporates the Rehabilitation Management Plan as required under Condition 3(53) of new Project Approvals.

1.1.2. History of Operations

The Peak Hill Gold Mine operated as a drill and blast open cut gold mine between 1996 and 2002. Gold was extracted using heap leach cyanide technology until 2005 - when the last gold was poured on 20 December 2005.

The Waste Rock Emplacement, ROM Pad and haul roads were rehabilitated in December 2002 before the Macmahon Contractors mining fleet demobilised from site (**Plan 2**).

When gold production ceased from the heap leach in November 2005, that landform was reshaped and rehabilitated by McCutcheons Earthmoving and the Soil Conservation Service designed and built the downslope structures.

All but 8.5Ha of the mine site was rehabilitated by 2005 and the site has essentially been under care and maintenance since then. A Site Supervisor, based in Peak Hill, maintains the mine site.

The final steps in rehabilitation of the site will be described in MOP (Jul 2022). **Plan 4** shows proposed final rehabilitation outcomes.

Gold Production from the Peak Hill gold mine from October 1996 to December 2005 was 153,657 fine ounces.

The Open Cut voids are a feature of a tourist mine, operated by Parkes Shire Council offering free access to the public during opening hours. A Tourist Mine Permit was issued by the Minister in 2003.

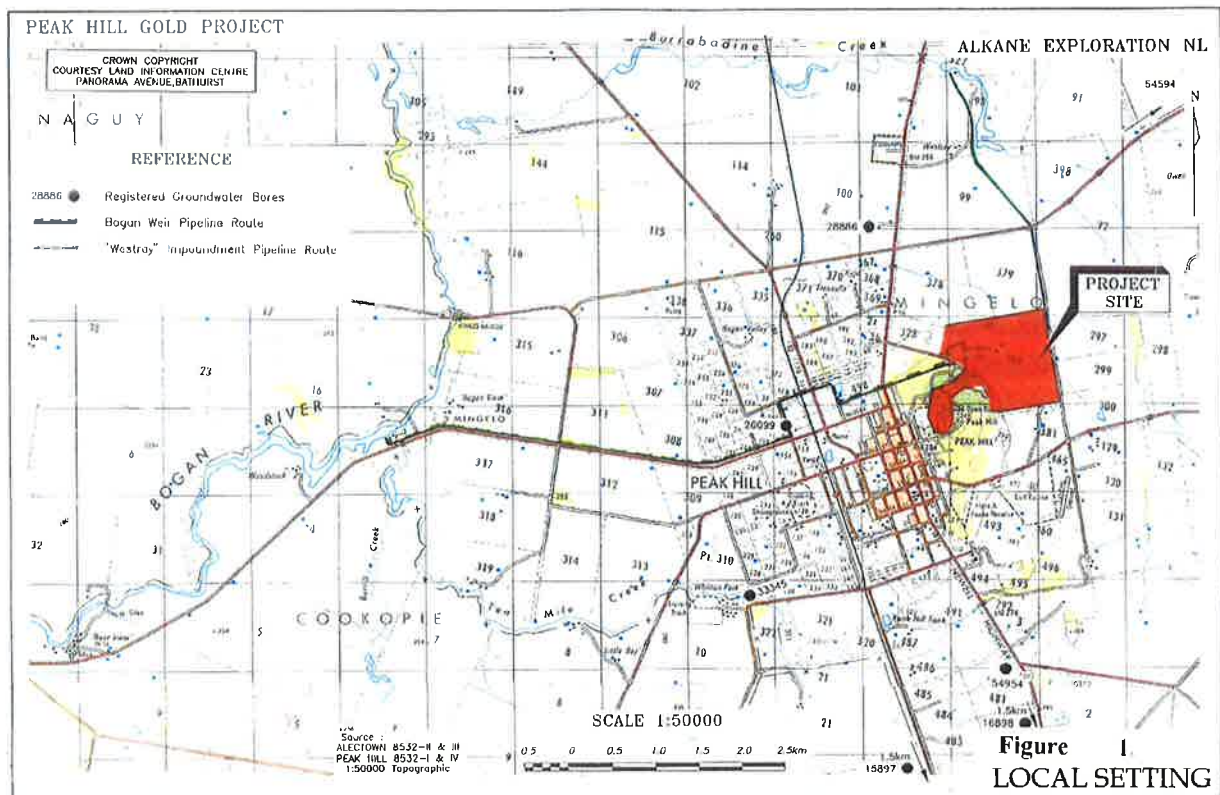
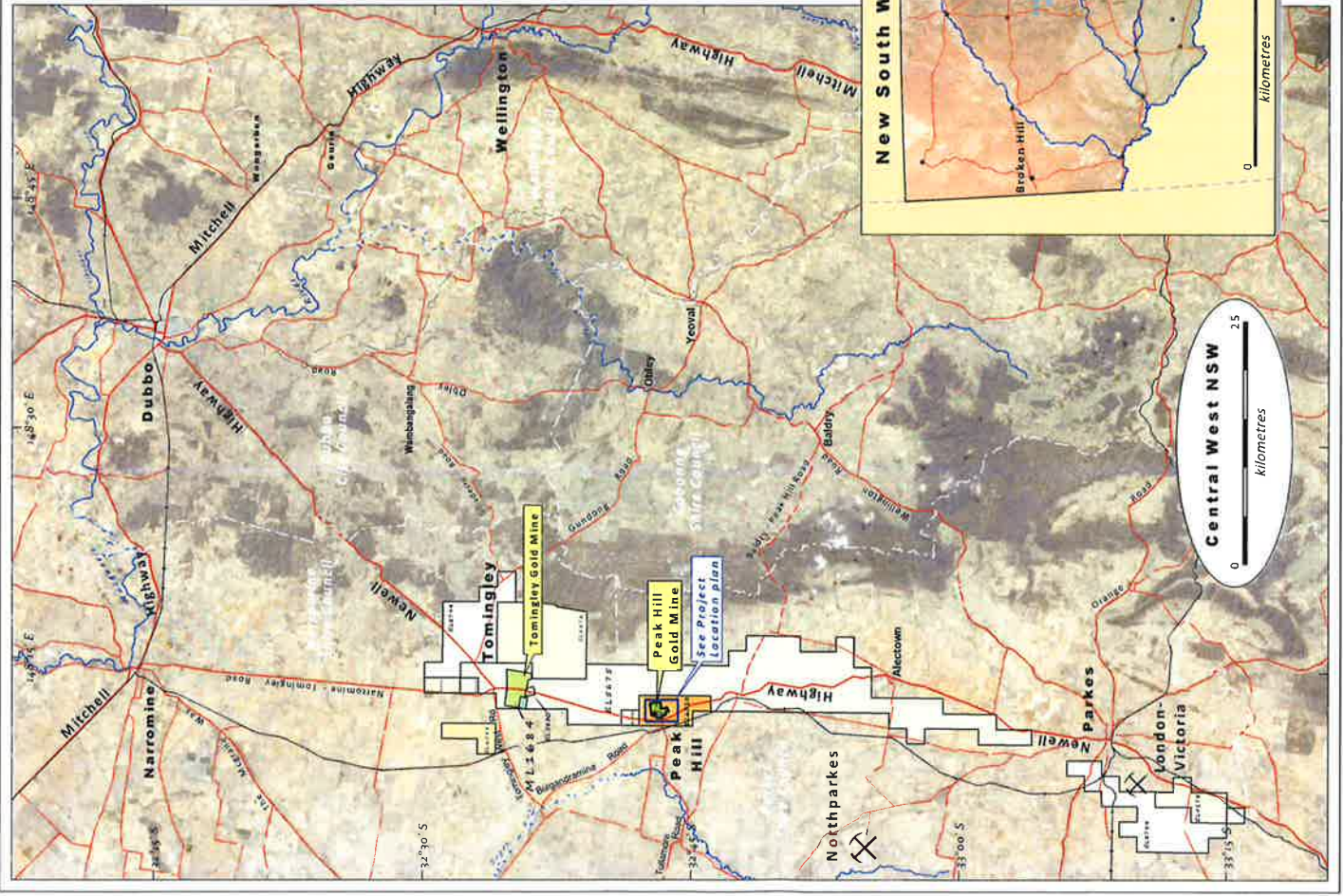
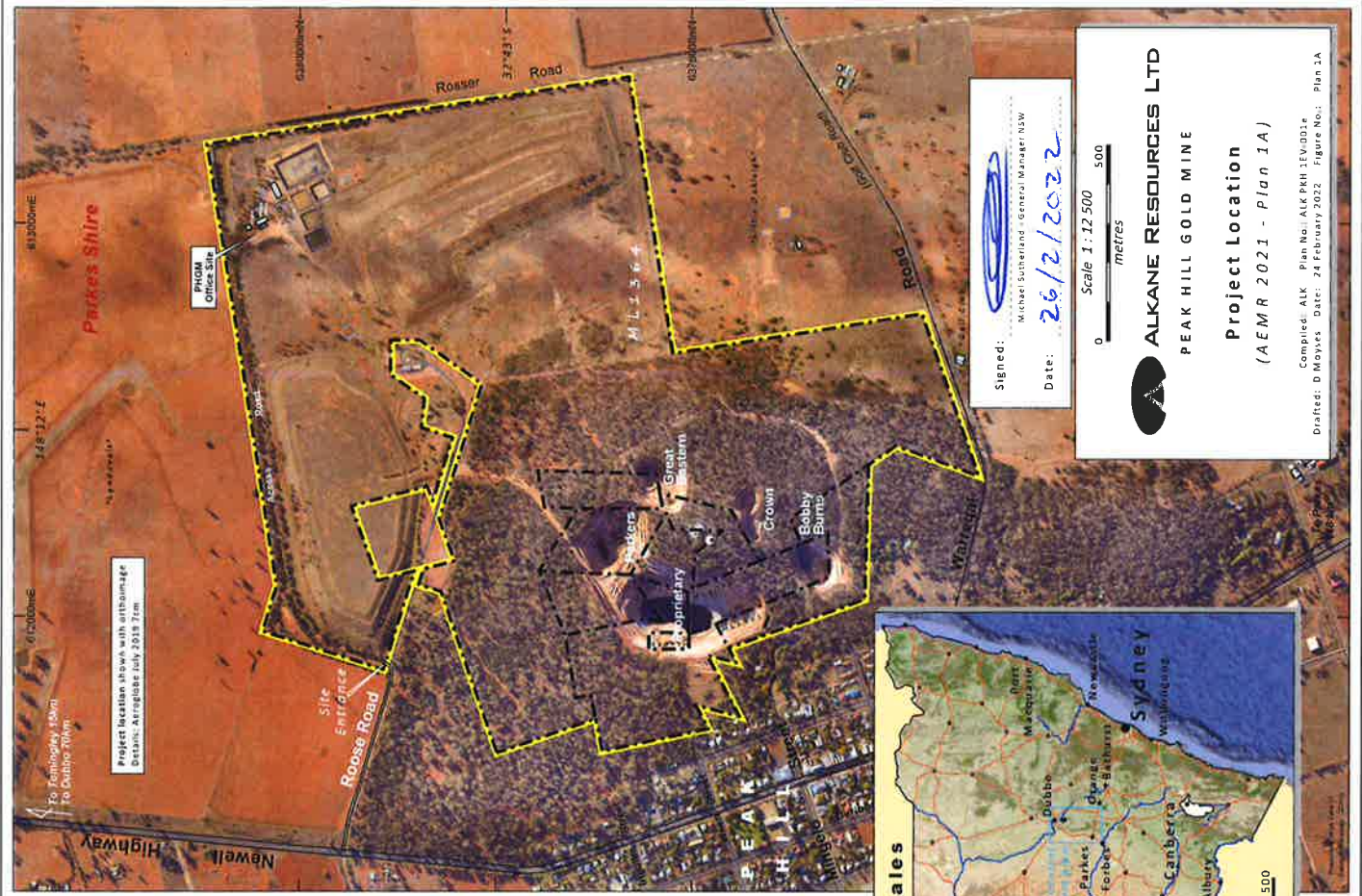
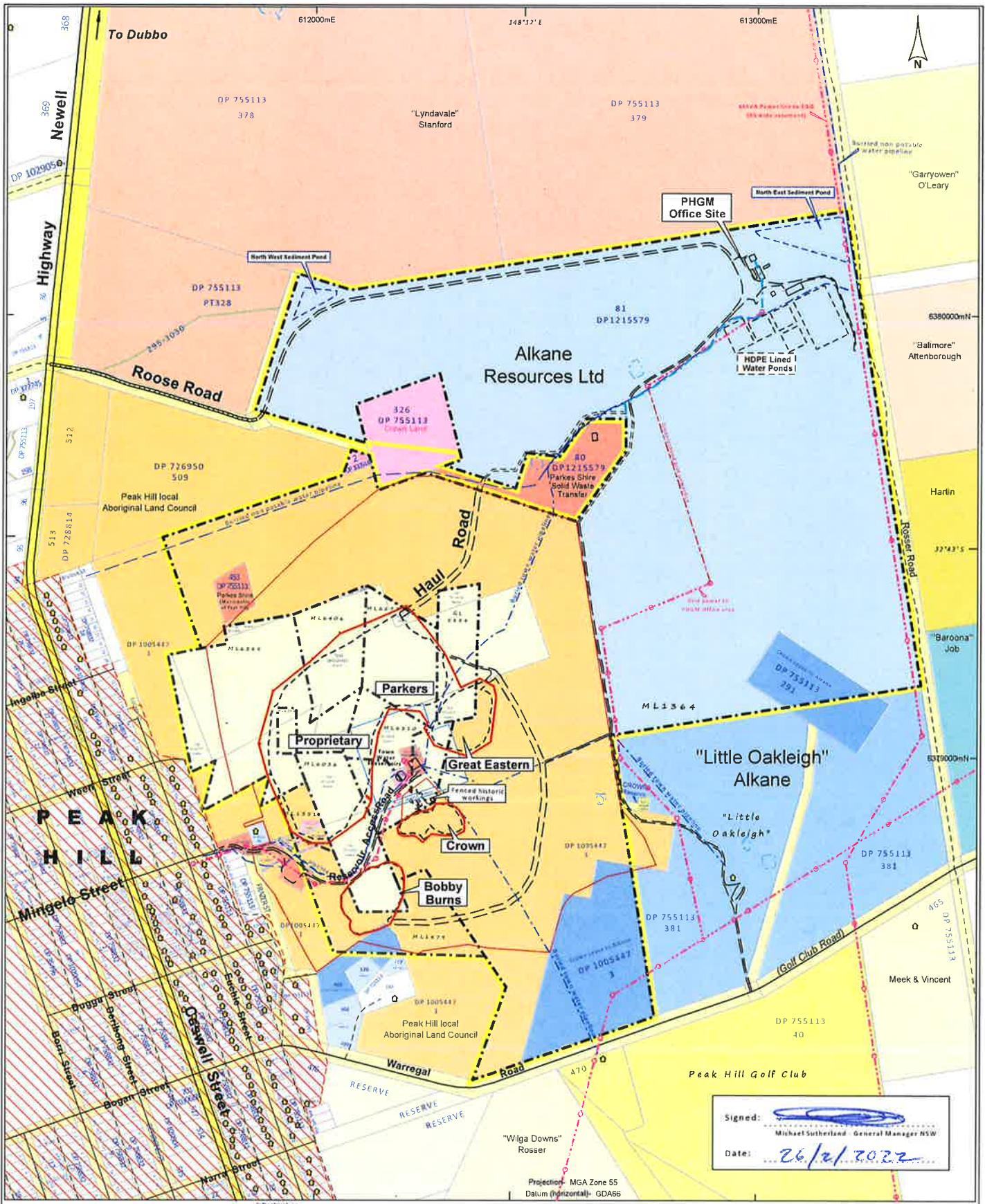



Figure 1: Peak Hill Gold Mine Local Setting (source: EIS 1993)





Signed: 
 Michael Sutherland - General Manager NSW
 Date: 26/2/2022

- Infrastructure**
- Bull up area (ownership not indicated)
 - Built environment:**
 - Cadastral lot - with lot and DP# number (private ownership uncoloured unless near neighbour)
 - Land owned by Alkane Resources (including leased land)
 - Road reserve (Former Paper road)
 - Crown land various authorities and vesting
 - Crown land - various Reserve vesting
 - Parkes Shire Council
 - Building (Project area)
 - Neighbouring residences - primary building per parcel (East of Highway)
 - Access Road, Track or Haul Road (retained for fire fighting and convenience of access)
 - Buried potable town water / non potable water
 - Power line and poles
 - Buried services (water telecom power to Macmahon's Sites from Office)
 - Safety features (public, stock and fauna)**
 - Fence - Man proof, to be removed or utilised as appropriate
 - Fence - to be removed or utilised as appropriate (unsurveyed)
 - Fencible dam
 - Loli boundary (unsurveyed)
 - Historic workings and waste rock dumps (1990 photogrammetry)
 - Roads, Newell Highway
 - Roads, sealed and unsealed
 - Mining lease boundary
 - Exploration lease boundary (EL6319 covers all ground external of Mining Leases within plan)
 - Peak Hill Gold Mine - Project site boundary
 - Alkane - Land ownership boundary

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 PEAK HILL GOLD MINE
 Mining Environment - December 2021
 Built Environment
 (AEMR 2021 - Plan 1C)


Compiled: ALK Drafted: D Moyses Plan No.: ALK PKH 1E1V-002e
 Date: 24 February 2022 Figure No.: Plan 1C




Primary Domain		Secondary Domain		Rehabilitation Phases	
1	Infrastructure area	A	Infrastructure	[Red cross-hatch]	Active area (3.2ha)
1	Public infrastructure area within Project site boundary	B	Water management area	[Diagonal lines]	Decommissioning (3.0ha)
2	Residue - Heap Leach	C	Rehabilitation area - Grasslands	[Yellow box]	Landform establishment
3	Water management area	D	Rehabilitation area - Pasture	[Green box]	Growth medium development
4	Overburden emplacement area	E	Rehabilitation area - Woodlands	[Diagonal lines]	Ecosystem land use and establishment
5	Stockpiled material	F	Rehabilitation area - Forest	[Diagonal lines]	Ecosystem land use sustainability 191.1ha (149.1ha + 2.7ha)
6	Void (Open cut void)	G	Rehabilitation area - Rural land capability classification iv	[Purple box]	Relinquished lands
7	Rehabilitation area - Pasture	H	Relinquished lands		
8	Underground mining area - N/A	I	Final void		
9	Conservation and biodiversity area	J	Conservation and biodiversity		
10	Rural land (largely undisturbed)				

Signed: 
 Michael Sutthuland - General Manager NSW
 Date: 26/2/2022

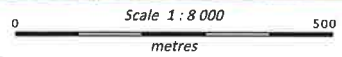
- Farm dam
- Roads, Newell Highway
- Roads, sealed and unsealed
- Mining lease boundary
- Exploration lease boundary (EL5319 covers all ground external of Mining Leases within plan)
- Peak Hill Gold Mine - Project site boundary
- Alkane - Land ownership boundary (including leased land) June 2014

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PEAK HILL GOLD MINE
Mine Domains at
31 December 2021
 (AEMR 2021 - Plan 2)



Signed: 
 Michael Sutherland General Manager NSW
 Date: 26/2/2022

Projection: MGA Zone 55
 Datum: (horizontal) - GDA98
 Orthorectified Aerophoto July 2019 7cm



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PEAK HILL GOLD MINE
Final Rehabilitation and Post Mining Land Use - 2022

(AMER 2021 - Plan 4)

Compiled: ALK Plan No.: ALK PKH 1EV-004b
 Drafted: D Moyses Date: 24 Feb 2022 Figure No.: Plan 4

- | | | |
|--|---|---|
| <p>Past mining land use (Secondary Domains)</p> <ul style="list-style-type: none"> A - Infrastructure B - Water management area C - Grasslands D - Pasture (none present) E - Woodlands F - Forest (none present) G - Rural land capability classification v H - Relinquished lands I - Final void J - Conservation and biodiversity area J - Wetlands (Conservation and biodiversity) Wildlife corridors - N/A | <p>Infrastructure</p> <ul style="list-style-type: none"> Building Access Road, Track or Haul Road (retained for fire fighting and convenience of access) Buried, potable town water / non potable water Power line and poles Buried grid power (located Heap Leach area) Buried services (water telecom power to Macmahon's Shed from Office) <p>Safety features (public, stock and fauna)</p> <ul style="list-style-type: none"> Fence - Man proof, to be removed or utilised as appropriate Fence - to be removed or utilised as appropriate (unsurveyed) | <ul style="list-style-type: none"> Farm dam Roads, Newell Highway Roads sealed and unsealed Mining lease boundary Exploration lease boundary (EL5319 covers all ground external of Mining Leases within plan) Peak Hill Gold Mine - Project site boundary Alkane - Land ownership boundary (including leased land) |
|--|---|---|

1.2. CURRENT CONSENTS, AUTHORISATIONS AND LICENSES

Table 1 presents the consents, authorisations and licences held in relation to the Mine.

Table 1 - Current Consents, Authorisations and Licenses

Number	Granted by	Grant Date	Expiry Date	Purpose
Development Consent				
DA 648/93	Parkes Shire Council	3 September 1993	NA	Development Consent – Open Cut Gold Mine and heap leach gold extraction plant
DA 648/93	Parkes Shire Council	16 August 1994		Modification of Development Consent (Parkers Extension)
DA 1033/97	Parkes Shire Council	15 July 1997	NA	Extension of Processing Operations
DA 1049/97	Parkes Shire Council	5 August 1997		Garth Bore Pipeline
DA 1080/97	Parkes Shire Council	6 February 1998		Main Tailings
DA 99253	Parkes Shire Council	20 April 2000		Great Eastern
DA 00174	Parkes Shire Council	8 December 2000		Bobby Burns Pit
DA 01072	Parkes Shire Council	20 June 2001		Parkers Cutback
DA 01162	Parkes Shire Council	20 November 2001		Crown Pit
DA 15039	Parkes Shire Council	25 June 2015		Retention of Mine Buildings at PHGM
Subdivision Certificate 15008	Parkes Shire Council	30 July 2015		Waste Transfer Station
Special Purpose Conditions	Mineral Resources	27 February 2003		Permit to Conduct Tourist Activities
Mineral Authorities				
ML1684	Minister for Energy (responsible for matters relating to resources)	11 Feb 2013	11 Feb 2034	Mining activities at the Tomingley Gold Mine
EL5675		17 Jan 2000	17 Jan 2023	Exploration Activities
EL5830		05 Apr 2001	04 Apr 2022	
EL5942		03 May 2002	03 May 2024	
EL6085		20 May 2003	20 May 2024	
EL6319		12 Oct 2004	11 Oct 2026	
GL5884		12 Dec 1969	17 Jan 2022*	
ML1351		15 Jun 1994	17 Jan 2022*	
ML1364		14 Mar 1995	17 Jan 2022*	
ML1479		18 Jan 2001	17 Jan 2022*	
ML6036		07 Mar 1968	17 Jan 2022*	
ML6042		21 Feb 1968	17 Jan 2022*	
ML6277		12 Mar 1971	17 Jan 2022*	
ML6310		27 Aug 1971	17 Jan 2022*	
ML6389		06 Apr 1973	17 Jan 2022*	
ML6406		25 Jan 1974	17 Jan 2022*	

Number	Granted by	Grant Date	Expiry Date	Purpose
Licences – Environmental				
EPL5473	Environment Protection Authority	5 September 1999	Renewed annually	Regulation of noise, dust and water emissions from the Mine Site (provided as Appendix 4).
EPL5473	Environment Protection Authority	7 November 2003	NA	Notice of Variation of Licence
EPL 5473	Environment Protection Authority	28 January 2011	NA	Licence varied by correction to DECCW region record
EPL 5473	Environment Protection Authority	17 June 2014	NA	Licence variation 1505946
EPL 5473	Environment Protection Authority	3 December 2018	NA	Licence Variation (reflecting excision of 4Ha of ML 1364)
Licence 451536	Trade & Investment – Crown Lands	23 Feb 2010	NA	Licence for pipeline and pump site
WAL 28643	NSW Office of Water	1993	NA	300ML Water Access Licence – Bogan Weir
Source: Alkane Resources Ltd				

*Approval pending

1.3. LAND OWNERSHIP AND LAND USE

Plan 1A provides an aerial photo of the Mine Site and its surrounds. Land uses within and surrounding the Mine Site include the following:

- Urban residential and rural residential;
- Agriculture;
- Transportation (Newell Highway);
- Water Supply Infrastructure on Peak Hill, Reservoir access road, communications towers, rising and gravity water mains;
- Peak Hill Solid Waste Transfer Station off Roose Road (Lot 80 DP1215579);
- Commercial main street of Peak Hill;
- Recreation (Open Cut Experience - Tourist Mine);
- Former mining operations - namely Crown workings and alluvial mine shafts; and
- Bushland biodiversity owned by Peak Hill Local Aboriginal Lands Council.

1.3.1. Community Consultation

Consultation was undertaken with the local community, indigenous representatives and relevant government agencies throughout the operating life of the Peak Hill Gold Mine and during mine closure planning.

Establishing a tourist mine, post mine closure, was a voluntary commitment made by Alkane Resources as a demonstration of its commitment to sustainable development. The community has been keen to have continued access to the mining leases on the hill post mine closure.

The Tourist Mine, formerly operated as the *Open Cut Experience*, attracted 11,000 visitors in 2003.

A community information session was hosted by Alkane at the Peak Hill Ex-Services and Citizens Club on 24 October 2018 to explain Alkane's diamond drilling program which was conducted from December 2018 to February 2019.

1.3.2. Government Agency Consultation

The following government agencies were consulted during the preparation of the 2014-2022 MOP.

- Mining Exploration & Geoscience.
- Environment Protection Authority.
- Parkes Shire Council.

In addition, a final draft version (September 2014) of the MOP document was provided to the Department of Industry Resources & Energy and comments received were taken into account when finalising the document.

The EPA issued a licence variation for the Peak Hill Gold Mine (EPL5473) on 3 December 2018. The variation was simply a slight change to the premise identification.

The Resources Regulator conducted a safety audit/inspection of the Tourist Mine in November 2019 which resulted in follow up actions by Alkane regarding safety signage and Safety Management Plans.

The Resources Regulator conducted Targeted Assessment Program (TAP) – Soils and materials management at Peak Hill Gold Mine on 19 June 2020.

The Resources Regulator conducted an audit of the Peak Hill Gold Mine admin and laydown areas and core yard on 14 December 2020.

Improvements Notices were issued regarding general housekeeping, safety barriers, chemical storage and electrical deficiencies. All matters were closed out in early 2021.

An Electrical Engineering Control Plan was completed by an external electrical engineer in May 2021.

2. MINING ACTIVITIES

2.1. PROJECT DESCRIPTION

The Peak Hill Gold Mine includes the following components (**Plan 2**).

- Mine site access road (off Roose Road).
- Three-bedroom transportable house with carport (ultimately to be removed).
- Mine site office, crib room, and steel shed (slab floor).
- Core shed, sea containers (exploration access and continuing use).
- Five HDPE lined ponds (awaiting re-use or final rehabilitation).
- Rehabilitated Final Landforms (waste rock emplacement, heap leach and ROM Pad).
- Open cut voids (fenced):
 - Proprietary and Parkers Open Cut (including Parkers Cut Back);
 - Great Eastern Open Cut;
 - Crown Open Cut;
 - Bobby Burns Open Cut (partially back filled); and
 - Historic (1890-1915) Crown Workings and alluvial workings (fenced).
- Bobby Burns to Proprietary Haul Road (fire break).
- Buried water pipelines from “Westray”, the Bogan Weir and Peak Hill Sewage Treatment Works.*
- A transformer and electrical distribution network within the Mine Site.
- Grassed waterways and sediment ponds in the northeast and northwest corners of the mine site.
- Three groundwater monitoring bores around the northeastern perimeter of the mine site.
- Viewing platform and 22 interpretive signs around the Open Cut Experience.

Parkes Shire Council has provided additional built infrastructure to the Tourist Mine during 2016 to enhance the visitor experience. Additional improvements – a large fabricated gateway/shelter/interpretive signs and two bronze sculptures and a sound post were installed by PSC in 2017. These improvements were officially opened by the Minister for Tourism, the Hon Adam Marshall on 11 August 2017.

The Bogan River water pipeline was replaced in the rail corridor by ARTC for the Inland Rail Project. The pipeline was upgraded to meet Inland Rail construction standards in the rail corridor. The Bogan weir pump was reactivated during 2020.

Table 2 below details the domains within the Mine Site, their size and major assets contained. Note that the areas detailed are based on maximum disturbance within the

term of the MOP. A detailed description of each domain is provided in Section 5.1 of the MOP.

Table 2 - Major Assets per Domain

Domain	Size (approx. ha)	Assets	Use & Details
1 - Infrastructure Area	4.5	Roads: site access. Buildings: Including site office, house, crib room and amenities. Processing: Including shed, wet plant slab and man-proof fencing 5 HDPE-lined ponds (processing and overflow). A subdivision of 4 hectares of land from Lot 380 with former contractor infrastructure on it was approved by PSC and subsequently gifted by Alkane to PSC for use as a waste transfer station. A part cancellation (4Ha) of the Mining Lease 1364 took effect from 26 June 2017.	Roads provide access to open cuts, site entry and inspection to site areas. Buildings still in use and maintained. Wet plant structures removed from site in 2010 and only slab remains. Processing ponds contain rain water and pumped Bogan river water which evaporates during the year.
2 – Residue	24.2	5Mt of heap and dump leach (spent ore) contoured to direct runoff to a downslope rock-lined flume. Includes 0.6Ha dump leach trial area The crushed ore in the heap leach does have some commercial value as construction material. RMS used spent heap leach material for shoulder widening on Newell Highway in 1999.	Rehabilitated as a final landform. Well grassed with mixed pasture sward. Some natural regeneration of trees and shrubs. Topdressed with Ag lime (2t/Ha in April 2022)
3 - Water Management Area	1.5	Includes two sedimentation ponds, a farm dam near former contractor's area and grassed table drains and waterways.	Table drains and grassed waterways are designed to manage rainfall runoff.
4 - Overburden Emplacement Area (Waste Rock Emplacement and ROM pad)	27.0	5 Mt of waste rock including 815,000 tonnes of sulphidic material (>1 g Au/t) which is encapsulated in oxide waste rock (<0.5g Au/t). Includes 4.5Ha Rom pad constructed from oxidised waste rock.	Shaped and rehabilitated WRE has maximum height of 25m and heap leach has a maximum height of 20m. Topdressed with Ag lime (2t/Ha in April 2022)
5 - Stockpiled Material	0.7	Top soil stockpile south of overflow pond.	Temporarily rehabilitated with pasture

6 - Void (Open Cut)	14.6	Includes four voids at the end of the MOP period.	Part of tourist mine attractions. Natural regeneration and mine openings provide habitat for bats, birds and possums. Used for commercial photography.
7 - Rehabilitation Area – Pasture	1.3	During the MOP period no areas will be rehabilitated to pasture.	Biodiversity asset.
8 - Underground Mining Area (SMP)	0	Underground mining was not part of this development.	N/A
9 - Conservation & Biodiversity Area	76	There was no biodiversity offset required for this mine site. However, it should be noted that biodiversity has increased as result of the PHGM.	Tourist Mine original plantings 1996-1997 have provided a seed source for natural regeneration.
10 - Rural Land	47	Areas largely undisturbed by mining (49Ha) Grazing licence as part of "Little Oakleigh" Lease (8 Ha).	Biodiversity and Agriculture (grazing).
<p>Note: The WRE extends across 2.65Ha of Lot 326 which was used as a solid waste Depot by Parkes Shire Council up until 2017. This facility has been replaced by 4Ha of land subdivided from Lot 380. Source: Alkane Resources Ltd</p>			

2.2. ACTIVITIES OVER THE MOP TERM

2.2.1. Exploration

The primary activity at the Peak Hill Gold Mine was the continuing use as the exploration base for the Tomingley Gold Extension Project (TGEP) which is a State Significant Development. TGEP will likely extend the life of Tomingley Gold Operations for at least ten years with the San Antonio Roswell Open Cut and underground mine proposed for construction in 2022. An EIS for TGEP was submitted to DPE in February 2022. Public Exhibition should take place February-March 2022.

Regional exploration activity (between Tomingley and Peak Hill) will continue during the 2023. Exploration personnel will continue to access the core yard and site offices as part of their normal activities.

The Peak Hill Gold Mine MLs contain a known sulphide resource totalling 4.91Mt grading at 2.05g/t Au and 0.17%Cu (1.0g/t Au cut off).

Exploration activities may include the following:

- Geochemical sampling;
- Geological mapping;
- Geophysics; and
- Diamond and Reverse Circulation resource and geotech drilling.

The objective of the PHGM exploration program in 2018-2019 was to further define the known resource, as well as identify additional resources within the Mine Site. Metallurgical test work on the core and resource evaluation continues. Results will likely

be released the ASX in 2022. Some geotechnical drilling will be required as part of the ongoing underground resource feasibility work.

Environmental management of exploration activities will continue to be implemented to ensure the final rehabilitation of the exploration areas is consistent with the rehabilitation objectives identified in Section 5.2 of this document.

2.2.2. Construction

No construction took place during the reporting period, though two refrigerated containers were on site during 2020-2021 to store the Proprietary Pit drill core which contains high amounts sulphides which would otherwise oxidise.

The decommissioning of the HDPE-lined process ponds was scheduled for 2021 as part of final mine closure activities. However, Alkane is currently evaluating the results for the PHGM diamond drilling program 2018-2019. Metallurgical testwork and pre-feasibility work is being undertaken to establish whether the Peak Hill Gold Mine has the potential to be re-opened as an underground mine. Removing the HDPE ponds prior to a final decision on underground operations would be premature.

Decommissioning the ponds (see photographs in Appendix 1) is a minor task when compared with the work that has preceded.

Alkane has commenced the process of renewing the Mining Leases at Peak Hill to allow for future potential underground mining. Processing of any ore would likely take place at Tomingley Gold operations. That would require a new development application and associated environmental assessment.

2.2.3. Mining Operations during the Reporting period

No mining was undertaken on the PHGM MLs during the 2021 reporting period (1 January 2021 - 31 December 2021).

There are no plans to disturb previously rehabilitated areas during the MOP period.

There has been no land clearing, construction activity, ore extraction nor mineral processing during 2021.

2.3. REHABILITATION DURING THE AEMR PERIOD

There have been few active interventions on the mine site since the commencement of the MOP as most of the site was rehabilitated by 2005.

In March 2020, exploration samples bags that had been temporarily stored south of the intermediate pond were removed from site and the area above the trial dump leach site was covered with fresh topsoil.

On 7 April 2021, 108 tonnes of agricultural lime was spread across the heap leach and WRE final landforms (46Ha) at a rate of approximately 2t/Ha. While the pasture cover is generally excellent, it was expected that the addition of lime would shrink some of the bare patches on the final landforms. Bare patches are also a feature on surrounding agricultural land (not owned by Alkane).

Boxthorn and other noxious weeds were controlled through spraying by the Site Supervisor.

Excessive macropod numbers were controlled under licence from EES by a licenced professional shooter.

The site continues to develop more ecological complexity each year as trees planted in 1996 are producing habitat for birds and other vertebrates and seed for new generations of trees.

The 2020-2021 calendar years have seen above average and timely rainfall which resulted in one of the best consecutive cropping and pasture seasons ever experienced in the district.

Groundcover on the mine site is generally much better than surrounding farmland.

Trees and shrubs (self-sown) on the batters of the WRE were cut to maintain ground cover and protect buried sulphides.

2.3.1. Further Development of Final Rehabilitation Plan

A DA was approved by Parkes Council in 2016 to allow for the retention of the mine buildings (except the house) on site. This reduces the area requiring further rehabilitation on site by 5.2Ha.

A DA was approved by Parkes Council for the subdivision of four hectares of land from Lot 380 for use as a new solid waste transfer station. This land was transferred at no cost to council to satisfy consent condition 1.25 of Consent 648/93

The new Peak Hill Waste Transfer Station which has recycled the contractor's area (workshop shed, slab and washdown bay) opened for operations in 2018.

Alkane submitted a part relinquishment application to DRE on 6 November 2015 to excise the 4 hectares from the mining lease. Alkane received confirmation of the part cancellation of the part cancellation on 26 June 2017.

Alkane will consult with Mining Exploration & Geoscience and DPE during 2022 regarding the potential to re-open the Peak Hill Gold Mine as an underground mine. Those discussions and feasibility study results will determine whether the mine proceeds to final closure or works towards the approval of a new development.

Some of the remaining infrastructure on site would be utilised in any new development.

TABLE 3: Rehabilitation Summary

		Cumulative Area Affected (hectares)		
		To date	Last report	Next Report (estimated)
A: MINE LEASE AREA				
A1	Mine Lease(s) Area	195.2*		
B: DISTURBED AREAS				
B1	Infrastructure area other disturbed areas to be rehabilitated at closure including house and processing ponds	3.1	3.1	3.1
B2:	Active Mining Area excluding items B3 - B5 below Includes Access road, core farm, office	3.0	0	0
B3	Waste emplacements, active/unshaped/in or out-of-pit	0	0	0
B4	Tailings emplacements, active/unshaped/uncapped	0	0	0
B5	Shaped waste emplacement (top soil stockpile will be used during final rehab)	0	0	0
ALL DISTURBED AREAS		6.1	6.1	6.1
C REHABILITATION PROGRESS				
C1	Total Rehabilitated area (except for maintenance) This area so 191.7ha includes 189.1ha inside the Mining Leases + 2.7ha WRE over for Peak Hill Waste Depot.	191.7	191.7	191.7
DC: REHABILITATION ON SLOPES				
D1	10 to 18 degrees	NA	NA	NA
D2	Greater than 18 degrees	NA	NA	NA
E: SURFACE OF REHABILITATED LAND				
E1	Pasture and grasses (native and introduced)	97.2	101.2*	97.2*
E2	Native forest/ecosystems	92.4	76.0	92.4
E3	Plantations and crops	0	0	0
E4	Voids with some regeneration of trees	14.6	14.6	14.6

* Decrease in area from AEMR 2016 due to excision of 4Ha of ML for Waste Transfer Station

TABLE 4: Maintenance Activities On Rehabilitated Land
(This period's activities and activities proposed in the next reporting period)

NATURE OF TREATMENT	Area Treated (ha)		Comment/control strategies/ treatment detail
	Report period	Next period	
Additional erosion control works (drains re-contouring, rock protection)	0	0	
Re-covering (detail - further topsoil, subsoil sealing etc)	0	0	
Soil treatment (detail - fertiliser, lime, gypsum etc)	47Ha	0	108 tonnes of agricultural lime was applied to the WRE and heap leach final landforms in April 2021
Treatment/Management (detail - grazing, cropping, slashing etc)	0	0	
Re-seeding/Replanting (detail - species density, season etc)	0	0	
Adversely Affected by Weeds (detail - type and treatment)	194.8	194.8	Boxthorn, Bathurst burr, Devils Claw, Fierce thornapple. Spot spraying with glyphosate and wetter. St. Barnaby's Thistle was eradicated from site. Spray and/or chip to remove.
Feral animal control (detail - additional fencing, trapping, baiting etc)	100	100	Macropod reduction under licence on Lot 81 only.

3. METEOROLOGICAL DATA

The Peak Hill Gold Mine no longer maintains a weather station at the mine site but rather relies on the registered BOM site at Peak Hill Post Office (within 500m of the site).

In 2019 the total rainfall for New South Wales was the lowest on record, at 55% below average; well below the previous driest year of 1944

2019 was the warmest year on record for New South Wales as a whole, with the mean temperature 1.95 °C above average and 0.27 °C warmer than the previous warmest, 2018

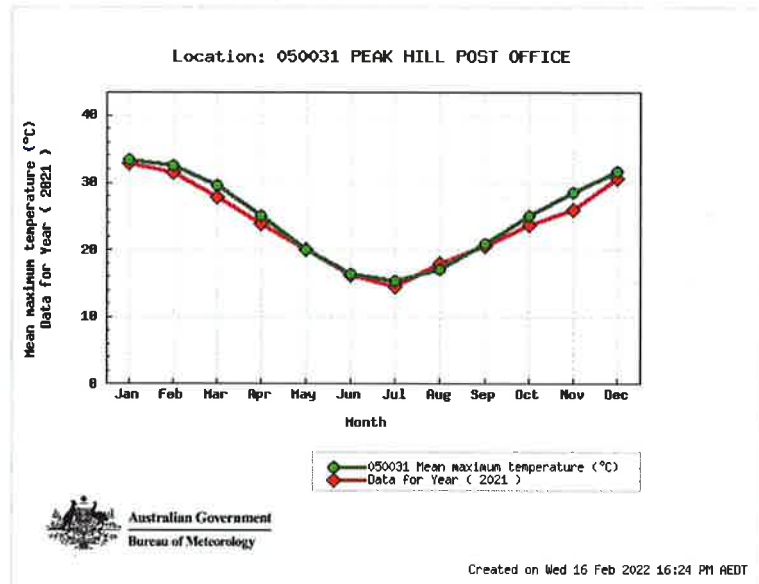
The five warmest years on record for New South Wales are now 2019, 2018, 2014, 2017 and 2009.

2021 experienced a mean maximum cooler than the mean for 11 of 12 months and the minimum temperatures cooler for 10 of 12 months. The amount of rain and rain days likely influenced the cooler than average year.

The Peak Hill Post Office mean annual rainfall is 563.2mm. The total rainfall at Peak Hill Post Office in 2021 was 834.3mm.

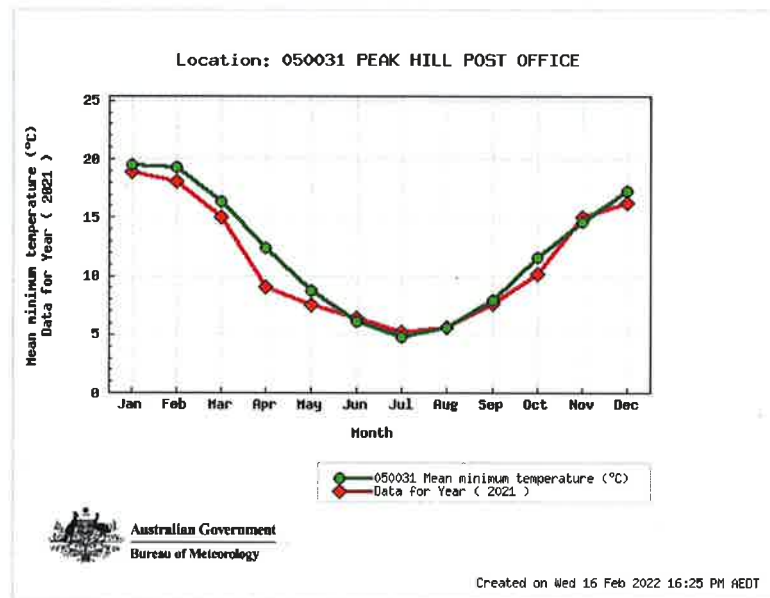
The mine site rehabilitation performed as designed and no damage has been observed on any of the final landforms. The northeast sediment pond did not overflow during 2021 and thus there was no surface water monitoring conducted.

The charts below contain maximum and minimum temperatures for 2021 versus the long term mean and daily rainfall data for 2021.



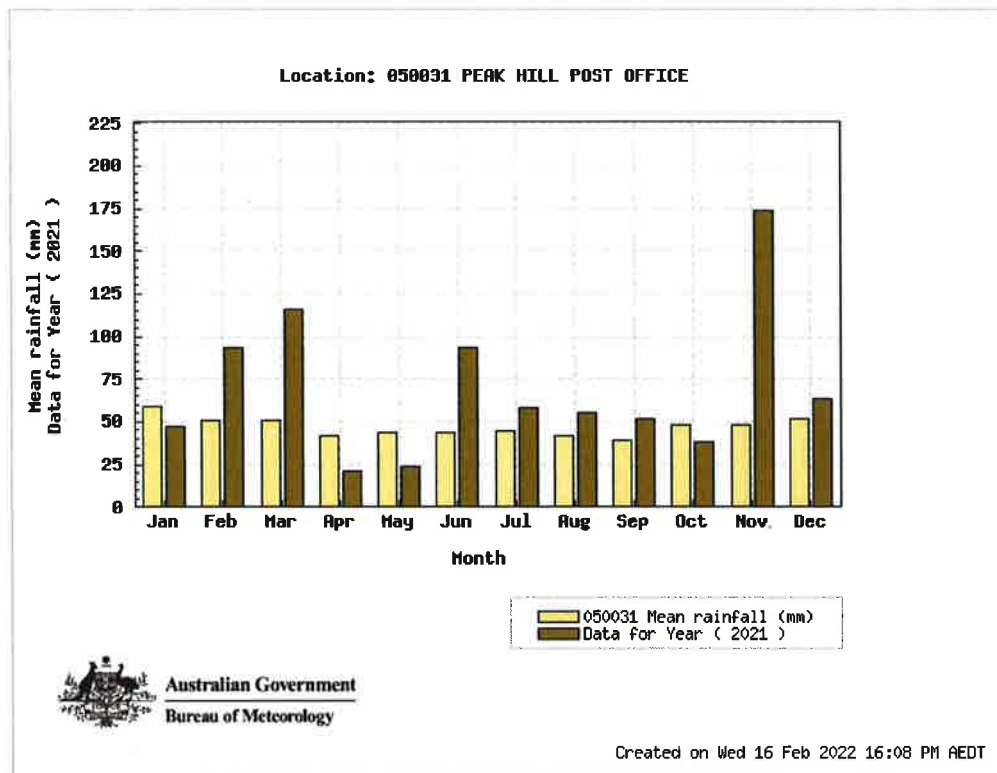
Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years
Mean maximum temperature (°C) for years 1985 to 2022	33.4	32.6	29.5	25.1	20.1	16.3	15.4	17.1	20.8	25.0	28.5	31.6	24.6	55
Mean maximum temperature (°C) for year 2021	32.9	31.5	27.9	23.8	20.1	16.2	14.5	17.9	20.6	23.7	25.9	30.6	23.8	1

12.3 = Not quality controlled



Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years
Mean minimum temperature (°C) for years 1985 to 2022	19.5	19.3	16.4	12.4	8.7	6.1	4.8	5.6	7.9	11.6	14.6	17.3	12.0	54
Mean minimum temperature (°C) for year 2021	18.9	18.1	15.0	9.0	7.5	6.4	5.2	5.6	7.6	10.2	15.0	16.3	11.2	1

12.3 = Not quality controlled



Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years
Mean rainfall (mm) for years 1890 to 2022	58.9	50.8	51.1	42.0	43.9	43.5	44.6	42.2	38.9	47.8	48.2	51.3	563.2	131
Rainfall (mm) for year 2021	47.4	92.9	116.0	21.0	23.8	93.0	57.6	55.2	51.8	38.2	173.8	63.6	834.3	1

12.3 = Not quality controlled

4. ENVIRONMENTAL PERFORMANCE

Environmental control strategies (rehabilitation) have been undertaken as described in the MOP 2014-2022.

A new MOP will be required to extend the life of the mining leases beyond 2 July 2022. The new MOP will be required to allow Alkane the opportunity to develop the underground resource at Peak Hill while Tomingley Gold Operations is operating.

Three Landscape Function Analysis studies (14 transects across final landforms and two analogue site) have been undertaken to date by Graminus Consulting on August 2013, February 2014 and May 2014.

The analogue sites have not been disturbed by mining. Significantly “neither analogue site is any better or worse than any other transect”. The metric scores (May 2014) for stability, infiltration and nutrient cycling endorse a positive outcome for the rehabilitation techniques employed on the minesite.

Surface water discharges (results reported on www.alkane.com.au) from the licenced discharge point (NE sediment pond) comply with EPA limits. Despite almost double Peak Hill average rainfall in 2021, there were no surface water discharges from the site.

This is an indication of the good groundcover across the minesite and healthy soils (landscape function) being able to absorb rainfall events.

Box thorn spraying is getting on top of the infestation with a decline in recruitment evident.

Macropod management is ongoing to ensure landforms are not overgrazed.

Establishment of the new waste transfer station on an excised portion of the mining lease is a very positive environmental outcome for Parkes Council and Alkane. This project has enabled recycling of mining assets for an ongoing use. The one negative aspect of the waste transfer station is that plastic and paper rubbish blows out of the council facility and contaminates the minesite which has in turn increased the workload (collecting litter) of the Site Supervisor.

Photographs of the mine site exploration and rehabilitation progress are contained in Appendix I.

5. COMPLAINTS AND LIAISON

There were no complaints received by Alkane relating to the Peak Hill Gold Mine during the reporting period.

Alkane completes an annual return for the EPA and that is posted on the Company website.

APPENDIX 1- PHOTOGRAPHS



Photo 1: Peak Hill Gold Mine waste rock emplacement and screen plantings looking northeast. All photos unless otherwise labelled were taken by Mike Sutherland on 30 December 2021.



Photo 2: Upper batter of WRE looking west. Self-sown Sticky everlasting daisies (*Helichrysum viscosum*) were abundant across the mine site in 2021.



Photo 3: One of the “bare patches” on the WRE. There is evidence that lime treatment (2/t Ha) in April 2021 has assisted in shrinking these patches.



Photo 4: Old Man Salbush (*Atriplex nummularia*) planted on WRE northern berm in 1997.



Photo 5: View of vegetation surrounding northwest sediment pond. This pond has never discharged water since construction in 1996.



Photo 6: Kangaroo Grass (*Themeda triandra*) growing on lower berm of WRE - seeded by hand in 1997.



Photo 7: St, Barnaby's Thistle (**Centaurea solstitialis*) growing on the minesite entrance road. This weed species has been introduced to site by exploration vehicles returning from NMPP tenements. The infestation was removed by hand in January 2022.



Photo 8: Peak Hill minesite house and office is used as an exploration base (coreyard behind).



Photo 9: The northeast sediment pond did not discharge during 2021 despite 834mm of rainfall for the year.



Photo 10: View of HDPE-lined ponds, core yard, office and house at Peak Hill Gold Mine.



Photo 11: Excellent groundcover on top of the heap leach final landform looking south.



Photo 12: Rock-lined flume designed and built by Soil Con in 2005. Kikuyu grass thrives between basalt rock/blocks. This single flume sheds water from the heap leach landform.



Photo 13: Heap leach berm looking west to Parkes Shire Council waste recycling depot.



Photo 14: Heap leach berm looking south. Currawang (*Acacia doratoxylon*) grows on the west facing batters.



Photo 15: Fuzzy Box (*Eucalyptus conica*) planted in 1997 east of the WRE.



Photo 16: Entrance to the tourist mine. Walking tracks and 22 interpretive signs tell the story of Peak Hill's mining and social history and identify local flora and fauna.



Photo 17: Tourist mine walking trail to the viewing platform. Two sculptures and a talking post installed by Parkes Shire Council add interest to experience.



Photo 18: Viewing platform looking north over the Proprietary Pit. Walls hold the names and photographs of people who worked at the mine 1996-2005.



Photo 19: Agricultural lime for final landform top dressing April 2021. Photo by Ken Robinson.



Photo 20: Agricultural lime being spread at a rate of 2t/Ha on the top of heap leach final landform in April 2021.

APPENDIX 2- CORRESPONDENCE

Alkane Resources Ltd
PO BOX 4384
VICTORIA PARK WA 6979
Attn: Michael Sutherland

By email: msutherland@alkane.com.au

Dear Michael Sutherland

Mining Authorisations GL 5884 (1906), ML 1351 (1992), ML 1364 (1992), ML 1479 (1992), ML 6036 (1906), ML 6042 (1906), ML 6277 (1906), ML 6310 (1906), ML 6389 (1906), ML 6406 (1906) - Peak Hill Gold Mine - Request for MOP Extension

NOTICE OF MOP EXTENSION APPROVAL

I refer to your correspondence dated 14 January 2022 (RR22/2459) requesting an extension to the approved Mining Operations Plan (MOP) (MCV14/919; INW14/29703) for the Peak Hill Gold Mine, which is due to expire on 17 January 2022.

The Department has considered your request and has granted an extension to the current approved MOP until **2 July 2022** to enable the continuation of the approved activities during the transitional period for the *Mining Amendment (Standard Conditions of Mining Leases – Rehabilitation) Regulation 2021* and preparation of documentation required.

It is the responsibility of the Authorisation Holder to ensure that all mining and mining related operations described in this MOP are as approved within the relevant Project Approval or Development Consent and all necessary approvals, consents or permits required under the relevant NSW or Commonwealth regulations have been obtained prior to carrying out the operations.

It is the responsibility of the Authorisation Holder to fulfil their obligations and commitments to the rehabilitation outcomes and performance standards as approved by the relevant consent authority to ensure the rehabilitation outcomes identified are achieved.

If you require additional information, please contact the Resources Regulator on 1300 814 609 or via email at nswresourcesregulator@service-now.com.

Yours sincerely,

Christine Fawcett
Manager Environmental Operations
Resources Regulator

17 January 2022