

CLIVE HASTINGS

Contract Senior Exploration & Project GEOLOGIST

Updated May 2020

This CV comprises:

1. **Generalised Covering Letter**
2. **Resume**
3. **References**

GENERALISED COVERING LETTER

Re: Seeking contract exploration work in sub Saharan Africa & worldwide

Formerly from Perth, I am an Australian contract senior project exploration geologist, living in the city/port of Mwanza since 2001. Mwanza is the regional centre for the Lake Victoria Goldfields in north-western Tanzania. It is close to Burundi, Rwanda, Uganda and eastern DRC.

Educated at the highly respected Curtin University in Perth, formerly W.A.I.T., obtaining a Bachelor of Applied Science (Geology) in 1977.

First half of my career was spent in Australia involved in gold, coal iron-ore and groundwater exploration before moving my focus to Africa around 2000. Second half has been spent in West Africa and Madagascar doing iron-ore, gold, uranium, lithium and coal.

I have extensive experience in most types of drilling programs, especially diamond core logging, in DRC tin, Archaean gold, Karoo coal, DSO & magnetite, and hydrogeology. Lesser experience in the commodities; lithium, copper, uranium, manganese, nickel, kaolin and limestone (cement).

Experienced in GPS, geochemist sampling, photo-geology mapping and report writing, as well as prospect geological evaluations, appraisals and due diligence.

In recent years I have worked in French speaking West African countries such as Gabon (x1), Mauritania (x3), Guinea (x2), DR Congo (x5), Niger (x2), Cote d'Ivoire (x1) and Burkina Faso (x2), Madagascar (x3) and Mali (x1). Have also have worked in Liberia (x1), Ghana (x1) and Sierra Leone (x1).

Still young and surprisingly 'trim, fit and healthy'; able to work in rugged remote areas for extended periods of time for however long the job requires.

Most of my experience has been in exploration fieldwork and to a lesser extent resource definition projects. I enjoy doing hands-on field geology, drilling programs and geotechnical work. Training/mentoring junior African geologists in procedures and logging DDH core has become part of my work in recent years. I am also seeking project manager positions.

I am available at short notice should the company require my services. My daily rates are very competitive relative to expats residing outside of Africa. Ideally located for African based exploration.



CLIVE HASTINGS

Contracting Senior Exploration Geologist

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PROFESSIONAL AFFILIATIONS

- Member Geological Society of Australia, 1982-1999
- Member Australian Institute Geoscientists, No.1778, 1992-2014, No.7067, 2017-current
- Member Australian Institute of Mining and Metallurgy, No.7687, 1983-1995

COMPUTER SKILLS

- MS Word
- MS Excel
- Google Earth
- Garmin BaseCamp
- QGIS
- Mapinfo
- Acquire & other geological software

WORK BRIEF

GOLD, IRON-ORE, COAL, LIMESTONE, TIN, LITHIUM & GROUNDWATER - International contract senior geologist. Supervision of exploration & resource drilling programs, report writing, GPS mapping, core logging, work procedures and training nationals.

Moto: Go anywhere, for as long as it takes.

EDUCATION

Bachelor of Applied Science (Geology), No.7943, Curtin University (W.A.I.T.), Western Australia 1977

COMMODITY EXPERIENCE

COAL:

Permian Karoo Supergroup.

Australia: Diamond, open-hole mud and air-core drilling supervision, interpretation and coding of down-hole geophysical logs. At CRA's (now Rio Tinto) Vasse and Hill River Projects; and Griffin Coal's Muja and Ewington open-cuts, both near Collie in Western Australia.

Africa: Mapping coal seams in Madagascar.

GROUNDWATER:

Exploration, drilling supervision, bore construction, test pumping and monitoring, licensing and reporting on supply and de-watering projects through-out Eastern Goldfields, Collie and Exmouth in Western Australia

GOLD:

Hydrothermal, Archaean greenstone belts.

Australia: Prospect appraisal, exploration and drilling supervision throughout Yilgarn and Pilbara regions of Western Australia.

Africa: Drilling supervision in the Lake Victoria Goldfields of Tanzania, and mapping in Burkina Faso. Training African geologists in Cote d'Ivoire & Mali on procedures and logging diamond core

BASE METALS:

Australia: Archaean. Exploration & drilling supervision of various prospects in the Pilbara and Yilgarn, including the Honeymoon Well nickel project for Rio Tinto.

Africa: RC drilling at copper project in DR Congo. Diamond drilling of 'nickel' massive sulfide prospect in Madagascar. Basemetal stream sampling in Madagascar

GEOTECHNICAL:

Australia: Logging of diamond core from various gold and coal projects within Western Australia.

Africa: Tanzania, surface mapping and diamond core logging

IRON ORE:

Australia: Proterozoic & greenstone belts in Archaean basements. RC drilling supervision at several bedded (BID) and detrital (DID) hematite prospects in the West Hamersley Ranges for Hamersley Iron Pty Ltd, and north of Koolyannobbing for Portman Iron Ore Ltd. RC and diamond drilling on goethite project at Pardoo, east of Port Hedland.

Africa: Greenstone belts in Archaean basements. Magnetite diamond drilling in Mauritania. RC & diamond drilling and mapping goethite, hematite & magnetite projects in Gabon, Guinea and Liberia

LITHIUM:

Africa: Prospect appraisals of lithium pegmatites in Tanzania and eastern DRC

ALLUVIAL TIN:

Africa: Supervised auger drilling and pitting programs in eastern DRC

SUMMARY OF EXPERIENCE

SEP 19 – DEC 19

B.M. GEOLOGICAL SERVICES PTY LTD (Associate)

Diamond core logging at Northern Star Resources' Kanowna Belle Goldmine, near Kalgoorlie. Using acQuire data entry software. Re-freshing my core logging skills of **gold** related alteration structure lithology and geotech in an Australian minesite environment.

AUG 18 – JUL 19

VINMETALS SYNERGIES / MMR (Contract)

Supervising an auger drilling and pitting resource program at two **alluvial tin** mining operations, Kanuka and Vunda, in eastern DRC.

Field inspections of numerous prospective sites in Somaliland, for **gold, basemetals and gemstones**.

APR 18 – JUN 18

GENMIN / Reminac S.A. (Contract)

DDH core logging on the Baniaka **iron ore** project, near Franceville in south east Gabon. Detrital, DSO and magnetite iron ore.

NOV 17 – NOV 17

TARUGA GOLD LTD (Contract)

Field visits & reporting of various tenements in DR Congo; near Manono for **lithium** potential and north of Likasi for **copper & cobalt** potential, in two weeks. Exploring for pegmatite hosted mineralization.

AUG 14 – SEPT 14

B.M. GEOLOGICAL SERVICES PTY LTD (Associate)

Geological mapping by GPS, satellite image interpretation, sampling and reporting of prospects in the Mbuji-Mayi area (central DR Congo) for cement raw materials, i.e. **limestone**. Using Google Earth and Garmin's BaseCamp

NOV 12 – FEB 13

PAPILLON RESOURCES LTD (Contract)

Training African geologists in procedures, geology & geotechnical RC DDH logging on Fekola Project in western Mali. Turbidite hosted hydrothermal Birimian **gold** deposit

AUG 12 – SEP 12

AMARA MINING PLC (Cluff Gold) (Contract)

Training African geologists in processing DDH core and geology & geotechnical diamond core logging at Yaoure **gold** mine, central Cote d'Ivoire

MAY 12 – JUL 12

SEMS EXPLORATION SERVICES LTD (Associate)

Geological site visit to prospect in northern Sierra Leone. Stand-in for five weeks as Exploration Manager in Ouagadougou, Burkina Faso, involved in **gold**, mapping, MMI soil sampling and report writing

JAN 12 – MAR 12

ACA HOWE INTERNATIONAL LTD (Associate)

DSO & magnetite BIF project in Nimba County, Liberia doing GPS mapping, sampling and report writing

FEB 11 – DEC 11

BM GEOLOGICAL SERVICES PTY LTD (Associate)

BHP Billiton/SMFG. Senior geologist at the Diecke **magnetite** and Nimba **hemetite** projects in Guinea, Conakry. Supervising & mentoring local geologists on diamond drilling programs & mapping. Annual report writing

OCT 10 – DEC 10

BM GEOLOGICAL SERVICES PTY LTD (Associate)

Malagasy Minerals Ltd. Geologist at **nickel** project in southern Madagascar. Supervising & mentoring local geologist on diamond drilling program

MAY 10 – JUN 10 **INDO ENERGY LTD (NGM Resources Ltd) (Contract)**
On-site Manager (stand-in), 6 weeks, rotary mud drilling on **uranium** project at Agadez, Niger

NOV 09 – MAR 10 **SPHERE MINERALS LTD (Contract)**
Core logging, diamond drilling on the Askaf **magnetite** project at Zouerate, Mauritania

SEP 07 – OCT 09 **CSA GLOBAL PTY LTD (Associate)**
RC drilling at Windimurra **magnetite & vanadium** project in Australia.
Preparation for **uranium** exploration program at Agadez, Niger.
Basemetal & gold stream sediment sampling, field leader in Madagascar.
RC and diamond drilling at Atlas Mining's Pardoo **goethite** project, 75kms east of Port Hedland, Australia
Preparation for diamond drill program at Tambao **manganese** prospect in Burkina Faso.
Diamond & RC drilling program manager at Tiger Resources' Kipoi **copper** project, DR Congo.
RC drilling supervision at Bellzone's Kalia **iron** ore project, Guinea

JAN 07 – JUN 07 **PAN AFRICAN MINING CORPORATION (Contract)**
Field mapping training of two Malagasy geologists, setting up camp, & preparing drill pads at the Sakoa **Coal** Project in Madagascar

JUN 06 – NOV 06 **SPHERE INVESTMENTS LTD (Contract)**
Supervision of PQ diamond drilling on the El Aouj iron ore bulk sampling **magnetite** project at Zouerate, Mauritania

FEB 06 – MAY 06 **GRIFFIN COAL MINING CO. PTY LTD (Contract)**
Supervision of diamond and air-core program in the Ewington and Buckingham areas, Western Australia.
Duties included lithological logging, **coal** quality core sampling, computer data entry, validating and geophysical down-hole log interpretation

MAY 05 – JAN 06 Tanzania
Waiting in vain for Canadian exploration company Lakota Resources Ltd; building a house and enjoying family time in Mwanza, Tanzania

JAN 05 – APR 05 **RESOLUTE TANZANIA LTD (Contract)**
Supervision of RC and air-core drilling programs at Matinje, a **gold** prospect east of Golden Pride Gold Mine, Lake Victoria Goldfields, Tanzania

FEB 04 - DEC 04 **GRIFFIN COAL MINING CO. PTY LTD (Contract)**
Supervision of diamond and air-core programs in the Ewington area, Western Australia. Duties included lithological logging, **coal** quality core sampling, computer data entry, validating and geophysical down-hole log interpretation

NOV 03 - FEB 04 Tanzania

AUG 03 - OCT 03 **ROCKWATER PTY LTD (Associate)**
Field supervision production bore drilling, construction and test pumping for the Portman Iron Ore haul road **water** supply, north of Koolyannobbing, Western Australia

FEB 02 - JUL 03

GRIFFIN COAL MINING CO. PTY LTD (Contract)

Supervision of air-core, rotary mud and diamond drilling and water boring programs at various **coal** projects in the Boyup Brook, Muja and Ewington areas, Western Australia. Duties included lithological logging, coal quality core sampling, computer data entry, validating and geophysical down-hole log interpretation

OCT 01 - JAN 02

Tanzania

FEB - OCT 01

GRIFFIN COAL MINING CO. PTY LTD (Contract)

Supervision of air-core, rotary mud and diamond drilling and water boring programs at the Ewington **Coal** Project, Western Australia. Duties included lithological logging, coal quality core sampling, computer data entry, validating and geophysical down-hole log interpretation

OCT 00 - JAN 01

PORTMAN IRON ORE LTD (Contract)

GPS mapping and supervision of RC drilling programs at Mt Jackson and Windarling **iron ore** projects north of Koolyannobbing, Western Australia

JUN - AUG 00

GRIFFIN COAL MINING CO. PTY LTD (Contract)

Casual office and computer work, Western Australia

DEC 99 - MAY 00

Tanzania

MAY 99 - NOV 99

Various jobs with HYDRO RESOURCES and GRIFFIN COAL (Contract & Associate)

DEC 98 – MAY 99

GRIFFIN COAL MINING CO. PTY LTD (Contract)

Supervision of rotary mud and diamond drilling programs at Ewington **Coal** Project near Collie, Western Australia. Duties included lithological logging, coal quality core sampling, computer data entry and geophysical log interpretation

FEB – SEP 98

HYDRO RESOURCES (Associate)

Open-pit **de-watering**, planning and drill supervision and construction of monitoring and production bores at Jundee-Nimary and Bronzewing Gold Mines and Maggie Hays Nickel Project, Western Australia

NOV 97 - JAN 98

AUSTRALIAN GOLD FIELDS NL (Contract)

RAB drill supervision on **gold** prospects at and near the Bannockburn Gold Mine, north of Leonora, Western Australia

OCT 97

Tanzania

JUN - AUG 97

MAIDEN GOLD NL (Contract)

RC drill supervision of several **gold** prospects in the Lake Victoria Goldfields of Tanzania, East Africa

MAY 97

HAMERSLEY IRON PTY LTD (Contract)

RC drill supervision of bedded **iron-ore** projects north of Newman, in the Pilbara, Western Australia

APR 97

AUSTRALIAN GOLD FIELDS NL (Contract)

Diamond and RC drill supervision on **gold** projects at and near the Bannockburn Gold Mine, north of Leonora, Western Australia

OCT 96 - JAN 97 **BARRETT FULLER & PARTNERS (Associate)**
Geotechnical logging of diamond drill core at Boddington Gold Mine, Western Australia.
Geotechnical surface mapping and core logging at the Tarime gold project in central-north Tanzania

JUL 96 - AUG 96 **HYDRO-RESOURCES (Associate)**
Groundwater, production and monitoring bore drill supervision in the Forrestania area

MAR 96 - JUN 96 **AUSTRALIAN GOLD FIELDS NL (Contract)**
Project geologist, drill supervision at Jungle Well and other **gold** prospects, near Bannockburn

APR 95 - JAN & SEP 96 **HAMERSLEY IRON PTY LTD (Contract)**
RC drill supervision at several detrital and bedded **iron-ore** prospects in West Hamersley Ranges, and geochemical data material type interpretation

OCT 93 - MAR 95 **DOMINION MINING LTD (Contract)**
Regolith mapping, RC and RAB supervision on various **gold** projects in the Leonora-Wiluna-Yandal region. RAB drilling in the Tanami Desert, Northern Territory

SEP 93 **CRA EXPLORATION PTY LTD (Contract)**
RC supervision at the Honeymoon Well **nickel** project, south of Wiluna

JUL - SEP 93 **SIPA RESOURCES INTERNATIONAL NL (Contract)**
RC supervision at the **copper-zinc** Panorama - Sulphur Springs project in the Pilbara

JUN - JUL 93 **DAMES & MOORE PTY LTD (Associate)**
Groundwater, hydrological bore testing at Ewington near Collie for Griffin Coal

JAN - MAR 93 **GRIFFIN COAL MINING CO. PTY LTD (Contract)**
Supervision of rotary mud and diamond drilling programs at the Ewington **Coal** Project near Collie. Duties included lithological logging, coal quality core sampling, computer data entry and geophysical log interpretation

NOV - DEC 92 **CRA EXPLORATION PTY LTD (Contract)**
Diamond drilling at the Arrino **copper** prospect near Three Springs. RAB drilling at a nickel prospect NW of Menzies and a gold prospect NW of Ora Banda

JUL - OCT 92 **RESOURCE INVESTIGATIONS (Contract)**
Groundwater, supervision of production bore drilling, construction and test pumping for the de-watering of Breakaway Dam gold mine, near Ora Banda. De-watering at the Outokumpu nickel mines at Forrestania

JUN 92 **MT KERSEY MINING NL (Contract)**
RC drilling north of Coolgardie testing palaeo-channels for supergene **gold**

MAR - MAY 92 **CRA EXPLORATION PTY LTD (Contract)**
Diamond drill logging on the Vasse **Coal** Project east of Margaret River. Duties included lithological and geotechnical logging, geophysical log interpretation and coal quality sampling

JUL - DEC 91

DOMINION MINING LTD (Contract)

Drilling supervision at various **gold** mines: RC and diamond at Gabanintha, RC supervision at Mt Morgan and RAB drilling at Bannockburn. Production **water** bore drilling, construction and monitoring at Horseshoe Range, Peak Hill

MAY 91

ST BARBARA MINES LTD (Contract)

RC supervision at the South Junction Bluebird **gold** mine, south of Meekatharra

JUL 90 - APR 91

GRIFFIN COAL MINING CO. PTY LTD (Contract)

Supervision of diamond and open-hole drilling programs at the Muja Opencut **coal** mine at Collie. Duties included planning, chip logging, coding of lithological log, pit-face mapping, geotechnical core logging, coal core quality sampling, interpretation of geophysical down-hole logs, computer data input and assisting the mine geologist

APR 90

CROWE SCHAFFALITZKY & ASSOCIATES (Associate)

Air-core drilling of **kaolin** prospect east of Jerramungup

MAY 85 - JUN 90

K H MORGAN AND ASSOCIATES (Associate)

Worked on more than 40 separate projects over five years, summarised below;

- Field inspections and appraisals of **gold** prospects throughout the Pilbara, Murchison and Eastern Goldfields
- Visited various Philippine **gold** prospects in 1987
- Preparations of reports for prospectuses
- Hydrological and geological air-photo mapping
- Supervision of auger, air-core, RC, RAB, vacuum and diamond drill rigs on **gold** and **base metal** prospects
- Two **limestone** jobs: First was at Baldivis, south of Perth, vacuum drilling, logging and sampling of a limestone prospect in search of cement grade material
The second was a geotechnical investigation of the limestone rock to be excavated for the Exmouth Harbour and to be utilised as armour in the construction of the harbour seawalls etc. Aircore drilling, sampling, logging and estimates of the hardness were done
- **Hydro-geotechnical** investigation for a proposed Exmouth Marina for the Dept Marine & Harbours
- **Groundwater** exploration, piezometer and production bore construction, licensing and reporting, rainfall analysis and flood prediction, and test pumping in the Eastern Goldfields
- Supervision of air core and diamond drilling, **coal** sampling, coding of lithological logs, interpretation of down-hole geophysical logs, tests on piezometers at the Hill River Coal Project for CRA

DEC 79 - DEC 84

Various exploration companies and consultants (Contract & Associate)

Mapping & drill supervision within the Yilgarn & Pilbara of Western Australia in **gold** and **basemetals**

REFERENCES - CLIVE HASTINGS

Dean Wingfield formerly Principal Geologist
Griffin Coal Mining Company.
Collie - Australia
wingfields@westnet.com.au

Kieron Munro formerly Consultant Geologist
Sphere Investments - Mauritania
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Sphere Minerals - Mauritania
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Ciaran Halpin formerly Operations Manager Nimba
BHP Billiton - Guinea
ciaranghalpin@eircom.net

Paul Nuttall formerly Exploration Project Manager
Amara Mining - Cote d'Voire
pnuttall1@yahoo.com.au

Howard Dawson character referee, friend since university
Chairman at Discovery Capital Ltd, Perth
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