ELKEDRA DIAMONDS NL

Altjawarra Craton Diamond Project

Final Relinquishment Report for period ending May 23, 2004

For EL 22533 (Lucy Creek West)

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Keywords: Northern Territory, Altjawarra Craton, Diamond Exploration, Elkedra Survey.

Map Sheets:
1: 250,000: Huckitta (SF53-11), Tobermory (SF53-12)

1:100,000: Lucy (6153), Algamba (6253)

Copy To: NTDBIRD, Darwin, Northern Territory
Elkedra Diamonds NL Perth library

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Appendix 3	Library Code List	EL22533_LibraryCodes.xls

1 INTRODUCTION

Exploration License EL 22533 (Lucy Creek West) is located on the Huckitta (SF53-11) and Tobermory (SF53-12) 1:250,000 sheets in central Northern Territory (Figure 1). This report details all work carried out on the relinquished tenement up to May 23, 2004 by Elkedra Diamonds NL.

2 CONCLUSION

Screening of the airborne magnetic data indicates that the tenement does not contain any large "bulls-eye" anomalies likely to be due to large diatremes. The three aeromagnetic targets identified are of low priority and appear to be related to drainage or shallow basement. Ground magnetic surveys would have limited value in the area because of the very high surface noise levels.

Two stream sediment samples reported positive for chromites with 1 moderate Cr chromite identified from each sample. While these grains are of possible mantle origin, poor drainage development hampers further follow-up. No geochemical anomalous values of any significance to diamond exploration were identified from soil geochemistry samples collected at the stream sediment sites.

Based on combined data results, the tenement currently ranks low priority in terms of diamond exploration within Elkedra's regional Altjawarra Craton project and no further work is presently warranted.

3 GEOLOGICAL SETTING

3.1 Regional Geology

The Altjawarra diamond project is located on the North Australian Craton, which represents an amalgamated terrain that was consolidated around 1,800 Ma. From a diamond exploration perspective, the significance of the North Australian Craton is that it hosts all of Australia's diamond mines to date including the recently discovered diamondiferous Merlin kimberlites located on the eastern portion of the North Australian Craton. Of particular importance is the age of the Merlin pipes, which have been dated as Devonian (~380 Ma). Elkedra Diamonds are targeting this same kimberlite event, or younger, in the southern Georgina Basin located south of the Merlin field.

The project area incorporates several kilometers of Cambro-Ordovician platform sediments of the southern Georgina Basin, as well as portions of the eastern Davenport Province. The southern Georgina basin and the underlying Altjawarra Block in particular, are associated with a zone of anomalously thick lithosphere extending to at least 200km depth as recognized from recent seismic tomography studies (Kennett, 1997; Van der Hilst *et al.*, 1998; Debayle and Kennett, 2000). The geophysical data highlight the area as highly prospective for the emplacement of diamond-bearing kimberlites.

3.2 Tenement Geology

The relinquished tenement is underlain by Quaternary sediments with abundant areas of outcropping folded Late Cambrian Arrinthrunga Formation and Cambro-Ordovician Tomahawk Bed sediments.

620000 mE
650000 mE
680000 mE
7560000 mN
7530000 mN
7500000 mN
EL 22533
LUCY CREEK WEST

Highway
Minor roads and tracks

N

ELKEDRA DIAMONDS NL

Date: 16/6/2004	Figure 1: Elkedra Diamond Project EL 22533 Lucy Creek West Tenement Location
Author: JL	
Office: West Perth	
Drawing: 0136_Fig1	
Scale: 1:500000	Projection: MGA Zone 53 (GDA 94)

0 5 10 20
kilometres

4 EXPLORATION COMPLETED

Exploration activities undertaken include:

1) Processing and targeting for aeromagnetic anomalies off the Elkedra survey.
2) Surface Stream Sediment Sampling

4.1 Magnetics

The release of the Elkedra aeromagnetic survey flown by Tesla Airborne for the NTGS has proved critical in this early stage of exploration and forms the basis of all geophysical work undertaken in the tenement. A total of three anomalies were identified from the aeromagnetic data (Figure 2).

All aeromagnetic interpretation and processing were undertaken by Dr. Duncan Cowan of Cowan Geodata Services, Perth.

The aeromagnetic, altimetric dtm and radiometric data covering the tenement area were windowed out of the Elkedra NTGS dataset. The windowed area was initially analyzed by running the "Smart" filter program of Cowan Geodata Services. The filter is a simple pattern recognition technique developed by Cowan Geodata Services. The program uses regression analysis between a window of the grid data and a typical model anomaly to identify roughly circular anomalies. The model data calculated is a full 3D vertical cylinder implementation. The method involves various inputs to the program including window size, model cylinder radius, top and bottom depths and amplitude response. The filter was run once to test response using a standard 200m diameter cylindrical model with a 30m depth, 400m grid window, and 25-200nT amplitude range.

Further data enhancement and preliminary kimberlite target screening was later undertaken using a combination of techniques which included:

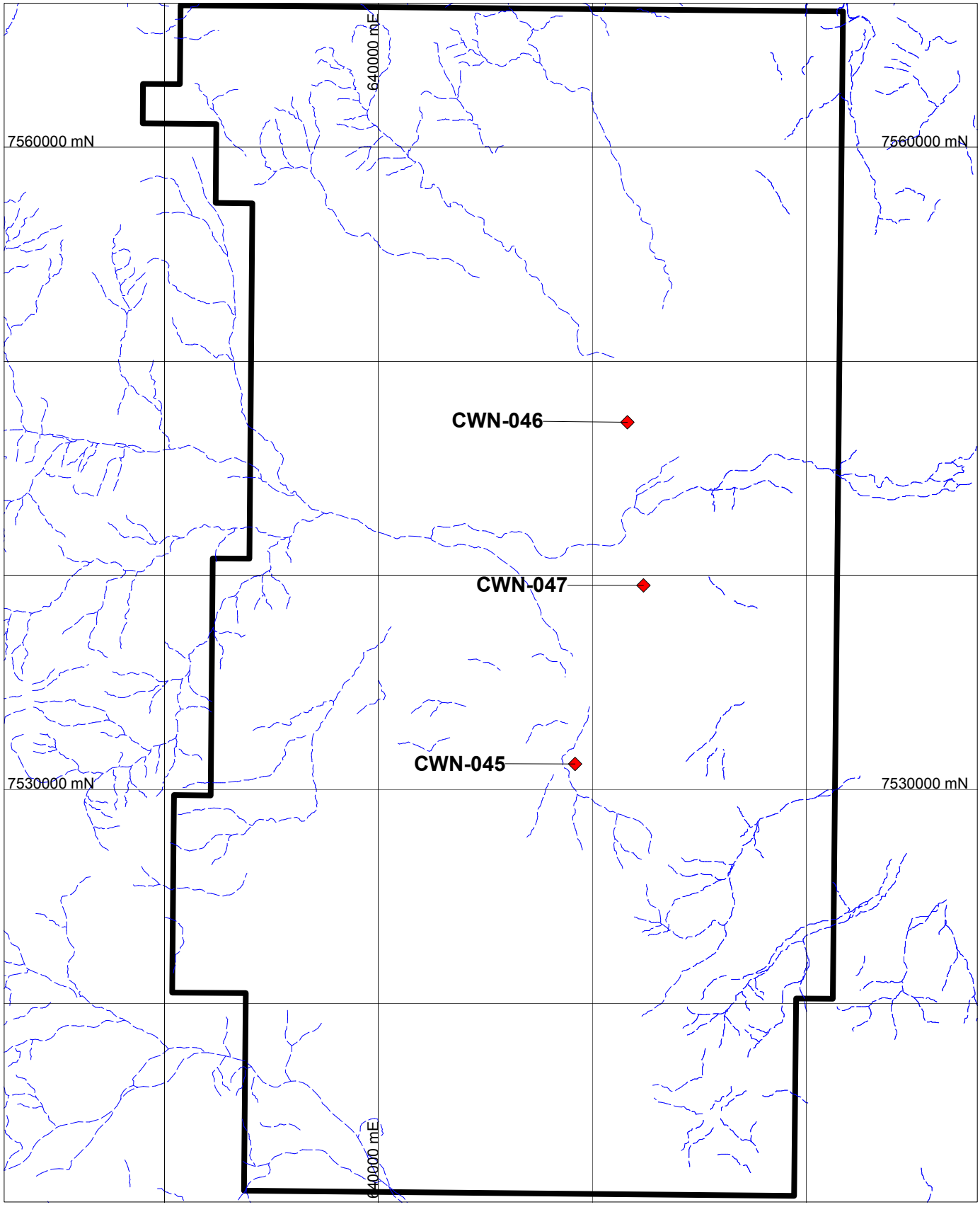
- 1D Wavenumber filtering
- 2D Euler deconvolution depth calculation
- 2D Werner deconvolution depth calculation
- Modelling and inversion of individual anomalies

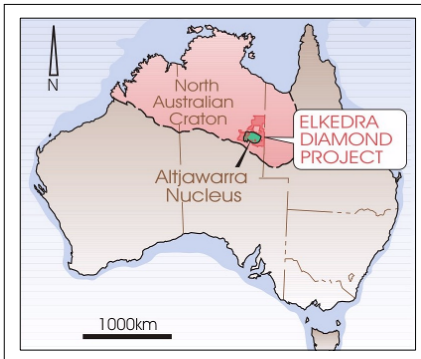
The focus was on identifying possible kimberlite targets in the presence of significant intrasedimentary background noise due to maghemite channels, areas of ferricrete, clay-pans and sinkholes and cultural sources. The altimetric dtm and radiometric data were used to assist in anomaly screening. Identifying possible kimberlite magnetic anomalies in an area of extensive drainage and palaeosurface related magnetic anomalies is difficult due to a high degree of anomaly overlap as well as interference from anomalies due to shallow basement rocks. The relatively wide line spacing of 400m limits spatial resolution of small sources as small kimberlites located between flight lines may not be detectable or produce only weak magnetic anomalies with magnetic attributes similar to sinkholes etc.

Three low priority anomalies were identified within the relinquished area. Details of these are listed in Appendix 1.

4.2 Surface Sampling

Fifteen stream sediment samples were collected within modern day drainages (Figure 3). Seven of the samples were collected for heavy mineral analysis and 8 were collected for soil geochemical analysis. All results are summarized in Appendix 2.



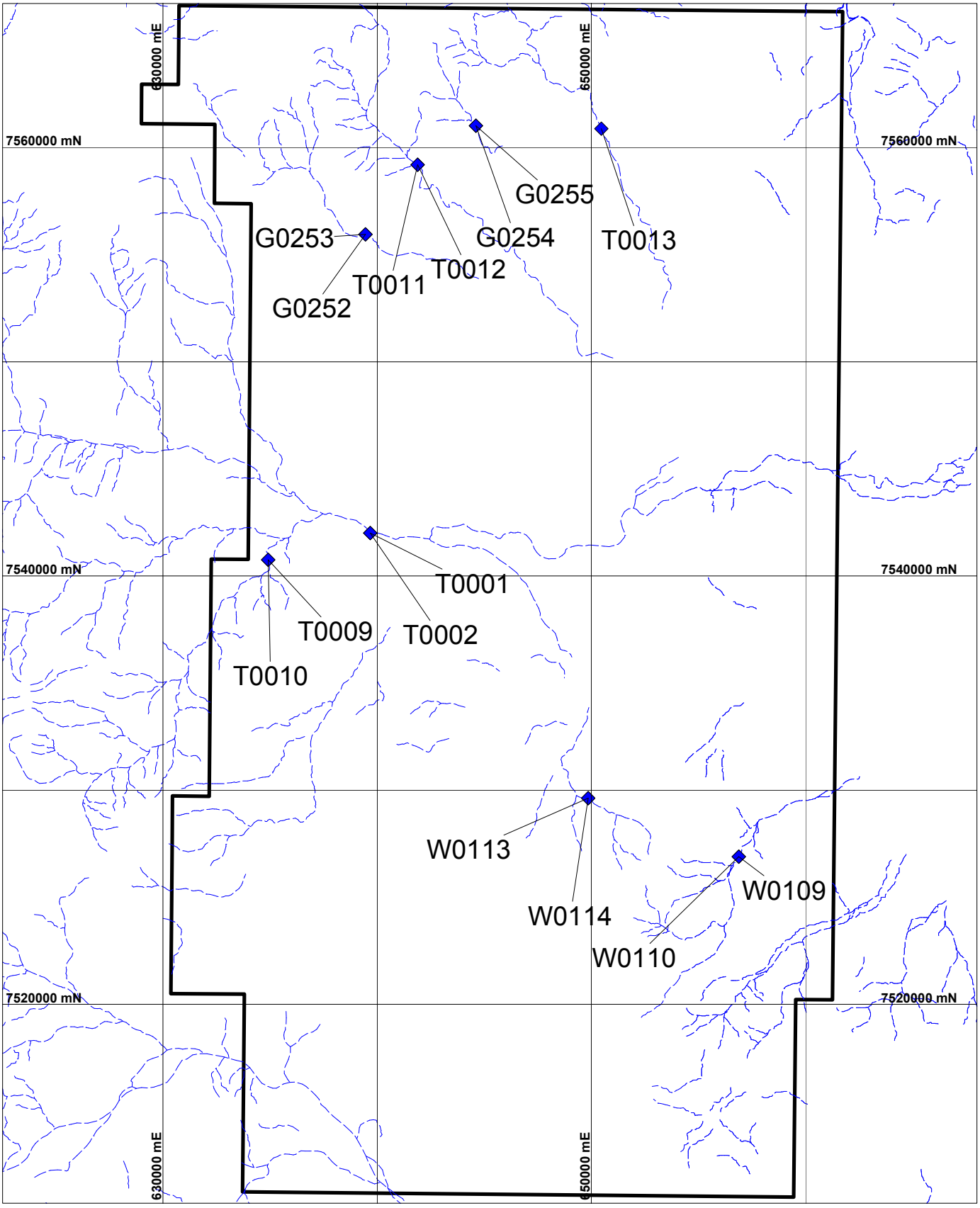


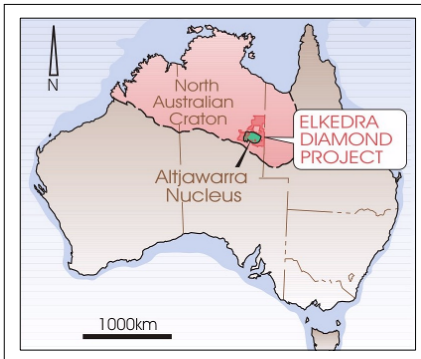
N

ELKEDRA DIAMONDS NL
ABN 42 092 334 220

Date:16/6/2004	Figure 2: Elkedra Diamond Project EL 22533 Lucy Creek West Aeromagnetic Anomaly Locations
Author: JL	
Office: West Perth	
Drawing: 0136_Fig2	
Scale: 1:250000	Projection: MGA Zone 53 (GDA 94)

0 2.5 5 10
kilometres





Surface Sample Locations By Sample Type

◆Stream Sediment (15)

N

ELKEDRA DIAMONDS NL

Figure 3:
Elkedra Diamond Project
EL22533 Lucy Creek West
Surface Sample Locations

Date:16/6/2004	
Author: JL	
Office: South Perth	
Drawing: 0136_Fig3	
Scale: 1:250000	Projection: MGA Zone 53 (GDA 94)

0 2.5 5 10
kilometres

4.3 Heavy Mineral Concentrate Analysis

Of the 7 samples submitted to Diatech Laboratory Perth for heavy mineral analysis 2 reported positive for kimberlite indicator minerals (Table 1). A total of 11 chromite grains and 2 Nb-rutile grains were recovered from sample T0009 and 3 chromite grains from W0109. All samples were processed by Kimberley Diamonds Ltd for microdiamonds but no microdiamonds were recovered in any of the samples.

Table 1: Summary of positive HMC results.

Sample Number	Size Fraction	Chromite	Other Mineral
T0009	-0.4+0.25	11	
T0009	-0.8+0.25		2
W0109	-0.4+0.25	1	
W0109	-0.8+0.4	2	

4.4 Mineral Chemistry

Mineral chemistry analytical work and grain identification was carried out by Dr. Wayne Taylor using a JEOL 6400 analytical SEM at the Centre for Microscopy and Microanalysis, University of Western Australia. High precision element analyses on identified chromite grains were undertaken by Dr. Wayne Taylor using a Cameca SX-50 electron microprobe at the Electron Beam Laboratory, CSIRO Division of Exploration and Mining, ARRC, Bentley, WA. Analytical results are attached in Appendix 3.

Indicator mineral chemistry characterizes the chromites as anomalous and indicates that many are not sourced from regional crustal rocks and are derived from upper mantle source rocks. Of particular interest is the recovery of a moderate high-Cr chromite with 58 wt% Cr_2O_3 from the T0009 sample and a moderate Cr chromite with 52 wt% Cr_2O_3 from W0109. The two grains are possible mantle xenocryst grains typically recovered from kimberlites and related rocks worldwide.

4.5 Geochemical Analysis

Seven of the stream sediment samples were submitted to Genalysis, Perth for geochemical analysis. Analysis was by way of four acid digest with ICP-MS or ICP-OES finishes for a wide range of elements. Au and Pt were analysed using an aqua regia digest with ICP-MS finish. Two of the samples (W0109 and W0113) were sent to Ultratrace for XRF anlaysis of major oxides.

No anomalous values of any significance to diamond exploration were identified. Analytical results are attached in Appendix 3.

5 REFERENCES

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