



ILUKA RESOURCES LIMITED

TECHNICAL REPORT

ILUKA-TR-T18389

**EL 4923 Lameroo, EL 4924 Parilla
and EL4926 Pinnaroo
Surrender Report**

19/06/2012 – 18/06/2014

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LIST OF DIGITAL DATA

EL4923_EL4924_EL4926_201408_F_01_Annual Report.pdf	Pdf	Annual Report
EL4923_EL4924_EL4926_201408_F_02_Logging_Codes.pdf	Pdf	Iluka Logging Codes
EL4923_EL4924_EL4926_201408_EL4923_F_03_Location.txt	Txt	Surface Location File
EL4923_EL4924_EL4926_201408_EL4923_F_04_lithology.txt	Txt	Geology File
EL4923_EL4924_EL4926_201408_EL4923_F_05_survey.txt	Txt	Survey file
EL4923_EL4924_EL4926_201408_EL4923_F_06_geochemistry.txt	Txt	Assay file
EL4923_EL4924_EL4926_201408_EL4923_F_07_qaqc.txt	Txt	QAQC file
EL4923_EL4924_EL4926_201408_EL4924_F_08_Location.txt	Txt	Surface Location File
EL4923_EL4924_EL4926_201408_EL4924_F_09_lithology.txt	Txt	Geology File
EL4923_EL4924_EL4926_201408_EL4924_F_10_survey.txt	Txt	Survey file
EL4923_EL4924_EL4926_201408_EL4924_F_11_geochemistry.txt	Txt	Assay file
EL4923_EL4924_EL4926_201408_EL4924_F_12_qaqc.txt	Txt	QAQC file
EL4923_EL4924_EL4926_201408_EL4926_F_13_Location.txt	Txt	Surface Location File
EL4923_EL4924_EL4926_201408_EL4926_F_14_lithology.txt	Txt	Geology File
EL4923_EL4924_EL4926_201408_EL4926_F_15_survey.txt	Txt	Survey file
EL4923_EL4924_EL4926_201408_EL4926_F_16_geochemistry.txt	Txt	Assay file
EL4923_EL4924_EL4926_201408_EL4926_F_17_qaqc.txt	Txt	QAQC file
EL4923_EL4924_EL4926_201408_F_18_Plans and Sections.pdf	Pdf	Location Plans and Cross Sections
EL4923_EL4924_EL4926_201408_F_19_Verification_List.txt	Txt	File Verification

EXECUTIVE SUMMARY

The following report is the final report for Exploration Licences EL4923, EL4924 and EL4926. This report covers work undertaken by Iluka Resources Ltd between the dates of the 19th June 2012 to the 18th June 2013. The tenements are located in south-eastern South Australia approximately 50 Km to 80 Km kilometres east of Tailem Bend in the Central Murray Basin District. One drilling campaign was conducted during October 2012.

Fifty holes were drilled for a total of 2,496m with 533 samples assayed. Minor HM (<3% HM) was intersected in numerous drill holes across the tenements.

Majority of the mineral intercepted contained trash such as Tourmaline and Ferruginous minerals.

A review of drilling data across EL4923, EL4924 and EL4926 was undertaken. The potential for the tenements to host a high value heavy mineral sand deposit consistent with Iluka Resources Ltd requirements was been fully tested by Iluka Resources Limited and its predecessors (RGC) and has resulted in the complete relinquishment the three tenements.

1. INTRODUCTION

The following report is submitted to fulfil the annual reporting requirements for Exploration Licences EL4922, EL4923, EL4924 and EL4926. It covers the work undertaken by Iluka Resources Ltd over the reporting period from the tenement grant date of 19th June 2012 to the 18th June 2013. This is the first annual report for this group of tenements.

1.1 Tenure

Tenement	Location	Grant Date	Expiry Date	Current Area (km ²)
EL4923	Lameroo area - approx 185 km ESE of Adelaide	19/06/2012	18/06/2014	890
EL4924	Parilla area - approx 185 km ESE of Adelaide	19/06/2012	18/06/2014	948
EL4926	Pinnaroo area - approx 195 km east of Adelaide	19/06/2012	18/06/2014	705

Table 1: Summary of Tenements

1.2 Location

EL4923, EL4924 and EL4926 are located in south-eastern South Australia approximately 75 kilometres east of Tailem Bend extending east to the South Australian border (Figure 1). Access to the tenements is via the Mallee Hwy, minor sealed and unsealed shire roads and private tracks. Table 1 shows the Map sheets and current coordinate extent of the license boundary.

Map Sheets			
1:250,000		1:100,000	
Pinnaroo	SI5414	Moorlands	6827
Renmark	SI5410	Tintinara	6926
		Parrakie	6927
		McCallum	7026
		Pinnaroo	7027
		Paruna	7028
Geographic Coordinates (MGA Zone 54, GDA94)			
Min East:	390,700E	Max East:	498,500E
Min North:	6,053,200N	Max North:	6,136,300N

Table 2: Map sheets enclosing EL4923, EL4924 and EL4926 and coordinates of the tenement boundary.



Figure 1: EL4923, EL4924 and EL4926 Tenement Location Plan

1.3 Iluka's Exploration History and Rationale

Iluka Resources exploration rationale in the Murray Basin has been to target the mineralised Loxton-Parilla Sand (LPS) sediments deposited during the Pliocene marine regression, concentrating on higher grade, coarse-grained strands in regions of favourable mineral assemblage. The exploration for heavy mineral sand deposits has been performed using two techniques as described below:

The first technique utilises filtered airborne magnetics as a first pass coverage of the licence to delineate direct drill targets from magnetic anomalies. The magnetic information is derived from both airborne magnetic surveys commissioned by Iluka Resources, and state government based magnetic data.

The second technique involves the planning of drilling traverses based on previous drilling data, regional structural contour maps, detailed digital terrain models, and the utilisation of airborne magnetics. Drilling traverses usually commence with wide-spaced holes to investigate the broad geological setting, and then infilling to close-spaced drilling as required by geology and mineral intersections.

2. GEOLOGY

2.1 Regional Geology

The Murray Basin has been described as a shallow, intracratonic Cainozoic basin covering an area of 300,000 km² in south-eastern South Australia, south-western New South Wales and north-western Victoria (Brown & Stephenson, 1991). The Murray Basin is flanked by low mountain ranges of Proterozoic and Palaeozoic rocks.

Much of the sedimentary sequence within the basin is the result of repeated marine incursions from the southwest, with the latest transgressive-regressive event resulting in deposition of the Late Miocene to Late Pliocene Loxton-Parilla Sand (LPS). These sediments were deposited in shallow-marine, littoral and fluvial conditions and comprise fine to coarse-grained, generally well-sorted sand, with minor clay, silt and gravel and host the Murray Basin mineral sand deposits (Brown & Stephenson, 1991).

Overlying the LPS in the northern and eastern Murray Basin is the Shepparton Formation. This deposit style consists of mixed fluvial channel and floodplain deposits, including some Aeolian sediments. The lithology of the Shepparton Formation varies between gravel and clay. The source material varies between regions, leading to the subdivision of the unit based on geomorphic forms and soils, but all are consistent with Riverine Plain sedimentation (Brown & Stephenson, 1991).

A unit of greenish grey Blanchetown Clay disconformably overlies the Parilla Sand in many parts of the basin. The unconformity is often marked by a weathering profile that is locally siliceous or lateritic and termed the Karoonda Surface (Brown & Stephenson, 1991). The Blanchetown Clay is a fluvio-lacustrine deposit with most sedimentation taking place in a large freshwater lake. Within South Australia, the unit was deposited together with the Bungunnia Limestone (Douglas and Ferguson, 1988).

Disconformably overlying the Blanchetown Clays is the Quaternary Woorinen Formation. This formation is described as consisting of “red-brown siliceous silty sand, red calcareous silty clay and sandy clay” (Brown & Stephenson, 1991). It is generally 2-3m thick, but contains east-west longitudinal dunes that can locally be considerably thicker. The Woorinen Formation was deposited in an Aeolian environment. Other Aeolian landforms have been identified on the basin, particularly the Lowan/Molineaux Sands occurring in the western part of the Murray Basin. These Dune Fields occur as three tongues otherwise known as the Sunset Desert, Big Desert and Little Desert. The dune patterns and types are different from the tear shaped east-west dunes of the Woorinen Formation (Douglas and Ferguson, 1988).

Disconformably overlying the Blanchetown clay on the western and north western basin margins is the Pooraka Formation. This formation generally forms “low to high-angle alluvial and colluvial fans adjacent to basin margins” (Brown and Stephenson, 1991) and ranges from 1 to 5m in thickness. As the material within the Pooraka formation is sourced from the surrounding Curnamona Province and Adelaidean sediments, it is classified as a composite morphotectonic unit.

2.2 Local Geology

The tenement area is dominated by recent Aeolian dunes of the Woorinen Formation with localised calcrete occurrences associated with NW-SE ridges in the western portion of the region. Numerous extractive industries operate within the region, which utilise the calcrete for road base.

The tenements are located in the central portion of the Murray Basin. In this portion of the basin only one complete regressive Loxton Parilla Sands (LPS) marine sequence has been recognised. However, there is evidence of localised stacked sequences as a result of minor transgressions.

The tenements straddle the Pinnaroo Block, this is a structural high that is bordered by the Murrayville and Hamley faults to the north and Morgan Fault to the west. The Pinnaroo Block was uplifted in the Late Pliocene, damming the Murray River resulting in the formation of Lake Bungunnia. The Blanchetown clay deposited in Lake Bungunnia is present within the tenement area. Tectonics and uplift are thought to play a very important part in the development of many of the mineral sands deposits in the Murray Basin, West Balranald and Nepean are located adjacent to or straddle the Iona Ridge, Snapper and Ginkgo straddle the Pooncarie Ridge and the Euston strands straddle or are adjacent to the Neckarboo Ridge. Faulting in the southern part of the Pinnaroo Block contemporaneous with mineral sands deposition is believed to have caused multiple transgressive and regressive periods of sand deposition, which may have led to the development of stacked mineralised bodies. This is evidenced by the Mindarie group of deposits, which are along strike of the SA CBD tenements.

3. EXPLORATION METHODS

3.1 Drilling

All drilling was carried out with a Wallis Drilling Pty Ltd owned and operated reverse circulation air core drill rig. Drill hole collars were surveyed by RTK DGPS and GPS to an accuracy of $\pm 1\text{m}$ and $\pm 10\text{m}$ respectively and are included with the report as an electronic file (see EL4923_EL4924_EL4926_201408_EL4923_F_03_Locations.txt). Rods were NQ in size giving approximately 10cm diameter holes.

Drilling was conducted at 1.5m sampling throughout the entire hole.

A 1 to 2 kg split was taken by rotary splitter for logging and laboratory analysis. A subsample was taken from each sample for logging and panning. The logging procedure involved using wet panning to remove the clay fraction from the sample and then hydraulic separation to estimate the percentage of heavy mineral.

For approximately one in six drillholes, an additional sample was collected for the Department of Manufacturing, Innovation, Trade, Resources and Energy (DMITRE) core library. These samples were collected following guidelines listed within the M41 Earth Resources Information Sheet and were despatched to PIRSA in late 2012.

The ease with which clay and silt was liberated from the sample was logged on a scale of very easy to impossible (see EL4923_EL4924_EL4926_201408_F_02_Logging_Codes.pdf) and the percentage of clay and silt ("Slimes") was also recorded. The presence and type of cemented fragments was recorded with an estimate of percentage ("Rock").

The ease with which the drill penetrated the ground was recorded on a scale of 1 to 5 ("Hardness"). Colour, dominant grain size, max grain size and sorting were also recorded. All geology logs are digitally included with this report (see EL4923_EL4924_EL4926_201408_EL4923_F_4_Lithology.txt).

3.2 Heavy Mineral Determination

Five hundred and Thirty Three samples collected were assayed for heavy mineral (HM) content at Iluka's laboratory in Hamilton using the Method I procedure. Upon receipt, samples were dried, weighed, attritioned, then wet screened to remove the slime ($-53\mu\text{m}$) fraction. The samples were again dried, weighed, and screened to remove the fraction greater than 2 mm (oversize) and were further screened at 710 microns and the remaining subsample of the $-710\mu\text{m} + 53\mu\text{m}$ fraction underwent HM separation using LST (a solution of lithium polytungstate) at a specific gravity of 2.85. The weights were then used to calculate percent slimes, percent oversize and percent HM for the entire sample.

Final assay results are included in the attached digital file (EL4923_EL4924_EL4926_201408_EL4923_F_6_Geochemistry.txt).

3.3 QAQC

Field standards, duplicate samples and twin hole drill holes are routinely collected during Iluka drill programmes. Therefore, only field standards were submitted for QAQC. Standards were submitted following the standard Iluka protocol with approximately one standard submitted for every 40 samples assayed. A total of 32 QA/QC samples were collected during the life of the tenements. (for example EL4923_EL4924_EL4926_201408_EL4923_F_7_QAQC.txt)

4. EXPLORATION WORK COMPLETED

Fifty holes were drilled for a total of 2,496m with 533 samples assayed. Minor HM (<3% HM) was intersected in numerous drill holes across the tenements. The majority of drilling focussed on regional stratigraphic drilling of these tenements. Ten holes were drilled across anomalies, at approximately 80m centres.

4.1 MAGNETIC ANOMALY DRILLING

10 holes were drilled over 3 magnetic targets within the tenement EL4923. Drilling across anomalies was spaced at 80m centres so as not to overstep a WRP sized deposit with widths of around 100-120m. The drilling was targeting Multiple Long Dissipative Beach Heavy mineral Strands in the style of WRP.

Geology consists of between 3m and 4.5m of Dunal sands followed by on average ~11m of Blanchetown Clay which overlies ~15m of Loxton Parilla sands. Minor Heavy Mineral (<3%HM) was intersected in most holes. Drill holes were terminated in the Surf zone or Lowershore of the Loxton Parilla Facies.

4.1.1 Anomaly S026

Stratigraphy on this anomaly consisted of between 3m and 4.5m of Dunal Sands; ~6m of Blanchetown Clay and ~21m of Loxton Parilla Sands where the holes were terminated. Minor HM (<3%HM) was intersected in all three holes and S01806 was assayed and best intercept was 1.5m @ 0.5%HM from 10.5m.

4.1.2 Anomaly S024

This traverse of Drill holes consisted of ~4.5m of Dunal sands; followed by ~11m of Blanchetown Clay unit with a Loxton Parilla sands at the base of between 15m and 25m thick. The Foreshore Facies is moderately developed with best intercept being S01809, 1.5m @ 0.6%HM from 30m.

4.1.3 Anomaly S089

Stratigraphy along strike of this anomaly was up to 9m of recent Dunal sands randomly capped with 1.5m of calcrete; Blanchetown clay of between 1.5m and 12m thick. Underlying this unit was the Loxton Parilla Sands of up to 36m thick. The foreshore was moderately to well developed

and highly indurated in places. Best intercept was in drill hole S01814 which intersected 4.5m @ 2.4%HM from 15m in medium grained moderately to well sorted sand.

4.2 REGIONAL STRATIGRAPHIC DRILLING

Stratigraphic drilling focussed on areas that have had little to no previous drilling, or where aeromagnetic data was available or distorted by basement signatures.

Forty stratigraphic holes were drilled across the tenements to get a better understanding of the regional geology of the CBD district.

4.2.1 Traverse ST037

Geology discussed above under anomaly S024.

4.2.2 Traverse ST038

Geology discussed above under anomaly S026.

4.2.3 Traverse ST040

Geology discussed above under anomaly S089.

Best intercept for the group of tenements in the stratigraphic drilling is in drillhole S01814 in the foreshore facies 1.5m @ 4.1%HM from 16.5m and upon further investigation was found to be all trash.

Minor HM (<3%) was intercepted in most holes assayed. See Sections attached. Sachet scanning was completed on some assayed samples and most of the mineral was interpreted to be usually dominant by trash minerals such as tourmaline and ferruginous material.

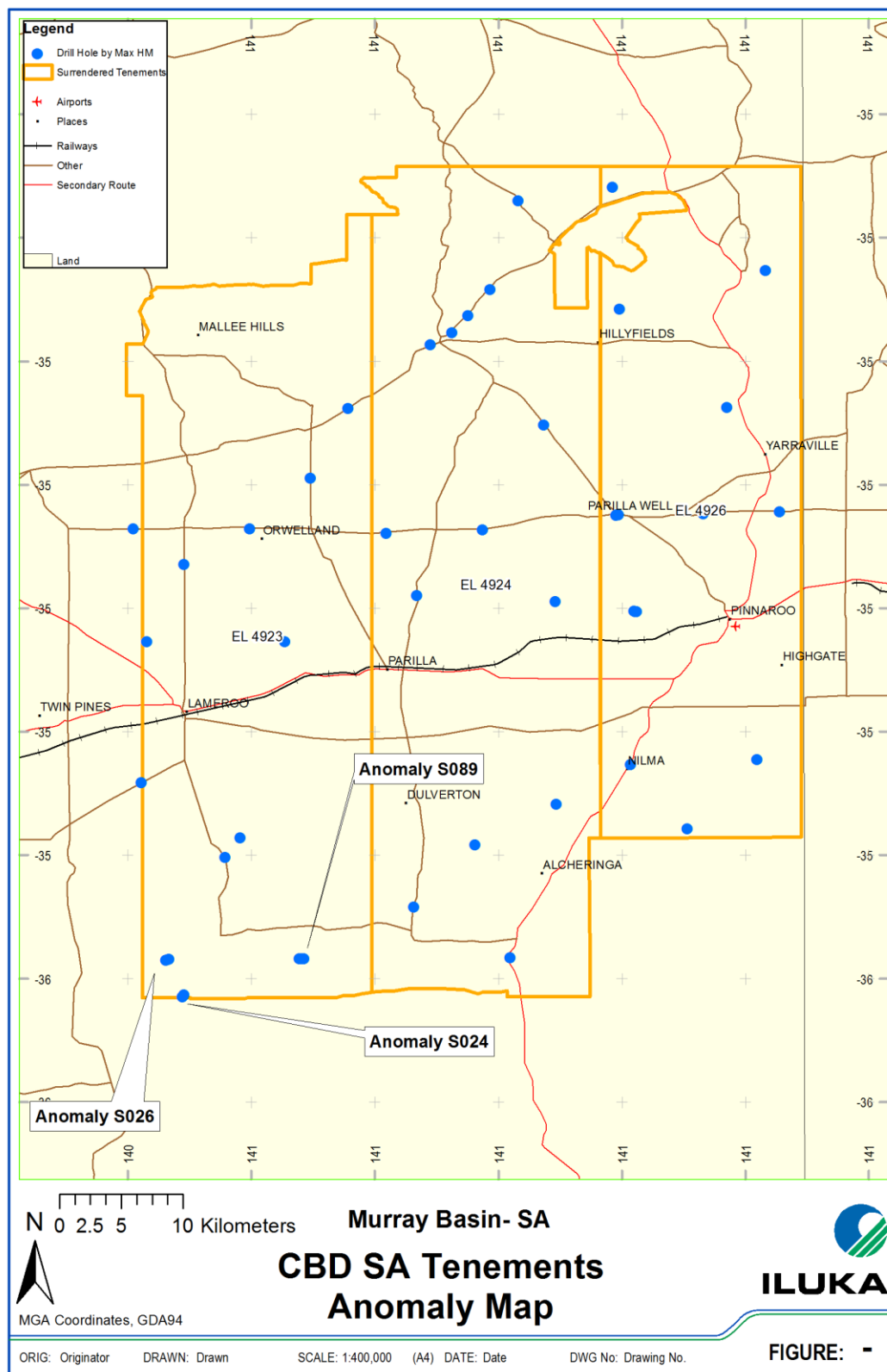


Figure 2: EL4923, EL4924 and EL4926 showing areas in the south of EL4923 where three anomalies were drilled.

5. CONCLUSION

Fifty drillholes were drilled for a total of 2,946m with 533 samples assayed. Minor HM (<3% HM) was intersected in numerous drill holes across the tenements.

Majority of the mineral intercepted contained trash such as Tourmaline and Ferruginous minerals.

A review of drilling data across EL4923, EL4924 and EL4926 was undertaken. The potential for the tenements to host a high value heavy mineral sand deposit consistent with Iluka Resources Ltd requirements was been fully tested by Iluka Resources Limited and its predecessors (RGC) and has resulted in the complete relinquishment the three tenements.

Majority of the mineral intercepted contained trash such as Tourmaline and Ferruginous minerals.

6. REFERENCES

- Brown, C.M. and Stephenson, A.E., 1991. *Geology of the Murray Basin Southeastern Australia*, Bureau of Mineral Resources, Geology and Geophysics Bulletin 235
- Rankin, L.R., Clough, B.J. and Gatehouse, C.G., 1991. *Mafic Suites in Basement Beneath the Murray Basin: New Data for the Early Palaeozoic History of the Tasman Orogenic Province*. PIRSA report book no 91/44 (DME 281/89)
- Smith, P., 2012 *Internal Iluka document, Closure report for EL4921, EL4922, EL4923, EL4924, EL4925, EL4926*.
- Smith, P., 2013 *Internal Iluka document, Closure report for EL4922, EL4923, EL4924, EL4926*.

Metadata used in Iluka Resources Ltd Surface Location Files

Name	Type*	Size	Decimals	Description
HOLE_ID	C	10	0	Hole Name
LATITUDE	N	12	6	Latitude
LONGITUDE	N	12	6	Longitude
RL	N	7	2	AHDRL Elevation
DATUM	C	5	0	Datum Name
SURV_METH	C	10	0	Survey Method
SURV_COMP	C	10	0	Survey Company
SURV_NAM	C	10	0	Surveyor Name
PEG_VAR	C	1	0	Variation from Peg
UTM_NORTH	N	12	2	Northing MGA (GDA94) datum
UTM_EAST	N	12	2	Easting MGA (GDA94) datum
UTM_GRIDID	C	10	0	Universal Transverse Mercator Grid Name
LOCAL_E	N	12	2	Local Grid Easting
LOCAL_N	N	12	2	Local Grid Northing
LOCAL_GRID	C	20	0	Local Grid Name
DRILL_TYPE	C	5	0	Drilling Method
HOLE_SIZE	C	3	0	Hole Diameter
AZIMUTH	N	1	0	Azimuth of Drill String
DIP	N	3	0	Dip of Drill String
SAMP_SPLIT	C	5	0	Percentage of Sample Taken
TWIN	C	1	0	Twin Hole
TWIN OF	C	10	0	Twin Hole Original
TD	N	6	1	Depth of Hole
TENURE_REF	C	10	0	Exploration Licence
STATE	C	5	0	State
COMPANY	C	10	0	Exploration Company
PROJECT	C	30	0	Regional Project Area
DEPOSIT	C	30	0	Deposit
GRID_LINE	C	12	0	Grid Line Name
TRAVERSE	C	20	0	Traverse Name
ANOMALY	C	20	0	Anomaly Name
PEG_ID	C	12	0	Peg Name
PAN	C	1	0	Confirmation of Panning
LOGGER	C	15	0	Logger Name
DRILL_CO	C	10	0	Drilling Company
DRILL_RIG	C	10	0	Drilling Rig
DATE	C	10	0	Date
COMMENTS	C	30	0	Comments
VIS_VAL	C	1	0	Visual Validation of Data

* C = Character
N=Numeric

Metadata used in Iluka Resources Ltd Lithological Logging Files

Name	Type	Size	Decimals	Description
HOLE_ID	C	10	0	Hole Name
PROJECT	C	30	0	Regional Project Area
FROM	N	5	1	Depth From
TO	N	5	1	Depth To
SAMPLE_ID	C	10	0	Sample Name
AS	C	3	0	Assay
SAMP_QUAL	C	1	0	Quality of Sample
WATER	C	1	0	Sample Moisture
E_SL	N	3	0	Estimated Slimes Percentage
WA	C	2	0	Washability of Sample
CO1	C	3	0	Primary Sample Colour
LI1	C	3	0	Primary Lithology
DGS1	C	2	0	Primary Dominant Grain Size
CGS1	C	2	0	Primary Maximum Grain Size
SO1	C	2	0	Primary Sorting
LINK	C	2	0	Link to Second Lithology
CO2	C	3	0	Secondary Colour
LI2	C	3	0	Secondary Lithology
E_LI2	N	3	0	Percentage of Secondary Lithology
DGS2	C	2	0	Secondary Dominant Grain Size
CGS2	C	2	0	Secondary Maximum Grain Size
SO2	C	2	0	Secondary Sorting
IND	C	4	0	Induration
E_IND	N	3	0	Percentage of Induration in Sample
H	N	1	0	Hardness of Induration
E_HM	N	5	1	Estimated HM percentage
HMGS	C	2	0	HM Grain Size
QU	C	3	0	Qualifiers
COMMENTS	C	30	0	Comments
FM	C	3	0	Formation

Metadata used in Iluka Resources Ltd Assay Files

Name	Type	Size	Decimals	Description
HOLE_ID	C	10	0	Hole Name
FROM	N	5	1	Depth From
TO	N	5	1	Depth To
SAMPLE_ID	C	10	0	Sample Name
OS	N	5	2	Oversize Percentage
SANDC	N	5	2	Coarse Sand Percentage
SAND	N	5	2	Sand Percentage
SLIMES	N	5	2	Slimes Percentage
HM	N	5	2	HM Percentage

CODES

CODE	ASSAY
Y	YES - HM ASSAY
N	NO - HM ASSAY
M	MULTI ELEMENT
D	DUPLICATE
3P	STANDARD
E3	STANDARD
HG1	STANDARD
HG2	STANDARD
HG3	STANDARD
HG4	STANDARD

CODE	GRAINSIZE
CL	CLAY
GR	GRIT
PB	PEBBLE
SI	SILT
VF	VERY FINE
F	FINE
M	MEDIUM
C	COARSE
VC	VERY COARSE

CODE	SURVEY COMPANY
PDS	Peter Danson
ILUKA	Iluka

CODE	SURVEY METHOD
GPS	GPS
DGPS RTK	DGPS RTK
OTHER	OTHER

CODE	WATER
D	DRY
M	MOIST
W	WET
I	INJECTED

CODE	COMPANY
ILU	ILUKA RESOURCES LTD

CODE	DRILLING COMPANY
WALLIS	WALLIS DRILLING LTD
ILUKA	ILUKA RESOURCES LTD

CODE	DRILL RIG
CUSTOM	CUSTOM
MANTIS1	MANTIS1
MANTIS2	MANTIS2
MANTIS3	MANTIS3
DELTA15	DELTA15
DELTA28	DELTA28
WALLD29	DELTA29
WALLIS D30	DELTA30
DELTA32	DELTA32
DELTA5	DELTA5
DELTA7	DELTA7
WARMAN	WARMAN

CODE	DRILL TYPE
RCAC	REVERSE CIRCULATION AIR CORE
AU	AUGER
RAB	ROTARY AIR BLAST
DIAMOND	DIAMOND
RC	REVERSE CIRCULATION

CODE	FORMATION
TFS	TOP OF FORESHORE
TLS	TOP OF LOWERSHORE
TSZ	TOP OF SURFZONE
TLI	TOP OF LIMESTONE
DU	DUNAL
WT	TOP OF WATER TABLE

CODE	INDURATION HARDNESS
1	VERY SOFT
2	SOFT
3	MEDIUM
4	HARD
5	VERY HARD

CODE	HM GRAINSIZE
F	FINE
VF	VERY FINE
FM	FINE-MEDIUM
M	MEDIUM
MC	MEDIUM-COARSE
C	COARSE
VC	VERY COARSE

CODE	HOLE SIZE
BQ	60mm
NQ	75.8mm

CODE	INDURATION
FE	FERRUGINOUS INDURATION
SI	SILICEOUS INDURATION CALCAREOUS INDURATION
CC	INDURATION
PY	PYRITIC INDURATION

CODE	LITHOLOGY
BA	BASALT
CA	CALCRETE
CL	CLAY
CT	CLAY STONE
YS	CLAY-SILT
CS	CLAYEY SAND
CO	COAL
CG	CONGLOMERATE
DO	DOLOMITE
GA	GRANITE
GR	GRAVEL
GY	GYPSUM

HM	HEAVY MINERAL
IC	INDURATED CLAY
IR	IRONSTONE
LA	LATERITE
LI	LIMESTONE
LS	LOMESAND
LC	LOST CORE
MU	MUDSTONE
PY	PYRITE
QU	QUARTZ
RK	ROCK UNKNOWN
SA	SAND
SS	SANDSTONE
SC	SANDY CLAY
SAP	SAPROLITE
ST	SCHIST
SH	SHALE
SE	SILCRETE
SI	SILT
SIS	SILTSTONE
SD	SILTY-SAND
SY	SILTY-CLAY
SYS	SILTY-CLAY-SAND
SDY	SILTY-SANDY-CLAY
SL	SLATE
SLM	SLIME
SO	SOIL

CODE	LINK
TO	TO
AN	AND

CODE	PEG VARIATION
Y	YES
N	NO
P	PICK-UP

CODE	QUALIFIER
AT	ABUNDANT BLACK TRASH
CB	CARBONACEOUS
CT	COMMON BLACK TRASH
FE	FERRUGINOUS

LA	LATERITIC
MI	MICACEOUS
MO	MOTTLED
MT	MINOR BLACK TRASH
OX	OXIDISED
PY	PYRITIC
WE	WEATHERED
SI	SILICEOUS
CC	CALCAREOUS
CE	CARBONATE
GY	GYPSUM
OR	ORGANIC
ALF	ABUNDANT LATERITIC FINES
CLF	COMMON LATERITIC FINES
MLF	MINOR LATERITIC FINES
BM	BASEMENT
TL	TAILINGS
SL	SLIMES
CV	CAVEN

CODE	SAMPLE QUALITY
G	GOOD
M	MODERATE
P	POOR

CODE	SAMPLE SPLIT
25_75	25% SAMPLE SPLIT
50_50	50% SAMPLE SPLIT
100	100% SAMPLE SPLIT

CODE	SORTING
G	GOOD
M	MODERATE
P	POOR
VG	VERY GOOD
VP	VERY POOR

CODE	WASHABILITY
IM	IMPOSSIBLE
M	MODERATE

MD	MODERATELY DIFFICULT
ME	MODERATELY EASY
VD	VERY DIFFICULT
VE	VERY EASY

CODE	COLOUR
BK	BLACK
BL	BLUE
BR	BROWN
BB	BROWN-BLACK
BC	BROWN-CREAM
BO	BROWN-ORANGE
BW	BROWN-WHITE
BY	BROWN-YELLOW
BU	BUFF
CR	CREAM
CO	CREAM-ORANGE
RC	CREAM-RED
DBK	DARK BLACK
DBL	DARK BLUE
DBR	DARK BROWN
DBB	DARK BROWN-BLACK
DBC	DARK BROWN-CREAM
DBO	DARK BROWN-ORANGE
DBW	DARK BROWN-WHITE
DBY	DARK BROWN-YELLOW
DBU	DARK BUFF
DCR	DARK CREAM
DCO	DARK CREAM-ORANGE
DRC	DARK CREAM-RED
DGN	DARK GREEN
DNB	DARK GREEN-BROWN
DNY	DARK GREEN-YELLOW
DGR	DARK GREY
DGK	DARK GREY-BLACK
DGB	DARK GREY-BROWN
DGC	DARK GREY-CREAM
DGG	DARK GREY-GREEN
DGO	DARK GREY-ORANGE
DGP	DARK GREY-PINK
DGD	DARK GREY-RED
DGW	DARK GREY-WHITE
DGY	DARK GREY-YELLOW
DMU	DARK MUSTARD
DOR	DARK ORANGE

DOB	DARK ORANGE-BROWN	LCO	LIGHT CREAM-ORANGE
DOW	DARK ORANGE-WHITE	LRC	LIGHT CREAM-RED
DOY	DARK ORANGE-YELLOW	LGN	LIGHT GREEN
DPI	DARK PINK	LNB	LIGHT GREEN-BROWN
DPB	DARK PINK BROWN	LNJ	LIGHT GREEN-YELLOW
DPC	DARK PINK-CREAM	LGR	LIGHT GREY
DPO	DARK PINK-ORANGE	LGK	LIGHT GREY-BLACK
DPW	DARK PINK-WHITE	LGB	LIGHT GREY-BROWN
DPU	DARK PURPLE	LGC	LIGHT GREY-CREAM
DRE	DARK RED	LGG	LIGHT GREY-GREEN
DRK	DARK RED-BLACK	LGO	LIGHT GREY-ORANGE
DRB	DARK RED-BROWN	LGP	LIGHT GREY-PINK
DRO	DARK RED-ORANGE	LGD	LIGHT GREY-RED
DRP	DARK RED-PINK	LGW	LIGHT GREY-WHITE
DRW	DARK RED-WHITE	LGJ	LIGHT GREY-YELLOW
DRY	DARK RED-YELLOW	LMU	LIGHT MUSTARD
DWH	DARK WHITE	LOR	LIGHT ORANGE
DWC	DARK WHITE-CREAM	LOB	LIGHT ORANGE-BROWN
DYE	DARK YELLOW	LOW	LIGHT ORANGE-WHITE
DYB	DARK YELLOW-BROWN	LOY	LIGHT ORANGE-YELLOW
DYG	DARK YELLOW-GREEN	LPI	LIGHT PINK
DYW	DARK YELLOW-WHITE	LPB	LIGHT PINK BROWN
GN	GREEN	LPC	LIGHT PINK-CREAM
NB	GREEN-BROWN	LPO	LIGHT PINK-ORANGE
NY	GREEN-YELLOW	LPW	LIGHT PINK-WHITE
GR	GREY	LPU	LIGHT PURPLE
GK	GREY-BLACK	LRE	LIGHT RED
GB	GREY-BROWN	LRK	LIGHT RED-BLACK
GC	GREY-CREAM	LRB	LIGHT RED-BROWN
GG	GREY-GREEN	LRO	LIGHT RED-ORANGE
GO	GREY-ORANGE	LRP	LIGHT RED-PINK
GP	GREY-PINK	LRW	LIGHT RED-WHITE
GD	GREY-RED	LRJ	LIGHT RED-YELLOW
GW	GREY-WHITE	LWH	LIGHT WHITE
GY	GREY-YELLOW	LWC	LIGHT WHITE-CREAM
KH	KHARKI	LJE	LIGHT YELLOW
LBK	LIGHT BLACK	LYB	LIGHT YELLOW-BROWN
LBL	LIGHT BLUE	LYG	LIGHT YELLOW-GREEN
LBR	LIGHT BROWN	LYW	LIGHT YELLOW-WHITE
LBB	LIGHT BROWN-BLACK	MU	MUSTARD
LBC	LIGHT BROWN-CREAM	OR	ORANGE
LBO	LIGHT BROWN-ORANGE	OB	ORANGE-BROWN
LBW	LIGHT BROWN-WHITE	OW	ORANGE-WHITE
LBY	LIGHT BROWN-YELLOW	OY	ORANGE-YELLOW
LBU	LIGHT BUFF	PI	PINK
LCR	LIGHT CREAM	PB	PINK BROWN

PC	PINK-CREAM
PO	PINK-ORANGE
PW	PINK-WHITE
PU	PURPLE
RE	RED
RK	RED-BLACK
RB	RED-BROWN
RO	RED-ORANGE
RP	RED-PINK
RW	RED-WHITE

RY	RED-YELLOW
WH	WHITE
WC	WHITE-CREAM
YE	YELLOW
YB	YELLOW-BROWN
YG	YELLOW-GREEN
YO	YELLOW-ORANGE
YR	YELLOW-RED
YW	YELLOW-WHITE