ARK MINES LTD.

ASX ANNOUNCEMENT

7 February 2024

ASX: AHK

Corporate Directory

Directors

Executive Chairman
Roger Jackson

Executive Director
Ben Emery

Non-Executive Director
Ian Mitchell

Projects

- Gunnawarra
  Nickel-Cobalt
- Mt Jesse
  Iron-Copper
- Sandy Mitchell
  Rare Earths
- Pluton
  Gold

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LATEST ASSAYS SHOW CONSISTENT REE AND HEAVY MINERAL INTERCEPTS AT SANDY MITCHELL, SUPPORT DOWNSTREAM DEVELOPMENT STRATEGY

HIGHLIGHTS

- **Further samples from the Phase 1 air core drill program at Ark's 100%-owned Sandy Mitchell Project have returned significant Rare Earth Element (REE) and Heavy Mineral (HM) intercepts in every metre sampled[1].**
- **The assays demonstrate consistent mineralisation to previously-reported exploration samples, and verify that Sandy Mitchell carries all rare earth minerals including light REE and heavy REE, plus titanium and zirconia[1].**
- **The stage 1 air core holes averaged 10.5 metre depths with the deepest hole down to 18 metres.**
  - **All holes show mineralised sand from surface to bedrock, with no overburden or clay layers.**
  - **Stage 2, using a larger rig, indicated that the depth profile of stage 1 was conservative[2].**
- **Combined with recent beneficiation test work by Downer Mineral Technologies on initial exploration samples, which returned high-grade rare earth concentrates (51.9% TREO)[3], latest assay results further validate Ark's stated development strategy for Sandy Mitchell based on low-cost, straight-forward beneficiation by gravity processing.**
- **Reflecting the potential scale of the project, Stage 1 drilling to-date also covers an area of only 1.3 km^2 – representing just 1.2% of the peak radiometric reading on the lease which covers 147km^2.**
- **Latest assays returned an average grade per-metre for Total Rare Earth Oxide (TREO) + Yttrium (Y) + Scandium (Sc) of 499 parts-per-million (ppm), with a maximum grade of 3,500 ppm[1].**
  - **These are not selective grades or grades with cut-off; they represent every metre drilled and assayed to date, from the surface to basement rock.**
  - **26% of TREO are critical rare earths, while 23% are magnet rare earths.**
- **The average Zircon oxide grade for every meter assayed is 420 ppm with a maximum grade of 1,500 ppm[1].**
- **The average Titanium oxide grade for every meter assayed is 6,490 ppm with a maximum grade of 113,427 ppm[1].**
- **Assay results from Stage 1, along with Stage 2 drilling and ongoing test work, will form the basis of a Maiden Mineral Resource Estimate (MRE) under the 2012 JORC code later this year.**

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[1] Refer to Appendix A and Appendix B.
[2] Refer to AHK ASX Announcement 18th of December 2023 and Figure 3.
[3] Refer to AHK ASX Announcement 24th of November 2023.
[4] Refer to Figure 4.

Ark Mines Limited (ASX:AHK) is pleased to announce the receipt of first assay results from the 1st phase of drilling at the Company's 100% owned Sandy Mitchell Rare Earth and Heavy Mineral Project in North Queensland (see **Figure 1**).

Initial assay results (from 1m intervals) for Ark's 144-hole Stage 1 drill program have confirmed that Rare Earth mineralisation is evident in every interval of every hole assayed to date (see Appendix B). Assay results observed to-date further support the outlook for low-cost downstream processing recently announced beneficiation test work (*AHK ASX Announcement 24th of November 2023*) which has shown that the Sandy Mitchell sands make a high-grade rare earth concentrate with robust recoveries using low-cost gravity processes.

Drill works program

Resource drilling at Sandy Mitchell has been divided into two stages: Stage 1 (1,488.3 m on 144 air core holes by Saxon), and Stage 2 (2,425.8 m on 187 air core holes by AED). The full resource grid is now complete for a total of 3,914 m on 331 air core holes, covering an area of 3.6 km^2 on a staggered 120 m x 120 m pattern with a 0.7 km^2 higher resolution portion infilled at 60m x 120m, to support statistical investigations. Stage 1 is approximately a third of the total drilling grid and includes the high-resolution area (see **Figure 2**).

All holes were sampled by the metre and split to yield a representative sample, with 1 in 40 also split to yield a representative duplicate. All representative samples and duplicates have been dispatched to North Australian Laboratories for sodium peroxide fusion with an inductively coupled plasma mass spectrometer finish on a full multi-element REE, HM and accessory mineral suite, plus gravimetric bulk density and moisture.

With ~34% of Stage 1 assays being returned to date (see Appendix B), a reasonable statistical picture of the mineralisation is emerging. With no cut-off grade and no top cut grade, the average grade of Total Rare Earth Oxides (TREO) + Yttrium (Y) + Scandium (Sc) is 498.7 ppm.

This compares well with the material sent to Downer Mineral Technologies (**'Downer'**) for gravity concentration beneficiation testing (*refer ASX Announcement 24 November 2023*), which had raw grades at a slightly lower 463.0 ppm, and yielded a 51.9% TREO (519,000ppm) concentrate. Based on the results of that testing, Downer estimated that a 71.7% TREO concentrate could be achievable.

Nevertheless, with only a simplified experimental selection criterion imposed on the results, a reasonable upgrade is seen with modest material rejection: A cut-off grade of 200 ppm (only material of 200ppm TREO or greater is selected), results in TREO+Y+Sc upgrading from 498.7 ppm to 529.9 ppm, with rejection of only 8.1 % of results (i.e. 42 m out of 520 m of sample is rejected).

In addition to showing that the mineralisation is likely to be upgradeable with minimal selectivity, this also demonstrates the consistency of the mineralisation which Ark believes will result in a low-cost bulk mineable resource.

The results are further bolstered by economically significant by-product grades in titanium and zirconium. Raw, un-cut, TiO_2 grades average 6,490.6 ppm and go as high as 113,427.5 ppm, whilst raw ZrO_2 grades average 420.8 ppm and go as high as 1,527.8 ppm. Both of these heavy mineral by-products are amenable to a similar beneficiation process by low-cost gravity concentration.

The assay returns together with geological logging and modelling of the data will inform Ark's maiden JORC 2012 estimation in the resource grid area. This work is set to commence as soon as the full quantum of assay results are returned. Ark then plans to validate the data with a Stage 1 model that will precede a more detailed model of the total grid area. Stage 1 assays are currently being expedited by NAL with the continued receipt of assays expected over the coming weeks.

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[1] *Refer to Appendix A and Appendix B.*
[2] *Refer to AHK ASX Announcement 18th of December 2023 and Figure 3.*
[3] *Refer to AHK ASX Announcement 24th of November 2023.*
[4] *Refer to Figure 4.*

Executive Director Ben Emery said: *"As the Sandy Mitchell assay data comes in, the thing that jumps out at us is how consistent the mineralisation is. We aren't surprised by this because we've set our initial 4,000 m^2 resource grid in the middle of a 100 million m^2 prospective area within the tenement, but it's great when the assays support our geological understanding of the project. The ongoing consistency of grade gives us an added degree of confidence around Sandy Mitchell's commercial development potential, particularly given the already-strong recovery rates achieved through our first-round water-based beneficiation test work in November last year."*

"In collaboration with our downstream processing partners, the early success of these simple extraction methods to produce high-grade rare earth concentrates demonstrates the exciting scale and development potential of Sandy Mitchell as exploration continues. We continue to benefit from the field team's decision to prioritise completion of the Phase 1 and Phase 2 drill programs by year-end, prior to the northern wet season. In turn, the Company looks forward to updating investors with the ongoing receipt of assays over the coming weeks, ahead of the declaration of a Maiden Mineral Resource Estimate for Sandy Mitchell later this year."

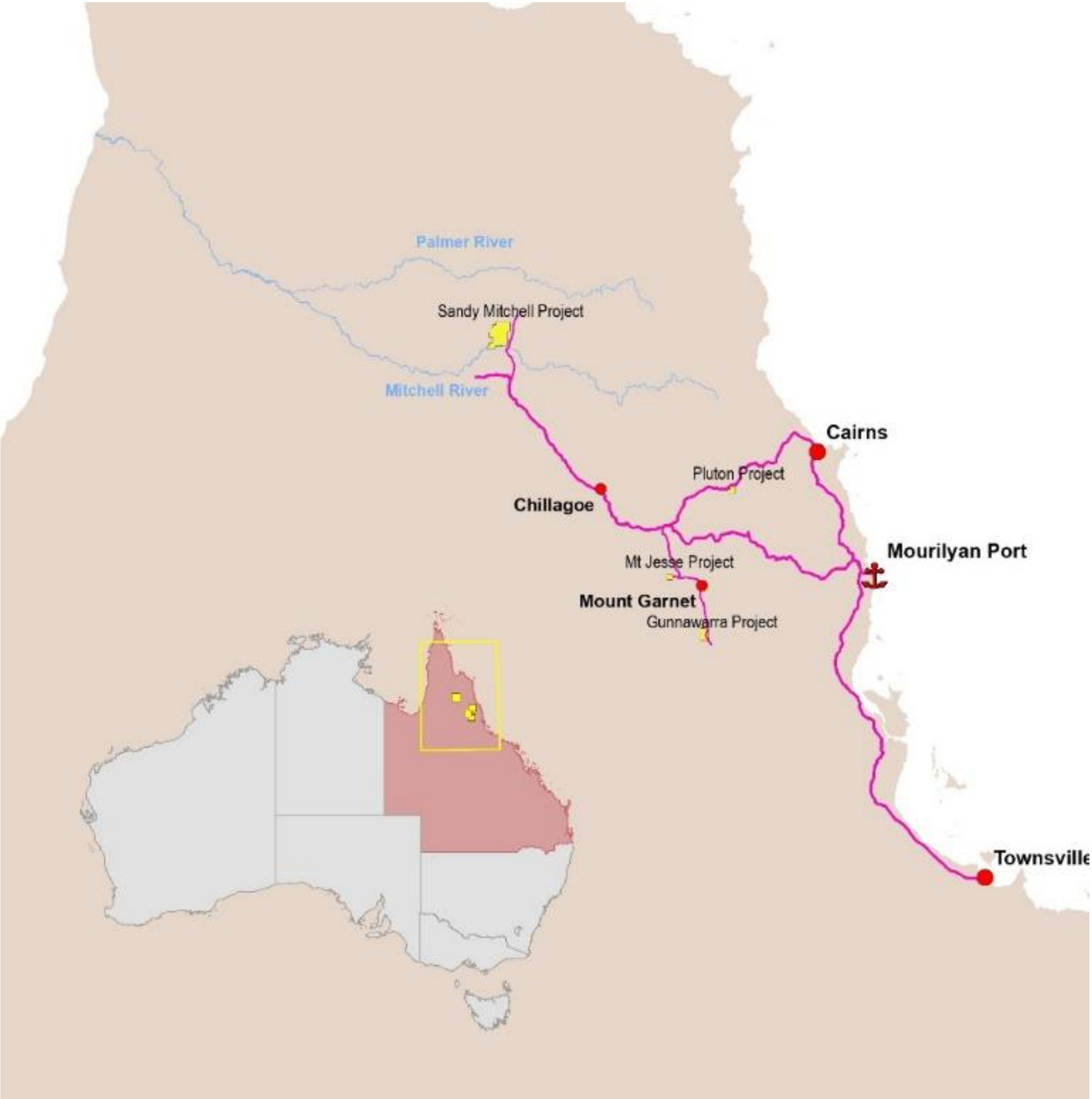

Figure 1: *Sandy Mitchell Rare Earth and Heavy Mineral Project location.*

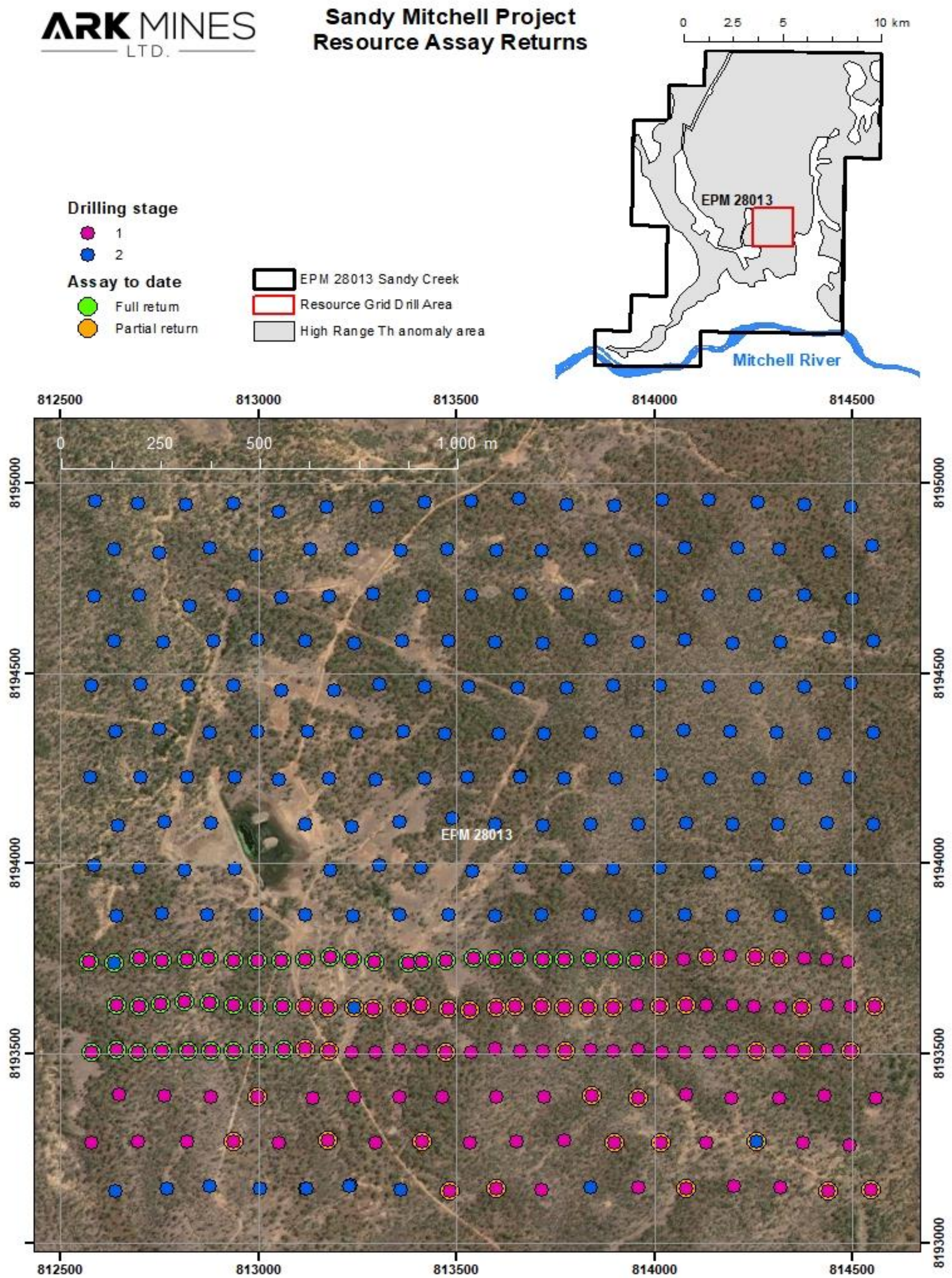

Figure 2: *Sandy Mitchell initial resource drilling area showing hole collar location, colour coded by drilling stage and showing which holes have full or partial assay return to date.*

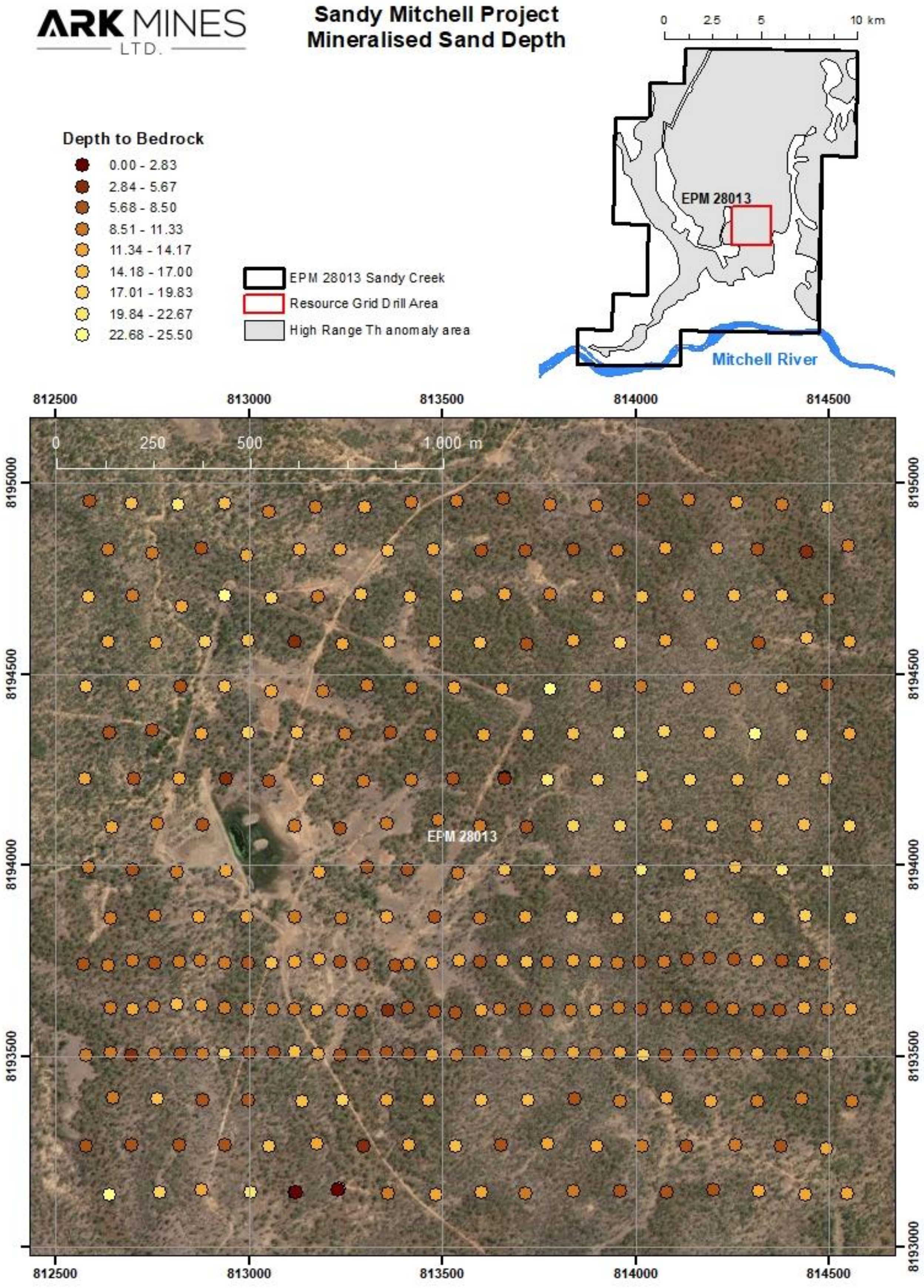

***Figure 3:** Sandy Mitchell initial resource area showing completed hole collar locations, colour coded by depth to bedrock. This equates to depth of mineralised sand column, since logging and assay returns show no overburden and mineralisation in the whole sand column.*

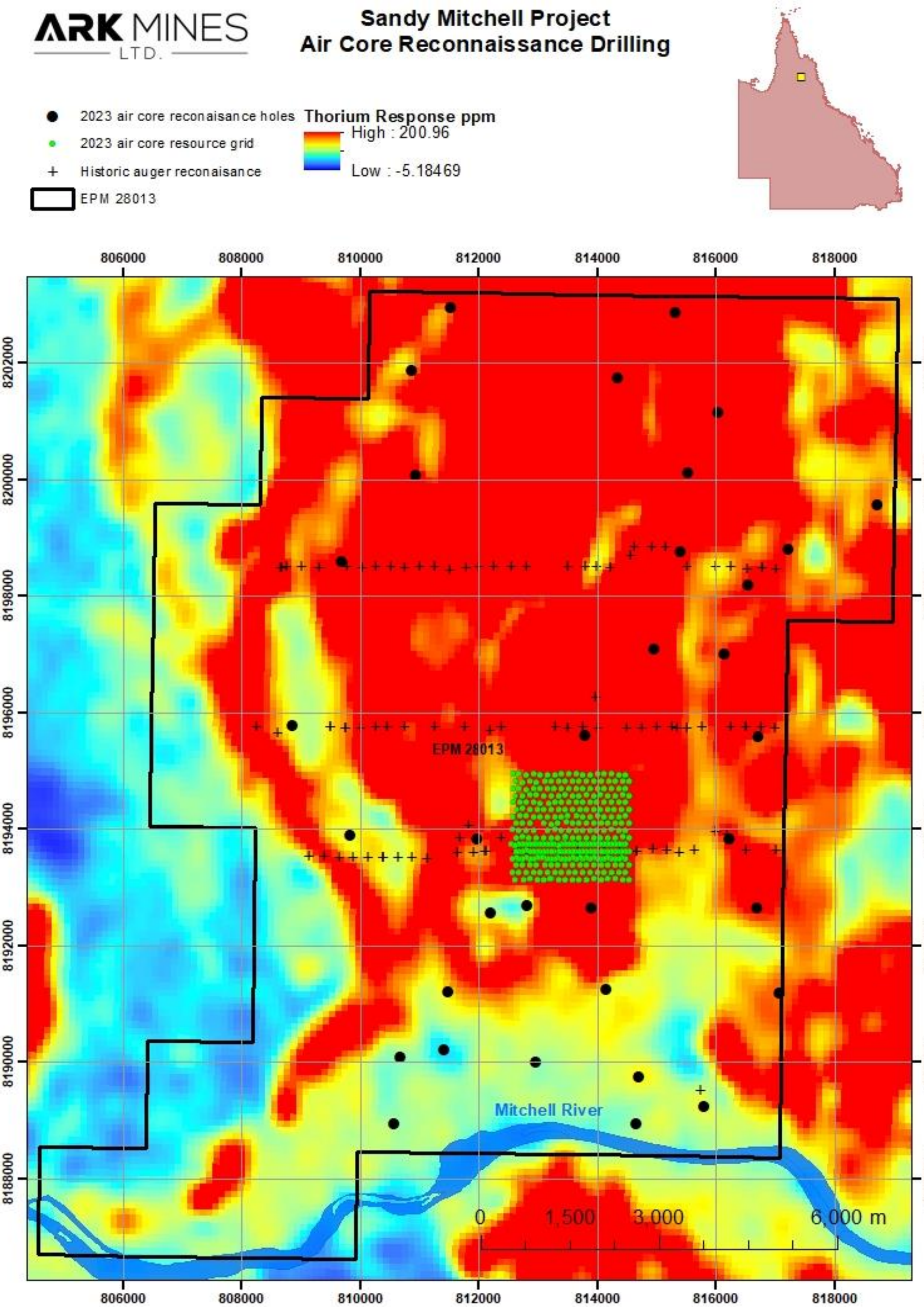

Figure 4: *Sandy Mitchell 2023 air core reconnaissance drilling against the thorium radiometric response data. Historic auger reconnaissance and the 2023 air core grid drilling is also shown.*

AUTHORITY FOR RELEASE

This announcement has been approved for release to the ASX by the Board of Ark Mines Ltd.

Roger Jackson
Executive Chairman
7 February 2024

FURTHER INFORMATION

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ABOUT ARK MINES LIMITED

Ark Mines is an ASX listed Australian mineral exploration company focused on developing its 100% owned projects located in the prolific Mt Garnet and Greenvale mineral fields of Northern Queensland. The Company's exploration portfolio consists of three four quality projects that are prospective for copper, iron ore, nickel-cobalt porphyry gold and rare earth elements.

Sandy Mitchell Rare Earth and heavy Mineral Project

- Ark has recently acquired the 147km2 EPM 28013 'Sandy Mitchell' – an advanced Rare Earths Project in North Queensland with additional 138km2 of sub blocks under application
- Project contains all critical Light Rare Earths as well as Heavy Rare Earths including dysprosium (Dy), terbium (Tb), holmium (Ho), erbium (Er), thulium (Tm) ytterbium (Yb), yttrium (Y) and excluding only Lutetium
- Up to 25% of the TREO is Nd and Pr (magnet metals)
- Rare Earths at 'Sandy Mitchell' are amenable to panning a concentrate; Planned low-cost, fast start up, straightforward beneficiation by gravity processing

Mt Jesse Copper-Iron project

- Project covers a tenure area of 12.4km2 located ~25km west of Mt Garnet
- Centered on a copper rich magnetite skarn associated with porphyry style mineralization
- Three exposed historic iron formations
- Potential for near term production via toll treat and potential to direct ship

Gunnawarra Nickel-Cobalt Project

- Comprised of 11 sub-blocks covering 36km2
- Borders Australian Mines Limited Sconi project - the most advanced Cobalt-Nickel-Scandium project in Australia
- Potential synergies with local processing facilities with export DSO Nickel/Cobalt partnership options

Pluton Porphyry Gold Project

- Located ~90km SW of Cairns near Mareeba, QLD covering 18km2
- Prospective for gold and associated base metals (Ag, Cu, Mo)
- Porphyry outcrop discovered during initial field inspection coincides with regional scale geophysical interpretation.

COMPETENT PERSONS STATEMENT

The Information in this report that relates to exploration results, mineral resources or ore reserves is based on information compiled by Mr Roger Jackson, who is a Fellow of the Australian Institute of Mining and Metallurgy and a Fellow of the Australasian Institute of Geoscientists. Mr Jackson is a shareholder and director of the Company. Mr Jackson has sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration and to the activity that he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the `Australian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves '(the JORC Code). Mr Jackson consents to the inclusion of this information in the form and context in which it appears in this report. Mr Jackson confirms information in this market announcement is an accurate representation of the available data for the exploration areas being acquired.

FORWARD LOOKING STATEMENTS AND IMPORTANT NOTICE

This report contains forecasts, projections and forward-looking information. Although the Company believes that its expectations, estimates and forecast outcomes are based on reasonable assumptions it can give no assurance that these will be achieved. Expectations and estimates and projections and information provided by the Company are not a guarantee of future performance and involve unknown risks and uncertainties, many of which are out of Ark Mines 'control.

Actual results and developments will almost certainly differ materially from those expressed or implied. Ark Mines has not audited or investigated the accuracy or completeness of the information, statements and opinions contained in this announcement. To the maximum extent permitted by applicable laws, Ark Mines makes no representation and can give no assurance, guarantee or warranty, express or implied, as to, and takes no responsibility and assumes no liability for the authenticity, validity, accuracy, suitability or completeness of, or any errors in or omission from, any information, statement or opinion contained in this report and without prejudice, to the generality of the foregoing, the achievement or accuracy of any forecasts, projections or other forward looking information contained or referred to in this report.

Investors should make and rely upon their own enquiries before deciding to acquire or deal in the Company's securities.

Appendix A: JORC Code, 2012 Edition – Table 1

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	Ark Mines May to June 2023 Sandy Mitchell programme sampling techniques: • Samples are rock chips and accompanying bulk fines collected on 1m intervals by air core drill using 100mm bit. • Sample was passed through an 82.5: 12.5 riffle splitter to yield a representative aliquot of approx. 1.5 kg collected in prenumbered calico bag, and a remainder retained in a numbered plastic bag, with recoveries volumetrically estimated with periodic checks by mass using digital scale, compared against laboratory loose bulk density measurements. • Historic works by SGS (SGS Oretest Job No: S0580, 2010 for JOGMEC) shows mineralisation to have grainsize < = 125µm (very fine sand) and thus the sample mass is adequate for representivity. • Sample for total digest assay was sent to North Australian Laboratories for Assay. • Sample for pan concentration was sub-sampled by spade channel through the remainder sample to a mass of approx. 1kg per metre as determined by digital scales. These were then panned to a concentrate and the subsequent concentrates composited per hole. • Pan Con composite samples were sent to IHC Mining where samples were screened to -1mm, heavy minerals were further separated by heavy liquid separation with yields weighed at each stage. • The final heavy mineral concentrate was subject to Portable XRF analysis for a limited indicative assay. • Samples for preliminary metallurgical testing were sent to Downer Mineral Technologies and comprised the entire bulk metre remainder after riffle splitting the representative aliquot and removal of the 1kg pan concentrate aliquot. Ark Mines November to December 2023 Sandy Mitchell programme sampling techniques: • All sampling methodologies were as per the June programme, but the air core bit was exchanged for a reverse circulation face hammer to complete the end of hole. • The bedrock horizon was determined by geological chip logging supported by driller's run sheet records.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails,*	Ark Mines May to June 2023 Sandy Mitchell programme: • Drill was by Comacchio track mounted air core rig using 100mm air core bit. • All holes were vertical and drilled to refusal or 17.5m, whichever came first.

Criteria	JORC Code explanation	Commentary
	face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	Ark Mines November to December 2023 Sandy Mitchell programme: • Drill was by AusRoc 4000 multi-purpose rig using 100mm and changing to slim line 100mm RC face hammer at depth. • All holes were vertical and drilled to complete the final metre in bedrock.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	Ark Mines May to June 2023 and November to December 2023 Sandy Mitchell programme: • Recoveries were assessed by volumetric estimation by the metre based on total sample weights using a digital scale with comparison made via laboratory loose bulk density measurements. • Sample was passed through a cyclone with a gated chute to allow fines to fall out of the air stream. The chute was kept closed until the end of each metre had been drilled, then opened to collect sample, and closed prior to recommencement of drilling. • No relationship between recovery and grade has yet been identified.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	Ark Mines May to June 2023 and November to December 2023 Sandy Mitchell programme: • Sample was logged by the metre for all drilling, by the site geology team for both qualitative and quantitative criteria. • Drill logs for 100% of drilling are available with overall length of 3914.2m. • Logging is sufficient to support resource estimation, mining and metallurgical studies.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is*	Ark Mines May to June 2023 Sandy Mitchell programme: • All sample passed through the drill cyclone dry. • Sub-sampling for laboratory assay was by 87.5:12.5 riffle splitter: the bulk sample was passed evenly through the riffles with the assay aliquot collected in a pre-numbered calico bag, and the reject collected in a numbered plastic bag. • Field duplicates were taken at 1:40 by 50:50 riffle splitter. • Historic works by SGS (SGS Oretest Job No: S0580, 2010 for JOGMEC) shows mineralisation to have grainsize < 125µm (very fine sand) and thus the sample mass is representative. • Sample for pan concentration was sub-sampled by spade channel through the reject to a mass of approx. 1kg per metre as determined by digital scales. • Sample for preliminary metallurgical testing was selected from the 11m twinned hole SMDH 00014b and comprised

Criteria	JORC Code explanation	Commentary
	representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling. • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	the entire 87.5% bulk metre sample after riffle splitting to yield the representative sample and removal of the 1kg pan concentrate aliquot. Ark Mines May to June 2023 and November to December 2023 Sandy Mitchell programme: • All sampling was conducted as per the June 2023 programme, but duplicates at 1 in 40 were taken by passing the total reject sample through an 87.5:12.5 riffle splitter in the same manner as the primary sample.

Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*
	• *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*
	• *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*
		Ark Mines May to June 2023 Sandy Mitchell programme:
		• Metre samples were sent to North Australian Laboratories (NAL) for total digest assay:
		• Samples were weighed then kiln dried and re-weighed.
		• 1 in 5 samples was tested for moisture content.
		• 1 in 3 samples was tested for dry loose bulk density.
		• Sample was then pulverization in an LM-5 to 90% passing 75 µm with assay aliquot selected by laboratory splitter.
		• Al, Ca, Cr, Fe, Mg, P, S, and Ti were assayed by 4 acid digest with ICP-OES finish.
		• Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Th, U, Zr, Hf, Nb, Ta, Si, Sr, Pb were assayed by sodium peroxide fusion in nickel crucibles with ICP-MS finish.
		• Field duplicates were taken at 1:40 by 50:50 riffle split of the assay aliquot.
		• For total digest samples:
		    • Laboratory repeats were requested at no less than 1 in 40 but carried out by the laboratory at 1 in 10.
		    • Standard insertion was carried out by the laboratory at 1 in 12.
		    • Assay of blank quartz flushes was requested at 1 in 40.
		• For pan concentrate samples
		    • Laboratory repeats were requested at no less than 1 in 40.
		    • Standard insertion was requested of the laboratory at no less than 1 in 40.
		    • Assay of blank quartz flushes was requested at 1 in 40.
		• Total radiometric count was measured on all assay samples using a SAIC Exploranium GR-110G hand held scintillometer, hired from Terra Search Townsville, pre-calibrated.
		• Reading times were 10 second accumulations, which was the machine maximum, with 100x10 second background accumulations taken per day, per measuring station.
		• IHC Mining Laboratory procedures for pan concentrate composite samples was:
		    • Creation of duplicates by split at a rate of 1 in 24
		    • Screen to -1mm and weigh
		    • Heavy liquid separation and weigh
		    • Pulverization of the heavy mineral fines by extended grind
		    • Portable XRF analysis of the pulp

Criteria	JORC Code explanation	Commentary

		• QAQC implemented is believed sufficient to establish accuracy and precision.
		• Mineral Technologies preliminary met' samples were processed at bench scale by:
		  ◦ 55.2kg of individual samples were combined by rotary homogenisation then split to yield a representative aliquot of 38.3 kg for process testing.
		  ◦ The composite sample was screened to 2000 µm, 500 µm and wet screened at 20 µm with the 500 to 20 µm fraction then passed through 2 stages of gravity separation using Wilfley table (rougher stage).
		  ◦ The Wilfley concentrate was passed through a bromoform heavy liquid separation flask (cleaner stage).
		  ◦ The HLS sinks were attrition cleaned for 5 minutes at a 65% wet weight density and deslimed, then passed through a Geoteknica FM3 froth floatation cell using starch depressant and sodium silicate surfactant.
		  ◦ Both sinks and floats were separately processed through a dry induced Reading magnetic separator.
		  ◦ This yielded 4 final streams of mag and non-mag floats (containing the bulk of REE) and mag and non-mag sinks, containing the bulk of zircon, as well as various tails from each previous stage.
		  ◦ Percentages of material passing or rejecting at each stage were determined by mass.
		  ◦ The float magnetic fraction was further refined by semi-lift magnetic separator to determine feasibility of individual mineral species separation, but the yields of this process were not assayed due to volumetric limits from this round of processing.
		• Mineral Technologies sent samples of the tails and product concentrates, excluding SLM stage products, to Bureau Veritas Brisbane for assay:
		  ◦ Samples were dried and pulverised using tungsten carbide bowls in a vibrating pulveriser to 90% passing 75 µm with a BQF before each sample.
		  ◦ Sample was fused to a glass bead to determine Fe, Si, Al, Cr, Mg, Mn, P, U, Th, V, Nb, S, Ca, K, Ce, Sn, Ti, and Zr oxides by XRF.
		  ◦ LOI was determined by mass after heating to 105°C (drying temp) and 1000°C (fusing temp).
		  ◦ Ce, Dy, Er, Eu, Gd, Ho, La, Lu, Nd, Pr, Sc, Sm, Tb, Tm, Y and Yb were determined by laser ablation of fused bead with ICP-MS finish.
		  ◦ Standards were assayed at 1 in 3 to cover all elements in the suite for both assay methods.
		  ◦ Laboratory repeats were carried out at 1 in 4.
		
		Ark Mines May to June 2023 and November to December 2023 Sandy Mitchell programme:
		• Metre samples were sent to North Australian Laboratories (NAL) for total digest assay:

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>Samples were weighed then kiln dried and re-weighed.
1 in 5 samples was tested for moisture content.
1 in 3 samples was tested for dry loose bulk density.
Sample was then pulverization in an LM-5 to 90% passing 75 µm with assay aliquot selected by laboratory splitter.
Al, Na, Ca, Cr, Fe, Mg, P, S, and Ti were assayed by 4 acid digest with ICP-OES finish.
Sc, Y, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Th, U, Zr, Hf, Nb, Ta, Si, Sr, Pb, K, Sn, W and As were assayed by sodium peroxide fusion in nickel crucibles with ICP-MS finish.
This represents a minor expansion on the June 2023 suite, with the inclusion of Na, K, As, W, Sn and As.
Field duplicates were taken at 1:40 by 50:50 riffle split of the assay aliquot.
For total digest samples:
Laboratory repeats were requested at no less than 1 in 40 but carried out by the laboratory at 1 in 10.
Standard insertion was carried out by the laboratory at 1 in 12.
Assay of blank quartz flushes was requested at 1 in 40.</td></tr>
<tr><td>Verification of sampling and assaying</td><td>The verification of significant intersections by either independent or alternative company personnel.
The use of twinned holes.
Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.
Discuss any adjustment to assay data.</td><td>Ark Mines May to June 2023 and November to December 2023 Sandy Mitchell programme:
Significant intersections have not yet been determined.
11 twin holes have been drilled for a total of 104.85 twin metres Two of these twins are using power auger to twin air core, to support both resource and reconnaissance works.
Data was entered into MS excel then verified against hard copy data, followed by import into Datamine Studio RM for validation.
Primary data is stored as hard copy, electronic tables in CSV format and Datamine format.
Assay data yielding elemental concentrations for rare earths (REE) within the sample are converted to their stoichiometric oxides (REO) in a calculation performed using the conversion factors in the table below.
Rare Earth oxide is the industry accepted form for reporting rare earths. The following calculations have been used for reporting:
TREO = La2O3 + CeO2 + Pr6O11 + Nd2O3 + Sm2O3 + Eu2O3 + Gd2O3 + Tb4O7 + Dy2O3 + Ho2O3 + Er2O3 + Tm2O3 + Yb2O3 + Lu2O3+ Y2O3
CREO = Nd2O3 + Eu2O3 + Tb4O7 + Dy2O3 + Yb2O3
LREO = La2O3 + CeO2 + Pr6O11
HREO = Sm2O3 + Eu2O3 + Gd2O3 + Tb4O7 + Dy2O3 + Ho2O3 + Er2O3 + Tm2O3 + Yb2O3 + Lu2O3+ Y2O3
ND/Pr = Nd2O3 + Pr6O11
TREO – Ce = TREO – CeO2
%NdPr + NdPr/TREO</td></tr>
</table>

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
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<tr><td>Ce</td><td>CeO_2</td><td>1.2284</td></tr>
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<tr><td>Er</td><td>Er_2O_3</td><td>1.1435</td></tr>
<tr><td>Eu</td><td>Eu_2O_3</td><td>1.1579</td></tr>
<tr><td>Gd</td><td>Gd_2O_3</td><td>1.1526</td></tr>
<tr><td>Ho</td><td>Ho_2O_3</td><td>1.1455</td></tr>
<tr><td>La</td><td>La_2O_3</td><td>1.1728</td></tr>
<tr><td>Lu</td><td>Lu_2O_3</td><td>1.1371</td></tr>
<tr><td>Nd</td><td>Nd_2O_3</td><td>1.1664</td></tr>
<tr><td>Pr</td><td>Pr_6O_{11}</td><td>1.2081</td></tr>
<tr><td>Sc</td><td>Sc_2O_3</td><td>1.5338</td></tr>
<tr><td>Sm</td><td>Sm_2O_3</td><td>1.1596</td></tr>
<tr><td>Tb</td><td>Tb_4O_7</td><td>1.1762</td></tr>
<tr><td>Th</td><td>ThO_2</td><td>1.1379</td></tr>
<tr><td>Tm</td><td>Tm_2O_3</td><td>1.1421</td></tr>
<tr><td>U</td><td>U_3O_8</td><td>1.1793</td></tr>
<tr><td>Y</td><td>Y_2O_3</td><td>1.2699</td></tr>
<tr><td>Yb</td><td>Yb_2O_3</td><td>1.1387</td></tr>
</table>
.</td></tr>
<tr><td>Location of data points</td><td>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.
Specification of the grid system used.
Quality and adequacy of topographic control.</td><td>Ark Mines May to June 2023 and November to December 2023 Sandy Mitchell programme:
An initial collar survey by hand held GPS was conducted as a failsafe, with expected accuracy of ±5000mm in x and y, and ±50000mm in z.
Full survey by Twine Surveys was subsequently carried out using RTKdGPS with accuracy of ±20mm in x and y, and ±200mm in z
Twine’s professional RTK survey was implemented between drill collars and used to generate a digital terrain model for high quality topographic control.
All survey data is recorded in MGA 2020 zone 54 and AHD.</td></tr>
<tr><td>Data spacing and distribution</td><td>Data spacing for reporting of Exploration Results.
Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.
Whether sample compositing has been applied.</td><td>Ark Mines May to June 2023 and November to December 2023 Sandy Mitchell programme:
Data spacing for 3 lines of drilling is 60m x 120m.
Data spacing for the remaining 13 lines is 120m x 120m
No compositing has been applied to 1m samples for total digest assay.
Pan concentrates were composited per drill hole.
Preliminary metallurgical sample was composited as discussed under Laboratory Tests.
Representative metre samples for total digest assay were not composited, residual sub-metre hole ends were similarly assayed separately to preserve geometric representation.</td></tr>
<tr><td>Orientation of data in relation to geological structure</td><td>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</td><td>Ark Mines May to June 2023 and November to December 2023 Sandy Mitchell programme:
Deposit type is fluvial channel placer with channels believed oriented north to north-east and meso scale structure oriented sub-horizontal arcuate. The applied vertical sampling is the optimal orientation for the deposit type.</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
	• *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• No bias by orientation or spatial relationships has been identified.
Sample security	• *The measures taken to ensure sample security.*	Ark Mines May to June 2023 and November to December 2023 Sandy Mitchell programme: • Samples were collected after logging and transported at the end of each day to the company locked storage in Chillagoe. • Samples were boxed in closed pumpkin crates, wrapped in plastic for shipping by courier to the laboratory in Pine Creek, NT. • Samples for IHC Mining and Downer Mineral Technologies were similarly boxed, wrapped and couriered to the laboratories, but prior to shipping were stored on site at the Ark fenced bulk bag farm. • Bagged reject was stored on site in Ark's fenced secure bag farm and covered in UV resistant tarping for future use.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	Ark Mines May to June 2023 and November to December 2023 Sandy Mitchell programme: • Full audit of sampling techniques and data available to date was carried out by geological consultants, Empirical Earth Science. • EES notes that the composited concentrate samples results in assay representing diluted material with no internal separation possible. • EES noted that the hand panning process of such fine material is prone to heavy mineral loss, with the possibility that concentrates underrepresent the total heavy mineral fraction. • ESS noted that the pXRF technique used in initial concentrate assays is not suited to yield full REE data, but that the results can inform approximate proxy calculations for the full REE suite. • EES noted that none of these factors apply to the representative metre samples and total digest assays, which meet best practice. • EES noted that the preliminary metallurgy was of insufficient volume and source dispersion to represent the entire eventual resource, but was well suited to its stated purpose of proof of concept, testing recovery technique, and process to inform the next stage of bulk metallurgy. • EES also noted that the preliminary metallurgy was selected from pan con composite results, representing a median grade material within that data set, and is thus a reasonable preliminary representation of grade and recovery performance.

Appendix B: Sandy Mitchell Stage 1 partial assay return

See Appendix A for stoichiometric oxide factors and REE calculations used.

BHID	FROM	TO	Rec	TREO	TREO+Y+Sc	TREO+Y	LREO+Sc	LREO	HREO+Y	HREO	CREO	MagREO	Sc_2O_3	Y_2O_3	La_2O_3	CeO_2	Pr_6O_{11}	Nd_2O_3	Sm_2O_3	Eu_2O_3	Gd_2O_3	Tb_4O_7	Dy_2O_3	Ho_2O_3	Er_2O_3	Tm_2O_3	Yb_2O_3	Lu_2O_3	ThO_2	U_3O_8	Nb_2O_5	TiO_2	ZrO_2
units:	*m*	*m*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
SMDH 00013	3	4	70	421.1	478.9	440.9	451.3	413.3	27.6	7.8	100	100.2	38	19.8	96.1	199.1	21.9	72.6	13.5	1.9	8.2	1.1	4.6	0.7	1.4				39.5	5.8	54.1	3636.5	241.8
SMDH 00013	9	10	70	743.9	826.3	780.3	774	728	52.3	15.9	179	179.4	46	36.4	164.8	354.3	38.7	130.2	23.5	1.9	14.6	1.9	8.6	1.1	2.3		2		63.7	8.3	50.4	4679	535.6
SMDH 00012b	0	1	40	567.5	625.1	608.1	568	551	57.1	16.5	150.1	137.6	17	40.6	122.8	266.9	29.8	99.4	19	1.7	11.4	1.4	7	1.3	3.1		3.1	0.6	53.1	9.2	28.6	2837.4	546.1
SMDH 00012b	1	2	50	691.9	761.5	738.5	694.7	671.7	66.8	20.2	186	172.6	23	46.6	149.1	322	35.3	127	22.6	2.1	13.6	1.8	8.5	1.5	3.7	0.6	3.5	0.6	62.1	9.7	31	3473	690
SMDH 00012b	4	5	70	412.2	463.7	437.7	428.9	402.9	34.8	9.3	107.4	101.2	26	25.5	90.7	190.6	21.6	73.8	14.8	2.3	9.1	1.1	4.7	0.8	1.8		0.9		37	7.1	42.6	3504.7	412.5
SMDH 00012b	5	6	70	402.7	460.4	432.4	418.2	390.2	42.2	12.5	111.3	101.5	28	29.7	84.8	185.9	21.6	73.2	14.1	1.7	8.9	1.2	5.5	1	2.4		2.4		37.2	5.9	33.3	3568.1	331.6
SMDH 00012b	6	7	80	338.1	381.8	361.8	348.2	328.2	33.6	9.9	90.4	83.4	20	23.7	72	157	18.1	60.3	11.9	1.4	7.5	0.9	4.1	0.8	1.9		2.2		33.3	3.9	27.2	3536.4	392.5
SMDH 00012b	8	9	80	496.5	558.2	527.2	515	484	43.2	12.5	129.6	123.9	31	30.7	105	229.5	27.1	89.2	19	2.1	12.1	1.4	6.2	1	2.4		1.5		44.7	4.8	40.9	4780.8	408.3
SMDH 00012b	9	10	90	325.5	382.1	362.1	336.2	316.2	45.9	9.3	102.3	81.3	20	36.6	66.1	152.4	17.2	59	11.9	1.6	8	0.9	4.2	0.8	1.7		1.7		27	2.7	24.7	3181.1	270.8
SMDH 00012b	10	11	80	356.4	405.1	384.1	369.2	348.2	35.9	8.2	99.8	89.7	21	27.7	74.4	165.5	19.3	65.7	13.1	1.7	8.5	0.9	3.8	0.7	1.3		1.5		31.5	2.7	24.7	3478	250.8
SMDH 00012b	11	12	75	348.9	410	382	368.4	340.4	41.6	8.5	101.5	85.4	28	33.1	72.8	165.1	18.4	61.9	12.5	1.4	8.3	0.9	4.2	0.7	1.6		1.1		31.6	3.9	25.6	4488.9	471.7
SMDH 00012b	13	14	80	422.7	480.4	457.4	436.1	413.1	44.3	9.6	117.9	103.9	23	34.7	90.1	198.6	22.4	75.9	14.8	1.7	9.6	1.1	4.5	0.8	1.7		1.5		35.7	3.1	24	3804.9	174.1
SMDH 00012	0	1	45	616.7	688.8	673.8	617.1	602.1	71.7	14.6	177.8	152.2	15	57.1	131.6	292	32.9	110.9	19.9	1.4	13.4	1.5	6.9	1.3	2.7		2.2		54.2	5.2	22.3	2246.9	742.3
SMDH 00012	1	2	60	403.4	466.5	440.5	420.4	394.4	46.1	9	112.3	94.7	26	37.1	85.1	198.1	21	68.9	12.3	1.5	7.5	0.8	4	0.8	1.7		1.7		36	2.9	19.5	4557.2	646.8
SMDH 00012	2	3	65	207.6	242.5	224.5	221.8	203.8	20.7	3.8	60.9	54.1	18	16.9	46.3	93.4	11.1	40.7	7	1	4.3		2.3		0.7		0.8		15.6	1.5	19.7	2857.5	533
SMDH 00012	3	4	70	351	408.2	388.2	362.3	342.3	45.9	8.7	106.9	86.5	20	37.2	75.1	166.2	18	63.1	11.6	1.2	7.1	0.9	4.5	0.8	1.7		0.8		29.2	3.4	23.5	3978.4	349
SMDH 00012	4	5	75	464	515.5	487.5	483	455	32.5	9	111	109.7	28	23.5	101.3	225.5	23.7	81.6	13.7	1.5	7.7	0.8	3.6	0.7	1.7		2.2		40.4	3.5	19.2	4095.2	445.2
SMDH 00011b	2	3	85	437.8	488.1	462.1	453.1	427.1	35	10.7	112.1	110.4	26	24.3	93.5	205.6	23.8	81.9	13.7	1.2	7.4	0.8	3.9	0.8	1.9		3.3		41.9	3.8	18.7	4493.9	372
SMDH 00011b	4	5	90	155.1	186.2	163.2	177	154	9.2	1.1	46.6	47.6	23	8.1	31.9	67.6	10.6	35.9	4.1	1.5	2.4		1.1						11.3	3.2	10	3116	290
SMDH 00011b	7	8	60	287.2	313.5	305.5	286.9	278.9	26.6	8.3	74.3	69.6	8	18.3	61.7	134.6	14.9	50.7	9.6	1.3	6.1	0.7	3.3	0.6	1.1		2.6		24.1	1.8	22.3	1404.5	322.3
SMDH 00011	1	2	60	434.5	490.9	467.9	445.7	422.7	45.2	11.8	115.2	102.2	23	33.4	96.3	207.4	22.1	74.2	13.2	1.7	7.8	1.1	4.8	0.9	2.2		2.8		36.9	4.5	16.5	3823.3	274.5
SMDH 00010b	1	2	50	476.5	618.9	567.9	489.6	438.6	129.3	37.9	188.1	118.1	51	91.4	95.1	210.5	23.3	83.2	14.6	1.9	10	1.5	10.1	2.5	6.7	1.1	15	1	37	5.7	26.2	4652.3	333.8
SMDH 00010b	4	5	85	407.5	458.9	432.9	422.2	396.2	36.7	11.3	104.4	98.4	26	25.4	88.4	192.6	21	72.6	12.4	1.6	7.6	0.8	4	0.8	1.7		4		34.7	3.4	17.6	4003.4	315.4
SMDH 00010	0	1	50	1013.2	1102	1081	1004.7	983.7	97.3	29.5	263.6	247	21	67.8	207.5	485.2	52.8	181	35	1.6	20.6	2.4	10.8	1.9	4.3	0.7	8.8	0.6	107.5	6.3	21.6	3880	354
SMDH 00010	1	2	55	287.6	333	308	304.1	279.1	28.9	8.5	79.8	74	25	20.4	61	130.6	15.6	54.1	10.6	1	6.2	0.7	3.6	0.7	1.8		1.7		30.8	1.5	22.7	4620.6	401.6
SMDH 00010	2	3	60	434.1	476.3	462.3	436.1	422.1	40.2	12	118.4	112.4	14	28.2	92.1	197.4	23.7	82.3	15.9	1.5	9.2	1.1	5.3	0.9	2.3		2.4		47.9	2.1	28.8	3436.3	478.9
SMDH 00009b	0	1	55	1077.4	1175.4	1143.4	1080.7	1048.7	94.7	28.7	279.1	269.7	32	66	235.1	502.3	58.6	195.4	34.7	2	20.6	2.6	13.1	2.2	5	0.8	4.3	0.7	99.6	6.4	21.2	5461.4	726.6
SMDH 00009b	1	2	60	812.6	874.9	845.9	827.5	798.5	47.4	14.1	195	203.3	29	33.3	185.4	378.8	43.7	150.2	24.4	2.1	13.9	1.6	7.8	1.3	2.4		1		70.4	3.2	21.3	4779.1	360.5
SMDH 00009b	7	8	75	623	685.3	660.3	632.7	607.7	52.6	15.3	161.9	154.7	25	37.3	140.1	287.1	32.5	113.7	19.9	2.4	12	1.4	7.1	1.3	3		2.5		58.4	3.3	23.9	4779.1	381.2
SMDH 00009	0	1	45	475.2	538.4	518.4	477.1	457.1	61.3	18.1	139.3	119.6	20	43.2	101.3	218.7	24.9	86.3	15	1.4	9.5	1.3	7.1	1.4	3.7	0.6	3.4	0.6	42.2	3.3	18.9	3840	480.2
SMDH 00008b	0	1	50	417.4	474.2	451.2	425.5	402.5	48.7	14.9	119.9	107.3	23	33.8	90.1	189.4	22.5	77.3	13.5	1.3	8.4	1.1	6.4	1.1	2.7	0.6	3		37.9	2.4	17.2	5886.7	478.5
SMDH 00008	1	2	65	390.1	472.6	431.6	413.7	372.7	58.9	17.4	118.1	95.8	41	41.5	86.1	177	20.5	68	12.1	1.3	7.7	0.9	6.4	1.3	3.4	0.6	4.1	0.7	41.9	2.2	21.9	5114.4	248.4
SMDH 00007b	0	1	45	673.1	771.9	745.9	679.2	653.2	92.7	19.9	203.6	164.6	26	72.8	142.6	318.8	35.5	119.2	21.6	1.7	13.8	1.6	8.3	1.5	3.5	0.6	3.8	0.6	58.8	4.2	22.5	3459.6	873
SMDH 00007b	1	2	5	354.8	448.5	416.5	371.2	339.2	77.3	15.6	135.2	89.4	32	61.7	72.7	163.3	17.9	64.4	11.4	2	7.5	1.1	6	1.3	3	0.6	3	0.6	29.9	3.7	26.6	3888.3	489.5
SMDH 00007	1	2	50	310.3	376	348	329.6	301.6	46.4	8.7	100.3	77.2	28	37.7	67.2	143.2	16.6	56.1	10.2	2	6.3	0.8	3.7	0.8	1.6		1.8		25	2.2	14.4	3311.2	499.7
SMDH 00007	2	3	70	382.2	445.6	422.6	394.6	371.6	51	10.6	119.8	98	23	40.4	81.2	176.3	20.5	72.1	12.2	1.9	7.4	0.8	4.6	0.8	2.1		2.3		31.1	2.1	30.6	3226.1	448.9
SMDH 00006b	1	2	55	662.1	779.4	753.4	664	638	115.4	24.1	225.6	166.7	26	91.3	141.8	303.8	36.1	118.7	20.8	3.7	13.1	1.9	10	2.1	4.3	0.7	4.4	0.7	45.5	3.7	24.2	3534.7	549.5
SMDH 00006b	4	5	75	432.8	504.9	481.9	444.5	421.5	60.4	11.3	135.4	107.6	23	49.1	91.6	206.2	22.7	78.6	12.6	1.4	8.4	0.9	5.4	1	2.2		1.8		34.7	2	14.9	2924.2	486.8
SMDH 00006b	8	9	70	720.4	832.3	804.3	727.1	699.1	105.2	21.3	234.9	185.7	28	83.9	151.5	334.7	37.7	137.1	21.5	3	13.6	1.5	9.4	1.8	3.8	0.6	3.6	0.6	57.2	3.5	22.3	3471.3	508.6
SMDH 00006b	11	11.5	45	763.2	902.6	847.6	795.8	740.8	106.8	22.4	238	191.4	55	84.4	161.1	359.8	40.6	139.6	23.2	2.8	13.7	1.6	9.6	1.8	4.1	0.7	4	0.6	58.9	3.4	22.7	4018.5	636.4
SMDH 00005b	0	1	20	622.3	668.6	657.6	616.6	605.6	52	16.7	139.9	133.2	11	35.3	111.4	338.3	29.8	95.4	17.7	1.2	11.8	1.3	6.7	1.5	3	0.6	3	0.6	56.1	3.3	18.6	4935.9	786.6
SMDH 00005b	1	2	25	518.3	575.8	543.8	538.6	506.6	37.2	11.7	124.6	125	32	25.5	106.5	253.4	27.5	91.3	16	1.6	10.3	1.2	5	0.9	2.1		2.5		44.4	2.7	17.6	5079.4	507.5
SMDH 00005	1	2	40	382.1	437.6	400.6	412.8	375.8	24.8	6.3	90.6	90.7	37	18.5	84.6	184.1	20.1	66.5	11.5	1.5	7.5	0.7	3.4	0.7	1.5				32.3	3.1	19.2	6597.3	770.9
SMDH 00002b	7	7.5	50	145.3	167.3	152.3	158.7	143.7	8.6	1.6	36.7	36.3	15	7	33.1	66.8	8.1	27.2	4.5	1.5	2.5		1		0.6				12.2	2	12.7	3319.5	285.8
SMDH 00001	0	1	40	379.9	444.1	407.1	406.3	369.3	37.8	10.6	103.4	94.7	37	27.2	85.3	171.9	19.7	69.5	13.5	1.2	8.2	0.9	4.6	1	2.4		1.7		37.6	4.5	17.9	5506.4	745.4
SMDH 00205	0	1	45	482.5	534.2	513.2	487.9	466.9	46.3	15.6	126.5	119.9	21	30.7	99.3	226.3	25.6	87.1	17	1.5	10.1	1.2	6	1.1	2.9		4.4		41.5	3.5	19.9	4588.9	545
SMDH 00205	4	5	40	24.1	38.8	26.8	36.1	24.1	2.7		7.2	5.5	12	2.7	6.9	9.8	1	4.5	1.2		0.7								1.1	0.6	8.9	2315.3	200.5
SMDH 00206	0	1	40	368.6	425.2	397.2	385.2	357.2	40	11.4	105.8	96.2	28	28.6	76.8	167.9	20.2	70.2	13.2	1.2	7.7	0.9	4.9	1	2.2		2.4		34.7	2.8	19	2500.5	504.8
SMDH 00207	10	10.5	40	175	197.9	182.9	187.3	172.3	10.6	2.7	42.9	42.1	15	7.9	37.5	83.4	9.1	31.6	5.6	2	3.1		1.4		0.6		0.7		14.6	1.1	18	2762.4	313.7
SMDH 00211	0	1	20	609.2	687	659	617.8	589.8	69.2	19.4	168	148	28	49.8	128.2	291.9	31.2	107.3	18.4	1.4	11.4	1.5	8	1.6	3.5	0.6	3.6	0.6	56.2	4	21.5	3933.4	531.5
SMDH 00213b	0	1	50	562.3	651.7	613.7	578.3	540.3	73.4	22	164.5	139.8	38	51.4	113.2	267.4	28.3	101.2	17.2	1.6	11.4	1.5	8.8	1.9	3.9	0.8	4.4	0.7	51.8	4.7	28.3	4505.5	572.6
SMDH 00213b	10	11	20	455.9	521.7	496.7	464.8	439.8	56.9	16.1	137	118	25	40.8	93.4	211.3	23.7	86.4	14.5	1.9	8.6	1.2	6.7	1.6	2.9		3.1	0.6	38.3	3.1	24	3766.6	540
SMDH 00216	4	5	40	292.3	349	312	320.9	283.9	28.1	8.4	78.2	72.6	37	19.7	62.6	136.6	15.1	52.6	9.5	1	6.5	0.8	4.1	0.7	1.5		1.3		23.6	2.9	23	2794.1	400.1
SMDH 00216b	0	1	30	328	372.8	347.8	344.5	319.5	28.3	8.5	85.9	81	25	19.8	69.1	155.3	16.3	60.1	11	1.4	6.3	0.8	3.8	0.7	1.5		1.7		27.2	2.9	16.9	3149.4	295.8
SMDH 00216b	11	12	85	250.9	319.5	278.5	280.7	239.7	38.8	11.2	80.9	65.2	41	27.6	54.1	109.9	13.5	45.5	8.3	1.6	6.8	0.9	5.3	0.9	2.2		1.9		18.5	1.5	21.5	5785	792.8
SMDH 00216b	12	13	95	293.7	392.8	334.8	333.2	275.2	59.6	18.5	103.1	74.9	58	41.1	62.7	125.7	14.6	51.3	10.2	1.7	9	1.2	7.8	1.4	3.3	0.6	3.5	0.7	20.8	2.2	25.7	8222.1	637
SMDH 00216b	13	14	85	292.6	351.3	322.3	310	281	41.3	11.6	86.9	71	29	29.7	64.6	132.7	15.2	50.2	10.3	1.4	6.6	0.9	4.7	1	2.4		2.6		24	2.7	20	6210.3	715.7
SMDH 00216b	14	14.5	80	321.5	352.4	337.4	328.7	313.7	23.7	7.8	78.2	78.5	15	15.9	72.5	147.2	17.6	56	11.6	1.4	7.4	0.9	4	0.6	1.3		1		27.2	2.5	22.9	7039.4	399
SMDH 00217	0	1	25	292.2	331.4	310.4	305.3	284.3	26.1	7.9	78.2	73	21	18.2	62.6	136.5	14.7	54	9.3	1.7	5.5	0.7	3.6	0.7	1.5		1.4		20.5	2.4	22.6	4403.8	415.1
SMDH 00217	1	2	30	775.5	818	792	793.9	767.9	24.1	7.6	140.5	160.1	26	16.5	205	378.1	38.9	116.6	16.6	2.8	9.9	0.9	3.7	0.6	1.4		1		31.3	2.2	48.6	8187	490.3
SMDH 00217	2	3	20	381.6	444.1	413.1	400.4	369.4	43.7	12.2	104.3	90.8	31	31.5	81.4	182	19.6	64.5	12.5	1.6	7.8	1.1	5.6	1.1	2.1		2.3		32.1	4.4	28.8	4667.3	398.8
SMDH 00217	3	4	50	297.2	360.6	331.6	314.5	285.5	46.1	11.7	91.6	71.1	29	34.4	67.6	135.7	15.1	50.2	9.5	1.2	6.2	0.8	5	1	2.6		2.3		24	2.9	18.6	3976.8	449.4
SMDH 00217	4	5	30	331.1	374.6	349.6	347.9	322.9	26.7	8.2	80.7	78.1	25	18.5	75.3	155.4	17.3	56	10.4	1.4	7.1	0.8	4	0.7	1.4		1.3		27.7	2.8	21.5	5975.1	459.5
SMDH 00217	5	6	65	378.8	411.2	394.2	388.7	371.7	22.5	7.1	86.7	91	17	15.4	85.5	179.1	21.1	65.3	11.8	1.4	7.5	0.9	3.7	0.6	1.1		0.8		33.2	3.1	21.5	6614	322.2
SMDH 00217	6	7	70	265.9	304.5	279.5	284.8	259.8	19.7	6.1	66.9	65.6	25	13.6	61.1	121.6	13.8	47.8	9.2	1.5	4.8	0.6	3.4		1.1		1		19.3	1.9	24.3	6320.4	427.5
SMDH 00217	7	8	50	249.2	299.4	271.4	267.8	239.8	31.6	9.4	72.1	61.9	28	22.2	57.1	112.5	13.3	43.2	7.3	1.3	5.1	0.7	4.7	0.7	1.6		1.7		20	2	20	4992.6	392.5
SMDH 00217	8	8.5	80	203.2	241.3	220.3	217.4	196.4	23.9	6.8	56.4	49	21	17.1	45.3	94.3	11	33.8	6.6	1.3	4.1	0.6	3.6		1.3		1.3		16.6	2	17.2	3958.4	391.3

BHID	FROM	TO	Rec	TREO	TREO+Y+Sc	TREO+Y	LREO+Sc	LREO	HREO+Y	HREO	CREO	MagREO	Sc_2O_3	Y_2O_3	La_2O_3	CeO_2	Pr_6O_{11}	Nd_2O_3	Sm_2O_3	Eu_2O_3	Gd_2O_3	Tb_4O_7	Dy_2O_3	Ho_2O_3	Er_2O_3	Tm_2O_3	Yb_2O_3	Lu_2O_3	ThO_2	U_3O_8	Nb_2O_5	TiO_2	ZrO_2
units:	*m*	*m*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
SMDH 00217b	0	1	40	440.1	483.1	462.1	451	430	32.1	10.1	107.1	106.8	21	22	98.7	207.1	23.9	77	13.1	2.2	8	0.9	5	0.8	1.7		1.7		37.1	2.9	11.4	5394.6	413.6
SMDH 00217b	1	2	50	298.8	322.4	310.4	305.5	293.5	16.9	5.3	70.4	73.5	12	11.6	66.6	140.8	16.2	53.7	9.7	1.5	5	0.6	3		0.8		0.9		25.3	1.4	8.6	3774.9	261.4
SMDH 00217b	2	3	75	269	294.3	285.3	270.7	261.7	23.6	7.3	69.5	65.6	9	16.3	59.5	123.8	14.4	46.7	9.5	2	5.8	0.7	3.8	0.6	1.1		1.1		21.3	1.1	7.2	1631.4	134.5
SMDH 00217b	3	4	25	191.7	219.3	204.3	203	188	16.3	3.7	51.7	47.5	15	12.6	40.3	91.3	10	34.5	6.4	1.6	3.9	0.6	2.4		0.7				23.3	3.3	9.4	1306.1	160.6
SMDH 00217b	4	5	35	156.7	182.4	171.4	162.7	151.7	19.7	5	45.5	37	11	14.7	35.9	70	8.5	25.7	6	2.3	3.3		2.8		1.1		1.1		37.8	1.4	10	3494.7	170.1
SMDH 00217b	5	6	50	392.8	418.4	407.4	397.1	386.1	21.3	6.7	91.1	95.5	11	14.6	88.9	183.6	21.5	68.8	13.1	2.5	7.7	0.8	4.4		0.9		0.6		32.9	1.5	7.2	2362	138.3
SMDH 00217b	6	7	70	539.8	585.9	567.9	545.5	527.5	40.4	12.3	138	136.5	18	28.1	114.1	250.8	29	99.1	19.5	2.4	12.6	1.4	7	1	1.8		1.1		53.5	5.8	22.9	6368.8	100.2
SMDH 00217b	7	7.5	65	294.3	352	323	311.4	282.4	40.6	11.9	87.7	72.1	29	28.7	62.4	133.5	15.1	50.2	11.4	2	7.8	1.1	5.7	1	1.9		2.2		22.9	1.5	28.6	10859.3	83.9
SMDH 00218	0	1	30	482.6	546.8	520.8	491.5	465.5	55.3	17.1	131.8	116.9	26	38.2	107.3	223.6	24.8	84	14.4	1.5	9.9	1.3	6.8	1.3	3.1	0.6	3.4	0.6	43.7	3.8	15.7	4353.7	422.4
SMDH 00218	1	2	25	481.6	654.5	608.5	475.9	429.9	178.6	51.7	235.1	129.1	46	126.9	92.5	192.6	23.1	84	19.1	2.2	16.4	2.7	19.3	4.1	10.5	1.8	11.7	1.6	30.7	3.9	21.5	7056.1	379.2
SMDH 00218	2	3	60	413.4	555.9	511.9	416.5	372.5	139.4	40.9	187.6	107.9	44	98.5	82.6	169.9	20.1	71.2	15.2	1.3	12.2	2	14.6	3.2	8.1	1.4	10.1	1.5	29	4.7	24.3	7331.3	358.2
SMDH 00218	3	4	50	866	966.2	934.2	868.7	836.7	97.5	29.3	215.7	186.2	32	68.2	222	404.5	41.2	131.8	21.3	2.5	13.4	1.8	11.4	2.2	5.1	1	6.8	1	46	6.8	52.9	7369.7	351.5
SMDH 00218	4	5	50	414	488.6	460.6	422.9	394.9	65.7	19.1	126.7	99.5	28	46.6	92.8	186.8	20.7	70	13.3	1.3	10	1.2	7.6	1.5	3.7	0.6	3.9	0.6	33.1	3.8	18.6	5192.8	279.2
SMDH 00218	5	6	90	303.6	353.5	335.5	308.4	290.4	45.1	13.2	94.6	77.5	18	31.9	66.7	133.9	15.8	54.8	10.8	1	7.4	0.9	6	1	2.7		2.6		24.9	2.1	15.7	3581.4	215.5
SMDH 00218	6	7	90	446.9	513.9	488.9	453.4	428.4	60.5	18.5	127.6	106.7	25	42	96.8	208.6	22.5	75.9	13.7	1.4	9.5	1.3	7	1.5	3.2	0.6	4.3	0.6	39.3	5.1	23.7	5393	378
SMDH 00218	7	8	50	558.2	586.7	575.7	560.3	549.3	26.4	8.9	123.2	132.2	11	17.5	130.2	261.9	28.9	96.8	18.4	2.4	10.7	1.3	5.2	0.6	1.1		0.7		55.6	2.7	11.4	2762.4	147.5
SMDH 00218	8	9	60	509	540.3	528.3	512.1	500.1	28.2	8.9	120.8	127.2	12	19.3	118.3	231.4	27.8	93.3	16.6	2.1	10.6	1.2	4.9	0.8	1.3		0.7		48.2	2.7	17.2	3469.6	216
SMDH 00218	9	10	90	484.7	558.5	526.5	498.8	466.8	59.7	17.9	138.7	120.8	32	41.8	108.1	217.8	25.3	86.3	16.6	1.4	11.3	1.4	7.8	1.4	3.3	0.6	3.4		44.5	3.7	21.5	5871.7	354.2
SMDH 00218	10	11	80	162.7	263.1	196.1	216	149	47.1	13.7	72	45.1	67	33.4	31.2	66.8	7.9	30.3	6.4	1.4	5	0.9	6	1.1	2.9		2.8		9.7	1.9	12.9	10053.6	183.8
SMDH 00218	11	12	80	445.5	520.2	488.2	457.7	425.7	62.5	19.8	129.9	109.4	32	42.7	99.8	199.7	23.4	77	14.7	1.2	9.9	1.3	7.7	1.4	3.7	0.7	4.4	0.6	37.7	3.5	17.2	5062.7	394.3
SMDH 00218	12	13	90	299.8	353	330	310.3	287.3	42.7	12.5	92.9	77	23	30.2	65.7	133.6	15.8	54.8	9.3	1.5	6.6	0.9	5.5	1	2.7		2.4		25.5	2	14.3	4108.5	250.4
SMDH 00218	13	14	90	518.3	614	577	530.9	493.9	83.1	24.4	151	115.6	37	58.7	123.8	241	24.9	79.3	14.1	1.6	9.2	1.4	10	1.9	4.2	0.8	5.4	0.7	34.6	3.5	42.9	7041.1	420.5
SMDH 00218	14	15	90	238.7	312.3	277.3	259	224	53.3	14.7	87.6	59.6	35	38.6	51.4	104	11.8	40.8	8.2	1.2	6.6	0.9	6.1	1.3	2.6	0.6	3.2		18	2.6	25.7	5785	281.2
SMDH 00218	15	16	90	517.5	598.5	567.5	527.3	496.3	71.2	21.2	150.7	125.7	31	50	116.6	235.5	26.6	88.6	15.9	1.6	11.5	1.5	9	1.7	3.8	0.8	4.4		44.8	3.4	24.3	5454.7	422.4
SMDH 00218	16	17	90	490.8	602.6	567.6	493.7	458.7	108.9	32.1	173.3	120.5	35	76.8	105.4	218.2	25.4	81.6	15.3	1.4	11.4	1.8	11.7	2.7	5.9	1.3	7.6	1.1	41.6	3.2	24.3	5431.3	429.3
SMDH 00218	17	17.5	60	395.2	483.1	452.1	402.6	371.6	80.5	23.6	133.4	95.7	31	56.9	87.3	176.4	20.2	65.3	13.1	1	8.3	1.4	8.8	1.9	4.3	0.9	5.6	0.7	33.9	4.4	27.2	6347.1	418.1
SMDH 00218b	0	1	30	157.5	187.3	170.3	170.6	153.6	16.7	3.9	44.4	38.5	17	12.8	34.6	71.9	8.5	27.8	5.7	1.6	3.5		2.2		0.9		0.8		14.2	4.8	11.9	2587.2	246.3
SMDH 00218b	1	2	45	74	92.1	80.1	84	72	8.1	2	22.8	19.3	12	6.1	17.9	31.1	4	14	2.1	1.4	1.5		1.3				0.7		5.6	0.8	11.4	2680.6	262.6
SMDH 00218b	2	3	70	43.3	58.3	49.3	50.8	41.8	7.5	1.5	15.2	9.8	9	6	11.1	18.1	1.9	7	1.5	1.3	0.9		0.9				0.6		2.6	0.6	8.6	2041.8	186.1
SMDH 00218b	3	4	50	77.7	97.2	86.2	85.9	74.9	11.3	2.8	23.3	17.1	11	8.5	19.6	33.7	4	11.7	2.6	1.7	1.6		1.4		0.6		0.8		3.9	0.7	14.3	2362	147.2
SMDH 00218b	4	5	65	89.5	111.1	97.1	100.7	86.7	10.4	2.8	27.2	22.6	14	7.6	21.5	37.2	4.7	16.3	3.1	1.7	2.2		1.6		0.6		0.6		3.9	0.8	25.7	4303.7	211.7
SMDH 00218b	5	6	65	67.3	79.9	71.9	74.2	66.2	5.7	1.1	18.8	16.2	8	4.6	15.6	30.2	3.4	11.7	2.2	1.4	1.7		1.1						5.3		7.2	1631.4	212.2
SMDH 00218b	6	7	85	67.9	85.3	76.3	73.7	64.7	11.6	3.2	23.1	16.8	9	8.4	16.7	28.1	3.4	11.7	2	1.3	1.5		1.7		0.6		0.9		3.5	0.6	14.3	2183.5	284.2
SMDH 00218b	7	8	90	89.4	116.4	99.4	103	86	13.4	3.4	28.2	21	17	10	21.1	39.7	4.2	15.2	2.4	1.4	2		1.6		0.8		1		6.7	1.1	22.9	5022.6	705.7
SMDH 00218b	8	9	85	99.3	119.9	105.9	110.3	96.3	9.6	3	28.4	25.7	14	6.6	21.2	44.7	5.3	18.7	2.7	1.4	2.3		1.7		0.6		0.7		7.9	1.1	14.3	4470.5	456.6
SMDH 00219	0	1	40	301.1	331.9	317.9	309.7	295.7	22.2	5.4	75.2	70.9	14	16.8	65.4	145	14.6	52.6	10.1	2.1	5.9	0.7	3	0.7	1				28.2	4.6	13.6	3042.6	341.8
SMDH 00219	1	2	40	385.7	408	397	391.7	380.7	16.3	5	81.9	86.6	11	11.3	97.6	182.2	18.8	64.2	8.8	2.8	6.3	0.6	3		0.8		0.6		20	0.9	18.6	2402.1	184.9
SMDH 00219	2	3	60	229.3	246.9	237.9	235.2	226.2	11.7	3.1	52.7	54.3	9	8.6	53.9	107.2	12.1	39.7	6.7	1.9	4.7		2.5		0.6				19.7	0.8	12.9	1746.5	125.5
SMDH 00219	3	4	50	769.9	791.3	782.3	773.1	764.1	18.2	5.8	134.8	156.2	9	12.4	211.3	373.4	37	114.3	15.2	3.2	9.7	0.9	4		0.9				25.7	1.1	47.2	2080.1	147.6
SMDH 00219	4	5	50	270.6	289	280	276.1	267.1	12.9	3.5	63.5	66.4	9	9.4	65.4	124.4	13.9	50.2	7.5	1.6	4.1		2.3		0.6		0.6		21.2	0.9	18.6	1724.8	141.3
SMDH 00219	5	6	60	732.6	757.3	748.3	734.2	725.2	23.1	7.4	141.4	158.6	9	15.7	186.9	354.9	35.8	117.8	18.4	2.9	8.5	0.9	4.1	0.6	1		0.8		38.8	1.4	40.1	1931.7	126.7
SMDH 00219	6	7	70	216.8	234.7	228.7	218.8	212.8	15.9	4	54.1	52.3	6	11.9	49.5	101.2	11.5	38.5	6.1	1.4	4.6		2.3		0.8		0.9		18.4	2.1	12.9	1326.1	106
SMDH 00219	7	7.5	80	227.2	253.5	245.5	226.7	218.7	26.8	8.5	64.3	56.2	8	18.3	51.6	102.4	11.8	39.7	6.8	1.6	4.8	0.7	4	0.7	1.4		1.7		19.5	1.2	8.6	1262.8	124.4
SMDH 00219b	0	1	45	257.9	285.7	276.7	260.1	251.1	25.6	6.8	70.8	64.1	9	18.8	58.1	118.8	13	47.8	7.9	0.9	4.6		3.3	0.7	1.4		1.4		23.2	2.1	11.4	2111.8	332.3
SMDH 00219b	1	2	45	327	356.4	344.4	331.7	319.7	24.7	7.3	81.2	78.8	12	17.4	76.1	152.1	16.2	58.3	10.4	1.2	5.4	0.7	3.6	0.6	1.1		1.3		26.9	1.9	12.9	2690.6	348.1
SMDH 00219b	2	3	50	327.2	354	337	340	323	14	4.2	70.2	76.1	17	9.8	77.5	156.1	17.2	56	8.8	1.5	5.9	0.6	2.3		0.6		0.7		30.7	1.9	28.6	4545.6	481.2
SMDH 00219b	3	4	55	176.2	186.8	184.8	175.4	173.4	11.4	2.8	15.7	10.4	2	8.6	17.4	144	3.3	5.8	1.6		1.3		1.3		0.7		0.8		1.4	4.1	2.9	4722.4	
SMDH 00219b	4	5	90	1072.7	1115.4	1094.4	1083.1	1062.1	32.3	10.6	199.5	228.2	21	21.7	285.5	513.5	53.6	168	25	3.2	13.3	1.1	5.5	0.7	1.8		1.5		59.9	2.2	65.8	9251.3	569.2
SMDH 00219b	5	6	90	737.9	821.6	769.6	775.1	723.1	46.5	14.8	165.8	169.2	52	31.7	186.9	341.7	38.2	123.6	18.8	3.1	10.8	1.3	6.1	1.1	2.6		3	0.7	42.3	3.4	52.9	12789.3	946.4
SMDH 00219b	6	7	90	572.7	715.7	666.7	577.6	528.6	138.1	44.1	201.1	132	49	94	131.8	249.6	27.3	92.1	15.1	2.4	10.3	1.5	11.1	3.2	9.7	1.9	14.1	2.6	34.7	3.2	45.8	10720.9	1015.8
SMDH 00219b	7	8	85	585.8	871.7	800.7	552.4	481.4	319.3	104.4	330.7	138.6	71	214.9	114.8	222.3	25.1	87.5	15.2	2.3	14.2	2.6	23.4	7	24.6	4.7	35.5	6.6	26.5	3.4	44.3	11358.1	1243.8
SMDH 00219b	8	9	85	664.9	800.7	752.7	666.3	618.3	134.4	46.6	210.1	150.8	48	87.8	156.6	294.7	31.4	106.1	16	2.9	10.6	1.5	11.8	2.9	10.1	1.9	15.4	3	34.4	1.1	44.3	13049.5	986.4
SMDH 00220	0	1	70	341.2	444.6	389.6	373.1	318.1	71.5	23.1	117.3	84.3	55	48.4	74.1	146.3	17.4	58.3	11.2	2	8.8	1.3	7.3	1.8	4.8	0.9	5.9	1.1	22.1	1.5	25.7	20075.6	493.4
SMDH 00220	1	2	45	108.3	217.9	145.9	165.8	93.8	52.1	14.5	68.6	33.3	72	37.6	15	38.8	5.1	21.1	5.8	2.8	5.2	0.9	6.2	1.4	3		3		2.8	2.5	13.6	10934.4	331.5
SMDH 00220	2	3	90	96.9	242.9	133.9	192.1	83.1	50.8	13.8	64.3	30.1	109	37	13.5	33.8	4.5	18.9	5.6	1.7	5.1	0.8	5.9	1.4	2.9		2.8		2.5	2.7	11.7	10667.5	402.3
SMDH 00220b	0	1	50	521.4	593.5	561.5	534.6	502.6	58.9	18.8	137.1	122.1	32	40.1	121.5	241.6	26.6	87.5	14.6	1.5	9.3	1.3	6.7	1.5	3.7	0.6	4.4	0.6	46.2	2.7	18.6	11319.7	689.9
SMDH 00220b	1	2	55	345.4	388.6	368.6	355.1	335.1	33.5	10.3	88.8	82.4	20	23.2	81.3	158.7	18	59.5	10.1	1.2	6.3	0.7	4.2	0.9	1.9		2.6		30.6	2.1	21.5	7624.9	506.4
SMDH 00220b	2	3	70	435.7	497.3	472.3	445.3	420.3	52	15.4	125.1	110	25	36.6	98.5	195.2	23	79.3	14.3	1.5	8.5	1.2	6.5	1.1	3.3		3.3		39.1	3.7	25.7	7388	517.4
SMDH 00220b	3	4	85	439.9	487.3	466.3	449.8	428.8	37.5	11.1	108	103	21	26.4	100.6	207.7	23	73.5	13.5	1.6	8.9	1.2	5.3	0.9	1.9		1.8		39.4	3.4	24.3	7201.2	520.7
SMDH 00220b	4	5	85	427.4	507.7	479.7	432.6	404.6	75.1	22.8	135.3	102.8	28	52.3	93	192.6	21.4	72.3	13.9	1.6	9.8	1.3	7.8	1.8	4.8	0.8	5.7	0.6	36.2	3.4	24.3	7970.2	472.4
SMDH 00220b	5	6	70	496.5	578.4	544.4	508.5	474.5	69.9	22	146.4	122.2	34	47.9	109.4	224.7	25.7	86.3	16.1	2	10.3	1.6	8.6	1.8	4.1	0.6	4.7	0.6	45.7	4.1	30	7096.1	686.3
SMDH 00220b	6	7	75	350.8	412.5	384.5	363	335	49.5	15.8	102.4	85.3	28	33.7	78	158.6	18	61.8	11.1	1.4	6.1	0.8	4.7	1.3	3.4	0.6	4.4	0.6	31.2	2.1	24.3	7930.1	522.6
SMDH 00220b	7	8	75	441.6	502.3	477.3	450.8	425.8	51.5	15.8	119.4	104.5	25	35.7	99.9	203.8	22.5	74.6	14.3	1.7	9	1.1	6.3	1	3.2	0.6	3.6		39	2.2	21.5	7267.9	490.2
SMDH 00220b	8	9	70	448.3	516.5	484.5	463.7	431.7	52.8	16.6	121	105.2	32	36.2	104	207.5	22.5	74.6	12.6	2.1	8.4	1.2	6.9	1.3	2.6	0.6	3.4	0.6	37.1	2.2	67.2	8327.2	437
SMDH 00221	0	1	35	577	624.6	607.6	580.2	563.2	44.4	13.8	145.2	143.1	17	30.6	132.1	267.3	30.1	105	16	1.6	11.1	1.2	6.8	1.1	2.2		2.5		57.4	3.1	15.7	4734.1	809.4
SMDH 00221	1	2	50	638	703.7	675.7	649	621	54.7	17	171.4	165.2	28	37.7	140.6	289.2	33.6	122.5	20.4	2.1	12.6	1.5	7.6	1.3	3	0.6	3		61.3	3.7	22.9	8031.9	998.2
SMDH 00221	2	3	90	222.1	300.1	246.1	265.8	211.8	34.3	10.3	70.8	55.3	54	24	49.7	97.3	10.8	38.5	7.3	2.3	5.9	0.8	5.2	0.8	1.5		2		10.2	1.1	54.4	15688.5	1097.5
SMDH 00221	3	4	90	319	401.3	337.3	375.5	311.5	25.8	7.5	77.1	70.9	64	18.3	79.9	149.3	15	51.3	7.8	2.9	5.3	0.7	3.9	0.6	1		1.3		14.1	0.7	61.5	20516	732
SMDH 00221	4	5	90	207	282.3	228.3	252.2	198.2	30.1	8.8	63.1	49.3	54	21.3	52.5	89.1	10	33.8	5.5	2.5	4.8	0.8	4.7	0.7	1.3		1.3		6.4	0.6	60.1	17862	950.8
SMDH 00221	5	6	85	200.1	292.5	231.5	249.1	188.1	43.4	12	74.5	50	61	31.4	44.7	84	9.7	32.7	7.5	2.8	6.7	1.2	6.4	1	1.8		1.6		2.3	0.7	70.1	19503.4	941.4
SMDH 00221	6	7	95	222	330.8	272.8	258.9	200.9	71.9	21.1	102.2	58.9	58	50.8	43.9	89.4	10	39.7	8.7	2.5	6.7	1.2	8	1.6	4.1	0.8	4.7	0.7	6.7	1.3	57.2	16118.9	902.7

BHID	FROM	TO	Rec	TREO	TREO+Y+Sc	TREO+Y	LREO+Sc	LREO	HREO+Y	HREO	CREO	MagREO	Sc_2O_3	Y_2O_3	La_2O_3	CeO_2	Pr_6O_{11}	Nd_2O_3	Sm_2O_3	Eu_2O_3	Gd_2O_3	Tb_4O_7	Dy_2O_3	Ho_2O_3	Er_2O_3	Tm_2O_3	Yb_2O_3	Lu_2O_3	ThO_2	U_3O_8	Nb_2O_5	TiO_2	ZrO_2
units:	*m*	*m*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
SMDH 00221	7	8	35	491.8	562.6	528.6	511.1	477.1	51.5	14.7	130.9	117.7	34	36.8	113.9	224.4	26	82.8	16.4	2.4	11.2	1.4	7.5	1.3	2.6		1.9		31.1	1.5	37.2	8827.6	731.2
SMDH 00221	8	9	90	430.1	494.2	462.2	447.9	415.9	46.3	14.2	120.7	109.1	32	32.1	94.8	193.7	22.6	78.1	15	2.1	9.6	1.3	7.1	1.3	2.3		2.2		28.1	1.9	30	9803.4	564.1
SMDH 00017	0	1	40	345.9	381.7	366.7	353	338	28.7	7.9	85.3	79.7	15	20.8	82.6	159.9	18.2	57.2	10.6	3	6.5	0.7	3.6	0.6	1.5		1.5		21.4	1.1	15.7	3566.4	141.3
SMDH 00017	1	2	48	125.5	143.2	132.2	135.2	124.2	8	1.3	31.1	28.8	11	6.7	31	57.9	6.5	21	3.6	2.1	2.1		1.3						8.9		14.3	4016.8	143.9
SMDH 00017	2	3	40	222.4	234.7	228.7	226.1	220.1	8.6	2.3	48.9	51.3	6	6.3	53.5	104	11.2	38.5	7.1	2.5	3.3		1.6		0.7				20.3	0.6	11.4	2091.8	92.7
SMDH 00017	3	4	70	272.3	291.9	280.9	279.9	268.9	12	3.4	60.7	64.9	11	8.6	64.2	126.8	15	47.8	8.2	2.2	4.7		2.1		0.7		0.6		24.8	0.9	11.4	3322.9	164.8
SMDH 00017	4	5	65	428.6	467.6	452.6	432.9	417.9	34.7	10.7	108	103.8	15	24	99.3	197.3	22.5	75.8	12.8	2.7	7.5	0.8	4.7	0.8	1.9		2.5		36.6	1.7	17.2	5146.1	387.7
SMDH 00017	5	6	90	316.4	344.7	327.7	328	311	16.7	5.4	70.3	73.3	17	11.3	64.6	161	15.9	53.7	8.2	1.6	6	0.6	3.1		1		0.7		24.6	1.1	17.2	6225.3	376.9
SMDH 00017	6	7	75	377.5	440.1	415.1	384	359	56.1	18.5	112.2	90.7	25	37.6	72.4	183.6	18.1	64.2	10.6	2	8.1	1.1	7.3	1.5	3.9	0.6	3.5	0.6	27.5	1.7	22.9	6150.3	346.6
SMDH 00017	7	8	95	337.3	398.7	372.7	347	321	51.7	16.3	102.5	81.5	26	35.4	63.9	162.4	16.4	57.2	10.9	2	8.2	1.1	6.8	1.3	3.2	0.6	3.3		23.9	1.5	42.9	7509.8	429.4
SMDH 00017	8	9	80	310.3	355.8	335.8	317.7	297.7	38.1	12.6	89	77.5	20	25.5	59.2	149	15.6	54.8	9.7	1.6	7.8	0.9	6.2	1	2.1		2.4		21.8	1.5	22.9	6135.3	374.7
SMDH 00017	9	10	60	535.8	598.8	572.8	543.8	517.8	55	18	133.6	119.6	26	37	111.7	268.5	25.5	85.1	13.8	2.5	10.7	1.5	7.5	1.4	3.7	0.6	3.3		24	1.5	38.6	8420.6	385.7
SMDH 00016b	0	1	35	348.9	398.4	380.4	352.8	334.8	45.6	14.1	99	82.5	18	31.5	63.9	174.4	16.6	58.3	11	1.6	9	1.2	6.4	1.1	2.9		2.5		24.5	1.5	17.2	6061.9	336.1
SMDH 00016b	1	2	40	265.5	297.1	282.1	272.9	257.9	24.2	7.6	69.9	65.1	15	16.6	54.3	126.6	13.7	46.7	8.6	1.9	6.1	0.8	3.9	0.6	1.3		1		17.9	0.8	14.3	7449.7	307.8
SMDH 00016b	2	3	75	407	432.1	415.1	420.2	403.2	11.9	3.8	81.8	92	17	8.1	83.9	210.9	20.2	68.8	10.6	1.9	6.9	0.6	2.4		0.8				32.8	0.9	14.3	5329.6	243.5
SMDH 00016b	3	4	85	430.4	453.2	439.2	441	427	12.2	3.4	89.5	101.1	14	8.8	101.8	205.1	22.6	75.8	12.2	2.2	7.3	0.6	2.1		0.7				40.1	1.4	15.7	4960.9	282.2
SMDH 00016b	4	5	65	289.3	308.7	297.7	298	287	10.7	2.3	63.8	68.8	11	8.4	69.7	135.1	15.8	51.3	8.2	2.4	4.5		1.7				0.6		25.7	0.7	12.9	2877.5	103.5
SMDH 00016b	5	6	60	382.4	432.4	407.4	397.3	372.3	35.1	10.1	99	91.9	25	25	86.9	177.3	19.9	66.5	11.9	2	7.8	1.1	4.4	0.8	2.1		1.7		32.4	1.9	24.3	6355.5	362.6
SMDH 00016b	6	7	90	520	568.3	545.3	531.8	508.8	36.5	11.2	127.8	129	23	25.3	117.4	240.6	28.2	94.5	16.1	1.7	10.3	1.1	5.2	0.8	2.1		2		48.9	2.6	20	8000.2	421.6
SMDH 00016b	7	8	90	562.5	615.9	589.9	576.1	550.1	39.8	12.4	137.3	138.1	26	27.4	127.4	259.9	30.1	101.5	17.9	1.9	11.4	1.1	5.4	0.9	2.3		2.7		52.9	2.9	22.9	6502.3	525.7
SMDH 00016b	8	9	98	479	523.1	502.1	489.6	468.6	33.5	10.4	117.8	118.4	21	23.1	109	221.7	25.1	87.5	14.8	1.4	9.1	0.9	4.9	0.8	1.9		1.9		45.5	2.6	21.5	6562.3	462
SMDH 00016b	9	10	75	213.8	271	250	221	200	50	13.8	80.9	54.5	21	36.2	44.6	93.4	11.2	36.2	7	1.4	6.2	0.9	6.2	1.1	2.9		2.7		12.5	1.2	27.2	5621.5	358.4
SMDH 00016b	10	11	90	259	326.4	294.4	276.8	244.8	49.6	14.2	96	72.4	32	35.4	55.7	107	13.5	51.3	8.5	1.7	7.1	1.1	6.5	1.3	2.6		2.7		18.5	1.1	37.2	6825.9	444.4
SMDH 00016b	11	12	85	283.8	331.4	308.4	296.8	273.8	34.6	10	86.7	75.9	23	24.6	62.2	123.3	15.5	54.8	10.3	1.7	6	0.8	4.8	0.9	1.8		1.7		25.1	1.3	22.9	6135.3	369.2
SMDH 00016b	12	13	85	294.9	342.6	316.6	311.8	285.8	30.8	9.1	84.2	76.7	26	21.7	67.1	130.3	15.6	56	9.5	1.4	5.9	0.7	4.4	0.7	1.6		1.7		28.8	1.4	27.2	5616.5	445.8
SMDH 00016	0	1	5	473.2	503.2	488.2	481.7	466.7	21.5	6.5	99.5	105.6	15	15	118.1	227.4	22.4	79.3	11.4	1.3	6.8	0.7	3.2	0.6	0.9		1.1		32.3	2	42.9	2949.2	302.7
SMDH 00016	1	2	50	371.5	417.4	399.4	379.2	361.2	38.2	10.3	81.4	67.1	18	27.9	152.6	132.9	15.1	46.7	7.3	1.5	5.1	1.2	4.1	0.9	2.1		2		23.8	2.9	32.9	4000.1	427.5
SMDH 00016	2	3	40	192.9	231.7	217.7	198.8	184.8	32.9	8.1	66.9	51	14	24.8	47.9	77.1	10.3	36.2	7.2	1.4	4.7	0.7	3.8	0.7	1.5		1.4		14.9	2.7	37.2	5633.2	493.7
SMDH 00016	3	4	70	190.7	219.7	208.7	194.8	183.8	24.9	6.9	56.6	47.5	11	18	43.9	84.4	9.8	33.8	6.7	0.9	4.3	0.7	3.2	0.6	1.1		1.3		15.7	4	40.1	3938.4	431.4
SMDH 00016	4	5	55	359.3	487.1	447.1	362.6	322.6	124.5	36.7	160.2	88.2	40	87.8	75.8	152.8	17.3	57.2	10.2	1.5	7.8	1.5	12.2	3	8.2	1.5	9.3	1	25.1	3.9	35.8	8102	632.7
SMDH 00016	5	6	90	783.8	921.6	867.6	798.5	744.5	123.1	39.3	236.6	187.4	54	83.8	182.8	354.3	38.1	134.1	19.4	3.5	12.3	1.8	13.4	2.9	8.5	1.5	9.9	1.3	43.7	1.5	47.2	14555.8	946.6
SMDH 00016	6	7	80	507	657.9	605.9	513.7	461.7	144.2	45.3	201	123.6	52	98.9	110.6	218.7	24.2	82.8	12.8	2.7	9.9	1.8	14.8	3.4	10.5	1.8	11.5	1.5	26.4	1.4	40.1	11141.2	859.2
SMDH 00016	7	8	55	560.1	680.4	625.4	588	533	92.4	27.1	170.4	129.3	55	65.3	133.5	254.4	27.3	91	13.9	3.1	9.8	1.5	9.5	2.2	6.1	1	5.9	0.9	24.5	1.3	67.2	12832.7	1000.5
SMDH 00016	8	9	65	384.1	528.9	484.9	386.5	342.5	142.4	41.6	179.8	93.3	44	100.8	82.4	163.5	16.6	60.7	8.8	2.3	8.2	1.5	14.5	3.3	9.4	1.5	10	1.4	17.4	1.5	34.3	9961.9	887.7
SMDH 00015b	0	1	40	636.3	709.6	680.6	646	617	63.6	19.3	160.1	144.1	29	44.3	159.4	293.2	31.3	103.8	16.4	3	9.9	1.3	7.7	1.5	4.1	0.7	4		33.1	2.1	47.2	7801.7	442.7
SMDH 00015b	1	2	30	415.7	454.8	436.8	424	406	30.8	9.7	101.3	100.1	18	21.1	86.3	204.2	21.3	73.5	11.8	1.4	7.5	0.9	4.4	0.7	1.7		2		47.1	2	21.5	4582.3	238.6
SMDH 00015b	2	3	70	364.5	415.5	394.5	373.6	352.6	41.9	11.9	105.5	91.7	21	30	80.3	166	18.2	67.7	11.7	2	6.7	0.8	5	1	2.5		2.6		31.3	1.9	27.2	4792.5	337.3
SMDH 00015b	3	4	65	238	262.7	247.7	249.6	234.6	13.1	3.4	58.3	60.6	15	9.7	52.5	109.6	13.4	45.5	7	1.4	5.2		1.7		0.8		0.9		21.2	0.9	22.9	7521.5	374.4
SMDH 00015b	4	5	45	287.7	311.7	297.7	297.8	283.8	13.9	3.9	70.8	75.5	14	10	60.8	132.9	16.4	56	8.9	1.7	7.1	0.7	2.4		0.8				25.6	1.3	17.2	8779.2	305.6
SMDH 00015b	5	6	85	271.4	322.2	299.2	283.2	260.2	39	11.2	88.2	73.8	23	27.8	54.8	119.2	14.7	53.7	9.4	1.3	7.1	0.8	4.6	0.9	2.5		2.4		24.2	1.9	21.5	5663.2	299.3
SMDH 00015b	6	7	75	376.6	445.3	420.3	381.9	356.9	63.4	19.7	126.5	101.2	25	43.7	75.5	163.3	19.7	72.3	14.1	1.3	10.7	1.5	7.7	1.4	4.1	0.6	3.8	0.6	34	3.1	34.3	6123.6	448.7
SMDH 00015b	7	8	70	353.4	436.8	410.8	355.5	329.5	81.3	23.9	132.9	92	26	57.4	70.7	152.8	17.9	64.2	12.8	1.4	9.7	1.4	8.5	1.8	5.6	0.9	5	0.7	32.2	2.7	28.6	5379.6	418.2
SMDH 00015b	8	9	70	309.9	380.2	352.2	318.6	290.6	61.6	19.3	109.9	82.9	28	42.3	61.9	133.8	16.3	58.3	10.7	1	8.6	1.2	7.1	1.5	4.3	0.7	3.9	0.6	27.5	1.7	22.9	3663.1	397.8
SMDH 00015b	9	10	90	346	407.6	384.6	350.8	327.8	56.8	18.2	117.3	95.9	23	38.6	68.5	148.9	18.5	68.8	12.5	1.3	9.3	1.3	7.3	1.4	4	0.7	3.5		32.7	1.9	22.9	5628.2	369.4
SMDH 00015b	10	11	80	282.3	337.9	311.9	294.7	268.7	43.2	13.6	88.4	72.5	26	29.6	60.3	125.3	14.9	51.3	9	1.2	6.7	0.9	5.4	1	3		3.3		21.2	1.7	21.5	7486.4	333.9
SMDH 00015b	11	12	95	403	463.5	434.5	418.2	389.2	45.3	13.8	116.8	104.9	29	31.5	85.4	180.9	21.3	77	13.7	1.7	9.2	1.2	5.4	1.1	3		3.1		30.7	1.5	24.3	7094.4	274.2
SMDH 00015b	12	13	60	314.8	348.5	327.5	330.6	309.6	17.9	5.2	79.3	82.6	21	12.7	68.1	144.5	17.5	61.8	9.6	1.5	6.6	0.7	2.6		1.1		0.8		28.4	1.4	22.9	5728.3	473.6
SMDH 00015b	13	14	50	251.7	275.3	257.3	267.5	249.5	7.8	2.2	58.8	65.6	18	5.6	56.4	116.5	13.8	50.2	6.4	1.4	4.8		1.6		0.6				20.3	0.7	21.5	3608.1	512
SMDH 00015b	14	15	55	148.6	168	153	162.6	147.6	5.4	1	34.6	37.7	15	4.4	33.8	68.7	8.7	28	4.1	1.2	3.1		1						12.7	0.6	15.7	5483	514.8
SMDH 00015	0	1	25	357.8	404.1	384.1	367.8	347.8	36.3	10	96.5	88	20	26.3	75.6	169.2	19.1	63.7	11.4	1.3	7.5	0.8	4.4	0.9	1.9		2		32.1	4	10.7	2538.8	594.6
SMDH 00015	1	2	65	709	773.2	748.2	714	689	59.2	20	168.6	163.2	25	39.2	175.5	327.2	36.5	117.8	17.3	2.7	12	1.4	7.5	1.5	4	0.7	4.2	0.7	30.3	2.5	50.1	2697.3	276.9
SMDH 00015	2	3	75	427.1	488.8	462.8	435	409	53.8	18.1	118.5	102.3	26	35.7	99.1	191.8	21.6	73.5	11.8	2.1	9.1	1.3	5.9	1.4	4	0.7	4.1	0.7	24.4	2	28.6	2855.8	316.8
SMDH 00015	3	4	50	258.4	291.3	277.3	263.8	249.8	27.5	8.6	76	68.2	14	18.9	54.5	113.6	13.4	50.2	9.2	2.3	6.6	0.8	3.8	0.6	1.7		1.7		21.8	1.4	14.3	719	246.8
SMDH 00015	4	5	65	324.3	403.1	378.1	327.2	302.2	75.9	22.1	121.5	83.4	25	53.8	65.7	141.5	16.6	56	11.1	0.9	10.4	1.5	9.3	1.8	4.3	0.7	3.9	0.6	25.1	3.2	27.2	7689.9	339.6
SMDH 00015	5	6	90	226.7	268.2	251.2	233.2	216.2	35	10.5	72.5	59.3	17	24.5	47.6	99.7	12.1	42	7.5	0.8	6.5	0.8	4.4	0.9	2.5		1.9		19.3	2.2	22.9	6060.2	232.7
SMDH 00015	6	7	45	328	382.9	361.9	334	313	48.9	15	104	86.6	21	33.9	68.3	145.8	17.4	61.8	10.4	0.9	8.4	1.2	6.2	1.3	3.2		3.1		28.7	2.6	22.9	6288.7	337.6
SMDH 00015	7	8	75	131.6	156.3	147.3	134.8	125.8	21.5	5.8	43	34.3	9	15.7	27.4	58	7	24.5	5		3.9		2.8	0.6	1.4		1		11	0.9	10	5044.3	188.4
SMDH 00015	8	9	45	101.8	124.3	116.3	104.6	96.6	19.7	5.2	36.7	27.4	8	14.5	21.3	43.6	5.2	19.8	3.8		2.9		2.4		1.7		1.1		7.2	0.8	10	2505.5	194.4
SMDH 00015	9	10	50	222.3	273.8	259.8	222.9	208.9	50.9	13.4	83.2	56	14	37.5	49	96.4	11.2	38.5	7.1	0.9	5.8	0.9	5.4	1.3	3.3		2.5		15.9	1.9	20	1980	292.6
SMDH 00015	10	11	60	236.8	282.3	271.3	235.5	224.5	46.8	12.3	84.4	60.7	11	34.5	51.1	103.3	12.2	42	7.9	1.4	6.6	0.9	5.6	1.1	2.7		2		19.6	2.9	22.9	3713.2	307
SMDH 00015	11	12	90	242.6	283.6	271.6	243.1	231.1	40.5	11.5	79	61.3	12	29	52.8	107.7	12.3	43.2	7.9	1	6.2	0.9	4.9	1	2.5		2.2		20.5	2.6	21.5	1945	344
SMDH 00015	12	13	60	282.5	353.9	330.9	284.5	261.5	69.4	21	107.3	71.8	23	48.4	57.7	121.9	13.9	49	10	1	8	1.2	7.7	1.5	4.6	0.7	4.6	0.7	24.2	2.8	18.6	5307.9	279.1
SMDH 00014b	0	1	50	284.4	315.4	303.4	287.8	275.8	27.6	8.6	81.8	77.1	12	19	60.6	125.3	15.2	57.2	9.3	0.9	7.3	0.8	3.9	0.6	1.8		1.5		31.5	2.1	11.4	4764.1	333.6
SMDH 00014b	1	2	50	317.8	349.4	334.4	325.2	310.2	24.2	7.6	80.4	78.4	15	16.6	73.4	143.1	16.6	57.2	11	2	6.9	0.8	3.8	0.6	1.3		1.1		24.6	2.1	31.5	19425	291
SMDH 00014b	2	3	65	286.7	307.1	298.1	290.9	281.9	16.2	4.8	71.4	73.1	9	11.4	63.8	130.7	15	54.8	9.7	1.9	6	0.7	2.6		0.9		0.6		25.6	1.7	10	4764.1	159.4
SMDH 00014b	3	4	80	159.7	171.6	166.6	162.4	157.4	9.2	2.3	40.1	40.8	5	6.9	36.1	73.1	8.8	30.3	4.3	1.2	3.6		1.7		0.6				13.1	0.8	5.7	8372.2	79
SMDH 00014b	4	5	60	311.6	327.8	321.8	314	308	13.8	3.6	76.2	82.6	6	10.2	69.4	140.3	17.9	61.8	9.7	1.3	7.6	0.6	2.3		0.7				28.2	1.4	7.2	10317.2	121.8
SMDH 00014b	5	6	95	414.4	434.8	426.8	416.6	408.6	18.2	5.8	99.7	108.8	8	12.4	89.7	188.4	23	81.6	14.8	1.5	9.6	0.9	3.3	0.6	1				41.9	2.1	8.6	2820.8	225.6
SMDH 00014b	6	7	80	813.2	846.4	834.4	812.9	800.9	33.5	12.3	193.6	216	12	21.2	175.7	370.5	46	161	26.1	2.4	19.2	2	7	0.9	1.7		0.7		81.7	3.2	15.7	113428	248.7
SMDH 00014b	7	8	70	710	744.7	733.7	709.6	698.6	35.1	11.4	173	186.4	11	23.7	152.1	323.9	39.4	138.8	24.7	2.3	17.4	1.9	6.3	0.8	1.5		0.9		71.2	3.3	11.4	2452.1	372.6
SMDH 00014b	8	9	75	439.5	463	455	439.7	431.7	23.3	7.8	107.3	113.9	8	15.5	94.9	202.2	23.8	85.1	13.7	1.7	10.3	1.1	3.9	0.6	1.4		0.8		39.9	1.7	10	3941.7	169.9

BHID	FROM	TO	Rec	TREO	TREO+Y+Sc	TREO+Y	LREO+Sc	LREO	HREO+Y	HREO	CREO	MagREO	Sc_2O_3	Y_2O_3	La_2O_3	CeO_2	Pr_6O_{11}	Nd_2O_3	Sm_2O_3	Eu_2O_3	Gd_2O_3	Tb_4O_7	Dy_2O_3	Ho_2O_3	Er_2O_3	Tm_2O_3	Yb_2O_3	Lu_2O_3	ThO_2	U_3O_8	Nb_2O_5	TiO_2	ZrO_2
units:	m	m	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SMDH 00014b	9	10	60	379.3	399.2	391.2	381.7	373.7	17.5	5.6	89.4	96.2	8	11.9	84.1	174.8	20.9	71.2	11.7	2.2	8.8	0.8	3.3		0.9		0.6		32.5	1.8	8.6	2452.1	165.1
SMDH 00014b	10	11	60	396.2	417.2	409.2	398.2	390.2	19	6	96.1	102.7	8	13	86.7	181.9	21.5	77	12.3	1.9	8.9	0.9	3.3		1.1		0.7		35.6	2.2	8.6	53.4	147.6
SMDH 00014bt	0	1	60	344.7	374.6	360.6	351.3	337.3	23.3	7.4	86.8	88.3	14	15.9	72.1	160.8	18.6	65.3	11.6	1.2	7.7	0.8	3.6	0.6	1.4		1		31.5	2	10	945.8	326.9
SMDH 00014bt	1	2	50	374.9	396.5	388.5	377.3	369.3	19.2	5.6	91.9	96.8	8	13.6	83.4	171.1	20.5	72.3	11.5	2	8.5	0.8	3.2		1		0.6		31.5	1.4	8.6	754	155.7
SMDH 00014bt	2	3	50	367.6	386.6	377.6	372.4	363.4	14.2	4.2	82.1	89.7	9	10	87	171.6	19.8	66.5	9.4	2.2	6.9	0.8	2.6		0.8				27.4	1.5	27.2	840.7	121.4
SMDH 00014bt	3	4	70	475.9	494.6	488.6	474	468	20.6	7.9	101.6	106.3	6	12.7	102.6	236.3	20.5	80.5	14.6	3.1	10.4	1.2	4.1	0.6	1.4		0.6		43.7	2.1	11.4	2977.6	174.7
SMDH 00014bt	4	5	40	546.1	570.1	562.1	546.7	538.7	23.4	7.4	125.5	132.5	8	16	122.1	257	25.7	101.5	18.3	2.7	11.4	1.3	4	0.6	0.9		0.6		44.4	2.6	11.4	2385.4	219.6
SMDH 00014bt	5	6	80	509.6	533.1	525.1	510.9	502.9	22.2	6.7	109.2	115.5	8	15.5	117.2	245.9	24.2	86.3	16.2	2.4	10.7	1.1	3.9	0.6	1.1				38.3	2.4	12.9	2201.9	174.1
SMDH 00014bt	6	7	65	553	575.4	569.4	551	545	24.4	8	121.7	128.1	6	16.4	126.2	263.4	25.6	96.8	17.9	2.8	12.3	1.2	4.5	0.6	1.1		0.6		43.6	2	10	1926.7	117.8
SMDH 00014bt	7	8	80	562.7	589.5	580.5	563.4	554.4	26.1	8.3	130.1	136.4	9	17.8	127.1	264.2	26.8	103.8	18.3	2.7	11.5	1.3	4.5	0.6	1.3		0.6		43	3.3	12.9	3009.3	173.8
SMDH 00014bt	8	9	80	536.2	562.6	553.6	536.8	527.8	25.8	8.4	120	125.2	9	17.4	120.2	257.2	24.9	94.5	17.4	2.3	11.3	1.2	4.6	0.6	1.1		0.9		47.2	5	111.6	2990.9	194.4
SMDH 00014bt	9	10	70	374.6	403.9	391.9	379.6	367.6	24.3	7	94.6	85.2	12	17.3	86.4	182.5	10.4	71.2	6.3	2.5	8.3		3.6	0.6	1.5		1.3		28.9	3.4	47.2	3121	197.9
SMDH 00014bt	10	11	85	189.6	206.5	198.5	194.5	186.5	12	3.1	45.8	44.8	8	8.9	44.3	86.2	10.4	32.7	6.3	2.5	4.1		1.7		0.7		0.7		16.6	1.7	64.4	3302.8	154.4
SMDH 00014	0	1	35	413.8	461.7	440.7	422.1	401.1	39.6	12.7	108.1	101.2	21	26.9	94.1	187.6	21.9	73.5	14.3	1.9	7.8	0.8	5	0.9	2.6		2.8	0.6	31.6	2.8	40.1	3156	443.6
SMDH 00014	1	2	80	295.2	325.4	307.4	308	290	17.4	5.2	70	72.5	18	12.2	67.2	136.6	16.1	53.1	9.5	1.4	6.1	0.7	2.6		1.1		0.8		25.5	2.6	25.2	5261.2	360.8
SMDH 00014	2	3	80	1616.4	1665.9	1642.9	1626.1	1603.1	39.8	13.3	271.9	317.8	23	26.5	461.3	774.9	79.1	230.9	33.9	6.7	16.3	1.4	6.4	1	2.3		2.2		29.5	1.5	42.9	8092	308.4
SMDH 00014	3	4	85	237.1	260.6	246.6	246.9	232.9	13.7	4.2	57.2	59.7	14	9.5	53.5	108.7	13	44.3	7.3	1	5.1		2.4		0.8		1		19.1	2	24.3	4397.1	534.4
SMDH 00014	4	5	80	312.2	339.5	324.5	321.5	306.5	18	5.7	72.6	74.4	15	12.3	72.4	145.6	15.7	54.8	10.1	1.6	6.3	0.7	3.2		1		0.8		25	2	32.9	8514	459.1
SMDH 00014	5	6	95	408.2	445.6	427.6	417.3	399.3	28.3	8.9	98.9	99.9	18	19.4	91.2	188.4	22.1	72.3	15	1.7	8.6	0.9	4.6	0.7	1.6		1.1		34.8	2.7	28.6	9559.9	489.1
SMDH 00014	6	7	90	327.1	370.1	352.1	334.4	316.4	35.7	10.7	90.3	81.1	18	25	72.5	148.4	17.4	58.3	11.2	1.6	7	0.9	4.5	0.8	2.3		2.2		27	2	24.3	6202	464
SMDH 00014	7	8	95	346.4	406.2	381.2	355.8	330.8	50.4	15.6	100.4	81.3	25	34.8	77.6	158.7	17.6	57.2	10.2	1.9	7.6	0.9	5.6	1.1	3.2	0.6	3.6	0.6	23.4	1.8	75.8	5376.3	434.8
SMDH 00014	8	9	95	376.9	457.7	420.7	394	357	63.7	19.9	116.8	90.5	37	43.8	84.4	167.3	19.6	63	11.4	2.1	9.2	1.1	6.8	1.4	4.2	0.7	5	0.7	27.1	2.6	42.9	16202.3	521.5
SMDH 00013b	0	1	50	456.7	505	484	465.7	444.7	39.3	12	117.6	112.6	21	27.3	99.7	213	24	81.6	14.6	1.7	10.1	1.1	5.9	0.9	2.1		2		39.5	3.1	25.7	4422.1	491.2
SMDH 00013b	1	2	65	433.3	479.2	453.2	450.4	424.4	28.8	8.9	106.1	107.5	26	19.9	97.7	199.7	23	79.3	14.6	1.7	8.4	1.1	4.1	0.7	1.5		1.5		35.6	3.7	12.9	9064.5	582.1
SMDH 00013b	2	3	70	234.3	265	253	238.3	226.3	26.7	8	66	58.5	12	18.7	54.7	104.7	12.1	42	7.4	0.9	4.5	0.6	3.8	0.6	1.5		1.5		19.2	1.9	15.7	8018.6	334.2
SMDH 00013b	3	4	90	177.6	205.8	191.8	186.6	172.6	19.2	5	46.9	41.1	14	14.2	40.3	83.3	9.4	29.2	5.6	1	3.8		2.5		1.1		1.4		13.9	1.4	18.6	4348.7	415.4
SMDH 00013b	4	5	85	415.1	445.4	428.4	427.6	410.6	17.8	4.5	80	84.1	17	13.3	112.8	200.5	19.9	61.8	8.1	2.5	5		2.4		1.1		1		13.7	1.4	57.2	9211.2	773.5
SMDH 00013b	5	6	95	131.4	165.5	148.5	141.7	124.7	23.8	6.7	45	32.5	17	17.1	28.4	57.4	6.2	23.3	4.8	1.6	3		3	0.7	1.5		1.5		8.2	1.1	32.9	7231.2	548
SMDH 00013b	6	7	70	233.3	286.5	261.5	246.7	221.7	39.8	11.6	77.1	58.7	25	28.2	49	104.9	11.5	40.8	7.9	1.7	5.9	0.8	5.6	1	2.4		1.8		18.9	1.5	74.4	7064.4	387.7
SMDH 00013b	7	8	98	100.9	132.1	115.1	113.2	96.2	18.9	4.7	34.5	23.7	17	14.2	22.5	43.6	5.3	16.3	3.7	1.9	2.9		2.1		1.3		1.3		6.1	1.1	32.9	2587.2	641
SMDH 00013b	8	9	85	219.5	300.9	269.9	227.2	196.2	73.7	23.3	96.1	53.9	31	50.4	45	89.3	10.3	35	8	2.1	6.5	1.1	7.5	1.7	4.9	1	6.3	0.8	11.7	1.7	50.1	7945.2	472.2
SMDH 00013b	9	10	85	207.4	292.6	258.6	218.7	184.7	73.9	22.7	94.2	50.9	34	51.2	42.2	85.9	9.5	32.7	7.2	1.6	5.6	1.1	7.6	1.7	4.8	1	5.7	0.8	11.2	1.8	38.6	8293.8	221.4
SMDH 00013b	10	11	95	302.3	382.4	354.4	307.1	279.1	75.3	23.2	118	77.7	28	52.1	64.3	125.9	13.9	53.7	10.3	2.1	8.9	1.3	8.8	1.7	4.7	0.9	5.1	0.7	18.2	1.9	35.8	5780	232.7
SMDH 00034	0	1	45	540.9	566.6	555.6	544.7	533.7	21.9	7.2	117.7	128.2	11	14.7	128.3	255.3	27.9	95.6	14.8	2.7	9.1	0.8	3.9	0.6	1		0.9		46.1	1.5	28.6	6202	187.8
SMDH 00034	1	2	40	1144.7	1171	1162	1143.7	1134.7	27.3	10	191.8	221.1	9	17.3	266.1	615.1	51	163.3	22	4.4	12.8	1.3	5.5	0.7	1.7		0.8		48.9	1.1	55.8	103562	127.7
SMDH 00034	2	3	90	481.4	508.5	497.5	485.2	474.2	23.3	7.2	98.7	104.1	11	16.1	102.4	251.9	23.1	77	10.8	1.6	7.4	0.7	3.3	0.6	1.5		1.1		36.3	1.1	15.7	3137.7	355.4
SMDH 00034	3	4	90	422.8	448	434	432.3	418.3	15.7	4.5	85.6	93.6	14	11.2	88.7	221	20.5	70	9.9	1.3	6.9	0.6	2.5		0.8		0.6		32.5	1.3	17.2	8899.3	549.9
SMDH 00034	4	5	90	399.7	462.4	433.4	412.4	383.4	50	16.3	107.9	92.1	29	33.7	78.1	198.6	19.2	66.5	11.4	1.3	8.3	1.1	5.3	1.3	3.9	0.7	4		27.9	1.4	21.5	9725	524.8
SMDH 00034	5	6	95	555.8	583.4	569.4	563.9	549.9	19.5	5.9	108.8	119.4	14	13.6	120.3	291	25.9	89.8	12.8	1.7	8.4	0.8	2.9		1.3		0.9		40.9	1.2	21.5	66368.7	341.1
SMDH 00034	6	7	90	402	421.9	410.9	409.4	398.4	12.5	3.6	77.8	85.9	11	8.9	84.7	211.7	18.7	64.2	10.6	1.7	6.8	0.6	2.4		0.6				32.8	0.9	12.9	6991	261.1
SMDH 00034	7	8	85	459.3	479.8	467.8	467.4	455.4	12.4	3.9	90.6	102.7	12	8.5	95	241	22.6	77	10.9	2	6.9	0.7	2.4		0.8				37	0.8	12.9	9559.9	264.5
SMDH 00033b	0	1	50	597	649.8	629.8	602.3	582.3	47.5	14.7	139.2	133.5	20	32.8	116.6	308.6	28.5	96.8	16.9	1.4	13.5	1.4	6.8	1	2.9		2.6		51	2.9	28.6	10700.9	609.2
SMDH 00033b	1	2	30	220.1	245	230	231.3	216.3	13.7	3.8	51.8	51.8	15	9.9	50.9	103.7	11.5	38.5	6.4	1.6	3.7		1.8		0.9		1.1		19.5	1.8	12.3	4076.8	543.6
SMDH 00033b	2	3	85	163.4	180.5	169.5	173	162	7.5	1.4	36.6	36.3	11	6.1	40.3	78.1	8.1	26.8	3.9	2.3	2.5		1.4						14.5	0.6	17.2	7286.3	363.4
SMDH 00033b	3	4	80	124.7	140.5	129.5	134.7	123.7	5.8	1	28.4	29	11	4.8	30.1	58.3	7	21	3.6	1.6	2.1		1						10.6	0.6	11.4	5930.1	370.7
SMDH 00033b	4	5	90	156.3	173.3	161.3	167.3	155.3	6	1	34.9	35.7	12	5	38.2	73.7	7.9	26.8	4.2	2.1	2.4		1						13.1	0.6	17.2	6026.8	312.4
SMDH 00033b	5	6	95	134.4	149.5	138.5	144.4	133.4	5.1	1	31.1	32.5	11	4.1	33.8	61.1	7	24.5	3.1	1.5	2.4		1						10	0.6	24.3	266.9	299.1
SMDH 00033b	6	7	65	399.6	444.7	427.7	404.3	387.3	40.4	12.3	106.7	97.4	17	28.1	88.7	184.8	21	70	12.2	2.2	8.4	1.1	5.3	1	2.6		2.3		36.3	2.8	27.2	7673.3	344.5
SMDH 00033b	7	8	98	418.9	473.6	453.6	423.9	403.9	49.7	15	119.3	103.7	20	34.7	93.7	189.9	21	75.8	13.6	1.9	8	0.9	6	1.1	3.3	0.6	3.1		38.1	3.1	25.7		435.5
SMDH 00033b	8	9	98	383.5	447.2	429.2	381.5	363.5	65.7	20	123.2	95.4	18	45.7	82.6	170.1	19.6	66.5	14.4	1.7	8.6	1.3	8	1.5	4.2	0.6	4.4		34.3	3.2	27.2	7890.1	432.4
SMDH 00033b	9	10	85	407.7	463.7	442.7	414	393	49.7	14.7	116.5	101.2	21	35	90.2	185.4	21.3	72.3	13.1	1.6	9.1	1.2	6.4	1.3	3.1		2.7		37.9	3.4	28.6	1452.9	466.3
SMDH 00033b	10	11	98	345.5	392.3	374.3	352.1	334.1	40.2	11.4	97.9	85.3	18	28.8	74.5	160.1	17.5	61.8	10.7	1.3	8.2	1.1	4.9	0.9	2.6		1.9		32	2.9	25.7	7361.3	415.8
SMDH 00033b	11	12	95	313.1	360.4	340.4	321.2	301.2	39.2	11.9	91.6	78.8	20	27.3	68.6	141.9	15.8	57.2	9	1.3	7.4	0.9	4.9	0.9	2.7		2.5		28.7	2.2	24.3	6964.3	336.9
SMDH 00033b	12	13	98	465.8	540.8	512.8	473	445	67.8	20.8	134.8	108.7	28	47	104.8	215.6	22.8	77	12.2	1.9	10.7	1.3	7.6	1.6	4.5	0.7	4.4	0.7	36.2	3.4	34.3	2857.5	549.6
SMDH 00033	0	1	45	542.8	586	571	545.2	530.2	40.8	12.6	139.3	138.1	15	28.2	120.6	247.6	28.3	102.6	17.2	1.3	12.6	1.3	5.9	0.8	2.4		2.2		49.6	2.1	14.3	2315.3	460.5
SMDH 00033	1	2	45	957.9	1027	1002	962.4	937.4	64.6	20.5	203	201	25	44.1	250.2	458.1	45.9	144.6	20.3	3.8	14.5	1.9	8.6	1.6	4.2	0.7	3.5		31.9	2.1	78.7	8966	405
SMDH 00033	2	3	80	701.6	765.1	742.1	706.4	683.4	58.7	18.2	155	144.2	23	40.5	184	336.3	32.5	102.6	14	2.8	11.2	1.4	7.7	1.4	3.8	0.6	3.3		19.7	1.8	71.5	7673.3	307.7
SMDH 00033	3	4	55	293.6	363.7	340.7	295.6	272.6	68.1	21	107.8	72.9	23	47.1	61.1	127.3	13.7	49	10.3	1.5	9.7	1.5	8.7	1.5	4.5	0.6	4.2		15.1	1.8	37.2	8382.2	301.9
SMDH 00033	4	5	85	325.2	403.9	375.9	331.7	303.7	72.2	21.5	120.2	84.8	28	50.7	67.7	139.8	16.8	57.2	11.1	1.5	9.6	1.5	9.3	1.6	3.9	0.6	4	0.6	23.1	2.5	27.2	8966	438.7
SMDH 00033	5	6	50	421.1	472.8	449.8	431.8	408.8	41	12.3	109.9	100.5	23	28.7	100	192.7	21.7	72.3	12.1	2.4	7.6	1.1	5.4	1	2.1		2.7		27.9	1.4	24.3	7611.5	290.8
SMDH 00033	6	7	45	393.1	417.1	406.1	399.1	388.1	18	5	90.1	95.7	11	13	91.6	183.9	21.3	71.2	11.1	2.7	6.3	0.6	2.6		1		0.8		37.1	0.7	8.6	2982.6	106.8
SMDH 00033	7	8	40	310.1	345.9	328.9	319.4	302.4	26.5	7.7	77.6	73.5	17	18.8	74.1	141.5	16.8	52.5	9.3	2.1	6.1	0.6	3.6	0.7	1.4		1.4		26.3	0.9	20	2982.6	243.5
SMDH 00033	8	9	45	267	313.7	288.7	283.3	258.3	30.4	8.7	75.1	65.4	25	21.7	60	120.6	14	46.7	9.2	2	5.8	0.7	4	0.8	1.6		1.6		21.4	0.9	20	8590.7	310.3
SMDH 00033	9	9.5	60	275.4	302	288	284.8	270.8	17.2	4.6	66.6	66.4	14	12.6	63.2	128	14.4	49	9.2	2	5	0.6	2.4		0.8		0.8		26.3	0.6	11.4	5004.3	133.7
SMDH 00032b	0	1	50	429	465	451	433.3	419.3	31.7	9.7	106.4	106.6	14	22	95.8	198.5	22.8	78.1	14.6	0.6	8.9	1.1	4.6	0.7	1.7		1.6		42.6	3.2	8.6	4712.4	666.2
SMDH 00032b	1	2	45	489	522.3	510.3	490.9	478.9	31.4	10.1	114.1	117.5	12	21.3	106.4	234.6	25.5	86.3	14.4	0.8	10.9	1.3	4.4	0.8	2.1		1.5		47	2.9	17.2	4212	373.2
SMDH 00032b	2	3	45	253.7	329.6	300.6	264.9	235.9	64.7	17.8	101.3	65.6	29	46.9	55.1	105.9	12.7	44.3	8.7	1.5	7.7	1.3	7.3	1.4	3.9	0.6	3.3		18.3	1.7	34.3	8320.5	302.8
SMDH 00032b	3	4	70	260.4	322	296	271.6	245.6	50.4	14.8	88	64.5	26	35.6	55.1	116.7	13.3	44.3	8.1	1.2	6.9	1.2	5.7	1.1	3.4		3.4		21.6	1.2	4.3	4408.8	285
SMDH 00032b	4	5	50	240.5	277	257	252.6	232.6	24.4	7.9	64.3	58.7	20	16.5	52.8	110.6	12.1	42	8.1	1.2	5.8	1.2	3.4	1.1	1.1		1.1		19.3	1.2	10	6408.8	272.9
SMDH 00032b	5	6	70	193.8	227	209	206.2	188.2	20.8	5.6	53.6	46.9	18	15.2	43.4	89.7	9.7	33.8	5.8	1.2	4.6		3.4		1.1		1.1		17.1	1.2	4.3	4869.2	322.8
SMDH 00032b	6	7	90	278.9	310.9	292.9	290.1	272.1	20.8	6.8	71.1	70.4	18	14	62.2	127.8	14.5	51.3	9.3	1.2	5.8	1.2	3.4		1.1		1.1		26.2	1.2	5.7	5646.5	228.3

BHID	FROM	TO	Rec	TREO	TREO+Y+Sc	TREO+Y	LREO+Sc	LREO	HREO+Y	HREO	CREO	MagREO	Sc_2O_3	Y_2O_3	La_2O_3	CeO_2	Pr_6O_{11}	Nd_2O_3	Sm_2O_3	Eu_2O_3	Gd_2O_3	Tb_4O_7	Dy_2O_3	Ho_2O_3	Er_2O_3	Tm_2O_3	Yb_2O_3	Lu_2O_3	ThO_2	U_3O_8	Nb_2O_5	TiO_2	ZrO_2
units:	m	m	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SMDH 00032b	7	8	60	122	139.3	128.3	131.9	120.9	7.4	1.1	31.9	29.3	11	6.3	29.3	55.3	6	22.2	3.5	2.3	2.3		1.1						9.1		2.9	3172.7	232.3
SMDH 00032	0	1	40	215.3	234.5	225.5	219.8	210.8	14.7	4.5	52.2	52.9	9	10.2	52.8	94.6	12.1	38.5	7	1.2	4.6		2.3		1.1		1.1		14.8	1.2	11.4	3046	208
SMDH 00032	1	2	35	244.5	260.1	252.1	249.1	241.1	11	3.4	54.3	58.8	8	7.6	55.1	116.7	13.3	43.2	7	1.2	4.6		2.3		1.1				21.6	1.2	4.3	2513.8	137.8
SMDH 00032	2	3	40	258.7	277.9	268.9	264.3	255.3	13.6	3.4	60.4	62.3	9	10.2	59.8	121.6	13.3	46.7	8.1	1.2	4.6		2.3		1.1				22.8	1.2		1951.7	116.2
SMDH 00032	3	4	65	333.8	403.4	369.4	354.1	320.1	49.3	13.7	103.2	84.5	34	35.6	71.5	153.6	18.1	59.5	9.3	1.2	6.9	1.2	5.7	1.1	2.3		3.4		26.2	1.2	22.9	11276.4	533.6
SMDH 00032	4	5	95	276.3	296.7	287.7	281.3	272.3	15.4	4	65.4	66.3	9	11.4	64.7	128.6	14.6	48.6	8.3	2.3	5.2	0.6	2.5		0.9				24.8	2.1	11.3	1589.7	210.3
SMDH 00032	5	6	90	156.8	173.4	164.4	162.4	153.4	11	3.4	40.3	40	9	7.6	36.4	70	8.5	29.2	4.6	1.2	3.5		2.3		1.1				12.5	1.2		2492.1	116.2
SMDH 00032	6	7	60	274.2	295.9	286.9	278.7	269.7	17.2	4.5	66.3	65.8	9	12.7	59.8	129	14.5	49	9.3	2.3	5.8		2.3		1.1		1.1		23.9	1.2		2897.5	122.9
SMDH 00032	7	8	80	63.4	79.5	68.5	73.3	62.3	6.2	1.1	19	15.2	11	5.1	14.1	28.3	3.6	10.5	2.3	2.3	1.2		1.1						4.6			2952.5	154
SMDH 00032	8	9	80	70.3	89.9	77.9	79	67	10.9	3.3	22.7	16.4	12	7.6	15.2	30.7	3.6	11.7	2.3	2.3	1.2		1.1		1.1		1.1		4.6		4.3	3432.9	162.1
SMDH 00032	9	10	70	245.8	264	256	250.4	242.4	13.6	3.4	52.2	53	8	10.2	55.1	120.4	14.5	36.2	8.1	3.5	4.6		2.3		1.1				14.8	1.2	15.7	2160.2	94.6
SMDH 00031b	0	1	25	321.8	356.7	344.7	324.7	312.7	32	9.1	87	79.8	12	22.9	70.4	148.6	16.9	58.3	10.4	1.2	6.9	1.2	3.4	1.1	1.1		2.3		28.4	2.4	5.7	2879.1	443.1
SMDH 00031b	1	2	90	387.4	425.3	410.3	390.9	375.9	34.4	11.5	103.3	99.8	15	22.9	88	170.7	21.7	72.3	12.8	2.3	8.1	1.2	4.6	1.1	2.3		2.3		30.7	2.4	12.9	4675.7	435
SMDH 00031b	2	3	85	319.2	346.9	331.9	327.4	312.4	19.5	6.8	77.9	81	15	12.7	73.9	142.5	18.1	58.3	10.4	2.3	6.9	1.2	3.4		1.1		1.1		28.4	2.4	7.2	3801.6	235
SMDH 00031b	3	4	75	300.4	324.6	310.6	311	297	13.6	3.4	70.8	75.2	14	10.2	69.2	136.4	16.9	56	10.4	2.3	5.8		2.3		1.1				27.3	2.4	7.2	3801.6	179.7
SMDH 00031b	4	5	80	286.1	310	295	297.7	282.7	12.3	3.4	66	70.5	15	8.9	65.7	131.4	15.7	52.5	9.3	2.3	5.8		2.3		1.1				26.2	1.2	4.3	5244.5	160.7
SMDH 00031b	5	6	90	233.2	257.4	243.4	242.7	228.7	14.7	4.5	58	58.8	14	10.2	52.8	104.4	13.3	43.2	8.1	2.3	4.6		2.3		1.1		1.1		20.5	1.2	1.4	4829.1	216.1
SMDH 00031b	6	7	50	304.9	330.9	318.9	310.1	298.1	20.8	6.8	76.9	77.5	12	14	72.7	135.1	16.9	56	9.3	2.3	5.8	1.2	3.4		1.1		1.1		25	1.2	4.3	3387.9	190.5
SMDH 00031b	7	8	90	232.2	248.8	239.8	237.8	228.8	11	3.4	53	55.2	9	7.6	55.1	106.9	12.1	40.8	7	2.3	4.6		2.3		1.1				20.5	1.2		2382	163.4
SMDH 00031b	8	9	655	320.4	342.8	331.8	324.6	313.6	18.2	6.8	76.6	81	11	11.4	73.9	143.7	18.1	58.3	10.4	2.3	6.9	1.2	3.4		1.1		1.1		30.7	2.4		3169.4	189.1
SMDH 00031b	9	10	85	293	313.9	301.9	301.5	289.5	12.4	3.5	70.7	76.4	12	8.9	69.2	127.8	16.9	56	10.4	2.3	6.9	1.2	2.3						28.4	2.4		2653.9	185.1
SMDH 00031	0	1	45	296.3	326.1	314.1	301.5	289.5	24.6	6.8	81.9	78.7	12	17.8	68	127.8	16.9	57.2	10.4	2.3	6.9	1.2	3.4		1.1		1.1		27.3	2.4	1.4	4205.3	318.8
SMDH 00031	1	2	40	378.9	416.2	399.2	385.6	368.6	30.6	10.3	98.4	96.3	17	20.3	91.5	163.4	20.5	70	12.8	2.3	8.1	1.2	4.6	1.1	1.1		2.3		31.9	3.5	15.7	4755.8	390.4
SMDH 00031	2	3	45	612.2	655.9	638.9	617.8	600.8	38.1	11.4	152.5	158.5	17	26.7	140.7	271.5	35	116.6	20.9	2.3	13.8	1.2	5.7	1.1	2.3		1.1		61.4	5.9	10	6490.6	649.7
SMDH 00031	3	4	65	162.6	189.3	175.3	172.1	158.1	17.2	4.5	47.7	43.5	14	12.7	36.4	70	9.7	31.5	5.8	1.2	3.5		2.3		1.1		1.1		14.8	3.5	14.3	6408.8	699.7
SMDH 00031	4	5	95	164.9	190.3	176.3	174.4	160.4	15.9	4.5	46.4	43.5	14	11.4	37.5	71.2	9.7	31.5	5.8	1.2	3.5		2.3		1.1		1.1		14.8	2.4	20	8634.1	656.5
SMDH 00031	5	6	95	269	300	283	280.3	263.3	19.7	5.7	70	70.5	17	14	63.3	116.7	15.7	51.3	9.3	1.2	5.8	1.2	2.3		1.1		1.1		22.8	3.5	37.2	8634.1	1015.8
SMDH 00031	6	7	85	449.9	498.7	467.7	473	442	25.7	7.9	107.5	112.8	31	17.8	102	206.4	25.4	82.8	13.9	2.3	9.2	1.2	3.4	1.1	1.1		1.1		37.6	3.5	25.7	10068.7	883.4
SMDH 00031	7	8	55	426	470.6	447.6	438.7	415.7	31.9	10.3	105.6	107	23	21.6	97.3	192.9	24.2	77	13.9	1.2	9.2	1.2	4.6	1.1	2.3		1.1		36.4	2.4	15.7	7886.8	640.3
SMDH 00031	8	9	98	599.4	660.1	631.1	614.7	585.7	45.4	13.7	154	152.6	29	31.7	134.9	272.7	32.6	110.8	19.7	2.3	12.7	1.2	8	1.1	2.3		1.1		52.3	4.7	22.9	9508.2	764.6
SMDH 00031	9	10	95	3135.9	3319.3	3288.3	3153.2	3122.2	166.1	13.7	286.4	259.8	31	152.4	1145.8	1685.4	128.1	122.5	22	2.3	16.1	1.2	8	1.1	2.3		1.1		105.8	10.6	28.6	9207.9	1438.6
SMDH 00031	10	11	98	3290.3	3524.7	3489.7	3308.1	3273.1	216.6	17.2	341.6	275.2	35	199.4	1190.4	1776.3	135.3	129.5	23.2	2.3	16.1	2.4	8	1.1	3.4		2.3		114.9	15.3	31.5	10749.2	1527.8
SMDH 00030b	0	1	80	2416.7	2604.4	2570.4	2438.1	2404.1	166.3	12.6	251.6	195.8	34	153.7	889	1298.4	99.1	89.8	16.2	1.2	10.4	1.2	5.7	1.1	2.3		2.3		84.2	8.3	22.9	8567.4	1512.9
SMDH 00030b	1	2	55	1737.4	1890.9	1861.9	1753.8	1724.8	137.1	12.6	194.5	140.1	29	124.5	655.6	915.2	71.3	63	11.6	1.2	6.9	1.2	4.6	1.1	2.3		3.4		59.2	4.7	22.9	6458.9	1161.7
SMDH 00030b	2	3	90	474.2	492.1	483.1	478.7	469.7	13.4	4.5	78.8	88.1	9	8.9	91.5	273.9	20.5	65.3	10.4	2.3	5.8		2.3		1.1		1.1		36.4	1.2	11.4	3046	118.9
SMDH 00030b	3	4	70	303.3	333.8	319.8	311.6	297.6	22.2	5.7	59.7	54.1	14	16.5	58.6	174.4	12.1	39.7	7	1.2	4.6		2.3		1.1		2.3		19.3	1.2	14.3	3473	259.4
SMDH 00030b	4	5	50	292.5	322.2	305.2	305	288	17.2	4.5	55.9	54.1	17	12.7	55.1	168.3	12.1	39.7	7	1.2	4.6		2.3		1.1		1.1		19.3	1.2	12.9	5076	379.6
SMDH 00030b	5	6	98	344.2	376.1	353.1	362.7	339.7	13.4	4.5	60.2	64.6	23	8.9	63.3	199	14.5	47.8	8.1	1.2	5.8		2.3		1.1		1.1		22.8	2.4	15.7	7301.3	495.7
SMDH 00030b	6	7	85	238.3	269	251	251.8	233.8	17.2	4.5	48.9	44.7	18	12.7	43.4	136.4	9.7	32.7	5.8	1.2	4.6		2.3		1.1		1.1		14.8	1.2	14.3	5004.3	279.6
SMDH 00030b	7	7.5	80	135.7	158.1	147.1	142.2	131.2	15.9	4.5	33.6	27	11	11.4	25.8	73.7	6	18.7	3.5	1.2	2.3		2.3		1.1		1.1		6.8	1.2	11.4	2867.5	74.3
SMDH 00030	0	1	20	562.9	606.8	585.8	572.5	551.5	34.3	11.4	104.4	104.6	21	22.9	109.1	316.9	25.4	72.3	15.1	2.3	10.4	1.2	5.7	1.1	2.3		1.1		39.8	2.4	27.2	6197	418.7
SMDH 00030	1	2	50	257.5	286.5	271.5	266.8	251.8	19.7	5.7	56	51.7	15	14	45.7	146.2	10.9	37.3	7	1.2	3.5	1.2	2.3		1.1		1.1		15.9	1.2	15.7	5057.7	295.8
SMDH 00030	2	3	40	149.1	169	158	156.8	145.8	12.2	3.3	32.2	28.1	11	8.9	27	84.8	6	21	3.5	1.2	2.3		1.1		1.1		1.1		9.1	1.2	11.4	4053.5	249.9
SMDH 00030	3	4	60	149.1	175	158	162.8	145.8	12.2	3.3	31	26.9	17	8.9	27	86	6	19.8	3.5	1.2	2.3		1.1		1.1		1.1		9.1	1.2	12.9	4609	448.5
SMDH 00030	4	5	60	446.4	498.7	466.7	468.1	436.1	30.6	10.3	89.1	86.9	32	20.3	79.8	254.3	19.3	61.8	11.6	1.2	8.1	1.2	4.6	1.1	2.3		1.1		28.4	2.4	34.3	8338.8	363.4
SMDH 00030	5	6	85	229.8	262.5	242.5	245.3	225.3	17.2	4.5	47.7	43.5	20	12.7	42.2	131.4	9.7	31.5	5.8	1.2	3.5		2.3		1.1		1.1		13.7	1.2	21.5	5057.7	389
SMDH 00030	6	7	80	193.8	220.7	202.7	207.3	189.3	13.4	4.5	38.1	36.5	18	8.9	35.2	110.6	8.5	25.7	4.6	1.2	3.5		2.3		1.1		1.1		12.5	1.2	17.2	4125.2	520.1
SMDH 00030	7	8	85	202.2	237.4	217.4	217.7	197.7	19.7	4.5	45.5	37.6	20	15.2	36.4	116.7	8.5	26.8	4.6	1.2	3.5		2.3		1.1		1.1		12.5	1.2	20	4590.6	512
SMDH 00030	8	9	98	286.3	332.6	306.6	303.2	277.2	29.4	9.1	67	57.6	26	20.3	49.3	162.1	12.1	39.7	7	1.2	5.8	1.2	4.6	1.1	1.1		1.1		18.2	1.2	21.5	6914.3	409.3
SMDH 00030	9	10	90	441	573.6	509.6	479.8	415.8	93.8	25.2	155.9	108	64	68.6	95	197.8	23	74.6	13.9	2.3	9.2	2.4	8	2.3	4.6	1.1	5.7	1.1	34.1	2.4	44.3	8891	494.4
SMDH 00030	10	11	90	261.5	357	311	291.6	245.6	65.4	15.9	101.9	64.5	46	49.5	56.3	115.5	13.3	44.3	8.1	1.2	6.9	1.2	5.7	1.1	3.4	1.1	3.4		19.3	1.2	51.5	7309.6	456.6
SMDH 00030	11	12	75	226.2	303.2	259.2	258.7	214.7	44.5	11.5	78.5	56.4	44	33	48.1	103.2	12.1	38.5	7	1.2	4.6	1.2	4.6	1.1	2.3		2.3		18.2	2.4	60.1	7821.7	563.3
SMDH 00030	12	13	95	162.8	207.8	176.8	188.1	157.1	19.7	5.7	46.7	40	31	14	36.4	74.9	8.5	28	4.6	1.2	3.5	1.2	2.3		1.1		1.1		12.5	1.2	31.5	8976	509.3
SMDH 00030	13	14	90	299.3	359.2	327.2	319.8	287.8	39.4	11.5	81.6	68.2	32	27.9	71.5	138.8	15.7	46.7	8.1	1.2	5.8	1.2	4.6	1.1	2.3		2.3		17.1	1.2	45.8	7202.9	521.4
SMDH 00030	14	15	96	388.2	441.2	407.2	415.4	381.4	25.8	6.8	91.3	92.8	34	19	88	184.3	21.7	66.5	11.6	1.2	8.1	1.2	3.4		1.1		1.1		34.1	2.4	35.8	9958.6	530.9
SMDH 00030	15	15.5	90	524.5	573.8	544.8	544.3	515.3	29.5	9.2	120.6	125.8	29	20.3	119.6	246.9	27.8	91	16.2	2.3	11.5	2.4	4.6		1.1		1.1		45.5	3.5	25.7	7416.4	475.5
SMDH 00029b	0	1	40	475.7	521.9	504.9	481.2	464.2	40.7	11.5	117.9	112.9	17	29.2	105.6	226	25.4	80.5	15.1	1.2	10.4	2.4	4.6	1.1	2.3		1.1		41	3.5	14.3	3227.8	559.2
SMDH 00029b	1	2	35	448.6	502.1	479.1	459	436	43.1	12.6	109.8	101.1	23	30.5	93.8	224.8	23	71.2	12.8	1.2	9.2	1.2	5.7	1.1	2.3		2.3		36.4	3.5	17.2	4749.1	557.9
SMDH 00029b	2	3	50	299.6	335.9	318.9	308.6	291.6	27.3	8	79	74.8	17	19.3	65.7	137.5	16.1	53.9	10.8	1	6.6	0.8	4	0.7	1.6		0.9		29.8	3.5	11.2	2335.3	376.2
SMDH 00029b	3	4	40	502	548.1	530.1	507.6	489.6	40.5	12.4	129	126.9	18	28.1	108.8	230.7	27.3	92.6	18.2	1.3	10.7	1.3	5.7	0.9	2.3		2.2		48.2	4.7	14.4	2740.7	347.7
SMDH 00029b	4	5	80	631	701.1	669.1	645.9	613.9	55.2	17.1	139.5	125.7	32	38.1	113.8	351.3	26.6	91	17.4	2.3	11.5	1.2	6.9	1.1	3.4	1.1	3.4		42.1	3.5	28.6	8857.6	428.2
SMDH 00029b	5	6	90	530.6	580.6	549.6	552.5	521.5	28.1	9.1	102.9	104.6	31	19	95	303.4	23	75.8	12.8	2.3	9.2	1.2	4.6	1.1	1.1		1.1		35.3	2.4	27.2	10717.5	430.9
SMDH 00029b	6	7	65	608.6	674.1	639.1	628.8	593.8	45.3	14.8	122.5	115.1	35	30.5	111.4	347.6	25.4	82.8	15.1	2.3	9.2	1.2	5.7	1.1	3.4		3.4		34.1	2.4	42.9	9671.6	406.6
SMDH 00029b	7	8	65	516.9	582.4	547.4	538.2	503.2	44.2	13.7	113.2	102.1	35	30.5	91.5	289.9	21.7	73.5	13.9	2.3	10.4	1.2	5.7	1.1	3.4		2.3		33	2.4	27.2	8555.7	472.8
SMDH 00029b	8	9	50	510.7	581.5	547.5	527.6	493.6	53.9	17.1	118.4	101	34	36.8	91.5	283.8	21.7	71.2	13.9	2.3	9.2	1.2	6.9	1.1	3.4	1.1	3.4		31.9	2.4	28.6	7973.5	405.2
SMDH 00029b	9	10	95	550.4	619.5	588.5	564.3	533.3	55.2	17.1	126.6	109.2	31	38.1	99.7	307.1	23	78.1	13.9	2.3	9.2	1.2	6.9	1.1	3.4	1.1	3.4		34.1	2.4	32.9	8066.9	441.7
SMDH 00029b	10	11	50	533.6	596.3	565.3	549.8	518.8	46.5	14.8	117.9	105.6	31	31.7	96.2	298.5	21.7	77	13.9	2.3	9.2	1.2	5.7	1.1	3.4		3.4		34.1	2.4	65.8	9276.3	517.4
SMDH 00029b	11	12	95	456	520.6	491.6	470.2	441.2	50.4	14.8	112.5	96.2	29	35.6	85.6	240.8	20.5	68.8	13.9	1.2	10.4	1.2	5.7	1.1	3.4		3.4		31.9	2.4	24.3	7509.8	479.5
SMDH 00029b	12	13	85	429.4	509.8	468.8	456.7	415.7	53.1	13.7	122.1	103.4	41	39.4	97.3	196.5	23	73.5	13.9	2.3	9.2	1.2	5.7	1.1	2.3		3.4		31.9	2.4	40.1	6839.2	536.3
SMDH 00028b	0	1	30	475	526.8	509.8	477	460	49.8	15	127.3	116.3	17	34.8	104.7	218.8	25.3	83.2	16.1	1.5	10.4	1.3	6.5	1.1	2.9		3.2		43	6	18.5	3289.5	454.8
SMDH 00028b	1	2	60	321.8	391.9	359.9	341.2	309.2	50.7	12.6	101	78.6	32	38.1	70.4	148.6	16.9	54.8	10.4	1.2	6.9	1.2	5.7	1.1	2.3		2.3		26.2	2.4	27.2	6295.4	380.9

ARK MINES LTD.

BHID	FROM	TO	Rec	TREO	TREO+Y+Sc	TREO+Y	LREO+Sc	LREO	HREO+Y	HREO	CREO	MagREO	Sc_2O_3	Y_2O_3	La_2O_3	CeO_2	Pr_6O_{11}	Nd_2O_3	Sm_2O_3	Eu_2O_3	Gd_2O_3	Tb_4O_7	Dy_2O_3	Ho_2O_3	Er_2O_3	Tm_2O_3	Yb_2O_3	Lu_2O_3	ThO_2	U_3O_8	Nb_2O_5	TiO_2	ZrO_2
units:	m	m	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SMDH 00028b	2	3	40	155.6	191.8	170.8	170.9	149.9	20.9	5.7	45.6	37.7	21	15.2	35.2	71.2	8.5	25.7	4.6	1.2	3.5	1.2	2.3		1.1		1.1		12.5	1.2	24.3	4505.5	237.7
SMDH 00028b	3	4	70	251.5	307.9	276.9	273.4	242.4	34.5	9.1	73.2	59.9	31	25.4	55.1	119.2	13.3	42	7	1.2	4.6	1.2	3.4	1.1	1.1		2.3		22.8	1.2	18.6	6033.5	401.2
SMDH 00028b	4	5	75	214.2	259.2	233.2	233.4	207.4	25.8	6.8	59.8	49.4	26	19	48.1	100.7	10.9	35	5.8	2.3	4.6	1.2	2.3	1.1	1.1		1.1		19.3	1.2	21.5	5411.3	356.6
SMDH 00028b	5	6	80	102.5	186.2	134.2	143	91	43.2	11.5	55	26.9	52	31.7	19.9	41.8	4.8	16.3	3.5	1.2	3.5	1.2	4.6	1.1	2.3		2.3		5.7	1.2	17.2	12208.8	167.5
SMDH 00028b	6	7	90	103.2	201.5	137.5	155.7	91.7	45.8	11.5	65.8	35.1	64	34.3	16.4	35.6	4.8	24.5	4.6	1.2	4.6	1.2	4.6	1.1	2.3		2.3		3.4	1.2	25.7	13316.4	175.6
SMDH 00028b	7	8	80	103.4	174	139	128.1	93.1	45.9	10.3	60.1	28.1	35	35.6	21.1	38.1	4.8	18.7	4.6	1.2	4.6	1.2	3.4	1.1	2.3		2.3		4.6	1.2	24.3	10018.6	132.4
SMDH 00028b	8	8.5	20	83.6	121.7	106.7	90.1	75.1	31.6	8.5	44.1	23.4	15	23.1	15.1	32.7	4.1	14.8	3.8	1.7	2.9	0.6	3.9	0.7	1.8		1.5		3.4	1.3	8.6	2495.5	108.5
SMDH 00028	0	1	25	317.2	354.9	343.9	320.2	309.2	34.7	8	88.5	77.5	11	26.7	73.9	146.2	16.9	54.8	9.3	1.2	6.9	1.2	4.6		1.1		1.1		28.4	2.4	7.2	1996.7	258
SMDH 00028	1	2	60	646.1	736.9	715.9	645.3	624.3	91.6	21.8	196.9	159.7	21	69.8	146.6	294.8	33.8	115.5	18.6	1.2	13.8	1.2	9.2	1.1	4.6	1.1	4.6		58	3.5	21.5	8515.7	603.8
SMDH 00028	2	3	50	441.8	494.4	477.4	447.3	430.3	47.1	11.5	121.9	109.3	17	35.6	104.4	201.5	24.2	79.3	11.6	1.2	8.1	1.2	4.6	1.1	2.3		2.3		42.1	1.2	22.9	6253.7	387.7
SMDH 00028	3	4	45	294.4	337.3	322.3	299.1	284.1	38.2	10.3	83.9	70.5	15	27.9	68	135.1	15.7	50.2	8.1	1.2	5.8	1.2	3.4	1.1	2.3		2.3		29.6	1.2	12.9	5873.4	297.2
SMDH 00028	4	5	50	341.2	387.4	370.4	347.9	330.9	39.5	10.3	93.3	81	17	29.2	80.9	158.5	18.1	58.3	8.1	1.2	5.8	1.2	3.4	1.1	2.3		2.3		30.7	1.2	11.4	6690.7	364.7
SMDH 00028	5	6	75	344.7	390.1	370.1	356.8	336.8	33.3	7.9	91.8	82.2	20	25.4	82.1	159.7	18.1	59.5	9.3	2.3	5.8	1.2	3.4	1.1	1.1		1.1		28.4	1.2	17.2	6026.8	308
SMDH 00028	6	7	85	300.7	330.9	315.9	312.3	297.3	18.6	3.4	73.5	72.8	15	15.2	68	143.7	15.7	54.8	8.1	1.2	5.8		2.3		1.1				25	1.2	12.9	5031	289.1
SMDH 00027b	0	1	50	510.2	585.8	564.8	515.2	494.2	70.6	16	153.6	122.1	21	54.6	109.1	245.7	25.4	88.6	13.9	2.3	9.2	1.2	6.9	1.1	3.4		3.4		44.4	2.4	17.2	7778.4	502.5
SMDH 00027b	1	2	20	304	347.7	330.7	310.8	293.8	36.9	10.2	88.5	76.2	17	26.7	65.9	139.1	16.7	54.1	9.5	2.3	6.2	0.8	4.6	0.8	2.3		1.7		23.4	2.1	19.3	3676.5	223.8
SMDH 00027b	2	3	70	339.6	429	398	353.5	322.5	75.5	17.1	127.2	84.5	31	58.4	72.7	156	16.9	59.5	9.3	1.2	6.9	1.2	6.9	1.1	3.4	1.1	3.4		26.2	1.2	31.5	8010.2	345.8
SMDH 00027b	3	4	85	405.2	510.9	478.9	413.2	381.2	97.7	24	154.1	98.5	32	73.7	85.6	185.5	19.3	70	10.4	1.2	9.2	1.2	8	2.3	4.6	1.1	5.7	1.1	30.7	1.2	28.6	8842.6	495.7
SMDH 00027b	4	5	98	466	538.2	509.2	482.4	453.4	55.8	12.6	134	111.5	29	43.2	100.9	223.6	23	81.6	12.8	2.3	9.2	1.2	5.7	1.1	2.3		2.3		39.8	2.4	28.6	9288	522.8
SMDH 00027b	5	6	90	551.3	618.2	593.2	563.7	538.7	54.5	12.6	142.1	125.7	25	41.9	124.3	269	27.8	91	13.9	2.3	10.4	1.2	5.7	1.1	2.3		2.3		47.8	2.4	31.5	8243.8	489
SMDH 00029	0	1	20	547.9	636.8	622.8	543.2	529.2	93.6	18.7	188.3	140.9	14	74.9	116.5	249.9	29.2	102.1	18.4	1.7	11.4	1.5	8.1	1.6	3.5	0.6	3.4		49.8	4.6	27.3	2485.5	670.3
SMDH 00029	1	2	75	333.1	384.1	366.1	340.8	322.8	43.3	10.3	92.5	75.2	18	33	73.9	160.9	16.9	53.7	9.3	1.2	6.9	1.2	3.4	1.1	2.3		2.3		28.4	2.4	15.7	6385.5	333.6
SMDH 00029	2	3	70	401.3	454	433	410.8	389.8	43.2	11.5	106.4	94	21	31.7	91.5	189.2	20.5	67.7	11.6	1.2	8.1	1.2	4.6	1.1	2.3		2.3		33	2.4	34.3	7391.4	336.3
SMDH 00029	3	4	85	341.7	407.4	387.4	350.2	330.2	57.2	11.5	106.4	77.6	20	45.7	70.4	167.1	18.1	53.7	11.6	1.2	8.1	1.2	4.6	1.1	2.3		2.3		28.4	2.4	22.9	7361.3	328.2
SMDH 00029	4	5	95	336.6	420	395	346.7	321.7	73.3	14.9	120.2	78.7	25	58.4	66.8	163.4	18.1	52.5	11.6	1.2	8.1	2.4	5.7	1.1	3.4		2.3		28.4	2.4	21.5	7144.5	341.8
SMDH 00029	5	6	98	415.9	491	468	425.1	402.1	65.9	13.8	125.6	94	23	52.1	85.6	205.1	21.7	64.2	13.9	1.2	10.4	2.4	5.7	1.1	2.3		2.3		36.4	2.4	21.5	7736.6	472.8
SMDH 00029	6	7	90	359.6	407.5	387.5	371.7	351.7	35.8	7.9	90.9	82.3	20	27.9	76.2	176.9	20.5	57.2	11.6	1.2	8.1	1.2	3.4	1.1	1.1		1.1		31.9	2.4	28.6	7321.3	413.3
SMDH 00029	7	8	50	323.5	371.4	351.4	335.6	315.6	35.8	7.9	85	74	20	27.9	68	158.5	18.1	51.3	10.4	1.2	8.1	1.2	3.4	1.1	1.1		1.1		29.6	2.4	22.9	7718.3	366.1
SMDH 00029	8	9	75	334.4	386.1	366.1	346.5	326.5	39.6	7.9	91.2	77.6	20	31.7	69.2	164.6	19.3	53.7	10.4	1.2	8.1	1.2	3.4	1.1	1.1		1.1		30.7	2.4	20	8252.1	366.1
SMDH 00029	9	10	95	389.5	468.3	440.3	402.5	374.5	65.8	15	122	91.7	28	50.8	79.8	187.9	21.7	60.7	12.8	1.2	10.4	2.4	6.9	1.1	2.3		2.3		33	2.4	30	8825.9	412
SMDH 00029	10	11	95	362.4	447.2	413.2	381.4	347.4	65.8	15	124.3	91.6	34	50.8	76.2	163.4	19.3	63	12.8	1.2	11.5	2.4	6.9	1.1	2.3		2.3		30.7	2.4	32.9	8830.9	451.2
SMDH 00029	11	12	90	354.1	439.7	408.7	370.1	339.1	69.6	15	129.3	92.8	31	54.6	72.7	158.5	19.3	64.2	12.8	1.2	10.4	2.4	6.9	1.1	2.3		2.3		27.3	2.4	30	8614.1	402.5
SMDH 00027	0	1	45	692.6	839.3	799.3	701.7	661.7	137.6	30.9	245.4	175	40	106.7	146.6	316.9	37.5	122.5	22	1.2	15	3.5	11.5	2.3	5.7	1.1	5.7	1.1	62.6	4.7	31.5	9321.3	711.9
SMDH 00027	1	2	35	606.4	717.9	683.9	619.8	585.8	98.1	20.6	201	153.8	34	77.5	129	278.8	32.6	109.6	19.7	2.3	13.8	2.4	9.2	1.1	3.4	1.1	3.4		53.5	3.5	28.6	7985.2	521.4
SMDH 00027	2	3	45	608.3	700.4	665.4	627.2	592.2	73.2	16.1	177.2	150.4	35	57.1	133.7	283.8	32.6	108.5	18.6	2.3	12.7	2.4	6.9	1.1	2.3		3.4		53.5	2.4	28.6	9518.2	607.9
SMDH 00027	3	4	65	562.8	655.7	618.7	584.8	547.8	70.9	15	167.8	139.8	37	55.9	122	262.9	30.2	100.3	17.4	2.3	12.7	2.4	6.9	1.1	2.3		2.3		51.2	3.5	25.7	9636.6	557.9
SMDH 00027	4	5	60	698.8	810.7	773.7	714.1	677.1	96.6	21.7	213.6	173.9	37	74.9	151.3	323.1	37.5	124.8	22	2.3	16.1	2.4	9.2	1.1	3.4	1.1	3.4	1.1	61.4	3.5	42.9	10265.5	547.1
SMDH 00027	5	6	60	391.4	449.1	423.1	408.3	382.3	40.8	9.1	108.6	95.1	26	31.7	86.8	183	20.5	70	11.6	2.3	8.1	1.2	3.4	1.1	2.3		1.1		34.1	1.2	28.6	9066.1	545.7
SMDH 00027	6	7	70	566.1	625.6	596.6	581.4	552.4	44.2	13.7	108.6	101.1	29	30.5	103.2	332.9	24.2	70	12.8	1.2	8.1	1.2	5.7	1.1	3.4		2.3		36.4	2.4	24.3	8939.3	483.6
SMDH 00027	7	8	95	703.2	780.9	748.9	711.2	679.2	69.7	24	156.4	138.6	32	45.7	123.1	395.5	30.2	98	17.4	2.3	12.7	1.2	9.2	1.1	5.7	1.1	4.6	1.1	47.8	2.4	24.3	9031.1	540.3
SMDH 00027	8	9	80	787.4	951.5	891.5	797	737	154.5	50.4	229.9	157.2	60	104.1	133.7	428.7	32.6	107.3	19.7	1.2	13.8	2.4	14.9	3.4	13.7	2.3	11.4	2.3	51.2	3.5	35.8	10524	690.3
SMDH 00026b	0	1	35	664.7	735.2	714.2	664.1	643.1	71.1	21.6	153.1	130.3	21	49.5	116.1	374.7	29	92.1	17.4	2.3	11.5	1.2	8	1.1	5.7	1.1	3.4	1.1	47.8	3.5	20	5916.8	537.6
SMDH 00026b	1	2	50	449.6	502.3	481.3	455.7	434.7	46.6	14.9	105.1	90.4	21	31.7	78.6	251.8	19.3	63	11.6	2.3	8.1	1.2	6.9	1.1	3.4		2.3		33	2.4	17.2	6230.4	371.5
SMDH 00026b	2	3	40	433.7	497.3	474.3	438.4	415.4	58.9	18.3	111.7	86.9	23	40.6	75.1	239.5	18.1	60.7	11.6	2.3	8.1	1.2	6.9	1.1	4.6	1.1	3.4		30.7	1.2	17.2	5861.7	348.5
SMDH 00026b	3	4	85	662.3	746.6	715.6	666.9	635.9	79.7	26.4	157	130.4	31	53.3	113.8	369.7	29	91	17.4	2.3	12.7	1.2	9.2	2.3	6.9	1.1	4.6	1.1	47.8	2.4	21.5	8607.4	549.8
SMDH 00026b	4	5	80	478	581.5	555.5	479.9	453.9	101.6	24.1	175.3	117.2	26	77.5	99.7	217.4	21.7	85.1	16.2	2.3	11.5	2.4	8	2.3	4.6	1.1	4.6	1.1	35.3	2.4	32.9	6140.3	430.9
SMDH 00026b	5	6	80	477.3	564.5	539.5	485.1	460.1	79.4	17.2	160.1	117.3	25	62.2	104.4	219.9	21.7	86.3	15.1	2.3	10.4	2.4	6.9	1.1	3.4		3.4		34.1	2.4	35.8	4950.9	375.5
SMDH 00026b	6	7	95	582.7	701.9	672.9	586.5	557.5	115.4	25.2	205.6	139.7	29	90.2	123.1	272.7	26.6	101.5	18.6	2.3	12.7	2.4	9.2	2.3	5.7	1.1	3.4	1.1	47.8	3.5	32.9	6849.2	568.7
SMDH 00026b	7	8	50	573.1	691	662	576.8	547.8	114.2	25.3	200.8	136.1	29	88.9	125.5	265.3	25.4	99.1	18.6	1.2	12.7	2.4	9.2	2.3	4.6	1.1	4.6	1.1	42.1	3.5	37.2	7683.3	506.6
SMDH 00026b	8	9	50	559	666.2	635.2	570.5	539.5	95.7	19.5	183.4	130.3	31	76.2	123.1	264.1	25.4	94.5	18.6	2.3	11.5	2.4	8	1.1	4.6		3.4		42.1	3.5	37.2	6335.4	489
SMDH 00026b	9	10	80	663	801.7	769.7	664	632	137.7	31	236	157.2	32	106.7	139.6	312	30.2	112	20.9	2.3	15	3.5	11.5	2.3	6.9	1.1	4.6	1.1	51.2	4.7	32.9	8003.5	505.2
SMDH 00026b	10	11	75	628.7	735.2	706.2	637	608	98.2	20.7	197.6	147.9	29	77.5	134.9	299.7	29	107.3	20.9	1.2	15	2.4	9.2	1.1	4.6		3.4		48.9	3.5	35.8	7790	605.2
SMDH 00026b	11	11.5	50	414.2	476.1	456.1	423	403	53.1	11.2	123.2	102.2	20	41.9	90.9	191.6	22.1	74.2	14	1.2	9	1.1	4.8	0.9	1.9		2.5		37.8	3.7	15.2	4115.2	729.6
SMDH 00026	0	1	35	541.4	637.7	608.7	553.2	524.2	84.5	17.2	168.7	129.2	29	67.3	117.3	259.2	29	89.8	16.2	1.2	11.5	2.4	8	1.1	3.4		2.3		51.2	3.5	18.6	5479.7	517.4
SMDH 00026	1	2	15	470.2	576.1	545.1	481.8	450.8	94.3	19.4	165.7	112.7	31	74.9	100.9	219.9	24.2	78.1	13.9	2.3	11.5	2.4	8	1.1	3.4	1.1	3.4		43.2	3.5	22.9	6674.1	409.3
SMDH 00026	2	3	45	497.7	613.4	576.4	510.6	473.6	102.8	24.1	179	125.7	37	78.7	104.4	227.3	26.6	87.5	15.1	1.2	11.5	2.4	9.2	2.3	3.4	1.1	4.6	1.1	45.5	3.5	24.3	7691.6	520.1
SMDH 00026	3	4	90	466.3	593	559	475	441	118	25.3	188.2	117.4	34	92.7	96.2	210.1	24.2	81.6	15.1	2.3	11.5	2.4	9.2	2.3	4.6	1.1	4.6	1.1	41	3.5	21.5	7553.2	432.3
SMDH 00026	4	5	95	532.1	668.2	631.2	541.6	504.6	126.6	27.5	205.1	131.5	37	99.1	112.6	242	27.8	91	16.2	2.3	12.7	2.4	10.3	2.3	4.6	1.1	5.7	1.1	46.7	3.5	27.2	7378	502.5
SMDH 00026	5	6	90	630.1	768.8	722.8	648.6	602.6	120.2	27.5	219.6	158.4	46	92.7	132.5	287.4	33.8	110.8	19.7	2.3	16.1	3.5	10.3	2.3	4.6	1.1	4.6	1.1	56.9	3.5	32.9	8375.5	618.7
SMDH 00026	6	7	90	592.5	706.2	666.2	611.9	571.9	94.3	20.6	189.1	144.5	40	73.7	126.7	277.6	31.4	101.5	17.4	2.3	15	2.4	9.2	1.1	3.4	1.1	3.4		55.8	2.4	22.9	8297.1	489
SMDH 00026	7	8	85	808.6	935.3	887.3	830.3	782.3	105	26.3	240.6	203.1	48	78.7	179.4	368.5	43.5	145.8	24.4	2.3	18.4	3.5	10.3	2.3	3.4	1.1	4.6	1.1	67.1	3.5	55.8	10724.2	676.8
SMDH 00026	8	9	90	763.6	873.5	838.5	782.5	747.5	91	16.1	198.5	152.7	35	74.9	171.2	400.5	31.4	112	17.4	2.3	12.7	2.4	6.9	1.1	3.4		2.3		53.5	2.4	34.3	10305.5	536.3
SMDH 00026	9	10	95	735.6	886.9	849.9	749.7	712.7	137.2	22.9	234.3	146.7	37	114.3	159.5	385.7	29	106.1	17.4	2.3	12.7	2.4	9.2	1.1	5.7	1.1	3.4		54.6	2.4	11.4	9221.3	436.3
SMDH 00026	10	11	70	886.1	1020.6	982.6	904.5	866.5	116.1	19.6	241	178.4	38	96.5	193.5	468	36.2	130.6	20.9	2.3	15	2.4	9.2	1.1	4.6		2.3		70.5	3.5	25.7	10305.5	683.5
SMDH 00026	11	12	90	859.7	970.4	933.4	881.8	844.8	88.6	14.9	212.4	172.6	37	73.7	191.2	453.3	36.2	127.1	20.9	2.3	13.8	2.4	6.9	1.1	3.4		1.1		66	3.5	27.2	11871.9	655.1
SMDH 00025b	0	1	45	438.9	525.9	504.9	446.2	425.2	79.7	13.7	139.4	90.3	21	66	98.5	223.6	18.1	65.3	10.4	1.2	8.1	1.2	5.7	1.1	3.4		2.3		34.1	2.4	12.9	4767.4	358
SMDH 00025b	1	2	55	503.3	610.8	585.8	512.3	487.3	98.5	16	169.9	106.7	25	82.5	114.9	250.6	20.5	78.1	12.8	1.2	9.2	1.2	6.9	1.1	3.4		3.4		34.1	2.4	31.5	6310.4	294.5
SMDH 00025b	2	3	85	584.2	679	654	595.5	570.5	83.5	13.7	160.7	113.9	25	69.8	144.3	296	24.2	82.8	12.8	1.2	9.2	1.2	5.7	1.1	3.4		2.3		36.4	2.4	38.6	6152	325.5
SMDH 00025b	3	4	90	517.6	622.6	597.6	530	505	92.6	12.6	157	96.3	25	80	117.3	275.2	20.5	70	11.6	1.2	9.2	1.2	4.6	1.1	3.4		2.3		37.6	2.4	20	6900.9	372.8
SMDH 00025b	4	5	85	281.3	327.2	309.2	286.7	268.7	40.5	12.6	89.7	73.9	18	27.9	73.9	106.9	13.3	53.7	9.3	1.2	10.4	1.2	5.7	1.1	2.3		2.3		14.8	1.2	25.7	6542.3	148.6
SMDH 00025b	5	6	98	432.2	515.3	489.3	445.6	419.6	69.7	12.6	149.2	111.4	26	57.1	113.8	178.1	20.5	84	13.9	1.2	8.1	1.2	5.7	1.1	2.3		2.3		31.9	2.4	18.6	4892.5	358

BHID	FROM	TO	Rec	TREO	TREO+Y+Sc	TREO+Y	LREO+Sc	LREO	HREO+Y	HREO	CREO	MagREO	Sc_2O_3	Y_2O_3	La_2O_3	CeO_2	Pr_6O_{11}	Nd_2O_3	Sm_2O_3	Eu_2O_3	Gd_2O_3	Tb_4O_7	Dy_2O_3	Ho_2O_3	Er_2O_3	Tm_2O_3	Yb_2O_3	Lu_2O_3	ThO_2	U_3O_8	Nb_2O_5	TiO_2	ZrO_2
units:	*m*	*m*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
SMDH 00025b	6	7	85	466.7	562.8	537.8	475.6	450.6	87.2	16.1	172.5	120.8	25	71.1	119.6	192.9	21.7	89.8	13.9	2.3	10.4	2.4	6.9	1.1	2.3		3.4		31.9	2.4	18.6	4930.9	397.1
SMDH 00025b	7	7.5	70	433.6	528.6	499.6	448.9	419.9	79.7	13.7	153.4	106.7	29	66	111.4	185.5	20.5	79.3	12.8	1.2	9.2	1.2	5.7	1.1	2.3		3.4		30.7	2.4	15.7	4969.3	385
SMDH 00025	0	1	20	489.8	563.2	548.2	491	476	72.2	13.8	157.5	119.6	15	58.4	130.2	208.8	21.7	89.8	13.9	1.2	10.4	1.2	6.9	1.1	2.3		2.3		36.4	2.4	8.6	3875	407.9
SMDH 00025	1	2	35	320	375.6	360.6	323.5	308.5	52.1	11.5	105.9	78.6	15	40.6	85.6	132.7	14.5	58.3	9.3	1.2	6.9	1.2	4.6	1.1	2.3		2.3		22.8	1.2	17.2	3166.1	279.6
SMDH 00025	2	3	90	469.2	556.4	531.4	479.2	454.2	77.2	15	161.3	119.6	25	62.2	123.1	195.3	21.7	88.6	13.9	1.2	10.4	2.4	6.9	1.1	2.3		2.3		34.1	1.2	18.6	4969.3	335
SMDH 00025	3	4	95	472.4	584.2	556.2	478.7	450.7	105.5	21.7	181.7	118.4	28	83.8	124.3	192.9	21.7	86.3	13.9	1.2	10.4	2.4	8	1.1	3.4	1.1	4.6	1.1	30.7	2.4	21.5	4777.4	321.5
SMDH 00025	4	5	98	399.2	456.5	433.5	410.7	387.7	45.8	11.5	97.3	78.7	23	34.3	71.5	224.8	16.9	56	10.4	1.2	6.9	1.2	4.6	1.1	2.3		2.3		30.7	1.2	14.3	3945.1	285
SMDH 00025	5	6	85	415.1	506.6	478.6	427.1	399.1	79.5	16	120.6	77.6	28	63.5	70.4	238.3	21.7	47.8	12.8	1.2	6.9	1.2	6.9	1.1	3.4		3.4		29.6	2.4	22.9	4917.6	326.9
SMDH 00025	6	7	90	459	550.6	527.6	463.7	440.7	86.9	18.3	142	91.5	23	68.6	80.9	254.3	19.3	63	12.8	1.2	9.2	1.2	8	1.1	4.6		3.4		33	2.4	24.3	4225.3	256.7
SMDH 00025	7	8	90	497.9	614.5	585.5	499.5	470.5	115	27.4	173.8	105.5	29	87.6	85.6	266.6	20.5	72.3	13.9	1.2	10.4	2.4	10.3	1.1	5.7	1.1	5.7	1.1	36.4	2.4	22.9	4935.9	397.1
SMDH 00025	8	9	98	579.2	685.3	650.3	593.5	558.5	91.8	20.7	169	121	35	71.1	102	318.2	25.4	84	15.1	2.3	11.5	2.4	9.2	1.1	4.6		3.4		43.2	2.4	25.7	6544	425.5
SMDH 00025	9	10	94	499.7	617.1	586.1	507.8	476.8	109.3	22.9	168	100.9	31	86.4	89.1	275.2	20.5	70	11.6	1.2	9.2	2.4	8	1.1	4.6	1.1	4.6	1.1	36.4	2.4	22.9	4824.1	375.5
SMDH 00025	10	11	95	665	740.5	714.5	667	641	73.5	24	150.9	128	26	49.5	114.9	379.6	27.8	89.8	16.2	1.2	11.5	1.2	9.2	1.1	5.7	1.1	4.6	1.1	52.3	3.5	28.6	7644.9	520.1
SMDH 00025	11	11.5	80	601	667.9	642.9	606.6	581.6	61.3	19.4	137.4	120.9	25	41.9	102	339	26.6	85.1	16.2	1.2	11.5	1.2	8	1.1	4.6	1.1	3.4		48.9	3.5	24.3	6719.1	456.6
SMDH 00024b	0	1	35	1114.1	1199.9	1178.9	1103	1082	96.9	32.1	236.1	218.4	21	64.8	192.3	640	48.3	155.1	26.7	1.2	18.4	2.4	12.6	2.3	6.9	1.1	5.7	1.1	92.2	4.7	15.7	6028.5	787.5
SMDH 00024b	1	2	45	562	604.9	584.9	571.7	551.7	33.2	10.3	110.4	111.7	20	22.9	99.7	321.8	25.4	80.5	13.9	1.2	9.2	1.2	4.6	1.1	2.3		1.1		50.1	2.4	21.5	7211.2	440.4
SMDH 00024b	2	3	40	554.9	591.9	573.9	562.6	544.6	29.3	10.3	105.2	108.1	18	19	100.9	318.2	24.2	78.1	12.8	2.3	8.1	1.2	4.6	1.1	2.3		1.1		44.4	2.4	22.9	7092.8	281
SMDH 00024b	3	4	65	356.2	380.9	368.9	363.7	351.7	17.2	4.5	67.5	69.3	12	12.7	65.7	205.1	15.7	51.3	8.1	1.2	4.6		2.3		1.1		1.1		28.4	1.2	12.9	4156.9	135.1
SMDH 00024b	4	5	50	416.3	452.9	437.9	419.8	404.8	33.1	11.5	86.9	81.1	15	21.6	73.9	237.1	18.1	57.2	10.4	2.3	5.8	1.2	4.6	1.1	2.3		2.3		33	2.4	15.7	5476.4	255.3
SMDH 00024b	5	6	95	541.3	599.4	579.4	545.3	525.3	54.1	16	124.4	109.3	20	38.1	92.7	305.9	24.2	77	13.9	1.2	10.4	1.2	6.9	1.1	3.4		3.4		44.4	3.5	21.5	6679.1	383.6
SMDH 00024b	6	7	75	373.5	439.7	416.7	380.5	357.5	59.2	16	105	77.5	23	43.2	68	202.7	16.9	52.5	9.3	1.2	6.9	1.2	6.9	1.1	3.4		3.4		28.4	2.4	22.9	7663.3	399.8
SMDH 00024b	7	8	50	240.8	328.6	291.6	257.2	220.2	71.4	20.6	92.8	50.5	37	50.8	43.4	121.6	9.7	32.7	5.8	1.2	5.8	1.2	6.9	1.1	4.6	1.1	4.6	1.1	17.1	1.2	35.8	10956.1	580.8
SMDH 00024b	8	9	90	391.5	453.1	432.1	396.5	375.5	56.6	16	105.9	81	21	40.6	72.7	211.3	16.9	56	9.3	1.2	8.1	1.2	6.9	1.1	3.4		3.4		33	2.4	21.5	6468.9	399.8
SMDH 00024b	9	10	85	413.4	461.4	446.4	415.8	400.8	45.6	12.6	100.6	84.5	15	33	76.2	227.3	18.1	59.5	10.4	1.2	8.1	1.2	5.7	1.1	2.3		2.3		37.6	3.5	20	5429.7	359.3
SMDH 00024b	10	11	90	351.6	421.6	398.6	354	331	67.6	20.6	106.4	73.9	23	47	62.2	186.7	15.7	49	9.3	1.2	6.9	1.2	8	1.1	4.6	1.1	4.6		28.4	3.5	30	6840.9	359.3
SMDH 00024b	11	12	98	496.4	559.5	534.5	505.4	480.4	54.1	16	118.6	102.3	25	38.1	89.1	273.9	23	71.2	12.8	1.2	9.2	1.2	6.9	1.1	3.4		3.4		43.2	2.4	22.9	7349.6	445.8
SMDH 00024b	12	13	95	671.7	751.1	716.1	687.4	652.4	63.7	19.3	152.8	137.4	35	44.4	123.1	371	30.2	98	17.4	1.2	11.5	1.2	8	1.1	3.4	1.1	3.4	1.1	51.2	2.4	34.3	10075.3	499.8
SMDH 00024b	13	14	98	327.2	373.4	342.4	353.7	322.7	19.7	4.5	67.6	64.6	31	15.2	61	185.5	14.5	47.8	7	2.3	4.6		2.3		1.1		1.1		25	2.4	58.7	14367.3	1290
SMDH 00024b	14	15	98	772.4	844.6	815.6	782	753	62.6	19.4	163.3	152.7	29	43.2	138.4	441	33.8	108.5	17.4	1.2	12.7	2.4	8	1.1	3.4	1.1	3.4		56.9	2.4	21.5	7726.6	512
SMDH 00024	0	1	95	557.9	631.3	602.3	565.2	536.2	66.1	21.7	133	111.6	29	44.4	95	314.5	24.2	77	13.9	1.2	10.4	2.4	8	1.1	3.4	1.1	4.6	1.1	44.4	3.5	21.5	6855.9	537.6
SMDH 00024	1	2	60	440.6	506.8	483.8	445.3	422.3	61.5	18.3	117.8	91.6	23	43.2	77.4	239.5	19.3	63	11.6	2.3	9.2	2.4	6.9	1.1	3.4	1.1	3.4		33	2.4	20	5481.4	299.9
SMDH 00024	2	3	75	483	556	530	488.4	462.4	67.6	20.6	126.3	97.5	26	47	83.3	266.6	20.5	67.7	12.8	2.3	9.2	2.4	6.9	1.1	3.4	1.1	4.6	1.1	35.3	2.4	35.8	5868.4	390.4
SMDH 00024	3	4	50	652	707.2	681.2	663	637	44.2	15	137.7	136.3	26	29.2	112.6	366.1	29	98	17.4	1.2	12.7	2.4	6.9	1.1	2.3		2.3		51.2	2.4	25.7	7960.2	526.8
SMDH 00024	4	5	80	638.7	688.4	665.4	649.1	626.1	39.3	12.6	129.2	128	23	26.7	112.6	363.6	27.8	92.1	16.2	2.3	11.5	2.4	5.7	1.1	2.3		1.1		48.9	2.4	28.6	7339.6	456.6
SMDH 00024	5	6	90	685.8	745.3	716.3	701	672	44.3	13.8	141.3	139.8	29	30.5	120.8	389.4	30.2	101.5	17.4	1.2	11.5	2.4	5.7	1.1	2.3		2.3		52.3	2.4	20	9082.8	537.6
SMDH 00024	6	7	95	777.9	823.8	800.8	789.5	766.5	34.3	11.4	149.9	160.9	23	22.9	147.8	431.2	36.2	116.6	19.7	2.3	12.7	2.4	5.7	1.1	1.1		1.1		63.7	2.4	21.5	5728.3	397.1
SMDH 00024	7	8	80	630.8	708.4	671.4	649.5	612.5	58.9	18.3	146.7	133.9	37	40.6	114.9	344	29	94.5	16.2	1.2	12.7	2.4	8	1.1	3.4		3.4		51.2	2.4	24.3	6744.1	490.3
SMDH 00024	8	9	90	716	781.8	752.8	728.9	699.9	52.9	16.1	161.5	156.2	29	36.8	133.7	385.7	33.8	112	19.7	2.3	12.7	2.4	8	1.1	2.3		2.3		56.9	2.4	25.7	6744.1	463.3
SMDH 00023b	0	1	40	670.7	725.4	697.4	684.9	656.9	40.5	13.8	138.6	142.1	28	26.7	123.1	369.7	31.4	102.6	17.4	1.2	11.5	2.4	5.7	1.1	2.3		2.3		55.8	2.4	27.2	5898.4	530.9
SMDH 00023b	1	2	35	405.1	454.6	436.6	414.8	396.8	39.8	8.3	113.4	103.1	18	31.5	88.9	187.7	22.4	76	12.8	1.2	7.8	0.9	3.8	0.7	1.5		1.4		41.9	3.8	20.5	4191.9	461.7
SMDH 00023b	2	3	50	361.7	415.1	387.1	379.4	351.4	35.7	10.3	94.2	84.6	28	25.4	79.8	173.2	18.1	60.7	10.4	2.3	6.9	1.2	4.6	1.1	1.1		2.3		18.2	1.2	21.5	7021	607.9
SMDH 00023b	3	4	70	431.3	472.5	446.5	449.4	423.4	23.1	7.9	87.5	91.6	26	15.2	82.1	233.4	20.5	66.5	11.6	1.2	8.1	1.2	3.4	1.1	1.1		1.1		31.9	1.2	21.5	8602.4	495.7
SMDH 00023b	4	5	65	702.3	746.1	720.1	719.2	693.2	26.9	9.1	132	144.5	26	17.8	132.5	391.9	32.6	106.1	17.4	2.3	10.4	1.2	4.6	1.1	1.1		1.1		56.9	2.4	18.6	7983.5	552.5
SMDH 00023b	5	6	75	529.2	571.7	545.7	547.3	521.3	24.4	7.9	98	103.4	26	16.5	100.9	297.3	24.2	74.6	12.8	2.3	9.2	1.2	3.4	1.1	1.1		1.1		38.7	2.4	17.2	7024.4	437.7
SMDH 00023b	6	7	80	527.7	577	557	540.4	520.4	36.6	7.3	139.8	137.7	20	29.3	120	239.9	28.8	103.6	16.8	1.6	9.7	1.1	4.2	0.7	1.3				46.4	3.8	25.2	3229.4	483
SMDH 00023b	7	8	55	572.2	628.3	596.3	593.9	561.9	34.4	10.3	118.5	117.5	32	24.1	106.7	316.9	25.4	86.3	15.1	2.3	9.2	1.2	4.6	1.1	1.1		2.3		45.5	2.4	25.7	8463.9	563.3
SMDH 00023b	8	9	80	528.7	599.5	565.5	545.5	511.5	54	17.2	126.6	112.8	34	36.8	93.8	288.7	24.2	79.3	13.9	1.2	10.4	2.4	6.9	1.1	3.4		3.4		44.4	2.4	28.6	6569	468.7
SMDH 00023b	9	10	65	545.7	621.1	590.1	556.1	525.1	65	20.6	131.8	111.6	31	44.4	96.2	302.2	25.4	75.8	13.9	1.2	10.4	2.4	8	1.1	3.4	1.1	4.6		47.8	2.4	24.3	6644	506.6
SMDH 00023b	10	11	80	491.3	560.5	534.5	496.7	470.7	63.8	20.6	124.9	102.2	26	43.2	88	266.6	21.7	71.2	12.8	1.2	9.2	2.4	6.9	1.1	3.4	1.1	4.6	1.1	43.2	2.4	21.5	5668.2	407.9
SMDH 00023b	11	12	75	498.3	575	544	505.3	474.3	69.7	24	128.5	104.6	31	45.7	85.6	269	23	71.2	13.9	1.2	10.4	2.4	8	1.1	4.6	1.1	5.7	1.1	45.5	2.4	27.2	5968.5	453.9
SMDH 00023	0	1	15	863	931.4	902.4	873.7	844.7	57.7	18.3	168.8	166.9	29	39.4	153.6	498.7	38.7	117.8	20.9	1.2	13.8	2.4	8	1.1	3.4		3.4		72.8	3.5	18.6	5236.2	1118.5
SMDH 00023	1	2	20	634.9	693.8	662.8	652.1	621.1	41.7	13.8	134	135.1	31	27.9	111.4	352.6	30.2	96.8	17.4	1.2	11.5	2.4	5.7	1.1	2.3		2.3		58	2.4	17.2	6999.3	765.9
SMDH 00023	2	3	30	454.4	499.8	479.8	462.9	442.9	36.9	11.5	124.5	123.3	20	25.4	100.9	199	25.4	92.1	15.1	1.2	9.2	1.2	4.6	1.1	2.3		2.3		46.7	1.2	11.4	6177	336.3
SMDH 00023	3	4	50	635	694.3	669.3	645.2	620.2	49.1	14.8	170.7	171.4	25	34.3	139.6	282.5	36.2	128.3	19.7	1.2	12.7	1.2	5.7	1.1	3.4		3.4		63.7	2.4	15.7	8163.7	517.4
SMDH 00023	4	5	30	516	551.8	533.8	527.2	509.2	24.6	6.8	122.7	132.7	18	17.8	116.1	238.3	29	99.1	15.1	1.2	10.4	1.2	3.4		1.1		1.1		51.2	1.2	14.3	7356.3	490.3
SMDH 00023	5	6	90	485.1	523.4	505.4	494	476	29.4	9.1	182.4	189.9	18	20.3	91.5	180.6	29	154	13.9	1.2	5.8	1.2	5.7		1.1		1.1		46.7	1.2	17.2	6715.8	637.6
SMDH 00023	6	7	98	528.3	567.1	546.1	537.9	516.9	29.2	11.4	176.3	192.4	21	17.8	107.9	201.5	36.2	149.3	13.9	2.3	5.8	1.2	5.7	1.1	2.3		1.1		52.3	1.2	20	6875.9	548.4
SMDH 00023	7	8	90	284.8	312.8	298.8	293.1	279.1	19.7	5.7	70	70.5	14	14	64.5	131.4	15.7	51.3	8.1	1.2	6.9	1.2	2.3		1.1		1.1		26.2	1.2	8.6	5129.4	236.4
SMDH 00023	8	9	95	614.2	679.8	654.8	624.4	599.4	55.4	14.8	160.7	151.5	25	40.6	138.4	287.4	32.6	112	17.4	1.2	10.4	1.2	5.7	1.1	3.4		3.4		55.8	2.4	17.2	9232.9	557.9
SMDH 00023	9	10	94	363.8	398.3	380.3	372.7	354.7	25.6	9.1	88.8	91.6	18	16.5	82.1	167.1	20.5	66.5	10.4	1.2	6.9	1.2	3.4	1.1	2.3		1.1		34.1	1.2	11.4	7007.7	281
SMDH 00023	10	11	90	515.5	578.7	558.7	519.6	499.6	59.1	15.9	146.9	130.3	20	43.2	116.1	234.6	27.8	95.6	15.1	1.2	9.2	1.2	5.7	1.1	3.4		3.4	1.1	46.7	1.2	12.9	6687.4	371.5
SMDH 00023	11	12	95	487.1	543.7	522.7	494.4	473.4	49.3	13.7	134.7	124.5	21	35.6	107.9	223.6	26.6	92.1	13.9	1.2	8.1	1.2	4.6	1.1	3.4		3.4		44.4	1.2	15.7	7473.1	447.1
SMDH 00023	12	13	98	425	467.1	449.1	433.9	415.9	33.2	9.1	110.4	109.3	18	24.1	96.2	194.1	24.2	80.5	12.8	1.2	6.9	1.2	3.4	1.1	2.3		1.1		43.2	1.2	12.9	6555.6	374.2
SMDH 00023	13	14	90	475.4	530.1	502.1	491.9	463.9	38.2	11.5	123.5	123.4	28	26.7	100.9	219.9	27.8	89.8	13.9	1.2	10.4	1.2	4.6	1.1	2.3		2.3		50.1	1.2	21.5	8544	479.5
SMDH 00022b	0	1	20	737.7	812.6	795.6	739.5	722.5	73.1	15.2	204.5	185.8	17	57.9	154.1	353.9	40.1	137.5	23.1	0.9	12.9	1.5	6.7	1.3	2.7		3		75.4	5	16	2653.9	583
SMDH 00022b	1	2	45	534.7	576.7	553.7	549.8	526.8	26.9	7.9	126.2	136.3	23	19	131.4	237.1	31.4	100.3	15.1	2.3	9.2	1.2	3.4	1.1	1.1		1.1		52.3	1.2	40.1	6555.6	363.4
SMDH 00022b	2	3	80	330.2	362.5	350.5	334.3	322.3	28.2	7.9	86.8	83.4	12	20.3	73.9	151.1	18.1	60.7	10.4	1.2	6.9	1.2	3.4	1.1	1.1		1.1		28.4	1.2	20	3868.3	262.1
SMDH 00022b	3	4	50	672.4	745.3	714.3	686.3	655.3	59	17.1	180.5	175	31	41.9	144.3	307.1	38.7	127.1	22	2.3	13.8	1.2	8	1.1	3.4		3.4		69.4	2.4	28.6	9528.2	599.8
SMDH 00022b	4	5	75	576.6	640.2	612.2	588.6	560.6	51.6	16	158	153.8	28	35.6	120.8	261.6	32.6	113.1	18.6	1.2	12.7	1.2	6.9	1.1	3.4		3.4		61.4	2.4	18.6	6864.2	448.5
SMDH 00022b	5	6	95	686.2	773.5	739.5	695.1	661.1	78.4	25.1	195.5	178.5	34	53.3	145.4	308.3	37.5	130.6	22	1.2	16.1	1.2	9.2	1.1	5.7	1.1	5.7	1.1	70.5	2.4	18.6	6909.3	433.6
SMDH 00022b	6	7	90	617.7	714	671	634.5	591.5	79.5	26.2	185	165.5	43	53.3	130.2	271.5	35	120.1	19.7	1.2	13.8	1.2	9.2	1.1	5.7	1.1	6.8	1.1	63.7	3.5	22.9	7908.5	456.6

BHID	FROM	TO	Rec	TREO	TREO+Y+Sc	TREO+Y	LREO+Sc	LREO	HREO+Y	HREO	CREO	MagREO	Sc_2O_3	Y_2O_3	La_2O_3	CeO_2	Pr_6O_{11}	Nd_2O_3	Sm_2O_3	Eu_2O_3	Gd_2O_3	Tb_4O_7	Dy_2O_3	Ho_2O_3	Er_2O_3	Tm_2O_3	Yb_2O_3	Lu_2O_3	ThO_2	U_3O_8	Nb_2O_5	TiO_2	ZrO_2
units:	*m*	*m*	*%*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*	*ppm*
SMDH 00022b	7	8	85	1520.5	1822.5	1713.5	1525.4	1416.4	297.1	104.1	492.2	380.3	109	193	317.8	670.7	83.4	260.1	44.1	2.3	38	4.7	32.1	6.9	20.6	3.4	31.9	4.5	158.2	5.9	27.2	4799.1	301.2
SMDH 00022b	8	9	95	890.3	1015.5	966.5	900.5	851.5	115	38.8	260.3	230.1	49	76.2	191.2	395.5	48.3	166.8	29	2.3	18.4	2.4	12.6	2.3	9.1	1.1	10.2	1.1	87.6	3.5	17.2	7109.4	425.5
SMDH 00022b	9	10	95	871.2	1037.3	970.3	889	822	148.3	49.2	268	213.7	67	99.1	187.6	389.4	47.1	149.3	26.7	2.3	19.6	2.4	14.9	3.4	12.6	1.1	12.5	2.3	84.2	3.5	21.5	5398	536.3
SMDH 00022	0	1	15	648.4	758.3	727.3	658.7	627.7	99.6	20.7	209.4	162.9	31	78.9	134.3	306.9	33.8	119.3	19.9	1.4	12.1	1.5	8.3	1.6	3.7	0.7	4.1	0.8	65.8	4.8	21.5	4086.8	593.9
SMDH 00022	1	2	25	589.6	709.6	669.6	608.6	568.6	101	21	194.4	143.3	40	80	121.9	282.2	30.2	104	18.2	1.3	10.8	1.4	7.7	1.7	4	0.7	4.6	0.9	53.9	4	24.6	5302.9	417.5
SMDH 00022	2	3	25	617.1	694.3	660.3	630.5	596.5	63.8	20.6	171.4	160.8	34	43.2	134.9	276.4	33.8	117.8	19.7	1.2	12.7	1.2	8	1.1	4.6		4.6	1.1	55.8	2.4	20	9441.4	533.6
SMDH 00021	0	1	20	478.7	551.8	526.8	490.8	465.8	61	12.9	139.1	114	25	48.1	96.9	236.8	24.2	83.2	14.6	1.2	8.9	1.2	5.4	1.1	2.5		2.7		50.2	2.9	18.2	4170.3	698.2
SMDH 00020	3	4	20	78.5	88.6	83.6	82.8	77.8	5.8	0.7	21.1	17.7	5	5.1	19.2	35.7	3.9	13.1	2.3	2.2	1.4		0.7						4.3	1.4	11.3	1758.2	113.7
SMDH 00019b	0	1	5	510.1	543	534	509.1	500.1	33.9	10	109.7	108.6	9	23.9	90.3	282.5	23.7	79.5	14.6	0.9	8.6	0.9	4.5	0.9	2.2		1.5		46.5	4.8	12.4	3059.3	335.8
SMDH 00019b	10	11	98	191.1	245.1	207.1	223.5	185.5	21.6	5.6	52.8	45.9	38	16	42.1	88.7	10.3	33.1	6.1	1.2	4		2.5		1.4		1.7		17.3	3.9	27.9	6507.3	404.3
SMDH 00019	0	1	30	461.2	499.9	488.9	460.4	449.4	39.5	11.8	109.4	102.5	11	27.7	80.6	247.6	22.1	73.9	14.7	1.3	9.2	1.3	5.2	0.9	2.7		1.7		46.2	5	17.7	5004.3	452.5
SMDH 00227	0	1	10	689.1	731.5	725.5	679.7	673.7	51.8	15.4	174.2	173.1	6	36.4	147.5	325.5	37	127.4	21.6	1.7	13	1.5	7.2	1.1	3		2.6		65.7	5.7	32.8	4792.5	268
SMDH 00228	0	1	18	958.5	1031.6	1011.6	953.8	933.8	77.8	24.7	247.4	239.3	20	53.1	232.4	428.1	47.5	180.8	27.3	2.5	15.2	1.8	9.2	1.8	4.6	0.8	5.8	0.7	66.6	6	45.8	6116.9	402.3
SMDH 00235	8	8.5	50	200	279.7	241.7	216.5	178.5	63.2	21.5	79.9	46.7	38	41.7	41.2	84.8	9.7	31.5	6.1	1.2	4	0.7	4.8	1.3	4.8	0.9	8	1	13.2	4.4	16.2	2782.4	179
SMDH 00252	5	6	20	144.5	167.1	161.1	145.4	139.4	21.7	5.1	47.4	36	6	16.6	33.2	62.3	7.4	25.1	5.5	2.2	3.7	0.6	2.9	0.6	1				10.7	4.1	9.2	1094.3	121.8
SMDH 00250	0	1	20	340.8	389.8	378.8	335.9	324.9	53.9	15.9	105.9	83.9	11	38	74.4	152.1	17.5	59.4	12.2	1.5	7.8	1.1	5.9	1.3	3.3	0.7	3.6		27.8	3.1	27.6	4345.4	501.6
SMDH 00248	2	3	25	558.1	642.1	619.1	555.7	532.7	86.4	25.4	168.4	134.3	23	61	119.6	257.6	28.9	94.7	18.1	2	11.8	1.5	9.2	1.9	5.1	0.9	6	0.8	46.7	3.9	33.2	5788.3	287.9
SMDH 00244	1	2	25	623.5	720.7	685.7	632.3	597.3	88.4	26.2	182.8	152.1	35	62.2	128.7	290.9	33.7	106.4	21.3	2.2	14.1	1.9	10.1	2.1	5.1	0.9	5.4	0.7	58.9	5.8	31.9	6430.5	438.2
SMDH 00243	4	5	15	831.1	943.6	895.6	851.1	803.1	92.5	28	232.1	210.5	48	64.5	172.6	389.4	44.8	153.8	25.6	1.9	15	1.8	10.1	2.2	5.7	1	6.4	0.8	77.4	2.8	25.7	5793.3	477.4
SMDH 00241	0	1	25	867.9	937.1	920.1	862	845	75.1	22.9	217.2	210.6	17	52.2	183.1	415.3	47.2	151.4	28.8	1.6	17.6	2.1	9.9	1.6	4	0.7	4.6		82.5	5.2	17.9	5775	727.7
SMDH 00256	3	4	20	504.6	570.1	538.1	521.5	489.5	48.6	15.1	137.2	129.2	32	33.5	102.4	231.7	26.8	94.7	20.2	1.3	12.4	1.3	6.4	1.1	3		3.3		57.7	3.1	20.3	4996	599.3
SMDH 00257	0	1	15	631.6	691.6	673.6	631.4	613.4	60.2	18.2	167.5	158.2	18	42	134.8	294.6	34.2	114.8	20.8	1.5	12.7	1.5	7.7	1.4	3.1	0.6	3.3	0.6	57.6	4.1	17.3	4789.1	698.2
SMDH 00257	1	2	20	909.9	1000.3	969.3	914.2	883.2	86.1	26.7	239.5	228.7	31	59.4	193.9	421.2	50.7	165	31.9	2.1	18.4	2.2	10.8	1.9	4.9	0.9	5.2	0.8	83.2	5.1	21.5	5496.4	520.9
SMDH 00257	3	4	20	67.4	79.6	71.6	74.8	66.8	4.8	0.6	18.8	16.2	8	4.2	16.5	29.5	3.5	12.1	2.1	1.9	1.2		0.6						5.2	1.8	11.3	1524.6	169.3
SMDH 00260	0	1	15	500	552.5	532.5	508	488	44.5	12	135.4	126.8	20	32.5	108.5	233.2	25.5	94.2	15.5	1.6	9.5	1.2	5.9	1	2.5		1.4		46.7	4	19.2	3453	232.9
SMDH 00264	11	11.5	50	320	352.5	341.5	323.4	312.4	29.1	7.6	84.5	78.7	11	21.5	70.5	148	17.4	56.7	11.4	1.7	6.7	0.8	3.8	0.7	1.5		0.8		31.4	3.9	20	2433.8	115
SMDH 00265	1	2	15	320.9	386.4	352.4	344.1	310.1	42.3	10.8	98.6	83.3	34	31.5	69.5	144.8	17.6	60.1	10.1	1.4	6.6	0.9	4.7	1	2.6		1.6		27.1	4.4	18.5	3744.9	58.2