Enrichment characteristics of radioelements in various types of rock from Sambalpur district, Orissa, India

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Over the years a large number of rock samples were collected by the explorationists of Atomic Minerals Directorate for Exploration and Research (AMD), Department of Atomic Energy from Sambalpur district, Orissa, India. The variation of uranium enrichment with various types of rock in these samples was studied with an aim to help quick reviewing of toposheets in case of newly taken up areas, for uranium exploration. The radioelements U, Th and K determined for these samples are plotted in ternary diagrams for classifying them as being uraniferous or thoriferous with respect to various type of rocks, keeping the total natural content of radioelements (expressed by eU_3O_8) as a parameter.

In this study it is seen that samples of quartzofeldspathic breccia type are enriched in uranium irrespective of their further sub classification and eU_3O_8 content. Granites are enriched in thorium when $eU_3O_8 < 100$ ppm and are enriched in uranium when $eU_3O_8 > 100$ ppm.

A database prepared for this purpose may be useful for reviewing toposheets in future.

1. Introduction

Uranium mineralization is controlled by many factors. It is essential to know the type of rock that is more favourable for uranium, in its exploration. Hence, an understanding of radioelemental signature in different types of rocks is required before proceeding towards further exploration of an area. These radioelemental data play a major role in undertaking further surveys and also in finding out uranium enriched zones in the area of study.

Over a period of time (1981, 1997–2000), 656 number of samples were collected from Kasipur, Jaipur, Bhatli and Bargarh sector of Sambalpur district, Orissa, India covered in toposheets no. 64O/4, 64O/7 and 64O/8, as part of the exploration program for uranium by explorationists of Atomic Minerals Directorate for Exploration and Research (AMD), Department of Atomic Energy. They are D V Katre (1981–82), A B Awati (1981–82), S K Das (1999–2000), P C Pant (1997–

98, 1998–99, 1999–2000), A Majumdar (1997–98, 1998–99), D Vidyasagar (1997–98, 1998–99, 1999–2000) and V V Sakhare (1998–99, 1999–2000).

These samples were analysed radiometrically first, for their eU_3O_8 content (giving the combined contribution of all the natural radioelements present) and later for the content of the individual radioelements i.e., U, Th, and K, in the physics laboratory of the eastern region. Since, eU_3O_8 is a measure of the sample's total natural radioactivity, it is taken as the basis even in collecting the samples in the field, in general.

Ternary diagrams are generally used to study the relationship among major oxides data of different types of rock for purposes of rock classification (Barker 1979; Tompkins 1987; Krishnamurthy 1988; Rickwood 1989). They were also used for studying the major elemental data of different types of metabasic metarhyolites and other associated rocks at Bodal, Madhya Pradesh, India (Krishnamurthy *et al* 1988).

Keywords. Radiometric analysis; uranium; ternary diagram; rock type; quartzofeldspathic breccia; granite.

An effort has been made by the authors to use ternary plots for studying the distribution of radioelemental data from toposheets No. 64O/4, 64O/7 and 64O/8. Using these plots the authors try to present radiometric data with a view to classfying them into U-rich and U-depleted regions, keeping eU_3O_8 content of the samples as a parameter. This classification helps the explorationists who will be exploring the areas in future for locating further mineralization.

2. Methodology of analysis and classification

The samples collected from areas in the above mentioned toposheets were analyzed to estimate equivalent uranium concentration (eU_3O_8 , henceforth designated by eU), thorium concentration (Th), equivalent radium concentration ($Ra(eU_3O_8)$, henceforth designated by $Ra(eU)$) and potassium concentration (K) using four channel gamma ray spectrometer in which a $5'' \times 4''$ NaI(Tl) coupled with PMT integrated crystal is used as detector. The details of the theory and instrumentation are given in Appendix 1.

Samples are initially classified into two groups based on eU values. Those containing $eU < 100$ ppm are named ‘ppm samples’. The content of Th, $Ra(eU)$ and K are estimated for these ppm samples using the above technique (data given in table 1 of Appendix 2). For the other group of samples, in addition to the above, the actual concentration of uranium (designated as $U(\beta-\gamma)$) content is measured using $\beta-\gamma$ technique (Eichholz *et al* 1953) (data given in table 2 of Appendix 2). This technique gives the concentration of uranium irrespective of its state of equilibrium and presence of thorium. At a level of 100 ppm $U(\beta-\gamma)$, the precision of estimation is 11%. The reason for the classification of samples into two groups is based on this precision of measurement, as we can obtain precise data for $U(\beta-\gamma)$ when $eU \geq 100$ ppm. For ppm samples, $U(\beta-\gamma)$ is not measured, as error increases.

All the concentrations i.e., eU, $U(\beta-\gamma)$, $Ra(eU)$ and Th are measured in ppm and K in percentage. To express all the values of concentrations in ppm, K is converted into its ^{40}K content and is expressed in ppm. (Natural abundance of ^{40}K is 0.0118%. This implies that 1% K contains 1.18 ppm of ^{40}K . Likewise, 2% K contains 2.36 ppm of ^{40}K].

Whenever, U or Th concentration of sample becomes very high, determination of ^{40}K is very difficult due to Compton scattering giving poor precision of measurement. Hence, its measurement is not done for these samples. In those cases, potassium values either from chemical method of assay

or the natural abundance of ^{40}K for that type of rock have to be taken.

The data i.e., $U(\beta-\gamma)$, Th and ^{40}K in case of samples with $eU > 100$ ppm and $Ra(eU)$, Th and ^{40}K in case of samples with $eU < 100$ ppm are plotted using ternary diagrams. For samples with $eU > 100$ ppm, U/K, Th/K and U/Th ratios were also plotted on ternary diagrams to study their behaviour. Ratios are used for finding preferential enrichment of uranium with respect to thorium and potassium.

3. Interpretation

3.1 Granites and basics

In this category, we have samples belonging to granites, quartzofeldspathic breccia/granite (QFB/granite), granitic gneisses, brecciated granite, sheared granites, granitic cataclasites, sheared basics, sheared metabasics and basic rock. The breakup of the number of samples is given in table 1. The radioelemental data for these samples are recalculated to 100% and plotted on triangular diagram (figure 1). In this figure, samples from granite type of rock with $eU < 100$ ppm are denoted

Table 1. Categorization of samples based on eU values.

Rock type	eU > 100 ppm	eU < 100 ppm
Granite and basic rock related:		
Granite	10	77
QFB/granite	82	58
Brecciated granite	4	1
Sheared granite	4	—
Granitic gneisses	9	13
Granitic cataclasite	—	2
Sheared basic	6	2
Sheared metabasic	3	—
Basic	—	1
QFB related:		
QFB	159	74
QFB/Br. Granite	2	9
QFB/Breccia	20	34
Mylonite related:		
Mylonite	10	3
Mylonite/QFB	15	32
Sandstone related*:		
Sandstone	1	12
Shale	1	3
Sandstone/shale	—	2
Sheared sandstone	—	3
Conglomerate	—	3
Pebbly sandstone	—	1

* = Samples are less in number; — = No samples in this category.

Figure 1. Ternary diagram for granite and basic rock related data.

by granite (ppm) and the same with $eU > 100$ ppm, by granite(%). Samples from other types of rock are not separated based on eU value.

From this figure, we can observe that all granite samples with $eU < 100$ ppm show a trend towards high Th (more than 50% line BC to apex Th), whereas, samples with $eU > 100$ ppm show uranium enrichment (75% contribution above the line AB). Three samples are exceptions, where Th is more.

QFB/granite samples show a trend towards high Ra(eU)/uranium enrichment irrespective of their eU content (more than 50% line AB to apex U(B-r)/Ra(eU)). Brecciated granites and sheared basics also show a trend towards uranium/Ra(eU). In sheared granites and sheared metabasics, we have samples in $eU > 100$ ppm category. They also show uranium enrichment (75% contribution above the line AB).

All the granitic gneisses are enriched in thorium whereas granitic cataclasite samples show thorium variation between 50% and 60% and equivalent radium variation between 25% and 50%. Average U, Th and Ra(eU) values are tabulated in

table 2. Brecciated granites are highly enriched in uranium i.e., a median value of 0.88% whereas granitic gneisses are highly enriched in thorium i.e., a median value of 0.15%.

From the figure 1, we can observe that granites with $eU < 100$ ppm show Th enrichment whereas granites with $eU > 100$ ppm reveal enrichment of uranium or Ra(eU). Granitic gneisses show thorium enrichment irrespective of their eU value.

3.2 Quartzofeldspathic Breccia (QFB)

In this type, we have QFB, QFB/breccia and QFB/brecciated granites. The sample breakup is given in table 1. The corresponding radiometric data are plotted in figure 2. Here also, samples from QFB type of rock with $eU < 100$ ppm are denoted by QFB(ppm) and samples with $eU > 100$ ppm are denoted by QFB(%). Same notation is followed for other types of rock also.

Here the trend is mixed. Out of 117 samples with $eU < 100$ ppm, the maximum number of samples (106) contain Ra(eU) more than 50% (above

Table 2. Average and median values for granite and basic rock related data.

(a) eU < 100 ppm

Rock type	Th(Av.)(ppm)	Ra(eU)(Av.)(ppm)
Granite	28	9
QFB/granite	11	42
Granitic cataclasite	38	24
Granitic gneisses	61	6
Sheared basic	5	18

(b) eU > 100 ppm

Rock type	Th(Median)(ppm)*	U(Median)(ppm)*
Granite	14 (10 – 430)	100 (40 – 600)
QFB/granite	11 (1 – 49)	330 (100 – 880)
Brecciated granite	420 (40 – 10000)	8800 (130 – 33000)
Sheared granite	6 (1 – 19)	580 (140 – 1500)
Granitic gneisses	1500 (370 – 6000)	80 (40 – 550)
Sheared basic	9 (1 – 22)	1700 (860 – 3100)
Sheared metabasic	2	2300

* = Range given in parenthesis.

Figure 2. Ternary diagram for QFB related data.

Table 3. Average and median values for QFB related data.

(a) eU < 100 ppm

Rock type	Th(Av.)(ppm)	Ra(Av.)(ppm)
QFB	9	44
QFB/brecciated granite	18	29
QFB/breccia	11	35

(b) eU > 100 ppm

Rock type	Th(Median)(ppm)*	U(Median)(ppm)*
QFB	5 (1 – 220)	230 (70 – 7700)
QFB/brecciated granite	978	8530
QFB/breccia	4 (1 – 29)	295 (10 – 1300)

* = Range given in parenthesis.

Figure 3. Ternary diagram for ratios of QFB data (eU > 100 ppm).

line AB). 11 samples contain Ra(eU) between 25% and 50%. Samples with eU >100 ppm (181 in number) show enrichment of uranium irrespective of their rock type. Median values are given in table 3. A median value of 295 ppm uranium is found for QFB/breccia.

An interesting aspect with this kind of radioelement data presentation lies in the fact that apex ⁴⁰K acts like a peg with which a cluster of sample is tied and the movement of the cluster at the other apices is controlled by U or Th enrichment.

Figure 4. Ternary diagram for mylonite related data.

The ratios $U/^{40}K$, $Th/^{40}K$ and U/Th for samples with $eU > 100$ ppm are plotted in figure 3 on a ternary diagram. These samples show preferential enrichment of U with respect to ^{40}K . From the published data (table 5), it can be observed that all the types of rock (igneous, sedimentary and metamorphic) have Th/K ratio lying between 50% and 83%, showing that enrichment of thorium with respect to K is more. When the points fall below the line AB of figure 3, then uranium enrichment with K or Th is more. The point C in figure 3, where the sample is enriched in uranium equally with respect to both thorium and potassium, would be preferred.

From the figures 2 and 3, it can be seen that all the samples (from QFB) irrespective of their subclassification and content of eU, show enrichment of either Ra(eU) or uranium.

3.3 Mylonites

In this category, we have mylonite and mylonite/QFB. The number of samples is given in table 1. The radiometric data are plotted on

ternary diagram (figure 4). Here also, samples with $eU < 100$ ppm are denoted by ‘ppm’ in parenthesis and samples with $eU > 100$ ppm denoted by ‘%’ in parenthesis.

Samples with $eU < 100$ ppm (35 samples) are distributed evenly. But, it can be observed that the variation of Ra(eU) lies between 50% and 100%, Th is between 0 and 50% and ^{40}K variation is within 25%. From this, we can say that there is a trend towards enrichment of Ra(eU) in maximum number of samples. Whereas, samples with $eU > 100$ ppm (25 samples) show very high uranium and very less Th and ^{40}K . All the samples show $U(\beta-\gamma)$ more than 85%. Median values are shown in table 4. The mylonite type of rocks have reported a value of 280 ppm uranium (median value).

From figure 4, it can be seen that mylonites irrespective of their eU concentration show either Ra(eU) or uranium and less Th.

3.4 Sandstone

In this type of rock, we have sandstone, shale, sandstone/shale, sheared sandstone, conglomer-

Table 4. Average and median values for mylonite related data.

(a) eU < 100 ppm		
Rock type	Th(Av.)(ppm)	Ra(Av.)(ppm)
Mylonite	11	31
Mylonite/QFB	12	37
(b) eU > 100 ppm		
Rock type	Th(Median)(ppm)*	U(Median)(ppm)*
Mylonite	7 (1 – 13)	280 (150 – 400)
Mylonite/QFB	7 (5 – 16)	150 (90 – 300)

* = Range given in parenthesis.

Table 5. Estimated ratios from published data (Galbraith J H, et al (1983)).

Rock type	U/K	Th/K	U/Th
Igneous			
Ultrabasic	0.71 (23%)	2.0 (65%)	0.36 (12%)
Basic	0.77 (18%)	3.4 (77%)	0.23 (5%)
Basic-Intermediate	0.91 (21%)	3.2 (73%)	0.28 (6%)
Intermediate	1.25 (22%)	4.1 (73%)	0.30 (5%)
Intermediate-Acidic	1.25 (18%)	5.3 (78%)	0.23 (3%)
Acidic	1.11 (15%)	6.3 (83%)	0.19 (2%)
Sedimentary			
Evaporite	1.0 (19%)	4.0 (76%)	0.25 (5%)
Carbonate	5.0 (42%)	5.9 (50%)	1.0 (8%)
Sandstone	1.7 (25%)	4.8 (71%)	0.33 (5%)
Shale	1.4 (24%)	4.1 (70%)	0.32 (6%)
Metamorphic			
Amphibolite	1.43 (28%)	3.3 (64%)	0.45 (9%)
Greenstone	0.77 (18%)	3.4 (77%)	0.23 (5%)
Graywacke	0.77 (22%)	2.4 (69%)	0.31 (9%)
Gneiss	0.67 (17%)	3.1 (78%)	0.22 (6%)
Schist	1.7 (22%)	5.5 (74%)	0.30 (4%)

Percentage values given in parenthesis.

ate and pebbly sandstone (table 1). In these, 24 samples have eU < 100 ppm and 2 samples have eU > 100 ppm. Samples with eU < 100 ppm show a trend towards Th enrichment with an exception of four samples (figure 5). Four samples show enrichment of Ra(eU).

Out of 2 samples with eU > 100 ppm, one is sandstone type and is thoriferous and the other is shale and is uraniferous. Due to lack of a sufficient number of samples, it would not be appropriate to draw a conclusion.

4. Conclusion

From the discussion above, it is observed that in the category of granitic and basic related

samples, granites are enriched in thorium when eU < 100 ppm and are enriched in uranium when eU > 100 ppm; whereas, granitic gneisses are enriched in thorium irrespective of their eU content. Samples in QFB category, irrespective of their subclassification and eU content, are enriched in uranium. The same is true with mylonite type of samples. Sandstone type of samples show enrichment of thorium, even though, the number of samples is not sufficient. These conclusions are tabulated in table 6. Location of the samples which show uranium (or) radium enrichment is shown in figure 6. In the marked areas, uranium (or) radium is preferentially enriched with respect to both ^{40}K and Th. Most of these enriched samples are associated with quartzofeldspathic breccia.

Figure 5. Ternary diagram for sandstone related data (eU < 100 ppm).

This work may help in the future exploration in the area of study, to find out more uraniferous zones. Since the aim of our exploration is to find large uranium resources this study reveals that we should look for more QFB type, mylonitic samples or granitic samples with eU >100 ppm so that we can find out more uranium enriched areas.

We have prepared a “radiometric database” where all the available radiometric data with physics laboratory, eastern region have been incorporated into the database. We propose to provide the data (table 7) to all the explorationists who take decisions to review the same toposheets and its adjoining areas in future.

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Appendix 1

The experimental setup consists of a 5'' × 4'' NaI (Tl) crystal detector coupled to a 5'' dia photo-multiplier tube (PMT) and the electronic circuitry consisting of pre-amplifier, high voltage unit, spectroscopy amplifier, four single channel analysers, four counter timers and two nuclear instrumentation bins. The detector assembly is enclosed in a lead chamber of 4'' thick (figure 7).

For estimation of K, Ra(eU) and Th the corresponding energies i.e., 1.46 Mev, 1.76 Mev and 2.62 Mev are used. For estimation of eU a channel for total counting is used. Accordingly the windows are fixed (Grasty 1979).

For K, the window is 1.36 Mev – 1.56 Mev.

For Ra(eU), the window is 1.66 Mev – 1.86 Mev.

For Th, the window is 2.42 Mev – 2.82 Mev and for total channel the window is 0.40 Mev – 3.0 Mev.

The rate of count in total channel provides an idea about eU content of the sample. It is the com-

Table 6. Summary of trends.

Rock type	eU > 100 ppm	eU < 100 ppm
Granite and basic rock related:		
Granite	Uranium enrichment	Thorium enrichment
QFB/granite	Uranium enrichment	Ra(eU) enrichment
Brecciated granite	Uranium enrichment	Ra(eU) enrichment
Sheared granite	Uranium enrichment	—
Sheared basic	Uranium enrichment	Ra(eU) enrichment
Sheared metabasic	Uranium enrichment	—
Granitic gneisses	Thorium enrichment	Thorium enrichment
Granitic cataclasite	—	Thorium enrichment
Basic	—	Both Th, Ra enrichment
QFB related:		
QFB	Uranium enrichment	Ra(eU) enrichment
QFB/Br. Granite	Uranium enrichment	Ra(eU) enrichment
QFB/Breccia	Uranium enrichment	Ra(eU) enrichment
Mylonite related:		
Mylonite	Uranium enrichment	Ra(eU) enrichment
Mylonite/QFB	Uranium enrichment	Ra(eU) enrichment
Sandstone related*:		
Sandstone	—	Thorium enrichment
Shale	—	Thorium enrichment
Sandstone/shale	—	Ra(eU) enrichment
Sheared sandstone	—	Thorium enrichment
Conglomerate	—	Thorium enrichment
Pebbly sandstone	—	Thorium enrichment

* = Samples are less in number; — = No samples in this category.

bin contribution of all the radioelements present in the sample. It is given by:

$$\%eU = (N_S/N_U) * (M_U/M_S) * U_{std}$$

where, N_S is net rate of count in total channel due to a sample of mass M_S ,

N_U is net rate of count in total channel due to U_3O_8 standard of mass M_U and concentration U_{std} .

Even though the sample contains all natural radioelements, since it is compared to a known U_3O_8 standard, this measurement is denoted as equivalent uranium measurement i.e., eU.

To account for contributions of Th and Ra(eU) in other channels four constants known as stripping constants are defined as given below:

α = counts in Ra(eU) channel due to one count in Th channel from thorium standard,

β = counts in K channel due to one count in Th channel from thorium standard,

γ = counts in K channel due to one count in Ra(eU) channel from uranium standard,

a = counts in Th channel due to one count in Ra(eU) channel from uranium standard.

Now, let K_g, Ra_g, Th_g be the observed counts after subtracting background in K, Ra(eU) and Th channels respectively. These counts will have contributions from K, Ra(eU) and Th respectively as well as the contributions from inter channels. To find out the net counts due to the respective elements, the contributions from other channels need to be subtracted from these counts. This results in the following equations:

$$Th_n = Th_g - aRa_n$$

(Th_n : net counts in thorium channel)

$$Ra_n = Ra_g - \alpha Th_n$$

(Ra_n : net counts in radium channel)

$$K_n = K_g - \beta Th_n - \gamma Ra_n$$

(K_n : net counts in potassium channel).

Solving these equations, gives the formulae for Ra(eU), Th and K concentrations.

They are,

$$Ra(eU) = (Ra_g - \alpha Th_g)/(1 - a\alpha)S_{Ra}$$

Figure 6. Location for samples showing uranium enrichment.

Table 7. Example of output from “Radiometric database”.

Latitude			Longitude			Rock type	Location	eU ₃ O ₈ ppm	U ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %
Degs	Mins	Secs	Degs	Mins	Secs							
21	27	40	83	22	15	Sandstone ↑ ↓	Kashipali	120	50	224	14	2
21	16	15	83	16	15		Kermali	29	—	24	9	4
21	12	30	83	16	30		Sargorapali	8	—	2	0	3
21	10	0	83	15	15		Kuchipali	10	—	4	2	3
21	8	0	83	14	0		Jampali	12	—	7	0	4
21	17	15	83	16	0		Chibra	12	—	4	3	3
21	6	15	83	13	30		Kurlubahal	41	—	50	8	5
21	5	15	83	13	45		Diptipur	14	—	5	2	4
21	5	0	83	13	0	Sandstone	Tal	9	—	7	1	2

— = Poor precision.

$$Th = (Th_g - aRa_g)/(1 - a\alpha)S_{Th}$$
$$K = [K_g - ((\gamma - \beta a)/(1 - a\alpha))Ra_g - ((\beta - \gamma \alpha)/(1 - a\alpha))Th_g]/S_K$$

where, S_K = Sensitivity of potassium channel (counts/%/sec)

S_{Ra} = Sensitivity of radium channel (counts/ppm/sec)
 S_{Th} = Sensitivity of thorium channel (counts/ppm/sec).

In the laboratory, the windows are setup using ¹³⁷Cs and ⁶⁰Co standards. Known equilibrium U₃O₈, ThO₂ and K standards are used for calculat-

Figure 7. Block diagram of 4-channel spectrometry assembly.

Table 8. Values of standards used and values of stripping factors and sensitivities observed at laboratory.

Standards used at the laboratory: (each of 200 gms)
 1100 ppm U_3O_8 ;
 4500 ppm ThO_2 ;
 26.57% K

Stripping factors:

$$\alpha = 0.35; \beta = 0.50; \gamma = 0.9; a = 0.04$$

Sensitivities:

$$K - Ch. = 95 \text{ counts}/\%/200 \text{ sec.}$$

$$Ra(eU) - Ch. = 7.4 \text{ counts/ppm}/200 \text{ sec.}$$

$$Th - Ch. = 2.3 \text{ counts/ppm}/200 \text{ sec.}$$

above formulae their concentrations are calculated. The values of the standards used in the laboratory and the stripping factors and sensitivity factors observed in the laboratory are tabulated in table 8.

Uranium series can be broadly divided into two groups: uranium group and radium group, which do not tend to remain in equilibrium. Under favourable climatic and geologic conditions, some of the daughter products of uranium get separated from the parent, causing disequilibrium. In equilibrium conditions, the result of gamma ray spectrometry e.g., $Ra(eU)$ will correlate with the actual uranium expressed by $U(\beta-\gamma)$, whereas in disequilibrium conditions, they may not correlate. Hence, the measurement of actual uranium is required, which is done using $\beta-\gamma$ technique. Thorium series remains in equilibrium for all practical purposes.

ing stripping factors and sensitivity factors. Then the samples are counted for a fixed time (3000 sec for low grade (< 100 ppm) samples and 600 sec for high grade (> 100 ppm) samples) and using the

(Appendix 2 follows)

Appendix 2
Table 1. Radiometric data with locations for samples with $eU < 100\text{ ppm}$.

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
Granite and basic rock related data													
AMD/PHY/9731	Granitic gneisses	21	26	54	83	22	32	Bhatli-Bhargarh sector Kashipali/Amlipali	6	3	1	4	4.72
AMD/PHY/1851	Basic Rock								11	6	6	2	2.36
AMD/PHY/2399	Granite								11	14	3	2	2.36
AMD/PHY/2400	Granite								16	14	3	3	3.54
AMD/PHY/2450	Granite								17	12	3	4	4.72
AMD/PHY/2455	Granite								17	12	5	3	3.54
AMD/PHY/2404	Granite								17	18	2	3	3.54
AMD/PHY/2397	Granite								18	13	4	4	4.72
AMD/PHY/2461	Granite								19	19	3	3	3.54
AMD/PHY/2459	Granite								20	17	4	3	3.54
AMD/PHY/2403	Granite								21	23	5	3	3.54
AMD/PHY/2453	Granite								22	30	4	2	2.36
AMD/PHY/2460	Granite								23	16	8	4	4.72
AMD/PHY/2406	Granite								25	22	6	4	4.72
AMD/PHY/2462	Granite								25	23	4	4	4.72
AMD/PHY/2402	Granite							Karsingha to Kundathai	26	27	6	4	4.72
AMD/PHY/2451	Granite								28	33	5	4	4.72
AMD/PHY/2405	Granite								30	25	12	3	3.54
AMD/PHY/2456	Granite								32	26	11	4	4.72
AMD/PHY/2449	Granite								33	34	6	5	5.9
AMD/PHY/2458	Granite								33	28	11	4	4.72
AMD/PHY/2448	Granite								36	37	6	5	5.9
AMD/PHY/2457	Granite								37	34	8	5	5.9
AMD/PHY/2447	Granite								40	49	7	4	4.72
AMD/PHY/2452	Granite								40	30	16	4	4.72
AMD/PHY/2398	Granite								49	71	8	4	4.72
AMD/PHY/2446	Granite								52	71	7	4	4.72
AMD/PHY/2401	Granite								56	72	13	4	4.72
AMD/PHY/2454	Granite								65	98	7	5	5.9
AMD/PHY/432	Granite	21	28	30	83	21	30	Jaipur	12	9	4	2	2.36
AMD/PHY/1540	Granite	21	12	0	83	16	30	Purimunda	12	6	2	3	3.54

Table 1. (Continued)

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
AMD/PHY/1547	Granite	21	21	0	83	21	30	Chakbahal	15	15	4	1	1.18
AMD/PHY/9725	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	16	19	4	4	4.72
AMD/PHY/9732	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	16	20	3	4	4.72
AMD/PHY/1560	Granite	21	2	0	83	14	30	Sarnapali	17	16	3	3	3.54
AMD/PHY/9726	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	17	23	2	4	4.72
AMD/PHY/438	Granite	21	27	0	83	24	0	Jhikjhili	18	12	5	2	2.36
AMD/PHY/1549	Granite	21	19	0	83	21	0	Birhipali	18	19	4	3	3.54
AMD/PHY/435	Granite	21	20	0	83	25	50	Makrumunda	19	32	4	1	1.18
AMD/PHY/1548	Granite	21	20	30	83	23	0	Grinjal	19	20	5	2	2.36
AMD/PHY/1554	Granite	21	3	0	83	16	30	Kermali	19	18	4	3	3.54
AMD/PHY/1558	Granite	21	11	0	83	15	30	Katapali	19	19	3	3	3.54
AMD/PHY/297	Granite	21	26	0	83	29	15	Hatisar	20	15	7	2	2.36
AMD/PHY/1536	Granite	21	13	0	83	18	0	Jhankerpali	20	17	6	3	3.54
AMD/PHY/1545	Granite	21	18	0	83	21	0	Madhupur	20	17	4	3	3.54
AMD/PHY/1561	Granite	21	4	0	83	13	0	Diptipur	20	15	4	4	4.72
AMD/PHY/1531	Sheared Basic	21	18	30	83	25	0	Badipali	20	3	9	4	4.72
AMD/PHY/1538	Granite	21	13	0	83	25	0	Tumbimunda	21	18	4	4	4.72
AMD/PHY/9724	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	21	26	6	4	4.72
AMD/PHY/906	QFB/Granite	21	26	30	83	22	45	Kashipalli	21	11	6	4	4.72
AMD/PHY/952	QFB/Granite	21	26	20	83	22	45	Kashipalli	21	11	9	3	3.54
AMD/PHY/1544	Granite	21	9	30	83	19	10	Nuapani	22	23	4	3	3.54
AMD/PHY/980	QFB/Granite	21	26	30	83	22	45	Kashipalli	22	10	5	4	4.72
AMD/PHY/436	Granite	21	24	50	83	23	5	Ghoghara	23	15	7	4	4.72
AMD/PHY/1537	Granite	21	14	30	83	21	0	Churiapali	23	19	7	3	3.54
AMD/PHY/1539	Granite	21	14	0	83	16	0	Sargunapali	23	21	3	4	4.72
AMD/PHY/1546	Granite	21	11	0	83	22	0	Talpadar	23	21	8	3	3.54
AMD/PHY/1552	Granite	21	8	0	83	19	30	Balipatta	23	23	4	3	3.54
AMD/PHY/985	QFB/Granite	21	26	30	83	22	45	Kashipalli	23	13	7	4	4.72
AMD/PHY/437	Granite	21	24	50	83	23	5	Ghoghara	24	21	7	3	3.54
AMD/PHY/1535	Granite	21	13	0	83	19	0	Petupali	24	24	1	4	4.72
AMD/PHY/298	Granite	21	24	25	83	24	40	Bichua	25	16	10	4	4.72
AMD/PHY/1541	Granite	21	17	30	83	10	0	Kurapali	25	21	5	4	4.72
AMD/PHY/918	QFB/Granite	21	26	20	83	22	45	Kashipalli	25	16	13	2	2.36
AMD/PHY/963	QFB/Granite	21	26	20	83	22	45	Kashipalli	25	14	12	2	2.36
AMD/PHY/526	Granite	21	26	30	83	22	45	Kashipalli	26	20	9	4	4.72

Table 1. (Continued)

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
AMD/PHY/1550	Granite	21	7	0	83	17	30	Bandanbahal	26	25	5	4	4.72
AMD/PHY/907	QFB/Granite	21	26	30	83	22	45	Kashipalli	26	12	13	3	3.54
AMD/PHY/300	Granite	21	27	0	83	22	0	Jharamuria	27	21	8	4	4.72
AMD/PHY/567	Granite	21	28	55	83	23	55	Jaipur	27	25	11	2	2.36
AMD/PHY/1559	Granite	21	18	30	83	25	0	Sohela	27	27	7	4	4.72
AMD/PHY/953	QFB/Granite	21	26	20	83	22	45	Kashipalli	27	12	13	4	4.72
AMD/PHY/569	Granite	21	28	55	83	23	55	Jaipur	28	27	13	2	2.36
AMD/PHY/1551	Granite	21	6	0	83	17	30	Pandripani	28	21	7	4	4.72
AMD/PHY/1829	Granite	21	27	35	83	23	10	Kashipali/Amlipali	28	30	7	3	3.54
AMD/PHY/9730	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	28	42	7	3	3.54
AMD/PHY/974	QFB/Granite	21	26	20	83	22	45	Kashipalli	28	9	17	4	4.72
AMD/PHY/419	Granite	21°29'36" - 83°27'15" -			83°27'15" -			Kashipalli	29	30	6	4	4.72
AMD/PHY/417	Granite	21°30'30"			83°27'45"			Jaramunda	34	37	11	4	4.72
AMD/PHY/418	Granite	21	18	0	83	20	30	Jharmunda	50	49	8	8	9.44
AMD/PHY/1542	Granite	21	26	30	83	22	45	Kashipalli	29	32	5	4	4.72
AMD/PHY/897	QFB/Granite	21	26	30	83	22	45	Kashipalli	29	21	10	4	4.72
AMD/PHY/917	QFB/Granite	21	26	30	83	22	45	Kashipalli	30	13	18	2	2.36
AMD/PHY/972	QFB/Granite	21	26	20	83	22	45	Kashipalli	30	12	17	4	4.72
AMD/PHY/951	QFB/Granite	21	26	20	83	22	45	Kashipalli	31	9	19	3	3.54
AMD/PHY/964	QFB/Granite	21	26	20	83	22	45	Kashipalli	31	6	24	2	2.36
AMD/PHY/299	Granite	21	23	45	83	24	30	Daapali	32	21	13	4	4.72
AMD/PHY/434	Granite	21	29	30	83	28	0	Pandatari	32	44	4	4	4.72
AMD/PHY/1859	Granite	21	28	10	83	23	10	Kashipali/Amlipali	32	22	11	5	5.9
AMD/PHY/973	QFB/Granite	21	26	20	83	22	45	Kashipalli	32	10	18	4	4.72
AMD/PHY/301	Granite	21	29	50	83	29	0	Kalendapali	34	37	8	4	4.72
AMD/PHY/1543	Granite	21	13	30	83	23	0	Tandol	34	30	7	5	5.9
AMD/PHY/896	QFB/Granite	21	26	20	83	22	45	Kashipalli	36	13	20	4	4.72
AMD/PHY/9728	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	37	70	3	4	4.72
AMD/PHY/1533	Sheared Basic	21	15	0	83	19	45	Bindhanpali	37	6	26	2	2.36
AMD/PHY/1562	Granite	21	2	0	83	15	30	Malmunda	38	40	7	5	5.9
AMD/PHY/981	QFB/Granite	21	26	30	83	22	45	Kashipalli	38	5	29	3	3.54
AMD/PHY/9734	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	39	51	11	7	8.26
AMD/PHY/850	QFB/Granite	21	26	20	83	22	45	Kashipalli	39	11	31	2	2.36
AMD/PHY/1858	Granite	21	28	10	83	23	10	Kashipali/Amlipali	40	26	18	4	4.72

Table 1. (Continued)

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
AMD/PHY/960	QFB/Granite	21	26	20	83	22	45	Kashipalli	41	7	29	4	4.72
AMD/PHY/524	Granite	21	26	30	83	22	45	Kashipalli	42	17	28	3	3.54
AMD/PHY/962	QFB/Granite	21	26	20	83	22	45	Kashipalli	42	11	26	5	5.9
AMD/PHY/1517	Granite Cataclasite	21	13	30	83	19	30	Chhuriapali	45	33	14	7	8.26
AMD/PHY/921	QFB/Granite	21	26	20	83	22	45	Kashipalli	45	12	27	5	5.9
AMD/PHY/961	QFB/Granite	21	26	20	83	22	45	Kashipalli	45	14	28	4	4.72
AMD/PHY/1376	Granite	21	2	0	83	16	0	Malmunda	46	53	7	6	7.08
AMD/PHY/919	QFB/Granite	21	26	20	83	22	45	Kashipalli	46	10	30	3	3.54
AMD/PHY/922	QFB/Granite	21	26	20	83	22	45	Kashipalli	46	10	30	5	5.9
AMD/PHY/905	QFB/Granite	21	26	30	83	22	45	Kashipalli	47	14	32	4	4.72
AMD/PHY/9729	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	48	85	4	6	7.08
AMD/PHY/920	QFB/Granite	21	26	20	83	22	45	Kashipalli	48	10	31	5	5.9
AMD/PHY/871	QFB/Granite	21	26	20	83	22	45	Kashipalli	49	14	30	5	5.9
AMD/PHY/892	QFB/Granite	21	26	20	83	22	45	Kashipalli	52	17	41	4	4.72
AMD/PHY/982	QFB/Granite	21	26	30	83	22	45	Kashipalli	52	9	42	3	3.54
AMD/PHY/1553	Granite	21	4	0	83	18	0	Kundakhai	53	79	4	5	5.9
AMD/PHY/9733	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	53	58	25	5	5.9
AMD/PHY/950	QFB/Granite	21	26	20	83	22	45	Kashipalli	60	15	48	2	2.36
AMD/PHY/1516	Granite Cataclasite	21	13	30	83	19	30	Chhuriapali	62	42	33	5	5.9
AMD/PHY/9722	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	62	102	7	5	5.9
AMD/PHY/895	QFB/Granite	21	26	20	83	22	45	Kashipalli	62	8	46	5	5.9
AMD/PHY/923	QFB/Granite	21	26	20	83	22	45	Kashipalli	63	12	44	6	7.08
AMD/PHY/949	QFB/Granite	21	26	20	83	22	45	Kashipalli	63	9	57	2	2.36
AMD/PHY/9727	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	64	111	6	6	7.08
AMD/PHY/881	QFB/Granite	21	26	20	83	22	45	Kashipalli	64	18	46	6	7.08
AMD/PHY/893	QFB/Granite	21	26	20	83	22	45	Kashipalli	65	12	49	4	4.72
AMD/PHY/887	QFB/Granite	21	26	20	83	22	45	Kashipalli	66	14	48	5	5.9
AMD/PHY/904	QFB/Granite	21	26	30	83	22	45	Kashipalli	66	8	54	4	4.72
AMD/PHY/284	Brecciated Granite	21	25	0	83	23	10	Ghoghara	68	20	43	7	8.26
AMD/PHY/884	QFB/Granite	21	26	20	83	22	45	Kashipalli	69	13	50	6	7.08
AMD/PHY/894	QFB/Granite	21	26	20	83	22	45	Kashipalli	70	11	57	4	4.72
AMD/PHY/2096	QFB/Granite	21	3	0	83	12	0	W of Padampur	70	7	52	6	7.08
AMD/PHY/872	QFB/Granite	21	26	20	83	22	45	Kashipalli	71	13	58	4	4.72
AMD/PHY/1372	Granite	21	2	0	83	16	0	Malmunda	72	90	16	5	5.9
AMD/PHY/931	QFB/Granite	21	26	30	83	22	45	Kashipalli	73	13	50	6	7.08

Table 1. (Continued)

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
AMD/PHY/873	QFB/Granite	21	26	20	83	22	45	Kashipalli	76	14	66	3	3.54
AMD/PHY/886	QFB/Granite	21	26	20	83	22	45	Kashipalli	77	9	58	5	5.9
AMD/PHY/983	QFB/Granite	21	26	30	83	22	45	Kashipalli	78	6	74	2	2.36
AMD/PHY/522	Granite	21	26	30	83	22	45	Kashipalli	79	12	65	3	3.54
AMD/PHY/965	QFB/Granite	21	26	20	83	22	45	Kashipalli	80	3	71	3	3.54
AMD/PHY/909	QFB/Granite	21	26	30	83	22	45	Kashipalli	82	3	79	3	3.54
AMD/PHY/891	QFB/Granite	21	26	20	83	22	45	Kashipalli	83	11	67	5	5.9
AMD/PHY/901	QFB/Granite	21	26	30	83	22	45	Kashipalli	83	12	65	5	5.9
AMD/PHY/890	QFB/Granite	21	26	20	83	22	45	Kashipalli	84	9	69	4	4.72
AMD/PHY/928	QFB/Granite	21	26	30	83	22	45	Kashipalli	84	9	70	4	4.72
AMD/PHY/885	QFB/Granite	21	26	20	83	22	45	Kashipalli	86	11	73	4	4.72
AMD/PHY/889	QFB/Granite	21	26	20	83	22	45	Kashipalli	88	14	71	5	5.9
AMD/PHY/882	QFB/Granite	21	26	20	83	22	45	Kashipalli	89	12	69	6	7.08
AMD/PHY/883	QFB/Granite	21	26	20	83	22	45	Kashipalli	89	16	65	6	7.08
AMD/PHY/9721	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	90	180	< 5	0.2	0.236
AMD/PHY/888	QFB/Granite	21	26	20	83	22	45	Kashipalli	91	15	73	6	7.08
AMD/PHY/485	Granite	21	26	30	83	22	45	Kashipalli	92	10	82	2	2.36
AMD/PHY/878	QFB/Granite	21	26	20	83	22	45	Kashipalli	92	17	76	5	5.9
AMD/PHY/929	QFB/Granite	21	26	30	83	22	45	Kashipalli	94	13	77	5	5.9
Quartzo Feldspathic Breccia (QFB) type													
AMD/PHY/1532	QFB	21	18	30	83	25	0	Badipali	14	7	3	3	3.54
AMD/PHY/409	QFB	21°29'36" - 21°29'36"			83°27'15" - 83°27'15"			Jaramunda	15	4	11	1	1.18
AMD/PHY/411	QFB	21°30'30"			83°27'45"				31	4	22	3	3.54
AMD/PHY/408	QFB								68	2	50	8	9.44
AMD/PHY/1732	QFB	21	15	0	83	19	45	Bindhanpali	15	10	5	2	2.36
AMD/PHY/818	QFB/Breccia	21	28	0	83	23	30	Kashipalli	16	4	8	2	2.36
AMD/PHY/821	QFB/Breccia	21	28	0	83	23	30	Kashipalli	18	19	9	1	1.18
AMD/PHY/822	QFB/Breccia	21	28	0	83	23	30	Kashipalli	18	12	9	1	1.18
AMD/PHY/817	QFB/Breccia	21	28	0	83	23	30	Kashipalli	23	17	13	2	2.36
AMD/PHY/826	QFB/Breccia	21	28	0	83	23	30	Kashipalli	23	14	13	2	2.36
AMD/PHY/1668	QFB	21	20	0	83	27	0	Makrumunda	26	5	13	4	4.72
AMD/PHY/825	QFB/Breccia	21	28	0	83	23	30	Kashipalli	26	8	15	3	3.54
AMD/PHY/831	QFB/Breccia	21	28	0	83	23	30	Kashipalli	26	14	9	3	3.54
AMD/PHY/1425	QFB	21	14	30	83	19	30	Dumarpali	27	22	6	4	4.72

Table 1. (Continued)

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
		deg	min	sec	deg	min	sec						
AMD/PHY/1527	QFB	21	18	30	83	25	0	Badipali	27	8	5	7	8.26
AMD/PHY/1801	QFB	21	29	31	83	27	1	Pandaritarai west	27	5	6	8	9.44
AMD/PHY/2297	QFB	21	14	15	83	19	45	Chhuriapali	27	8	19	2	2.36
AMD/PHY/1812	QFB	21	29	31	83	27	1	Pandaritarai west	29	6	12	6	7.08
AMD/PHY/1741	Br. Granite/QFB	21	29	0	83	25	52	Makrumunda	30	10	10	7	8.26
AMD/PHY/816	QFB/Breccia	21	28	0	83	23	30	Kashipalli	30	18	14	4	4.72
AMD/PHY/1742	Br. Granite/QFB	21	29	0	83	25	52	Makrumunda	32	16	9	7	8.26
AMD/PHY/1428	QFB	21	14	30	83	19	30	Dumarpali	32	4	15	6	7.08
AMD/PHY/1808	QFB	21	29	31	83	27	1	Pandaritarai west	32	3	12	7	8.26
AMD/PHY/820	QFB/Breccia	21	28	0	83	23	30	Kashipalli	32	14	20	3	3.54
AMD/PHY/846	QFB/Breccia	21	28	0	83	23	30	Kashipalli	32	5	25	1	1.18
AMD/PHY/806	QFB/Breccia	21	28	0	83	23	30	Kashipalli	33	9	23	3	3.54
AMD/PHY/1772	QFB	21	27	30	83	25	45	Makrumunda west	35	5	26	3	3.54
AMD/PHY/807	QFB/Breccia	21	28	0	83	23	30	Kashipalli	35	12	22	3	3.54
AMD/PHY/1787	QFB	21	29	31	83	27	1	Pandaritarai west	36	4	16	7	8.26
AMD/PHY/1797	QFB	21	29	31	83	27	1	Pandaritarai west	36	31	8	5	5.9
AMD/PHY/1796	QFB	21	29	31	83	27	1	Pandaritarai west	37	34	9	5	5.9
AMD/PHY/1748	Br. Granite/QFB	21	29	0	83	25	52	Makrumunda	38	18	14	6	7.08
AMD/PHY/823	QFB/Breccia	21	28	0	83	23	30	Kashipalli	38	12	25	3	3.54
AMD/PHY/554	QFB	21	28	55	83	23	55	Jaipur	39	16	26	2	2.36
AMD/PHY/844	QFB/Breccia	21	28	0	83	23	30	Kashipalli	39	7	28	3	3.54
AMD/PHY/849	QFB/Breccia	21	28	0	83	23	30	Kashipalli	39	7	31	2	2.36
AMD/PHY/1771	QFB	21	27	30	83	25	45	Makrumunda west	40	31	11	5	5.9
AMD/PHY/1749	Br. Granite/QFB	21	29	0	83	25	52	Makrumunda	41	12	19	7	8.26
AMD/PHY/549	QFB	21	28	55	83	23	55	Jaipur	41	2	32	3	3.54
AMD/PHY/1521	QFB	21	18	0	83	17	15	Loharchatti	41	10	26	5	5.9
AMD/PHY/1528	QFB	21	18	30	83	25	0	Badipali	41	6	26	5	5.9
AMD/PHY/2296	QFB	21	14	15	83	19	45	Chhuriapali	41	11	29	4	4.72
AMD/PHY/2305	QFB	21	18	30	83	21	30	Dhumarpali	41	11	25	4	4.72
AMD/PHY/810	QFB/Breccia	21	28	0	83	23	30	Kashipalli	42	8	30	3	3.54
AMD/PHY/421	QFB	21	28	30	83	25	45	Makrumunda	43	5	25	6	7.08
AMD/PHY/834	QFB/Breccia	21	28	0	83	23	30	Kashipalli	44	7	33	3	3.54
AMD/PHY/840	QFB/Breccia	21	28	0	83	23	30	Kashipalli	44	8	32	4	4.72
AMD/PHY/1744	Br. Granite/QFB	21	29	0	83	25	52	Makrumunda	45	17	19	7	8.26
AMD/PHY/1722	QFB	21	14	30	83	19	30	Dumarpali	45	4	33	4	4.72

Table 1. (Continued)

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
		deg	min	sec	deg	min	sec						
AMD/PHY/801	QFB/Breccia	21	28	0	83	23	30	Kashipalli	45	14	31	3	3.54
AMD/PHY/812	QFB/Breccia	21	28	0	83	23	30	Kashipalli	45	12	29	4	4.72
AMD/PHY/1434	QFB	21	14	30	83	19	30	Dumarpali	47	7	25	8	9.44
AMD/PHY/800	QFB/Breccia	21	28	0	83	23	30	Kashipalli	47	9	36	2	2.36
AMD/PHY/804	QFB/Breccia	21	28	0	83	23	30	Kashipalli	47	11	33	3	3.54
AMD/PHY/2308	QFB	21	18	30	83	21	30	Dhumarpali	48	6	38	3	3.54
AMD/PHY/517	QFB	21	26	30	83	22	45	Kashipalli	49	10	39	2	2.36
AMD/PHY/2307	QFB	21	18	30	83	21	30	Dhumarpali	49	5	39	4	4.72
AMD/PHY/1429	QFB	21	14	30	83	19	30	Dumarpali	50	3	34	6	7.08
AMD/PHY/803	QFB/Breccia	21	28	0	83	23	30	Kashipalli	50	19	34	3	3.54
AMD/PHY/832	QFB/Breccia	21	28	0	83	23	30	Kashipalli	50	5	42	3	3.54
AMD/PHY/1530	QFB	21	18	30	83	25	0	Badipali	51	2	34	5	5.9
AMD/PHY/1807	QFB	21	29	31	83	27	1	Pandaritarai west	51	4	29	8	9.44
AMD/PHY/798	QFB/Breccia	21	28	0	83	23	30	Kashipalli	52	11	39	3	3.54
AMD/PHY/516	QFB	21	26	30	83	22	45	Kashipalli	53	14	44	2	2.36
AMD/PHY/548	QFB	21	28	55	83	23	55	Jaipur	54	10	43	2	2.36
AMD/PHY/557	QFB	21	28	55	83	23	55	Jaipur	54	23	39	3	3.54
AMD/PHY/564	QFB	21	28	55	83	23	55	Jaipur	55	20	43	2	2.36
AMD/PHY/1779	QFB	21	27	30	83	25	45	Makrumunda west	55	26	33	4	4.72
AMD/PHY/1745	Br. Granite/QFB	21	29	0	83	25	52	Makrumunda	56	46	19	7	8.26
AMD/PHY/558	QFB	21	28	55	83	23	55	Jaipur	57	5	50	2	2.36
AMD/PHY/841	QFB/Breccia	21	28	0	83	23	30	Kashipalli	57	7	47	2	2.36
AMD/PHY/1436	QFB	21	14	30	83	19	30	Dumarpali	58	2	44	5	5.9
AMD/PHY/2301	QFB	21	18	30	83	21	30	Dhumarpali	59	3	52	3	3.54
AMD/PHY/1743	Br. Granite/QFB	21	29	0	83	25	52	Makrumunda	61	25	36	5	5.9
AMD/PHY/1782	QFB	21	27	30	83	25	45	Makrumunda west	61	17	46	4	4.72
AMD/PHY/835	QFB/Breccia	21	28	0	83	23	30	Kashipalli	65	10	53	3	3.54
AMD/PHY/1437	QFB	21	14	30	83	19	30	Dumarpali	67	3	44	8	9.44
AMD/PHY/1721	QFB	21	14	30	83	19	30	Dumarpali	68	10	57	3	3.54
AMD/PHY/1433	QFB	21	14	30	83	19	30	Dumarpali	69	6	46	8	9.44
AMD/PHY/1720	QFB	21	14	30	83	19	30	Dumarpali	69	8	61	3	3.54
AMD/PHY/1723	QFB	21	14	30	83	19	30	Dumarpali	69	10	59	3	3.54
AMD/PHY/797	QFB/Breccia	21	28	0	83	23	30	Kashipalli	69	10	57	3	3.54
AMD/PHY/402	QFB	21	26	25	83	22	40	Kashipali	70	7	67	1	1.18
AMD/PHY/1750	Br. Granite/QFB	21	29	0	83	25	52	Makrumunda	71	12	50	7	8.26

Table 1. (Continued)

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
AMD/PHY/1786	QFB	21	29	31	83	27	1	Pandaritarai west	71	9	52	6	7.08
AMD/PHY/813	QFB/Breccia	21	28	0	83	23	30	Kashipalli	71	14	57	4	4.72
AMD/PHY/829	QFB/Breccia	21	28	0	83	23	30	Kashipalli	71	10	57	3	3.54
AMD/PHY/1781	QFB	21	27	30	83	25	45	Makrumunda west	72	31	46	5	5.9
AMD/PHY/1439	QFB	21	14	30	83	19	30	Dumarpali	74	2	64	4	4.72
AMD/PHY/837	QFB/Breccia	21	28	0	83	23	30	Kashipalli	75	10	63	3	3.54
AMD/PHY/568	QFB	21	28	55	83	23	55	Jaipur	76	1	68	3	3.54
AMD/PHY/515	QFB	21	26	30	83	22	45	Kashipalli	79	8	66	2	2.36
AMD/PHY/555	QFB	21	28	55	83	23	55	Jaipur	80	3	74	2	2.36
AMD/PHY/1780	QFB	21	27	30	83	25	45	Makrumunda west	81	33	54	5	5.9
AMD/PHY/1803	QFB	21	29	31	83	27	1	Pandaritarai west	81	12	68	3	3.54
AMD/PHY/838	QFB/Breccia	21	28	0	83	23	30	Kashipalli	81	6	69	3	3.54
AMD/PHY/551	QFB	21	28	55	83	23	55	Jaipur	83	19	67	3	3.54
AMD/PHY/1426	QFB	21	14	30	83	19	30	Dumarpali	83	10	58	—	—
AMD/PHY/499	QFB	21	26	30	83	22	45	Kashipalli	85	7	80	1	1.18
AMD/PHY/504	QFB	21	26	30	83	22	45	Kashipalli	85	10	78	2	2.36
AMD/PHY/1773	QFB	21	27	30	83	25	45	Makrumunda west	86	5	78	3	3.54
AMD/PHY/1788	QFB	21	29	31	83	27	1	Pandaritarai west	86	5	65	8	9.44
AMD/PHY/1746	Br. Granite/QFB	21	29	0	83	25	52	Makrumunda	87	6	81	2	2.36
AMD/PHY/1522	QFB	21	22	0	83	18	45	Neginunda North	87	3	59	6	7.08
AMD/PHY/1783	QFB	21	29	31	83	27	1	Pandaritarai west	87	7	64	8	9.44
AMD/PHY/2295	QFB	21	14	15	83	19	45	Chhuriapali	87	5	73	3	3.54
AMD/PHY/503	QFB	21	26	30	83	22	45	Kashipalli	88	6	79	2	2.36
AMD/PHY/1719	QFB	21	14	30	83	19	30	Dumarpali	89	11	79	3	3.54
AMD/PHY/290	QFB	21	23	52	83	24	43	Damapali	90	5	86	2	2.36
AMD/PHY/1427	QFB	21	14	30	83	19	30	Dumarpali	90	10	64	—	—
AMD/PHY/843	QFB/Breccia	21	28	0	83	23	30	Kashipalli	93	6	86	2	2.36
AMD/PHY/795	QFB/Breccia	21	28	0	83	23	30	Kashipalli	94	14	85	2	2.36
AMD/PHY/396	QFB	21	26	45	83	22	47	Kashipali	95	9	81	3	3.54
AMD/PHY/1785	QFB	21	29	31	83	27	1	Pandaritarai west	95	15	75	5	5.9
AMD/PHY/2309	QFB	21	18	30	83	21	30	Dhumarpali	95	5	85	3	3.54
AMD/PHY/1845	QFB	21	28	55	83	44	47	Kashipali/Amlipali	96	1	94	2	2.36
AMD/PHY/365	QFB	21	28	30	83	25	45	Makrumunda	99	2	87	5	5.9
Mylonite type													
AMD/PHY/1684	Mylonite/QFB	21	22	30	83	18	20	Neginunda	11	4	9	1	1.18

Table 1. (Continued)

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
AMD/PHY/1370	Mylonite	21	21	0	83	18	0	Kodupali-Negimunda	13	6	5	2	2.36
AMD/PHY/1685	Mylonite/QFB	21	22	30	83	18	20	Negimunda	16	6	7	3	3.54
AMD/PHY/1678	Mylonite/QFB	21	22	30	83	18	20	Negimunda	19	8	10	2	2.36
AMD/PHY/1679	Mylonite/QFB	21	22	30	83	18	20	Negimunda	26	11	11	3	3.54
AMD/PHY/1682	Mylonite/QFB	21	22	30	83	18	20	Negimunda	27	3	20	1	1.18
AMD/PHY/1704	Mylonite/QFB	21	22	30	83	18	20	Negimunda	29	13	15	3	3.54
AMD/PHY/1699	Mylonite/QFB	21	22	30	83	18	20	Negimunda	31	10	19	3	3.54
AMD/PHY/1696	Mylonite/QFB	21	22	30	83	18	20	Negimunda	33	13	17	4	4.72
AMD/PHY/1698	Mylonite/QFB	21	22	30	83	18	20	Negimunda	33	12	20	3	3.54
AMD/PHY/1688	Mylonite/QFB	21	22	30	83	18	20	Negimunda	35	12	20	4	4.72
AMD/PHY/1689	Mylonite/QFB	21	22	30	83	18	20	Negimunda	36	11	23	3	3.54
AMD/PHY/1223	Mylonite	21	21	30	83	18	20	Negimunda	38	13	24	4	4.72
AMD/PHY/1690	Mylonite/QFB	21	22	30	83	18	20	Negimunda	38	9	29	2	2.36
AMD/PHY/1697	Mylonite/QFB	21	22	30	83	18	20	Negimunda	38	10	24	3	3.54
AMD/PHY/1681	Mylonite/QFB	21	22	30	83	18	20	Negimunda	42	6	30	3	3.54
AMD/PHY/1753	Mylonite/QFB	21	29	0	83	25	52	Makrumunda	42	8	31	3	3.54
AMD/PHY/1769	Mylonite/QFB	21	29	0	83	25	52	Makrumunda	42	31	17	4	4.72
AMD/PHY/1770	Mylonite/QFB	21	29	0	83	25	52	Makrumunda	45	35	19	4	4.72
AMD/PHY/1707	Mylonite/QFB	21	22	30	83	18	20	Negimunda	47	14	31	4	4.72
AMD/PHY/1751	Mylonite/QFB	21	29	0	83	25	52	Makrumunda	47	10	29	5	5.9
AMD/PHY/1752	Mylonite/QFB	21	29	0	83	25	52	Makrumunda	48	12	36	2	2.36
AMD/PHY/1768	Mylonite/QFB	21	29	0	83	25	52	Makrumunda	48	35	19	5	5.9
AMD/PHY/1702	Mylonite/QFB	21	22	30	83	18	20	Negimunda	53	11	40	3	3.54
AMD/PHY/1687	Mylonite/QFB	21	22	30	83	18	20	Negimunda	62	8	51	3	3.54
AMD/PHY/1693	Mylonite/QFB	21	22	30	83	18	20	Negimunda	74	12	58	4	4.72
AMD/PHY/1713	Mylonite/QFB	21	22	30	83	18	20	Negimunda	74	15	61	3	3.54
AMD/PHY/1371	Mylonite	21	21	0	83	18	0	Kodupali-Negimunda	79	13	64	4	4.72
AMD/PHY/1715	Mylonite/QFB	21	22	30	83	18	20	Negimunda	80	13	67	3	3.54
AMD/PHY/1754	Mylonite/QFB	21	29	0	83	25	52	Makrumunda	84	11	70	3	3.54
AMD/PHY/1714	Mylonite/QFB	21	22	30	83	18	20	Negimunda	89	14	76	3	3.54
AMD/PHY/1706	Mylonite/QFB	21	22	30	83	18	20	Negimunda	90	7	81	3	3.54
AMD/PHY/1680	Mylonite/QFB	21	22	30	83	18	20	Negimunda	91	9	77	4	4.72
AMD/PHY/1709	Mylonite/QFB	21	22	30	83	18	20	Negimunda	92	14	80	2	2.36
AMD/PHY/1701	Mylonite/QFB	21	22	30	83	18	20	Negimunda	95	11	83	3	3.54

Table 1. (Continued)

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
Sandstone/sedimentary related													
AMD/PHY/1572	Sandstone	21	13	30	83	15	15	Jharai	8	3	2	2	2.36
AMD/PHY/1573	Sandstone	21	13	0	83	15	30	Sargorapali	8	1	1	3	3.54
AMD/PHY/1574	Sandstone	21	12	30	83	16	30	Sargorapali	8	2	<1	3	3.54
AMD/PHY/1580	Sandstone	21	5	0	83	13	0	Tal	9	7	1	2	2.36
AMD/PHY/1575	Sandstone	21	10	0	83	15	15	Kuchipali	10	4	2	3	3.54
AMD/PHY/1568	Sandstone	21	17	15	83	16	0	Chibra	12	4	3	3	3.54
AMD/PHY/1576	Sandstone	21	8	0	83	14	0	Jampali	12	7	<1	4	4.72
AMD/PHY/1579	Sandstone	21	5	15	83	13	45	Diptipur	14	5	2	4	4.72
AMD/PHY/1567	Pebbly sandstone	21	18	0	83	15	30	Rahaitikhol	24	23	4	4	4.72
AMD/PHY/442	Shale	21	29	5	83	25	52	Makrumunda	26	29	6	3	3.54
AMD/PHY/1861	Sandstone	21	28	15	83	23	10	Kashipali/Amlipali	28	24	6	4	4.72
AMD/PHY/1569	Sandstone	21	16	15	83	16	15	Kernali	29	24	9	4	4.72
AMD/PHY/1570	Sheared sandstone	21	16	0	83	17	15	Kalangapali	30	12	4	8	9.44
AMD/PHY/1440	Conglomerate	21	18	0	83	0	45	Chhibra	30	17	12	4	4.72
AMD/PHY/1577	Conglomerate	21	8	0	83	14	0	Jampali	32	38	5	4	4.72
AMD/PHY/1860	Sandstone	21	28	15	83	23	10	Kashipali/Amlipali	34	19	15	4	4.72
AMD/PHY/1571	Sheared sandstone	21	16	0	83	17	15	Kalangapali	39	33	5	8	9.44
AMD/PHY/1578	Sandstone	21	6	15	83	13	30	Kurlubahal	41	50	8	5	5.9
AMD/PHY/1581	Shale	21	5	0	83	13	0	Tal	44	41	6	8	9.44
AMD/PHY/563	Sst/Shale	21	28	55	83	23	55	Jaipur	49	16	37	3	3.54
AMD/PHY/1438	Sheared sandstone	21	13	30	83	15	15	Jharia	59	4	41	7	8.26
AMD/PHY/439	Conglomerate	21	29	0	83	26	0	Jaipur	60	63	17	5	5.9
AMD/PHY/566	Sst/Shale	21	28	55	83	23	55	Jaipur	79	32	58	3	3.54
AMD/PHY/444	Shale	21	29	5	83	25	52	Makrumunda	82	5	67	4	4.72

— = Latitude/longitude not available.
- = Poor precision.

Table 2. Radiometric data with locations for samples with $eU > 100\text{ ppm}$.

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	U ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
		deg	min	sec	deg	min	sec							
Granite and basic rock related data														
AMD/PHY/521	Granite	21	26	30	83	22	45	Kashipalli	100	80	11	87	3	3.54
AMD/PHY/1373	Granite	21	2	0	83	16	0	Malmunda	100	50 ^c	165	16	4	4.72
AMD/PHY/879	QFB/Granite	21	26	20	83	22	45	Kashipalli	100	100	15	86	5	5.9
AMD/PHY/908	QFB/Granite	21	26	30	83	22	45	Kashipalli	100	110	6	91	4	4.72
AMD/PHY/930	QFB/Granite	21	26	20	83	22	45	Kashipalli	100	110	10	84	5	5.9
AMD/PHY/932	QFB/Granite	21	26	20	83	22	45	Kashipalli	102	100	9	82	5	5.9
AMD/PHY/519	Granite	21	26	30	83	22	45	Kashipalli	110	90	14	102	3	3.54
AMD/PHY/874	QFB/Granite	21	26	20	83	22	45	Kashipalli	110	120	6	105	3	3.54
AMD/PHY/880	QFB/Granite	21	26	20	83	22	45	Kashipalli	110	110	13	91	5	5.9
AMD/PHY/518	Granite	21	26	30	83	22	45	Kashipalli	120	120	18	115	3	3.54
AMD/PHY/914	QFB/Granite	21	26	30	83	22	45	Kashipalli	120	130	19	108	4	4.72
AMD/PHY/520	Granite	21	26	30	83	22	45	Kashipalli	130	110	12	126	2	2.36
AMD/PHY/927	QFB/Granite	21	26	20	83	22	45	Kashipalli	130	150	11	111	4	4.72
AMD/PHY/971	QFB/Granite	21	26	20	83	22	45	Kashipalli	130	150	22	103	5	5.9
AMD/PHY/523	Granite	21	26	30	83	22	45	Kashipalli	140	90	10	137	3	3.54
AMD/PHY/525	Granite	21	26	30	83	22	45	Kashipalli	150	130	14	138	3	3.54
AMD/PHY/903	QFB/Granite	21	26	30	83	22	45	Kashipalli	160	180	15	142	5	5.9
AMD/PHY/9720	Granitic gneisses	—						Bhatli-Bhargarh sector	170	80	370	< 2	0.2	0.236
AMD/PHY/877	QFB/Granite	21	26	20	83	22	45	Kashipalli	170	170	11	159	5	5.9
AMD/PHY/925	QFB/Granite	21	26	20	83	22	45	Kashipalli	180	190	6	173	4	4.72
AMD/PHY/958	QFB/Granite	21	26	20	83	22	45	Kashipalli	180	200	3	173	3	3.54
AMD/PHY/870	QFB/Granite	21	26	20	83	22	45	Kashipalli	190	190	10	170	4	4.72
AMD/PHY/959	QFB/Granite	21	26	20	83	22	45	Kashipalli	190	230	3	180	4	4.72
AMD/PHY/1375	Granite	21	2	0	83	16	0	Malmunda	196	40 ^c	342	23	5	5.9
AMD/PHY/970	QFB/Granite	21	26	20	83	22	45	Kashipalli	210	220	27	169	5	5.9
AMD/PHY/487	Sheared Granite	21	26	30	83	22	45	Kashipalli	210	140	7	203	2	2.36
AMD/PHY/853	QFB/Granite	21	26	20	83	22	45	Kashipalli	218	140	6	204	4	4.72
AMD/PHY/900	QFB/Granite	21	26	30	83	22	45	Kashipalli	220	210	18	208	5	5.9
AMD/PHY/979	QFB/Granite	21	26	30	83	22	45	Kashipalli	220	240	4	216	2	2.36
AMD/PHY/916	QFB/Granite	21	26	30	83	22	45	Kashipalli	230	290	9	212	5	5.9
AMD/PHY/966	QFB/Granite	21	26	20	83	22	45	Kashipalli	230	220	24	185	—	—
AMD/PHY/1374	Granite	21	2	0	83	16	0	Malmunda	237	110	430	26	5	5.9

Table 2. (Continued)

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	U ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
AMD/PHY/984	QFB/Granite	21	26	30	83	22	45	Kashipalli	240	240	6	228	4	4.72
AMD/PHY/852	QFB/Granite	21	26	20	83	22	45	Kashipalli	246	210	10	231	3	3.54
AMD/PHY/926	QFB/Granite	21	26	20	83	22	45	Kashipalli	250	240	10	229	6	7.08
AMD/PHY/948	QFB/Granite	21	26	20	83	22	45	Kashipalli	250	250	13	229	3	3.54
AMD/PHY/967	QFB/Granite	21	26	20	83	22	45	Kashipalli	250	270	8	219	8	9.44
AMD/PHY/954	QFB/Granite	21	26	20	83	22	45	Kashipalli	260	270	17	235	4	4.72
AMD/PHY/957	QFB/Granite	21	26	20	83	22	45	Kashipalli	260	320	4	258	4	4.72
AMD/PHY/969	QFB/Granite	21	26	20	83	22	45	Kashipalli	270	330	14	254	4	4.72
AMD/PHY/851	QFB/Granite	21	26	20	83	22	45	Kashipalli	271	300	10	255	2	2.36
AMD/PHY/856	QFB/Granite	21	26	20	83	22	45	Kashipalli	276	290	10	254	5	5.9
AMD/PHY/867	QFB/Granite	21	26	20	83	22	45	Kashipalli	280	260	6	259	5	5.9
AMD/PHY/898	QFB/Granite	21	26	30	83	22	45	Kashipalli	280	280	16	266	4	4.72
AMD/PHY/910	QFB/Granite	21	26	30	83	22	45	Kashipalli	280	270	14	274	3	3.54
AMD/PHY/935	QFB/Granite	21	26	20	83	22	45	Kashipalli	280	290	5	269	4	4.72
AMD/PHY/940	QFB/Granite	21	26	20	83	22	45	Kashipalli	280	310	16	263	4	4.72
AMD/PHY/946	QFB/Granite	21	26	20	83	22	45	Kashipalli	280	280	14	264	3	3.54
AMD/PHY/868	QFB/Granite	21	26	30	83	22	45	Kashipalli	290	350	10	282	1	1.18
AMD/PHY/2097	QFB/Granite	21	3	0	83	12	0	W of Padampur	290	880	49	241	3	3.54
AMD/PHY/978	QFB/Granite	21	26	20	83	22	45	Kashipalli	290	320	15	279	5	5.9
AMD/PHY/875	QFB/Granite	21	26	20	83	22	45	Kashipalli	300	320	18	282	5	5.9
AMD/PHY/943	QFB/Granite	21	26	20	83	22	45	Kashipalli	300	290	11	280	4	4.72
AMD/PHY/915	QFB/Granite	21	26	30	83	22	45	Kashipalli	310	410	4	286	3	3.54
AMD/PHY/933	QFB/Granite	21	26	20	83	22	45	Kashipalli	310	330	4	292	4	4.72
AMD/PHY/924	QFB/Granite	21	26	20	83	22	45	Kashipalli	320	310	6	310	5	5.9
AMD/PHY/941	QFB/Granite	21	26	20	83	22	45	Kashipalli	320	330	35	270	4	4.72
AMD/PHY/956	QFB/Granite	21	26	20	83	22	45	Kashipalli	320	340	3	319	5	5.9
AMD/PHY/486	Sheared Granite	21	26	30	83	22	45	Kashipalli	320	310	1	306	2	2.36
AMD/PHY/862	QFB/Granite	21	26	20	83	22	45	Kashipalli	328	340	13	311	6	7.08
AMD/PHY/869	QFB/Granite	21	26	20	83	22	45	Kashipalli	330	340	4	322	4	4.72
AMD/PHY/944	QFB/Granite	21	26	20	83	22	45	Kashipalli	330	290	15	304	4	4.72
AMD/PHY/854	QFB/Granite	21	26	20	83	22	45	Kashipalli	338	400	12	317	2	2.36
AMD/PHY/2095	QFB/Granite	21	3	0	83	12	0	W of Padampur	340	550	1	347	2	2.36
AMD/PHY/913	QFB/Granite	21	26	30	83	22	45	Kashipalli	340	410	11	332	4	4.72
AMD/PHY/857	QFB/Granite	21	26	20	83	22	45	Kashipalli	342	350	2	328	4	4.72
AMD/PHY/855	QFB/Granite	21	26	20	83	22	45	Kashipalli	348	350	13	329	3	3.54

Table 2. (Continued)

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	U ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
AMD/PHY/9723	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	350	80	720	20	0.2	0.236
AMD/PHY/863	QFB/Granite	21	26	20	83	22	45	Kashipalli	351	360	11	341	4	4.72
AMD/PHY/936	QFB/Granite	21	26	20	83	22	45	Kashipalli	370	440	5	367	3	3.54
AMD/PHY/9737	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	390	50 ^c	720	60	0.2	0.236
AMD/PHY/934	QFB/Granite	21	26	20	83	22	45	Kashipalli	390	410	2	369	4	4.72
AMD/PHY/968	QFB/Granite	21	26	20	83	22	45	Kashipalli	390	480	1	374	8	9.44
AMD/PHY/976	QFB/Granite	21	26	30	83	22	45	Kashipalli	390	420	14	369	4	4.72
AMD/PHY/859	QFB/Granite	21	26	20	83	22	45	Kashipalli	399	410	28	368	6	7.08
AMD/PHY/899	QFB/Granite	21	26	30	83	22	45	Kashipalli	400	490	13	375	4	4.72
AMD/PHY/939	QFB/Granite	21	26	20	83	22	45	Kashipalli	400	390	13	389	5	5.9
AMD/PHY/860	QFB/Granite	21	26	20	83	22	45	Kashipalli	417	440	1	410	5	5.9
AMD/PHY/876	QFB/Granite	21	26	20	83	22	45	Kashipalli	420	450	11	401	4	4.72
AMD/PHY/938	QFB/Granite	21	26	20	83	22	45	Kashipalli	420	460	12	403	5	5.9
AMD/PHY/955	QFB/Granite	21	26	20	83	22	45	Kashipalli	420	450	30	376	6	7.08
AMD/PHY/902	QFB/Granite	21	26	30	83	22	45	Kashipalli	430	530	6	418	3	3.54
AMD/PHY/975	QFB/Granite	21	26	30	83	22	45	Kashipalli	430	470	2	428	2	2.36
AMD/PHY/911	QFB/Granite	21	26	30	83	22	45	Kashipalli	440	440	1	437	2	2.36
AMD/PHY/945	QFB/Granite	21	26	20	83	22	45	Kashipalli	440	500	17	405	5	5.9
AMD/PHY/947	QFB/Granite	21	26	20	83	22	45	Kashipalli	454	530	1	458	1	1.18
AMD/PHY/942	QFB/Granite	21	26	20	83	22	45	Kashipalli	470	480	6	453	2	2.36
AMD/PHY/864	QFB/Granite	21	26	20	83	22	45	Kashipalli	480	440	19	459	6	7.08
AMD/PHY/865	QFB/Granite	21	26	20	83	22	45	Kashipalli	507	470	13	488	5	5.9
AMD/PHY/858	QFB/Granite	21	26	20	83	22	45	Kashipalli	509	520	13	501	5	5.9
AMD/PHY/2094	QFB/Granite	21	3	0	83	12	0	W of Padampur	530	810	4	527	1	1.18
AMD/PHY/937	QFB/Granite	21	26	20	83	22	45	Kashipalli	530	600	18	500	5	5.9
AMD/PHY/861	QFB/Granite	21	26	20	83	22	45	Kashipalli	532	610	21	508	5	5.9
AMD/PHY/1834	Sheared Granite	21	26	54	83	22	0	Kashipali/Amlipali	540	850	5	534	4	4.72
AMD/PHY/866	QFB/Granite	21	26	20	83	22	45	Kashipalli	553	550	2	545	5	5.9
AMD/PHY/977	QFB/Granite	21	26	30	83	22	45	Kashipalli	570	600	2	564	4	4.72
AMD/PHY/1838	Granite	21	28	10	83	23	15	Kashipali/Amlipali	590	600	11	586	4	4.72
AMD/PHY/9735	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	640	40 ^c	1400	< 5	0.2	0.236
AMD/PHY/9738	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	710	60 ^c	1450	50	0.2	0.236
AMD/PHY/912	QFB/Granite	21	26	30	83	22	45	Kashipalli	710	730	15	702	3	3.54
AMD/PHY/9736	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	950	90	2000	40	—	—

Table 2. (Continued)

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	U ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
AMD/PHY/281	Sheared Basic	21	24	55	83	23	16	Ghoghara	956	860	12	962	—	—
AMD/PHY/282	Sheared Basic	21	24	55	83	23	16	Ghoghara	1100	920	1	1100	3	3.54
AMD/PHY/1836	Sheared Granite	21	26	54	83	22	0	Kashipali/Amlipali	1100	1500	19	1077	3	3.54
AMD/PHY/277	ShearedMetabasic	21	26	30	83	22	30	Kashipali	1176	1600	2	1162	3	3.54
AMD/PHY/283	Sheared Basic	21	24	45	83	23	6	Ghoghara	1200	1000	1	1179	—	—
AMD/PHY/9741	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	1300	70 ^c	2800	25	—	—
AMD/PHY/275	ShearedMetabasic	21	26	30	83	22	30	Kashipali	1585	2300	1	1570	1	1.18
AMD/PHY/276	ShearedMetabasic	21	26	30	83	22	30	Kashipali	1730	2400	3	1717	2	2.36
AMD/PHY/9740	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	1750	550	3700	65	—	—
AMD/PHY/278	Sheared Basic	21	24	50	83	23	5	Ghoghara	2100	2320	5	2083	—	—
AMD/PHY/279	Sheared Basic	21	24	50	83	23	8	Ghoghara	2452	3060	16	2483	—	—
AMD/PHY/9739	Granitic gneisses	—	—	—	—	—	—	Bhatli-Bhargarh sector	2800	170	6000	70	—	—
AMD/PHY/280	Sheared Basic	21	24	52	83	23	12	Ghoghara	2852	2900	22	2881	—	—
AMD/PHY/431	Brreiciated Granite	21°28'30" -			83°25'45" -			Makrumunda	152	130	4	139	6	7.08
AMD/PHY/429	Brreiciated Granite	21°29'07"			83°26'65"				5160	5500	230	5070	5	5.9
AMD/PHY/368	Brreiciated Granite								10500	12000	610	10350	—	—
AMD/PHY/430	Brreiciated Granite								38363	33000	10103	34266	—	—
Quartzo Feldspathic Breccia (QFB) type														
AMD/PHY/405	QFB	21	26	10	83	22	35	Kashipali	100	120	15	81	5	5.9
AMD/PHY/498	QFB	21	26	30	83	22	45	Kashipalli	100	90	9	86	3	3.54
AMD/PHY/502	QFB	21	26	30	83	22	45	Kashipalli	100	100	10	91	2	2.36
AMD/PHY/505	QFB	21	26	30	83	22	45	Kashipalli	100	110	11	91	2	2.36
AMD/PHY/1778	QFB	21	27	30	83	25	45	Makrumunda west	100	110	1	90	4	4.72
AMD/PHY/1784	QFB	21	29	31	83	27	1	Pandaritarai west	100	90	11	81	4	4.72
AMD/PHY/1794	QFB	21	29	31	83	27	1	Pandaritarai west	100	100	17	86	4	4.72
AMD/PHY/1798	QFB	21	29	31	83	27	1	Pandaritarai west	100	80	7	81	6	7.08
AMD/PHY/1718	QFB	21	14	30	83	19	30	Dumarpali	104	90	12	92	2	2.36
AMD/PHY/2303	QFB	21	18	30	83	21	30	Dhumarpali	108	110	5	99	3	3.54
AMD/PHY/501	QFB	21	26	30	83	22	45	Kashipalli	110	100	8	106	2	2.36
AMD/PHY/509	QFB	21	26	30	83	22	45	Kashipalli	110	70 ^c	5	103	3	3.54
AMD/PHY/1526	QFB	21	22	0	83	19	45	Naresnagar	110	110	8	90	5	5.9
AMD/PHY/1795	QFB	21	29	31	83	27	1	Pandaritarai west	110	90	12	95	6	7.08
AMD/PHY/1799	QFB	21	29	31	83	27	1	Pandaritarai west	110	80	3	98	7	8.26
AMD/PHY/1802	QFB	21	29	31	83	27	1	Pandaritarai west	110	80	6	86	7	8.26

Table 2. (Continued)

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	U ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
AMD/PHY/839	QFB/Breccia	21	28	0	83	23	30	Kashipalli	110	110	4	103	4	4.72
AMD/PHY/1432	QFB	21	14	30	83	19	30	Dumarpali	112	90	2	104	4	4.72
AMD/PHY/289	QFB	21	23	52	83	24	43	Damapali	118	90	3	113	2	2.36
AMD/PHY/2304	QFB	21	18	30	83	21	30	Dhumarpali	118	130	9	104	3	3.54
AMD/PHY/488	QFB	21	26	30	83	22	45	Kashipalli	120	90	8	111	2	2.36
AMD/PHY/552	QFB	21	28	55	83	23	55	Jaipur	120	110	1	106	3	3.54
AMD/PHY/1847	QFB	21	28	55	83	24	47	Kashipali/Amlipali	120	110	2	114	5	5.9
AMD/PHY/809	QFB/Breccia	21	28	0	83	23	30	Kashipalli	120	130	8	104	4	4.72
AMD/PHY/404	QFB	21	26	0	83	22	35	Kashipali	125	110	9	90	—	—
AMD/PHY/410	QFB	21	29	36	83	27	15	Jaramunda	126	150	1	121	2	2.36
AMD/PHY/1435	QFB	21	14	30	83	19	30	Dumarpali	127	120	2	104	8	9.44
AMD/PHY/1515	QFB	21	13	0	83	19	30	Jharmunda	130	140	5	120	3	3.54
AMD/PHY/2293	QFB	21	14	15	83	19	45	Chhuriapali	130	130	2	126	4	4.72
AMD/PHY/2292	QFB	21	21	30	83	18	30	Neginunda	131	150	9	120	3	3.54
AMD/PHY/406	QFB	21	25	48	83	22	33	Kashipali	134	120	5	126	2	2.36
AMD/PHY/287	QFB	21	24	4	83	24	55	Damapali	135	110	1	128	2	2.36
AMD/PHY/293	QFB	21	24	12	83	24	32	Damapali	135	120	5	124	2	2.36
AMD/PHY/292	QFB	21	24	10	83	24	30	Damapali	139	100	6	120	6	7.08
AMD/PHY/1740	Br. Granite/QFB	21	29	0	83	25	52	Makrumunda	140	70 ^c	6	133	3	3.54
AMD/PHY/514	QFB	21	26	30	83	22	45	Kashipalli	140	160	9	128	3	3.54
AMD/PHY/561	QFB	21	28	55	83	23	55	Jaipur	140	190	12	131	2	2.36
AMD/PHY/1738	QFB	21	15	0	83	19	45	Bindhanpali	140	140	2	140	3	3.54
AMD/PHY/1777	QFB	21	27	30	83	25	45	Makrumunda west	140	90	3	131	4	4.72
AMD/PHY/1809	QFB	21	29	31	83	27	1	Pandaritarai west	140	110	10	125	7	8.26
AMD/PHY/291	QFB	21	24	0	83	24	25	Damapali	150	100	6	142	3	3.54
AMD/PHY/497	QFB	21	26	30	83	22	45	Kashipalli	150	140	6	139	2	2.36
AMD/PHY/2300	QFB	21	18	30	83	21	30	Dhumarpali	150	170	3	143	2	2.36
AMD/PHY/845	QFB/Breccia	21	28	0	83	23	30	Kashipalli	150	170	3	146	3	3.54
AMD/PHY/1447	QFB	21	15	0	83	19	45	Bindhanpali	159	180	1	156	2	2.36
AMD/PHY/489	QFB	21	26	30	83	22	45	Kashipalli	160	160	1	151	2	2.36
AMD/PHY/500	QFB	21	26	30	83	22	45	Kashipalli	160	150	12	148	2	2.36
AMD/PHY/814	QFB/Breccia	21	28	0	83	23	30	Kashipalli	160	120	8	147	7	8.26
AMD/PHY/285	QFB	21	23	50	83	24	35	Damapali	162	130	13	148	3	3.54
AMD/PHY/2306	QFB	21	18	30	83	21	30	Dhumarpali	162	80	7	148	4	4.72
AMD/PHY/1525	QFB	21	22	0	83	19	45	Naresnagar	170	180	1	172	4	4.72

Table 2. (Continued)

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	U ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
AMD/PHY/2299	QFB	21	18	30	83	21	30	Dhumarpali	170	160	2	161	2	2.36
AMD/PHY/2302	QFB	21	18	30	83	21	30	Dhumarpali	170	220	0	163	2	2.36
AMD/PHY/1448	QFB	21	15	0	83	19	45	Bindhanpali	172	170	2	165	2	2.36
AMD/PHY/288	QFB	21	23	52	83	24	43	Damapali	180	180	8	171	4	4.72
AMD/PHY/512	QFB	21	26	30	83	22	45	Kashipalli	190	200	3	181	3	3.54
AMD/PHY/1790	QFB	21	29	31	83	27	1	Pandaritarai west	190	190	2	176	4	4.72
AMD/PHY/1793	QFB	21	29	31	83	27	1	Pandaritarai west	190	170	3	182	4	4.72
AMD/PHY/1805	QFB	21	29	31	83	27	1	Pandaritarai west	190	180	5	177	4	4.72
AMD/PHY/830	QFB/Breccia	21	28	0	83	23	30	Kashipalli	190	170	4	188	4	4.72
AMD/PHY/833	QFB/Breccia	21	28	0	83	23	30	Kashipalli	190	200	1	181	4	4.72
AMD/PHY/420	QFB	21°28'30" - 21°29'07"			83°25'45" - 83°26'65"			Makrumunda	191	170	2	177	4	4.72
AMD/PHY/423	QFB								230	170	2	218	4	4.72
AMD/PHY/424	QFB								255	230	10	242	5	5.9
AMD/PHY/422	QFB								431	350	2	418	5	5.9
AMD/PHY/366	QFB								577	630	1	563	6	7.08
AMD/PHY/401	QFB	21	26	25	83	22	40	Kashipali	199	170	11	189	2	2.36
AMD/PHY/1792	QFB	21	29	31	83	27	1	Pandaritarai west	200	230	3	192	5	5.9
AMD/PHY/1804	QFB	21	29	31	83	27	1	Pandaritarai west	200	170	6	191	4	4.72
AMD/PHY/1837	QFB	21	28	10	83	23	10	Kashipali/Amlipali	200	220	5	194	3	3.54
AMD/PHY/1842	QFB	21	29	2	83	23	45	Kashipali/Amlipali	200	200	1	204	3	3.54
AMD/PHY/1446	QFB	21	15	0	83	19	45	Bindhanpali	205	230	1	199	2	2.36
AMD/PHY/560	QFB	21	28	55	83	23	55	Jaipur	210	150	3	208	1	1.18
AMD/PHY/1729	QFB	21	14	30	83	19	30	Dumarpali	210	190	1	199	4	4.72
AMD/PHY/1730	QFB	21	14	30	83	19	30	Dumarpali	210	150	2	205	4	4.72
AMD/PHY/808	QFB/Breccia	21	28	0	83	23	30	Kashipalli	210	220	10	196	3	3.54
AMD/PHY/811	QFB/Breccia	21	28	0	83	23	30	Kashipalli	210	200	18	183	4	4.72
AMD/PHY/407	QFB	21	25	40	83	22	33	Kashipali	216	170	10	199	5	5.9
AMD/PHY/286	QFB	21	23	55	83	24	45	Damapali	219	200	1	208	3	3.54
AMD/PHY/508	QFB	21	26	30	83	22	45	Kashipalli	220	190	4	216	2	2.36
AMD/PHY/510	QFB	21	26	30	83	22	45	Kashipalli	220	210	6	216	2	2.36
AMD/PHY/1524	QFB	21	22	0	83	18	45	Negimunda North	220	230	15	198	5	5.9
AMD/PHY/1800	QFB	21	29	31	83	27	1	Pandaritarai west	220	190	9	210	4	4.72
AMD/PHY/1806	QFB	21	29	31	83	27	1	Pandaritarai west	220	200	7	209	6	7.08
AMD/PHY/1848	QFB	21	28	55	83	24	47	Kashipali/Amlipali	220	210	1	202	7	8.26

Table 2. (Continued)

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	U ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
AMD/PHY/511	QFB	21	26	30	83	22	45	Kashipalli	230	240	5	229	2	2.36
AMD/PHY/1523	QFB	21	22	0	83	18	45	Negimunda North	230	270	12	217	3	3.54
AMD/PHY/1724	QFB	21	14	30	83	19	30	Dumarpali	230	220	4	219	3	3.54
AMD/PHY/1810	QFB	21	29	31	83	27	1	Pandaritarai west	230	200	3	218	6	7.08
AMD/PHY/1849	QFB	21	28	55	83	24	47	Kashipali/Amlipali	230	220	1	219	7	8.26
AMD/PHY/403	QFB	21	26	25	83	22	40	Kashipali	235	270	6	229	2	2.36
AMD/PHY/848	QFB/Breccia	21	28	0	83	23	30	Kashipalli	240	240	3	229	2	2.36
AMD/PHY/2294	QFB	21	14	15	83	19	45	Chhuriapali	246	250	0	240	2	2.36
AMD/PHY/1843	QFB	21	29	2	83	23	45	Kashipali/Amlipali	250	220	2	252	1	1.18
AMD/PHY/506	QFB	21	26	30	83	22	45	Kashipalli	260	240	9	246	2	2.36
AMD/PHY/1789	QFB	21	29	31	83	27	1	Pandaritarai west	260	270	7	250	5	5.9
AMD/PHY/2298	QFB	21	4	0	83	13	0	Dublabahal	260	280	7	251	1	1.18
AMD/PHY/565	QFB	21	28	55	83	23	55	Jaipur	270	240	8	271	1	1.18
AMD/PHY/527	QFB	21	26	30	83	22	45	Kashipalli	280	290	5	280	2	2.36
AMD/PHY/1731	QFB	21	14	30	83	19	30	Dumarpali	280	310	8	269	3	3.54
AMD/PHY/1811	QFB	21	29	31	83	27	1	Pandaritarai west	280	150	10	258	—	—
AMD/PHY/815	QFB/Breccia	21	28	0	83	23	30	Kashipalli	280	290	13	260	6	7.08
AMD/PHY/562	QFB	21	28	55	83	23	55	Jaipur	290	230	8	292	2	2.36
AMD/PHY/1835	QFB	21	26	34	83	22	25	Kashipali/Amlipali	290	310	3	281	4	4.72
AMD/PHY/1852	QFB	21	26	35	83	22	25	Kashipali/Amlipali	290	320	1	275	4	4.72
AMD/PHY/824	QFB/Breccia	21	28	0	83	23	30	Kashipalli	290	330	1	288	3	3.54
AMD/PHY/1450	QFB	21	15	0	83	19	45	Bindhanpali	291	280	5	274	7	8.26
AMD/PHY/490	QFB	21	26	30	83	22	45	Kashipalli	300	320	6	280	3	3.54
AMD/PHY/1728	QFB	21	14	30	83	19	30	Dumarpali	300	230	1	291	4	4.72
AMD/PHY/1791	QFB	21	29	31	83	27	1	Pandaritarai west	310	340	1	301	4	4.72
AMD/PHY/1840	QFB	21	28	55	83	24	47	Kashipali/Amlipali	310	300	1	312	4	4.72
AMD/PHY/494	QFB	21	26	30	83	22	45	Kashipalli	320	270	4	310	2	2.36
AMD/PHY/842	QFB/Breccia	21	28	0	83	23	30	Kashipalli	320	340	1	318	3	3.54
AMD/PHY/1725	QFB	21	14	30	83	19	30	Dumarpali	330	330	1	320	3	3.54
AMD/PHY/1844	QFB	21	28	55	83	44	47	Kashipali/Amlipali	330	300	3	320	4	4.72
AMD/PHY/1431	QFB	21	14	30	83	19	30	Dumarpali	336	220	9	326	4	4.72
AMD/PHY/493	QFB	21	26	30	83	22	45	Kashipalli	340	330	10	325	4	4.72
AMD/PHY/1839	QFB	21	28	55	83	24	47	Kashipali/Amlipali	340	330	4	336	4	4.72
AMD/PHY/1850	QFB	21	28	55	83	24	47	Kashipali/Amlipali	340	290	1	325	—	—
AMD/PHY/400	QFB	21	26	25	83	22	40	Kashipalli	360	310	6	350	3	3.54

Table 2. (Continued)

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	U ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
AMD/PHY/513	QFB	21	26	30	83	22	45	Kashipalli	360	390	1	352	2	2.36
AMD/PHY/491	QFB	21	26	30	83	22	45	Kashipalli	370	360	5	362	3	3.54
AMD/PHY/1857	QFB	21	27	37	83	22	10	Kashipali/Amlipali	370	270	1	369	5	5.9
AMD/PHY/836	QFB/Breccia	21	28	0	83	23	30	Kashipalli	370	370	4	372	3	3.54
AMD/PHY/1726	QFB	21	14	30	83	19	30	Dumarpali	380	300	3	370	4	4.72
AMD/PHY/1727	QFB	21	14	30	83	19	30	Dumarpali	380	280	6	370	4	4.72
AMD/PHY/1737	QFB	21	15	0	83	19	45	Bindhanpali	380	420	6	382	2	2.36
AMD/PHY/847	QFB/Breccia	21	28	0	83	23	30	Kashipalli	380	430	1	375	3	3.54
AMD/PHY/492	QFB	21	26	30	83	22	45	Kashipalli	390	400	5	383	3	3.54
AMD/PHY/556	QFB	21	28	55	83	23	55	Jaipur	400	410	9	402	2	2.36
AMD/PHY/802	QFB/Breccia	21	28	0	83	23	30	Kashipalli	400	300	23	370	5	5.9
AMD/PHY/399	QFB	21	26	25	83	22	40	Kashipali	408	410	7	405	2	2.36
AMD/PHY/1846	QFB	21	27	15	83	22	40	Kashipali/Amlipali	410	550	3	400	5	5.9
AMD/PHY/507	QFB	21	26	30	83	22	45	Kashipalli	420	400	4	418	1	1.18
AMD/PHY/495	QFB	21	26	30	83	22	45	Kashipalli	430	360	4	421	3	3.54
AMD/PHY/1520	QFB	21	14	0	83	20	0	Chhuriapali	430	300	10	434	2	2.36
AMD/PHY/1534	QFB	21	14	30	83	16	0	Khapanpali	450	530	6	439	5	5.9
AMD/PHY/1856	QFB	21	27	37	83	22	10	Kashipali/Amlipali	460	480	2	455	3	3.54
AMD/PHY/1449	QFB	21	15	0	83	19	45	Bindhanpali	488	520	1	479	2	2.36
AMD/PHY/553	QFB	21	28	55	83	23	55	Jaipur	510	480	2	514	3	3.54
AMD/PHY/559	QFB	21	28	55	83	23	55	Jaipur	510	440	1	524	1	1.18
AMD/PHY/1529	QFB	21	18	30	83	25	0	Badipali	530	670	8	504	5	5.9
AMD/PHY/1831	QFB	21	26	30	83	22	25	Kashipali/Amlipali	530	630	5	534	3	3.54
AMD/PHY/496	QFB	21	26	30	83	22	45	Kashipalli	540	450	10	533	1	1.18
AMD/PHY/550	QFB	21	28	55	83	23	55	Jaipur	560	530	8	561	2	2.36
AMD/PHY/1853	QFB	21	28	20	83	23	10	Kashipali/Amlipali	600	660	1	600	2	2.36
AMD/PHY/1430	QFB	21	14	30	83	19	30	Dumarpali	618	700	1	617	2	2.36
AMD/PHY/796	QFB/Breccia	21	28	0	83	23	30	Kashipalli	620	410	19	600	4	4.72
AMD/PHY/547	QFB	21	28	55	83	23	55	Jaipur	650	550	1	659	1	1.18
AMD/PHY/827	QFB/Breccia	21	28	0	83	23	30	Kashipalli	670	700	19	637	4	4.72
AMD/PHY/805	QFB/Breccia	21	28	0	83	23	30	Kashipalli	710	630	1	740	1	1.18
AMD/PHY/1514	QFB	21	13	0	83	19	30	Jharmunda	730	930	13	705	3	3.54
AMD/PHY/1855	QFB	21	26	30	83	22	20	Kashipali/Amlipali	770	780	1	763	2	2.36
AMD/PHY/395	QFB	21	27	55	83	23	30	Kashipali	886	1200	1	873	2	2.36
AMD/PHY/1841	QFB	21	28	10	83	23	10	Kashipali/Amlipali	890	1200	1	885	5	5.9

Table 2. (Continued)

Sample number	Rock type	Latitude				Longitude				Location	eU ₃ O ₈ ppm	U ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
AMD/PHY/1833	QFB	21	26	54	83	22	0			Kashipali/Amlipali	930	1000	8	948	0.5	0.59
AMD/PHY/1854	QFB	21	26	30	83	22	20			Kashipali/Amlipali	970	940	10	982	2	2.36
AMD/PHY/1830	QFB	21	28	5	83	23	10			Kashipali/Amlipali	1025	750	1	1037	4	4.72
AMD/PHY/398	QFB	21	28	5	83	23	32			Kashipali	1054	1300	1	1039	5	5.9
AMD/PHY/1513	QFB	21	26	54	83	22	34			600 m N of sample 1512	1073	1300	10	1084	—	—
AMD/PHY/1519	QFB	21	14	0	83	20	0			Chhuriapali	1100	1300	1	1070	4	4.72
AMD/PHY/1832	QFB	21	26	54	83	22	34			Kashipali/Amlipali	1100	1300	16	1119	2	2.36
AMD/PHY/392	QFB	21	26	45	83	22	50			Kashipali	1196	1400	1	1176	3	3.54
AMD/PHY/1512	QFB	21	26	54	83	22	34			Kashipali	1200	1700	13	1199	2	2.36
AMD/PHY/799	QFB/Breccia	21	28	0	83	23	30			Kashipalli	1200	1300	1	1216	1	1.18
AMD/PHY/390	QFB	21	26	25	83	27	38			Kashipali	1209	1300	1	1213	3	3.54
AMD/PHY/1511	QFB	21	26	54	83	22	34			Kashipali	1300	1900	10	1334	2	2.36
AMD/PHY/391	QFB	21	26	55	83	22	50			Kashipali	1330	2500	15	1295	4	4.72
AMD/PHY/819	QFB/Breccia	21	28	0	83	23	30			Kashipalli	1500	1100	29	1466	5	5.9
AMD/PHY/1518	QFB	21	14	0	83	20	0			Chhuriapali	1900	2300	33	1873	5	5.9
AMD/PHY/397	QFB	21	27	58	83	23	30			Kashipali	2013	2700	23	1992	6	7.08
AMD/PHY/1510	QFB	21	26	54	83	22	34			Kashipali	2300	3300	13	2254	2	2.36
AMD/PHY/389	QFB	21	26	20	83	22	35			Kashipali	2438	2700	52	2414	5	5.9
AMD/PHY/1774	QFB	21	27	30	83	25	45			Makrumunda west	2800	2900	62	2772	7	8.26
AMD/PHY/1776	QFB	21	27	30	83	25	45			Makrumunda west	3600	4200	74	3474	7	8.26
AMD/PHY/394	QFB	21	27	50	83	23	30			Kashipali	4218	5200	79	4178	5	5.9
AMD/PHY/387	QFB	21	26	25	83	22	36			Kashipali	4355	3800	100	4359	6	7.08
AMD/PHY/393	QFB	21	27	0	83	22	55			Kashipali	4481	4600	105	4444	8	9.44
AMD/PHY/388	QFB	21	26	35	83	22	45			Kashipali	5154	7700	130	5066	—	—
AMD/PHY/1775	QFB	21	27	30	83	25	45			Makrumunda west	6100	7000	220	5993	—	—
AMD/PHY/1747	Br. Granite/QFB	21	29	0	83	25	52			Makrumunda	17693	17000	1952	16424	—	—
Mylonite type																
AMD/PHY/1755	Mylonite/QFB	21	29	0	83	25	52			Makrumunda	100	90	9	82	6	7.08
AMD/PHY/1700	Mylonite/QFB	21	21	30	83	18	20			Negimunda	122	120	11	109	3	3.54
AMD/PHY/1767	Mylonite/QFB	21	29	0	83	25	52			Makrumunda	130	120	8	118	6	7.08
AMD/PHY/1224	Mylonite	21	21	30	83	18	20			Negimunda	156	150	9	141	3	3.54
AMD/PHY/1368	Mylonite	21	21	0	83	18	0			Kodupali-Negimunda	160	180	7	145	4	4.72
AMD/PHY/1757	Mylonite/QFB	21	29	0	83	25	52			Makrumunda	160	130	7	142	8	9.44
AMD/PHY/1691	Mylonite/QFB	21	21	30	83	18	20			Negimunda	161	120	16	146	4	4.72
AMD/PHY/1762	Mylonite/QFB	21	29	0	83	25	52			Makrumunda	180	130	10	156	8	9.44

Table 2. (Continued)

Sample number	Rock type	Latitude			Longitude			Location	eU ₃ O ₈ ppm	U ₃ O ₈ ppm	ThO ₂ ppm	Ra(eU) ppm	K %	⁴⁰ K ppm
AMD/PHY/1760	Mylonite/QFB	21	29	0	83	25	52	Makrumunda	190	150	5	175	7	8.26
AMD/PHY/1369	Mylonite	21	21	0	83	18	0	Kodupali-Negimunda	191	230	13	173	4	4.72
AMD/PHY/1759	Mylonite/QFB	21	29	0	83	25	52	Makrumunda	210	150	6	194	7	8.26
AMD/PHY/1756	Mylonite/QFB	21	29	0	83	25	52	Makrumunda	220	200	6	207	6	7.08
AMD/PHY/1227	Mylonite	21	21	30	83	18	20	Negimunda	256	240	6	249	3	3.54
AMD/PHY/1765	Mylonite/QFB	21	29	0	83	25	52	Makrumunda	260	230	5	239	—	—
AMD/PHY/1764	Mylonite/QFB	21	29	0	83	25	52	Makrumunda	270	220	7	249	8	9.44
AMD/PHY/1766	Mylonite/QFB	21	29	0	83	25	52	Makrumunda	280	270	9	257	7	8.26
AMD/PHY/1758	Mylonite/QFB	21	29	0	83	25	52	Makrumunda	290	270	7	272	7	8.26
AMD/PHY/1761	Mylonite/QFB	21	29	0	83	25	52	Makrumunda	290	250	7	272	7	8.26
AMD/PHY/425	Mylonite								300	210	6	301	7	8.26
AMD/PHY/427	Mylonite	21°28'30" -			83°25'45" -				344	320	4	320	—	—
AMD/PHY/367	Mylonite	21°29'07"			83°26'65"			Makrumunda	450	400	1	437	6	7.08
AMD/PHY/426	Mylonite								668	330	9	646	—	—
AMD/PHY/1226	Mylonite	21	21	30	83	18	20	Negimunda	358	330	6	351	3	3.54
AMD/PHY/1225	Mylonite	21	21	30	83	18	20	Negimunda	360	400	10	349	3	3.54
AMD/PHY/1763	Mylonite/QFB	21	29	0	83	25	52	Makrumunda	410	300	8	396	8	9.44
Sandstone/sedimentary related														
AMD/PHY/1827	Sandstone	21	27	40	83	22	15	Kashipali/Amlipali	120	50 ^c	224	14	2	2.36
AMD/PHY/443	Shale	21	29	5	83	25	52	Makrumunda	215	140	2	204	4	4.72

— = Latitude/longitude not available.
- = Poor precision.
c = Chemically analysed values.

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