



وَنَازِرَةُ الطَّاقَةِ وَالشَّرَوَةِ الْمُعَدَّنِيَّةِ

مَشْرُوعُ فُوسَفَاتِ
الرَّيْشَةِ فِي شَمَالِ
الأردن

2023



Ministry of Energy and Mineral Resources



Directorate of Natural Resources Studies
Technical Report Of
Al-Risha Phosphate Project, North East Jordan/ Phase I

Prepared by:
Prospecting Studies Division
Amman
2023

Contents

Contents.....	i
List of Figures.....	iii
List of Tables	iv
List of Abbreviations.....	v
ACKNOWLEDGEMENTS	vi
Abstract	vii
1. INTRODUCTION.....	1
1.1 Background	1
1.2 Location and Access	2
1.3 Climate and Vegetation	3
1.4 Previous studies	4
1.5 Purpose of the study	6
2. GEOLOGY OF THE STUDY AREA	7
2.1 Regional Geology:	7
2.2 Stratigraphy of Formation (Members & Thickness).....	7
2.2.1 Lithostratigraphic Nomenclature	7
2.2.2 Lithostratigraphy	8
2.2.3 Umm Rijam Chert Limestone Formation (URC)	9
2.3 Stratigraphy of Phosphate-Bearing beds	9
3. FIELDWORK	11
3.1 Drilling Techniques.....	11
3.2 Drilling Activities of Boreholes	11
3.3 Lithological Sections of the Study Area.....	15
4. GEOPHYSICAL SURVEY (WELL LOGGING)	23
4.1 Introduction	23
4.2 Methodology.....	23
4.3 Total Gamma Logging Survey.....	24
4.4 Results	25
4.5 Discussion.....	26

4.5.1 Cross Section North - South	26
4.5.2 Cross Section East – West	27
4.5.3 Gamma Ray Model.....	29
5. SAMPLING & LABORATORY ANALYSES.....	31
5.1 Sampling.....	31
5.2 Laboratory Analysis.....	33
5.3 Quality Assurance/Quality Control Program	34
6. Geochemistry	35
6.1 Introduction	35
6.2 Chemical Results	35
6.3 Correlation Matrix.....	37
6.4 Scatter Plot.....	38
6.5 Uranium & other REEs	43
7. DISCUSSION (MODELING AND INTERPRETATION)	46
7.1 Introduction	46
7.2 Distribution of phosphate in the study area	46
7.3 Evaluating Chemical abundances of Phosphate	50
7.4 Mineralogical composition	53
7.5 Resource Estimation	56
Conclusion.....	58
References	62
Appendices	64

List of Figures

Figure 1: location of the study area in Jordan.	3
Figure 2: Composite graphic log of URC Formation in the study area (After Abdelghafoor, 2011).	8
Figure 3: Geological Map of a part of the study area (Abdelghafoor, 2011).	9
Figure 4: a) Phosphate Risha Study Area, b) Core Drilling at Study Area	12
Figure 5: Projected section lithology, stratigraphy & P2O5%wt over section RPh1-BH22_RPh1-BH09.	17
Figure 6: Cross Section RPh-BH36 to RPh1-BH26	19
Figure 7: Cross Section RC-44 to RC-43.....	21
Figure 8: N-S Cross section gamma ray RPh1-Bh10_RC-31A	26
Figure 9: N-S Cross section gamma ray RPh1-Bh22_RPh1-27.	27
Figure 10: E-W Cross section gamma ray RPh1-BH24_RC-A1.....	28
Figure 11: E-W Cross section gamma ray RPh1-BH26_RPh1-BH16.	29
Figure 12: 29-logged boreholes within the area amounted to 40 km ²	29
Figure 13: Gamma-ray 3D view at cut-off grade 100cps.	30
Figure 14: Images illustrating the collection procedures of Core & Cutting sample kinds.....	31
Figure 15: Correlation matrix among oxides results.	37
Figure 16: Scatter plot P ₂ O ₅ wt.% vs Fe ₂ O ₃ wt.%, SiO ₂ wt.%, MgO wt.% & Al ₂ O ₃ wt.%.	38
Figure 17: CaO/P2O5 ratio comparison in phosphate deposits situated in different parts of Jordan.	40
Figure 18: Scatter plot P2O5 wt.% vs. CaO wt.% and F wt.%, Scatter plot CaO wt.% vs SiO2 wt.%	41
Figure 19: The Predominant components of oxides in the rocks bearing Phosphate.	42
Figure 20: Uranium concentration comparison situated in different parts of Jordan	45
Figure 21: Stratigraphy model of the study area.	47
Figure 22: Overburden thickness distribution in the study area.	48
Figure 23: Phosphate Layer Stratigraphy.....	49
Figure 24: The Phosphate layer stratigraphy distribution.	49
Figure 25: Stripping ratio overburden layer vs. Phosphate layer	50
Figure 26: Lithology delineation model	51
Figure 27: Fence diagram for P2O5 wt.% of the study area	52
Figure 28: Distance weight for thicknesses containing P2O5 wt.% with averages larger than 18 wt.%	53
Figure 29: Thiessen Polygon, Influence area	57

List of Tables

Table 1: Cutting Boreholes Drilling Records.	13
Table 2: Coring Boreholes Drilling Records.	14
Table 3: Lithified Rock types encountered in the study area.	15
Table 4: Coordinates and depth of boreholes were logged in the study area (Risha).	24
Table 5: Chemical P2O5 test agreement Duplicate Samples versus Main Samples.	34
Table 6: The average results of major oxides concentrations for all drilled boreholes analyzed using XRF Spectrometer (the considered value for sample contains P ₂ O ₅ wt.% larger than 18 wt.%).	36
Table 7: Comparison of phosphate quality in different areas based on P2O5/CaO ratio (Abed, 2011)	40
Table 8: Results total of 14 samples P2O5 wt. % versus Cl wt. % content	42
Table 9: Impurities averages content in the Phosphate ore globally versus Risha Phosphate	43
Table 10: ICP REE results for total of 28 selective samples	44
Table 11: Comparison of phosphate quality in different areas	45
Table 12: XRD results of Core samples.	54
Table 13: XRD results of Cutting samples.	54

List of Abbreviations

A	Area bearing (Influence Area)
BD	Bulk density
Ce	Cerium
cps	Counts Per Second
E	East
Fig.	Figure
GR	Gamma Radiation
GIS	Geographic Information System
ICP-MS	Inductively Coupled Plasma Mass Spectrometry
km	Kilometer
km ²	Square Kilometer
La	Lanthanum
Lu	Lutetium
m	Meter
m ²	Square Meter
m ³	Cubic Meter
Max.	Maximum
mg/kg	Milligram Per Kilogram
Min.	Minimum
mm/year	Millimeter Per Year
mt	Metric Tonne
N	North
Nd	Neodymium
NGMP	National Geological Mapping Project
No.	Number
NRA	Natural Resources Authority
°C	Degrees Celsius
ppm	Part Per Million
R	Resource of Element
REEs	Rare Earth Element(s)
Rph	Risha Phosphate
St.D.	Standard Deviation
S	South
T	The Thickness of Element Bed.
TCP	Tri Calcium Phosphate
TD	Total Depth
Th	Thorium
U	Uranium
URC	Umm Rijam Chert Limestone Formation
UTM	Universal Transverse Mercator
W	West

ACKNOWLEDGEMENTS

We would like to express our deep and sincere gratitude and appreciation to His Excellency the Minister of Energy and Mineral Resources "Dr. Saleh Al-Kharabsheh" for his continuous support and encouragement for the project team, and the Jordanian Armed Forces (Arab Army) for the facilities that they provided to us and National Petroleum Company for its logistical support to the project.

We are deeply grateful to Director of the Directorate of Natural Resources Studies and all divisions of the Directorate for their contribution to the completion of the project, in particular the Automated Drilling and Geophysical Divisions.

And also special thanks to the Directorate of Laboratories and to everyone who contributed to the completion and success of the project.

We are very grateful to our project team, who showed keenly interest to successfully complete this project.

Abstract

Phosphate Risha project lies around 260 kilometers to the east of Capital Amman and 26 km southeast of Ar-Ruweishid Municipality within geological map sheet no. 375-VI “Tal’at Q’aiyid’. The project area was divided into several sub-blocks, which in turn Block One defined as Phase-I with an approximate area of 90 km².

This Technical Report has been prepared for Investors to describe Mineral Resources estimated for Risha area (the study area). This report only describes the Mineral Resource estimates and associated exploration, drilling, sampling and analyses with no description of the project's Mineral Reserves, or associated analyses such as metallurgical test work.

The study area (Block One) has phosphate deposits hosted by the Umm Rijam Chert Limestone (URC) Formation of the Paleogene and Neogene sedimentary rocks of The Northeast Jordanian Limestone Plateau or North- eastern Plateau (Bender, 1974 and 1975) in the Northern east Territory to the east-southeast of Basalt Plateau. The phosphate mineralization is hosted by Phosphatic Limestone with Chert and Phosphatic Limestone Layers interbedded with some of Chert, Chalk, Chalky Limestone, and Silicified Limestone of the middle URC Formation.

The majority of Risha mineralization lies within a layer of Phosphatic Limestone layers. Main Zone mineralization is hosted within a sequence of Phosphatic Limestone with Chert and Phosphatic Limestone, Phosphorite, and undifferentiated transitional sediments with combined thickness ranging from 1 to 17 meters. The majority of Main Zone Mineral Resources lie within the Limestone and Chert; Fish fragments, bones, and shark teeth are some microfossils that are associated with Phosphorite in the target beds. The undifferentiated transitional sediments contain generally low phosphate grades

combined with Chalk, Chalky Limestone, and Silicified Limestone and represent only a small proportion of estimated Mineral Resources.

Exploration drilling undertaken by Ministry of Energy and Mineral Resources (MEMR) of Al Risha project area commenced in December 2021 and extended to September 2022, 55 boreholes were drilled into the project area, with totals rotary percussion and diamond cored holes for 1240 of drilled meter.

According to the prospecting activities, the chemical results of the collected samples revealed the phosphate ore contains a distinct content of P_2O_5 reaching up to 36 wt.%.

For this project, the only data that have been used are the considered values of P_2O_5 equal and/or more than 18 wt. %.

The Phosphate layers ranged from 1 m to 17 m, with high-quality TCP and low Fe_2O_3 , Al_2O_3 , and MgO impurities. The Overburden ranged from 0 to 16 m with an average Stripping Ratio of 1:2. On the other hand, by using lithological description, chemical assay, and gamma geophysical data, the optimal Phosphate layers were found in two to four Layers. Additionally, there are good indications that the concentrations of P_2O_5 and Phosphate layer thicknesses are increasing toward the north and northeast of the study area.

The preliminary prospecting activities in Al Risha Project have indicated the very potential of Phosphate deposits where the resource estimation has been calculated using drilling & chemical data in Phase I. In general, the Phosphate Geological Resource was estimated to be approximately +726 million metric tons.

CHAPTER 1

1. INTRODUCTION

1.1 Background

Phosphate rocks in Jordan are considered one of the strategic materials that are viewed as key resources that have many applications.

The term Phosphate rock (or Phosphorite) is used to denote any rock with a high Phosphorus content. Phosphorus is involved in numerous plant functions, but its most important role is helping plants to capture the sun's energy and begin the photosynthesis process.

Most of the Phosphate rock is chemically processed into soluble fertilizer products, such as single Superphosphate (SSP), Triple Superphosphate (TSP), Nitro Phosphate (NP), and Phosphoric Acid (H_3PO_4). Phosphoric Acid is the basic intermediate product used for the production of high-analysis fertilizers, such as Mono Ammonium Phosphate (MAP), Di-Ammonium Phosphate (DAP), and Compound Fertilizers (NPK) (JPMC, 2005).

The most detailed prospecting studies for Phosphate deposits in Jordan were reported for known occurrences that are located in the central and northern part of Jordan in particular, Al-Hisa Phosphorite of the Balqa group was identified in the Upper Cretaceous, Campanian age. Afterward, Reconnaissance trips were carried out and reported further Phosphate deposits in the northeast of Jordan, Risha area. Basha (1987) published a paper indicating Phosphate layers within stratigraphy extended from middle-late Eocene to Oligocene over outcropped beds along Wadi Ar-Ruweishid and Wadi Umm Qusair with a range of thicknesses 20 – 50 cm. Furthermore, geological studies were conducted during

the geological mapping performed by the Ministry of Energy & Mineral Resources “MEMR”, which produced a map with a scale of 1:50,000, and indicated distinctive Phosphate layers interbedded with Chert and Phosphatic Chert as a part of the Umm Rijam Formation of the Balqa group.

Afterward, and in response to the high demand for Phosphate deposits globally, the Natural Resources Studies Department of “MEMR” initiated Al Risha Phosphate Project. The exploration included outcrop sampling, drilling boreholes, and a Geophysical survey to determine layers of Phosphate at different ranks according to their content of P_2O_5 , thicknesses, distribution, and quality across the study area. The preliminary prospecting results revealed promising Phosphate resources deposited in the area.

1.2 Location and Access

Tal'at Q'aiyid and Jabal Umm Al Wi'al areas cover around 2886 km² and form part of the northeastern Jordan Plateau. The study area is located within geological map sheet no. 375-VI of “Tal'at Q'aiyid”, which is 260 km east of Amman and 26 km east of Ar-Ruweishid Municipality. The area was divided into blocks, which in turn block 01 was defined as phase-I; with an approximate area of 90 km². The area that has been selected for Phosphate prospecting activities extends along the following coordinates (UTM, WGS 1984)

Easting: from 504972 to 495777

Northing: from 3564029 to 3554248.

The area can be reached from Ar-Ruweishid via Safawi-Ar Ruweishid Highway and it is crossed by numerous non-asphaltic tracks that can be easily crossed by 4-wheel drive vehicles.

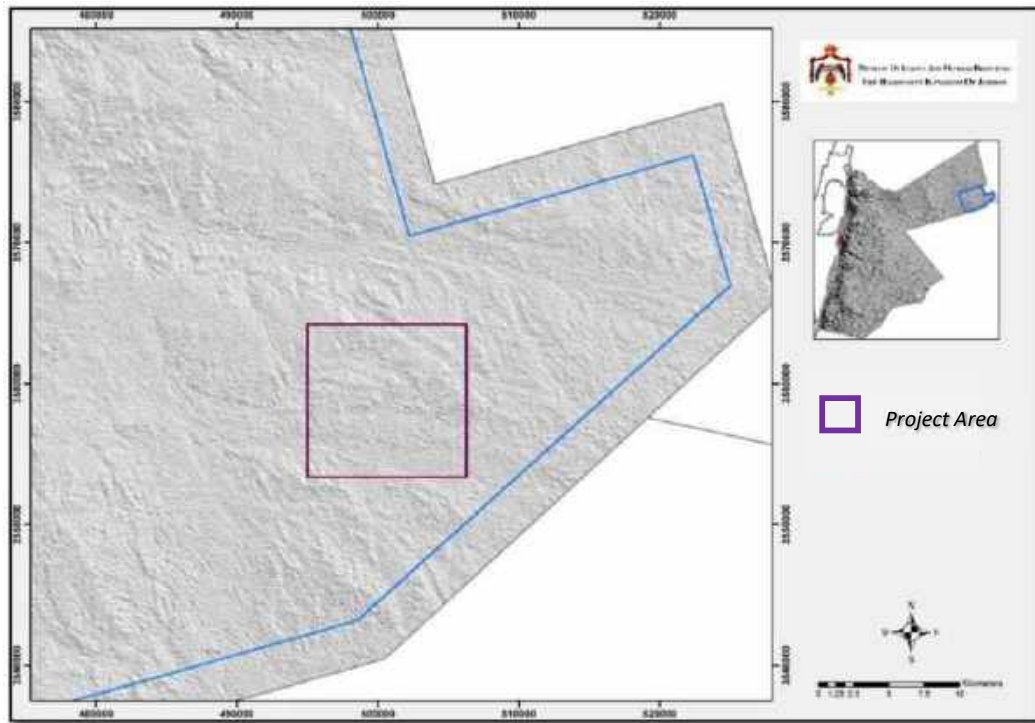


Figure 1: location of the study area in Jordan

1.3 Climate and Vegetation

Jordan is influenced by a relatively rainy Mediterranean Climate in the northwest and a dry Sahara Climate to the south and east of the country. The region has a short rainy winter (December to March) whereas it records high temperatures in the summer. Generally, the majority of rain falls in December, January, February, and March. Rain during April and May is rare and most of the days in summer are clear. The area gets an annual precipitation of less than 100 mm. The temperature in the highlands is generally lower than the pediplain and higher in the southern part of Jordan. The annual range of temperature in the study area is less than 18 °C. Vegetation is insufficient to prevent the movement of sediments by wind, particularly during dry periods of the year. Vegetation in the study area is sparse and comprises mainly annual grasses in wadi courses and mudflats; Artemis and Shrubs in ephemeral wadis (Abdelghafoor, 2011).

1.4 Previous studies

Numerous workers have been attracted to the Phosphate Deposits in Jordan because of their economic value and wide geological distribution. Blankenhorn first discovered Phosphorite-Bearing beds in (1903). While in the Al-Hasa area, Phosphorite was first discovered in 1908, during the construction of the Hijazi Railway.

The formation is equivalent to the upper part of “Calaires Silex” of Wetzel and Morton (1959), and to the upper B2 of Wolfrat (1959), the upper part (B2b) of the B2 Silicified Limestone and Phosphorite Formation of MacDonald and Partners (1965), and the upper part of the Amman Formation (north of Jordan) of Parker (1970). Bender (1974) used the term Phosphorite Member to describe the succession of the Limestone beds, Silicified Phosphorite, Phosphorite-Bearing Oyster Lumachelle, and Phosphate layers, also he mentioned that the thickness of this member attains a 90 m thick in Wadi Mujib and decreases in thickness towards the east and south. He also assigned the Campanian age for this member according to the abundant fossils found in it.

Systematic detailed geological mapping of the 1:25000 scale of the entire Phosphate-Prospective areas in Jordan was carried out between the years 1961-1966 by the German Geological Mission. During the National Geological Mapping Project at a scale of 1:50000, Hiyari, (1985) and Khalil, (1986) divided Al-Hasa Phosphorite Formation into three members; the lower Qatrana Phosphorite Member, the middle Bahiya Coquina Member, and the upper Sultani Phosphorite Member. Barjous (1986), divided the formation into four members in the Siwaqa area and added Siwaqa Coquina Member. Fakhoury, (1987) concluded in a study of Jordanian Phosphate, that the pellets and intraclasts seem to have similar chemistry and that they were derived during reworking from the Phosphate Mud. Al Jallad, (1997) discussed the varieties, mining, benefit, uses,

and manufacturing of Phosphates. Jordan Phosphate Mines Company (JPMC) was established as a private company in 1949 to exploit Phosphate Deposits in Al-Rusifa. In 1953, it was registered as a public shareholding company with an initial share capital of JD 250,000. Further mining operations were established at Al-Hisa, approximately 135 km to the south of Amman in 1962, and Al-Abiad, 20 km north of the Al-Hisa mine in 1979. JPMC commenced exploration at the Shidiyya area, 125 km to the northeast of Aqaba in 1988 and started production in 1989. JPMC produces up to 7 million tonnes of Phosphate Rock annually, making it the world's sixth-largest Phosphate Rock Producer and the second-largest exporter (JPMC, 2005).

It has been proved that Jordan Phosphate Rock has many attractions and natural advantages over the Phosphate Rock mined elsewhere since it is used as a fertilizer in most countries worldwide without the need for any kind of treatment.

One of the significant environmental and competitive aspects of Jordanian Phosphate Rock is its relatively low concentration of heavy metals such as Cadmium (Ca), Lead (Pb), Mercury (Hg), Arsenic (As), and Zinc (Zn), all of which are considered to be environmentally hazardous, particularly Cadmium. Generally, the main characteristics of Jordan Phosphate Rock are low grinding cost, high reactivity, good filterability, low corrosion rates, low content of impurities, high responses in direct application, very low content of heavy metals, suitability for uses in all Phosphoric Acid processes (JPMC, 2005).

Al Bashish 2015 studied a hundred and sixty-three boreholes that were drilled in the Shidiyya area to explore new occurrences of Phosphate in the area. Samples from 17 boreholes were shown more than 25 wt.% of P_2O_5 . He painted the thickness of the Phosphate Layers in the study area, as well as mapped the thickness of the Overburden. The approximate resource accounted in the study area reached ten million tons.

Geologist Dr. Mohammad Abdelghafoor studied Al Risha Project area during the Jordanian National Geological Mapping Project in 2008. He referred to the discoveries of the Umm Rajam Formation, with a thickness of up to 61 meters, and indicated in its attached report in 2011 the presence of multiple levels of Silicate Phosphate (trays) and layers of Phosphate unearthed in some sections, (in the northwestern part) with multiple thicknesses. In addition, the Jordanian Geologists Association (JGA) studied the area in 2012. Nine wells were drilled, and the results showed good and economically promising thicknesses of Phosphate Layers, with a quality that reached more than 27 wt.% of P_2O_5 with thicknesses ranging from several meters up to 12 meters in some wells.

1.5 Purpose of the study

This project aims to discover more sites with appealing Phosphate resources in terms of quality and quantity, and provide them to interested investors. This project is important to attract other companies to invest in Phosphate Ores. The Government of Jordan is keen to open investment opportunities and expands the Minerals and Mining Sector.

In response to the prospecting plans, exploratory wells, sampling, and chemical analysis were recommended to implement in the study area for the following purposes:

- A. Delineation of the Phosphate ores in terms of thicknesses and horizontal extents.
- B. Core and cuttings sampling for lithology determination.
- C. Determine the content of Phosphorous Oxides, and other associated impurities, specific weight, and other components that could be suitable for use in various industries, either for local or export purposes.
- D. Estimate the number of Phosphate resources in the area.

CHAPTER 2

2. GEOLOGY OF THE STUDY AREA

2.1 Regional Geology:

The study area is covered mainly by sedimentary rocks of the Paleogene and Neogene ages. Sedimentation was determined by the disposition of the Tethys Ocean and eustatic fluctuations of The Arabian-Nubian Shield during the Cenozoic times. Ajlun and Belqa groups in the north and central Jordan occurred by major transgression in early Cenomanian and followed by early Cenozoic to deposit the marine carbonate sediments (Abdelghafoor, 2011). Umm Rijam Chert Limestone Formation of Eocene age is one of the Belqa Group and covers the entire study area. The formation consists of Limestone, Chert, Chalk, Phosphate, Chalky Limestone, and Marly Limestone that were formed in a shallow to moderate pelagic climate. The structure of the area is characterized by the presence of four major faults trending; NW-SE, NNW-SSE, NE-SW, and E-W.

2.2 Stratigraphy of Formation (Members & Thickness)

2.2.1 Lithostratigraphic Nomenclature

Holland et al. (1978) and the North American Commission on Stratigraphic Nomenclature (NACSN, 1983) recommended the Stratigraphic Nomenclature and terminology used in this report and throughout the National 1:50,000 Geological Mapping Project. Formal descriptions are named Powell (1989). The geological map of the study areas is called the Tal'at Q'aiyid sheet, and Geo. Mohamed Abdelghafoor from the Ministry of Energy and Mineral Resources prepared it in 2011.

2.2.2 Lithostratigraphy

Phosphorite found in the study area mostly in massive Limestone beds with some Chert. Sometimes, Phosphorite is found singly and friable and found with a few Chalk, Chalky Limestone, Silicified Limestone, and Chert. Fish fragments and shark teeth are some microfossils that are associated with Phosphorite in target beds (Fig. 2).

Umm Rijam Chert Limestone Formation (Eocene) is characterized by the Paleogene succession and is considered a lithostratigraphic unit of the Balqa Group. It is predominantly composed of Quaternary sediments that cover considerable parts of the study area (Fig. 3).

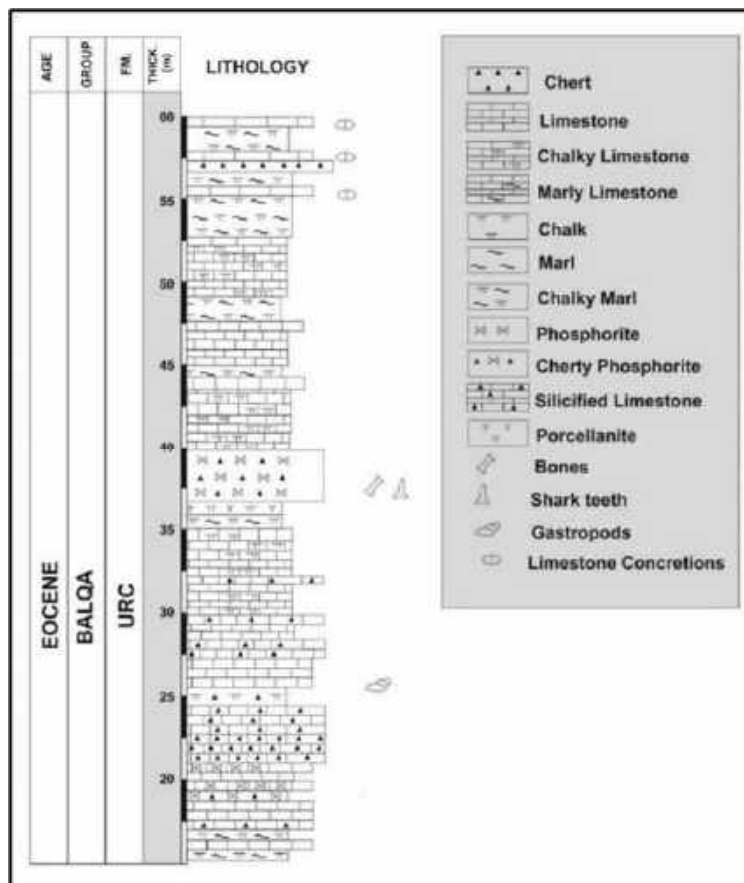
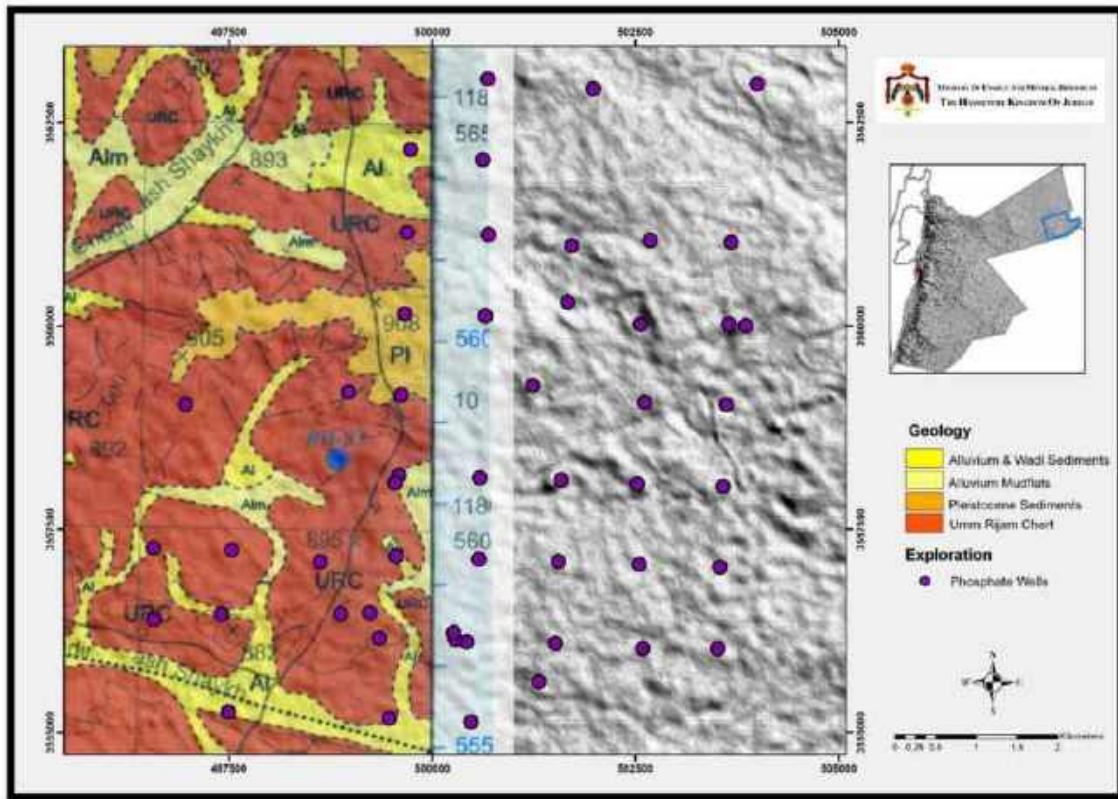


Figure 2: Composite graphic log of URC Formation in the study area (After Abdelghafoor, 2011)



bones, and shark teeth are some microfossils that are associated with Phosphorite in target beds. The depth of target beds (Overburden beds) ranged between 0 to 16 m. The thickness of Phosphorite-Bearing layers reached up to 17 m thick for layers in which the percentage of P_2O_5 equal and/or exceeds 18 wt.% of the total major oxides.

CHAPTER 3

3. FIELDWORK

3.1 Drilling Techniques

All boreholes were drilled by an SD300 rig owned by MEMR and Massenza which was borrowed from the Al Manaseer group. Using two types of rigs, with two different types of drilling systems were used, core and cutting drilling systems. The core drilling consisted of tubes “Helco” with 5 m length and 3-inch diameter; “HQ” tubes which have 4.1 m length and 3.8-inch diameter. The core drilling assembly is linked with two type category of drilling bits “Impregnated Diamond Tungsten” flat and round bits with measured outer 4-inch and inner 2.51 inch. Whereas, the cutting drilling used a hammer rod with a length of 1.60 m and was utilized with other drilling pieces similar to the component of the core drilling.

A total of two Holman compressors with air pressure (250-300 psi) were available in location; in addition, spare rig parts were available as well as maintenance work was implemented periodically.

3.2 Drilling Activities of Boreholes

Drilling activities were commenced in December 2021 and extended to September 2022, 55 boreholes were drilled over an area reached 90 km².

49 boreholes are drilled using the Hammer bit and produced cuttings samples, whereas only 6 boreholes were cored using the coring diamond bit (Figure 4a and b).

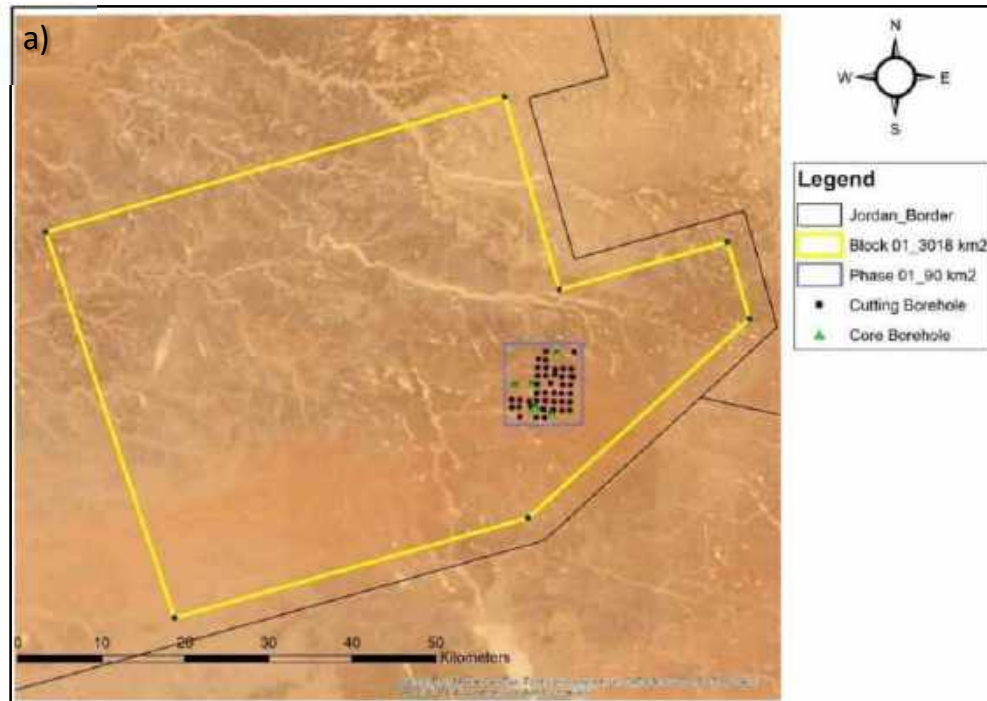


Figure 4: a) Phosphate Risha Study Area, b) Core Drilling at Study Area

The total length of cuttings boreholes reached 1172 m and the total length of core boreholes reached 68 m. More details about drilled boreholes are listed in (Table 01) and (Table 02).

Table 1: Cutting Boreholes Drilling Records

No.	BH	X	Y	Total depth m	Cutting depth m	Start date	End date
1	RPh1-BH01	501233.62	3559266.556	35	35	4/12/2021	11/12/2021
2	RPh1-BH02A	501233.62	3559266.556	16	16	12/12/2021	14/12/2021
3	RPh1-BH02B	501583.444	3558103.225	26	21	14/12/2021	22/12/2021
4	RPh1-BH03	501583.295	3558105.025	21	21	23/12/2021	23/12/2021
5	RPh1-BH04	502523.642	3558056.729	30	30	23/12/2021	24/12/2021
6	RPh1-BH05	502611.139	3559056.145	31	31	29/12/2021	31/12/2021
7	RPh1-BH06	502561.291	3560021.716	15	15	3/1/2022	3/1/2022
8	RPh1-BH07	501669.23	3560290.634	18	18	4/1/2022	4/1/2022
9	RPh1-BH08	500656.335	3560125.332	18	18	5/1/2022	5/1/2022
10	RPh1-BH09	500693.586	3561127.223	19	19	5/1/2022	5/1/2022
11	RPh1-BH10	499690.436	3561153.704	14	14	6/1/2022	6/1/2022
12	RPh1-BH11	499733.654	3562174.712	24	24	6/1/2022	7/1/2022
13	RPh1-BH12	500622.287	3562047.375	20	20	10/1/2022	10/1/2022
14	RPh1-BH13	499659.304	3560150.17	23	23	24/2/2022	25/1/2022
15	RPh1-BH14	499619.686	3559153.499	21	21	24/1/2022	25/1/2022
16	RPh1-BH15A	500586.412	3558132.282	9	9	25/1/2022	25/1/2022
17	RPh1-BH15B	499592.264	3558163.504	18	18	26/1/2022	26/1/2022
18	RPh1-BH16	499546.068	3558070.232	18	18	3/2/2022	7/2/2022
19	RPh1-BH17	499558.26	3557169.588	24	24	7/2/2022	8/2/2022
20	RPh1-BH18	500574.686	3557132.24	24	24	8/2/2022	9/2/2022
21	RPh1-BH19	501546.652	3557100.703	21	21	9/2/2022	10/2/2022
22	RPh1-BH20	502544.14	3557071.842	22	22	10/2/2022	14/2/2022
23	RPh1-BH21	501712.563	3560986.66	29	29	14/2/2022	15/2/2022
24	RPh1-BH22	502679.851	3561053.548	25	25	15/2/2022	16/2/2022
25	RPh1-BH23A	503680.028	3561029.651	18	18	16/2/2022	21/2/2022
26	RPh1-BH23B	503646.674	3560025.208	27	27	22/2/2022	22/2/2022
27	RPh1-BH24	503854.711	3560003.725	24	24	23/2/2022	23/2/2022
28	RPh1-BH25	503615.834	3559030.817	24	24	24/2/2022	24/2/2022

No.	BH	X	Y	Total depth m	Cutting depth m	Start date	End date
29	RPh1-BH26	503576.816	3558028.192	29	29	24/2/2022	30/3/2022
30	RPh1-BH27	503536.797	3557034.313	24	24	4/4/2022	8/4/2022
31	RPh1-BH28	503512.028	3556028.216	27	27	12/4/2022	13/4/2022
32	RPh1-BH29	502587.748	3556032.666	29	29	19/4/2022	20/4/2022
33	RPh1-BH30A	501512.288	3556101.195	15	15	20/4/2022	25/4/2022
34	RPh1-BH30B	500424.386	3556115.073	13	13	25/4/2022	25/4/2022
35	RPh1-BH30C	500281.662	3556142.1	25	25	10/5/2022	11/5/2022
36	RPh1-BH31A	500263.798	3556228.407	17	17	26/4/2022	26/4/2022
37	RPh1-BH31B	499351.321	3556161.818	21	21	27/4/2022	28/4/2022
38	RPh1-BH32	499230.729	3556469.243	29	29	9/5/2022	10/5/2022
39	RPh1-BH33	499351.321	3556161.818	28	28	12/5/2022	12/5/2022
40	RPh1-BH34	499230.729	3556469.243	21	21	26/5/2022	26/5/2022
41	RPh1-BH35	498874.605	3556459.372	30	30	20/5/2022	20/5/2022
42	RPh1-BH36	498622.336	3557098.242	28	28	24/5/2022	24/5/2022
43	RPh1-BH37	497408.2	3556454.859	27	27	26/5/2022	28/5/2022
44	RPh1-BH39	497532.24	3557245.02	32	32	15/6/2022	15/6/2022
45	RPh1-BH41	496571.542	3557272.488	33	33	28/6/2022	30/6/2022
46	RPh1-BH42	496580.104	3556388.499	30	30	6/7/2022	5/8/2022
47	RPh1-BH47	497492.057	3555254.028	14	14	6/9/2022	8/9/2022
Total					1050		

Table 2: Coring Boreholes Drilling Records

No	BH	X	Y	Total depth m	Core depth m	Cutting depth m	Start date	End date
1	RC-A1	498971	3559189	14.1	10	4	6/6/2022	9/6/2022
2	RC-31A	499351.3	3556162	14.1	0.7	13.4	20/6/2022	22/6/2022
3	RC-31B	499230.7	3556469	16.7	5.7	11	22/6/2022	24/6/2022
4	RC-31C	499230.7	3556469	15.5	1.5	14	7/7/2022	8/7/2022
5	RC-43	501313	3555626	16.75	12.75	4	2/8/2022	8/8/2022
6	RC-44	500685	3563040	28	5.5	22.5	8/8/2022	14/8/2022
7	RC-45	501982	3562920	22.4	17.4	5	15/8/2022	1/9/2022
8	RC-46	496965	3559029	22.2	2	20.2	19/7/2022	22/7/2022

- Wells included in the resource estimation
- Wells not included in the resource estimation due to drilling issues
- Wells not included in the resource estimation due to the $P_2O_5 < 18$ Wt. %

3.3 Lithological Sections of the Study Area

As per mentioned in the geology section, the predominant stratigraphy in the study area belongs to Umm Rijam Chert's "URC" Formation of the Paleogene age. The URC is the only formation that was encountered over the prospecting operations conducted in the study area targeting the Phosphate Layers. URC Formation consists of interbedded lithologies including Chert, Limestone, Chalky Limestone, Marly Limestone, Phosphate, Silica Phosphate, Silicified Limestone, and Marl.

In total, 19 lithologies were noticed across drilling boreholes, and 9 of them were considered in terms of Phosphate Rocks (see appendix 04). Consequently, the bulk density for every phosphatic rock lithology was determined in MEMR labs (Table 03). The depositional environment of various types of lithologies has to be modeled and projected into sections where Rockwork v.16 was used for that purpose to define their extension (see appendix 03). The encountered lithified rocks and bulk density of the phosphate rocks are documented in the table below.

Table 3: Lithified Rock types encountered in the study area

Types of lithology were encountered from the drilled boreholes		
Lithified rock_non Phospahtic	Lithified rock_Phosphatic	Bulk Density g/cm ³)_Phospahtic rock
Alluvial	Chalk /Tr Phosphate interbedded in parts	1.36
Chalk	Chalk limestone Phosphate	1.40
Chalk Limestone	Chalk limestone Apatite	1.36
Chert/chert interbedded in parts	Limestone Phosphate	1.40
Clay	Phosphatic Limestone	1.85
Chert	Phosphorous/fecal type	1.44
Limestone	Silica Phosphate	2.30
Marly Limestone	Silicified limestone/phosphate interbedded in parts	2.66
Silicified limestone	Silicified chalk limestone/phosphate interbedded in parts	2.66
Silicified chalk limestone		

Moreover, for this project, the stratigraphic sequence has been divided into three members based on the drilling records: The Overburden Layer, the Phosphate Layer, and the Under-Burden Layer (The rest lithology of URC Formation). Consequently, the projected section and model were created to distinguish the Phosphate Layer as a bulk regardless of the lithology type of Phosphate. Furthermore, P_2O_5 wt.% results have been represented in fence diagrams and projected in sections. The majority of results of P_2O_5 wt.% are placed within the range from 6.7 wt.% to 36 wt.%.

Lithology, stratigraphy, and P_2O_5 concentrations have been represented using projected sections over NS and EW directions over the study area (see appendix 03). The following examples show some of these sections with their locations.

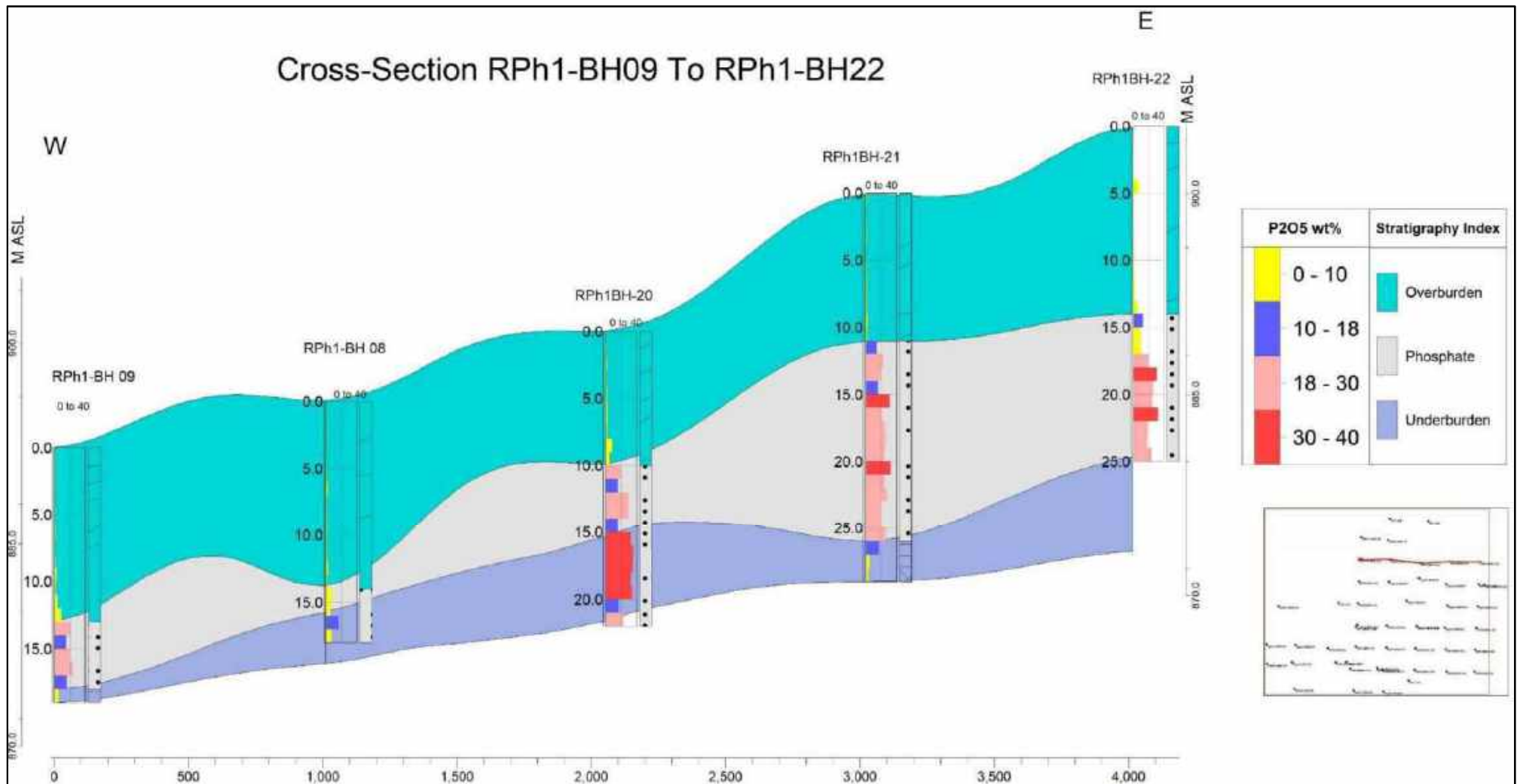


Figure 5: Projected section lithology, stratigraphy & P2O5wt over section RPh1-BH22_RPh1-BH09

As shown in (Fig. 05) the Phosphate Layer thicknesses are ranged from 5 m to 20 m, and their thickness from west to east direction. The same condition for P_2O_5 wt.% value increases substantially from 6.7 wt.% in the west and exceeds 36 wt.% in the east of the section corresponding to increased fecal-type lithology Phosphate for the same direction. Cross over the section the most predominant lithology is fecal-type Phosphate lithology with a ranged thickness of 3 m to 10 m. The fecal-type Phosphate lithology is overlain by Limestone Phosphate in parts and underlain with Silicified Limestone Phosphate and Silica Phosphate in parts. Regarding Overburden, the thicknesses are roughly constant over the section within ranges between 5 m to 10 m (see Fig. 05).

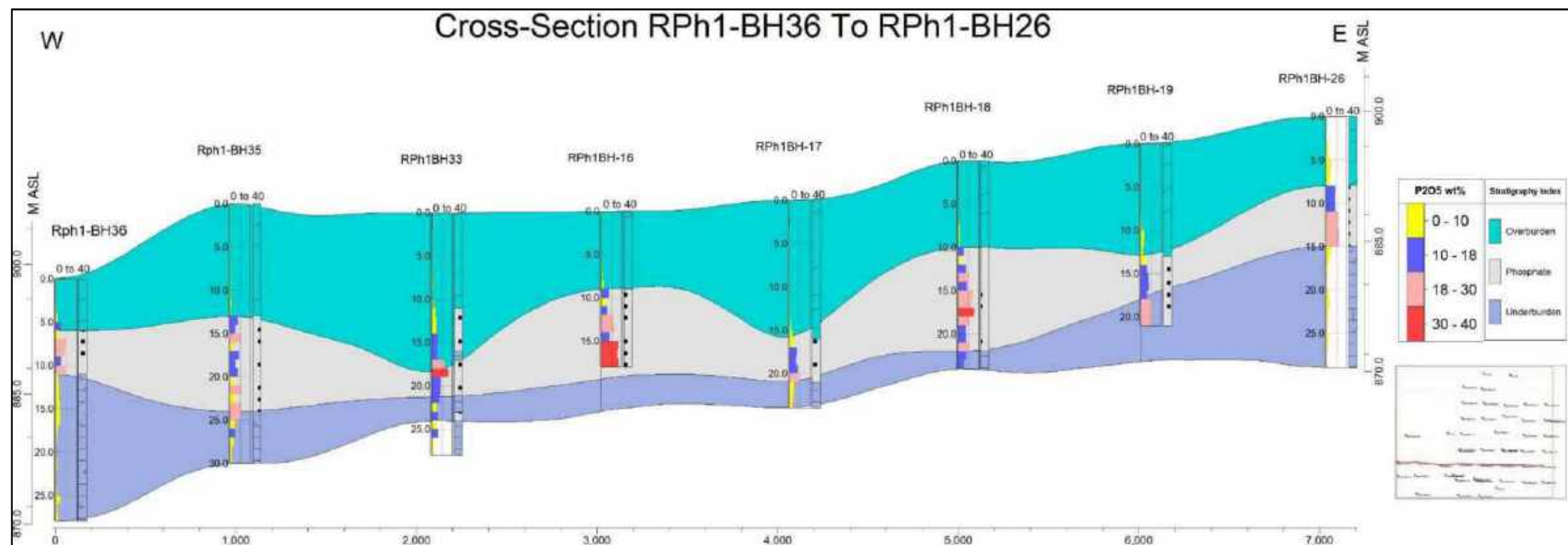


Figure 6: Cross Section RPh-BH36 to RPh1-BH26

As shown in (Fig. 06) the Phosphate Layer thicknesses ranged from 1 m to 5 m that were decreasing when moving to the west direction of the study area. P_2O_5 percentages over 30 wt.% are not continuous and the majority are concentrated in the east and middle of the section as attributed to the high concentration of the Silica and Silicified Rocks containing P_2O_5 percentages less than 18 wt.%. However, the most predominant lithology is Silica Phosphate lithology with a ranged thickness of 2 m to 5 m overlain by Chalky Limestone Phosphate, Phosphatic Limestone, and partially Fecal Phosphate whereas it is underlain with Silicified Limestone Phosphate. Finally, overburden thicknesses are varied from 0 m to 10 m over the section, where it thinning in the margins of the section and thickening in the middle of the section (see Fig. 06).

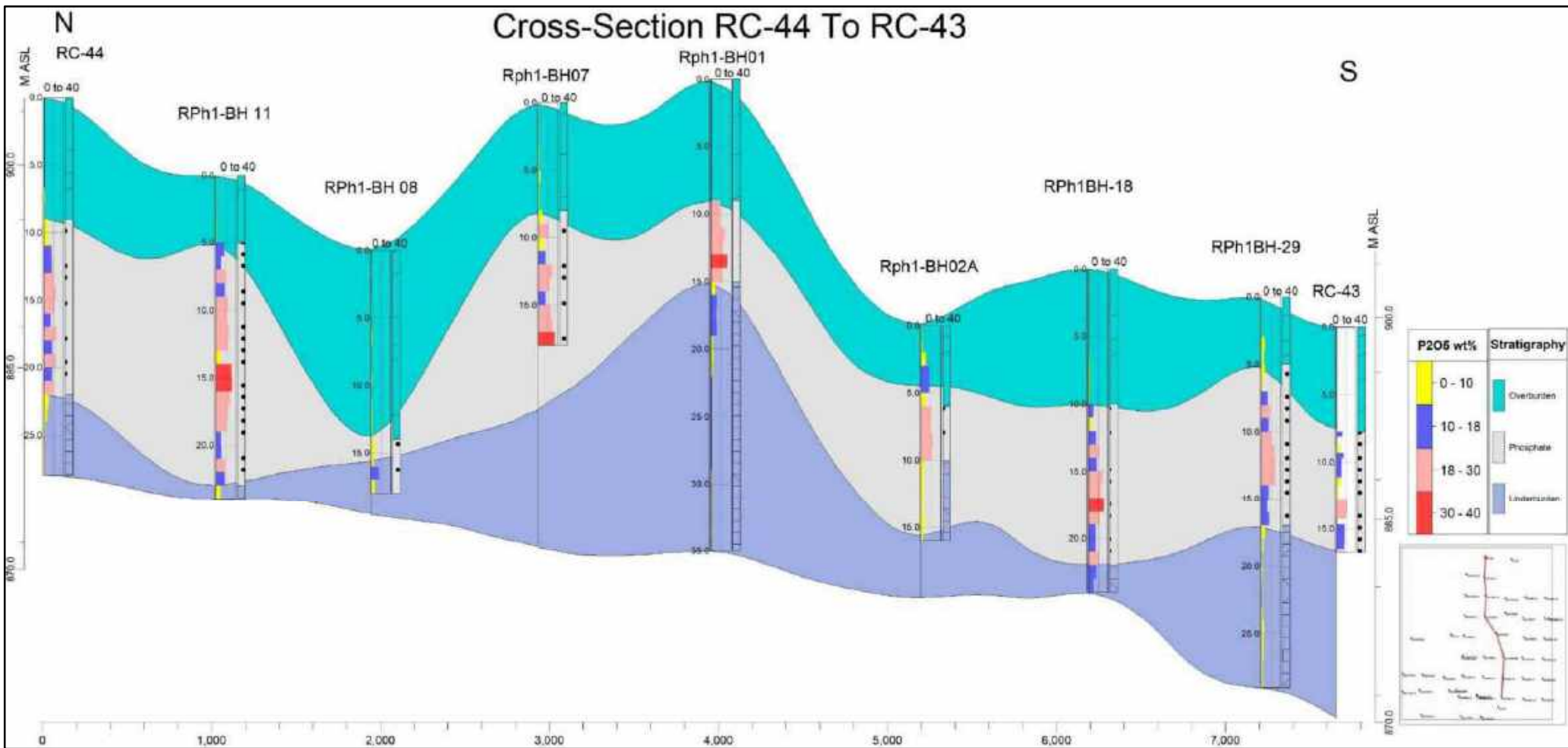


Figure 7: Cross Section RC-44 to RC-43

As shown in (Fig. 07) the Phosphate Layer thicknesses are ranged from 5 m to 10 m, its roughly constant across the section. The P_2O_5 wt.% values are concentrated in the north section rather than the south section whereas the highest value exceeds 30 wt.% due to the high concentration of Fecal-type Phosphate lithology. Cross over the section the most predominant lithology is Fecal-type Phosphate lithology with an average thickness of 3 m, thinning to 1 m in the south and increasing to 5 m in the north. The Fecal-type Phosphate lithology is overlain by Silicified Limestone Phosphate in parts and underlain with Silica Phosphate in parts and Chalky Limestone Phosphate in parts. Regarding overburden, the thicknesses ranged between 5 m to 10 m (see Fig. 07).

CHAPTER 4

4. GEOPHYSICAL SURVEY (WELL LOGGING)

4.1 Introduction

The Geophysical survey “Well-logging” was implemented by Geophysical Division team using “Total Natural Gamma Logging” which refers to the collection of geologic and hydrogeological information by lowering and raising probes on a wire. The radioactivity of rocks has been used for many years to help derive lithologies. Natural occurring radioactive materials include the elements Uranium (U), Thorium (Th), Potassium (K), Radium (Ra), and Radon (Rn), along with the minerals that contain them. There is usually no fundamental connection between different rock types and measured gamma-ray intensity, but there exists a strong general correlation between the radioactive isotope content and mineralogy. Logging tools have been developed to read the gamma rays emitted by these elements and interpret lithology from the information collected.

4.2 Methodology

In the well-logging survey conducted in February 2022, the vertical logging of variation in natural Gamma Radiation (GR) was measured in counts per second (cps). Natural gamma logging surveys were carried out using a Mount Sopris Matrix borehole logging system. A portable gasoline generator provided isolated 220-volt AC power for the instrument. The system used poly probe technology that allowed the acquisition of multiple logs simultaneously on a single conductor pair. A motorized matrix winch with a 1/8” diameter steel armored single cable was used for borehole logging.

Equipment was set up adjacent to the borehole to be logged and calibrated to establish the datum at the ground level. All boreholes were logged top to bottom, and bottom to top.

Logging was carried out at speed 3 meters per minute or less. This multiple-passing procedure was adopted to ensure the high resolution and repeatability of data. Records were monitored in real-time for quality assurance during the logging operation.

The natural gamma logs were recorded with Sopris Matrix Log software. Borehole geophysical logs were presented by using the Strater (3.2.637) program.

4.3 Total Gamma Logging Survey

From February 2022 to August 2022, the total gamma logging has been carried out for only 29 drilled boreholes in the study area, see appendix 02. The depth of the boreholes ranged from 14 to 35 mbgl. The drilled boreholes are open holes; the majority of these boreholes were logged top to bottom, and bottom to top. The coordinates of boreholes, total drilling depth, and log depth are listed in (Table 04).

Table 4: Coordinates and depth of boreholes were logged in the study area (Risha)

No.	Borehole ID	East	North	TD (m)	Log Depth (m)
1	Rph1-BH01	501233.624	3559266.56	35	33
2	Rph1-BH02B	501583.295	3558105.03	26	22
3	Rph1-BH03	502523.642	3558056.73	21	20
4	Rph1-BH04	502611.139	3559056.15	30	28
5	Rph1-BH05	502561.291	3560021.72	31	19.55
6	Rph1-BH06	501669.23	3560290.63	15	13
7	Rph1-BH07	500656.335	3560125.33	18	16.5
8	Rph1-BH08	500693.586	3561127.22	18	17.5
9	Rph1-BH09	499690.436	3561153.7	19	17.5
10	Rph1-BH10	499733.654	3562174.71	14	13
11	Rph1-BH11	500622.287	3562047.38	24	22
12	Rph1-BH12	499659.304	3560150.17	20	18

No.	Borehole ID	East	North	TD (m)	Log Depth (m)
13	Rph1-BH13	499619.686	3559153.5	23	22.5
14	Rph1-BH15B	499546.068	3558070.23	18	10.6
15	Rph1-BH16	499558.26	3557169.59	18	16
16	Rph1-BH17	500574.686	3557132.24	24	20
17	Rph1-BH18	501546.652	3557100.7	24	20.15
18	Rph1-BH22	503680.028	3561029.65	25	20
19	Rph1-BH23A	503646.674	3560025.21	18	11.75
20	Rph1-BH24	503615.834	3559030.82	24	23.5
21	Rph1-BH25	503576.816	3558028.19	24	21.5
22	Rph1-BH26	503536.797	3557034.31	29	28.5
23	Rph1-BH27	503512.028	3556028.22	24	21.5
24	Rph1-BH28	502587.748	3556032.67	27	12.7
25	RC-A1-Core	498971	3559189	14.1	12.25
26	RC-31A-Core	499351.321	3556161.818	14.1	14
27	RC-31B-Core	499230.729	3556469.243	16.7	14
28	RC-31C-Core	499230.729	3556469.243	15.5	13.75
29	RC-43-Core	501313	3555626	16.75	13.75

4.4 Results

Twenty-nine natural gamma logs were conducted in the study area, and measured natural gamma commenced at a depth of 1.8 mbgl. which was the zero-level depth in all boreholes, see appendix no 2. The total gamma for logged boreholes was fully documented cross over its measured depth, occasionally, the logging tool had not been able to reach the total measured depth due to borehole collapse (see table 04). Therefore, the rest determination of the Phosphate Layers in these boreholes was conducted which based on chemical and drilling data.

According to the comparison between the gamma ray and chemical results P_2O_5 wt.%, the shifting was observed and both are placed different laterally within range less than 1m, due to drilling technique with air compresor caused shifting the sample while it was collected from the surface.

4.5 Discussion

The logged boreholes are taken into account to figure out total gamma ray variance using cross-section extends either North-South or East-West. The gamma-ray consists of peaks where everyone is representing a particular type of lithology. Hence, as a result of the encountered Phosphate lithology layers which are the dominant in the study area the diversity in gamma peaks is attributed to the variance content of P_2O_5 wt.%.

According to the inputs of the logged boreholes in the Strater (3.2.637) program, four sections were established considering the top of the Phosphate Layer commences from cut-off grade 100 cps and vanishes below 100 cps.

4.5.1 Cross Section North - South

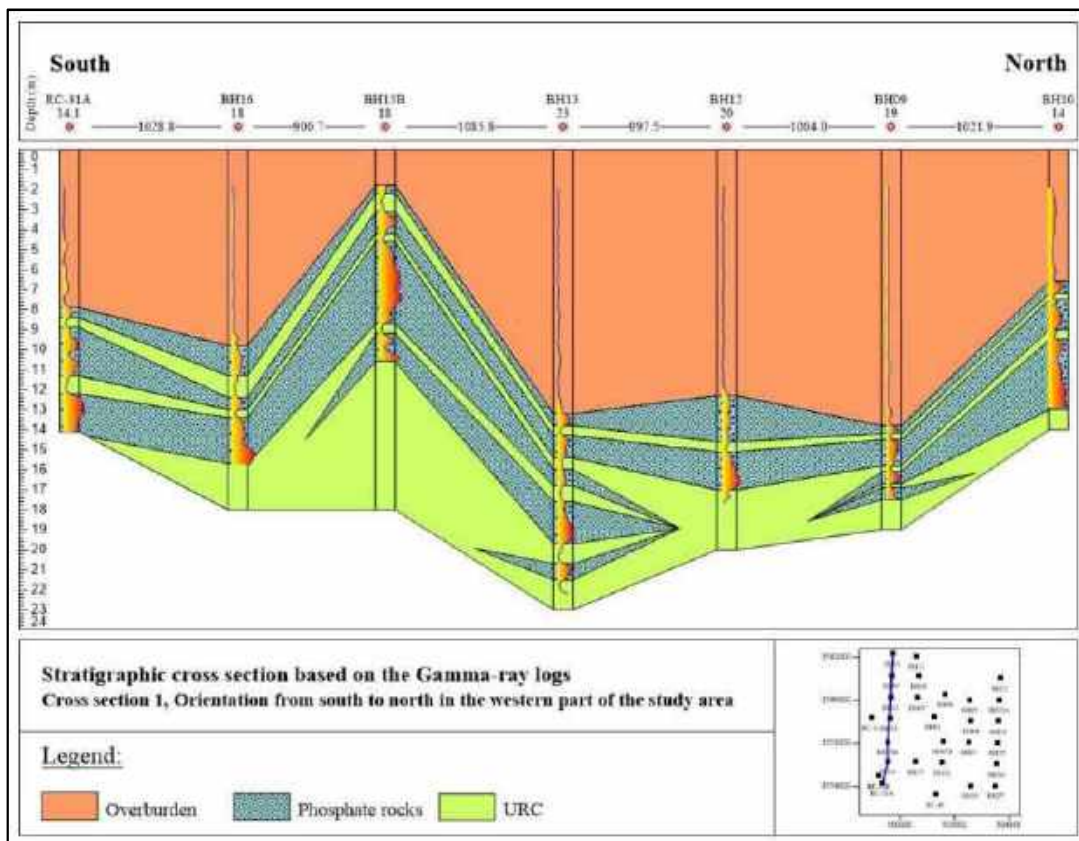


Figure 8: N-S Cross section gamma ray RPh1-Bh10_RC-31A

As shown in (Fig. 08), the gamma-ray is steadier with less variance as well as the high values are more common in the north direction, which in turn indicated interesting thicknesses of Phosphate lithology layers placed within the same direction.

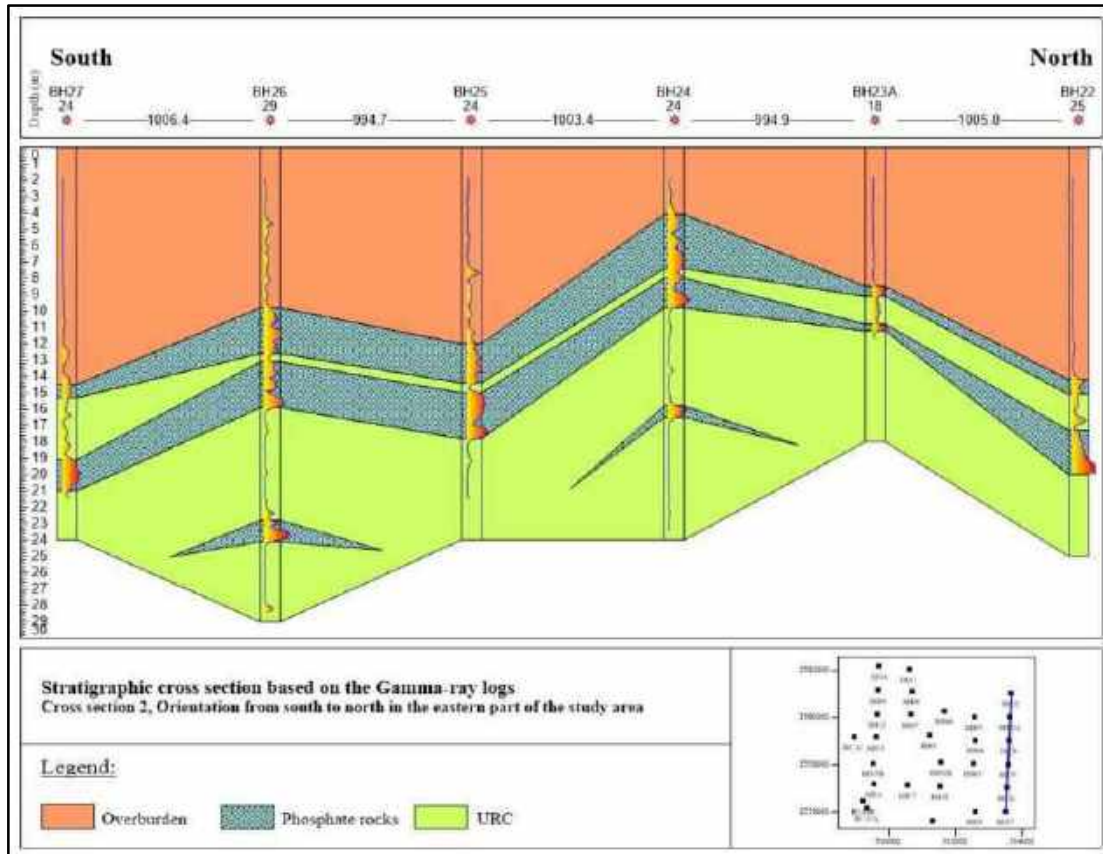


Figure 9: N-S Cross section gamma ray RPh1-Bh22_RPh1-27

Furthermore, as shown in (Fig. 09) the Gamma-Ray is thicker in the middle than on both sides of the section which might express deformed lenses of Phosphate lithology layers resulting from tectonic movements.

4.5.2 Cross Section East – West

The variance in Gamma Ray is similar to the variance in Phosphatic Layers which is insignificant over the cross-section East–West except a few changes have occurred due to the geological structure reasons (see Fig. 10).

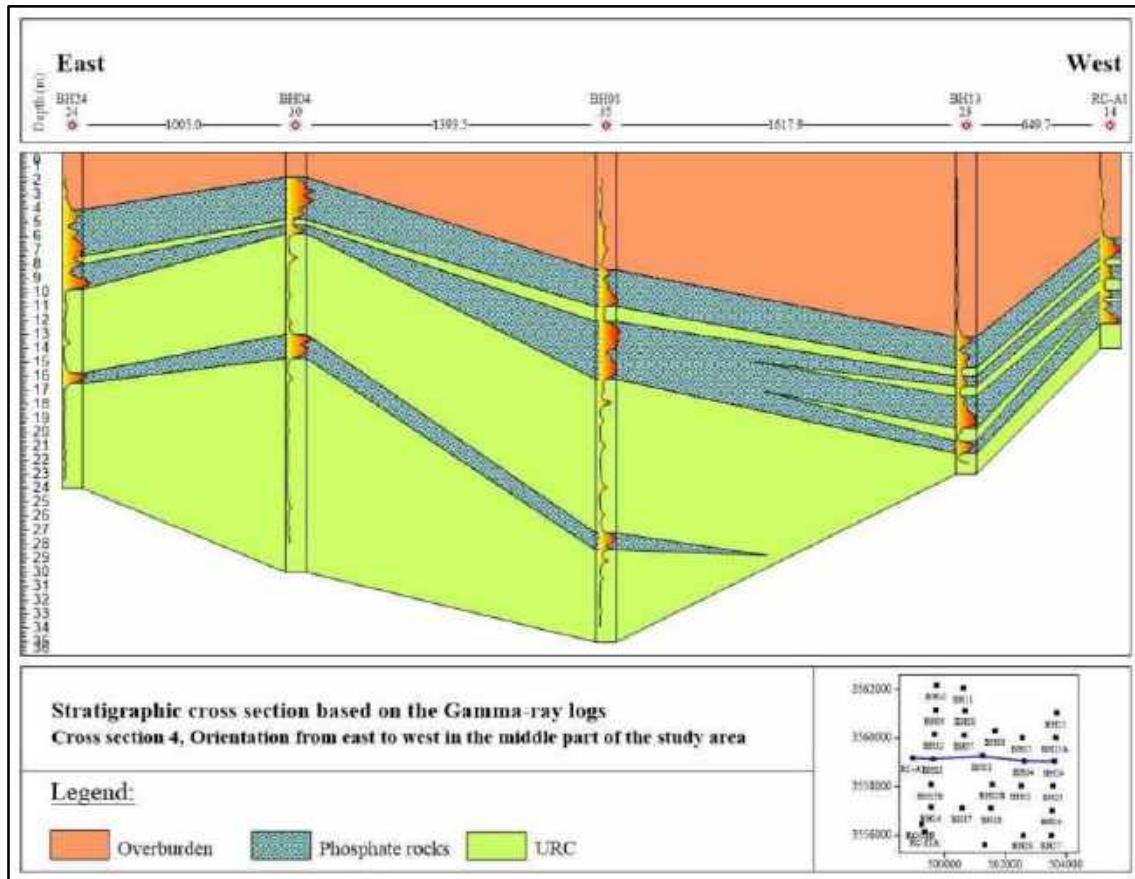


Figure 10: E-W Cross section gamma ray RPh1-BH24_RC-A1

Remarkably, the east part records a lower thickness of overburden than the west part. Approximately, the Phosphate Layer has equal thicknesses over the section.

As aforementioned in the cross-section N-S, the Phosphate Layer is decreasing toward the south direction therefore the cross-section in (Fig. 11) is showing altered gamma rays at different depth records, consequently, the correlation between the highest of gamma-ray records are not corresponding.

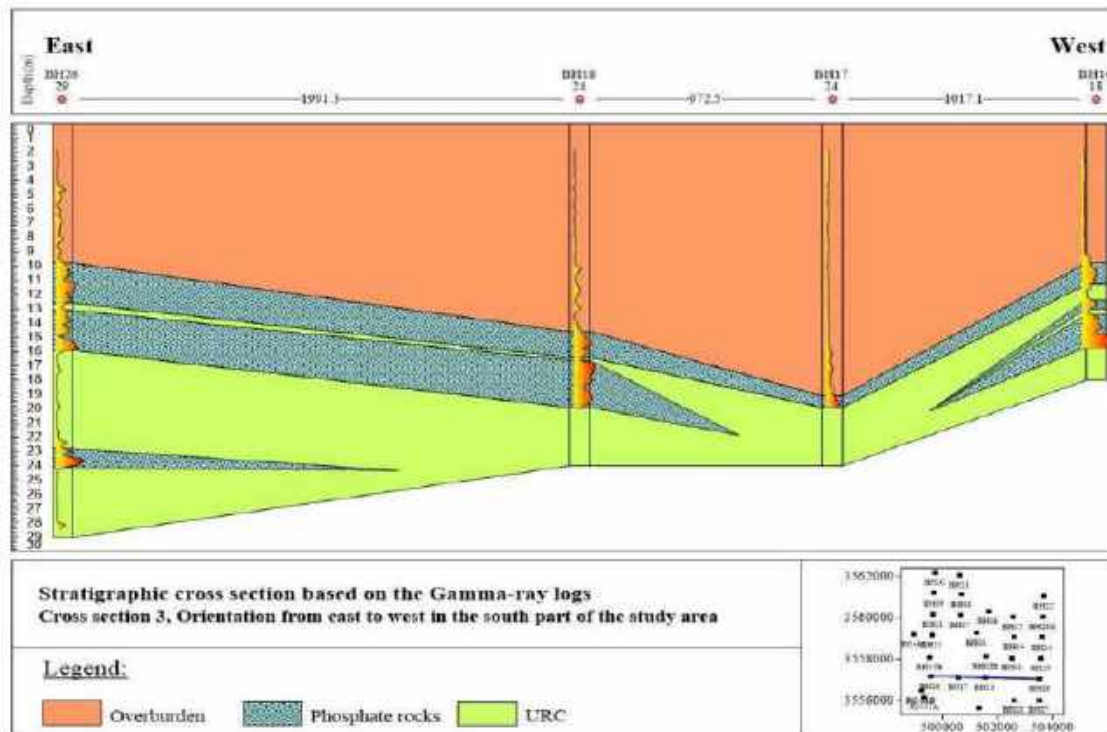


Figure 11: E-W Cross section gamma ray RPh1-BH26_RPh1-BH16

4.5.3 Gamma Ray Model

The logged boreholes are located within an area that amounted to roughly 40 km² (see Fig 12).

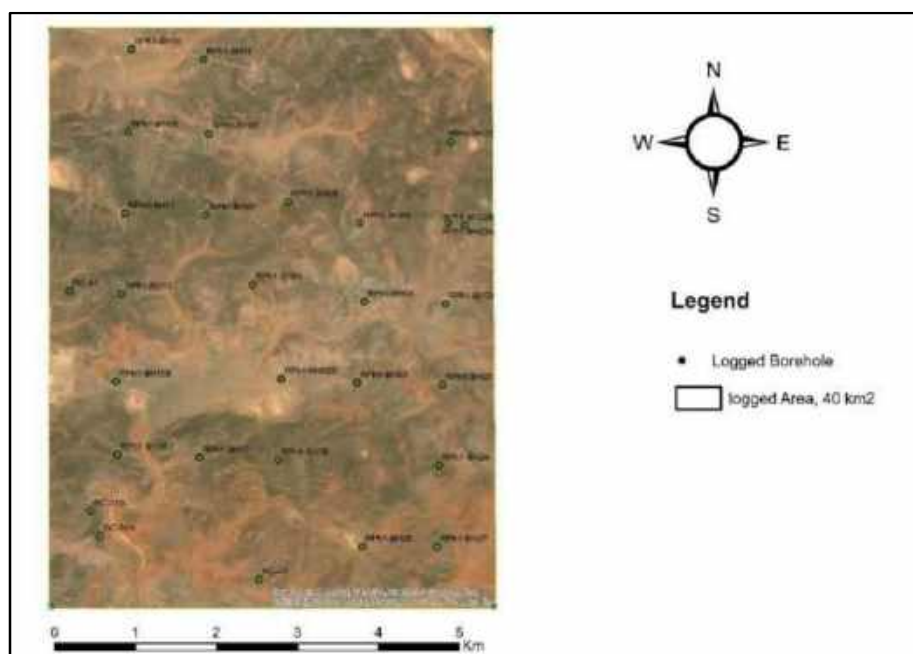


Figure 12: 29-logged boreholes within the area amounted to 40 km²

Ultimately, corresponding to the discussion in Chapter no. 7, the Phosphate Layer that is placed in the north and northeast of the study area is more commercial and tradable in terms of its quality and quantity. Substantially, (Fig. 13) below is revealed the highest vector of gamma-ray exceeding 350 cps is situated in the same proposed direction.

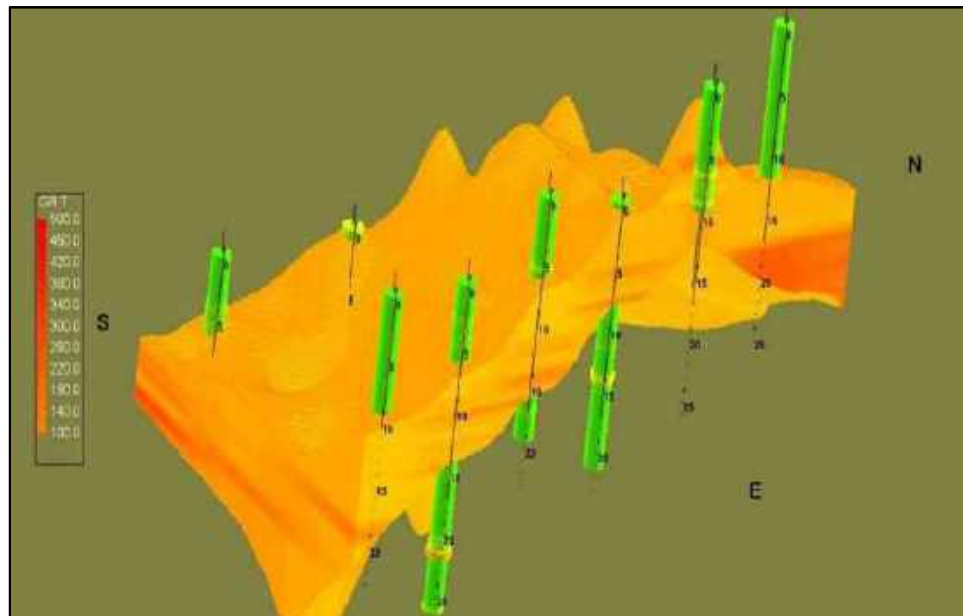


Figure 13: Gamma-ray 3D view at cut-off grade 100 cps

CHAPTER 5

5. SAMPLING & LABORATORY ANALYSES

5.1 Sampling

The geologist (or geo-technician) supervised the collection of all core and cutting samples at the drill site and the transfer of the sample boxes to the storage warehouse.

In total, 1190 samples were collected from the drilled boreholes in the study area. The samples were classified into 1119 cutting samples and 71 core samples (see Fig. 14). The aim was to obtain chemical analysis for the Phosphate concentration and other Oxides, where all of the preparations and analysis processes were done in the MEMR labs.



Figure 14: Images illustrating the collection procedures of Core & Cutting sample

The cutting samples were collected from every one meter whereas the core samples were collected based on the lithological changes of layers in the drilled depths, see appendix no. 4.

The sampling process included indications to core recovery, gamma log, core, and cutting samples description with marking the sample intervals through the Phosphate zones. The core to be sampled was photographed in the core box with sample markers in place. Sample sheets with preprinted sample numbers were used to record the project, borehole number, date, sample interval, soil and/ or rock description, and the appropriate sample index. The sample index was provided for each sample to track the type of sample and to distinguish how it should be processed at the laboratory. The following index codes were assigned:

- A. Pulp Sample.
- B. Quarter Core.
- C. Density Sample.
- D. For QA/QC, duplicate samples were selected from different depths to be analyzed.

Sampling proceeded with the following steps:

1. A preprinted sample number tag was chosen for each core and cutting sample and the tag was placed inside the sample bag. This sample number was then written on the sample bag.
2. QA/QC duplicate samples were put with appropriate tags and labels.
3. Core samples are designated to be quarter samples. The cores were wrapped in plastic, then wet-cut with an electric saw. Core samples were placed on appropriately tagged and labeled sample bags.

All of the bagged samples were laid out in numerical order and the chain-of-custody form was checked as each sample was placed in a grain sack. A uniquely numbered security zip tie was immediately placed on each grain sack. The security seal number was recorded on the chain-of-custody form. The security seal remained in place until it was checked and removed at the laboratory.

Initial samples resulting from the drilling program were processed and prepared by the MEMR Lab in Jordan, between December 2021 and September 2022.

It was determined that MEMR analysis showed high bias in samples with higher Phosphorus Pent-Oxide (P_2O_5) percentages (greater than 30 wt.%). Therefore, a total of 39 duplicate samples were collected and inserted into the MEMR lab to check the analysis results which have shown acceptable results when compared with the initial sample results.

Responding to high radiation determined by Handheld Gamma-Ray Scintillometer, a total of 28 samples were collected randomly and analyzed in the Jordan Atomic Energy Commission (JAEC) lab, these samples have revealed values of Uranium (U), Thorium (Th), and Rare Earth Elements (REEs) are exceeding its background concentration.

5.2 Laboratory Analysis

The majority of collected samples are chemically investigated using the following tests:

- XRD (X-ray Powder Diffraction)
- XRF (X-ray Fluorescence)

These tests were used to determine the content in terms of minerals and oxides. On the other hand, a total of 14 samples were selected to investigate their content of Chlorine (Cl) which is used to define the quality of Phosphates regarding their industrial processing.

Moreover, 6 samples labeled (RPh1-BH46-17, RC-31B-23, RC-31C-2, RC-43-12, RC-43-16, and RC-43-11) were analyzed in the MEMR labs for relative density, as well as 28 representative samples were selected to the concentrations of Uranium (U), Thorium (Th), and other Rare Earth Elements (REEs) using ICP-MS in the laboratories of the Jordan Atomic Energy Commission (JAEC).

5.3 Quality Assurance/Quality Control Program

Shortly after the assay results were received from the laboratory, they were combined with the drill hole intervals (Gamma log adjusted) to create an assay database. These results were copied from the laboratory spreadsheets to the assay database matching the unique sample identifiers from the drill borehole intervals to the unique sample identifiers from the laboratory. The database was checked for data entry errors against the laboratory's assay certificates. Once the assay database was created, the data were reviewed for quality assurance for the main results and duplicates.

After monitoring and reviewing the initial results with the duplicate samples, they have shown generally good agreement with minimum differences of 0 and maximum of 8.7, one sample with ID no. RPD 27 showed a huge difference. The following table 6 shows the general data of P_2O_5 .

Table 5: Chemical P_2O_5 test agreement Duplicate Samples versus Main Samples

Target	Main Samples			Duplicate Samples		
	Min.	Max.	Avg.	Min.	Max.	Avg.
	(Wt. %)	(Wt. %)	(Wt. %)	(Wt. %)	(Wt. %)	(Wt. %)
P_2O_5	30	36	32.56	23.7	34.9	31.63

The duplicate samples tracking for P_2O_5 demonstrates good agreement between results, see appendix 01. Results are considered valid and applicable initially for resource estimation and were used in the resource model.

Chapter 6

6. Geochemistry

6.1 Introduction

In general, the Phosphorites are recognized as those rocks that contain P_2O_5 more than 18 wt.%, in this regard, the drilled boreholes in the study area are varying in terms of P_2O_5 wt.% content along with the depth as well as the major minerals are varying from Fluorapatite to Apatite.

The predominant components of Fluorapatite are CaO and P_2O_5 equal to 57.1 wt.% and 36 wt.%, respectively, with minor quantities of F & CO_2 amounted to 4.13 wt.% & 4.52 wt.%, respectively. On the other hand, the Apatite mineral is composed of similar components to the Fluorapatite mineral with the absence of CO_2 . However, the impurity is caused by the presence of variable amounts of SiO_2 , Fe_2O_3 , MgO, Al_2O_3 , MnO, and F.

6.2 Chemical Results

As per mentioned in Chapter 05, the major oxides were analyzed using XRF to determine their content in percent by weight. Table 07 below shows the average content for each measured oxide whereas the average content of P_2O_5 wt.% was detected based on values of P_2O_5 larger than 18 wt.%.

Table 6: The average results of major oxides concentrations for all drilled boreholes analyzed using XRF Spectrometer (the considered value for sample contains P₂O₅ wt.% larger than 18 wt.%)

S.ID.	Avg. Fe ₂ O ₃ Wt. %	Avg. CaO Wt. %	Avg. SiO ₂ Wt. %	Avg. MgO Wt. %	Avg. Al ₂ O ₃ Wt. %	Avg. P ₂ O ₅ Wt. %	Max. P ₂ O ₅ Wt. %	Avg. F Wt. %	Avg. Fe ₂ O ₃ +Al ₂ O ₃ +MgO/P ₂ O ₅	Avg. T.C.P %	Max. T.C.P %
RPh1-BH1	0.23	48.30	9.77	0.20	0.50	24.55	34.20	2.20	0.04	53.64	74.73
RPh1-BH2B	0.25	48.30	11.24	0.20	0.50	23.72	31.20	2.49	0.04	51.82	68.17
RPh1-BH3	0.23	52.70	2.54	0.21	0.55	24.70	26.40	2.55	0.04	53.97	57.68
RPh1-BH4	0.35	48.53	9.05	0.30	0.70	20.73	24.30	2.32	0.06	45.30	53.10
RPh1-BH5	0.23	52.08	4.87	0.21	0.55	26.62	31.10	2.35	0.04	58.17	67.95
RPh1-BH6	0.23	51.36	5.53	0.21	0.55	27.36	33.80	3.01	0.04	59.78	73.85
RPh-BH7	0.23	52.85	2.99	0.21	0.55	26.97	33.30	3.13	0.04	58.92	72.76
RPh-BH9	0.23	51.80	5.40	0.18	0.55	21.63	24.30	2.36	0.04	47.27	53.10
RPh-BH10	0.23	51.18	6.30	0.21	0.55	22.90	25.90	2.41	0.04	50.04	56.59
RPh-BH11	0.23	51.72	5.26	0.21	0.55	26.56	33.30	2.90	0.04	58.03	72.76
RPh-BH12	0.25	47.53	12.15	0.21	0.60	23.57	28.10	2.45	0.05	51.50	61.40
RPh-BH13	0.24	44.34	21.09	0.21	0.55	20.58	25.00	2.00	0.05	44.97	54.63
RPh-BH15B	0.23	46.65	14.24	0.21	0.55	24.37	31.50	2.52	0.04	53.24	68.83
RPh-BH16	0.23	51.96	3.18	0.21	0.55	29.50	33.80	3.37	0.03	64.46	73.85
RPh-BH17	0.33	45.10	12.00	0.24	0.68	19.00	19.00	1.99	0.07	41.52	41.52
RPh-BH18	0.23	48.57	12.39	0.21	0.55	25.02	31.20	0.96	0.04	54.66	68.17
RPh-BH19	0.23	41.20	26.37	0.21	0.55	21.17	22.00	0.51	0.05	46.25	48.07
RPh-BH20	0.23	53.07	3.81	0.21	0.55	30.52	36.00	1.91	0.03	66.69	78.66
RPh-BH21	0.23	50.55	7.76	0.21	0.55	24.70	32.10	1.92	0.04	53.97	70.14
RPh-BH22	0.23	50.88	6.82	0.21	0.55	24.45	32.40	2.58	0.04	53.42	70.79
RPh-BH23B	0.24	46.90	13.64	0.21	0.58	21.48	27.00	2.15	0.05	46.93	59.00
RPh-BH24	0.23	48.80	12.12	0.21	0.55	26.50	27.50	0.78	0.04	57.90	60.09
RPh-BH25	0.23	46.82	14.40	0.21	0.47	26.35	32.20	1.55	0.03	57.57	70.36
RPh-BH26	0.23	48.43	11.40	0.21	0.55	23.83	24.80	2.39	0.04	52.06	54.19
RPh-BH27	0.23	52.27	4.70	0.21	0.55	21.50	25.50	2.22	0.05	46.98	55.72
RPh-BH28	0.23	49.96	8.58	0.21	0.55	22.25	28.20	2.28	0.04	48.62	61.62
RPh-BH29	0.23	52.58	5.69	0.21	0.55	25.56	29.70	1.30	0.04	55.85	64.89
RPh-BH30C	0.23	46.47	14.72	0.21	0.55	24.12	27.90	2.46	0.04	52.70	60.96
RPh-BH31B	0.23	51.98	3.00	0.21	0.55	32.94	34.60	3.72	0.03	71.97	75.60
RPh-BH32	0.23	51.35	5.61	0.21	0.55	26.55	28.20	2.64	0.04	58.01	61.62
RPh-BH33	0.23	46.35	14.85	0.21	0.55	28.80	32.80	3.19	0.03	62.93	71.67
RPh-BH34	0.24	52.18	4.61	0.21	0.55	21.06	25.20	2.15	0.05	46.02	55.06
RPh-BH35	0.23	41.75	23.26	0.21	0.55	20.98	21.90	2.00	0.05	45.83	47.85
RPh-BH36	0.26	48.40	9.91	0.21	0.55	19.23	21.20	1.91	0.05	42.02	46.32

S.ID.	Avg. Fe ₂ O ₃ Wt.%	Avg. CaO Wt.%	Avg. SiO ₂ Wt.%	Avg. MgO Wt.%	Avg. Al ₂ O ₃ Wt.%	Avg. P ₂ O ₅ Wt.%	Max. P ₂ O ₅ Wt.%	Avg. F Wt.%	Avg. Fe ₂ O ₃ +Al ₂ O ₃ +MgO/P ₂ O ₅	Avg. T.C.P %	Max. T.C.P %
RPh-BH47	0.23	53.40	2.64	0.21	0.55	21.95	22.30	2.23	0.05	47.96	48.73
RC-A1	0.23	53.40	3.535	0.21	0.55	19.67	21.90	2.09	0.05	42.97	47.85
RC31A	0.31	45.72	15.53	0.21	0.58	21.60	24.60	2.19	0.05	47.20	53.75
RC31B	0.24	49.02	9.74	0.21	0.55	23.96	21.90	2.48	0.04	52.35	47.85
RC-43	0.23	54.43	0.972	0.21	0.55	19.71	21.60	2.11	0.05	43.07	47.20
RC-44	0.23	50.85	6.66	0.21	0.55	23.25	26.40	2.43	0.04	50.80	57.68
RC-45	0.23	53.71	1.203	0.21	0.55	27.32	33.80	3.04	0.04	59.70	73.85

6.3 Correlation Matrix

The oxides of analyzed samples have been correlated using a Correlation Matrix Diagram (see Fig. 15). It is showing the type of relationship between two different measured items. In this regard, the negative relationship expresses two oxides have relatively low importance to place in the one mineral, whereas vice versa with such a positive relationship that expresses high importance to preview among two oxides placed in one mineral. In response to the Correlation Matrix, P₂O₅ wt.% has been compared with the most predominant impurities versus SiO₂, Fe₂O₃, MgO, Al₂O₃, MnO, Cl, and F that could affect the Phosphate mining industry.

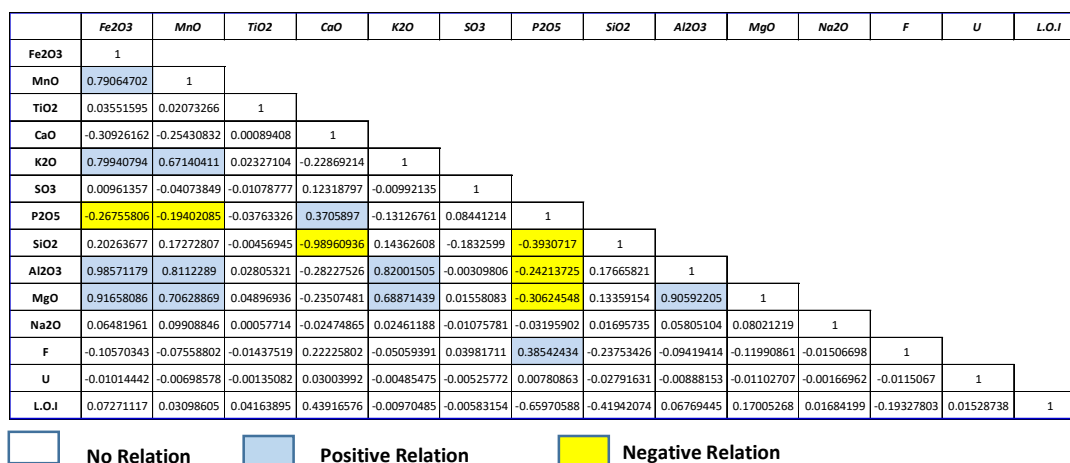


Figure 15: Correlation matrix among oxides results

6.4 Scatter Plot

Based on realized relationships among the oxides in the Correlation Matrix, a scatter plot was drawn to figure out the behavior of the most predominant impurities versus P_2O_5 wt.%.

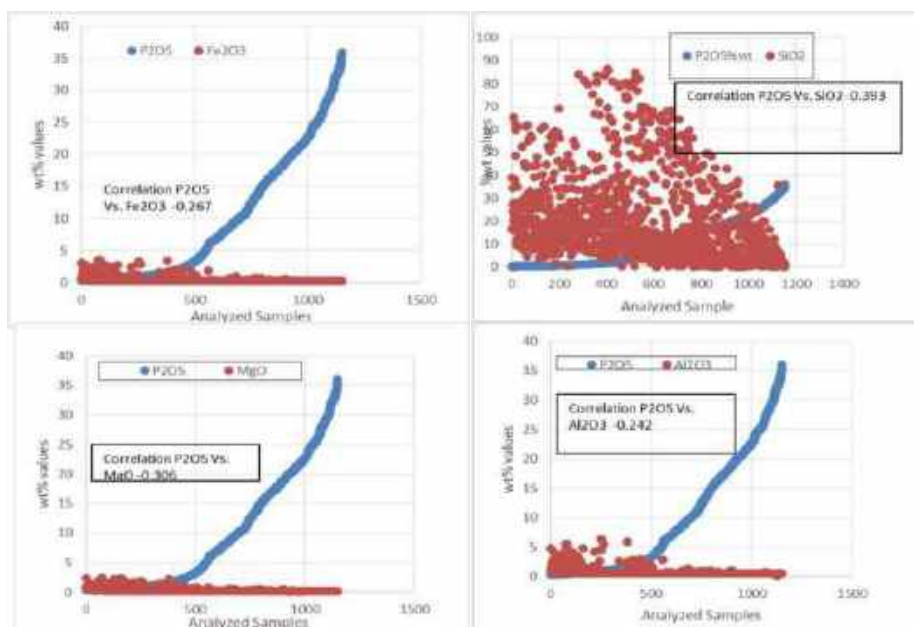


Figure 16: Scatter plot P_2O_5 wt.% vs Fe_2O_3 wt.%, SiO_2 wt.%, MgO wt.% & Al_2O_3 wt.%

As seen in (Fig. 16) the content of SiO_2 caused in reworked Phosphate which is figured out in particular south of the study area, hence the inverse relationship between P_2O_5 wt.% and SiO_2 wt.% was determined in the correlation matrix equal to ~ 0.4 with an average content of $SiO_2 \sim 20$ wt.% overall the area.

The average MgO content in the analyzed samples is 0.21 wt.% whereas its average content in the Phosphate of As-Shidiya is equal to 0.33 wt.%, remarkably, the importance of Mg content is impeded in terms of Mg can replace Ca either Fluorapatite or/and Apatite, consequently, inverse relationship between the P_2O_5 wt.% and MgO wt.% in the analyzed samples equal to ~ 0.306 which in turn indicated a low potential to place them in one mineral.

The CaO/P₂O₅ weight ratio is a common measure of phosphate rock quality (Ryszko et. al., 2023). The commercially available rock may have a CaO/P₂O₅ ratio of up to 1.6 [6]. In the pure Al Risha phosphate samples, the CaO/P₂O₅ ratio accounted for 1.5–1.7, with an average of 1.55. The quality of Al Risha phosphate is very distinguishable if compared it to phosphate deposits in different mines in Jordan (Table 7 & Figure 17).

Table 7: Comparison of phosphate quality in different areas based on P₂O₅/CaO ratio (Abed, 2011)

No.	Eshidiyya Basin (Lower member)		Eshidiyya Basin (Upper member)		Al-Abiad and Al- Hasa (Central Jordan)		Mujib Area		Al-Kora Basin		Ruseifa		Al Risha Area	
	P ₂ O ₅ %	CaO/ P ₂ O ₅	P ₂ O ₅ %	CaO/ P ₂ O ₅	P ₂ O ₅ %	CaO/ P ₂ O ₅	P ₂ O ₅ %	CaO/ P ₂ O ₅	P ₂ O ₅ %	CaO/ P ₂ O ₅	P ₂ O ₅ %	CaO/ P ₂ O ₅	P ₂ O ₅ %	CaO/ P ₂ O ₅
1	33.13	1.6	37.35	1.54	32.04	1.51	22.94	2.28	24.09	1.68	26.66	2.07	34.2	1.52
2	32.63	1.5	26.37	2	32.95	1.46	18.95	2.77	30.23	1.46	24.67	1.73	31.2	1.67
3	33.82	0.89	37.16	1.46	30.44	1.47	23.18	2.32	32.7	1.6	24.59	1.75	31.1	1.7
4	33.66	1.61	28.55	1.88	30.66	1.66	29.72	1.74	30.18	1.54	25.31	1.72	29.8	1.6
5	30.34	1.56	36.53	1.42	30.66	1.75	26.81	1.87	24.37	2.25	29.79	1.77	32.2	1.13
6	33.01	1.53	34.5	1.43	32.95	1.61	23.69	2.2	31.5	1.66	28.94	1.74	33.3	1.59
7	30.88	1.56	37.27	1.42	32.95	1.58	30.1	1.7	34.16	1.55	26.31	1.78	33.3	1.59
8	31.74	1.45	35.84	1.45	31.34	1.62	17.94	3.05	26.25	2.01	30.5	1.76	33.3	1.57
9	33.96	1.47	37.34	1.41	30.75	1.65	24.85	2.31	24.06	2.18	31.11	1.73	31.5	1.59
10	33.76	1.48	33.29	1.58	33.98	1.54	22.92	2.19	27.75	1.91	21.75	2.47	35	1.51
Avg.		1.465		1.559		1.585		2.243		1.784		1.852		1.547

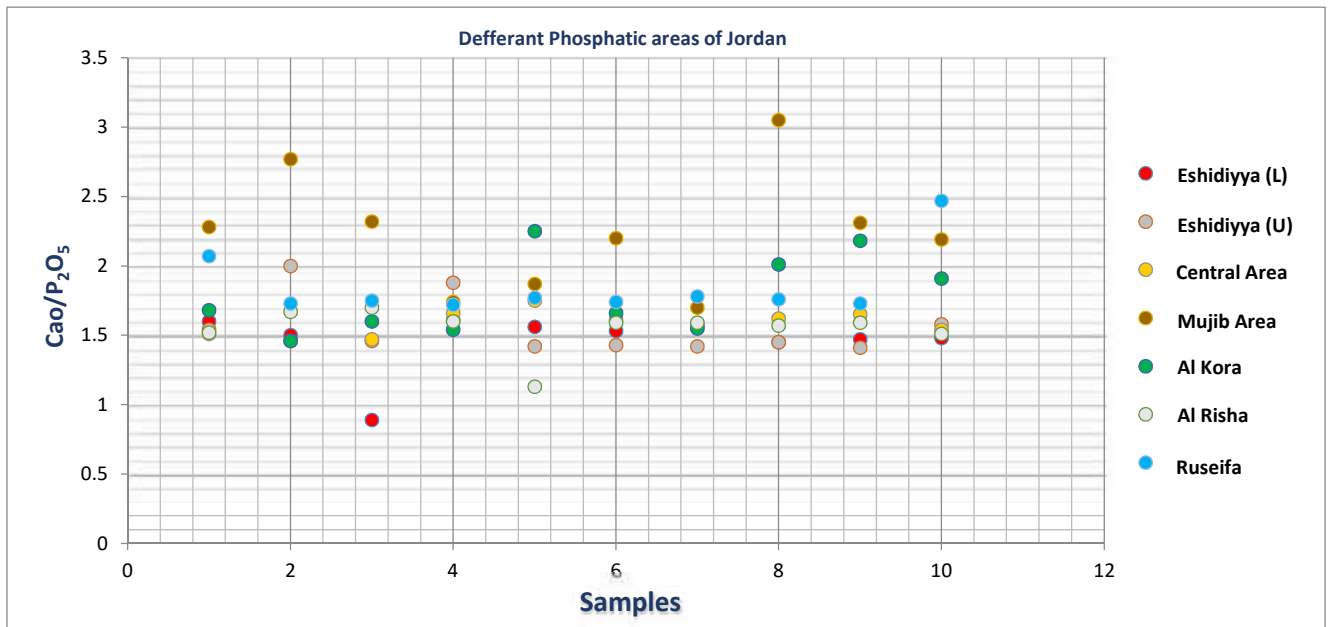


Figure 17: CaO/P₂O₅ ratio comparison in phosphate deposits situated in different parts of Jordan

Non-significant relationship between P₂O₅ wt.% and Al₂O₃ wt.% as well as between P₂O₅ wt.% and Fe₂O₃ wt.% with an average content Al₂O₃ wt.% and Fe₂O₃ wt.% equal to 0.715 wt.% and 0.357 wt.% respectively, while the minor contents of Fe₂O₃

wt.% attributed to the presence amounts of Iron Oxides. On the other hand, the positive relationship between MgO wt.% and Al₂O₃ wt.% equals 0.9 which may indicate in one mineralogical phase such as Clay Mineral.

As aforementioned, the MgO, Fe₂O₃, and Al₂O₃ oxides are considering impurities impeded in Phosphate with minor amounts. Generally, the average of (Al₂O₃+Fe₂O₃+MgO)/P₂O₅ in the analyzed samples is about 0.04 expressing commercial value in the global market range between 0.027 and 0.12 which in turn makes Al Risha Phosphate one of the distinctive quality Phosphates in the world.

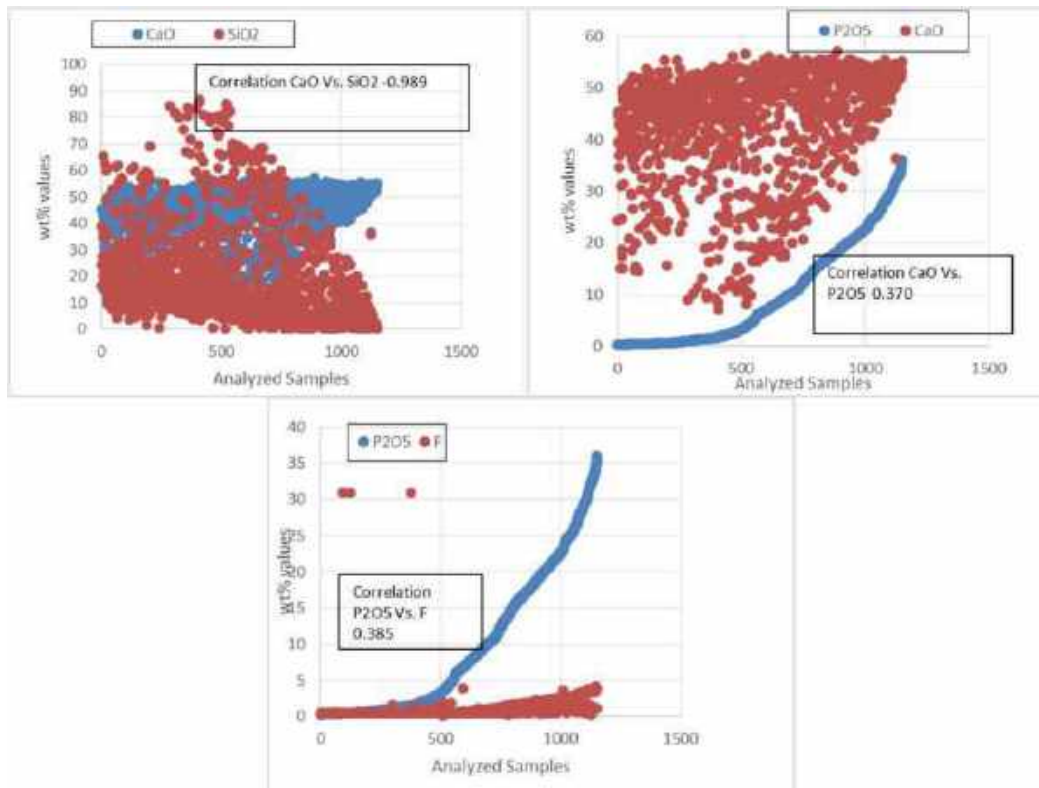


Figure 18: Scatter plot P2O5 wt.% vs. CaO wt.% and F wt.%, Scatter plot CaO wt.% vs SiO2 wt.%

As seen in (Fig. 18) the P₂O₅ wt.% and CaO wt.% are the main structural component of the Phosphate Minerals, accordingly, the positive relationship is relatively high, nevertheless, Silica content causes disturbance in response to its substitute instead of Lime. Hence, the positive relationship is declared between the P₂O₅ wt.% and

CaO wt.% equal to ~ 0.4 . On the other side, a negative relationship has occurred between CaO wt.% and SiO₂ wt.% equal to ~ -0.989 (see Fig. 19).

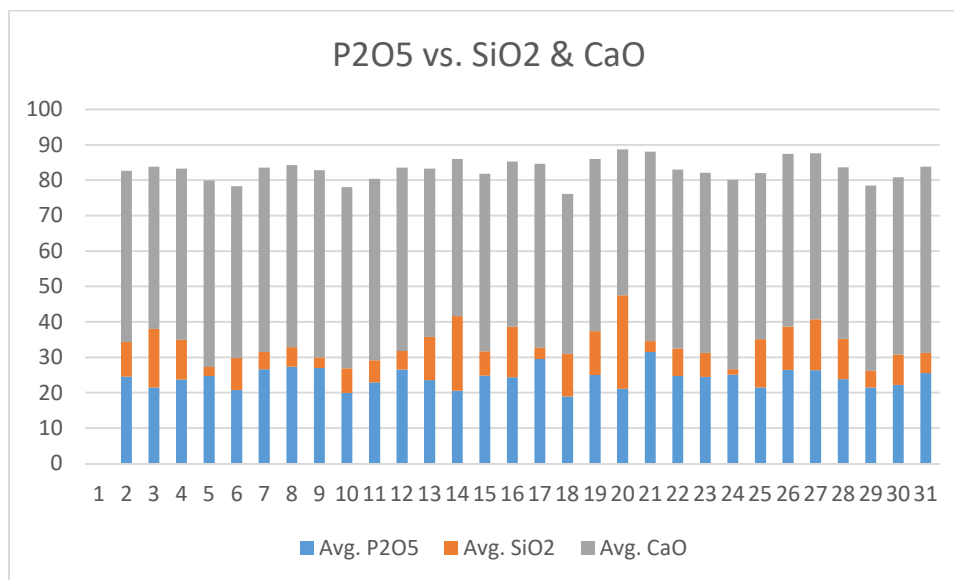


Figure 19: The Predominant components of oxides in the rocks bearing Phosphate

Regarding Fluorine, it makes up 4.13 wt.% with an average equal to 2.27 wt.%, remarkably, this value is lower than the Fluorine content average of 2.83 that was calculated for the Phosphate located in the southeast of Jordan.

In addition, due to the importance of Chlorine content in the Phosphate ore total of 14 samples were analyzed (see Table 08). The results have revealed that Chlorine lies within allowable borders upon Phosphate industries' Geo-market demands.

Table 8: Results total of 14 samples P2O5 wt. % versus Cl wt. % content

S.ID	P ₂ O ₅	Cl
RPH1- BH2A-9	24.7	0.03
RPH1- BH3-13	26.4	0.19
RPH1-BH4-4	24.3	0.31
RPH1 BH5-21	31.1	0.13
RPH1-10-12	25.9	0.11
RPH1-11-16	33.3	0.15
RPH1 BH12-19	28.1	0.14

S.ID	P2O5	Cl
RPH1 -BH13-23	31.23	0.08
RPH1-BH14-11	17.1	0.14
RPH1-BH15-A7	30	0.28
RPH1 BH15B-10	31.5	0.09
RPH1 BH16- 18	33.8	0.25
RPH1 BH17-21	19	0.10
RPH1 BH18- 18	31.2	0.19
An average		0.16

Ultimately, Geochemistry analysis of the impurities factors declared that Risha Phosphate has harmonious characteristics with the current commercial Phosphate range (see Table 09).

Table 9: Impurities averages content in the Phosphate ore globally versus Risha Phosphate

Constituent	Commercial		Average of Al Risha Phosphate samples
	Range	Median	
P ₂ O ₅	20-40	30	24.08
CaO	45-54	51	49.61
Al ₂ O ₃ +Fe ₂ O ₃	0.4-3.4	1.4	0.79
MgO	0.05-0.8	0.5	0.21
Na ₂ O	0.1-0.9	0.5	0.34
F	2.2-4.35	3.7	2.27
Cl	0.0-0.5	0.02	0.16
SO ₃	0.0-3.0	1	0.89
MgO/P ₂ O ₅	0.002-0.03	0.015	0.0087
(Fe ₂ O ₃ +Al ₂ O ₃ + MgO)/P ₂ O ₅	0.027-0.12	0.06	0.04

6.5 Uranium & other REEs

The chemical results are showing good concentrations of Uranium (U), Yttrium (Y), Ytterbium (Yb), Neodymium (Nd), and Lanthanum (La) in the Al-Risha area. On the other hand, the concentrations of Thorium (Th), Cerium (Ce), Europium (Eu), and Gadolinium (Gd) are relatively low in the Al-Risha region (Table 10), see appendix no. 01.

Table 10: ICP REE results for total of 28 selective samples

Client ID	Sample ID	Ce ppm	Dy ppm	Er ppm	Eu ppm	Gd ppm	Ho ppm	La ppm	Lu ppm	Nd ppm	Pr ppm	Sm ppm	Tb ppm	Th ppm	U ppm	Y ppm	Yb ppm
RP1BH 18	U2208001024	49.20	9.80	10.95	11.20	9.75	10.95	28.33	10.45	17.50	47.45	11.80	3.65	17.50	71.24	81.44	4.04
RP1BH 19	U2208001025	49.20	9.80	10.95	11.20	9.75	10.95	30.50	10.45	17.50	47.45	11.80	3.65	17.50	99.25	90.08	4.11
RP1BH 20	U2208001026	49.20	9.80	10.95	11.20	9.75	10.95	28.09	10.45	17.50	47.45	11.80	3.65	17.50	79.84	83.47	4.33
RP1BH 21	U2208001027	49.20	9.80	10.95	11.20	9.75	10.95	37.72	10.45	18.39	47.45	11.80	3.65	17.50	86.88	112.67	5.52
RP1BH 22	U2208001028	49.20	9.80	10.95	11.20	9.75	10.95	34.10	10.45	17.50	47.45	11.80	3.65	17.50	83.62	101.81	5.07
RP1BH 23	U2208001029	49.20	9.80	10.95	11.20	9.75	10.95	29.27	10.45	17.50	47.45	11.80	3.65	17.50	67.79	90.38	4.18
RP1BH 24	U2208001030	49.20	9.80	10.95	11.20	9.75	10.95	36.61	10.45	18.77	47.45	11.80	3.65	17.50	66.12	98.57	4.83
RP1BH 25	U2208001031	49.20	9.80	10.95	11.20	9.75	10.95	35.44	10.45	17.50	47.45	11.80	3.65	17.50	69.80	103.57	4.83
R1	U2207901004	49.2	9.8	10.95	11.2	9.75	10.95	36.37	10.45	17.54	47.45	11.8	3.65	17.5	75.58	113.83	0.22
R2	U2207901005	49.2	9.8	10.95	11.2	9.75	10.95	26.26	10.45	17.5	47.45	11.8	3.65	17.5	60.26	75.67	0.17
R3	U2207901006	49.2	9.8	10.95	11.2	9.75	10.95	32.06	10.45	17.5	47.45	11.8	3.65	17.5	100.06	88.53	0.20
R4	U2207901007	49.2	9.8	10.95	11.2	9.75	10.95	29.19	10.45	17.5	47.45	11.8	3.65	17.5	97.91	87.72	0.18
R5	U2207901008	49.2	9.8	10.95	11.2	9.75	10.95	29.59	10.45	17.5	47.45	11.8	3.65	17.5	69.19	81.75	0.19
R6	U2207901009	49.2	9.8	10.95	11.2	9.75	10.95	27.77	10.45	17.5	47.45	11.8	3.65	17.5	119.69	85.48	0.20
R7	U2207901010	49.2	9.8	10.95	11.2	9.75	10.95	26.85	10.45	17.5	47.45	11.8	3.65	17.5	100.58	67.88	
R8	U2207901011	49.2	9.8	10.95	11.2	9.75	10.95	23.70	10.45	17.5	47.45	11.8	3.65	17.5	99.06	68.07	
R9	U2207901012	49.2	9.8	10.95	11.2	9.75	10.95	28.22	10.45	17.5	47.45	11.8	3.65	17.5	77.57	78.16	0.19
R10	U2207901013	49.2	9.8	10.95	11.2	9.75	10.95	27.55	10.45	17.5	47.45	11.8	3.65	17.5	53.23	87.02	0.19
R11	U2207901014	49.2	9.8	10.95	11.2	9.75	10.95	33.78	10.45	17.5	47.45	11.8	3.65	17.5	89.39	104.92	0.21
R12	U2207901015	49.2	9.8	10.95	11.2	9.75	10.95	35.78	10.45	18.88	47.45	11.8	3.65	17.5	103.16	106.33	0.24
R13	U2207901016	49.2	9.8	10.95	11.2	9.75	10.95	28.51	10.45	17.5	47.45	11.8	3.65	17.5	81.07	84.71	0.17
R14	U2207901017	49.2	9.8	10.95	11.2	9.75	10.95	28.80	10.45	17.5	47.45	11.8	3.65	17.5	89.28	95.54	0.21
R15	U2207901018	49.2	9.8	10.95	11.2	9.75	10.95	26.68	10.45	17.5	47.45	11.8	3.65	17.5	62.53	84.46	0.19
R16	U2207901019	49.2	9.8	10.95	11.2	9.75	10.95	26.60	10.45	17.5	47.45	11.8	3.65	17.5	75.44	84.65	0.18
R17	U2207901020	49.2	9.8	10.95	11.2	9.75	10.95	25.00	10.45	17.5	47.45	11.8	3.65	17.5	81.66	78.17	
R18	U2207901021	49.2	9.8	10.95	11.2	9.75	10.95	22.9	10.45	17.5	47.45	11.8	3.65	17.5	39.74	45.71	
R19	U2207901022	49.2	9.8	10.95	11.2	9.75	10.95	22.9	10.45	17.5	47.45	11.8	3.65	17.5	76.30	63.29	
R20	U2207901023	49.2	9.8	10.95	11.2	9.75	10.95	23.66	10.45	17.5	47.45	11.8	3.65	17.5	83.89	69.27	

In addition, Figure 20 and Table 11 are showing comparison of concentrations of Uranium and Phosphorite situated in different parts of Jordan including As-Shidiyya, Mujib, NW Jordan, Rusaifa, and Central Jordan versus Al Risha Phosphorite proportions. The Uranium values of Risha Phosphate are relatively close to the values of Uranium Phosphate ores in other parts of Jordan (Abed, 2011) which in turn makes Uranium Risha Phosphate minable as a byproduct.

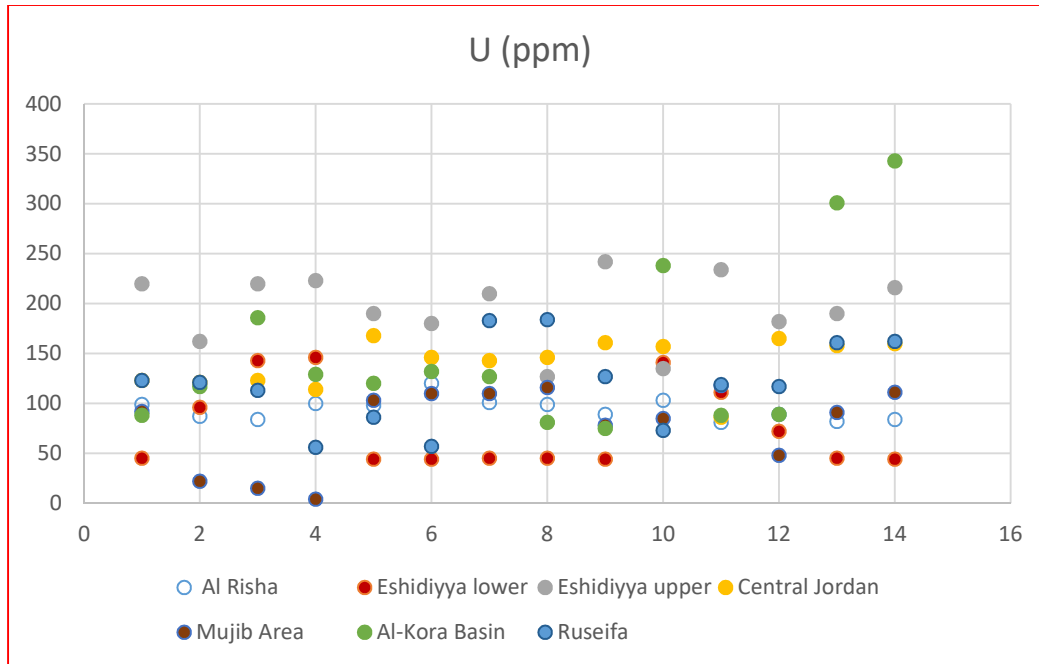


Figure 20: Uranium concentration comparison situated in different parts of Jordan

Table 11: Comparison of phosphate quality in different areas

Al Risha	P ₂ O ₅ (wt. %)	28.2	31.1	30.7	32.4	33.3	31.5	33.3	31.8	32.9	35.3	32.1	32.4	24.8	29.5
	U (ppm)	99	87	84	100	98	120	101	99	89	103	81	89	82	84
Eshidiyya (L. phos. member)	P ₂ O ₅ (wt. %)	23.96	21.93	33.13	23.98	27.22	23.16	25.68	22.18	27.63	32.63	25.33	19.99	26.14	33.82
	U (ppm)	45	96	143	146	44	44	45	45	44	141	111	72	45	44
Eshidiyya (U. phos. member)	P ₂ O ₅ (wt. %)	20.82	28.16	32.04	32.95	20.82	29.83	27.92	29.67	30.44	30.66	21.19	29.52	30.66	32.95
	U (ppm)	123	121	123	114	168	146	143	146	161	157	86	165	158	160
Mujib Area	P ₂ O ₅ (wt. %)	22.94	16.85	14.8	16.81	13.16	18.95	23.18	29.72	26.81	23.69	30.1	17.94	24.85	22.92
	U (ppm)	92	22	15	4	103	110	110	116	78	85	118	48	91	111
Al-Kora Basin	P ₂ O ₅ (wt. %)	24.09	30.23	32.7	18	14.22	30.18	24.37	21.08	31.5	34.16	26.25	24.05	20.92	18.95
	U (ppm)	88	117	186	129	120	132	127	81	75	238	88	89	301	343
Ruseifa	P ₂ O ₅ (wt. %)	17.25	26.66	13.26	24.67	24.59	25.31	29.79	17.25	17.25	17.25	17.25	17.31	30.5	31.11
	U (ppm)	123	121	113	56	86	57	183	184	127	73	119	117	161	162

CHAPTER 7

7. DISCUSSION (MODELING AND INTERPRETATION)

7.1 Introduction

Based on the interpretation analysis of the subsurface projected sections for Lithology, Stratigraphy, and P_2O_5 wt.% over directions north-south and west-east, the major lithology layers bearing Phosphate are concentrated with interesting thicknesses in the north and northeast directions rather than south of the study area.

Upon field data records including boreholes locations and encountered lithology layers, the lithology and stratigraphy model 3D were created using Rockware v.16. On the other hand, geophysical wireline logging has proceeded in the field with interesting outcomes of gamma-ray measurements that were studied in detail.

Remarkably, the P_2O_5 wt.% are displayed for the study area in the model of the 3D fence that was created using Rockware v.16.

As aforementioned, the following models are interpreted in detail as much as the total of prospecting studies results were modeled precisely.

7.2 Distribution of phosphate in the study area

Despite the Umm Rijam Formation only stratigraphy was encountered in the study area, the subsurface layers have been subdivided into three bulk layers based on their Phosphate content, the Overburden Layer overlies the Phosphate Layer, the major

Phosphate Layer, and the Under-burden Layer (the rest of Umm Rijam Formation) underlie Phosphate Layer.

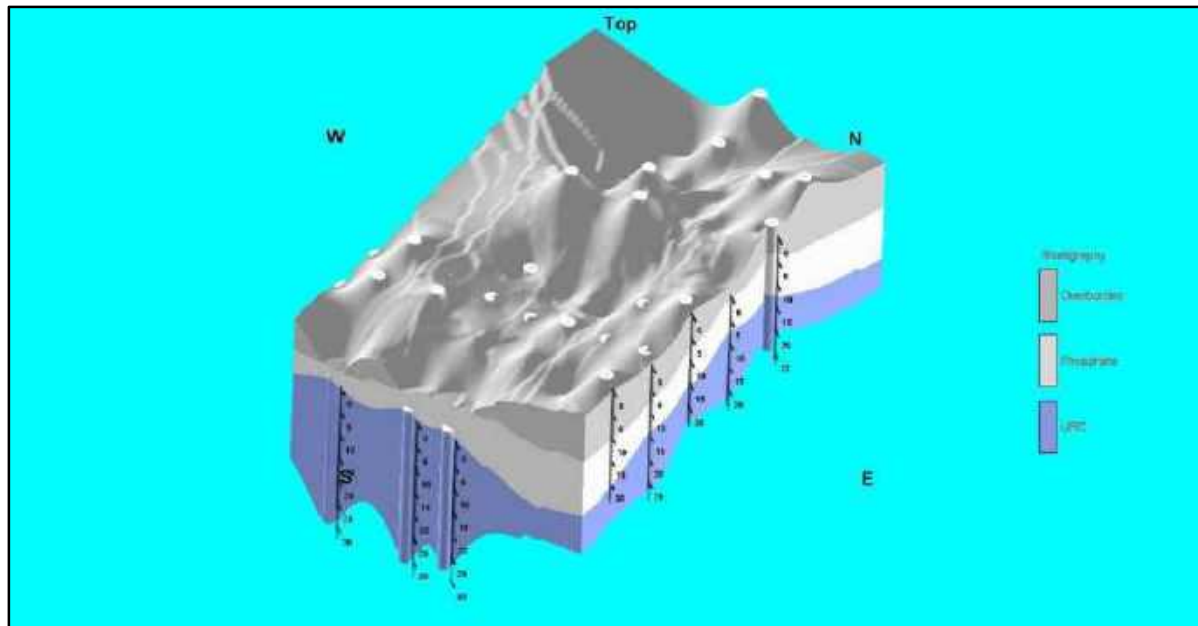


Figure 21: Stratigraphy model of the study area

As shown in (Fig. 21), overburden thicknesses are gently increasing from south to north and northeast of the study area from 0 m to 16 m, whereas the utmost overburden encountered in the drilled boreholes is 16 m. Most Phosphate layers lithology are exposed on the surface with 0 m thicknesses overburden which in turn would make mining operations easier (see Fig. 22).

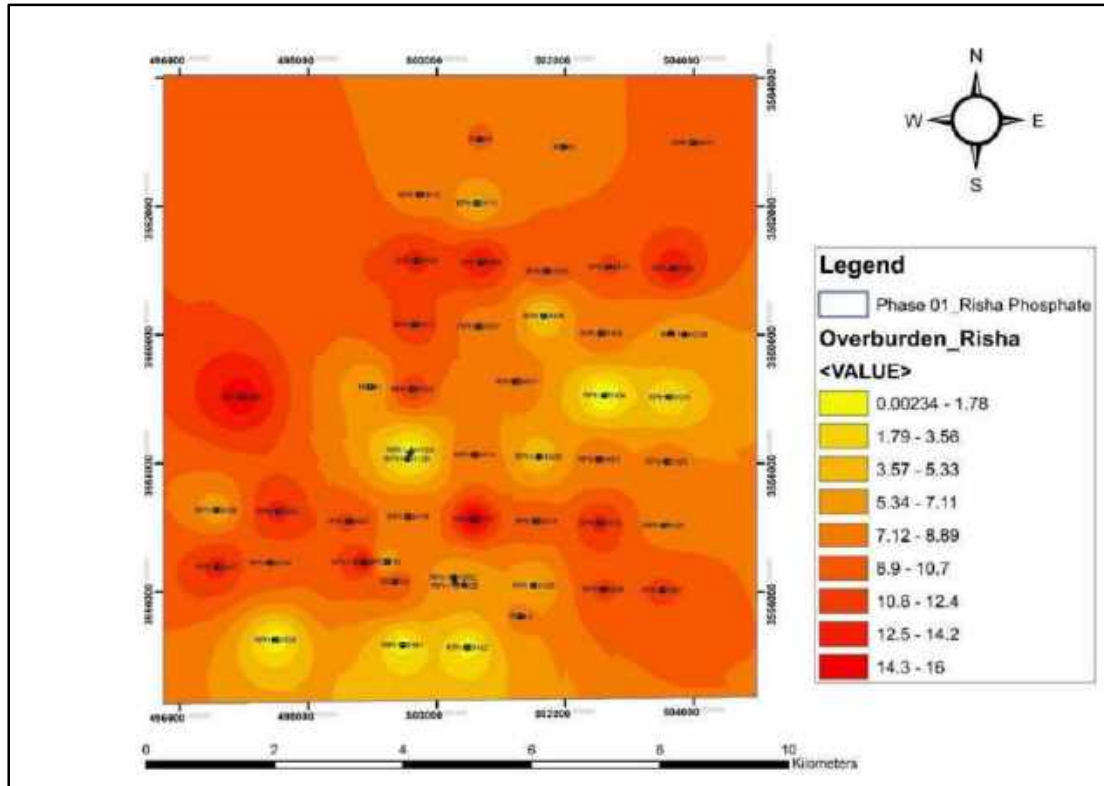


Figure 22: Overburden thickness distribution in the study area

On other hand, the Phosphate stratigraphy layer has even thicknesses increasing from the south toward the north and northeast of the study area from 1 m to 17 m, it contains a different type of Phosphate lithology layers where the most predominant lithology layers are Fecal type, Limestone Phosphate, Phosphatic Limestone, and Silica Phosphate, see appendix no. 04.

As shown in (Fig. 23) the 3D Phosphate layer stratigraphy extends continuously over the study area placed in thickening toward the north and northeast. In addition, the thickening was proven in a 2D map (see Fig. 24) with interesting thicknesses reaching up to 17 m of the Phosphate stratigraphy layer.

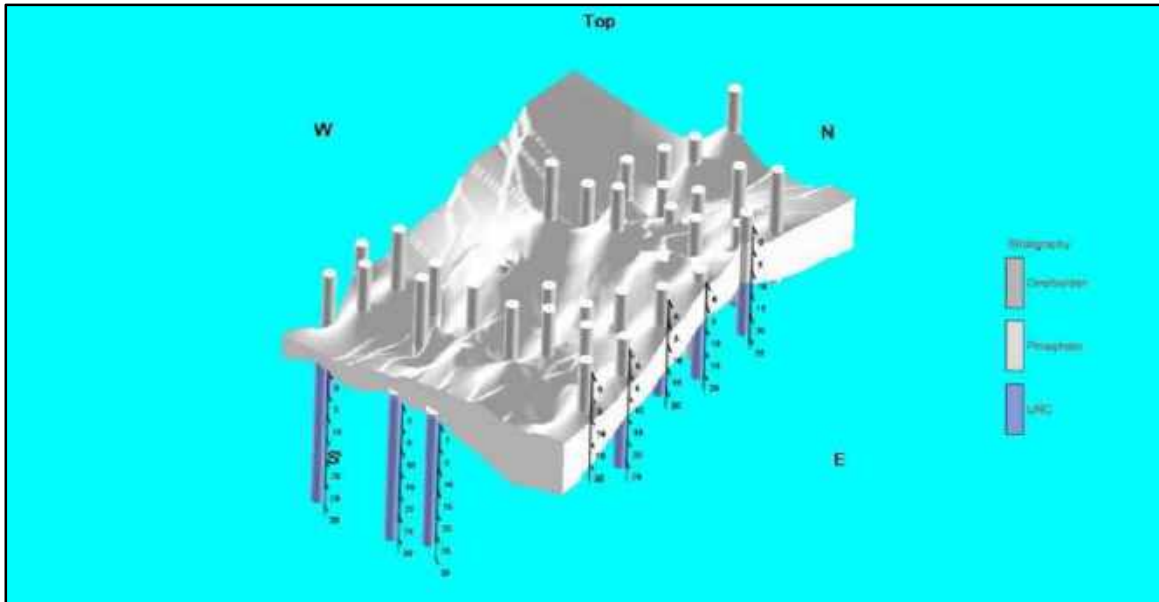


Figure 23: Phosphate Layer Stratigraphy

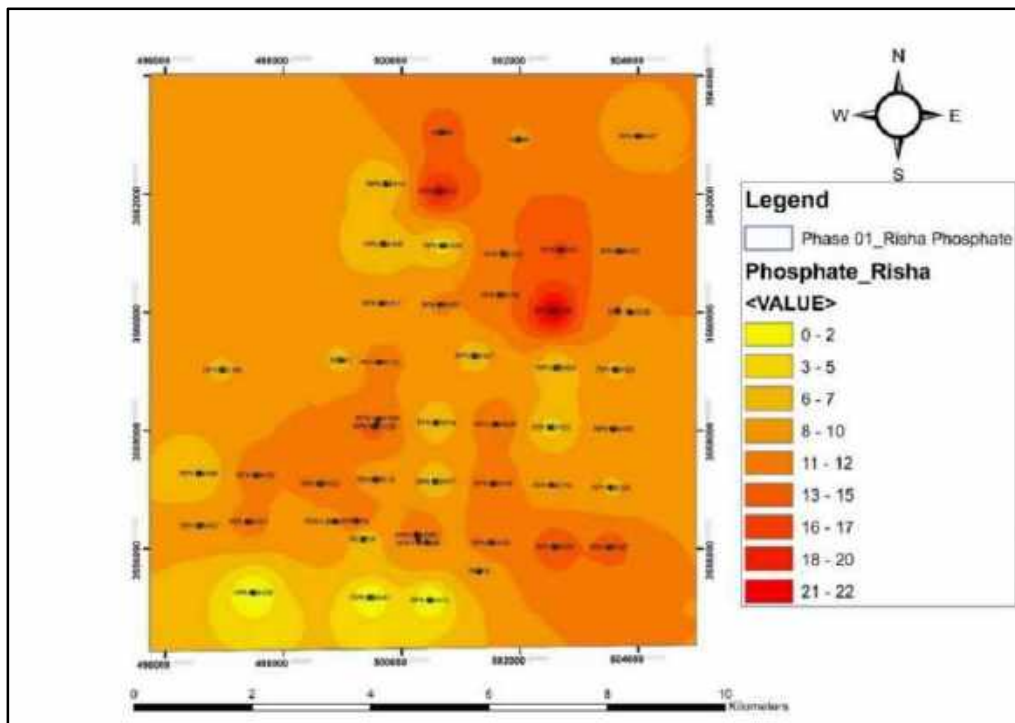


Figure 24: The Phosphate layer stratigraphy distribution

On the other hand, the Stripping Ratio; which is the average thickness comparison between the overburden layer versus the Phosphate layer; is showing not outweigh 2 m over the study area (see Fig. 25).

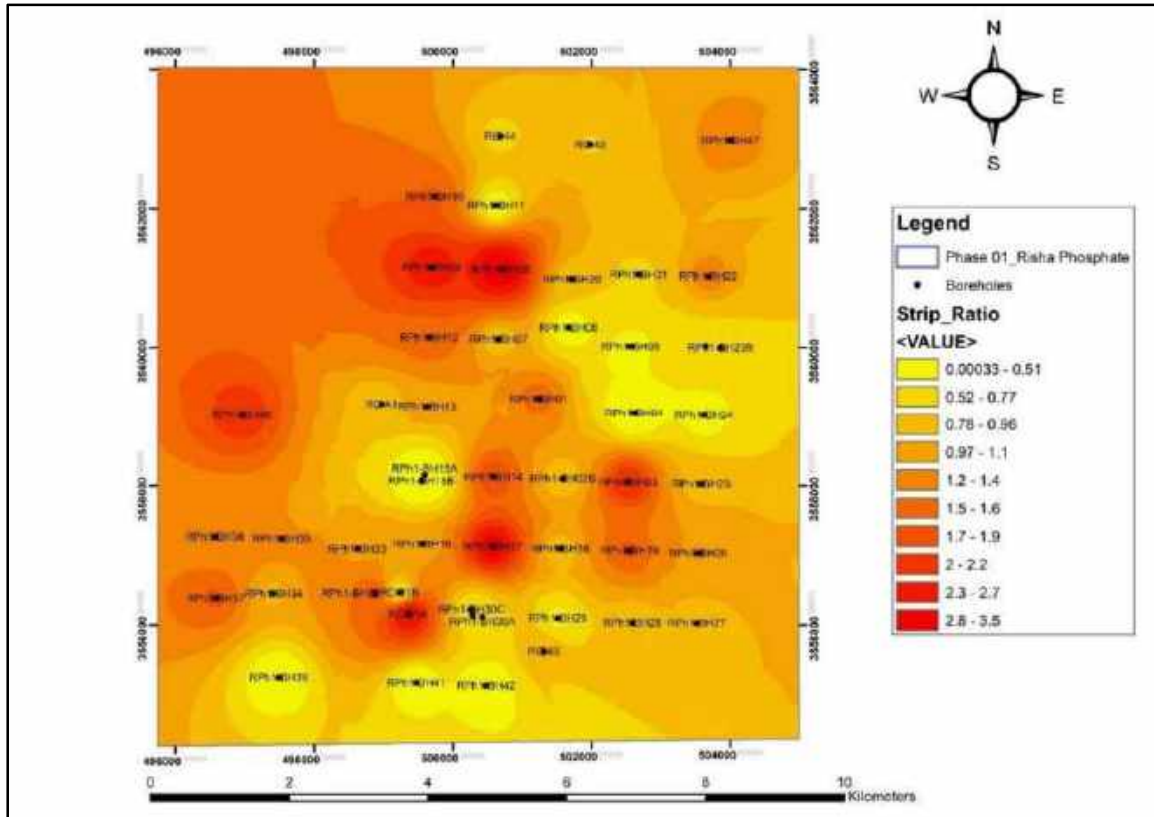


Figure 25: Stripping ratio overburden layer vs. Phosphate layer

7.3 Evaluating Chemical abundances of Phosphate

According to section 3.4 “Geological section of the study area,” the Phosphate layer stratigraphy was subdivided into lithology layers bearing Phosphate upon the total of beds encountered from the drilled boreholes.

After the identification top and base as well as the delineation of Phosphate deposits the delineated dimensions of Phosphatic layers lithology are sensible tracked, therefore, the 3D model was created using Rockware v.16 (see Fig. 25).

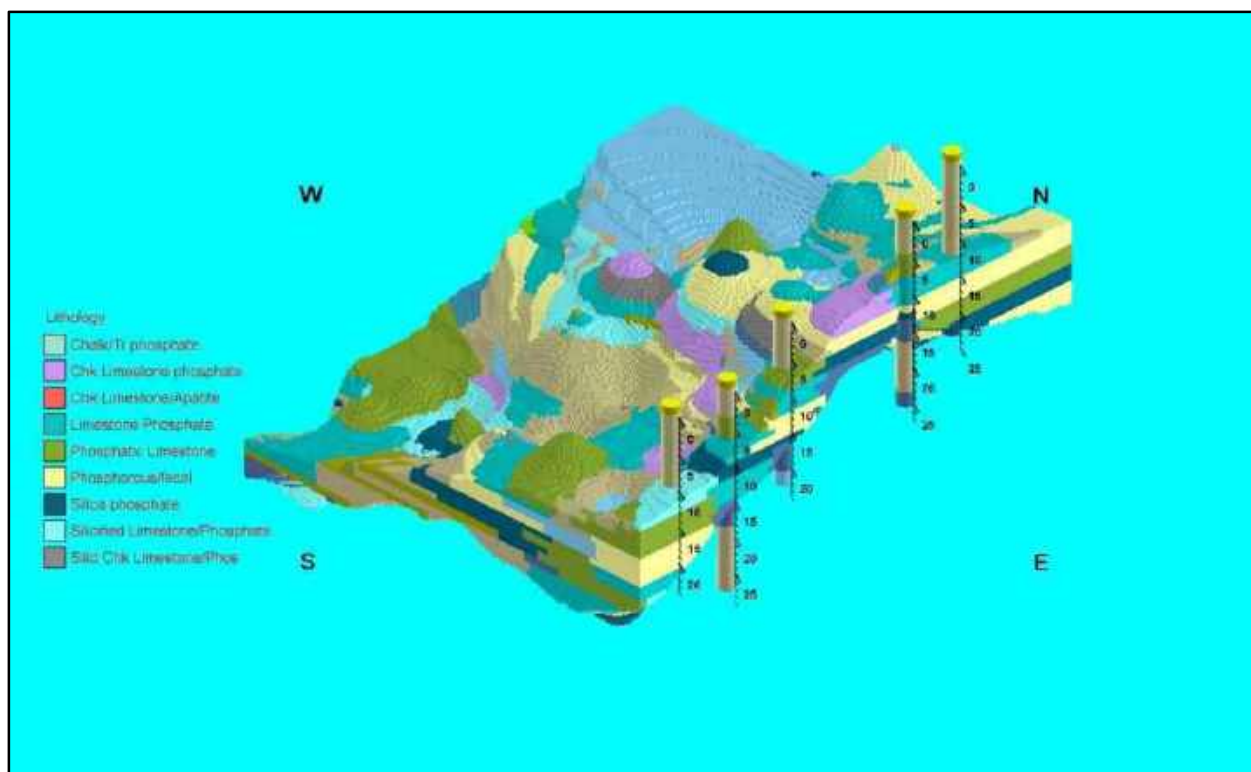


Figure 26: Lithology delineation model

As shown in (Fig. 26) the Phosphorous fecal, Phosphatic Limestone, Limestone Phosphate, and Silica Phosphate are the common lithologies in the study area, whereas the Phosphorous lithology is the predominant type of containing the highest values of P_2O_5 wt.% content exceeds 30 wt.% in some places of the study area.

Fence P_2O_5 wt.% Model

Upon overall chemical results of P_2O_5 wt.%, the commercial Phosphatic layers are concentrated and correspond within the same direction increment thicknesses of Phosphatic layers which are discovered in the north and northeast direction of the study area.

The fence diagram for P_2O_5 wt.% is representing an identical view to determine the shape flow of Phosphatic layers bearing Phosphorous Oxides larger than 18 wt.% which in turn has been a classified layer and has commercial benefits (see Fig. 27).

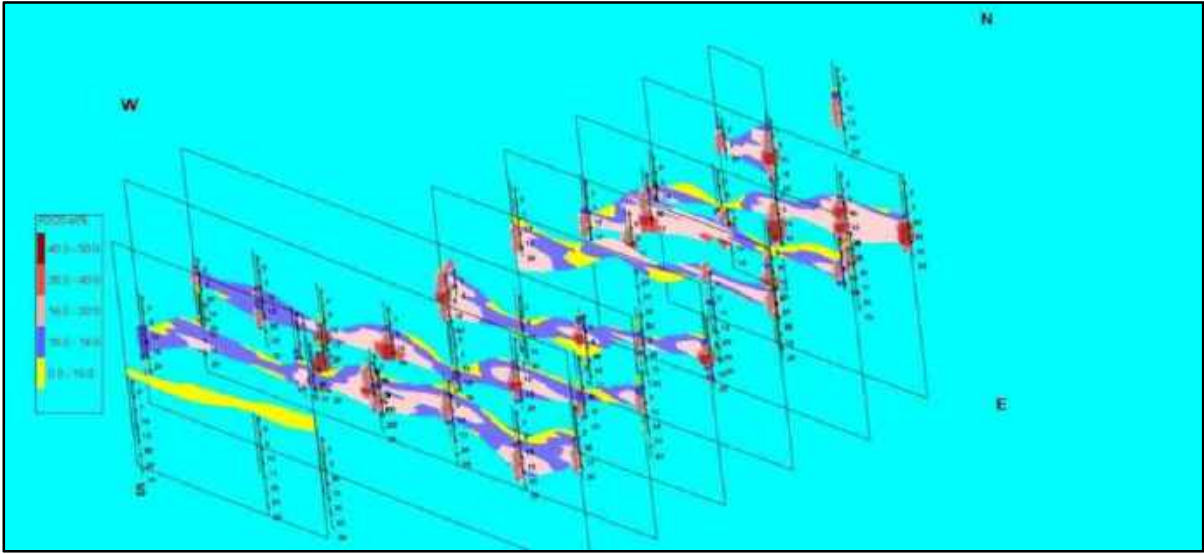
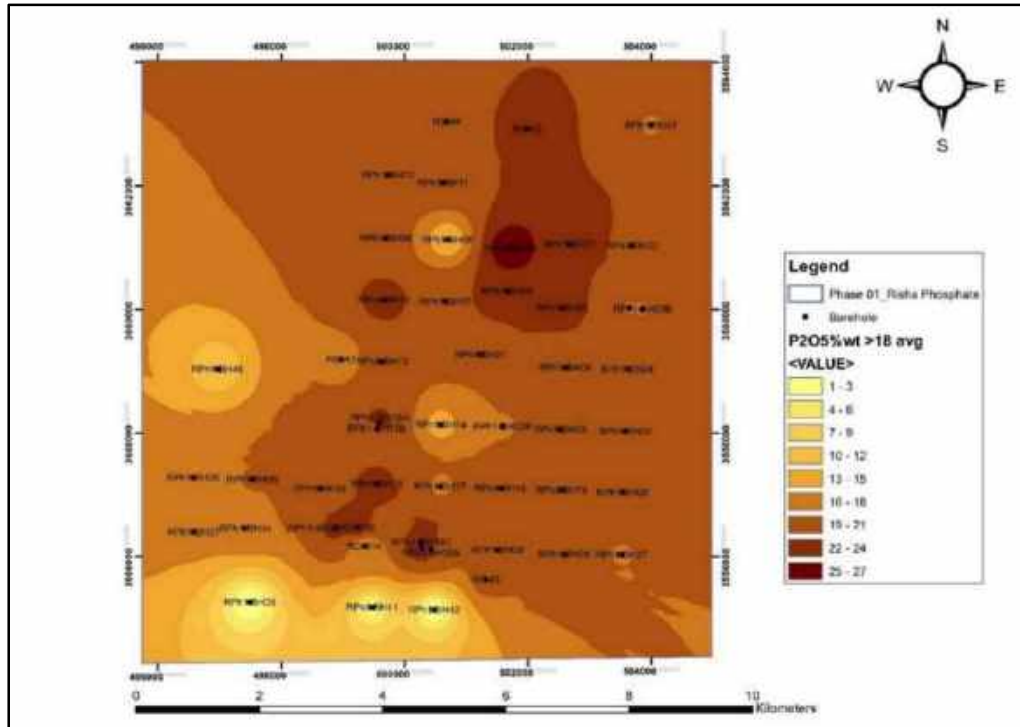


Figure 27: Fence diagram for P₂O₅ wt.% of the study area

As shown in (Fig. 27) the range of P₂O₅ wt.% are denser in the north and northeast rather than south of the study area which that attributed to drained out of P₂O₅ wt.% caused by a high content of Silica which is the main factor of reworked Phosphate.

Figure



28:

Distance weight for thicknesses containing P₂O₅ wt.% with averages larger than 18 wt.%

In addition, (Fig. 28) is showing inverse distance weight for the distribution of Phosphate layers thicknesses containing P₂O₅ wt.% that overwhelmed the content of 18 wt.%. The similarity in Fig. 28 is embedded in Fig. 26 as well in terms of high commercial percentages growing when moving to the north and northeast of the study area.

7.4 Mineralogical composition

The mineralogical compositions of 5 representative coring samples and 44 cutting samples were determined by X-ray Diffraction (XRD) in the Ministry of Energy and Mineral Resources laboratory. The XRD data are listed in Tables 12 and 13.

The main components of the coring samples were found:

- Calcite almost in all samples is a major mineral.
- Carbonate and Fluorapatite were detected as minor minerals in three samples.

- Gypsum was detected as a trace mineral in one sample.

Table 12: XRD results of Core samples.

Sample ID	phase identification		
	major	minor	trace
RCA1-AC1	Calcite, Carbonate-fluorapatite	-	Gypsum
RC-31-B (8)	Calcite	Carbonate-fluorapatite	-
RC-31-B (11)	Calcite	-	Carbonate-fluorapatite, Quartz
RC-31-B (12)	Quartz	Carbonate-fluorapatite	Calcite
RC-31-B (14)	Calcite	Carbonate-fluorapatite	-

The main components of the cutting samples were found:

- Calcite almost in all samples was a major mineral, and in 22 samples also; Carbonate and Fluorapatite were detected as major minerals.
- Also, Carbonate and Fluorapatite were detected as minor minerals in 15 samples.
- Gypsum, Quartz, and Anhydrite were detected as trace minerals in most samples.

➤ **Table 13: XRD results of Cutting samples.**

Sample ID	phase identification		
	major	minor	trace
Rph-01-S2	calcite, quartz	carbonate-fluorapatite	-
Rph-01-S3	calcite, carbonate-fluorapatite	quartz	-
Rph-01-S4	calcite, carbonate-fluorapatite	quartz	-
Rph-01-S5	calcite, carbonate-fluorapatite	-	quartz
Rph-01-S6	calcite, carbonate-fluorapatite	quartz	-
Rph-01-S7	quartz, calcite	Carbonate-fluorapatite	-
Rph-01-S8	quartz, calcite	Carbonate-fluorapatite	-
Rph-01-S9	quartz, calcite	Carbonate-fluorapatite	-
Rph-01-S10	quartz	calcite, carbonate-fluorapatite	-

Sample ID	phase identification		
	major	minor	trace
Rph-02-S4	calcite, quartz	-	carbonate-fluorapatite
Rph-02-S5	calcite, carbonate-fluorapatite	-	quartz
Rph-02-S6	calcite, carbonate-fluorapatite, quartz	-	-
Rph-02-S7	carbonate-fluorapatite, Apatite, Calcite	-	quartz
Rph1-BH02-S8	calcite, carbonate-fluorapatite	quartz	-
Rph1-BH02-S9	calcite	carbonate-fluorapatite	quartz
Rph1-BH06-08	Calcite ,Fluorapatite	-	Quartz, Gypsum
Rph1-BH07-08	Calcite	-	Quartz
Rph1-BH08- 08	Calcite	-	Quartz
Rph1-BH16 13	Calcite	Carbonate-fluorapatite	Quartz
Rph1-BH 17-21	Calcite, fluorapatite	Quartz	-
Rph1-BH 21 16	Carbonate-fluorapatite, Calcite	-	Anhydrite
Rph1-BH 22 21	Carbonate-fluorapatite, Calcite	Quartz	Anhydrite
Rph1-BH23A 15	Carbonate-fluorapatite, Calcite	Quartz	Anhydrite
Rph1-BH23A 18	Quartz	Carbonate-fluorapatite, Calcite	Feldspar
Rph1-BH24 6	Carbonate-fluorapatite, Calcite	Quartz	Anhydrite
Rph1-BH24 24	Calcite	Quartz	-
Rph1-BH-25 15	Calcite, Quartz	Carbonate-fluorapatite	-
Rph1-BH-25 24	Carbonate-fluorapatite	Calcite	Quartz, Anhydrite
Rph1-BH26 10	Calcite	Carbonate-fluorapatite	Quartz
Rph1-BH27 16	Calcite	Carbonate-fluorapatite	Quartz
Rph1-BH27 24	Calcite, Quartz	Carbonate-fluorapatite	-
Rph1-BH28 (19)	Calcite	Carbonate-fluorapatite	Quartz
Rph1-BH28 (21)	Carbonate-fluorapatite, Calcite	-	Quartz
Rph1-BH28 (25)	Carbonate-fluorapatite, Calcite	Quartz	-
Rph1-BH29 (12)	Carbonate-fluorapatite, Calcite	Quartz	-.
BH-30C (13)	Carbonate-fluorapatite	Calcite, Quartz	Anhydrite
Rph1-BH 31A (15)	Calcite	Carbonate-fluorapatite	Quartz
Rph1-BH 31B (20)	Carbonate-fluorapatite	Calcite	Quartz, Anhydrite
BH-32 (25)	Calcite, Carbonate-fluorapatite	-	Quartz, Anhydrite
BH-32 (26)	Calcite, Carbonate-fluorapatite	-	Quartz, Anhydrite
BH-33 (16)	Calcite	Carbonate-fluorapatite	Quartz

Sample ID	phase identification		
	major	major	major
Rphl-BH 34 (20)	Carbonate-fluorapatite, Calcite	-	Quartz
Rph1-BH 35 (22)	Carbonate-fluorapatite Calcite, Quartz	-	Anhydrite
Rph1-BH 36 (22)	Quartz	-	Calcite, Carbonate-fluorapatite

7.5 Resource Estimation

Risha Phosphate has been subjected to Geological Resource estimation calculation after applied prospecting activities within an area amounted to $\sim 90 \text{ km}^2$ whereas the indicated reserve was determined earlier throughout previous studies including Mapping Tal'et Q'aiyid (Abdelghafour, Geological Division Survey) and a total of eight boreholes were drilled upon considered prospecting proposal implemented by Jordanian Geological Association targeted Phosphate layers. In response to the indicated resource, a total of 35 cutting boreholes and 5 core boreholes were agreed upon within a grid located between 950 m to 1000 m to determine the Geological Resource estimation.

To measure the Geological Resource estimation, the following procedures were accomplished:

1. Extract and measure the influence area for total of 40 borehole using Thiessen Polygon creation in ArcGIS (see Fig. 29).
2. Encountered Phosphatic layers thicknesses that have average content P_2O_5 equal or larger 18 wt.% accompany with bulk density of each layer.
3. In each influence area calculate ore volume of the Phosphate (m^3) and Geological Resource (Tonnage) unit by using the following formula:
 - The Volume of Ore (m^3) = Influence area (m^2) * Thicknesses Phosphate layers (average content of $\text{P}_2\text{O}_5 \Rightarrow 18 \text{ wt.}\%$).

- Geological Resource (tonnage) = Volume of ore (m³) * Weighted average (every borehole g/cm³*wt.%).
4. A total of 40 boreholes were used to estimate the Phosphate deposit in the area.
 5. The final layout of total Phosphate Geological Resource calculations were implemented on the excel sheet.
 6. The estimated Geological Resource of Phosphate deposit is +726 million metric tons with an average thickness 10 m and overall grade P₂O₅ wt% 20.

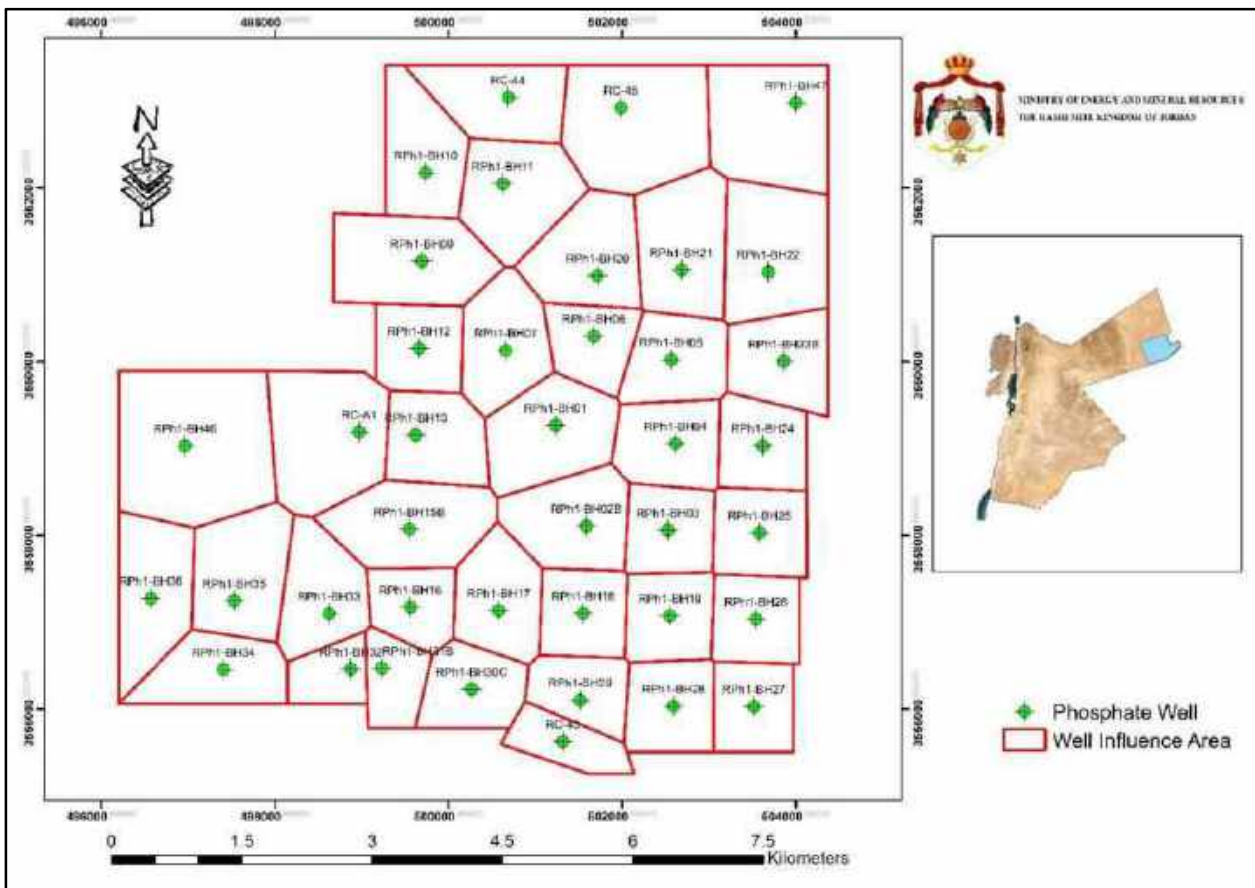


Figure 29: Thiessen Polygon, Influence area

Conclusion

Earlier prospecting studies were embarked on targeting Phosphate Ore deposits in Al Risha area (Tal'et Q'aiyid 3018 km², east of Jordan), which has indicated varieties of rocks of Phosphate lithology that have been considered commercial quantities. Afterward, intense prospecting activities were launched and carried out by the Prospecting Studies Division-the Natural Resources Studies Directorate affiliated with the Ministry of Energy & Mineral Resources (MEMR). Consequently, Tal'et Q'aiyid was divided into blocks, and each block has a determined area. The first block amounted to 90 km², covered by a total of 55 boreholes that were drilled within the grid network ranging from 950 m to 1000 m, they consist of 49 boreholes and another 6 boreholes that are representing cutting and core drilling respectively with measured total length 1172 m and 68 m.

Despite of the geological map sheet record that has indicated Umm Rijam Formation is the only formation predominant in the study area, the drilling activities have encountered varieties of Phosphate lithology types deposited over the area where the most predominant is Phosphorous (Fecal type), Phosphatic Limestone (Fecal, bones, peloids), Limestone Phosphate, Silica Phosphate, and Chalky Limestone Phosphate and less common are Silicified Limestone Phosphate and Chalky Limestone Apatite. On other hand, drilling data has indicated to the thickness of the Phosphate layer, which is one to four layers consisting of different types of Phosphate lithology, increases from south to north and northeast of the study area from 1 m to 17 m respectively, with an overburden ranged between 0 m to 16 m.

According to the analysed data of the drilling boreholes we conclude that the study area have different number of phosphate targeted layer with different thicknesses,

innerburden, and overburden, Consequently, the boreholes have spreaded within the study area as follows;

- 1- Total of 17 borehole with only one layer namely (RPH1-BH1, 3, 6, 10, 12, 13, 17, 19, 22, 24, 25, 26, 27, 31B, 32, 33, and 47), the maximum thickness found 10m in the Borehole RPH1-BH6 and the maximum overburden was 24m found in the RPH1-BH32;
- 2- Total of 13 borehole with 2 layers and 1 innerburden separating the P_2O_5 layers with thickness ranging from 0.5 to 1 m namely (RPH1-BH2B, 4, 5, 9, 16, 21, 23B, 28, 29, 30C, 36, RC-43 and 45) and the average total P_2O_5 layers thickness is 3.3 m;
- 3- Total of 6 boreholes with 3 layers and 2 innerburden separating the P_2O_5 layers with thickness ranging from 0.2 to 5 m namely (RPH1-7, 15B, 18, 35, RCA1-AC and RC-31B) and the average P_2O_5 layers thickness is 2.06 m;
- 4- Total of 4 boreholes with 4 layers and 3 innerburden separating the P_2O_5 layers with thickness is ranging from 1 to 2 m namely (RPH1-BH11, 20, 34, and RC-44) and the average P_2O_5 layers thickness is 1.94 m.

Remarkably, the relationship of percentages between overburden thicknesses and Phosphate thicknesses are entitled “Stripping Ratio” doesn’t exceed 1:2 cross over the area which in turn makes mining operation easier.

According to geophysical studies; a total of twenty-nine natural gamma logs were conducted in the study area, remarkably, the measured natural gamma commenced at a zero level depth of 1.8 mbgl. They were logged top to bottom, and bottom to top. Often, the total gamma records for logged borehole were fully documented long over its measured depth, occasionally, the logging tool has not able to reach the total measured depth due to borehole collapse. Therefore, the rest prospecting in these boreholes was conducted based on chemical and drilling data. The results of the

laboratory analysis of the ratio of P_2O_5 wt.% were compared with the total gamma ray log.

All study areas were covered mainly by the URC Formation of the Paleogene and Neogene ages. Phosphorite found in the study area mostly in massive Limestone beds with some Chert, Chalk, Chalky Limestone & Silicified Limestone.

The results of XRF showed good concentrations of P_2O_5 (18 – 36 wt.%), TCP (with an average of 53.89 wt.% with TCP ranging from 39.33 to 78.66 Wt.%), CaO, and SiO_2 .

Al-Risha Phosphate is characterized by very few percentages of impurities, so the ratio of Iron, Aluminum, and Magnesium Oxides to Phosphate is bound approximately between 0.016 and 0.11, while the average percentage of Fluorine is 2.26 and Chlorine is 0.16 and positioned within the allowable borders for Phosphate investment in the global market.

REE analysis results showed good concentrations of Uranium (U) and Yttrium (Y) and low concentrations of Thorium (Th), Lanthanum (La), Neodymium (Nd), and Cerium (Ce).

The percentages of Uranium are very close to the percentages of Uranium in Phosphate Ores in various parts of Jordan, which indicates strong evidence of Uranium presence in Al Risha study area.

The main component of the core and cutting samples of the mineral was found in Calcite which is almost in all samples a major mineral. the main components of the cutting samples of the mineral were found in 22 samples also; Carbonate and Fluorapatite were detected as major minerals.

Furthermore, the P_2O_5 wt.% outweigh and overwhelmed to the north and northeast rather than south of the study area, and that corresponding to expanding of Phosphate layers in terms of their thicknesses and concentration of the Phosphorous Oxides that ranging between 18 wt.% and 36 wt.%.

The estimated Geological Resource of Phosphate deposit is +726 million metric tons with an average thickness of 10 m.

References

- ✓ Abdelghafoor, M., 2011: The Geology of Tal'at Q'aiyid and Jabal Umm Alwi'al Areas, Map Sheets No. 375-IV And 375-Iii, Geology Directorate Geological Mapping Division Bulletin 73 Amman.
- ✓ Al Bashish, M., and Al Rosan, A., 2015: Report on Prospecting Phosphate in Shidiyya Area. Amman.
- ✓ Al-Fariss, T., Ozbelge, H., AbdelAleem, F. & Abdulrazik, S., 1992: "Evaluation of Saudi Phosphate Rocks for Wet Process Phosphoric Acid Production". Journal of King Saud University - Engineering Sciences, pp. 33-44.
- ✓ Aljalad, I., 1997: Phosphate; Varieties, Formation, Mining, Beneficiation, Uses. Barjous, M., 1986: The Geology of Siwaqa Area. Map Sheet No. 3252-IV, Nat. Res. Auth., Geol. Dir., Geol. Map. Div., Bulletin 4, Amman.
- ✓ Basha, SH., 1987: On the tertiary phosphate rocks of the Risha area, NE Jordan. Dirasat 1412:211–225.
- ✓ Bender, F., 1974: Geology of Jordan. Contribution to the regional geology of the World. Gebrueder Borntraeger, 196p, Berlin.
- ✓ Blankenhorn, M., 1903: Die Mineralschatze Palastine, Mitt. Undnachr des deutch. Palest. Ver 1902:65-70.
- ✓ Fakhoury, K., 1987: Chemical variability in francolites from Jordan, and role of microbial processes in Phosphogenesis. Unpublished M. Sc. Thesis, U. of Jordan, Amman.
- ✓ Hiyari, M., 1985: The geology of Jabal Al Mutramil area, Res. Auth., Geol. Dir., Geol. Map. Div., Bulletin 1, Amman.
- ✓ Holland, C., 1978: "A guide to stratigraphical procedure". Geol. Soc., London, Special Report 10: 1-18.
- ✓ Jordan Phosphate Mining Company, 2005: Rock Phosphate Study for Mine Three Area at Shidiyya Mine.
- ✓ Khalil, B., 1986: The geology of Wadi Al Buwayija, Map Sheet No. 3251.IV., Nat. Res. Auth., Geol. Dir., Geol. Map. Div., Bulletin 5, Amman.
- ✓ MacDonald, M. and Partners, 1965: East water resources. Hydrological survey of the Madaba-Ma'an area. Three volumes, Central Water Authority, Amman.

- ✓ Morenoa, D., Vargasa, F., Ruizb, J. & López, M., 2020: "Solid State Synthesis Of Alpha Tricalcium Phosphate for Cement Used In Biomedical Applications". Boletín De La Sociedad Española De Cerámica Y Vidrio 59, pp. 193-200.
- ✓ North American Commission on Stratigraphic Nomenclature (NACSN), 1983: North American Stratigraphic Code, American Association of Petroleum Geologists (AAPG), Bulletin 67
- ✓ Parker, D. H., 1970: The Hydrogeology of the Mesozoic –Cenozoic aquifers of the western highland and plateaus of east Jordan (4 vols). UNDP/FAO 212, unpublished technical rep. No.2, 424 p, Rome.
- ✓ Powell, J., 1988: The Geology of the Karak Area, Map Sheet No. 3152-III, Nat. Res. Auth., Geol. Dir., Geol. Map. Div., Bulletin 8, Amman.
- ✓ Wetzel, R. and Morton, D. M., 1959: Contribution A la Geologie de la Trasjordanie. Notes et Memoires de la Moyen Orient Publishes sous la direction de Dubertret, M. L. Contributions A la Geologie de la Peninsula Arabique, 7: 95-191, Museum National d'Histoire Naturelle, Paris.
- ✓ Wolfart, R., 1959: Geology and Hydrogeology of the Irbid District. Hashemite Kingdom of Jordan, Bundesanstalt für Bodenforschung, Hanover.

Appendices

Appendix No.1

Chemical Results



The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT
X-RAY SPECTROMETRIC ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F.
Client Name & Address: مديرية الدراسات المعادن الطبيعية
Sample Type: صلبة
Sample Method: By Client

Date of Receipt: 26/12/2021

Reporting Date: 03/01/2022
Test Report No.: 00240/12/2021-CH001-002
Sample Location:-
Testing Date: 29/12/2021

Item	S.ID.	Fe ₂ O ₃ Wt.%	MnO Wt.%	TiO ₂ Wt.%	CaO Wt.%	K ₂ O Wt.%	SO ₃ Wt.%	P ₂ O ₅ Wt.%	SiO ₂ Wt.%	Al ₂ O ₃ Wt.%	MgO Wt.%	Na ₂ O Wt.%	F Wt.%	U Wt.%	L.O.I Wt.%
1	Rph-01 (1)	<0.23	<0.012	<0.037	52.80	<0.09	0.92	18.30	2.21	<0.498	<0.20	<0.33	1.45	<0.0125	24.07
2	Rph-01 (2)	<0.23	<0.012	<0.037	39.70	<0.09	0.83	18.10	26.50	<0.498	<0.20	<0.33	1.48	<0.0125	12.69
3	Rph-01 (3)	<0.23	<0.012	<0.037	51.00	<0.09	1.27	28.70	4.06	<0.498	<0.20	<0.33	2.84	<0.0125	11.91
4	Rph-01 (4)	<0.23	<0.012	<0.037	45.70	<0.09	1.12	24.80	14.10	<0.498	<0.20	<0.33	2.23	<0.0125	11.09
5	Rph-01 (5)	<0.23	<0.012	<0.037	52.00	<0.09	1.22	34.20	1.42	<0.498	<0.20	<0.33	3.36	<0.0125	7.00
6	Rph-01 (6)	<0.23	<0.012	<0.037	48.60	<0.09	0.86	23.20	10.30	<0.498	<0.20	<0.33	1.81	<0.0125	14.38
7	Rph-01 (7)	<0.23	<0.012	<0.037	22.80	<0.09	0.22	8.23	58.20	<0.498	<0.20	0.55	<0.50	<0.0125	8.76
8	Rph-01 (8)	<0.23	<0.012	<0.037	24.00	<0.09	0.34	11.60	55.10	<0.498	<0.20	0.89	0.54	<0.0125	6.66
9	Rph-01 (9)	<0.23	<0.012	<0.037	35.80	<0.09	0.24	10.20	35.70	<0.498	<0.20	<0.33	0.54	<0.0125	16.90
10	Rph-01 (10)	<0.23	<0.012	<0.037	23.30	<0.09	0.27	10.90	57.40	<0.498	<0.20	<0.33	0.59	<0.0125	6.71
11	Rph-01 (11)	<0.23	<0.012	<0.037	10.90	<0.09	<0.058	3.56	79.80	<0.498	<0.20	0.56	<0.50	<0.0125	4.37
12	Rph-01 (12)	<0.23	<0.012	<0.037	9.79	<0.09	<0.058	4.49	82.20	<0.498	<0.20	0.53	<0.50	<0.0125	2.80
13	Rph-01 (13)	<0.23	<0.012	<0.037	11.90	<0.09	<0.058	3.21	79.00	<0.498	<0.20	0.37	<0.50	<0.0125	5.38
14	Rph-01 (15)	<0.23	<0.012	<0.037	28.50	<0.09	<0.058	1.30	49.30	<0.498	<0.20	<0.33	<0.50	<0.0125	20.69
15	Rph-01 (16)	<0.23	<0.012	<0.037	44.40	<0.09	<0.058	0.80	22.70	<0.498	<0.20	<0.33	<0.50	<0.0125	31.92
16	Rph-01 (17)	<0.23	<0.012	<0.037	34.10	<0.09	<0.058	1.07	39.30	<0.498	<0.20	<0.33	<0.50	<0.0125	24.74
17	Rph-01 (18)	<0.23	<0.012	<0.037	37.40	<0.09	<0.058	0.77	33.70	<0.498	<0.20	<0.33	<0.50	<0.0125	27.67

Example of XRF Assay results as obtained from MEMR labs.

	Sample_ ID	Fro m	To	Thi ckn ess	Densit y	P2O5 wt%	Fe2O 3 wt. %	MnO wt. %	TiO2 wt. %	CaO wt. %	K2O wt. %	SO3 wt. %	SiO2 wt. %	Al2O3 wt. %	MgO wt. %	Na2O wt. %	F wt. %	U wt. %	L.O .l
RPh1- BHBH0 1	Rph-01- 01	9	10	1	1.4	18.3	0.23	0.012	0.037	52.8	0.09	0.92	2.21	0.498	0.2	0.33	1.45	0.01 25	24. 1
RPh1- BHBH0 1	Rph-01- 02	10	11	1	2.66	18.1	0.23	0.012	0.037	39.7	0.09	0.83	26.5	0.498	0.2	0.33	1.48	0.01 25	12. 7
RPh1- BHBH0 1	Rph-01- 03	11	12	1	1.44	28.7	0.23	0.012	0.037	51	0.09	1.27	4.06	0.498	0.2	0.33	2.84	0.01 25	11. 9
RPh1- BHBH0 1	Rph-01- 04	12	13	1	1.44	24.8	0.23	0.012	0.037	45.7	0.09	1.12	14.1	0.498	0.2	0.33	2.23	0.01 25	11. 1
RPh1- BHBH0 1	Rph-01- 05	13	14	1	1.44	34.2	0.23	0.012	0.037	52	0.09	1.22	1.42	0.498	0.2	0.33	3.36	0.01 25	7
RPh1- BHBH0 1	Rph-01- 06	14	15	1	1.44	23.2	0.23	0.012	0.037	48.6	0.09	0.86	10.3	0.498	0.2	0.33	1.81	0.01 25	14. 4

RPh1-BHBHO 1	Rph-01-07	15	16	1	2.66	8.23	0.23	0.012	0.037	22.8	0.09	0.22	58.2	0.498	0.2	0.55	0.5	0.0125	8.76
RPh1-BHBHO 1	Rph-01-08	16	17	1	2.66	11.6	0.23	0.012	0.037	24	0.09	0.34	55.1	0.498	0.2	0.89	0.54	0.0125	6.66
RPh1-BHBHO 1	Rph-01-09	17	18	1	1.85	10.2	0.23	0.012	0.037	35.8	0.09	0.24	35.7	0.498	0.2	0.33	0.54	0.0125	16.9
RPh1-BHBHO 1	Rph-01-10	18	19	1	1.4	10.9	0.23	0.012	0.037	23.3	0.09	0.27	57.4	0.498	0.2	0.33	0.59	0.0125	6.71
RPh1-BHBHO 1	Rph-01-11	19	20	1	1.4	3.56	0.23	0.012	0.037	10.9	0.09	0.058	79.8	0.498	0.2	0.56	0.5	0.0125	4.37
RPh1-BHBHO 1	Rph-01-12	20	21	1	1.4	4.49	0.23	0.012	0.037	9.79	0.09	0.058	82.2	0.498	0.2	0.53	0.5	0.0125	2.8
RPh1-BHBHO 1	Rph-01-13	21	22	1	1.44	3.21	0.23	0.012	0.037	11.9	0.09	0.058	79	0.498	0.2	0.37	0.5	0.0125	5.38
RPh1-BHBHO 1	Rph-01-15	29	30	1	1.36	1.3	0.23	0.012	0.037	28.5	0.09	0.058	49.3	0.498	0.2	0.33	0.5	0.0125	20.7
RPh1-BHBHO 1	Rph-01-16	30	31	1	1.36	0.8	0.23	0.012	0.037	44.4	0.09	0.058	22.7	0.498	0.2	0.33	0.5	0.0125	31.9
RPh1-BHBHO 1	Rph-01-17	31	32	1	1.36	1.07	0.23	0.012	0.037	34.1	0.09	0.058	39.3	0.498	0.2	0.33	0.5	0.0125	24.7
RPh1-BHBHO 1	Rph-01-18	32	33	1	1.36	0.77	0.23	0.012	0.037	37.4	0.09	0.058	33.7	0.498	0.2	0.33	0.5	0.0125	27.7
RPh1-BHBHO 1	Rph-01-19	33	34	1	1.36	1.26	0.23	0.012	0.037	46.5	0.09	0.058	18	0.498	0.2	0.33	0.5	0.0125	33.9
RPh1-BHBHO 1	Rph-01-20	34	35	1	1.36	0.83	0.23	0.012	0.037	40	0.09	0.058	28.7	0.498	0.2	0.33	0.5	0.0125	30
RPh1-BHO2B	RPH1-BH2B-1	3	4	1	1.4	13.7	0.67	0.012	0.11	46	0.09	0.38	14.1	0.94	0.42	0.33	1.27	0.0125	22.3
RPh1-BHO2B	RPH1-BH2B-2	4	5	1	1.4	13.1	0.64	0.012	0.11	46	0.09	0.31	14.5	0.91	0.39	0.33	1.09	0.0125	22.9
RPh1-BHO2B	RPH1-BH2B-3	5	6	1	2.66	20.1	0.35	0.012	0.05	44.4	0.09	0.56	17.6	0.5	0.2	0.33	2.03	0.0125	14.1
RPh1-BHO2B	RPH1-BH2B-4	6	7	1	2.3	9.59	0.95	0.015	0.14	35.7	0.09	0.19	32.5	1.35	0.51	0.33	0.63	0.0125	18.3
RPh1-BHO2B	RPH1-BH2B-5	7	8	1	1.44	22.8	0.23	0.012	0.037	46.1	0.09	0.72	14.8	0.498	0.2	0.33	2.68	0.0125	12.4
RPh1-BHO2B	RPH1-BH2B-6	8	9	1	1.44	21.5	0.23	0.012	0.037	45.5	0.09	0.44	15	0.498	0.2	0.33	2.17	0.0125	15.3
RPh1-BHO2B	RPH1-BH2B-7	9	10	1	1.44	31.2	0.23	0.012	0.037	52.1	0.09	0.65	4.39	0.498	0.2	0.33	3.3	0.0125	8.14
RPh1-BHO2B	RPH1-BH2B-8	10	11	1	1.4	25.9	0.23	0.012	0.037	49.6	0.09	0.63	9.14	0.498	0.2	0.33	2.82	0.0125	11.6
RPh1-BHO2B	RPH1-BH2B-9	11	12	1	1.4	20.8	0.23	0.012	0.037	52.1	0.09	0.34	6.49	0.498	0.2	0.33	1.92	0.0125	18.2
RPh1-BHO2B	RPH1-BH2B-10	12	13	1	1.36	11.2	0.23	0.012	0.037	40.1	0.09	0.19	29.3	0.498	0.2	0.33	0.73	0.0125	18.3
RPh1-BHO2B	RPH1-BH2B-11	13	14	1	1.4	8.45	0.23	0.012	0.037	36	0.09	0.078	36.7	0.498	0.2	0.33	0.5	0.0125	18.1
RPh1-BHO2B	RPH1-BH2B-12	14	15	1		4.83	0.23	0.012	0.037	19.1	0.09	0.058	66.4	0.498	0.2	0.33	0.5	0.0125	9.03

RPh1-BH02B	RPH1-BH2B-13	15	16	1		8.31	0.23	0.012	0.037	26.1	0.09	0.1	54	0.498	0.2	0.33	0.5	0.0125	10.7
RPh1-BH02B	RPH1-BH2B-14	16	17	1		7.74	0.23	0.012	0.037	23	0.09	0.058	59.6	0.498	0.2	0.33	0.5	0.0125	8.6
RPh1-BH02B	RPH1-BH2B-15	17	18	1		5.18	0.23	0.012	0.037	23.1	0.09	0.058	59.4	0.498	0.2	0.33	0.5	0.0125	11.5
RPh1-BH02B	RPH1-BH2B-16	18	19	1		7.3	0.23	0.012	0.037	28.1	0.09	0.062	50.3	0.498	0.2	0.33	0.5	0.0125	13.1
RPh1-BH02B	RPH1-BH2B-17	19	20	1		6.44	0.23	0.012	0.037	26.1	0.09	0.066	53.6	0.498	0.2	0.33	0.5	0.0125	13
RPh1-BH02B	RPH1-BH2B-18	20	21	1		4.7	0.23	0.012	0.037	24.2	0.09	0.058	57	0.498	0.2	0.33	0.5	0.0125	13.3
RPh1-BH03	Rph1-BH3-1	0	1	1		0.58	1.09	0.015	0.15	40	0.12	0.058	23.3	1.67	0.98	0.33	0.51	0.0125	32.2
RPh1-BH03	Rph1-BH3-2	1	2	1		0.41	0.66	0.012	0.11	44.1	0.09	0.058	18.6	0.97	0.68	0.33	0.51	0.0125	34.5
RPh1-BH03	Rph1-BH3-3	2	3	1		1.51	0.55	0.012	0.071	39.6	0.09	6.1	23	0.76	0.26	0.33	0.51	0.0125	27.9
RPh1-BH03	Rph1-BH3-4	3	4	1		1.36	0.23	0.012	0.029	44	0.09	0.77	20.8	0.55	0.21	0.33	0.51	0.0125	31.9
RPh1-BH03	Rph1-BH3-5	4	5	1		4	0.23	0.012	0.029	48.9	0.09	0.22	13.5	0.55	0.21	0.33	0.51	0.0125	32.6
RPh1-BH03	Rph1-BH3-6	5	6	1		8.75	0.39	0.012	0.054	46.4	0.09	0.6	15.3	0.63	0.26	0.33	0.75	0.0125	26.9
RPh1-BH03	Rph1-BH3-7	6	7	1		6.63	0.23	0.012	0.029	51.8	0.09	0.15	8.22	0.55	0.21	0.33	0.51	0.0125	32.4
RPh1-BH03	Rph1-BH3-8	7	8	1		4.07	0.23	0.012	0.029	53.1	0.09	0.063	5.96	0.55	0.21	0.33	0.51	0.0125	36
RPh1-BH03	Rph1-BH3-9	8	9	1		4.7	0.23	0.012	0.029	50.8	0.09	0.084	10.6	0.55	0.21	0.33	0.51	0.0125	33.1
RPh1-BH03	Rph1-BH3-10	9	10	1	1.4	14.7	0.23	0.012	0.029	50.5	0.09	0.65	7.37	0.55	0.21	0.85	1.3	0.0125	24.3
RPh1-BH03	Rph1-BH3-11	10	11	1	2.66	9.48	0.23	0.012	0.029	39.6	0.09	0.4	28.8	0.55	0.21	0.33	0.58	0.0125	20.8
RPh1-BH03	Rph1-BH3-12	11	12	1	1.44	23	0.23	0.012	0.029	53.9	0.09	1.06	0.86	0.55	0.21	0.33	2.35	0.0125	18.7
RPh1-BH03	Rph1-BH3-13	12	13	1	1.44	26.4	0.23	0.012	0.029	51.5	0.09	1.12	4.22	0.55	0.21	0.33	2.75	0.0125	13.7
RPh1-BH03	Rph1-BH3-14	13	14	1	2.66	9.54	0.23	0.012	0.029	48.6	0.09	0.28	13.1	0.55	0.21	0.33	0.84	0.0125	27.5
RPh1-BH03	Rph1-BH3-15	14	15	1	2.66	4.53	0.23	0.012	0.029	44.8	0.09	0.12	21.7	0.55	0.21	0.33	0.51	0.0125	28.5
RPh1-BH03	Rph1-BH3-16	15	16	1	1.44	16.4	0.23	0.012	0.029	48.9	0.09	0.76	11.7	0.55	0.21	0.33	1.45	0.0125	20.7
RPh1-BH03	Rph1-BH3-17	16	17	1		6.29	0.23	0.012	0.029	25.8	0.09	0.19	54	0.55	0.21	0.33	0.51	0.0125	13.3
RPh1-BH03	Rph1-BH3-18	17	18	1		8.98	0.23	0.012	0.029	28.6	0.09	0.23	48.7	0.55	0.21	0.33	0.51	0.0125	12.9
RPh1-BH03	Rph1-BH3-19	18	19	1		1.8	0.23	0.012	0.029	8.6	0.09	0.058	85.2	0.55	0.21	0.33	0.51	0.0125	4.16
RPh1-BH03	Rph1-BH3-20	19	20	1		1.12	0.23	0.012	0.029	10.2	0.09	0.058	81.5	0.55	0.21	0.33	0.51	0.0125	6.25
RPh1-BH03	Rph1-BH3-21	20	21	1		3.37	0.23	0.012	0.029	29	0.09	0.058	49.4	0.55	0.21	0.33	0.51	0.0125	18.1
RPh1-BH04	RPH1-BH4-1	0	1	1	1.4	18.9	0.58	0.012	0.091	48	0.09	0.8	9.32	1	0.47	0.33	2.21	0.0125	18.6
RPh1-BH04	RPH1-BH4-2	1	2	1	1.4	12.4	0.36	0.012	0.055	44.5	0.09	1.56	17.5	0.64	0.27	0.33	0.97	0.0125	21.7
RPh1-BH04	RPH1-BH4-3	2	3	1	1.44	19	0.23	0.012	0.029	47.5	0.09	2.54	11	0.55	0.21	0.33	2.07	0.0125	17.3
RPh1-BH04	RPH1-BH4-4	3	4	1	1.44	24.3	0.23	0.012	0.029	50.1	0.09	1.59	6.83	0.55	0.21	0.33	2.67	0.0125	14.1
RPh1-BH04	RPH1-BH4-5	4	5	1	1.4	17	0.23	0.012	0.029	46.4	0.09	1.05	16	0.55	0.21	0.33	1.51	0.0125	17.8
RPh1-BH04	RPH1-BH4-6	5	6	1	2.66	11.2	0.23	0.012	0.029	28.2	0.09	0.4	49.4	0.55	0.21	0.33	0.7	0.0125	10
RPh1-BH04	RPH1-BH4-7	6	7	1	2.66	6.61	0.23	0.012	0.029	20.3	0.09	0.16	63.1	0.55	0.21	0.33	0.51	0.0125	8.91

RPh1-BH04	RPH1-BH4-8	7	8	1		1.85	0.23	0.012	0.029	7.11	0.09	0.058	86.7	0.55	0.21	0.47	0.51	0.0125	3.22
RPh1-BH04	RPH1-BH4-9	8	9	1		1.25	0.23	0.012	0.029	11.4	0.09	0.058	79.8	0.55	0.21	0.33	0.51	0.0125	6.84
RPh1-BH04	RPH1-BH4-10	9	10	1		2.78	0.23	0.012	0.029	39.4	0.09	0.058	31.4	0.55	0.21	0.33	0.51	0.0125	26.3
RPh1-BH04	RPH1-BH4-11	10	11	1		1.9	0.23	0.012	0.029	36.5	0.09	0.058	36.2	0.55	0.21	0.33	0.51	0.0125	25.3
RPh1-BH04	RPH1-BH4-12	11	12	1		6.49	0.23	0.012	0.029	29.1	0.09	0.34	48	0.55	0.21	0.33	0.51	0.0125	15.6
RPh1-BH04	RPH1-BH4-13	12	13	1		13.5	0.23	0.012	0.029	47.1	0.09	0.73	14.5	0.55	0.21	0.33	1.34	0.0125	22.7
RPh1-BH04	RPH1-BH4-14	13	14	1		2.2	0.23	0.012	0.029	54.2	0.09	0.058	11.7	0.55	0.21	0.33	0.51	0.0125	31.9
RPh1-BH04	RPH1-BH4-15	14	15	1		2.07	0.23	0.012	0.029	50.8	0.09	0.058	10.9	0.55	0.21	0.33	0.51	0.0125	36.2
RPh1-BH04	RPH1-BH4-16	15	16	1		1.17	0.23	0.012	0.029	51.7	0.09	0.058	9.56	0.55	0.21	0.33	0.51	0.0125	37.5
RPh1-BH04	RPH1-BH4-17	16	17	1		1.43	0.23	0.012	0.029	40.2	0.09	0.058	29.8	0.55	0.21	0.33	0.51	0.0125	28.3
RPh1-BH04	RPH1-BH4-18	17	18	1		1.07	0.23	0.012	0.029	48	0.09	0.058	16.9	0.55	0.21	0.33	0.51	0.0125	34.1
RPh1-BH04	RPH1-BH4-19	18	19	1		0.84	0.23	0.012	0.029	48.4	0.09	0.058	15.8	0.55	0.21	0.33	0.51	0.0125	34.9
RPh1-BH04	RPH1-BH4-20	19	20	1		0.7	0.23	0.012	0.029	48.8	0.09	0.058	14.8	0.55	0.21	0.33	0.51	0.0125	35.2
RPh1-BH04	RPH1-BH4-21	20	21	1		1.36	0.23	0.012	0.029	37.3	0.09	0.058	34.9	0.55	0.21	0.33	0.51	0.0125	26.1
RPh1-BH04	RPH1-BH4-22	21	22	1		0.7	0.23	0.012	0.029	44.4	0.09	0.058	23.2	0.55	0.21	0.33	0.51	0.0125	31.6
RPh1-BH04	RPH1-BH4-23	22	23	1		0.95	0.23	0.012	0.029	43.7	0.09	0.058	24.1	0.55	0.21	0.33	0.51	0.0125	31.2
RPh1-BH04	RPH1-BH4-24	23	24	1		2.7	0.23	0.012	0.029	52.1	0.09	0.058	9.11	0.55	0.21	0.33	0.51	0.0125	35.9
RPh1-BH04	RPH1-BH4-25	24	25	1		1.95	0.23	0.012	0.029	51	0.09	0.058	10.8	0.55	0.21	0.33	0.51	0.0125	36.1
RPh1-BH04	RPH1-BH4-26	25	26	1		1.97	0.23	0.012	0.029	52.1	0.09	0.058	9.7	0.55	0.21	0.33	0.51	0.0125	36.1
RPh1-BH04	RPH1-BH4-27	26	27	1		1.94	0.23	0.012	0.029	51.7	0.09	0.058	10.5	0.55	0.21	0.33	0.51	0.0125	35.8
RPh1-BH04	RPH1-BH4-28	27	28	1		3.17	0.23	0.012	0.029	54	0.09	0.058	6.24	0.55	0.21	0.33	0.51	0.0125	36.5
RPh1-BH04	RPH1-BH4-29	28	29	1		1.55	0.23	0.012	0.029	54.1	0.09	0.058	3.85	0.55	1.37	0.33	0.51	0.0125	39.1
RPh1-BH04	RPH1-BH4-30	29	30	1		1.3	0.23	0.012	0.029	52.4	0.09	0.058	5.83	0.55	1.47	0.33	0.51	0.0125	38.9
RPh1-BH05	RPH1-BH5-1	0	1	1		0.32	1.45	0.017	0.19	31	0.17	0.058	37.8	2.16	1.22	0.33	0.51	0.0125	25.6
RPh1-BH05	RPH1-BH5-2	1	2	1		0.42	1.06	0.012	0.15	39.3	0.09	0.124	24.8	1.61	1.06	0.33	0.51	0.0125	31.4
RPh1-BH05	RPH1-BH5-3	2	3	1		0.42	1.08	0.012	0.16	37.9	0.09	0.112	27.5	1.6	0.98	0.33	0.51	0.0125	30.1
RPh1-BH05	RPH1-BH5-4	3	4	1		0.41	0.76	0.012	0.11	42.2	0.09	0.257	21.5	1.17	0.73	0.33	0.51	0.0125	32.8
RPh1-BH05	RPH1-BH5-5	4	5	1		0.36	0.93	0.012	0.13	38.3	0.09	0.816	27.7	1.42	0.81	0.33	0.51	0.0125	29.4
RPh1-BH05	RPH1-BH5-6	5	6	1		0.43	0.72	0.012	0.1	46.8	0.09	1.06	12.7	1.2	0.81	0.33	0.51	0.0125	36.1
RPh1-BH05	RPH1-BH5-7	6	7	1		1.16	0.23	0.012	0.029	42.8	0.09	0.058	24.8	0.55	0.21	0.33	0.51	0.0125	30.4
RPh1-BH05	RPH1-BH5-8	7	8	1		1.87	0.23	0.012	0.029	51.4	0.09	0.058	9.26	0.55	0.21	0.33	0.51	0.0125	37.1
RPh1-BH05	RPH1-BH5-9	8	9	1		2.92	0.23	0.012	0.029	54.1	0.09	0.058	4.94	0.55	0.21	0.33	0.51	0.0125	37.6
RPh1-BH05	RPH1-BH5-10	9	10	1	1.4	10.5	0.23	0.012	0.029	54	0.09	0.058	4.52	0.55	0.21	0.33	0.51	0.0125	30.2
RPh1-BH05	RPH1-BH5-11	10	11	1	1.4	9.96	0.23	0.012	0.029	54.2	0.09	0.058	3.62	0.55	0.21	0.33	0.6	0.0125	30.9
RPh1-BH05	RPH1-BH5-12	11	12	1	1.4	6.95	0.23	0.012	0.029	52.5	0.09	0.058	7.66	0.55	0.21	0.33	0.51	0.0125	32.6
RPh1-BH05	RPH1-BH5-13	12	13	1	1.4	6.64	0.23	0.012	0.029	55.4	0.09	0.058	1.65	0.55	0.21	0.33	0.51	0.0125	35.7

RPh1- BH05	RPH1 BH5-14	13	14	1	1.4	18.3	0.23	0.012	0.029	54.7	0.09	0.058	2.88	0.55	0.21	0.33	0.89	0.01 25	22. 7
---------------	----------------	----	----	---	-----	------	------	-------	-------	------	------	-------	------	------	------	------	------	------------	----------

RPh1-BH05	RPH1 BH5-15	14	15	1	1.4	13	0.23	0.012	0.029	55	0.09	0.058	2.97	0.55	0.21	0.33	0.65	0.01 25	28. 2
RPh1-BH05	RPH1 BH5-16	15	16	1	1.4	18	0.23	0.012	0.029	54.9	0.09	0.57	1.11	0.55	0.21	0.33	1.42	0.01 25	23. 9
RPh1-BH05	RPH1 BH5-17	16	17	1	1.4	18.1	0.23	0.012	0.029	54.1	0.09	0.058	3.52	0.55	0.21	0.33	0.72	0.01 25	22. 9
RPh1-BH05	RPH1 BH5-18	17	18	1	1.44	24	0.23	0.012	0.029	50.9	0.09	0.058	9.45	0.55	0.21	0.33	1.27	0.01 25	14. 3
RPh1-BH05	RPH1 BH5-19	18	19	1	1.44	28.2	0.23	0.012	0.029	55.3	0.09	0.058	1.78	0.55	0.21	0.33	1.54	0.01 25	13. 8
RPh1-BH05	RPH1 BH5-20	19	20	1	1.44	25.3	0.23	0.012	0.029	54.1	0.09	0.058	3.18	0.55	0.21	0.33	1.25	0.01 25	16
RPh1-BH05	RPH1 BH5-21	20	21	1	1.44	31.1	0.23	0.012	0.029	53	0.09	1.06	1.12	0.55	0.21	0.33	3.62	0.01 25	9.4 3
RPh1-BH05	RPH1 BH5-22	21	22	1	1.44	30.7	0.23	0.012	0.029	52.7	0.09	1.03	2.03	0.55	0.21	0.33	3.53	0.01 25	9.7 8
RPh1-BH05	RPH1 BH5-23	22	23	1	1.44	28.6	0.23	0.012	0.029	52.3	0.09	0.84	3.38	0.55	0.21	0.33	3.42	0.01 25	11. 3
RPh1-BH05	RPH1 BH5-24	23	24	1	1.44	30.2	0.23	0.012	0.029	49.3	0.09	0.81	9.02	0.55	0.21	0.33	3.27	0.01 25	7.2 8
RPh1-BH05	RPH1 BH5-25	24	25	1	1.44	29.6	0.23	0.012	0.029	49.7	0.09	0.83	8.22	0.55	0.21	0.33	3.26	0.01 25	8.2 2
RPh1-BH05	RPH1 BH5-26	25	26	1	1.44	29.4	0.23	0.012	0.029	50.9	0.09	0.98	5.39	0.55	0.21	0.33	3.23	0.01 25	9.9 2
RPh1-BH05	RPH1 BH5-27	26	27	1	1.44	27.3	0.23	0.012	0.029	51.3	0.09	0.97	5.2	0.55	0.21	0.33	2.97	0.01 25	12
RPh1-BH05	RPH1 BH5-28	27	28	1	1.44	29.4	0.23	0.012	0.029	51.1	0.09	0.98	5.82	0.55	0.21	0.33	3.13	0.01 25	9.3 5
RPh1-BH05	RPH1 BH5-29	28	29	1	1.44	28.3	0.23	0.012	0.029	51.3	0.09	1.01	5.46	0.55	0.21	0.33	2.99	0.01 25	10. 7
RPh1-BH05	RPH1 BH5-30	29	30	1	1.44	26.7	0.23	0.012	0.029	49.8	0.09	0.92	7.74	0.55	0.21	0.33	2.88	0.01 25	11. 6
RPh1-BH05	RPH1 BH5-31	30	31	1	1.44	29.4	0.23	0.012	0.029	49.9	0.09	0.95	7.51	0.55	0.21	0.33	0.51	3.23	8.6 4
RPh1-BH06	RPH1-06-01	0	1	1		0.22	3.02	0.037	0.43	24.3	0.41	0.64	38.9	4.77	2.39	1.43	0.51	0.01 25	23. 5
RPh1-BH06	RPH1-06-02	1	2	1		0.79	0.73	0.012	0.12	45.9	0.09	9.16	8.27	1.15	0.42	0.33	0.51	0.01 25	33. 3
RPh1-BH06	RPH1-06-03	2	3	1	2.66	6.54	0.24	0.012	0.038	44.2	0.09	5.99	15.8	0.55	0.21	0.33	0.51	0.01 25	26. 3
RPh1-BH06	RPH1-06-04	3	4	1	1.85	9.89	0.23	0.012	0.029	54.1	0.09	1.28	2.28	0.55	0.21	0.33	0.93	0.01 25	31. 2
RPh1-BH06	RPH1-06-05	4	5	1	1.4	15	0.23	0.012	0.029	48.6	0.09	1.26	11.6	0.55	0.21	0.33	1.32	0.01 25	21. 8
RPh1-BH06	RPH1-06-06	5	6	1	1.4	24.7	0.23	0.012	0.029	50.6	0.09	0.8	7.83	0.55	0.21	0.33	2.73	0.01 25	13. 2
RPh1-BH06	RPH1-06-07	6	7	1	1.4	22.3	0.23	0.012	0.029	52.4	0.09	1.06	4.22	0.55	0.21	0.33	2.57	0.01 25	17. 1
RPh1-BH06	RPH1-06-08	7	8	1	1.4	20.4	0.23	0.012	0.029	53.8	0.09	0.97	1.89	0.55	0.21	0.33	2.17	0.01 25	20. 7
RPh1-BH06	RPH1-06-09	8	9	1	1.4	21	0.23	0.012	0.029	47.6	0.09	0.69	13.3	0.55	0.21	0.33	2.14	0.01 25	15. 2
RPh1-BH06	RPH1-06-10	9	10	1	1.44	33.1	0.23	0.012	0.029	53.2	0.09	1.33	0.77	0.55	0.21	0.33	3.7	0.01 25	7.6 6
RPh1-BH06	RPH1-06-11	10	11	1	1.44	32.3	0.23	0.012	0.029	53.6	0.09	1.24	0.74	0.55	0.21	0.33	3.56	0.01 25	8.5 4
RPh1-BH06	RPH1-06-12	11	12	1	1.44	33.8	0.23	0.012	0.029	53.5	0.09	1.17	0.77	0.55	0.21	0.33	3.92	0.01 25	6.7 7
RPh1-BH06	RPH1-06-13	12	13	1	1.44	32.5	0.23	0.012	0.029	53	0.09	1.15	1.82	0.55	0.21	0.33	3.68	0.01 25	7.7 4
RPh1-BH06	RPH1-06-14	13	14	1	1.4	28.8	0.23	0.012	0.029	50.8	0.09	0.95	6.38	0.55	0.21	0.33	3.33	0.01 25	9.6 5
RPh1-BH06	RPH1-06-15	14	15	1	1.4	24.7	0.23	0.012	0.029	45.1	0.09	0.8	17.6	0.55	0.21	0.33	2.34	0.01 25	9.2 4
RPh1-BH07	RPH1-07-01	0	1	1		0.9	0.4	0.012	0.061	48.2	0.09	3.45	9.76	0.71	0.36	0.33	0.51	0.01 25	36. 1
RPh1-BH07	RPH1-07-02	1	2	1		0.95	0.28	0.012	0.044	44.8	0.09	12	9.68	0.55	0.21	0.33	0.51	0.01 25	31. 6
RPh1-BH07	RPH1-07-03	2	3	1		1.31	0.23	0.012	0.029	46.1	0.09	3.92	15.3	0.55	0.21	0.33	0.51	0.01 25	32. 9
RPh1-BH07	RPH1-07-04	3	4	1		1.63	0.23	0.012	0.029	40.8	0.09	1.1	27.1	0.55	0.21	0.33	0.51	0.01 25	28. 8

RPh1- BH07	RPH1- 07-05	4	5	1		1.68	0.23	0.012	0.029	48.4	0.09	0.33	13.7	0.55	0.21	0.33	0.51	0.01 25	35. 2
---------------	----------------	---	---	---	--	------	------	-------	-------	------	------	------	------	------	------	------	------	------------	----------

RPh1-BH07	RPH1-07-06	5	6	1		3.12	0.33	0.012	0.031	43.8	0.09		21.4	0.64	0.21	0.33	0.51	0.0125	30.4
RPh1-BH07	RPH1-07-07	6	7	1		1.79	0.23	0.012	0.029	43.9	0.09	0.13	21.7	0.55	0.21	0.33	0.51	0.0125	31.6
RPh1-BH07	RPH1-07-08	7	8	1		1.49	0.28	0.012	0.053	51.4	0.09		8.56	0.55	0.21	0.33	0.51	0.0125	37.7
RPh1-BH07	RPH1-07-09	8	9	1	1.85	7.7	0.23	0.012	0.029	52.2	0.09	0.28	5.86	0.55	0.21	0.33	0.67	0.0125	32.5
RPh1-BH07	RPH1-07-10	9	10	1	1.4	21.6	0.23	0.012	0.029	54.8	0.09	0.98	0.44	0.55	0.21	0.33	2.27	0.0125	19.8
RPh1-BH07	RPH1-07-11	10	11	1	2.66	9.95	0.23	0.012	0.029	42.8	0.09	0.33	24	0.55	0.21	0.33	0.71	0.0125	22
RPh1-BH07	RPH1-07-12	11	12	1	1.85	13.6	0.23	0.012	0.029	49.3	0.09	0.42	11.5	0.55	0.21	0.33	1.15	0.0125	23.7
RPh1-BH07	RPH1-07-13	12	13	1	1.44	29.3	0.23	0.012	0.029	54	0.09	1.24	0.3	0.55	0.21	0.33	3.35	0.0125	11.8
RPh1-BH07	RPH1-07-14	13	14	1	1.4	23	0.23	0.012	0.029	54.3	0.09	1.1	0.51	0.55	0.21	0.33	3.67	0.0125	18.3
RPh1-BH07	RPH1-07-15	14	15	1	2.66	13.6	0.23	0.012	0.029	28.1	0.09	0.58	47.5	0.55	0.21	0.67	0.9	0.0125	8.13
RPh1-BH07	RPH1-07-16	15	16	1	1.44	25.5	0.23	0.012	0.029	49	0.09	1.15	9.94	0.55	0.21	0.33	2.59	0.0125	11.7
RPh1-BH07	RPH1-07-17	16	17	1	1.44	29.1	0.23	0.012	0.029	52.1	0.09	0.91	4.5	0.55	0.21	0.33	3.14	0.0125	10.2
RPh1-BH07	RPH1-07-18	17	18	1	1.44	33.3	0.23	0.012	0.029	52.9	0.09	1.2	2.24	0.55	0.21	0.33	3.76	0.0125	6.54
RPh1-BH08	RPH1-08-01	0	1	1		0.4	1.6	0.025	0.216	26.6	0.16	0.25	43.6	2.28	1.25	0.33	0.51	0.0125	23.6
RPh1-BH08	RPH1-08-02	1	2	1		0.5	0.69	0.012	0.093	35.9	0.09	1.03	32.2	1.05	0.7	0.33	0.51	0.0125	27.8
RPh1-BH08	RPH1-08-03	2	3	1		0.43	0.54	0.012	0.08	40.3	0.09	3.37	23.9	0.75	0.48	0.33	0.51	0.0125	30.2
RPh1-BH08	RPH 1-08-04	3	4	1		0.5	0.23	0.012	0.039	45.7	0.09	0.85	17.2	0.55	0.27	0.33	0.51	0.0125	34.8
RPh1-BH08	RPH 1-08-05	4	5	1		0.51	0.23	0.012	0.026	39	0.09	0.5	29.9	0.55	0.21	0.33	0.51	0.0125	29.5
RPh1-BH08	RPH 1-08-06	5	6	1		0.95	0.23	0.012	0.029	47.3	0.09	0.058	14.8	0.55	0.21	0.33	0.51	0.0125	36.5
RPh1-BH08	RPH1-08-07	6	7	1		2.42	0.29	0.012	0.029	41.5	0.09	0.072	24.8	0.58	0.21	0.33	0.51	0.0125	30.2
RPh1-BH08	RPH 1-08-08	7	8	1		0.7	0.23	0.012	0.029	50.3	0.09	0.058	10.8	0.55	0.21	0.33	0.51	0.0125	37.8
RPh1-BH08	RPH 1-08-09	8	9	1		0.71	0.23	0.012	0.029	43.1	0.09	0.058	24.1	0.55	0.21	0.33	0.51	0.0125	31.8
RPh1-BH08	RPH1-08-10	9	10	1		1.3	0.23	0.012	0.029	47.2	0.09	0.12	16	0.55	0.21	0.33	0.51	0.0125	34.8
RPh1-BH08	RPH1-08-11	10	11	1		1.07	0.23	0.012	0.029	50.5	0.09	0.058	9.71	0.55	0.21	0.33	0.51	0.0125	37.9
RPh1-BH08	RPH1-08-12	11	12	1		1.28	0.23	0.012	0.029	47.9	0.09	0.058	14.5	0.55	0.21	0.33	0.51	0.0125	35.4
RPh1-BH08	RPH1-08-13	12	13	1		2.72	0.25	0.012	0.029	49.1	0.09	0.058	12.2	0.58	0.21	0.33	0.51	0.0125	35
RPh1-BH08	RPH1-08-14	13	14	1		1.47	0.23	0.012	0.029	53.3	0.09	0.058	5.18	0.55	0.21	0.33	0.51	0.0125	39.4
RPh1-BH08	RPH1-08-15	14	15	1		7.67	0.23	0.012	0.029	53.6	0.09	0.26	3.27	0.55	0.21	0.33	0.65	0.0125	33.8
RPh1-BH08	RPH1-08-16	15	16	1		5.82	0.23	0.012	0.029	52.4	0.09	0.13	5.74	0.55	0.21	0.33	0.51	0.0125	34.9
RPh1-BH08	RPH1-08-17	16	17	1	1.4	16.4	0.37	0.012	0.053	51.8	0.09	0.46	5	0.75	0.21	0.33	1.76	0.0125	23.3
RPh1-BH08	RPH1-08-18	17	18	1	1.4	7.36	0.23	0.012	0.033	49.1	0.09	0.14	11.4	0.55	0.21	0.33	0.67	0.0125	30.5
RPh1-BH09	RPh1-09-01	0	1	1		0.48	1.97	0.042	0.26	32.6	0.19	0.081	33	3.09	1.47	0.33	0.51	0.0125	26.9
RPh1-BH09	RPh1-09-02	1	2	1		0.42	0.69	0.021	0.09	44	0.09	0.16	19	1.08	0.59	33	0.51	0.0125	34
RPh1-BH09	RPh1-09-03	2	3	1		0.48	0.23	0.012	0.036	48.2	0.09	0.18	14	0.55	0.23	0.33	0.51	0.0125	36.2
RPh1-BH09	RPH1-09-04	3	4	1		0.5	0.23	0.012	0.036	49.6	0.09	0.058	11.2	0.55	0.21	0.33	31	0.0125	37.9
RPh1-BH09	RPH1-09-05	4	5	1		0.63	0.23	0.012	0.029	50.5	0.09	0.058	10.6	0.55	0.21	0.33	0.51	0.0125	37.9

RPh1- BH09	RPh1- 09-06	5	6	1		0.8	0.23	0.012	0.029	49.4	0.09	0.058	12.8	0.55	0.21	0.33	0.51	0.01 25	36. 6
---------------	----------------	---	---	---	--	-----	------	-------	-------	------	------	-------	------	------	------	------	------	------------	----------

RPh1-BH09	RPh1-09-07	6	7	1		1.36	0.23	0.012	0.029	50.5	0.09	0.14	10.4	0.55	0.21	0.33	0.51	0.0125	37
RPh1-BH09	RPh1-09-08	7	8	1		0.46	0.23	0.012	0.029	51.6	0.09	0.058	7.26	0.55	0.21	0.33	31	0.0125	40
RPh1-BH09	RPh1-09-09	8	9	1		1.04	0.23	0.012	0.029	47.3	0.09	0.058	15.8	0.55	0.21	0.33	0.51	0.0125	34.9
RPh1-BH09	RPh1-09-10	9	10	1		2.75	0.3	0.012	0.029	46.6	0.09	0.058	16.9	0.57	0.26	0.33	0.51	0.0125	32.6
RPh1-BH09	RPh1-09-11	10	11	1		1.52	0.23	0.012	0.029	52.7	0.09	0.058	6.47	0.55	0.21	0.33	31	0.0125	38.8
RPh1-BH09	RPh1-09-12	11	12	1		3.55	0.23	0.012	0.029	53.6	0.09	0.06	4.07	0.55	0.29	0.33	0.17	0.0125	37.5
RPh1-BH09	RPh1-09-13	12	13	1		8.4	0.23	0.012	0.029	51.9	0.09	0.36	6.47	0.55	0.27	0.33	0.67	0.0125	31.6
RPh1-BH09	RPh1-09-14	13	14	1	1.4	20.8	0.23	0.012	0.029	53.5	0.09	0.88	2.27	0.55	0.21	0.33	2.44	0.0125	19.9
RPh1-BH09	RPh1-09-15	14	15	1	1.4	14.9	0.23	0.012	0.029	49.1	0.09	0.59	11.7	0.55	0.21	0.33	1.46	0.0125	22.1
RPh1-BH09	RPh1-09-16	15	16	1	1.4	19.8	0.23	0.012	0.029	49.1	0.09	0.7	10.8	0.55	0.21	0.33	1.95	0.0125	17.2
RPh1-BH09	RPh1-09-17	16	17	1	1.4	24.3	0.23	0.012	0.029	52.8	0.09	1.01	3.12	0.55	0.13	0.33	2.7	0.0125	15.9
RPh1-BH09	RPh1-09-18	17	18	1	1.4	15.6	0.23	0.012	0.029	53.4	0.09	0.74	3.35	0.55	0.13	0.33	1.56	0.0125	25.1
RPh1-BH09	RPh1-09-19	18	19	1		4.9	0.23	0.012	0.029	38.4	0.09	0.086	32.6	0.55	0.21	0.33	0.51	0.0125	23.6
RPh1-BH10	RPH1-10-01	0	1	1		0.51	2.4	0.036	0.31	24.9	0.21	1	40.3	3.57	2.22	7.62	0.51	0.0125	22.9
RPh1-BH10	RPH1-10-02	1	2	1		0.53	1.06	0.013	0.14	32.7	0.09	3.8	34.7	1.51	1.05	0.33	0.51	0.0125	24.5
RPh1-BH10	RPH1-10-03	2	3	1		0.82	0.49	0.012	0.07	38.2	0.09	18.8	17.8	0.78	0.31	0.33	0.51	0.0125	22.7
RPh1-BH10	RPH1-10-04	3	4	1		1	0.23	0.012	0.03	50.8	0.09	2.7	8.06	0.55	0.21	0.33	0.51	0.0125	36.6
RPh1-BH10	RPH1-10-05	4	5	1		3.58	0.23	0.012	0.03	46.3	0.09	1.49	16.8	0.55	0.21	0.33	0.51	0.0125	30.8
RPh1-BH10	RPH1-10-06	5	6	1		10.3	0.23	0.012	0.029	51.3	0.09	1.36	6.69	0.55	0.21	0.33	0.9	0.0125	28.9
RPh1-BH10	RPH1-10-07	6	7	1		7	0.23	0.012	0.029	51.9	0.09	0.23	7.5	0.55	0.21	0.33	0.63	0.0125	32.5
RPh1-BH10	RPH1-10-08	7	8	1		1.16	0.23	0.012	0.03	51.3	0.09	0.042	8.32	0.55	0.3	0.33	0.51	0.0125	38.2
RPh1-BH10	RPH1-10-09	8	9	1	1.4	22.2	0.23	0.012	0.029	52.1	0.09	0.72	5.17	0.55	0.21	0.33	2.35	0.0125	17.1
RPh1-BH10	RPH1-10-10	9	10	1	1.4	20.3	0.23	0.012	0.029	50.5	0.09	0.59	8.72	0.55	0.21	0.33	1.81	0.0125	17.7
RPh1-BH10	RPH1-10-11	10	11	1	1.4	23.8	0.23	0.012	0.029	52.8	0.09	0.75	3.56	0.55	0.21	0.33	2.73	0.0125	16.3
RPh1-BH10	RPH1-10-12	11	12	1	1.44	25.9	0.23	0.012	0.029	47.1	0.09	1.15	12.7	0.55	0.21	0.33	2.78	0.0125	10
RPh1-BH10	RPH1-10-13	12	13	1	1.44	22.3	0.23	0.012	0.029	53.4	0.09	1.02	1.33	0.55	0.21	0.33	2.4	0.0125	19.3
RPh1-BH10	RPH1-10-14	13	14	1	2.11	6.58	0.23	0.012	0.029	18.6	0.09	0.2	65.5	0.55	0.21	0.41	0.51	0.0125	7.62
RPh1-BH11	RPH1-11-01	0	1	1		0.49	1.71	0.019	0.24	35.2	0.19	0.36	27.1	2.57	1.7	0.79	0.51	0.0125	29.7
RPh1-BH11	RPH1-11-02	1	2	1		0.43	0.63	0.012	0.091	42.9	0.09	1.86	19.5	0.99	0.68	0.33	0.51	0.0125	32.9
RPh1-BH11	RPH1-11-03	2	3	1		0.41	0.34	0.012	0.05	40.3	0.09	2.18	26.1	0.61	0.39	0.33	0.51	0.0125	29.7
RPh1-BH11	RPH1-11-04	3	4	1		1.4	0.29	0.012	0.035	44.9	0.09	0.51	20	0.58	0.21	0.33	0.51	0.0125	32.2
RPh1-BH11	RPH1-11-05	4	5	1		1.4	0.23	0.012	0.029	48.8	0.09	0.017	14.8	0.55	0.21	0.33	0.51	0.0125	34.3
RPh1-BH11	RPH1-11-06	5	6	1	2.66	15.9	0.23	0.012	0.029	48.1	0.09	0.82	12.3	0.55	0.21	0.33	1.6	0.0125	20.5
RPh1-BH11	RPH1-11-07	6	7	1	1.4	10.7	0.23	0.012	0.029	51.2	0.09	0.48	8.51	0.55	0.21	0.33	1.08	0.0125	27.8
RPh1-BH11	RPH1-11-08	7	8	1	1.4	20.5	0.23	0.012	0.029	53.5	0.09	0.59	3.4	0.55	0.21	0.33	2.12	0.0125	19.9
RPh1-BH11	RPH1-11-09	8	9	1	1.4	17.4	0.23	0.012	0.029	54	0.09	0.64	2.04	0.55	0.21	0.33	1.88	0.0125	24

RPh1- BH11	RPH1- 11-10	9	10	1	1.4	25.5	0.23	0.012	0.029	54.5	0.09	0.89	0.46	0.55	0.21	0.33	2.7	0.01 25	15. 8
---------------	----------------	---	----	---	-----	------	------	-------	-------	------	------	------	------	------	------	------	-----	------------	----------

RPh1-BH11	RPH1-11-11	10	11	1	1.4	23.1	0.23	0.012	0.029	52	0.09	0.69	5.36	0.55	0.21	0.33	2.46	0.0125	16
RPh1-BH11	RPH1-11-12	11	12	1	1.4	27.7	0.23	0.012	0.029	52.8	0.09	1.12	2.46	0.55	0.21	0.33	3.23	0.0125	12.6
RPh1-BH11	RPH1-11-13	12	13	1	1.4	25.6	0.23	0.012	0.029	53.4	0.09	1.39	0.97	0.55	0.21	0.33	2.83	0.0125	15.6
RPh1-BH11	RPH1-11-14	13	14	1	1.4	9.71	0.23	0.012	0.029	30.8	0.09	0.34	44.9	0.55	0.21	0.33	0.53	0.0125	13.5
RPh1-BH11	RPHI-II-15	14	15	1	1.44	32.4	0.23	0.012	0.029	51.7	0.09	1.15	3.87	0.55	0.21	0.33	3.74	0.0125	6.84
RPh1-BH11	RPH1-11-16	15	16	1	1.44	33.3	0.23	0.012	0.029	53	0.09	1.02	1.87	0.55	0.21	0.33	3.91	0.0125	6.6
RPh1-BH11	RPH1-11-17	16	17	1	1.44	29.8	0.23	0.012	0.029	47.7	0.09	0.84	12.3	0.55	0.21	0.33	3.06	0.0125	6.25
RPh1-BH11	RPH1-11-18	17	18	1	2.66	25	0.23	0.012	0.029	46.9	0.09	0.73	14.5	0.55	0.21	0.33	2.68	0.0125	10.2
RPh1-BH11	RPH1-11-19	18	19	1	1.4	22.7	0.23	0.012	0.029	51.7	0.09	0.67	7.4	0.55	0.21	0.33	2.29	0.0125	15.2
RPh1-BH11	RPH1-11-20	19	20	1	1.4	10.4	0.23	0.012	0.029	53.8	0.09	0.23	3.97	0.55	0.21	0.33	0.8	0.0125	30.7
RPh1-BH11	RPH1-11-21	20	21	1	1.4	11.5	0.23	0.012	0.029	51.3	0.09	0.31	8.59	0.55	0.21	0.33	0.94	0.0125	27.2
RPh1-BH11	RPH1-11-22	21	22	1	2.66	19.2	0.23	0.012	0.029	46.1	0.09	0.6	16.3	0.55	0.21	0.33	1.77	0.0125	15.9
RPh1-BH11	RPH1-11-23	22	23	1	2.66	17.8	0.23	0.012	0.029	45.6	0.09	0.67	17.3	0.55	0.21	0.33	1.63	0.0125	16.8
RPh1-BH11	RPH1-11-24	23	24	1	2.66	8.65	0.23	0.012	0.029	44.3	0.09	0.22	21.2	0.55	0.21	0.33	0.51	0.0125	25.25
RPh1-BH12	RPh1-BH12-1	0	1	1		0.53	0.39	0.012	0.066	49.8	0.09	6.03	4.53	0.71	0.28	0.33	0.51	0.0125	37.6
RPh1-BH12	RPh1-BH12-2	1	2	1		0.41	0.35	0.012	0.062	52.2	0.09	1.69	4.38	0.66	0.35	0.33	0.51	0.0125	39.9
RPh1-BH12	RPh1-BH12-3	2	3	1		0.43	0.3	0.012	0.053	48.5	0.09	3.31	10.3	0.55	0.22	0.33	0.51	0.0125	36.3
RPh1-BH12	RPh1-BH12-4	3	4	1		0.49	0.23	0.012	0.029	51.2	0.09	1.17	8.68	0.55	0.21	0.33	0.51	0.0125	38.25
RPh1-BH12	RPh1-BH12-5	4	5	1		0.53	0.35	0.012	0.06	51	0.09	0.57	8.12	0.67	0.24	0.33	0.51	0.0125	38.5
RPh1-BH12	RPh1-BH12-6	5	6	1		0.72	0.23	0.012	0.035	49.1	0.09	0.51	12.8	0.55	0.21	0.33	0.51	0.0125	36.2
RPh1-BH12	RPh1-BH12-7	6	7	1		0.84	0.23	0.012	0.036	51.6	0.09	0.6	8.35	0.55	0.21	0.33	0.51	0.0125	38.25
RPh1-BH12	RPh1-BH12-8	7	8	1		0.87	0.23	0.012	0.029	51.6	0.09	0.058	8.48	0.55	0.21	0.33	0.51	0.0125	38.3
RPh1-BH12	RPh1-BH12-9	8	9	1		1.5	0.24	0.012	0.029	46.2	0.09	0.08	17.7	0.61	0.31	0.33	0.51	0.0125	33.4
RPh1-BH12	RPh1-BH12-10	9	10	1		2.63	0.41	0.012	0.048	46.5	0.09	0.08	16.8	0.82	0.21	0.33	0.51	0.0125	32.5
RPh1-BH12	RPh1-BH12-11	10	11	1		1.22	0.23	0.012	0.029	52.8	0.09	0.058	6.32	0.55	0.21	0.33	0.51	0.0125	39.4
RPh1-BH12	RPh1-BH12-12	11	12	1		3.4	0.24	0.012	0.029	53.5	0.09	0.058	4.32	0.57	0.21	0.33	0.51	0.0125	37.4
RPh1-BH12	RPh1-BH12-13	12	13	1	1.4	15.8	0.23	0.012	0.029	53.5	0.09	0.63	3.09	0.55	0.21	0.33	1.5	0.0125	24.8
RPh1-BH12	RPh1-BH12-14	13	14	1	2.66	18.2	0.35	0.012	0.047	46.5	0.09	0.68	14.1	0.89	0.21	0.33	1.77	0.0125	17.3
RPh1-BH12	RPh1-BH12-15	14	15	1	1.44	26.1	0.26	0.012	0.035	48	0.09	0.96	10.5	0.59	0.21	0.33	2.82	0.0125	10.7
RPh1-BH12	RPh1-BH12-16	15	16	1	1.44	27.9	0.23	0.012	0.029	52.2	0.09	1.26	2.62	0.55	0.21	0.33	3.13	0.0125	12.2
RPh1-BH12	RPh1-BH12-17	16	17	1	1.4	18.1	0.23	0.012	0.029	52.7	0.09	1.41	3.26	0.55	0.21	0.33	1.84	0.0125	22.2
RPh1-BH12	RPh1-BH12-18	17	18	1	2.66	22.6	0.23	0.012	0.029	42	0.09	1.03	22.6	0.55	0.21	0.33	2.21	0.0125	9.25

RPh1-BH12	RPh1-BH12-19	18	19	1	1.44	28.1	0.23	0.012	0.029	49.6	0.09	1.12	8.24	0.55	0.21	0.33	3.25	0.0125	9.53
RPh1-BH12	RPh1-BH12-20	19	20	1	2.66	24	0.23	0.012	0.029	41.7	0.09	0.76	23.7	0.55	0.21	0.33	2.12	0.0125	7.6
RPh1-BH13	RPh1-BH13-1	0	1	1		0.7	0.89	0.012	0.13	42.4	0.09	10.4	12.1	1.4	0.76	0.33	0.51	0.0125	31.1
RPh1-BH13	RPh1-BH13-2	1	2	1		0.49	0.23	0.012	0.029	53.8	0.09	2.81	3.6	0.55	0.21	0.33	0.51	0.0125	39
RPh1-BH13	RPh1-BH13-3	2	3	1		0.49	0.23	0.012	0.029	51	0.09	0.43	10.2	0.55	0.21	0.33	0.51	0.0125	37.6
RPh1-BH13	RPh1-BH13-4	3	4	1		0.39	0.23	0.012	0.042	47.9	0.09	0.88	15.2	0.55	0.21	0.33	0.51	0.0125	35
RPh1-BH13	RPh1-BH13-5	4	5	1		0.96	0.23	0.012	0.029	47.8	0.09	0.61	15.6	0.55	0.21	0.33	0.51	0.0125	34.6
RPh1-BH13	RPh1-BH13-6	5	6	1		1.03	0.23	0.012	0.029	50.2	0.09	0.21	11.5	0.55	0.21	0.33	0.51	0.0125	36.6
RPh1-BH13	RPh1-BH13-7	6	7	1		1.1	0.23	0.012	0.029	50.2	0.09	0.058	11	0.55	0.21	0.33	0.51	0.0125	36.9
RPh1-BH13	RPh1-BH13-8	7	8	1		1.6	0.23	0.012	0.029	48.5	0.09	0.51	13.6	0.62	0.23	0.33	0.51	0.0125	34.8
RPh1-BH13	RPh1-BH13-9	8	9	1		2.14	0.23	0.012	0.029	48.2	0.09	0.058	14.5	0.55	0.21	0.33	0.51	0.0125	34.2
RPh1-BH13	RPh1-BH13-10	9	10	1		2.49	0.33	0.012	0.037	48.2	0.09	0.058	14	0.79	0.21	0.33	0.51	0.0125	34
RPh1-BH13	RPh1-BH13-11	10	11	1		1.9	0.23	0.012	0.029	49.7	0.09	0.058	11.8	0.58	0.21	0.33	0.51	0.0125	35.6
RPh1-BH13	RPh1-BH13-12	11	12	1		6.2	0.23	0.012	0.029	53.1	0.09	0.22	4.5	0.55	0.25	0.33	0.51	0.0125	34.6
RPh1-BH13	RPh1-BH13-13	12	13	1		8.27	0.23	0.012	0.029	53.8	0.09	0.27	4.15	0.55	0.21	0.33	0.66	0.0125	32.6
RPh1-BH13	RPh1-BH13-14	13	14	1		7.77	0.23	0.012	0.029	54.8	0.09	0.31	2.24	0.55	0.21	0.33	0.61	0.0125	34.1
RPh1-BH13	RPh1-BH13-15	14	15	1		4.9	0.23	0.012	0.029	44.2	0.09	0.058	21.6	0.55	0.21	0.33	0.51	0.0125	28.4
RPh1-BH13	RPh1-BH13-16	15	16	1	2.66	13.1	0.23	0.012	0.029	47.6	0.09	0.4	14.3	0.55	0.21	0.33	1.13	0.0125	23.2
RPh1-BH13	RPh1-BH13-17	16	17	1	1.4	23	0.23	0.012	0.029	53.4	0.09	1	1.29	0.55	0.21	0.33	2.73	0.0125	18.4
RPh1-BH13	RPh1-BH13-18	17	18	1	1.4	16.7	0.23	0.012	0.029	53.1	0.09	0.87	3.22	0.55	0.21	0.33	1.72	0.0125	24.1
RPh1-BH13	RPh1-BH13-19	18	19	1	2.66	19.6	0.23	0.012	0.029	40.4	0.09	0.77	26.9	0.55	0.21	0.33	1.77	0.0125	10.4
RPh1-BH13	RPh1-BH13-20	19	20	1	2.66	18.8	0.3	0.012	0.045	39.5	0.09	0.8	27.2	0.55	0.21	0.33	1.78	0.0125	11
RPh1-BH13	RPh1-BH13-21	20	21	1	2.666	18.1	0.23	0.012	0.029	42.3	0.09	0.61	32.6	0.55	0.21	0.33	1.55	0.0125	13.7
RPh1-BH13	RPh1-BH13-22	21	22	1	1.44	21.4	0.23	0.012	0.029	50	0.09	0.65	9.28	0.55	0.21	0.33	2.22	0.0125	16.3
RPh1-BH13	RPh1-BH13-23	22	23	1	1.44	25	0.23	0.012	0.029	49.5	0.09	0.74	9.49	0.55	0.21	0.33	2.7	0.0125	12.4
RPh1-BH14	RPH1-BH14-1	0	1	1		1.31	1.59	0.022	0.21	38.6	0.22	0.058	23.6	2.55	1.2	0.33	0.51	0.0125	30.7
RPh1-BH14	RPH1-BH14-2	1	2	1		1.53	1.6	0.017	0.22	34.6	0.18	0.058	31	2.45	1.14	0.33	0.51	0.0125	27.2
RPh1-BH14	RPH1-BH14-3	2	3	1		1.6	1.43	0.016	0.19	35.1	0.15	0.058	31.1	2.17	1	0.33	0.51	0.0125	27.2
RPh1-BH14	RPH1-BH14-4	3	4	1		1.54	1.7	0.016	0.25	32	0.18	0.058	36.1	2.48	1.08	0.33	0.51	0.0125	24.7

RPh1-BH14	RPH1-BH14-5	4	5	1		1.85	1.88	0.021	0.3	35	0.25	0.058	29.6	2.83	1.13	0.33	0.51	0.0125	27.2
RPh1-BH14	RPH1-BH14-6	5	6	1		2.22	2.02	0.02	0.31	28.9	0.22	0.058	40.3	2.93	1.1	0.33	0.51	0.0125	21.9
RPh1-BH14	RPH1-BH14-7	6	7	1		2.3	2.08	0.02	0.41	23.9	0.23	0.058	49.3	2.72	0.99	0.33	0.51	0.0125	18
RPh1-BH14	RPH1-BH14-8	7	8	1		3	1.64	0.017	0.3	29.4	0.17	0.058	41.1	2.2	0.82	0.33	0.51	0.0125	21.2
RPh1-BH14	RPH1-BH14-9	8	9	1		5.59	1.82	0.022	0.24	33.9	0.19	0.058	31.6	2.8	0.85	0.33	0.51	0.0125	22.7
RPh1-BH14	RPH1-BH14-10	9	10	1		8.56	0.33	0.012	0.05	44.9	0.09	0.21	18.3	0.55	0.22	0.33	0.57	0.0125	26.3
RPh1-BH14	RPH1-BH14-11	10	11	1	2.66	17.1	0.23	0.012	0.029	51.9	0.09	0.62	5.82	0.55	0.21	0.33	1.77	0.0125	22.4
RPh1-BH14	RPH1-BH14-12	11	12	1	2.66	13.8	0.23	0.012	0.03	46.8	0.09	0.45	15.3	0.55	0.21	0.33	1.24	0.0125	21.8
RPh1-BH14	RPH1-BH14-13	12	13	1	2.66	13.4	0.23	0.012	0.029	45.2	0.09	0.29	17.7	0.55	0.21	0.33	1.28	0.0125	21.7
RPh1-BH14	RPH1-BH14-14	13	14	1	1.85	9.81	0.23	0.012	0.029	50.6	0.09	0.2	9.03	0.55	0.21	0.33	0.77	0.0125	29.1
RPh1-BH14	RPH1-BH14-15	14	15	1		6.3	0.23	0.012	0.038	41.7	0.09	0.085	25	0.55	0.21	0.33	0.51	0.0125	25.8
RPh1-BH14	RPH1-BH14-16	15	16	1		7.17	0.23	0.012	0.029	34.4	0.09	0.094	38.4	0.55	0.21	0.33	0.51	0.0125	19.4
RPh1-BH14	RPH1-BH14-17	16	17	1		3.59	0.23	0.012	0.029	29.9	0.09	0.058	47.5	0.55	0.21	0.33	0.51	0.0125	18.7
RPh1-BH14	RPH1-BH14-18	17	18	1		1.9	0.23	0.012	0.029	19.6	0.09	0.058	65.3	0.55	0.21	0.33	0.51	0.0125	12.9
RPh1-BH14	RPH1-BH14-19	18	19	1		1.49	0.23	0.012	0.029	19.3	0.09	0.058	66.2	0.55	0.21	0.33	0.51	0.0125	12.7
RPh1-BH14	RPH1-BH14-20	19	20	1		1.36	0.23	0.012	0.029	19	0.09	0.058	66.9	0.55	0.21	0.33	0.51	0.0125	12.4
RPh1-BH14	RPH1-BH14-21	20	21	1		1.32	0.23	0.012	0.029	13.2	0.09	0.058	75.4	0.55	0.21	1.12	0.51	0.0125	8.2
RPh1-BH15B	RPH1-BH 15B-1	0	1	1	2.66	8.7	0.69	0.019	0.096	44.7	0.09	0.83	15.8	1.04	0.61	0.33	1.12	0.0125	26.4
RPh1-BH15B	RPH1-BH 15B-2	1	2	1	2.66	6.27	0.45	0.012	0.072	48.8	0.09	6.81	5.23	0.77	0.35	0.33	0.65	0.0125	30.6
RPh1-BH15B	RPH1-BH 15B-3	2	3	1	1.4	19.2	0.23	0.012	0.029	49.9	0.09	2.28	7.42	0.55	0.21	0.33	2.06	0.0125	18.6
RPh1-BH15B	RPH1-BH 15B-4	3	4	1	1.4	19.8	0.23	0.012	0.029	49.4	0.09	1.56	9.47	0.55	0.21	0.33	2.11	0.0125	17.4
RPh1-BH15B	RPH1-BH 15B-5	4	5	1	1.44	29.9	0.23	0.012	0.029	53.2	0.09	1.21	1.53	0.55	0.21	0.33	3.3	0.0125	10.8
RPh1-BH15B	RPH1-BH 15B-6	5	6	1	1.44	28.8	0.23	0.012	0.029	52.3	0.09	1.38	2.42	0.55	0.21	0.33	3.24	0.0125	11.5
RPh1-BH15B	RPH1-BH 15B-7	6	7	1	1.44	24.6	0.23	0.012	0.029	52.4	0.09	1.27	3.09	0.55	0.21	0.33	2.6	0.0125	15.8
RPh1-BH15B	RPH1-BH 15B-8	7	8	1	2.11	11.2	0.23	0.012	0.029	29.9	0.09	0.54	45.3	0.55	0.21	0.41	0.85	0.0125	11.6
RPh1-BH15B	RPH1-BH 15B-9	8	9	1	2.11	10.1	0.23	0.012	0.029	28.2	0.09	0.39	48.8	0.55	0.21	0.68	0.56	0.0125	11.2

RPh1-BH15B	RPH1-BH 15B-10	9	10	1	1.44	31.5	0.23	0.012	0.029	50	0.09	1.01	7.46	0.55	0.21	0.33	3.47	0.0125	6.45
RPh1-BH15B	RPH1-BH 15B-11	10	11	1	2.66	16.3	0.23	0.012	0.029	37	0.09	0.4	33.1	0.55	0.21	0.33	1.52	0.0125	11.6
RPh1-BH15B	RPH1-BH 15B-12	11	12	1	2.66	22	0.23	0.012	0.029	40.1	0.09	0.56	27	0.55	0.21	0.33	2.11	0.0125	8.17
RPh1-BH15B	RPH1-BH 15B-13	12	13	1	2.66	25.4	0.23	0.012	0.029	44.5	0.09	0.6	18.7	0.55	0.21	0.33	2.47	0.0125	8.17
RPh1-BH15B	RPH1-BH 15B-14	13	14	1	2.66	28.3	0.23	0.012	0.029	45.3	0.09	0.77	16.5	0.55	0.21	0.33	3.01	0.0125	6.02
RPh1-BH15B	RPH1-BH 15B-15	14	15	1	2.66	21	0.23	0.012	0.029	40.3	0.09	0.61	26.5	0.55	0.21	0.33	2.04	0.0125	9.49
RPh1-BH15B	RPH1-BH 15B-16	15	16	1	2.66	23.1	0.23	0.012	0.029	46.2	0.09	0.53	16.4	0.55	0.21	0.33	2.14	0.0125	11.6
RPh1-BH15B	RPH1-BH 15B-17	16	17	1	2.66	18.8	0.23	0.012	0.029	36.2	0.09	0.36	34.4	0.55	0.21	0.33	1.65	0.0125	8.48
RPh1-BH15B	RPH1-BH 15B-18	17	18	1	2.11	12.2	0.23	0.012	0.029	24.7	0.09	0.19	55.6	0.55	0.21	0.33	0.8	0.0125	6.43
RPh1-BH16	RPH1-BH16-1	0	1	1		0.69	0.84	0.012	0.12	43.3	0.09	0.058	19.3	1.33	0.66	0.33	0.51	0.0125	33.7
RPh1-BH16	RPH1-BH16-2	1	2	1		0.34	0.37	0.012	0.07	48.8	0.09	0.058	11.4	0.63	0.37	0.33	0.51	0.0125	38
RPh1-BH16	RPH1-BH16-3	2	3	1		0.4	0.23	0.012	0.043	49.4	0.09	0.058	11	0.55	0.28	0.33	0.51	0.0125	38.3
RPh1-BH16	RPH1-BH16-4	3	4	1		0.54	0.23	0.012	0.029	46.4	0.09	0.45	17.5	0.55	0.21	0.33	0.51	0.0125	34.6
RPh1-BH16	RPH1-BH16-5	4	5	1		0.6	0.23	0.012	0.032	44.7	0.09	0.29	20.3	0.55	0.21	0.33	0.51	0.0125	4
RPh1-BH16	RPH 1-BH16-6	5	6	1		0.92	0.23	0.012	0.029	45.7	0.09	0.11	18.7	0.55	0.21	0.33	0.51	0.0125	33.9
RPh1-BH16	RPH1-BH16-7	6	7	1		1.32	0.23	0.012	0.031	44.5	0.09	0.14	21	0.55	0.21	0.33	0.51	0.0125	32.3
RPh1-BH16	RPH 1-BH 16-8	7	8	1		2	0.23	0.012	0.041	46.4	0.09	0.058	17.6	0.55	0.21	0.33	0.51	0.0125	33.2
RPh1-BH16	RPH1-BH16-9	8	9	1		5	0.23	0.012	0.029	50.3	0.09	0.1	10.3	0.55	0.21	0.33	0.51	0.0125	33.5
RPh1-BH16	RPH1-BH16-10	9	10	1	1.4	14.8	0.23	0.012	0.037	51.2	0.09	0.52	6.67	0.55	0.21	0.33	1.51	0.0125	24.8
RPh1-BH16	RPH 1-BH 16-11	10	11	1	2.66	8.91	0.23	0.012	0.052	48.8	0.09	0.21	12.7	0.55	0.21	0.33	0.62	0.0125	28.1
RPh1-BH16	RPH1-BH16-12	11	12	1	2.66	12.1	0.23	0.012	0.035	46.7	0.09	0.35	15.4	0.55	0.21	0.33	1.21	0.0125	23.7
RPh1-BH16	RPH1-BH16-13	12	13	1	1.4	22.7	0.23	0.012	0.029	49.5	0.09	0.84	8.89	0.55	0.21	0.33	2.46	0.0125	15.5
RPh1-BH16	RPH1-BH16-14	13	14	1	1.4	25.9	0.23	0.012	0.029	53.2	0.09	1.24	1.5	0.55	0.21	0.33	2.86	0.0125	15.2
RPh1-BH16	RPH1-BH16-15	14	15	1	2.3	16.7	0.23	0.012	0.029	40.4	0.09	0.66	26.3	0.55	0.21	0.33	1.47	0.0125	14.2
RPh1-BH16	RPH1-BH16-16	15	16	1	1.44	33.3	0.23	0.012	0.029	52.4	0.09	1.24	1.75	0.55	0.21	0.33	3.88	0.0125	7.26
RPh1-BH16	RPH1-BH16-17	16	17	1	1.44	31.8	0.23	0.012	0.029	52.6	0.09	1.35	1.42	0.55	0.21	0.33	3.58	0.0125	9.16
RPh1-BH16	RPH1-BH16-18	17	18	1	1.44	33.8	0.23	0.012	0.029	52.1	0.09	1.07	2.32	0.55	0.21	0.33	4.06	0.0125	6.36
RPh1-BH17	RPH1-BH17-1	0	1	1		0.69	1.08	0.013	0.15	39.2	0.09	0.085	25.3	1.72	0.96	0.33	0.51	0.0125	30.7

RPh1-BH17	RPH1-BH17-2	1	2	1		0.58	0.58	0.012	0.088	43.6	0.09	0.058	20.4	0.95	0.58	0.33	0.51	0.0125	33.2
RPh1-BH17	RPH1-BH17-3	2	3	1		0.34	0.45	0.012	0.074	43.7	0.09	0.44	21.1	0.73	0.44	0.33	0.51	0.0125	32.7
RPh1-BH17	RPH1-BH17-4	3	4	1		0.56	0.23	0.012	0.035	47.8	0.09	1.11	13.9	0.55	0.21	0.33	0.51	0.0125	35.7
RPh1-BH17	RPH1-BH17-5	4	5	1		0.79	0.23	0.012	0.029	47.7	0.09	0.53	14.8	0.55	0.21	0.33	0.51	0.0125	35.6
RPh1-BH17	RPH1-BH17-6	5	6	1		0.64	0.29	0.012	0.04	44.8	0.09	0.53	19.1	0.55	0.31	0.33	0.51	0.0125	33.8
RPh1-BH17	RPH1-BH17-7	6	7	1		0.62	0.25	0.012	0.032	42.2	0.09	0.3	23.8	0.55	0.21	0.94	0.51	0.0125	31.3
RPh1-BH17	RPH1-BH17-8	7	8	1		0.72	0.23	0.012	0.029	48.8	0.09	0.058	13.6	0.55	0.21	0.33	0.51	0.0125	36.2
RPh1-BH17	RPH1-BH17-9	8	9	1		0.95	0.24	0.012	0.037	46.9	0.09	0.058	16.8	0.55	0.21	0.33	0.51	0.0125	34.3
RPh1-BH17	RPH1-BH17-10	9	10	1		0.97	0.27	0.012	0.035	44.3	0.09	0.058	21.3	0.56	0.21	0.33	0.51	0.0125	32.5
RPh1-BH17	RPH1-BH17-11	10	11	1		0.58	0.27	0.012	0.035	45.2	0.09	0.058	20.3	0.62	0.22	0.33	0.51	0.0125	32.7
RPh1-BH17	RPH1-BH17-12	11	12	1		0.98	0.31	0.012	0.04	40.9	0.09	0.058	23.3	0.55	0.21	0.33	0.51	0.0125	33.7
RPh1-BH17	RPH1-BH17-13	12	13	1		1.4	0.36	0.012	0.043	41.2	0.09	0.058	22.5	0.73	0.21	0.33	0.51	0.0125	33.6
RPh1-BH17	RPH1-BH17-14	13	14	1		1.9	0.38	0.012	0.046	47.1	0.09	0.058	11.2	0.78	0.21	0.33	0.51	0.0125	38.4
RPh1-BH17	RPH1-BH17-15	14	15	1		3.3	0.37	0.012	0.05	46.2	0.09	0.058	14.1	0.72	0.29	0.33	0.51	0.0125	34.8
RPh1-BH17	RPH1-BH17-16	15	16	1		6.94	0.36	0.012	0.054	48.5	0.09	0.11	7.77	0.75	0.29	0.33	0.51	0.0125	34.7
RPh1-BH17	RPH1-BH17-17	16	17	1	2.66	9.74	0.37	0.012	0.051	35.4	0.09	0.21	30.5	0.7	0.4	0.33	0.71	0.0125	21.9
RPh1-BH17	RPH1-BH17-18	17	18	1	2.66	15	0.29	0.012	0.046	46.4	0.09	0.46	11	0.61	0.21	0.33	1.36	0.0125	24.6
RPh1-BH17	RPH1-BH17-19	18	19	1	2.66	13.2	0.46	0.012	0.063	37.4	0.09	0.38	26.1	0.86	0.29	0.33	1.04	0.0125	20.2
RPh1-BH17	RPH1-BH17-20	19	20	1	2.66	16.3	0.43	0.012	0.058	38.2	0.09	0.5	24.9	0.77	0.25	0.33	1.33	0.0125	17.2
RPh1-BH17	RPH1-BH17-21	20	21	1	1.4	19	0.33	0.012	0.054	45.1	0.09	0.64	12	0.68	0.24	0.33	1.99	0.0125	20
RPh1-BH17	RPH1-BH17-22	21	22	1		9.36	0.27	0.012	0.04	25.2	0.09	0.35	49.6	0.55	0.21	0.33	0.6	0.0125	14.1
RPh1-BH17	RPH1-BH17-23	22	23	1		8.02	0.39	0.012	0.046	27.2	0.09	0.19	46	0.66	0.21	0.33	0.51	0.0125	16.9
RPh1-BH17	RPH1-BH17-24	23	24	1		6.73	0.23	0.012	0.029	30.7	0.09	0.11	40.8	0.55	0.21	0.33	0.51	0.0125	20.6
RPh1-BH18	RPH1-BH18-01	0	1	1		0.38	0.33	0.012	0.061	50.6	0.09	6.08	8.27	0.65	0.43	0.33	0.51	0.0125	39.1
RPh1-BH18	RPH1-BH18-02	1	2	1		0.39	0.34	0.012	0.063	47	0.09	2.71	13.9	0.62	0.36	0.33	0.51	0.0125	34.7
RPh1-BH18	RPH1-BH18-03	2	3	1		0.52	0.23	0.012	0.032	50.8	0.09	2.3	8.48	0.55	0.28	0.33	0.51	0.0125	37.2
RPh1-BH18	RPH1-BH18-04	3	4	1		0.59	0.23	0.012	0.029	51.5	0.09	0.36	8.49	0.55	0.21	0.33	0.51	0.0125	38.6

RPh1-BH18	RPH1-BH18-05	4	5	1		0.71	0.23	0.012	0.029	43.4	0.09	0.22	23.9	0.55	0.21	0.33	0.51	0.0125	31.3
RPh1-BH18	RPH1-BH18-06	5	6	1		0.69	0.23	0.012	0.04	39.3	0.09	0.048	30.8	0.55	0.21	0.33	0.51	0.0125	28.4
RPh1-BH18	RPH1-BH18-07	6	7	1		1.18	0.33	0.012	0.053	38.7	0.09	0.41	30.8	0.65	0.21	0.33	0.51	0.0125	27.8
RPh1-BH18	RPH1-BH18-08	7	8	1		2.33	0.23	0.012	0.04	42.9	0.09	0.4	24	0.59	0.21	0.33	0.51	0.0125	29.4
RPh1-BH18	RPH1-BH18-09	8	9	1		2.72	0.23	0.012	0.045	44.3	0.09	0.73	21.1	0.58	0.21	0.33	0.51	0.0125	30.2
RPh1-BH18	RPH1-BH18-10	9	10	1		2.17	0.23	0.012	0.029	42.7	0.09	0.058	25.7	0.55	0.21	0.33	0.51	0.0125	29.1
RPh1-BH18	RPH1-BH18-11	10	11	1	1.4	10.5	0.23	0.012	0.029	53.4	0.09	0.55	5.13	0.55	0.21	0.33	0.51	0.0125	29.9
RPh1-BH18	RPH1-BH18-12	11	12	1	1.4	6.98	0.23	0.012	0.029	54.5	0.09	0.18	4.24	0.55	0.21	0.33	0.51	0.0125	33.9
RPh1-BH18	RPH1-BH18-13	12	13	1	1.4	15.5	0.23	0.012	0.029	50.8	0.09	0.36	9.32	0.55	0.21	0.33	0.51	0.0125	23.2
RPh1-BH18	RPH1-BH18-14	13	14	1	1.4	20.9	0.23	0.012	0.029	53.1	0.09	0.77	5.01	0.55	0.21	0.33	0.66	0.0125	19.3
RPh1-BH18	RPH1-BH18-15	14	15	1	2.3	17.1	0.23	0.012	0.029	44.4	0.09	0.54	20.7	0.55	0.21	0.33	0.51	0.0125	16.7
RPh1-BH18	RPH1-BH18-16	15	16	1	1.44	29	0.23	0.012	0.029	51.2	0.09	1.08	7.16	0.55	0.21	0.33	0.85	0.0125	10.6
RPh1-BH18	RPH1-BH18-17	16	17	1	1.4	25.5	0.23	0.012	0.029	51.4	0.09	0.94	7.48	0.55	0.21	0.33	0.69	0.0125	13.9
RPh1-BH18	RPH1-BH18-18	17	18	1	1.44	31.2	0.23	0.012	0.029	53.7	0.09	0.96	3.37	0.55	0.21	0.33	0.9	0.0125	9.8
RPh1-BH18	RPH1-BH18-19	18	19	1	2.3	22.6	0.23	0.012	0.029	43.9	0.09	0.75	19.6	0.55	0.21	0.33	2.16	0.0125	10.9
RPh1-BH18	RPH1-BH18-20	19	20	1	2.3	14.3	0.23	0.012	0.029	32	0.09	0.34	42.6	0.55	0.21	0.33	0.51	0.0125	10
RPh1-BH18	RPH1-BH18-21	20	21	1	2.3	14.9	0.23	0.012	0.029	36.3	0.09	0.34	34.7	0.55	0.21	0.33	0.51	0.0125	12.4
RPh1-BH18	RPH1-BH18-22	21	22	1	2.3	20.9	0.23	0.012	0.029	38.1	0.09	0.51	31.7	0.55	0.21	0.33	0.51	0.0125	7.9
RPh1-BH18	RPH1-BH18-23	22	23	1	2.11	16.1	0.23	0.012	0.029	27.9	0.09	0.3	49.7	0.55	0.21	0.33	0.51	0.0125	5.2
RPh1-BH18	RPH1-BH18-24	23	24	1	2.11	10.4	0.23	0.012	0.029	20	0.09	0.11	64.3	0.55	0.21	0.33	0.51	0.0125	4.5
RPh1-BH19	RPH1-BH19-1	0	1	1		0.47	1.36	0.017	0.19	44.6	0.12	0.058	13.7	2.23	1.2	0.33	0.51	0.0125	36.1
RPh1-BH19	RPH1-BH19-2	1	2	1		0.37	0.69	0.012	0.11	48	0.09	0.058	11.5	1.16	0.7	0.33	0.51	0.0125	37.5
RPh1-BH19	RPH1-BH19-3	2	3	1		0.44	0.41	0.012	0.073	49.5	0.09	2.37	8.98	0.73	0.43	0.33	0.51	0.0125	37
RPh1-BH19	RPH1-BH19-4	3	4	1		0.61	0.25	0.012	0.05	47.8	0.09	4.39	12	0.55	0.27	0.33	0.51	0.0125	34.2
RPh1-BH19	RPH1-BH19-5	4	5	1		0.68	0.23	0.012	0.031	52.4	0.09	0.33	6.4	0.55	0.21	0.33	0.51	0.0125	39.5
RPh1-BH19	RPH1-BH19-6	5	6	1		0.72	0.23	0.012	0.029	41.8	0.09	0.16	24.6	0.55	0.21	0.69	0.51	0.0125	31.4
RPh1-BH19	RPH1-BH19-7	6	7	1		0.69	0.23	0.012	0.029	41	0.09	0.075	26	0.55	0.21	0.84	0.51	0.0125	30.5

RPh1-BH19	RPH1-BH19-8	7	8	1		0.96	0.23	0.012	0.03	43.5	0.09	0.058	22.9	0.55	0.21	0.33	0.51	0.0125	31.9
RPh1-BH19	RPH1-BH19-9	8	9	1		1.27	0.23	0.012	0.029	46.6	0.09	0.058	17.2	0.55	0.21	0.33	0.51	0.0125	34.2
RPh1-BH19	RPH1-BH19-10	9	10	1		2.56	0.23	0.012	0.029	48.6	0.09	0.058	13.9	0.55	0.21	0.33	0.51	0.0125	34.2
RPh1-BH19	RPH1-BH19-11	10	11	1		6.96	0.23	0.012	0.035	45.1	0.09	0.25	19.5	0.55	0.21	0.33	0.51	0.0125	27.5
RPh1-BH19	RPH1-BH19-12	11	12	1		6.22	0.23	0.012	0.031	49.1	0.09	0.12	12.6	0.55	0.21	0.33	0.51	0.0125	31.3
RPh1-BH19	RPH1-BH19-13	12	13	1		4.54	0.23	0.012	0.03	51.3	0.09	0.058	9.17	0.55	0.21	0.33	0.51	0.0125	34.3
RPh1-BH19	RPH1-BH19-14	13	14	1		9.92	0.23	0.012	0.029	51.2	0.09	0.19	8.42	0.55	0.21	0.33	0.51	0.0125	29.2
RPh1-BH19	RPH1-BH19-15	14	15	1		12.8	0.23	0.012	0.029	53.2	0.09	0.34	5.45	0.55	0.21	0.33	0.51	0.0125	27.5
RPh1-BH19	RPH1-BH19-16	15	16	1		15.4	0.23	0.012	0.029	46	0.09	0.44	17.1	0.55	0.21	0.33	0.51	0.0125	19.8
RPh1-BH19	RPH1-BH19-17	16	17	1	2.66	15.7	0.23	0.012	0.029	49.2	0.09	0.44	12	0.55	0.21	0.33	0.51	0.0125	21.9
RPh1-BH19	RPH1-BH19-18	17	18	1	2.66	12.5	0.23	0.012	0.029	38.4	0.09	0.28	30.9	0.55	0.21	0.69	0.51	0.0125	16.8
RPh1-BH19	RPH1-BH19-19	18	19	1	2.3	21.4	0.23	0.012	0.029	41.5	0.09	0.5	26	0.55	0.21	0.33	0.51	0.0125	9.93
RPh1-BH19	RPH1-BH19-20	19	20	1	2.3	22	0.23	0.012	0.029	42.8	0.09	0.56	23.3	0.55	0.21	0.33	0.51	0.0125	10.7
RPh1-BH19	RPH1-BH19-21	20	21	1	2.3	20.1	0.23	0.012	0.029	39.3	0.09	0.5	29.8	0.55	0.21	0.33	0.51	0.0125	9.67
RPh1-BH20	RPH1-BH20-01	0	1	1		0.55	1.79	0.033	0.27	30.7	0.33	5.2	33.4	2.64	1	0.33	0.51	0.0125	24.1
RPh1-BH20	RPH1-BH20-02	1	2	1		0.81	0.23	0.012	0.03	44.4	0.09	6.52	15.8	0.55	0.21	0.33	0.51	0.0125	31.9
RPh1-BH20	RPH1-BH20-03	2	3	1		1.35	0.23	0.012	0.029	41.7	0.09	1.15	25.6	0.55	0.21	0.33	0.51	0.0125	29.6
RPh1-BH20	RPH1-BH20-04	3	4	1		1.15	0.23	0.012	0.029	47	0.09	0.92	15.9	0.55	0.21	0.33	0.51	0.0125	34.2
RPh1-BH20	RPH1-BH20-05	4	5	1		1.32	0.23	0.012	0.029	44.9	0.09	0.53	20	0.55	0.21	0.33	0.51	0.0125	32.5
RPh1-BH20	RPH1-BH20-06	5	6	1		2.19	0.23	0.012	0.032	44.5	0.09	0.26	20.9	0.6	0.21	0.33	0.51	0.0125	31.3
RPh1-BH20	RPH1-BH20-07	6	7	1		2.02	0.23	0.012	0.029	52.4	0.09	0.058	7.27	0.55	0.21	0.33	0.51	0.0125	37.6
RPh1-BH20	RPH1-BH20-08	7	8	1		1.63	0.23	0.012	0.029	46.3	0.09	0.058	18.4	0.55	0.21	0.33	0.51	0.0125	33.1
RPh1-BH20	RPH1-BH20-09	8	9	1		8.43	0.23	0.012	0.029	53.5	0.09	0.29	4.37	0.55	0.21	0.33	0.68	0.0125	32.5
RPh1-BH20	RPH1-BH20-10	9	10	1		5.6	0.23	0.012	0.029	53.6	0.09	0.21	5.21	0.55	0.21	0.33	0.51	0.0125	34.7
RPh1-BH20	RPH1-BH20-11	10	11	1	1.4	20.1	0.23	0.012	0.029	51	0.09	0.58	7.96	0.55	0.21	0.33	2.1	0.0125	18.2

RPh1-BH20	RPH1-BH20-12	11	12	1	1.4	15.6	0.23	0.012	0.029	54.6	0.09	0.55	1.87	0.55	0.21	0.33	1.5	0.0125	25.7
RPh1-BH20	RPH1-BH20-13	12	13	1	1.44	29.8	0.23	0.012	0.029	52.1	0.09	0.81	4.79	0.55	0.21	0.33	3.17	0.0125	9.27
RPh1-BH20	RPH1-BH20-14	13	14	1	1.44	29.8	0.23	0.012	0.029	54.3	0.09	0.98	2.44	0.55	0.21	0.33	1.1	0.0125	11.3
RPh1-BH20	RPH1-BH20-15	14	15	1	1.4	15.7	0.23	0.012	0.029	52	0.09	0.67	7.07	0.55	0.21	0.33	0.58	0.0125	23.7
RPh1-BH20	RPH1-BH20-16	15	16	1	1.44	32.9	0.23	0.012	0.029	52.7	0.09	0.92	5.11	0.55	0.21	0.33	1.23	0.0125	7.04
RPh1-BH20	RPH1-BH20-17	16	17	1	1.44	36	0.23	0.012	0.029	54.9	0.09	1.19	0.7	0.55	0.21	0.33	1.13	0.0125	5.99
RPh1-BH20	RPH1-BH20-18	17	18	1	1.44	35.3	0.23	0.012	0.029	55.2	0.09	1.28	0.16	0.55	0.21	0.33	1.13	0.0125	6.9
RPh1-BH20	RPH1-BH20-19	18	19	1	1.44	33	0.23	0.012	0.029	54.7	0.09	1.17	1.34	0.55	0.21	0.33	1.09	0.0125	8.59
RPh1-BH20	RPH1-BH20-20	19	20	1	1.44	35	0.23	0.012	0.029	53	0.09	1	1.94	0.55	0.21	0.33	3.9	0.0125	5.06
RPh1-BH20	RPH1-BH20-21	20	21	1	1.4	16.5	0.23	0.012	0.029	52.1	0.09	0.45	5.39	0.55	0.21	0.33	1.71	0.0125	23.8
RPh1-BH20	RPH1-BH20-22	21	22	1	1.4	22.8	0.23	0.012	0.029	49.7	0.09	0.66	9.81	0.55	0.21	0.33	2.34	0.0125	14.7
RPh1-BH21	RPHI-PH 21-1	0	1	1		0.77	1.1	0.013	0.15	38.5	0.096	0.058	25.7	1.78	1.03	0.33	0.51	0.0125	30.8
RPh1-BH21	RPH1-PH 21-2	1	2	1		0.52	0.65	0.012	0.096	44.2	0.09	0.23	18.9	1.05	0.58	0.33	0.51	0.0125	33.7
RPh1-BH21	RPHI-PH 21-3	2	3	1		0.77	0.66	0.012	0.095	37.1	0.09	4.89	26.6	1.09	0.46	0.33	0.51	0.0125	28
RPh1-BH21	RPHI-PH 21-4	3	4	1		0.81	0.23	0.012	0.029	49.7	0.09	1.8	11.1	0.55	0.21	0.33	0.51	0.0125	36.1
RPh1-BH21	RPHI-PH 21-5	4	5	1		0.7	0.23	0.012	0.031	46.3	0.09	2.46	16.2	0.55	0.21	0.33	0.51	0.0125	33.8
RPh1-BH21	RPHI-PH 21-6	5	6	1		1.23	0.23	0.012	0.029	47.7	0.09	0.56	14	0.55	0.21	0.79	0.51	0.0125	35.1
RPh1-BH21	RPHI-PH 21-7	6	7	1		1.28	0.23	0.012	0.029	37.9	0.09	0.058	33.3	0.55	0.21	0.33	0.51	0.0125	27
RPh1-BH21	RPHI-PH 21-8	7	8	1		1.62	0.23	0.012	0.029	35.9	0.09	0.058	36.6	0.55	0.21	0.33	0.51	0.0125	25.2
RPh1-BH21	RPHI-PH 21-9	8	9	1		1.56	0.24	0.012	0.029	44	0.09	0.058	21.4	0.61	0.4	0.33	0.51	0.0125	31.7
RPh1-BH21	RPHI-PH 21-10	9	10	1		2.62	0.36	0.012	0.034	36.7	0.09	0.058	34.6	0.71	0.21	0.33	0.51	0.0125	24.8
RPh1-BH21	RPHI-PH 21-11	10	11	1		2.09	0.23	0.012	0.029	44.7	0.09	0.058	20.5	0.58	0.21	0.33	0.51	0.0125	31.5
RPh1-BH21	RPHI-PH 21-12	11	12	1	2.66	14	0.23	0.012	0.029	49.2	0.09	0.57	11.8	0.55	0.21	0.33	0.54	0.0125	23.4
RPh1-BH21	RPHI-PH 21-13	12	13	1	1.4	22.6	0.23	0.012	0.029	52.2	0.09	0.94	5.56	0.55	0.21	0.33	0.97	0.0125	17.5
RPh1-BH21	RPHI-PH 21-14	13	14	1	1.4	20.2	0.23	0.012	0.029	54	0.09	0.54	3.15	0.55	0.21	0.33	1	0.0125	21

RPh1-BH21	RPHI-PH 21-15	14	15	1	1.4	16.4	0.23	0.012	0.03	50.7	0.09	0.48	8.34	0.57	0.21	0.33	0.67	0.0125	22.5
RPh1-BH21	RPHI-PH 21-16	15	16	1	1.44	31.5	0.23	0.012	0.029	54.6	0.09	0.95	0.57	0.55	0.21	0.33	1.57	0.0125	10.7
RPh1-BH21	RPHI-PH 21-17	16	17	1	1.44	21	0.23	0.012	0.029	54.6	0.09	0.55	0.53	0.55	0.21	0.33	2.38	0.0125	20.7
RPh1-BH21	RPHI-PH 21-18	17	18	1	1.44	25.2	0.23	0.012	0.029	54.3	0.09	0.81	0.69	0.55	0.21	0.33	2.81	0.0125	16
RPh1-BH21	RPHI-PH 21-19	18	19	1	1.44	26.7	0.23	0.012	0.029	53.1	0.09	1.07	0.37	0.55	0.21	0.33	2.99	0.0125	15.7
RPh1-BH21	RPHI-PH 21-20	19	20	1	1.44	23.8	0.23	0.012	0.029	48.1	0.09	0.83	11.8	0.55	0.21	0.33	2.59	0.0125	12.8
RPh1-BH21	RPHI-PH 21-21	20	21	1	1.44	32.1	0.23	0.012	0.029	53.5	0.09	1.26	0.42	0.55	0.21	0.33	3.77	0.0125	8.9
RPh1-BH21	RPHI-PH 21-22	21	22	1	1.44	24.2	0.23	0.012	0.029	50.5	0.09	0.77	7.67	0.55	0.21	0.33	2.4	0.0125	14.4
RPh1-BH21	RPHI-PH 21-23	22	23	1	1.44	27.9	0.23	0.012	0.029	51.8	0.09	0.86	4.68	0.55	0.21	0.33	3.08	0.0125	11.5
RPh1-BH21	RPHI-PH 21-24	23	24	1	2.3	19.8	0.23	0.012	0.029	46.2	0.09	0.56	17.3	0.55	0.21	0.33	0.47	0.0125	15.4
RPh1-BH21	RPHI-PH 21-25	24	25	1	2.3	19.4	0.23	0.012	0.029	39.6	0.09	0.55	28.3	0.55	0.21	0.33	0.32	0.0125	11.1
RPh1-BH21	RPHI-PH 21-26	25	26	1	2.3	26.7	0.23	0.012	0.029	44.7	0.09	0.77	19.9	0.55	0.21	0.33	0.58	0.0125	7.3
RPh1-BH21	RPHI-PH 21-27	26	27	1	2.11	17.3	0.23	0.012	0.029	31.6	0.09	0.42	43.2	0.55	0.21	0.33	0.51	0.0125	6.9
RPh1-BH21	RPHI-PH 21-28	27	28	1		4.21	0.23	0.012	0.029	13	0.09	0.011	76.8	0.55	0.21	0.33	0.51	0.0125	5.3
RPh1-BH21	RPHI-PH 21-29	28	29	1		2.92	0.23	0.012	0.029	39	0.09	1.04	29.3	0.55	0.21	0.33	0.51	0.0125	26.8
RPh1-BH22	RPHI-BH 22-1	0	1	1		0.35	1.39	0.018	0.2	41.8	0.11	0.058	19.3	2.19	1.14	0.33	0.51	0.0125	33.5
RPh1-BH22	RPHI-BH 22-2	1	2	1		0.53	1.06	0.015	0.16	39.2	0.09	0.058	24.6	1.68	1	0.33	0.51	0.0125	31.7
RPh1-BH22	RPHI-BH 22-3	2	3	1		0.66	0.6	0.012	0.09	41.5	0.09	0.058	24.5	0.97	0.53	0.33	0.51	0.0125	31.1
RPh1-BH22	RPHI-BH 22-4	3	4	1		0.7	0.23	0.012	0.029	43.7	0.09	0.058	23.2	0.55	0.21	0.33	0.51	0.0125	31.9
RPh1-BH22	RPHI-BH 22-5	4	5	1		7.2	0.23	0.012	0.043	42.3	0.09	0.09	15.6	0.55	0.21	0.33	0.51	0.0125	34.1
RPh1-BH22	RPHI-BH 22-6	5	6	1		0.55	0.23	0.012	0.029	47	0.09	0.08	17.2	0.55	0.21	0.33	0.51	0.0125	34.8
RPh1-BH22	RPHI-BH 22-7	6	7	1		0.68	0.23	0.012	0.029	44.2	0.09	0.058	22.3	0.55	0.21	0.33	0.51	0.0125	32.6
RPh1-BH22	RPHI-BH 22-8	7	8	1		0.7	0.23	0.012	0.029	46.8	0.09	0.058	19.2	0.55	0.21	0.33	0.51	0.0125	33
RPh1-BH22	RPHI-BH 22-9	8	9	1		1.01	0.23	0.012	0.029	47.1	0.09	0.058	17.2	0.55	0.21	0.33	0.51	0.0125	34.3
RPh1-BH22	RPHI-BH 22-10	9	10	1		1.29	0.23	0.012	0.029	39.2	0.09	0.058	30.6	0.55	0.21	0.33	0.51	0.0125	28.5

RPh1-BH22	RPH1-BH 22-11	10	11	1		1.36	0.23	0.012	0.029	39	0.09	0.058	30.1	0.55	0.21	0.33	0.51	0.0125	28.8
RPh1-BH22	RPH1-BH 22-12	11	12	1		2.07	0.23	0.012	0.029	39.3	0.09	0.058	30	0.55	0.21	0.33	0.51	0.0125	27.8
RPh1-BH22	RPH1-BH 22-13	12	13	1		2.01	0.23	0.012	0.029	49	0.09	0.058	12.9	0.55	0.21	0.33	0.51	0.0125	35.3
RPh1-BH22	RPH1-BH 22-14	13	14	1		5.46	0.23	0.012	0.029	48	0.09	0.15	13.8	0.55	0.21	0.33	0.51	0.0125	31.5
RPh1-BH22	RPH1-BH 22-15	14	15	1	1.4	13.1	0.23	0.012	0.029	54.6	0.09	0.43	1.64	0.55	0.21	0.33	1.24	0.0125	28.9
RPh1-BH22	RPH1-BH 22-16	15	16	1	1.4	9.62	0.23	0.012	0.029	54.9	0.09	0.26	1.2	0.55	0.21	0.33	0.88	0.0125	32.8
RPh1-BH22	RPH1-BH 22-17	16	17	1	1.4	10	0.23	0.012	0.029	53.4	0.09	0.25	4.49	0.55	0.21	0.33	0.79	0.0125	30.9
RPh1-BH22	RPH1-BH 22-18	17	18	1	1.44	19.6	0.23	0.012	0.029	54.2	0.09	0.67	1.52	0.55	0.21	0.33	1.94	0.0125	22
RPh1-BH22	RPH1-BH 22-19	18	19	1	1.44	31	0.23	0.012	0.029	53.8	0.09	1.26	0.21	0.55	0.21	0.33	3.57	0.0125	10
RPh1-BH22	RPH1-BH 22-20	19	20	1	1.44	26.4	0.23	0.012	0.029	54.2	0.09	1.11	0.41	0.55	0.21	0.33	2.86	0.0125	15
RPh1-BH22	RPH1-BH 22-21	20	21	1	1.4	25.2	0.23	0.012	0.029	48.6	0.09	0.72	10.8	0.55	0.21	0.33	2.61	0.0125	11.9
RPh1-BH22	RPH1-BH 22-22	21	22	1	1.44	32.4	0.23	0.012	0.029	51.1	0.09	1.03	5.37	0.55	0.21	0.33	3.45	0.0125	6.59
RPh1-BH22	RPH1-BH 22-23	22	23	1	1.85	18.8	0.23	0.012	0.029	52.4	0.09	0.6	5.04	0.55	0.21	0.33	1.93	0.0125	21.2
RPh1-BH22	RPH1-BH 22-24	23	24	1	2.3	18.1	0.23	0.012	0.029	46.7	0.09	0.52	15.3	0.55	0.21	0.33	1.72	0.0125	17.5
RPh1-BH22	RPH1-BH 22-25	24	25	1	2.3	24.1	0.23	0.012	0.029	46	0.09	0.67	15.9	0.55	0.21	0.33	2.59	0.0125	10.6
RPh1-BH23B	RPH1-PH 23B-1	0	1	1		0.7	0.81	0.012	0.12	42.2	0.09	7.58	16.4	1.39	0.71	0.33	0.51	0.0125	30
RPh1-BH23B	RPH1-PH 23B-2	1	2	1		0.9	0.48	0.012	0.066	36.7	0.09	15.1	20.9	0.88	0.25	0.41	0.51	0.0125	24.7
RPh1-BH23B	RPH1-PH 23B-3	2	3	1		1.4	0.28	0.012	0.037	43.6	0.09	3.25	20.3	0.66	0.21	0.33	0.51	0.0125	30.6
RPh1-BH23B	RPH1-PH 23B-4	3	4	1		1.48	0.23	0.012	0.029	40.7	0.09	0.95	27.7	0.55	0.21	0.33	0.51	0.0125	28.5
RPh1-BH23B	RPH1-PH 23B-5	4	5	1		2.77	0.23	0.012	0.029	41.9	0.09	0.9	25.8	0.55	0.21	0.33	0.51	0.0125	28.1
RPh1-BH23B	RPH1-PH 23B-6	5	6	1		4.48	0.23	0.012	0.029	42.5	0.09	0.61	26	0.55	0.21	0.33	0.51	0.0125	26.2
RPh1-BH23B	RPH1-PH 23B-7	6	7	1		6.58	0.23	0.012	0.029	50.2	0.09	0.48	11.5	0.55	0.21	0.33	0.51	0.0125	31
RPh1-BH23B	RPH1-PH 23B-8	7	8	1	1.85	8.96	0.23	0.012	0.029	52.7	0.09	0.43	6.31	0.55	0.21	0.33	0.71	0.0125	30.7
RPh1-BH23B	RPH1-PH 23B-9	8	9	1	1.85	9.19	0.23	0.012	0.029	52.7	0.09	0.19	6.42	0.55	0.21	0.33	0.79	0.0125	30.5

RPh1- BH23B	RPH1- PH 23B- 10	9	10	1	1.4	18.3	0.23	0.012	0.029	53.4	0.09	0.83	2.78	0.55	0.21	0.33	1.98	0.01 25	22. 4
----------------	------------------------	---	----	---	-----	------	------	-------	-------	------	------	------	------	------	------	------	------	------------	----------

RPh1-BH23B	RPH1-PH 23B-11	10	11	1	2.3	22	0.23	0.012	0.029	44.9	0.09	0.85	17.2	0.55	0.21	0.33	2.13	0.0125	12.5
RPh1-BH23B	RPH1-PH 23B-12	11	12	1	1.4	20.1	0.23	0.012	0.029	52.3	0.09	0.85	4.82	0.55	0.21	0.33	2.04	0.0125	19.6
RPh1-BH23B	RPH1-PH 23B-13	12	13	1	1.4	16.3	0.23	0.012	0.029	51.1	0.09	0.52	6.81	0.55	0.21	0.33	1.68	0.0125	23
RPh1-BH23B	RPH1-PH 23B-14	13	14	1	1.44	27	0.26	0.012	0.029	49.2	0.09	1.05	8	0.71	0.21	0.33	3.02	0.0125	10.5
RPh1-BH23B	RPH1-PH 23B-15	14	15	1	2.3	20	0.23	0.012	0.029	34.7	0.09	0.74	35.4	0.55	0.21	0.94	1.6	0.0125	6.5
RPh1-BH23B	RPH1-PH 23B-16	15	16	1		10.7	0.23	0.012	0.029	23.7	0.09	0.39	56.9	0.55	0.21	0.33	0.61	0.0125	7.19
RPh1-BH23B	RPH1-PH 23B-17	16	17	1		3.11	0.23	0.012	0.029	11.9	0.09	0.058	78.8	0.55	0.21	0.33	0.51	0.0125	5.69
RPh1-BH23B	RPH1-PH 23B-18	17	18	1		2.25	0.23	0.012	0.029	31.6	0.09	0.058	44	0.55	0.39	0.33	0.51	0.0125	21.6
RPh1-BH23B	RPH1-PH 23B-19	18	19	1		2.39	0.23	0.012	0.029	38.9	0.09	0.058	32.5	0.55	0.21	0.33	0.51	0.0125	26
RPh1-BH23B	RPH1-PH 23B-20	19	20	1		3.56	0.23	0.012	0.029	45	0.09	0.058	21.9	0.55	0.21	0.33	0.51	0.0125	29.4
RPh1-BH23B	RPH1-PH 23B-21	20	21	1		1.53	0.23	0.012	0.029	32.2	0.09	0.058	43.1	0.55	0.21	1.12	0.51	0.0125	21.9
RPh1-BH23B	RPH1-PH 23B-22	21	22	1		1.38	0.23	0.012	0.029	46.1	0.09	0.058	20.8	0.55	0.21	0.33	0.51	0.0125	31.6
RPh1-BH23B	RPH1-PH 23B-23	22	23	1		1.09	0.23	0.012	0.029	41.4	0.09	0.058	28.5	0.55	0.21	0.33	0.51	0.0125	28.8
RPh1-BH23B	RPH1-PH 23B-24	23	24	1		1.35	0.23	0.012	0.029	38.1	0.09	0.058	34.3	0.55	0.21	0.33	0.51	0.0125	26.1
RPh1-BH23B	RPH1-PH 23B-25	24	25	1		0.9	0.23	0.012	0.029	43	0.09	0.058	25.4	0.55	0.21	0.33	0.51	0.0125	30.3
RPh1-BH23B	RPH1-PH 23B-26	25	26	1		1.25	0.23	0.012	0.029	38.6	0.09	0.058	33	0.55	0.21	0.33	0.51	0.0125	26.9
RPh1-BH23B	RPH1-PH 23B-27	26	27	1		1.16	0.23	0.012	0.029	37.7	0.09	0.058	33.5	0.55	0.21	0.33	0.51	0.0125	27.3
RPh1-BH24	RPH1-PH 24-1	0	1	1		3.42	0.99	0.018	0.14	43.6	0.12	0.14	18.4	1.63	0.84	0.33	0.51	0.0125	30.7
RPh1-BH24	RPH1-PH 24-2	1	2	1		2.45	0.38	0.012	0.071	51.3	0.09	0.2	7.7	0.71	0.43	0.33	0.51	0.0125	36.8
RPh1-BH24	RPH1-PH 24-3	2	3	1		7.36	0.23	0.012	0.029	53.1	0.09	1.15	4.68	0.55	0.21	0.33	0.57	0.0125	32.8
RPh1-BH24	RPH1-PH 24-4	3	4	1	1.4	13.9	0.23	0.012	0.029	49.2	0.09	1.03	12.1	0.55	0.21	0.33	0.19	0.0125	23.3
RPh1-BH24	RPH1-PH 24-5	4	5	1	1.4	10.4	0.23	0.012	0.029	41.3	0.09	0.88	25.6	0.55	0.21	0.33	0.94	0.0125	20.7
RPh1-BH24	RPH1-PH 24-6	5	6	1	1.44	27.5	0.23	0.012	0.029	50.8	0.09	0.95	8.51	0.55	0.21	0.33	0.81	0.0125	11.1
RPh1-BH24	RPH1-PH 24-7	6	7	1	1.44	24.8	0.23	0.012	0.029	51.1	0.09	0.83	8.58	0.55	0.21	0.33	0.76	0.0125	13.8
RPh1-BH24	RPH1-PH 24-8	7	8	1	2.3	27.5	0.23	0.012	0.029	49.1	0.09	0.78	11.4	0.55	0.21	0.33	0.82	0.0125	9.82

RPh1-BH24	RPH1-PH 24-9	8	9	1	2.3	26.2	0.23	0.012	0.029	44.2	0.09	1.07	20	0.55	0.21	0.33	0.73	0.0125	7.36
RPh1-BH24	RPH1-PH 24-10	9	10	1	2.11	8.81	0.23	0.012	0.029	17.3	0.09	0.15	68.2	0.55	0.21	0.33	0.51	0.0125	4.08
RPh1-BH24	RPH1-PH 24-11	10	11	1	2.11	9.29	0.23	0.012	0.029	17.4	0.09	0.058	68.4	0.55	0.21	0.34	0.51	0.0125	3.82
RPh1-BH24	RPH1-PH 24-12	11	12	1		2.87	0.23	0.012	0.029	10.6	0.09	0.058	80.2	0.55	0.21	0.62	0.51	0.0125	4.58
RPh1-BH24	RPH1-PH 24-13	12	13	1		1.87	0.23	0.012	0.029	25.2	0.09	0.058	56.4	0.55	0.21	0.33	0.51	0.0125	16.2
RPh1-BH24	RPH1-PH 24-14	13	14	1		2.04	0.23	0.012	0.029	28.6	0.09	0.058	50.4	0.55	0.21	0.33	0.51	0.0125	18.9
RPh1-BH24	RPHI-PH 24-15	14	15	1		6.09	0.23	0.012	0.029	36	0.09	0.13	36.5	0.55	0.21	0.33	0.51	0.0125	20.9
RPh1-BH24	RPHI-PH 24-16	15	16	1		1.48	0.23	0.012	0.029	42.6	0.09	0.058	22.7	0.55	0.21	0.33	0.51	0.0125	33.2
RPh1-BH24	RPHI-PH 24-17	16	17	1		1.15	0.23	0.012	0.029	43.1	0.09	0.058	25.3	0.55	0.21	0.33	0.51	0.0125	30.4
RPh1-BH24	RPHI-PH 24-18	17	18	1		1.27	0.23	0.012	0.029	46.3	0.09	0.058	19.4	0.55	0.21	0.33	0.51	0.0125	33.1
RPh1-BH24	RPHI-PH 24-19	18	19	1		1.25	0.23	0.012	0.029	39.9	0.09	0.058	33.3	0.55	0.21	0.33	0.51	0.0125	25.5
RPh1-BH24	RPHI-PH 24-20	19	20	1		2.16	0.23	0.012	0.029	26.7	0.09	0.058	52.7	0.55	0.21	0.33	0.51	0.0125	17.8
RPh1-BH24	RPHI-PH 24-21	20	21	1		1.41	0.23	0.012	0.029	29.9	0.09	0.058	48.1	0.55	0.21	0.33	0.51	0.0125	20.5
RPh1-BH24	RPHI-PH 24-22	21	22	1		1.37	0.23	0.012	0.029	46.3	0.09	0.058	18.8	0.55	0.21	0.33	0.51	0.0125	33.3
RPh1-BH24	RPHI-PH 24-23	22	23	1		1.4	0.23	0.012	0.029	33.3	0.09	0.058	41.9	0.55	0.21	0.33	0.51	0.0125	23.2
RPh1-BH24	RPHI-PH 24-24	23	24	1		0.95	0.23	0.012	0.029	41.8	0.09	0.058	26.9	0.55	0.21	0.33	0.51	0.0125	30.3
RPh1-BH25	RPHI-PH 25-1	0	1	1		0.62	0.83	0.013	0.12	41.5	0.09	0.69	19.8	1.39	1.91	0.33	0.51	0.0125	33
RPh1-BH25	RPH1-PH 25-2	1	2	1		1.09	0.27	0.012	0.049	44.2	0.09	9.72	13.2	0.57	0.5	0.33	0.51	0.0125	30.4
RPh1-BH25	RPHI-PH 25-3	2	3	1		1.3	0.23	0.012	0.029	47	0.09	1.09	16.4	0.55	0.35	0.33	0.51	0.0125	33.3
RPh1-BH25	RPHI-PH 25-4	3	4	1		1.26	0.23	0.012	0.029	39	0.09	0.41	29	0.55	0.36	0.33	0.51	0.0125	29.3
RPh1-BH25	RPHI-PH 25-5	4	5	1		2.36	0.27	0.012	0.033	38.7	0.09	0.23	30.4	0.68	0.37	0.33	0.51	0.0125	26.9
RPh1-BH25	RPHI-PH 25-6	5	6	1		1.98	0.27	0.012	0.042	40	0.09	0.17	28.6	0.62	0.27	0.33	0.51	0.0125	28
RPh1-BH25	RPHI-PH 25-7	6	7	1		4	0.23	0.012	0.029	49.7	0.09	0.23	11.5	0.55	0.24	0.33	0.51	0.0125	33.5
RPh1-BH25	RPHI-PH 25-8	7	8	1		3.8	0.23	0.012	0.029	50.7	0.09	0.062	9.8	0.55	0.38	0.33	0.51	0.0125	34.7
RPh1-BH25	RPHI-PH 25-9	8	9	1	1.85	5.28	0.23	0.012	0.029	51.1	0.09	0.062	9.37	0.55	0.21	0.33	0.51	0.0125	33.7

RPh1-BH25	RPHI-PH 25-10	9	10	1	1.85	8.14	0.23	0.012	0.029	49.9	0.09	0.16	11.7	0.55	0.21	0.33	0.6	0.0125	29.4
RPh1-BH25	RPHI-PH 25-11	10	11	1	1.4	17.7	0.23	0.012	0.029	52.4	0.09	0.57	5.5	0.55	0.21	0.33	1.79	0.0125	21.8
RPh1-BH25	RPHI-PH 25-12	11	12	1	1.4	20.4	0.23	0.012	0.029	53.4	0.09	0.86	2.09	0.55	0.21	0.33	2.32	0.0125	20.7
RPh1-BH25	RPHI-PH 25-13	12	13	1	1.4	19.6	0.23	0.012	0.029	49	0.09	0.76	10.3	0.55	0.21	0.33	2.09	0.0125	18.1
RPh1-BH25	RPHI-PH 25-14	13	14	1	1.44	29.4	0.23	0.012	0.029	50.1	0.09	0.74	7.87	0.55	0.21	0.33	3.25	0.0125	8.52
RPh1-BH25	RPH1-PH 25-15	14	15	1	2.3	32.2	0.23	0.012	0.03	36.4	0.09	0.16	35.7	0.061	0.21	0.33	0.21	0.0125	20.6
RPh1-BH25	RPH1-PH 25-16	15	16	1	1.44	32.1	0.23	0.012	0.029	51.3	0.09	1.12	4.16	0.55	0.21	1.76	0.95	0.0125	8.37
RPh1-BH25	RPH1-PH 25-17	16	17	1	2.3	24.4	0.23	0.012	0.029	40.7	0.09	0.74	26.3	0.55	0.21	0.71	0.48	0.0125	6.5
RPh1-BH25	RPH1-PH 25-18	17	18	1	2.11	13.2	0.23	0.012	0.029	24.4	0.09	0.27	56.2	0.55	0.21	0.55	0.51	0.0125	5.29
RPh1-BH25	RPH1-PH 25-19	18	19	1	2.11	15.9	0.23	0.012	0.029	28.1	0.09	0.37	49.3	0.55	0.21	0.75	0.51	0.0125	5.45
RPh1-BH25	RPH1-PH 25-20	19	20	1	2.11	12.4	0.23	0.012	0.029	26.1	0.09	0.26	52.5	0.55	0.21	1.19	0.51	0.0125	7.47
RPh1-BH25	RPH1-PH 25-21	20	21	1	2.11	9.53	0.23	0.012	0.029	33.7	0.09	0.18	40.7	0.55	0.21	0.33	0.51	0.0125	15.8
RPh1-BH25	RPH1-PH 25-22	21	22	1	2.11	10.5	0.23	0.012	0.029	32.9	0.09	0.3	40.1	0.55	0.21	0.95	0.71	0.0125	14.5
RPh1-BH25	RPH1-PH 25-23	22	23	1	2.66	10.8	0.23	0.012	0.029	37.8	0.09	0.4	32.7	0.55	0.21	0.33	0.73	0.0125	17.5
RPh1-BH25	RPH1-PH 25-24	23	24	1		6.8	0.23	0.012	0.029	50.6	0.09	1.23	5.11	0.55	0.21	0.33	3.84	0.0125	6.77
RPh1-BH26	RPH1-BH26-1	0	1	1		0.31	1.37	0.02	0.18	37.2	0.15	0.058	26.7	2.01	1.16	0.33	0.51	0.0125	30.8
RPh1-BH26	RPH1-BH26-2	1	2	1		0.33	0.74	0.012	0.11	39.4	0.09	0.058	26.2	1.1	0.85	0.33	0.51	0.0125	31.3
RPh1-BH26	RPH1-BH26-3	2	3	1		0.56	0.49	0.012	0.083	43.6	0.09	0.082	20.7	0.74	0.49	0.33	0.51	0.0125	33.2
RPh1-BH26	RPH1-BH26-4	3	4	1		3.5	0.4	0.012	0.067	46.8	0.09	1.21	15	0.59	0.36	0.33	0.51	0.0125	32
RPh1-BH26	RPH1-BH26-5	4	5	1		3.95	0.23	0.012	0.03	43.6	0.09	0.32	22.8	0.55	0.21	0.33	0.51	0.0125	28.6
RPh1-BH26	RPH1-BH26-6	5	6	1		9.63	0.23	0.012	0.035	50.8	0.09	0.28	8.93	0.55	0.21	0.33	0.74	0.0125	29
RPh1-BH26	RPH1-BH26-7	6	7	1		7.87	0.23	0.012	0.033	51	0.09	0.22	8.56	0.55	0.21	0.33	0.57	0.0125	31.2
RPh1-BH26	RPH1-BH26-8	7	8	1		7	0.24	0.012	0.049	49.2	0.09	0.14	11.6	0.55	0.21	0.33	0.51	0.0125	30.7
RPh1-BH26	RPH1-BH26-9	8	9	1	1.4	17	0.23	0.012	0.029	52.7	0.09	0.5	4.43	0.55	0.21	0.33	1.88	0.0125	23.1
RPh1-BH26	RPH1-BH26-10	9	10	1	1.4	16.4	0.23	0.012	0.031	53	0.09	0.59	3.28	0.55	0.21	0.33	1.67	0.0125	24.3
RPh1-BH26	RPH1-BH26-11	10	11	1	2.3	17.1	0.23	0.012	0.029	46.1	0.09	0.62	16	0.55	0.21	0.33	1.38	0.0125	18.5
RPh1-BH26	RPH1-BH26-12	11	12	1	2.3	23.2	0.23	0.012	0.029	46.4	0.09	0.61	14.5	0.55	0.21	0.33	2.34	0.0125	12.5
RPh1-BH26	RPH1-BH26-13	12	13	1	1.4	22.8	0.23	0.012	0.029	48.7	0.09	0.6	11.3	0.55	0.21	0.33	2.35	0.0125	14.1

RPh1-BH26	RPH1-BH26-14	13	14	1	1.4	24.5	0.23	0.012	0.029	49.8	0.09	0.72	9.21	0.55	0.21	0.33	2.4	0.0125	13.2
RPh1-BH26	RPH1-BH26-15	14	15	1	1.4	24.8	0.23	0.012	0.029	48.8	0.09	0.76	10.6	0.55	0.21	0.33	2.46	0.0125	12.2
RPh1-BH26	RPH1-BH26-16	15	16	1	2.11	8.89	0.23	0.012	0.029	23.2	0.09	0.16	58.1	0.55	0.21	0.33	0.51	0.0125	8.5
RPh1-BH26	RPH1-BH26-17	16	17	1		6.2	0.23	0.012	0.029	16.5	0.09	0.058	69.5	0.55	0.21	0.33	0.51	0.0125	6.7
RPh1-BH26	RPH1-BH26-18	17	18	1		1.61	0.23	0.012	0.029	9.29	0.09	0.058	83.3	0.55	0.21	0.33	0.51	0.0125	4.8
RPh1-BH26	RPH1-BH26-19	18	19	1		3.02	0.23	0.012	0.029	19.4	0.09	0.058	66.3	0.55	0.21	0.33	0.51	0.0125	11.1
RPh1-BH26	RPH1-BH26-20	19	20	1		1.21	0.23	0.012	0.029	33.6	0.09	0.058	41.5	0.55	0.21	0.33	0.51	0.0125	23.7
RPh1-BH26	RPH1-BH26-21	20	21	1		5.5	0.23	0.012	0.029	35.7	0.09	0.15	37	0.55	0.21	0.33	0.51	0.0125	21.2
RPh1-BH26	RPH1-BH26-22	21	22	1		7.61	0.23	0.012	0.029	39.7	0.09	0.26	28.8	0.55	0.21	0.33	0.51	0.0125	22.4
RPh1-BH26	RPH1-BH26-23	22	23	1		2.98	0.23	0.012	0.029	48	0.09	0.058	15.5	0.55	0.21	0.33	0.51	0.0125	33.2
RPh1-BH26	RPH1-BH26-24	23	24	1		2.85	0.23	0.012	0.029	40.6	0.09	0.058	28.9	0.55	0.21	0.33	0.51	0.0125	27.5
RPh1-BH26	RPH1-BH26-25	24	25	1		1.41	0.23	0.012	0.029	40.8	0.09	0.058	28.9	0.55	0.21	0.33	0.51	0.0125	28.8
RPh1-BH26	RPH1-BH26-26	25	26	1		3.58	0.23	0.012	0.029	35.7	0.09	0.058	37.3	0.55	0.21	0.33	0.51	0.0125	23.1
RPh1-BH26	RPH1-BH26-27	26	27	1		3.01	0.23	0.012	0.029	40.8	0.09	0.058	28.1	0.55	0.21	0.33	0.51	0.0125	27.5
RPh1-BH26	RPH1-BH26-28	27	28	1		1.04	0.23	0.012	0.033	46.8	0.09	0.058	18.5	0.55	0.21	0.33	0.51	0.0125	33.4
RPh1-BH26	RPH1-BH26-29	28	29	1		1.24	0.23	0.012	0.029	46.4	0.09	0.058	18.3	0.55	0.21	0.33	0.51	0.0125	33.6
RPh1-BH27	RPH1-BH27-1	0	1	1		0.47	2.7	0.038	0.36	23.7	0.48	0.44	44.6	4.17	1.62	0.33	0.51	0.0125	21.4
RPh1-BH27	RPH1-BH27-2	1	2	1		0.3	1.39	0.016	0.19	36.8	0.13	0.065	27.7	2.12	1.16	0.33	0.51	0.0125	30.2
RPh1-BH27	RPH1-BH27-3	2	3	1		0.33	1	0.012	0.14	40.7	0.09	0.058	23	1.52	1.02	0.33	0.51	0.0125	32.3
RPh1-BH27	RPH1-BH27- 4	3	4	1		0.43	0.32	0.012	0.055	45	0.09	0.62	18.7	0.56	0.39	0.33	0.51	0.0125	33.9
RPh1-BH27	RPH1-BH27- 5	4	5	1		0.46	0.23	0.012	0.029	46.5	0.09	0.19	17.8	0.55	0.21	0.33	0.51	0.0125	34.7
RPh1-BH27	RPH1-BH27- 6	5	6	1		0.65	0.23	0.012	0.029	47.6	0.09	0.33	16.1	0.55	0.21	0.33	0.51	0.0125	35
RPh1-BH27	RPH1-BH27- 7	6	7	1		0.98	0.23	0.012	0.029	47	0.09	0.42	16.9	0.55	0.21	0.33	0.51	0.0125	34.2
RPh1-BH27	RPH1-BH27- 8	7	8	1		0.99	0.23	0.012	0.034	44.9	0.09	0.33	19.8	0.55	0.21	0.33	0.51	0.0125	33
RPh1-BH27	RPH1-BH27 -9	8	9	1		1.49	0.23	0.012	0.032	41.9	0.09	0.46	25.3	0.55	0.21	0.33	0.51	0.0125	29.9
RPh1-BH27	RPH1-BH27-10	9	10	1		2.21	0.23	0.012	0.029	46.2	0.09	0.13	18.3	0.55	0.21	0.33	0.51	0.0125	32.4

RPh1-BH27	RPH1-BH27-11	10	11	1		1.95	0.23	0.012	0.029	43.9	0.09	0.058	22.5	0.55	0.21	0.33	0.51	0.0125	30.9
RPh1-BH27	RPH1-BH27-12	11	12	1		7.26	0.23	0.012	0.029	50.1	0.09	0.24	10.7	0.55	0.21	0.33	0.58	0.0125	30.7
RPh1-BH27	RPH1-BH27-13	12	13	1		6.61	0.23	0.012	0.029	48.8	0.09	0.16	13.5	0.55	0.21	0.33	0.51	0.0125	30.3
RPh1-BH27	RPH1-BH27-14	13	14	1	1.85	14.9	0.23	0.012	0.029	51.2	0.09	0.38	8.05	0.55	0.21	0.33	1.57	0.0125	23.8
RPh1-BH27	RPH1-BH27-15	14	15	1	1.85	9.92	0.23	0.012	0.029	52.1	0.09	0.22	7.04	0.55	0.21	0.33	0.87	0.0125	29.8
RPh1-BH27	RPH1-BH27-16	15	16	1	1.85	11.3	0.23	0.012	0.029	51.5	0.09	0.25	8.15	0.55	0.21	0.33	0.9	0.0125	27.7
RPh1-BH27	RPH1-BH27-17	16	17	1	1.85	13.6	0.23	0.012	0.029	49.5	0.09	0.3	12.3	0.55	0.21	0.33	1.17	0.0125	23
RPh1-BH27	RPH1-BH27-18	17	18	1	1.44	25.5	0.23	0.012	0.029	52.2	0.09	0.83	4.28	0.55	0.21	0.33	2.76	0.0125	14.3
RPh1-BH27	RPH1-BH27-19	18	19	1	2.3	18.9	0.23	0.012	0.029	51.5	0.09	0.55	6.68	0.55	0.21	0.33	1.86	0.0125	20.3
RPh1-BH27	RPH1-BH27-20	19	20	1	1.44	21.4	0.23	0.012	0.029	53.2	0.09	0.76	2.9	0.55	0.21	0.33	2.37	0.0125	19.3
RPh1-BH27	RPH1-BH27-21	20	21	1	1.44	20.8	0.23	0.012	0.029	53	0.09	0.76	2.68	0.55	0.21	0.33	2.02	0.0125	20.6
RPh1-BH27	RPH1-BH27-22	21	22	1	1.4	18.8	0.23	0.012	0.029	52.4	0.09	0.61	5.45	0.55	0.21	0.33	1.82	0.0125	20.9
RPh1-BH27	RPH1-BH27-23	22	23	1	1.4	23.6	0.23	0.012	0.029	51.3	0.09	0.83	6.18	0.55	0.21	0.33	2.48	0.0125	15.5
RPh1-BH27	RPH1-BH27-24	23	24	1	2.66	15.3	0.23	0.012	0.029	36.8	0.09	0.46	33.3	0.55	0.21	0.33	1.12	0.0125	12.9
RPh1-BH28	RPH1-BH28-1	0	1	1		0.43	3.57	0.04	0.41	14.5	0.54	0.058	57.3	5.46	1.9	0.61	0.51	0.0125	15.3
RPh1-BH28	RPH1-BH28-2	1	2	1		0.41	2.64	0.022	0.3	14.7	0.26	0.14	62	3.92	1.4	0.33	0.51	0.0125	14.2
RPh1-BH28	RPH1-BH28-3	2	3	1		0.42	1.98	0.015	0.24	20	0.16	0.36	55.1	2.82	1.15	0.33	0.51	0.0125	17.7
RPh1-BH28	RPH1-BH28-4	3	4	1		0.47	0.98	0.012	0.13	27.2	0.09	0.058	47.8	1.42	0.59	0.33	0.51	0.0125	21.3
RPh1-BH28	RPH1-BH28-5	4	5	1		0.33	0.82	0.012	0.13	38.7	0.09	0.058	27.9	1.26	0.67	0.33	0.51	0.0125	30.2
RPh1-BH28	RPH1-BH28-6	5	6	1		0.4	0.85	0.012	0.13	36.1	0.09	0.09	30.5	1.33	0.82	0.91	0.51	0.0125	28.9
RPh1-BH28	RPH1-BH28-7	6	7	1		0.38	0.23	0.012	0.03	49.1	0.09	0.058	12.6	0.55	0.24	0.33	0.51	0.0125	37.1
RPh1-BH28	RPH1-BH28-8	7	8	1		1.13	0.23	0.012	0.029	49.8	0.09	0.058	12.2	0.55	0.21	0.33	0.51	0.0125	36.3
RPh1-BH28	RPH1-BH28-9	8	9	1		1.65	0.27	0.012	0.044	41.1	0.09	0.058	26.8	0.55	0.21	0.33	0.51	0.0125	29.4
RPh1-BH28	RPH1-BH28-10	9	10	1		0.65	0.23	0.012	0.032	49	0.09	0.058	12.9	0.55	0.22	0.33	0.51	0.0125	36.6
RPh1-BH28	RPH1-BH28-11	10	11	1		0.85	0.23	0.012	0.029	53.8	0.09	0.058	4.75	0.55	0.21	0.33	0.51	0.0125	40.2
RPh1-BH28	RPH1-BH28-12	11	12	1		8.09	0.23	0.012	0.029	48.4	0.09	0.14	13.8	0.55	0.21	0.33	0.58	0.0125	28.5

RPh1-BH28	RPH1-BH28-13	12	13	1		8.18	0.23	0.012	0.029	50.2	0.09	0.075	10.6	0.55	0.21	0.33	0.62	0.0125	29.8
RPh1-BH28	RPH1-BH28-14	13	14	1	1.85	15.4	0.23	0.012	0.029	53.3	0.09	0.16	3.87	0.55	0.21	0.33	1.55	0.0125	25.3
RPh1-BH28	RPH1-BH28-15	14	15	1	1.85	8.35	0.23	0.012	0.029	54.1	0.09	0.058	3.65	0.55	0.21	0.33	0.72	0.0125	33
RPh1-BH28	RPH1-BH28-16	15	16	1	1.85	10	0.23	0.012	0.029	54.8	0.09	0.069	2.18	0.55	0.21	0.33	0.84	0.0125	31.9
RPh1-BH28	RPH1-BH28-17	16	17	1	1.4	21	0.23	0.012	0.029	52.7	0.09	0.35	4.18	0.55	0.21	0.33	2.19	0.0125	19.3
RPh1-BH28	RPH1-BH28-18	17	18	1	1.4	21.4	0.23	0.012	0.029	52.9	0.09	0.36	3.52	0.55	0.21	0.33	2.4	0.0125	19.2
RPh1-BH28	RPH1-BH28-19	18	19	1	1.4	22.4	0.23	0.012	0.029	54.3	0.09	0.5	0.99	0.55	0.21	0.33	2.36	0.0125	19.2
RPh1-BH28	RPH1-BH28-20	19	20	1	1.4	22.4	0.23	0.012	0.029	50.3	0.09	0.58	7.44	0.55	0.21	0.33	2.25	0.0125	16.4
RPh1-BH28	RPH1-BH28-21	20	21	1	1.44	28.2	0.23	0.012	0.029	51.6	0.09	0.72	4.42	0.55	0.21	0.33	3.1	0.0125	11.8
RPh1-BH28	RPH1-BH28-22	21	22	1	2.3	18.5	0.23	0.012	0.029	44.7	0.09	0.37	18.4	0.55	0.21	0.33	1.71	0.0125	16.1
RPh1-BH28	RPH1-BH28-23	22	23	1	2.3	21.8	0.23	0.012	0.029	44.9	0.09	0.45	17.8	0.55	0.21	0.33	1.95	0.0125	12.8
RPh1-BH28	RPH1-BH28-24	23	24	1	2.3	12.5	0.23	0.012	0.029	40	0.09	0.2	28.6	0.55	0.21	0.33	0.96	0.0125	17.5
RPh1-BH28	RPH1-BH28-25	24	25	1	1.44	22.3	0.23	0.012	0.029	48.3	0.09	0.48	11.9	0.55	0.21	0.33	2.26	0.0125	14.6
RPh1-BH28	RPH1-BH28-26	25	26	1		8.03	0.23	0.012	0.029	18.5	0.09	0.058	66.3	0.55	0.21	0.33	0.51	0.0125	6.21
RPh1-BH28	RPH1-BH28-27	26	27	1		8.6	0.23	0.012	0.029	20	0.09	0.058	63.5	0.55	0.21	0.33	0.51	0.0125	6.65
RPh1-BH29	RPH1-BH29-1	0	1	1		0.41	1.31	0.016	0.18	34.8	0.12	0.058	32	1.91	1.06	0.33	0.51	0.0125	28.2
RPh1-BH29	RPH1-BH29-2	1	2	1		0.39	0.46	0.012	0.71	46.5	0.09	3.27	14.1	0.72	0.46	0.33	0.51	0.0125	34
RPh1-BH29	RPH1-BH29-3	2	3	1		0.49	0.24	0.012	0.048	47.3	0.09	3.25	14.3	0.55	0.29	0.33	0.51	0.0125	33.6
RPh1-BH29	RPH1-BH29-4	3	4	1		7.51	0.23	0.012	0.04	47.2	0.09	2.11	14.3	0.55	0.25	0.33	0.61	0.0125	27.3
RPh1-BH29	RPH1-BH29-5	4	5	1		4.67	0.23	0.012	0.029	49.3	0.09	0.61	13.8	0.55	0.21	0.33	0.51	0.0125	30.9
RPh1-BH29	RPH1-BH29-6	5	6	1		7.58	0.23	0.012	0.029	54.4	0.09	0.37	3.81	0.55	0.21	0.33	0.51	0.0125	33.1
RPh1-BH29	RPH1-BH29-7	6	7	1		2.19	0.23	0.012	0.029	54.3	0.09	0.058	5.79	0.55	0.21	0.33	0.51	0.0125	37.4
RPh1-BH29	RPH1-BH29-8	7	8	1	1.85	13.8	0.23	0.012	0.029	54.8	0.09	0.53	2.22	0.55	0.21	0.33	1.54	0.0125	26.8
RPh1-BH29	RPH1-BH29-9	8	9	1	1.85	19	0.23	0.012	0.029	54.4	0.09	1.09	1.61	0.55	0.21	0.33	1.97	0.0125	21.8
RPh1-BH29	RPH1-BH29-10	9	10	1	1.85	15	0.23	0.012	0.029	48.7	0.09	0.68	13.7	0.55	0.21	0.33	0.51	0.0125	21.1
RPh1-BH29	RPH1-BH29-11	10	11	1	1.4	22.1	0.23	0.012	0.029	53.3	0.09	0.88	5.79	0.55	0.21	0.33	0.98	0.0125	16.7
RPh1-BH29	RPH1-BH29-12	11	12	1	1.44	27.5	0.23	0.012	0.029	52.9	0.09	1.03	4.92	0.55	0.21	0.33	1.13	0.0125	12.4
RPh1-BH29	RPH1-BH29-13	12	13	1	1.44	29.7	0.23	0.012	0.029	53.5	0.09	1.04	4.05	0.55	0.21	0.33	1.3	0.0125	10.4

RPh1-BH29	RPH1-BH29-14	13	14	1	2.3	29.5	0.23	0.012	0.029	48.8	0.09	0.97	12.1	0.55	0.21	0.33	1.12	0.0125	7.29
RPh1-BH29	RPH1-BH29-15	14	15	1	2.3	15.4	0.23	0.012	0.029	35.3	0.09	0.49	36.8	0.55	0.21	0.33	0.51	0.0125	10.9
RPh1-BH29	RPH1-BH29-16	15	16	1	2.3	12.7	0.23	0.012	0.029	32.6	0.09	0.33	41.1	0.55	0.21	0.33	1.06	0.0125	11.6
RPh1-BH29	RPH1-BH29-17	16	17	1	2.3	16.5	0.23	0.012	0.029	33.4	0.09	0.46	39	0.55	0.21	0.33	1.48	0.0125	8.55
RPh1-BH29	RPH1-BH29-18	17	18	1		7.63	0.23	0.012	0.029	19.5	0.09	0.073	65.4	0.55	0.21	0.33	0.51	0.0125	6.79
RPh1-BH29	RPH1-BH29-19	18	19	1		3.47	0.23	0.012	0.029	12.5	0.09	0.058	78.4	0.55	0.21	0.33	0.51	0.0125	4.94
RPh1-BH29	RPH1-BH29-20	19	20	1		1.85	0.23	0.012	0.029	8.32	0.09	0.058	86	0.55	0.21	0.33	0.51	0.0125	3.77
RPh1-BH29	RPH1-BH29-21	20	21	1		2.38	0.23	0.012	0.029	12.6	0.09	0.058	78.4	0.55	0.21	0.33	0.51	0.0125	6.49
RPh1-BH29	RPH1-BH29-22	21	22	1		1.62	0.23	0.012	0.029	22.5	0.09	0.058	59.6	0.55	0.21	0.33	1.44	0.0125	14.6
RPh1-BH29	RPH1-BH29-23	22	23	1		1.09	0.23	0.012	0.029	31.9	0.09	0.058	43	0.55	0.21	0.33	1.66	0.0125	22.3
RPh1-BH29	RPH1-BH29-24	23	24	1		2.29	0.23	0.012	0.029	25.2	0.09	0.058	55.1	0.55	0.21	0.33	1.29	0.0125	15.9
RPh1-BH29	RPH1-BH29-25	24	25	1		4.77	0.23	0.012	0.029	28.8	0.09	0.18	47.4	0.55	0.21	0.33	1.85	0.0125	16.9
RPh1-BH29	RPH1-BH29-26	25	26	1		3.74	0.23	0.012	0.029	34.3	0.09	0.058	37.8	0.55	0.21	0.33	1.9	0.0125	22.1
RPh1-BH29	RPH1-BH29-27	26	27	1		3.03	0.23	0.012	0.029	24.6	0.09	0.058	55.4	0.55	0.21	0.33	1.42	0.0125	15.4
RPh1-BH29	RPH1-BH29-28	27	28	1		2.75	0.23	0.012	0.029	34.8	0.09	0.058	40.2	0.55	0.21	0.33	0.51	0.0125	22
RPh1-BH29	RPH1-BH29-29	28	29	1		2.51	0.23	0.012	0.029	36.5	0.09	0.058	37.2	0.55	0.21	0.33	0.51	0.0125	23.6
RPh1-BH30C	RPH1-BH30C-1	0	1	1		0.46	0.84	0.012	0.12	40.1	0.09	0.058	25.6	1.31	0.66	0.33	0.51	0.0125	30.9
RPh1-BH30C	RPH1-BH30C-2	1	2	1		0.46	0.43	0.012	0.066	38.7	0.09	0.058	29	0.73	0.43	0.33	0.51	0.0125	30.2
RPh1-BH30C	RPH1-BH30C-3	2	3	1		0.35	0.56	0.012	0.088	45.7	0.09	0.058	15.9	0.92	0.77	0.33	0.51	0.0125	35.7
RPh1-BH30C	RPH1-BH30C-4	3	4	1		0.93	0.23	0.012	0.029	45.9	0.09	0.71	16.6	0.55	0.21	0.33	0.51	0.0125	34.4
RPh1-BH30C	RPH1-BH30C-5	4	5	1		0.97	0.23	0.012	0.03	45.7	0.09	1	18.2	0.55	0.21	0.33	0.51	0.0125	33.4
RPh1-BH30C	RPH1-BH30C-6	5	6	1		2.8	0.23	0.012	0.029	46.3	0.09	0.98	17	0.55	0.21	0.33	0.51	0.0125	32.2
RPh1-BH30C	RPH1-BH30C-7	6	7	1		4.62	0.23	0.012	0.029	49.5	0.09	0.058	12.6	0.55	0.21	0.33	0.51	0.0125	32.4
RPh1-BH30C	RPH1-BH30C-8	7	8	1		4.28	0.23	0.012	0.029	52.2	0.09	0.56	8.43	0.55	0.21	0.33	0.51	0.0125	33.8
RPh1-BH30C	RPH1-BH30C-9	8	9	1	2.66	10.8	0.23	0.012	0.029	46.1	0.09	0.36	17.5	0.55	0.21	0.33	1.01	0.0125	24

RPh1-BH30C	RPH1-BH30C-10	9	10	1	1.4	19.2	0.23	0.012	0.029	48.9	0.09	0.61	11.3	0.55	0.21	0.33	2.01	0.0125	17.8
RPh1-BH30C	RPH1-BH30C-11	10	11	1	1.4	21.7	0.23	0.012	0.029	52.3	0.09	0.94	4.31	0.55	0.21	0.33	2.25	0.0125	18.5
RPh1-BH30C	RPH1-BH30C-12	11	12	1	2.66	15.8	0.23	0.012	0.029	46.7	0.09	0.7	15.6	0.55	0.21	0.33	1.53	0.0125	19.5
RPh1-BH30C	RPH1-BH30C-13	12	13	1	1.44	27.8	0.23	0.012	0.029	47.3	0.09	1.14	11.9	0.55	0.21	0.33	2.98	0.0125	8.61
RPh1-BH30C	RPH1-BH30C-14	13	14	1	1.44	27.9	0.23	0.012	0.029	53	0.09	1.2	2.14	0.55	0.21	0.33	3.08	0.0125	12.6
RPh1-BH30C	RPH1-BH30C-15	14	15	1	1.44	26.3	0.23	0.012	0.029	47.9	0.09	0.81	13.1	0.55	0.21	0.33	2.67	0.0125	9.14
RPh1-BH30C	RPH1-BH30C-16	15	16	1	2.3	25.6	0.23	0.012	0.029	45.4	0.09	0.89	15.6	0.55	0.21	0.33	2.52	0.0125	9.92
RPh1-BH30C	RPH1-BH30C-17	16	17	1	2.3	25.1	0.23	0.012	0.029	45.2	0.09	0.83	17.1	0.55	0.21	0.33	2.48	0.0125	9.3
RPh1-BH30C	RPH1-BH30C-18	17	18	1	2.3	25.2	0.23	0.012	0.029	44.3	0.09	0.82	18.7	0.55	0.21	0.33	2.6	0.0125	8.4
RPh1-BH30C	RPH1-BH30C-19	18	19	1	2.3	19.6	0.23	0.012	0.029	36.4	0.09	0.63	33.7	0.55	0.21	0.33	1.75	0.0125	7.69
RPh1-BH30C	RPH1-BH30C-20	19	20	1	2.3	22.8	0.23	0.012	0.029	44	0.09	0.81	19.3	0.55	0.21	0.33	2.25	0.0125	10.7
RPh1-BH30C	RPH1-BH30C-21	20	21	1	2.66	17.2	0.23	0.012	0.029	39.7	0.09	0.4	28.5	0.55	0.21	0.33	1.47	0.0125	12.7
RPh1-BH30C	RPH1-BH30C-22	21	22	1		7.95	0.23	0.012	0.029	25.9	0.09	0.12	54	0.55	0.21	0.33	0.51	0.0125	11.4
RPh1-BH30C	RPH1-BH30C-23	22	23	1		4.88	0.23	0.012	0.029	16.7	0.09	0.058	70.1	0.55	0.21	0.33	0.51	0.0125	7.28
RPh1-BH30C	RPH1-BH30C-24	23	24	1		2	0.23	0.012	0.029	11.1	0.09	0.058	80.9	0.55	0.21	0.33	0.51	0.0125	5.85
RPh1-BH30C	RPH1-BH30C-25	24	25	1		2.85	0.23	0.012	0.029	14.6	0.09	0.058	74.8	0.55	0.21	0.33	0.51	0.0125	7.62
RPh1-BH31B	RPH1-BH31B-1	0	1	1		0.29	0.82	0.012	0.12	44.7	0.09	0.058	16.2	1.33	0.85	0.33	0.51	0.0125	35.7
RPh1-BH31B	RPH1-BH31B-2	1	2	1		0.34	0.35	0.012	0.058	49.8	0.09	0.058	9.57	0.62	0.62	0.33	0.51	0.0125	38.6
RPh1-BH31B	RPH1-BH31B-3	2	3	1		0.7	0.47	0.012	0.075	46.2	0.09	0.72	14.5	0.76	0.86	0.33	0.51	0.0125	35.7
RPh1-BH31B	RPH1-BH31B-4	3	4	1		0.62	0.23	0.012	0.029	51.3	0.09	0.058	9.42	0.55	0.21	0.33	0.51	0.0125	38.1
RPh1-BH31B	RPH1-BH31B-5	4	5	1		1.06	0.23	0.012	0.03	50.7	0.09	0.37	9.69	0.55	0.21	0.33	0.51	0.0125	37.3
RPh1-BH31B	RPH1-BH31B-6	5	6	1		1.15	0.23	0.012	0.029	51.4	0.09	0.19	8.43	0.55	0.21	0.33	0.51	0.0125	38
RPh1-BH31B	RPH1-BH31B-7	6	7	1		7.06	0.23	0.012	0.029	54.6	0.09	0.3	2.01	0.55	0.21	0.33	0.54	0.0125	35.1
RPh1-BH31B	RPH1-BH31B-8	7	8	1		4.07	0.23	0.012	0.029	53.4	0.09	0.12	4.42	0.55	0.21	0.33	0.51	0.0125	37.1
RPh1-BH31B	RPH1-BH31B-9	8	9	1		7.16	0.23	0.012	0.029	53.1	0.09	0.17	5.35	0.55	0.21	0.33	0.63	0.0125	33.2

RPh1-BH31B	RPH1-BH31B-10	9	10	1		8.2	0.23	0.012	0.029	49.5	0.09	0.19	11.4	0.55	0.21	0.33	0.47	0.0125	30
RPh1-BH31B	RPH1-BH31B-11	10	11	1	2.66	13.4	0.23	0.012	0.029	42.2	0.09	0.38	23.8	0.55	0.21	0.33	1.12	0.0125	18.6
RPh1-BH31B	RPH1-BH31B-12	11	12	1	2.66	13.9	0.23	0.012	0.029	44.6	0.09	0.4	19.9	0.55	0.21	0.33	1.12	0.0125	19.8
RPh1-BH31B	RPH1-BH31B-13	12	13	1	2.3	12.4	0.23	0.012	0.029	30.7	0.09	0.27	42.8	0.55	0.21	0.33	0.94	0.0125	12.7
RPh1-BH31B	RPH1-BH31B-14	13	14	1	1.44	32.9	0.23	0.012	0.029	52.4	0.09	1.25	2.03	0.55	0.21	0.33	3.55	0.0125	7.82
RPh1-BH31B	RPH1-BH31B-15	14	15	1	1.44	32.6	0.23	0.012	0.029	52.3	0.16	1.15	1.47	0.55	0.21	1.28	3.65	0.0125	7.24
RPh1-BH31B	RPH1-BH31B-16	15	16	1	1.44	33.4	0.23	0.012	0.029	52.5	0.09	1.07	2.46	0.55	0.21	0.33	3.62	0.0125	6.9
RPh1-BH31B	RPH1-BH31B-17	16	17	1	1.44	34.6	0.23	0.012	0.029	53.5	0.09	1.01	0.51	0.55	0.21	0.33	4.13	0.0125	6.23
RPh1-BH31B	RPH1-BH31B-18	17	18	1	1.44	34.1	0.23	0.012	0.029	53.2	0.09	0.99	1.02	0.55	0.21	0.33	4.08	0.0125	6.53
RPh1-BH31B	RPH1-BH31B-19	18	19	1	1.44	31.4	0.23	0.012	0.029	50.5	0.09	0.88	6.1	0.55	0.21	0.33	3.51	0.0125	7.46
RPh1-BH31B	RPH1-BH31B-20	19	20	1	1.44	32.4	0.23	0.012	0.029	51.1	0.09	1.07	4.62	0.55	0.21	0.33	3.82	0.0125	6.84
RPh1-BH31B	RPH1-BH31B-21	20	21	1	1.44	32.1	0.23	0.012	0.029	50.3	0.09	1.04	5.75	0.55	0.21	0.44	3.43	0.0125	6.72
RPh1-BH32	RPH1-BH32-1	0	1	1		0.4	1.2	0.019	0.18	40.9	0.12	0.058	21.5	1.84	0.89	0.33	0.51	0.0125	32.9
RPh1-BH32	RPH1-BH32-2	1	2	1		0.66	0.77	0.012	0.13	45.6	0.09	0.37	14.3	1.31	0.71	0.33	0.51	0.0125	36.1
RPh1-BH32	RPH1-BH32-3	2	3	1		0.39	0.31	0.012	0.06	44.1	0.09	1.42	18.7	0.55	0.33	0.33	0.51	0.0125	34.2
RPh1-BH32	RPH1-BH32-4	3	4	1		0.39	0.23	0.012	0.037	47.8	0.09	0.96	13.9	0.55	0.23	0.33	0.51	0.0125	36.2
RPh1-BH32	RPH1-BH32-5	4	5	1		0.48	0.23	0.012	0.031	46.3	0.09	0.51	16.7	0.55	0.21	0.33	0.51	0.0125	35.4
RPh1-BH32	RPH1-BH32-6	5	6	1		0.62	0.23	0.012	0.029	51.9	0.09	0.25	7.87	0.55	0.21	0.33	0.51	0.0125	39.1
RPh1-BH32	RPH1-BH32-7	6	7	1		0.46	0.23	0.012	0.029	51.9	0.09	0.17	7.58	0.55	0.21	0.33	0.51	0.0125	39.6
RPh1-BH32	RPH1-BH32-8	7	8	1		0.57	0.23	0.012	0.029	50.3	0.09	0.058	11	0.55	0.21	0.33	0.51	0.0125	37.8
RPh1-BH32	RPH1-BH32-9	8	9	1		0.75	0.23	0.012	0.029	47.7	0.09	0.058	16.3	0.55	0.21	0.33	0.51	0.0125	34.9
RPh1-BH32	RPH1-BH32-10	9	10	1		0.71	0.23	0.012	0.029	47	0.09	0.058	16.8	0.55	0.21	0.33	0.51	0.0125	34.8
RPh1-BH32	RPH1-BH32-11	10	11	1		0.97	0.23	0.012	0.029	37.4	0.09	0.058	33.6	0.57	0.21	0.33	0.51	0.0125	27.1
RPh1-BH32	RPH1-BH32-12	11	12	1		0.95	0.23	0.012	0.035	39.9	0.09	0.058	28.9	0.56	0.21	0.33	0.51	0.0125	29.2
RPh1-BH32	RPH1-BH32-13	12	13	1		2.21	0.28	0.012	0.033	38	0.09	0.058	31.5	0.66	0.21	0.33	0.51	0.0125	27.2
RPh1-BH32	RPH1-BH32-14	13	14	1		1.21	0.23	0.012	0.029	45.8	0.09	0.058	19	0.55	0.21	0.33	0.51	0.0125	33.2

RPh1-BH32	RPH1-BH32-15	14	15	1		4.07	0.23	0.012	0.029	46.4	0.09	0.16	16.7	0.55	0.21	0.33	0.51	0.0125	31.5
RPh1-BH32	RPH1-BH32-16	15	16	1		11.7	0.23	0.012	0.029	52.9	0.09	0.49	3.68	0.55	0.21	0.33	1.16	0.0125	29.7
RPh1-BH32	RPH1-BH32-17	16	17	1		5.61	0.23	0.012	0.029	47.1	0.09	0.16	16.4	0.55	0.21	0.33	0.51	0.0125	30
RPh1-BH32	RPH1-BH32-18	17	18	1		10.5	0.23	0.012	0.029	54.4	0.09	0.35	3.19	0.55	0.21	0.33	0.51	0.0125	31.1
RPh1-BH32	RPH1-BH32-19	18	19	1		7.03	0.23	0.012	0.029	40.2	0.09	0.2	28.8	0.55	0.21	0.33	0.51	0.0125	23.4
RPh1-BH32	RPH1-BH32-20	19	20	1		9.53	0.23	0.012	0.029	39.5	0.09	0.23	29.1	0.55	0.21	0.33	0.66	0.0125	20.6
RPh1-BH32	RPH1-BH32-21	20	21	1		17.4	0.23	0.012	0.029	54.1	0.09	0.66	4.66	0.55	0.21	0.33	1.82	0.0125	21.1
RPh1-BH32	RPH1-BH32-22	21	22	1		11.6	0.23	0.012	0.029	51.9	0.09	0.44	7.59	0.55	0.21	0.33	0.51	0.0125	27.8
RPh1-BH32	RPH1-BH32-23	22	23	1		6.15	0.23	0.012	0.029	28.5	0.09	0.11	48.6	0.55	0.21	0.33	0.51	0.0125	15.5
RPh1-BH32	RPH1-BH32-24	23	24	1		8.53	0.23	0.012	0.029	31.4	0.09	0.21	43	0.55	0.21	0.33	0.51	0.0125	16.5
RPh1-BH32	RPH1-BH32-25	24	25	1	1.44	28.2	0.23	0.012	0.029	50	0.09	1.04	7.81	0.55	0.21	0.33	2.93	0.0125	9.96
RPh1-BH32	RPH1-BH32-26	25	26	1	1.44	24.9	0.23	0.012	0.029	52.7	0.09	0.93	3.4	0.55	0.21	0.33	2.35	0.0125	15.7
RPh1-BH32	RPH1-BH32-27	26	27	1	2.11	13.2	0.23	0.012	0.029	30.4	0.09	0.34	44.8	0.55	0.21	0.33	1.01	0.0125	10.2
RPh1-BH32	RPH1-BH32-28	27	28	1		6.27	0.23	0.012	0.029	17.6	0.09	0.059	68.7	0.55	0.21	0.33	0.51	0.0125	7.14
RPh1-BH32	RPH1-BH32-29	28	29	1		10.6	0.23	0.012	0.029	23.2	0.09	0.24	57.7	0.55	0.21	0.33	0.51	0.0125	7.2
RPh1-BH33	RPH1-BH33-1	0	1	1		0.38	1.42	0.019	0.19	37.7	0.16	0.058	26.3	2.21	1.11	0.33	0.51	0.0125	30.5
RPh1-BH33	RPH1-BH33-2	1	2	1		0.34	0.6	0.012	0.098	47.7	0.09	0.26	12.3	0.98	0.64	0.33	0.51	0.0125	37
RPh1-BH33	RPH1-BH33-3	2	3	1		0.47	0.23	0.012	0.043	48.7	0.09	0.68	13.6	0.55	0.23	0.33	0.51	0.0125	35.7
RPh1-BH33	RPH1-BH33-4	3	4	1		0.6	0.23	0.012	0.029	35.2	0.09	0.17	37.9	0.55	0.21	0.33	0.51	0.0125	25.8
RPh1-BH33	RPH1-BH33-5	4	5	1		0.66	0.23	0.012	0.029	37.4	0.09	0.33	34.1	0.55	0.21	0.33	0.51	0.0125	27.1
RPh1-BH33	RPH1-BH33-6	5	6	1		0.88	0.23	0.012	0.029	47.5	0.09	0.1	16.4	0.55	0.21	0.33	0.51	0.0125	34.6
RPh1-BH33	RPH1-BH33-7	6	7	1		0.76	0.23	0.012	0.029	46.2	0.09	0.058	18.4	0.55	0.21	0.33	0.51	0.0125	34.1
RPh1-BH33	RPH1-BH33-8	7	8	1		1.6	0.28	0.012	0.036	50	0.09	0.058	10.7	0.69	0.22	0.33	0.51	0.0125	36.4
RPh1-BH33	RPH1-BH33-9	8	9	1		2.02	0.23	0.012	0.03	40.3	0.09	0.058	28.4	0.55	0.21	0.33	0.51	0.0125	28.3
RPh1-BH33	RPH1-BH33-10	9	10	1		1.05	0.23	0.012	0.029	52.4	0.09	0.058	7.52	0.55	0.21	0.33	0.51	0.0125	38.6
RPh1-BH33	RPH1-BH33-11	10	11	1		3.2	0.27	0.012	0.029	53.1	0.09	0.065	4.73	0.55	0.31	0.33	0.51	0.0125	37.5

RPh1-BH33	RPH1-BH33-12	11	12	1		6.91	0.23	0.012	0.029	52.8	0.09	0.23	5.69	0.55	0.21	0.33	0.77	0.0125	33.3
RPh1-BH33	RPH1-BH33-13	12	13	1		9.24	0.23	0.012	0.029	52.9	0.09	0.24	5.36	0.55	0.21	0.33	0.86	0.0125	31.2
RPh1-BH33	RPH1-BH33-14	13	14	1		8.51	0.23	0.012	0.029	36.3	0.09	0.22	35.9	0.55	0.21	0.33	0.68	0.0125	18.2
RPh1-BH33	RPH1-BH33-15	14	15	1		12	0.23	0.012	0.029	50.4	0.09	0.43	9.75	0.55	0.21	0.33	1.03	0.0125	26.1
RPh1-BH33	RPH1-BH33-16	15	16	1	2.66	10.6	0.23	0.012	0.029	50.7	0.09	0.42	8.34	0.55	0.21	0.33	0.83	0.0125	28.4
RPh1-BH33	RPH1-BH33-17	16	17	1	2.11	11.2	0.23	0.012	0.029	29.7	0.09	0.39	46.1	0.55	0.21	0.33	0.77	0.0125	11.3
RPh1-BH33	RPH1-BH33-18	17	18	1	2.3	24.8	0.23	0.012	0.029	41.6	0.09	0.41	24.3	0.55	0.21	0.33	2.57	0.0125	6.3
RPh1-BH33	RPH1-BH33-19	18	19	1	1.44	32.8	0.23	0.012	0.029	51.1	0.09	0.92	5.4	0.55	0.21	0.33	3.81	0.0125	5.87
RPh1-BH33	RPH1-BH33-20	19	20	1	2.3	17.2	0.23	0.012	0.029	34.3	0.09	0.44	37.8	0.55	0.21	0.33	1.29	0.0125	8.92
RPh1-BH33	RPH1-BH33-21	20	21	1	2.3	16.4	0.23	0.012	0.029	41.6	0.09	0.43	25.1	0.55	0.21	0.33	1.38	0.0125	14.9
RPh1-BH33	RPH1-BH33-22	21	22	1	2.11	14.7	0.23	0.012	0.029	34.9	0.09	0.37	37.2	0.55	0.21	0.33	1.04	0.0125	11.7
RPh1-BH33	RPH1-BH33-23	22	23	1		9.77	0.23	0.012	0.029	26	0.09	0.15	52.2	0.55	0.21	0.33	0.57	0.0125	10.7
RPh1-BH33	RPH1-BH33-24	23	24	1		12.3	0.23	0.012	0.029	35.5	0.09	0.29	36.5	0.55	0.21	0.33	0.81	0.0125	14.5
RPh1-BH33	RPH1-BH33-25	24	25	1		9.2	0.23	0.012	0.029	27.4	0.09	0.14	50.7	0.55	0.21	0.33	0.51	0.0125	11.5
RPh1-BH33	RPH1-BH33-26	25	26	1		12.4	0.23	0.012	0.029	27.4	0.09	0.27	50.7	0.55	0.21	0.33	0.77	0.0125	8.35
RPh1-BH33	RPH1-BH33-27	26	27	1		3.81	0.23	0.012	0.029	10.8	0.09	0.058	81.1	0.55	0.21	0.33	0.51	0.0125	4.18
RPh1-BH33	RPH1-BH33-28	27	28	1		3.45	0.23	0.012	0.029	11.3	0.09	0.058	80.7	0.55	0.21	0.33	0.51	0.0125	4.51
RPh1-BH34	RPH1-BH34-1	0	1	1		0.84	2.91	0.038	0.41	22.2	0.54	0.058	45.5	4.6	1.86	0.33	0.51	0.0125	20.5
RPh1-BH34	RPH1-BH34-2	1	2	1		0.54	0.643	0.012	0.095	44.8	0.09	0.13	16.1	1.04	0.73	0.33	0.51	0.0125	35.9
RPh1-BH34	RPH1-BH34-3	2	3	1		0.38	0.36	0.012	0.061	48.1	0.09	0.33	11.9	0.62	0.45	0.33	0.51	0.0125	37.7
RPh1-BH34	RPH1-BH34-4	3	4	1		0.37	0.23	0.012	0.048	49.7	0.09	2.03	10.2	0.55	0.36	0.33	0.51	0.0125	36.7
RPh1-BH34	RPH1-BH34-5	4	5	1		0.6	0.23	0.012	0.029	53	0.09	0.51	5.19	0.55	0.22	0.33	0.51	0.0125	40
RPh1-BH34	RPH1-BH34-6	5	6	1		0.87	0.23	0.012	0.029	53.4	0.09	0.19	5.82	0.55	0.21	0.33	0.51	0.0125	39.3
RPh1-BH34	RPH1-BH34-7	6	7	1		0.67	0.23	0.012	0.031	53.3	0.09	0.058	5.35	0.55	0.22	0.33	0.51	0.0125	39.8
RPh1-BH34	RPH1-BH34-8	7	8	1		1.43	0.23	0.012	0.029	44.7	0.09	0.058	20.9	0.55	0.21	0.33	0.51	0.0125	32.3
RPh1-BH34	RPH1-BH34-9	8	9	1		1.08	0.23	0.012	0.029	45.2	0.09	0.27	19.6	0.55	0.21	0.33	0.51	0.0125	33.1

RPh1-BH34	RPH1-BH34 - 10	9	10	1		2	0.26	0.012	0.029	49.7	0.09	0.058	12	0.56	0.21	0.33	0.51	0.0125	35.4
RPh1-BH34	RPH1-BH34 - 11	10	11	1		7	0.23	0.012	0.029	51.1	0.09	0.22	8.01	0.55	0.21	0.33	0.51	0.0125	32.2
RPh1-BH34	RPH1-BH34-12	11	12	1	1.85	10.2	0.23	0.012	0.029	53.8	0.09	0.38	4.23	0.55	0.21	0.33	0.51	30.32	30.3
RPh1-BH34	RPH1-BH34-13	12	13	1	1.4	19.2	0.23	0.012	0.029	54.1	0.09	0.73	1.28	0.55	0.21	0.33	2.08	0.0125	22.3
RPh1-BH34	RPH1-BH34 - 14	13	14	1	1.4	14.8	0.23	0.012	0.029	53.3	0.09	0.61	3.99	0.55	0.21	0.33	1.61	0.0125	25.6
RPh1-BH34	RPH1-BH34-15	14	15	1	1.4	18	0.23	0.012	0.029	53.7	0.09	0.57	2.3	0.55	0.21	0.33	1.88	0.0125	23.4
RPh1-BH34	RPH1-BH34 - 16	15	16	1	2.3	6.17	0.23	0.012	0.029	46.2	0.09	0.14	16.4	0.55	0.21	0.33	0.51	0.0125	30.3
RPh1-BH34	RPH1-BH34 - 17	16	17	1	2.3	25.2	0.27	0.012	0.029	48.8	0.09	0.91	10.8	0.55	0.21	0.33	2.41	0.0125	11.1
RPh1-BH34	RPH1-BH34 - 18	17	18	1	1.44	23.1	0.23	0.012	0.03	52	0.09	0.95	4.72	0.55	0.21	0.33	2.56	0.0125	16
RPh1-BH34	RPH1-BH34 - 19	18	19	1	1.85	17	0.23	0.012	0.029	50.9	0.09	0.57	8.97	0.55	0.21	0.33	1.63	0.0125	20.4
RPh1-BH34	RPH1-BH34-20	19	20	1	1.85	19.8	0.23	0.012	0.029	52.3	0.09	0.9	3.94	0.55	0.21	0.33	1.83	0.0125	20.7
RPh1-BH34	RPH1-BH34-21	20	21	1	1.85	17.6	0.33	0.012	0.035	48.6	0.09	0.76	10.8	0.55	0.21	0.33	1.78	0.0125	19.6
RPh1-BH35	RPH1-BH35-1	0	1	1		0.5	0.74	0.012	0.12	41.5	0.09	4.35	18.8	1.12	0.72	0.33	0.51	0.0125	32.1
RPh1-BH35	RPH1-BH35-2	1	2	1		0.35	0.69	0.012	0.12	42.8	0.09	4.81	16.6	0.99	0.64	0.33	0.51	0.0125	32.9
RPh1-BH35	RPH1-BH35-3	2	3	1		0.35	0.86	0.012	0.14	41.5	0.09	5.16	16.5	1.28	0.81	0.33	0.51	0.0125	33.4
RPh1-BH35	RPH1-BH35-4	3	4	1		0.5	0.23	0.012	0.029	39.6	0.09	1.51	28.8	0.55	0.21	0.33	0.51	0.0125	29.2
RPh1-BH35	RPH1-BH35-5	4	5	1		0.58	0.23	0.012	0.029	41.9	0.09	0.54	26.1	0.55	0.21	0.33	0.51	0.0125	30.7
RPh1-BH35	RPH1-BH35-6	5	6	1		0.46	0.23	0.012	0.029	49.1	0.09	0.49	13.3	0.55	0.21	0.33	0.51	0.0125	36.3
RPh1-BH35	RPH1-BH35-7	6	7	1		0.75	0.23	0.012	0.029	49.4	0.09	0.24	12.9	0.55	0.21	0.33	0.51	0.0125	36.4
RPh1-BH35	RPH1-BH35-8	7	8	1		0.95	0.28	0.012	0.029	48.1	0.09	0.25	15	0.55	0.21	0.33	0.51	0.0125	35.2
RPh1-BH35	RPH1-BH35-9	8	9	1		0.88	0.23	0.012	0.029	51.7	0.09	0.058	7.69	0.55	0.21	0.33	0.51	0.0125	39
RPh1-BH35	RPH1-BH35-10	9	10	1		0.97	0.23	0.012	0.029	47.2	0.09	0.058	16.7	0.55	0.21	0.33	0.51	0.0125	34.5
RPh1-BH35	RPH1-BH35-11	10	11	1		2	0.23	0.012	0.029	48	0.09	0.058	14	0.58	0.35	0.33	0.51	0.0125	34.9
RPh1-BH35	RPH1-BH35-12	11	12	1		2.59	0.23	0.012	0.029	52.5	0.09	0.085	9.45	0.55	0.21	0.33	0.51	0.0125	34.5
RPh1-BH35	RPH1-BH35-13	12	13	1		1.7	0.23	0.012	0.029	53.7	0.09	0.058	4.83	0.55	0.21	0.33	0.51	0.0125	39
RPh1-BH35	RPH1-BH35-14	13	14	1	1.85	15.1	0.23	0.012	0.029	52.9	0.09	0.76	3.44	0.55	0.21	0.33	1.76	0.0125	25.7
RPh1-BH35	RPH1-BH35-15	14	15	1	1.85	10.5	0.23	0.012	0.029	54.8	0.09	0.48	0.86	0.55	0.21	0.33	1	0.0125	32.1
RPh1-BH35	RPH1-BH35-16	15	16	1	1.4	20.5	0.23	0.012	0.029	54.2	0.09	0.84	0.95	0.55	0.21	0.33	2.25	0.0125	21.1

RPh1-BH35	RPH1-BH35-17	16	17	1	2.66	6.39	0.23	0.012	0.029	39.3	0.09	0.27	29.2	0.55	0.21	0.33	0.51	0.0125	24.1
RPh1-BH35	RPH1-BH35-18	17	18	1	2.66	17.9	0.23	0.012	0.029	48.1	0.09	0.8	12.2	0.55	0.21	0.33	1.75	0.0125	19
RPh1-BH35	RPH1-BH35-19	18	19	1	2.66	11	0.23	0.012	0.029	47.1	0.09	0.42	14.8	0.55	0.21	0.33	1	0.0125	25.4
RPh1-BH35	RPH1-BH35-20	19	20	1	2.66	15	0.23	0.012	0.029	47.3	0.09	0.71	14.2	0.55	0.21	0.33	1.31	0.0125	21.2
RPh1-BH35	RPH1-BH35-21	20	21	1	2.3	6.37	0.23	0.012	0.029	25.9	0.09	0.23	50.5	0.55	0.21	1.36	0.51	0.0125	15.3
RPh1-BH35	RPH1-BH35-22	21	22	1	2.3	21.9	0.23	0.012	0.029	43.9	0.09	1.07	18.4	0.55	0.21	0.33	2.23	0.0125	12.4
RPh1-BH35	RPH1-BH35-23	22	23	1	2.3	9.56	0.23	0.012	0.029	26.7	0.09	0.37	51.8	0.55	0.21	0.33	0.51	0.0125	10.4
RPh1-BH35	RPH1-BH35-24	23	24	1	2.3	20.6	0.23	0.012	0.029	35	0.09	0.61	36	0.55	0.21	0.33	1.73	0.0125	5.9
RPh1-BH35	RPH1-BH35-25	24	25	1	2.3	20.9	0.23	0.012	0.029	33.9	0.09	0.65	37.7	0.55	0.21	0.33	1.78	0.0125	4.7
RPh1-BH35	RPH1-BH35-26	25	26	1		9.77	0.23	0.012	0.029	23.5	0.09	0.23	56.7	0.55	0.21	0.33	0.7	0.0125	8.1
RPh1-BH35	RPH1-BH35-27	26	27	1		10.5	0.23	0.012	0.029	27	0.09	0.27	50.9	0.55	0.21	0.33	0.66	0.0125	9.8
RPh1-BH35	RPH1-BH35-28	27	28	1		7	0.23	0.012	0.029	26.3	0.09	0.15	52.7	0.55	0.21	0.33	0.51	0.0125	12.8
RPh1-BH35	RPH1-BH35-29	28	29	1		3.45	0.23	0.012	0.029	25.1	0.09	0.058	56.1	0.55	0.21	0.33	0.51	0.0125	14.9
RPh1-BH35	RPH1-BH35-30	29	30	1		3.37	0.23	0.012	0.029	19.5	0.09	0.058	65.4	0.55	0.21	0.33	0.51	0.0125	10.7
RPh1-BH36	RPH1-BH36-1	0	1	1		0.56	0.36	0.012	0.056	49.5	0.09	5.92	5.84	0.64	0.47	0.33	0.51	0.0125	36.6
RPh1-BH36	RPH1-BH36-2	1	2	1		0.45	0.5	0.012	0.077	44.5	0.09	7.34	12.3	0.82	0.63	0.33	0.51	0.0125	33
RPh1-BH36	RPH1-BH36-3	2	3	1		0.66	0.29	0.012	0.05	50.5	0.09	1.38	9.22	0.55	0.42	0.33	0.51	0.0125	36.9
RPh1-BH36	RPH1-BH36-4	3	4	1		1.3	0.24	0.012	0.04	49.8	0.09	1.78	8.7	0.56	0.31	0.33	0.51	0.0125	36.6
RPh1-BH36	RPH1-BH36-5	4	5	1		3.28	0.25	0.012	0.029	50.3	0.09	0.81	8.78	0.55	0.38	0.33	0.51	0.0125	35
RPh1-BH36	RPH1-BH36-6	5	6	1		10.5	0.23	0.012	0.029	53.4	0.09	0.68	3.04	0.55	0.21	0.33	1.04	0.0125	30.4
RPh1-BH36	RPH1-BH36-7	6	7	1		5.74	0.23	0.012	0.029	42.7	0.09	0.37	23.9	0.55	0.21	0.33	0.51	0.0125	26.7
RPh1-BH36	RPH1-BH36-8	7	8	1	1.4	21.2	0.28	0.012	0.029	52.1	0.09	0.93	4.12	0.55	0.21	0.33	2.18	0.0125	19.2
RPh1-BH36	RPH1-BH36-9	8	9	1	1.4	18.1	0.23	0.012	0.029	44.5	0.09	0.84	14.4	0.55	0.21	0.33	1.73	0.0125	20.3
RPh1-BH36	RPH1-BH36-10	9	10	1	2.3	10.6	0.23	0.012	0.029	28.9	0.09	0.4	45.8	0.55	0.21	0.33	0.67	0.0125	13.2
RPh1-BH36	RPH1-BH36-11	10	11	1	2.66	18.4	0.27	0.012	0.029	48.6	0.09	0.94	11.2	0.55	0.21	0.33	1.83	0.0125	18.7
RPh1-BH36	RPH1-BH36-12	11	12	1		5.24	0.23	0.012	0.029	18.9	0.09	0.17	63.1	0.55	0.21	0.33	0.51	0.0125	11.5
RPh1-BH36	RPH1-BH36-13	12	13	1		6.71	0.23	0.012	0.029	17.2	0.09	0.16	67.2	0.55	0.21	0.33	0.51	0.0125	7.9
RPh1-BH36	RPH1-BH36-14	13	14	1		6.72	0.23	0.012	0.029	18.6	0.09	0.13	66.5	0.55	0.21	0.33	0.51	0.0125	7.0

RPh1-BH36	RPH1-BH36-15	14	15	1		7.96	0.23	0.012	0.029	19.6	0.09	0.22	63.7	0.55	0.21	0.33	0.51	0.0125	7.55
RPh1-BH36	RPH1-BH36-16	15	16	1		9.25	0.23	0.012	0.029	27	0.09	0.34	51.2	0.55	0.21	0.33	0.51	0.0125	11.1
RPh1-BH36	RPH1-BH36-17	16	17	1		7.88	0.23	0.012	0.029	22.7	0.09	0.22	58.6	0.55	0.21	0.33	0.51	0.0125	9.24
RPh1-BH36	RPH1-BH36-18	17	18	1		3.36	0.23	0.012	0.029	37.5	0.09	0.058	34.6	0.55	0.21	0.33	0.51	0.0125	24.3
RPh1-BH36	RPH1-BH36-19	18	19	1		1.82	0.23	0.012	0.029	16.9	0.09	0.058	69.4	0.55	0.21	0.33	0.51	0.0125	10.6
RPh1-BH36	RPH1-BH36-20	19	20	1		1.4	0.23	0.012	0.029	10.3	0.09	0.058	80.5	0.55	0.21	0.33	0.51	0.0125	7.15
RPh1-BH36	RPH1-BH36-21	20	21	1		0.98	0.23	0.012	0.029	9	0.09	0.058	84.1	0.55	0.21	0.33	0.51	0.0125	5.34
RPh1-BH36	RPH1-BH36-22	21	22	1		2.92	0.23	0.012	0.029	15.2	0.09	0.058	73.2	0.55	0.21	0.33	0.51	0.0125	8.04
RPh1-BH36	RPH1-BH36-23	22	23	1		1.47	0.23	0.012	0.029	16.3	0.09	0.058	71.8	0.55	0.21	0.33	0.51	0.0125	10.3
RPh1-BH36	RPH1-BH36-24	23	24	1		1.39	0.23	0.012	0.029	30.3	0.09	0.058	47.4	0.55	0.21	0.33	0.51	0.0125	20.8
RPh1-BH36	RPH1-BH36-25	24	25	1		2	0.23	0.012	0.029	20.7	0.09	0.058	63.4	0.55	0.21	0.33	0.51	0.0125	13.2
RPh1-BH36	RPH1-BH36-26	25	26	1		8.81	0.23	0.012	0.029	32.5	0.09	0.5	42	0.55	0.21	0.33	0.51	0.0125	15.7
RPh1-BH36	RPH1-BH36-27	26	27	1		3	0.23	0.012	0.029	22.6	0.09	0.058	61	0.55	0.21	0.33	0.51	0.0125	13.3
RPh1-BH36	RPH1-BH35-28	27	28	1		4.34	0.23	0.012	0.029	25.6	0.09	0.17	54.2	0.55	0.21	0.33	0.51	0.0125	14.6
RPh1-BH37	RPH1-BH37-1	0	1	1		0.57	0.9	0.013	0.14	36.8	0.09	1.9	30	1.32	0.67	0.33	0.51	0.0125	27.6
RPh1-BH37	RPH1-BH37-2	1	2	1		0.47	0.67	0.012	0.11	42.2	0.09	2.09	20.9	1	0.57	0.33	0.51	0.0125	31.9
RPh1-BH37	RPH1-BH37-3	2	3	1		0.48	0.29	0.012	0.059	47.1	0.09	1.24	14.9	0.55	0.3	0.33	0.51	0.0125	35.2
RPh1-BH37	RPH1-BH37-4	3	4	1		0.58	0.23	0.012	0.052	46.3	0.09	1.21	16.5	0.55	0.22	0.33	0.51	0.0125	34.5
RPh1-BH37	RPH1-BH37-5	4	5	1		0.64	0.23	0.012	0.05	48.1	0.09	1.24	13.6	0.55	0.24	0.33	0.51	0.0125	35.6
RPh1-BH37	RPH1-BH37-6	5	6	1		0.67	0.23	0.012	0.031	48.5	0.09	0.71	14.2	0.55	0.21	0.33	0.51	0.0125	35.3
RPh1-BH37	RPH1-BH37-7	6	7	1		0.92	0.23	0.012	0.03	50.3	0.09	0.33	9.42	0.63	0.39	0.33	0.51	0.0125	37.8
RPh1-BH37	RPH1-BH37-8	7	8	1		1.05	0.23	0.012	0.029	45.6	0.09	0.46	18	0.56	0.39	0.33	0.51	0.0125	33.6
RPh1-BH37	RPH1-BH37-9	8	9	1		1.12	0.23	0.012	0.031	47.9	0.09	0.55	13.7	0.62	0.43	0.33	0.51	0.0125	35.4
RPh1-BH37	RPH1-BH37-10	9	10	1		1.51	0.23	0.012	0.03	45.5	0.09	0.098	19	0.55	0.3	0.33	0.51	0.0125	32.9
RPh1-BH37	RPH1-BH37-11	10	11	1		1.56	0.26	0.012	0.029	49	0.09	0.058	12.7	0.55	0.21	0.33	0.51	0.0125	35.7
RPh1-BH37	RPH1-BH37-12	11	12	1		1.7	0.23	0.012	0.029	52.4	0.09	0.058	7.38	0.55	0.21	0.33	0.51	0.0125	37.8
RPh1-BH37	RPH1-BH37-13	12	13	1		2.7	0.23	0.012	0.029	48	0.09	0.058	8.4	0.55	0.28	0.33	0.51	0.0125	40
RPh1-BH37	RPH1-BH37-14	13	14	1		16	0.23	0.012	0.029	45	0.09	0.84	17.7	0.55	0.21	0.33	1.38	0.0125	18.6

RPh1-BH37	RPH1-BH37-15	14	15	1		10.5	0.23	0.012	0.029	51.7	0.09	0.56	6.92	0.55	0.21	0.33	0.86	0.0125	28.9
RPh1-BH37	RPH1-BH37-16	15	16	1	2.66	17.9	0.23	0.012	0.029	48.5	0.09	0.9	10.9	0.55	0.21	0.33	1.91	0.0125	19.6
RPh1-BH37	RPH1-BH37-17	16	17	1	2.66	12.9	0.23	0.012	0.029	43.1	0.09	0.6	22.3	0.55	0.21	0.33	1.05	0.0125	19.8
RPh1-BH37	RPH1-BH37-18	17	18	1	2.66	17.3	0.23	0.012	0.029	46.4	0.09	0.77	15.4	0.55	0.21	0.33	1.63	0.0125	18.2
RPh1-BH37	RPH1-BH37-19	18	19	1	2.66	15.7	0.23	0.012	0.029	43.1	0.09	0.62	21.9	0.55	0.21	0.33	1.26	0.0125	17.2
RPh1-BH37	RPH1-BH37-20	19	20	1		13.4	0.23	0.012	0.029	50.5	0.09	0.76	7.87	0.55	0.28	0.33	1.41	0.0125	25.3
RPh1-BH37	RPH1-BH37-21	20	21	1		11.6	0.23	0.012	0.029	37.8	0.09	0.78	31.5	0.55	0.21	0.33	0.78	0.0125	17.1
RPh1-BH37	RPH1-BH37-22	21	22	1		9.02	0.23	0.012	0.029	23.8	0.09	0.43	56.1	0.55	0.21	0.33	0.51	0.0125	9.21
RPh1-BH37	RPH1-BH37-23	22	23	1		17.1	0.23	0.012	0.029	34.4	0.09	0.71	36.6	0.55	0.21	0.33	1.45	0.0125	9.27
RPh1-BH37	RPH1-BH37-24	23	24	1		4.85	0.23	0.012	0.029	16.5	0.09	0.085	69.1	0.55	0.21	0.33	0.51	0.0125	8.41
RPh1-BH37	RPH1-BH37-25	24	25	1		6.38	0.23	0.012	0.029	26.4	0.09	0.19	52.3	0.55	0.21	0.33	0.51	0.0125	13.8
RPh1-BH37	RPH1-BH37-26	25	26	1		6.08	0.23	0.012	0.029	26.3	0.09	0.17	52.3	0.55	0.21	0.33	0.51	0.0125	14.1
RPh1-BH37	RPH1-BH37-27	26	27	1		6.62	0.23	0.012	0.029	27.4	0.09	0.24	50.5	0.55	0.21	0.33	0.51	0.0125	14.3
RPh1-BH39	RPH1-BH39-1	0	1	1		0.42	3.57	0.051	0.47	15.4	0.78	0.058	55.7	5.55	1.89	0.33	0.51	0.0125	15.6
RPh1-BH39	RPH1-BH39-2	1	2	1		0.38	2.41	0.026	0.29	20.8	0.3	0.058	52.7	3.63	1.38	0.33	0.51	0.0125	18.1
RPh1-BH39	RPH1-BH39-3	2	3	1		0.33	2.76	0.024	0.35	15.1	0.28	0.058	61.7	4	1.4	0.33	0.51	0.0125	14
RPh1-BH39	RPH1-BH39-4	3	4	1		0.33	1.9	0.017	0.23	24.6	0.18	0.092	48.5	2.67	1.04	0.33	0.51	0.0125	20.4
RPh1-BH39	RPH1-BH39-5	4	5	1		0.3	2.07	0.017	0.3	15.1	0.17	0.25	65.2	2.64	0.93	0.33	0.51	0.0125	13
RPh1-BH39	RPH1-BH39-6	5	6	1		0.33	1.72	0.014	0.25	17.4	0.12	0.14	62.3	2.14	0.82	0.33	0.51	0.0125	14.7
RPh1-BH39	RPH1-BH39-7	6	7	1		0.33	1.83	0.014	0.28	18.7	0.13	0.058	59.8	2.35	0.91	0.33	0.51	0.0125	15.7
RPh1-BH39	RPH1-BH39-8	7	8	1		0.4	1.36	0.012	0.21	18.6	0.09	0.058	61.3	1.68	0.63	0.33	0.6	0.0125	15.1
RPh1-BH39	RPH1-BH39-9	8	9	1		0.52	0.52	0.012	0.075	20.6	0.09	0.058	61.3	0.7	0.22	0.33	0.51	0.0125	15.5
RPh1-BH39	RPH1-BH39-10	9	10	1		0.4	0.69	0.012	0.1	29.6	0.09	0.058	45.4	0.95	0.35	0.33	0.51	0.0125	22.4
RPh1-BH39	RPH1-BH39-11	10	11	1		0.46	0.65	0.02	0.072	30.2	0.09	0.058	44	0.92	0.58	0.33	0.51	0.0125	23.1
RPh1-BH39	RPH1-BH39-12	11	12	1		0.45	0.48	0.014	0.061	37.9	0.09	0.058	31.3	0.69	0.43	0.33	0.51	0.0125	28.7
RPh1-BH39	RPH1-BH39-13	12	13	1		0.4	0.59	0.022	0.067	38.9	0.09	0.058	28.7	0.85	0.58	0.33	0.51	0.0125	30
RPh1-BH39	RPH1-BH39-14	13	14	1		0.58	0.39	0.017	0.036	23.9	0.09	0.058	57	0.56	0.23	0.33	0.51	0.0125	16.8
RPh1-BH39	RPH1-BH39-15	14	15	1		0.5	0.36	0.016	0.03	21.5	0.09	0.058	60.2	0.55	0.21	0.33	0.51	0.0125	16.2

RPh1-BH39	RPH1-BH39-16	15	16	1		0.91	0.57	0.015	0.055	23.6	0.09	0.058	55.1	0.8	0.37	0.33	0.51	0.0125	18.1
RPh1-BH39	RPH1-BH39-17	16	17	1		0.67	0.77	0.037	0.056	15.6	0.09	0.058	69	0.9	0.34	0.33	0.51	0.0125	12.1
RPh1-BH39	RPH1-BH39-18	17	18	1		0.65	0.41	0.026	0.033	23.5	0.09	0.058	56.8	0.55	0.21	0.33	0.51	0.0125	17.4
RPh1-BH39	RPH1-BH39-19	18	19	1	2.11	0.93	0.3	0.016	0.029	25.7	0.09	0.058	52.8	0.55	0.21	0.33	0.51	0.0125	19.2
RPh1-BH39	RPH1-BH39-20	19	20	1		0.64	0.23	0.015	0.029	23.2	0.09	0.058	58.2	0.55	0.21	0.33	0.51	0.0125	16.8
RPh1-BH39	RPH1-BH39-21	20	21	1		0.64	0.27	0.014	0.029	22.6	0.09	0.058	59.4	0.55	0.21	0.33	0.51	0.0125	16
RPh1-BH39	RPH1-BH39-22	21	22	1		0.6	0.29	0.012	0.03	25.9	0.09	0.058	53.6	0.55	0.21	0.33	0.51	0.0125	18.7
RPh1-BH39	RPH1-BH39-23	22	23	1		0.56	0.31	0.012	0.034	26.3	0.09	0.058	52.7	0.55	0.21	0.33	0.51	0.0125	19.1
RPh1-BH39	RPH1-BH39-24	23	24	1		0.55	0.43	0.012	0.048	30.8	0.09	0.058	44.7	0.68	0.21	0.33	0.51	0.0125	22.7
RPh1-BH39	RPH1-BH39-25	24	25	1		0.58	0.49	0.012	0.058	27.2	0.09	0.058	50.4	0.79	0.21	0.33	0.51	0.0125	20.4
RPh1-BH39	RPH1-BH39-26	25	26	1		0.61	0.32	0.012	0.037	23.1	0.09	0.058	58.1	0.55	0.21	0.33	0.51	0.0125	16.8
RPh1-BH39	RPH1-BH39-27	26	27	1		0.66	0.43	0.012	0.051	22.5	0.09	0.058	58.8	0.69	0.21	0.33	0.51	0.0125	16.4
RPh1-BH39	RPH1-BH39-28	27	28	1		0.68	0.42	0.012	0.046	24.2	0.09	0.058	56.4	0.66	0.21	0.33	0.51	0.0125	17.6
RPh1-BH39	RPH1-BH39-29	28	29	1		0.65	0.31	0.012	0.036	23.8	0.09	0.058	56.9	0.55	0.21	0.33	0.51	0.0125	17.3
RPh1-BH39	RPH1-BH39-30	29	30	1		0.66	0.47	0.012	0.052	29.8	0.09	0.058	46.4	0.74	0.21	0.33	0.51	0.0125	21.8
RPh1-BH39	RPH1-BH39-31	30	31	1		0.63	0.63	0.016	0.069	32.7	0.09	0.058	40.9	0.92	0.21	0.33	0.51	0.0125	24
RPh1-BH39	RPH1-BH39-32	31	32	1		0.7	0.55	0.019	0.055	31.4	0.09	0.058	43.4	0.78	0.21	0.33	0.51	0.0125	23
RPh1-BH41	RPH1-BH 41 - 02	5	6	1		0.46	0.66	0.012	0.1	32.7	0.09	0.18	39.1	0.95	0.49	0.33	0.51	0.0125	25.4
RPh1-BH41	RPH1-BH 41 - 05	8	9	1		0.36	0.5	0.012	0.068	42.4	0.09	0.058	22.1	0.83	0.61	0.33	0.51	0.0125	33.1
RPh1-BH41	RPH1-BH 41 - 07	10	11	1		0.47	0.34	0.012	0.049	38.2	0.09	0.058	31.2	0.58	0.37	0.33	0.51	0.0125	28.8
RPh1-BH41	RPH1-BH 41 - 13	16	17	1		0.47	0.97	0.038	0.11	43.9	0.09	0.058	17.7	1.5	0.77	0.33	0.51	0.0125	34.5
RPh1-BH41	RPH1-BH 41 - 21	24	25	1		0.52	0.23	0.012	0.032	49	0.09	0.058	10.8	0.62	0.69	0.33	0.51	0.0125	38.1
RPh1-BH41	RPH1-BH 41 - 26	29	30	1	2.66	2.54	0.28	0.012	0.036	38.5	0.09	0.058	30.8	0.59	0.27	0.33	0.51	0.0125	27
RPh1-BH41	RPH1-BH 41 - 27	30	31	1		2.18	0.23	0.012	0.029	37.1	0.09	0.058	34	0.55	0.21	0.33	0.51	0.0125	25.9
RPh1-BH42	RPH1-BH 42 - 02	1	2	1		0.34	1.94	0.026	0.22	31.4	0.21	0.058	35.2	3.04	1.32	0.33	0.51	0.0125	26.2

RPh1-BH42	RPH1-BH 42 - 03	2	3	1		0.29	1.27	0.014	0.15	39.5	0.091	0.058	24.1	2.02	1.01	0.33	0.51	0.0125	31.5
RPh1-BH42	RPH1-BH 42 - 04	3	4	1		0.3	0.72	0.012	0.11	39.3	0.09	0.14	27.3	1.07	0.73	0.33	0.51	0.0125	30.3
RPh1-BH42	RPH1-BH 42 - 05	4	5	1		0.31	0.51	0.015	0.075	42.5	0.09	0.064	22.7	0.83	0.6	0.33	0.51	0.0125	32.4
RPh1-BH42	RPH1-BH 42 - 06	5	6	1		0.32	0.47	0.016	0.07	43.7	0.09	0.058	20.9	0.8	0.56	0.33	0.51	0.0125	33.2
RPh1-BH42	RPH1-BH 42 - 07	6	7	1		0.3	0.83	0.018	0.11	42.9	0.09	0.058	20.2	1.38	0.79	0.33	0.51	0.0125	33.4
RPh1-BH42	RPH1-BH 42 - 08	7	8	1		0.29	0.58	0.014	0.083	45.4	0.09	0.058	16.6	0.97	0.73	0.33	0.51	0.0125	35.3
RPh1-BH42	RPH1-BH 42 - 09	8	9	1		0.3	0.83	0.017	0.11	34.7	0.09	0.058	34.4	1.29	0.95	0.33	0.51	0.0125	27.4
RPh1-BH42	RPH1-BH 42- 10	9	10	1		0.5	1.72	0.031	0.21	29.6	0.09	0.058	40.1	2.5	1.78	0.33	0.51	0.0125	23.5
RPh1-BH42	RPH1-BH 42- 11	10	11	1		0.7	2.36	0.048	0.33	30.2	0.11	0.058	34.7	4.16	1.75	0.33	0.51	0.0125	25.7
RPh1-BH42	RPH1-BH 42- 12	11	12	1		0.9	2.88	0.052	0.43	26.5	0.19	0.058	38.6	5.47	1.59	0.33	0.51	0.0125	23.4
RPh1-BH42	RPH1-BH42-13	12	13	1		0.85	3.24	0.048	0.5	27.2	0.26	0.058	34.6	6.43	1.84	0.5	0.51	0.0125	24.6
RPh1-BH42	RPH1-BH42-14	13	14	1		0.8	1.39	0.065	0.18	40.4	0.09	0.058	22.7	2.55	0.75	0.34	0.51	0.0125	31.1
RPh1-BH42	RPH1-BH42-15	14	15	1		0.4	0.58	0.043	0.074	46.5	0.09	0.058	14.8	1.04	0.42	0.34	0.51	0.0125	35.8
RPh1-BH42	RPH1-BH42-16	15	16	1		0.5	0.3	0.02	0.045	52.7	0.09	0.058	5.09	0.73	0.45	0.34	0.51	0.0125	40.2
RPh1-BH42	RPH1-BH42-17	16	17	1		0.48	0.23	0.012	0.035	47.2	0.09	0.058	15.9	0.56	0.36	0.34	0.51	0.0125	35.2
RPh1-BH42	RPH1-BH42-18	17	18	1		0.62	0.27	0.012	0.037	44.5	0.09	0.058	21.2	0.56	0.36	0.34	0.51	0.0125	32.5
RPh1-BH42	RPH1-BH42-19	18	19	1		0.51	0.24	0.012	0.033	47.9	0.09	0.058	14.6	0.55	0.46	0.34	0.51	0.0125	35.7
RPh1-BH42	RPH1-BH42-20	19	20	1		1.09	0.23	0.012	0.033	48.7	0.09	0.058	11.8	0.56	0.59	0.34	0.51	0.0125	37
RPh1-BH42	RPH1-BH42-21	20	21	1		0.38	0.38	0.012	0.036	48.6	0.09	0.058	11.8	0.64	0.84	0.34	0.51	0.0125	37.3
RPh1-BH42	RPH1-BH42-22	21	22	1		0.38	0.31	0.012	0.03	41.6	0.09	0.058	25.1	0.55	0.6	0.34	0.51	0.0125	31.5
RPh1-BH42	RPH1-BH42-23	22	23	1		0.56	0.31	0.012	0.029	47.3	0.09	0.058	13.8	0.55	0.54	0.34	0.51	0.0125	36.7
RPh1-BH42	RPH1-BH42-24	23	24	1		0.39	0.43	0.012	0.047	51	0.09	0.058	7.3	0.7	0.52	0.34	0.51	0.0125	39.6
RPh1-BH42	RPH1-BH42-25	24	25	1		0.52	0.34	0.012	0.039	51.3	0.09	0.058	7.51	0.62	0.49	0.34	0.51	0.0125	39.2
RPh1-BH42	RPH1-BH42-26	25	26	1		0.5	0.32	0.012	0.043	46.4	0.09	0.058	16.5	0.66	0.45	0.34	0.51	0.0125	35.1
RPh1-BH42	RPH1-BH42-27	26	27	1	2.66	1.95	1.06	0.021	0.13	38.4	0.09	0.058	27.7	1.85	0.87	0.34	0.51	0.0125	28

RPh1-BH42	RPH1-BH42-28	27	28	1		0.8	0.34	0.012	0.042	32.2	0.09	0.058	38.5	0.62	0.27	0.34	0.51	0.0125	27.3
RPh1-BH42	RPH1-BH42-29	28	29	1		0.9	0.23	0.012	0.029	32.1	0.09	0.058	42.6	0.55	0.21	0.34	0.51	0.0125	23.3
RPh1-BH42	RPH1-BH42-30	29	30	1		0.8	0.23	0.012	0.029	28.5	0.09	0.058	49	0.55	0.38	0.34	0.51	0.0125	21
RPh1-BH47	RPH1-BH47-1	0	1	1		0.52	2.05	0.037	0.32	27.6	0.33	6.76	36.5	3.14	1.47	0.34	0.51	0.0125	21.2
RPh1-BH47	RPH1-BH47-2	1	2	1		0.49	0.18	0.012	0.036	40.1	0.09	8.24	25.3	0.55	0.21	0.34	0.51	0.0125	25.1
RPh1-BH47	RPH1-BH47-3	2	3	1		0.43	0.23	0.012	0.029	45.7	0.09	3.55	18.4	0.55	0.23	0.34	0.51	0.0125	31.5
RPh1-BH47	RPH1-BH47-4	3	4	1		0.54	0.23	0.012	0.029	47.5	0.09	1.32	17.3	0.55	0.21	0.34	0.51	0.0125	33.1
RPh1-BH47	RPH1-BH47-5	4	5	1		0.57	0.23	0.012	0.029	46.9	0.09	1.47	18.3	0.55	0.21	0.34	0.51	0.0125	32.5
RPh1-BH47	RPH1-BH47-6	5	6	1		0.93	0.23	0.012	0.029	45.8	0.09	0.81	19.7	0.55	0.21	0.34	0.51	0.0125	32.5
RPh1-BH47	RPH1-BH47-7	6	7	1		1	0.23	0.012	0.029	47.9	0.09	0.26	16.7	0.55	0.21	0.34	0.51	0.0125	33.8
RPh1-BH47	RPH1-BH47-8	7	8	1		0.95	0.23	0.012	0.029	49.1	0.09	0.35	14.6	0.55	0.21	0.34	0.51	0.0125	34.6
RPh1-BH47	RPH1-BH47-9	8	9	1		1.67	0.23	0.012	0.029	37.2	0.09	0.058	33.7	0.55	0.21	0.34	0.51	0.0125	26.7
RPh1-BH47	RPH1-BH47-10	9	10	1		1.7	0.23	0.012	0.029	45.5	0.09	0.058	20.4	0.55	0.21	0.34	0.51	0.0125	31.8
RPh1-BH47	RPH1-BH47-11	10	11	1		10.3	0.23	0.012	0.029	47.4	0.09	0.51	15.3	0.55	0.21	0.34	0.83	0.0125	25.4
RPh1-BH47	RPH1-BH47-12	11	12	1		13.7	0.23	0.012	0.029	54.2	0.09	0.59	2.46	0.55	0.21	0.34	1.46	0.0125	27.3
RPh1-BH47	RPH1-BH47-13	12	13	1	1.85	17.2	0.23	0.012	0.029	54.4	0.09	0.65	1.99	0.55	0.21	0.34	1.78	0.0125	23.8
RPh1-BH47	RPH1-BH47-14	13	14	1	1.85	12.6	0.23	0.012	0.029	54.7	0.09	0.49	1.88	0.55	0.21	0.34	1.28	0.0125	28.8
RPh1-BH47	RPH1-BH47-15	14	15	1	2.3	16.3	0.23	0.012	0.029	51.8	0.09	0.54	6.66	0.55	0.21	0.34	1.58	0.0125	22.9
RPh1-BH47	RPH1-BH47-16	15	16	1	2.3	17.3	0.23	0.012	0.029	53.6	0.09	0.54	3.08	0.55	0.21	0.34	1.7	0.0125	23.5
RPh1-BH47	RPH1-BH47-17	16	17	1	2.3	22.3	0.23	0.012	0.029	54.3	0.09	0.92	1.63	0.55	0.21	0.34	2.31	0.0125	18.3
RPh1-BH47	RPH1-BH47-18	17	18	1	2.3	21.6	0.23	0.012	0.029	52.5	0.09	1.07	3.64	0.55	0.21	0.34	2.15	0.0125	18.8
RC-A1	RCA 1-AC-1	5.3	6.5	1.2	1.44	18.2	0.23	0.012	0.029	57.1	0.09	1.63	0.74	0.55	0.21	0.33	2.13	0.0125	19.4
RC-A1	RCA 1-AC-2	7.3	8.5	1.2	1.44	17.5	0.23	0.012	0.029	54.4	0.09	1.26	0.39	0.55	0.21	0.33	1.86	0.0125	24.5
RC-A1	RCA 1-AC-3	9	9.2	0.2	1.44	21.9	0.23	0.012	0.029	53.8	0.09	2.06	0.29	0.55	0.21	0.33	2.35	0.0125	19.5
RC-A1	RCA 1-AC-4	9.2	9.3	0.1	2.66	9.26	0.23	0.012	0.029	18.3	0.09	0.42	65	0.55	0.21	0.33	0.51	0.0125	5.22
RC-A1	RCA 1-AC-5	9.82	10.2	0.38	2.66	16.6	0.23	0.012	0.029	26.9	0.09	0.89	48.2	0.55	0.21	0.46	1.21	0.0125	4.81
RC-A1	RCA 1-AC-6	10.2	11.1	0.9	1.85	7.45	0.23	0.012	0.029	55.9	0.09	0.23	0.17	0.55	0.21	0.33	0.63	0.0125	35.6
RC-A1	RCA 1-AC-7	11.1	11.2	0.1	1.44	12.4	0.23	0.012	0.029	20.6	0.09	0.62	59.7	0.55	0.21	0.33	0.71	0.0125	4.34
RC-A1	RCA 1-AC-8	11.2	12.6	1.4	1.44	19.8	0.23	0.012	0.029	49.7	0.09	1.06	8.86	0.55	0.21	0.33	1.96	0.0125	18.6
RC-A1	RCA 1-AC-9	12.6	13.4	0.8	1.44	20.7	0.23	0.012	0.029	54	0.09	1.21	0.36	0.55	0.21	0.33	2.21	0.0125	21.4
RC-A1	RCA 1-AC-10	13.6	14	0.4	1.4	20.4	0.23	0.012	0.029	53.8	0.09	1.15	1.25	0.55	0.21	0.33	2.04	0.0125	21.3

RC-31A-Core	RC31A-1	0	1	1		0.38	0.68	0.012	0.1	43.9	0.09	0.058	19.1	1.08	0.56	0.33	0.51	0.0125	34.3
RC-31A-Core	RC31A-2	1	2	1		0.46	0.66	0.012	0.11	46.3	0.09	0.074	14.9	1.07	0.63	0.33	0.51	0.0125	35.8
RC-31A-Core	RC31A-3	2	3	1		0.44	0.58	0.012	0.092	38.9	0.09	3.42	26.8	0.82	0.53	0.33	0.51	0.0125	28.5
RC-31A-Core	RC31A-4	3	4	1		1.07	0.3	0.012	0.048	46.1	0.09	3.49	14.6	0.55	0.3	0.33	0.51	0.0125	33.6
RC-31A-Core	RC31A-5	4	5	1		0.85	0.23	0.012	0.029	50.1	0.09	0.51	11.3	0.55	0.21	0.33	0.51	0.0125	36.8
RC-31A-Core	RC31A-6	5	6	1		1.57	0.23	0.012	0.034	50.2	0.09	0.39	10.6	0.55	0.21	0.33	0.51	0.0125	36.5
RC-31A-Core	RC31A-7	6	7	1		4.31	0.23	0.012	0.03	52.4	0.09	0.58	6.78	0.55	0.21	0.33	0.51	0.0125	35.2
RC-31A-Core	RC31A-8	7	8	1		8.3	0.23	0.012	0.029	54.8	0.09	0.27	3.13	0.55	0.21	0.33	0.51	0.0125	33
RC-31A-Core	RC31A-9	8	9	1		6.72	0.23	0.012	0.029	47.8	0.09	0.17	15.5	0.55	0.21	0.33	0.51	0.0125	29.3
RC-31A-Core	RC31A-10	9	10	1		8.23	0.23	0.012	0.043	42.8	0.09	0.25	23.5	0.55	0.21	0.33	0.51	0.0125	24.4
RC-31A-Core	RC31A-11	10	11	1	2.66	19	0.39	0.012	0.072	46.6	0.09	0.72	14	0.61	0.21	0.33	1.83	0.0125	16.6
RC-31A-Core	RC31A-12	11	12	1	1.4	16	0.23	0.012	0.029	50.6	0.09	0.69	8.02	0.55	0.21	0.33	1.64	0.0125	22.5
RC-31A-Core	RC31A-13	12.3	13	0.7	1.85	22.8	0.23	0.012	0.029	44	0.09	0.97	19	0.55	0.21	0.33	2.51	0.0125	10.4
RC-31A-Core	RC31A-14	13	13.4	0.4	1.4	17.9	0.23	0.012	0.009	55.8	0.09	0.8	0.2	0.55	0.21	0.33	0.51	0.0125	24.6
RC-31A-Core	RC 31A-15	13.4	14	0.6	1.4	24.6	0.28	0.012	0.045	46.5	0.09	1.16	13.6	0.55	0.21	0.33	2.43	0.0125	10.9
RC-31A-Core	RC31A-16	14	14.1	0.1	1.4	21.2	0.28	0.012	0.047	44.3	0.09	1.01	18.1	0.55	0.21	0.33	2.07	0.0125	12.5
RC-43-Core	RC-43-7A	7.75	7.95	0.1		14.2	0.23	0.012	0.029	54.3	0.09	0.75	0.66	0.55	0.21	0.34	1.65	0.0125	28.1
RC-43-Core	RC-43-8	7.9	8.12	0.2		12.5	0.23	0.012	0.029	51.9	0.09	0.55	6.13	0.55	0.21	0.34	1.2	0.0125	27.5
RC-43-Core	RC-43-9	8.4	8.5	0.1		0.8	0.23	0.012	0.029	55.4	0.09	0.058	0.52	0.55	0.23	0.34	0.51	0.0125	42.4
RC-43-Core	RC-43-10A	8.7	8.85	0.1		9.8	0.23	0.012	0.035	54.2	0.09	0.29	2.4	0.55	0.21	0.34	0.87	0.0125	31.8
RC-43-Core	RC-43-10C	9	9.3	0.3		8.87	0.23	0.012	0.029	55.5	0.09	0.29	0.43	0.55	0.21	0.34	0.73	0.0125	34
RC-43-Core	RC-43-11	9.3	9.75	0.4		15.7	0.23	0.012	0.029	55.5	0.09	0.45	0.58	0.55	0.21	0.34	1.51	0.0125	26.1
RC-43-Core	RC4311A	9.75	11.15	1.4		11.4	0.23	0.012	0.029	51.1	0.09	0.38	8.87	0.55	0.21	0.34	0.89	0.0125	27.3
RC-43-Core	RC-43-12	11.15	11.75	0.6		10	0.33	0.012	0.029	54.9	0.09	0.41	0.46	0.55	0.21	0.34	0.95	0.0125	32.8
RC-43-Core	RC-43-12A	11.75	12.8	1.0		3.7	0.23	0.012	0.029	56.5	0.09	0.058	0.35	0.55	0.21	0.34	0.51	0.0125	39.2

RC-43-Core	RC-43-13	12.8	14	1.2	1.4	21.6	0.23	0.012	0.029	54.3	0.09	0.91	0.75	0.55	0.21-	0.34	2.35	0.0125	20
RC-43-Core	RC-43-14	14	14.3	0.3	1.44	20.1	0.23	0.012	0.029	55.3	0.09	0.89	0.99	0.55	0.21-	0.34	2.16	0.0125	20.5
RC-43-Core	RC-43--16	14.7	16	1.3	1.44	18	0.23	0.012	0.029	54.6	0.09	0.67	0.69	0.55	0.21	0.34	1.9	0.0125	23.8
RC-43-Core	RC-43-17	16	16.5	0.5	1.44	17.2	0.23	0.012	0.029	55.1	0.09	0.58	0.23	0.55	0.21	0.34	1.65	0.0125	25.3
RC-43-Core	RC-43-18A	16.6	16.75	0.15	1.4	18.7	0.23	0.012	0.029	52.3	0.09	0.76	5.16	0.55	0.21	0.34	1.91	0.0125	21
RC-44-Core	RC-44-9	6.6	7	0.4		1.33	0.31	0.012	0.03	47.2	0.09	1.34	14.2	0.55	0.32	0.34	0.51	0.0125	34.7
RC-44-Core	RC-44-10	7	8	1		2.77	0.33	0.012	0.035	42.9	0.09	0.32	22.5	0.75	0.24	0.34	0.51	0.0125	30.1
RC-44-Core	RC-44-11	8	9	1		1.34	0.23	0.012	0.029	48.6	0.09	0.058	13.9	0.55	0.21	0.34	0.51	0.0125	35.5
RC-44-Core	RC44-12	9	10	1		8.18	0.23	0.012	0.029	51.5	0.09	0.47	6.65	0.55	0.23	0.34	0.77	0.0125	31.5
RC-44-Core	RC-44-13	10	11	1	1.4	8.09	0.23	0.012	0.029	49.6	0.09	0.38	11.1	0.55	0.21	0.34	0.6	0.0125	29.9
RC-44-Core	RC-44-14	11	12	1	1.44	15.9	0.23	0.012	0.029	53	0.09	0.62	4.39	0.55	0.21	0.34	1.66	0.0125	24.3
RC-44-Core	RC-44-15	12	13	1	1.44	16.1	0.23	0.012	0.029	53.3	0.09	0.58	3.82	0.55	0.21	0.34	1.63	0.0125	24.5
RC-44-Core	RC-44-16	13	14	1	1.44	21.6	0.23	0.012	0.029	54.2	0.09	0.82	1.39	0.55	0.21	0.34	2.28	0.0125	19.6
RC-44-Core	RC-44-17	14	15	1	1.44	24.7	0.23	0.012	0.029	53.8	0.09	1.2	0.88	0.55	0.21	0.34	2.76	0.0125	16.6
RC-44-Core	RC-44-18	15	16	1	1.44	22	0.23	0.012	0.029	53.9	0.09	1.61	1	0.55	0.21	0.34	2.35	0.013	-19
RC-44-Core	RC-44-19	16	17	1	2.66	13.7	0.23	0.012	0.029	42.9	0.09	0.74	22.5	0.55	0.21	0.34	1.24	0.0125	18.8
RC-44-Core	RC44-20	17	18	1	1.44	26.4	0.23	0.012	0.029	52.7	0.09	1.35	2.7	0.55	0.21	0.34	2.77	0.0125	13.9
RC-44-Core	RC-44-21	18	19	1	2.3	17.6	0.23	0.012	0.029	35.2	0.09	0.74	35	0.55	0.21	0.34	1.44	0.0125	9.28
RC-44-Core	RC-44-22	19	20	1	1.4	24.7	0.23	0.012	0.029	47.2	0.09	0.91	13.5	0.55	0.21	0.34	2.53	0.0125	11.1
RC-44-Core	RC-44-23	20	21	1	2.3	17.6	0.23	0.012	0.029	43.1	0.09	0.64	21.9	0.55	0.21	0.34	1.64	0.0125	15.1
RC-44-Core	RC-44-24	21	22	1	2.3	20.1	0.23	0.012	0.029	43.3	0.09	0.91	20.5	0.55	0.21	0.34	1.89	0.0125	13
RC-44-Core	RC-44--25	22	23	1	1.85	8.96	0.23	0.012	0.029	27	0.09	0.35	51.8	0.55	0.21	0.34	0.51	0.0125	11.1
RC-44-Core	RC-44-26	23	24	1		6.32	0.23	0.012	0.029	27.7	0.09	0.17	50.5	0.55	0.21	0.34	0.51	0.0125	14.6
RC-44-Core	RC-44--27	24	25	1		2.37	0.23	0.012	0.029	11.7	0.09	0.058	79.8	0.55	0.21	0.34	0.51	0.0125	5.9
RC-44-Core	RC-44-28	25	26	1		1.4	0.23	0.012	0.029	9.43	0.09	0.058	83.7	0.55	0.21	0.34	0.51	0.0125	5.25

RC-44- Core	RC-44- 29	26	27	1		2.05	0.23	0.012	0.029	24	0.09	0.058	58.3	0.55	0.21	0.34	0.51	0.01 25	15. 5
RC-44- Core	RC-44- 30	27	28	1		2	0.23	0.012	0.029	35.3	0.09	0.058	38.4	0.55	0.21	0.34	0.51	0.01 25	24. 3
RC-45- Core	RC45- 11B-01	10. 2	10. 65	0.4 5	1.44	21.4	0.23	0.012	0.029	55	0.09	0.59	0.32	0.55	0.21	0.34	2.32	0.01 25	20. 2
RC-45- Core	RC45- 11C-02	10. 65	11. 65	1	1.44	17.3	0.23	0.012	0.029	55.6	0.09	0.35	0.51	0.55	0.21	0.34	1.65	0.01 25	24. 3
RC-45- Core	RC45- 12A-03	11. 65	12. 05	0.4	1.44	20.5	0.23	0.012	0.029	55.3	0.09	0.62	0.37	0.55	0.23	0.34	1.94	0.01 25	21. 2
RC-45- Core	RC45- L2b-04	12. 05	12. 6	0.5 5	1.44	20	0.23	0.012	0.029	54.9	0.09	1.01	0.33	0.55	0.21	0.34	2.09	0.01 25	21. 5
RC-45- Core	RC45- 13D-05	13. 45	13. 6	0.1 5	1.44	21.7	0.23	0.012	0.029	54.2	0.09	0.77	0.77	0.55	0.21	0.34	2.31	0.01 25	20
RC-45- Core	RC45- 14A-06	14. 7	16. 2	1.5	1.44	33.3	0.23	0.012	0.029	52.2	0.09	1.21	2.42	0.55	0.21	0.34	3.79	0.01 25	6.8 4
RC-45- Core	RC45- 14B-07	14. 7	16. 2	1.5	1.44	33.8	0.23	0.012	0.029	52.8	0.09	1.23	1.72	0.55	0.21	0.34	3.93	0.01 25	6.1 8
RC-45- Core	RC45- 15-08	16. 2	17	0.8	1.44	21.8	0.23	0.012	0.029	54.9	0.09	0.68	0.23	0.55	0.21	0.34	2.28	0.01 25	20. 1
RC-45- Core	RC45- 16-09	17	17. 3	0.3	1.44	21.1	0.23	0.012	0.029	54.8	0.09	0.71	0.23	0.55	0.21	0.34	2.35	0.01 25	20. 6
RC-45- Core	RC45- 18-10	19. 6	19. 9	0.3	1.85	20.2	0.23	0.012	0.029	55	0.09	0.56	0.35	0.55	0.21	0.34	2.22	0.01 25	21. 5
RC-45- Core	RC45- 09-11	7.4	8.6 5	1.2 5	1.85	14.3	0.23	0.012	0.029	55	0.09	0.46	0.35	0.55	0.24	0.34	1.52	0.01 25	27. 9
RC-45- Core	RC45- 10A-12	8.6 5	9.6 5	1	1.85	16.4	0.23	0.012	0.029	55.2	0.09	0.44	0.33	0.55	0.21	0.34	1.77	0.01 25	25. 6
RC-45- Core	RC45- 10B-13	9.6 5	10	0.3 5	1.85	10.7	0.23	0.012	0.029	54.7	0.09	0.16	2.41	0.55	0.21	0.34	1.12	0.01 25	30. 9
RPh1B H46- Core	RPH1Bh 46-1	4	5	1		0.65	0.23	0.012	0.029	55.4	0.09	0.21	1.65	0.55	0.21	0.34	0.51	0.01 25	41. 9
RPh1B H46- Core	RPH1Bh 46-2	7	8.5	1.5		2.65	0.58	0.012	0.078	45.8	0.09	0.49	14.8	1.87	0.56	0.34	0.51	0.01 25	33. 1
RPh1B H46- Core	RPH1Bh 46-3	8.5	9	0.5		2.9	0.23	0.012	0.029	53.5	0.09	0.058	4.78	0.55	0.21	0.34	0.51	0.01 25	38. 2
RPh1B H46- Core	RPH1Bh 46-4	9	10	1		2.41	0.23	0.012	0.029	50.5	0.09	0.25	10.1	0.57	0.21	0.34	0.51	0.01 25	36
RPh1B H46- Core	RPH1Bh 46-5	10	12	2		1.9	0.23	0.012	0.029	53.4	0.09	2.67	3.34	0.55	0.21	0.34	0.51	0.01 25	38. 3
RPh1B H46- Core	RPH1Bh 46-6	12	13. 5	1.5		1.24	0.23	0.012	0.029	47.2	0.09	0.16	16	0.55	0.21	0.34	0.51	0.01 25	34. 9
RPh1B H46- Core	RPH1Bh 46-7	13. 5	14. 6	1.1		2	0.23	0.012	0.029	53.8	0.09	0.058	5.03	0.55	0.21	0.34	0.51	0.01 25	38. 7
RPh1B H46- Core	RPH1Bh 46-8	14. 6	15. 5	0.9	1.85	13.2	0.23	0.012	0.029	55.4	0.09	0.6	0.23	0.55	0.21	0.34	1.49	0.01 25	29. 3
RPh1B H46- Core	RPH1Bh 46-9	15. 5	17	1.5	1.85	2.61	0.23	0.012	0.029	56	0.09	0.058	0.55	0.55	0.21	0.34	0.51	0.01 25	40. 5
RPh1B H46- Core	RPH1Bh 46-10	17	18	1	1.85	7.29	0.23	0.012	0.029	56	0.09	0.19	0.23	0.55	0.21	0.34	0.58	0.01 25	35. 8

RPh1B H46- Core	RPH1Bh 46-11	18	18. 5	0.5	1.85	9.18	0.23	0.012	0.029	22.1	0.09	0.41	59.7	0.55	0.21	0.44	0.51	0.01 25	7.5 5
RPh1B H46- Core	RPH1Bh 46-12	18. 5	19	0.5	1.85	16.9	0.23	0.012	0.029	54.6	0.09	0.62	1.27	0.55	0.21	0.34	1.71	0.01 25	24. 8
RPh1B H46- Core	RPH1Bh 46-13	19	19. 85	0.8 5	1.85	14.1	0.23	0.012	0.029	49.7	0.09	0.59	10.7	0.55	0.21	0.34	1.21	0.01 25	23. 5
RPh1B H46- Core	RPH1Bh 46-14	19. 85	20. 85	1	1.85	15.1	0.23	0.012	0.029	41.6	0.09	0.58	25.4	0.55	0.21	0.34	1.17	0.01 25	16
RPh1B H46- Core	RPH1Bh 46-15	20. 85	21	0.1 5	1.85	13.5	0.23	0.012	0.029	49.4	0.09	0.58	11.3	0.55	0.21	0.34	1.19	0.01 25	23. 9
RPh1B H46- Core	RPH1Bh 46-16	21	21. 8	0.8	1.85	11.1	0.23	0.012	0.029	53.4	0.09	0.54	4.24	0.55	0.21	0.34	0.98	0.01 25	29. 5



The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT
X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F

Client Name & Address: مديرية دراسات المعادن الطبيعية

Sample Type: صلبة

Sample Method: By Client

Date of Receipt: 26/12/ 2021

Reporting Date: 03/01/2022

Test Report No.: 00240/12/2021-CH001-002

Sample Location:-

Testing Date: 29/12/2021

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	LOI Wt. %
1	Rph-01 (1)	<0.23	<0.012	<0.037	52.80	<0.09	0.92	18.30	2.21	<0.498	<0.20	<0.33	1.45	<0.0125	24.07
2	Rph-01 (2)	<0.23	<0.012	<0.037	39.70	<0.09	0.83	18.10	26.50	<0.498	<0.20	<0.33	1.48	<0.0125	12.69
3	Rph-01 (3)	<0.23	<0.012	<0.037	51.00	<0.09	1.27	28.70	4.06	<0.498	<0.20	<0.33	2.84	<0.0125	11.91
4	Rph-01 (4)	<0.23	<0.012	<0.037	45.70	<0.09	1.12	24.80	14.10	<0.498	<0.20	<0.33	2.23	<0.0125	11.09
5	Rph-01 (5)	<0.23	<0.012	<0.037	52.00	<0.09	1.22	34.20	1.42	<0.498	<0.20	<0.33	3.36	<0.0125	7.00
6	Rph-01 (6)	<0.23	<0.012	<0.037	48.60	<0.09	0.86	23.20	10.30	<0.498	<0.20	<0.33	1.81	<0.0125	14.38
7	Rph-01 (7)	<0.23	<0.012	<0.037	22.80	<0.09	0.22	8.23	58.20	<0.498	<0.20	0.55	<0.50	<0.0125	8.76
8	Rph-01 (8)	<0.23	<0.012	<0.037	24.00	<0.09	0.34	11.60	55.10	<0.498	<0.20	0.89	0.54	<0.0125	6.66
9	Rph-01 (9)	<0.23	<0.012	<0.037	35.80	<0.09	0.24	10.20	35.70	<0.498	<0.20	<0.33	0.54	<0.0125	16.90
10	Rph-01 (10)	<0.23	<0.012	<0.037	23.30	<0.09	0.27	10.90	57.40	<0.498	<0.20	<0.33	0.59	<0.0125	6.71
11	Rph-01 (11)	<0.23	<0.012	<0.037	10.90	<0.09	<0.058	3.56	79.80	<0.498	<0.20	0.56	<0.50	<0.0125	4.37
12	Rph-01 (12)	<0.23	<0.012	<0.037	9.79	<0.09	<0.058	4.49	82.20	<0.498	<0.20	0.53	<0.50	<0.0125	2.80
13	Rph-01 (13)	<0.23	<0.012	<0.037	11.90	<0.09	<0.058	3.21	79.00	<0.498	<0.20	0.37	<0.50	<0.0125	5.38
14	Rph-01 (15)	<0.23	<0.012	<0.037	28.50	<0.09	<0.058	1.30	49.30	<0.498	<0.20	<0.33	<0.50	<0.0125	20.69
15	Rph-01 (16)	<0.23	<0.012	<0.037	44.40	<0.09	<0.058	0.80	22.70	<0.498	<0.20	<0.33	<0.50	<0.0125	31.92
16	Rph-01 (17)	<0.23	<0.012	<0.037	34.10	<0.09	<0.058	1.07	39.30	<0.498	<0.20	<0.33	<0.50	<0.0125	24.74
17	Rph-01 (18)	<0.23	<0.012	<0.037	37.40	<0.09	<0.058	0.77	33.70	<0.498	<0.20	<0.33	<0.50	<0.0125	27.67

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

Reporting Date: 03/01/2022

Test Report No.: 00240/12/2021-CH001-002

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
18	Rph-01 (19)	<0.23	<0.012	<0.037	46.50	<0.09	<0.058	1.26	18.00	<0.498	<0.20	<0.33	<0.50	<0.0125	33.90
19	Rph-01 (20)	<0.23	<0.012	<0.037	40.00	<0.09	<0.058	0.83	28.70	<0.498	<0.20	<0.33	<0.50	<0.0125	30.01
20	Rph-02 (1)	0.67	<0.012	0.11	46.00	<0.09	0.38	13.70	14.10	0.94	0.42	<0.33	1.27	<0.0125	22.32
21	Rph-02 (2)	0.64	<0.012	0.11	46.00	<0.09	0.31	13.10	14.50	0.91	0.39	<0.33	1.09	<0.0125	22.92
22	Rph-02 (3)	0.35	<0.012	0.050	44.40	<0.09	0.56	20.10	17.60	0.50	0.20	<0.33	2.03	<0.0125	14.13
23	Rph-02 (4)	0.95	0.015	0.14	35.70	<0.09	0.19	9.59	32.50	1.35	0.51	<0.33	0.63	<0.0125	18.33
24	Rph-02 (5)	<0.23	<0.012	<0.037	46.10	<0.09	0.72	22.80	14.80	<0.498	<0.20	<0.33	2.68	<0.0125	12.38
25	Rph-02 (6)	<0.23	<0.012	<0.037	45.50	<0.09	0.44	21.50	15.00	<0.498	<0.20	<0.33	2.17	<0.0125	15.26
26	Rph-02 (7)	<0.23	<0.012	<0.037	52.10	<0.09	0.65	31.20	4.39	<0.498	<0.20	<0.33	3.30	<0.0125	8.14
27	Rph-02 (8)	<0.23	<0.012	<0.037	49.60	<0.09	0.63	25.90	9.14	<0.498	<0.20	<0.33	2.82	<0.0125	11.62
28	Rph-02 (9)	<0.23	<0.012	<0.037	52.10	<0.09	0.34	20.80	6.49	<0.498	<0.20	<0.33	1.92	<0.0125	18.21
29	Rph-02 (10)	<0.23	<0.012	<0.037	40.10	<0.09	0.19	11.20	29.30	<0.498	<0.20	<0.33	0.73	<0.0125	18.31
30	Rph-02 (11)	<0.23	<0.012	<0.037	36.00	<0.09	0.078	8.45	36.70	<0.498	<0.20	<0.33	<0.50	<0.0125	18.08
31	Rph-02 (12)	<0.23	<0.012	<0.037	19.10	<0.09	<0.058	4.83	66.40	<0.498	<0.20	<0.33	<0.50	<0.0125	9.03
32	Rph-02 (13)	<0.23	<0.012	<0.037	26.10	<0.09	0.10	8.31	54.00	<0.498	<0.20	<0.33	<0.50	<0.0125	10.67
33	Rph-02 (14)	<0.23	<0.012	<0.037	23.00	<0.09	<0.058	7.74	59.60	<0.498	<0.20	<0.33	<0.50	<0.0125	8.60
34	Rph-02 (15)	<0.23	<0.012	<0.037	23.10	<0.09	<0.058	5.18	59.40	<0.498	<0.20	<0.33	<0.50	<0.0125	11.54
35	Rph-02 (16)	<0.23	<0.012	<0.037	28.10	<0.09	0.062	7.30	50.30	<0.498	<0.20	<0.33	<0.50	<0.0125	13.11
36	Rph-02 (17)	<0.23	<0.012	<0.037	26.10	<0.09	0.066	6.44	53.60	<0.498	<0.20	<0.33	<0.50	<0.0125	13.02
37	Rph-02 (18)	<0.23	<0.012	<0.037	24.20	<0.09	<0.058	4.70	57.00	<0.498	<0.20	<0.33	<0.50	<0.0125	13.31

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem

Eng. Feryal Yosef

Laboratories & Quality Director : Eng. Maysoon Alkhzaheh

Division Head: Eng. Maysoon Alkhzaheh

Jordan - Amman - Al Byader - 8th Circle - P.O. Box 7

(Web site: www.memr.gov.jo)



The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT
X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F

Client Name & Address: مديرية ترسانة المعادن الطبيعية

Sample Type: صلب

Sample Method: By Client

Date of Receipt: 01/02/2022

Reporting Date: 08/02/2022

Test Report No.: 00037/02/2022-CH001-022

Sample Location:-

Testing Date: 07/02/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	LOI Wt. %
1	RPHI-BHZA-1	3.38	0.043	0.48	30.50	0.73	< 0.058	1.52	29.00	5.85	2.23	< 0.33	< 0.51	< 0.0125	26.26
2	RPHI-BHZA-2	0.76	< 0.012	0.11	47.00	< 0.09	< 0.058	2.37	14.30	1.23	0.63	< 0.33	< 0.51	< 0.0125	33.53
3	RPHI-BHZA-3	0.31	< 0.012	0.06	48.70	< 0.09	0.16	9.70	11.60	< 0.55	0.28	< 0.33	0.95	< 0.0125	27.68
4	RPHI-BHZA-4	< 0.23	< 0.012	0.049	52.80	< 0.09	0.39	16.30	3.84	< 0.55	0.26	< 0.33	1.73	< 0.0125	24.09
5	RPHI-BHZA-5	< 0.23	< 0.012	0.047	49.80	< 0.09	0.53	16.90	9.16	< 0.55	0.24	< 0.33	1.61	< 0.0125	21.19
6	RPHI-BHZA-6	< 0.23	< 0.012	0.029	25.20	< 0.09	0.14	7.86	54.6	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	11.22
7	RPHI-BHZA-7	< 0.23	< 0.012	< 0.029	51.20	< 0.09	0.62	20.50	6.67	< 0.55	< 0.21	< 0.33	2.18	< 0.0125	18.57
8	RPHI-BHZA-8	< 0.23	< 0.012	< 0.029	38.40	< 0.09	0.44	19.00	30.20	< 0.55	< 0.21	< 0.33	1.69	< 0.0125	10.16
9	RPHI-BHZA-9	< 0.23	< 0.012	< 0.029	51.00	< 0.09	0.68	24.70	6.83	< 0.55	< 0.21	< 0.33	2.65	< 0.0125	13.94
10	RPHI-BHZA-10	< 0.23	< 0.012	< 0.029	42.50	< 0.09	0.55	21.60	22.70	< 0.55	< 0.21	< 0.33	1.96	< 0.0125	10.47
11	RPHI-BHZA-11	< 0.23	< 0.012	< 0.029	35.50	< 0.09	< 0.058	4.95	37.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	21.51
12	RPHI-BHZA-12	< 0.23	< 0.012	< 0.029	19.20	< 0.09	< 0.058	4.43	66.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	10.04
13	RPHI-BHZA-13	< 0.23	< 0.012	< 0.029	9.65	< 0.09	< 0.058	4.07	82.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	3.21
14	RPHI-BHZA-14	< 0.23	< 0.012	< 0.029	15.00	< 0.09	< 0.058	3.05	73.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	7.94
15	RPHI-BHZA-15	< 0.23	< 0.012	< 0.029	18.10	< 0.09	< 0.058	6.93	68.00	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	6.59
16	RPHI-BHZA-16	< 0.23	< 0.012	< 0.029	8.15	< 0.09	< 0.058	3.99	85.00	< 0.55	< 0.21	0.75	< 0.51	< 0.0125	2.07

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem

Eng. Feryal Yosef

Laboratories & Quality Director : Eng. Maysoon Alkhazhe

Division Head: Eng. Maysoon

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

Jordan - Amman- Al Byader- 8th Circle - - Telefax +9625504409 - P.O. Box:7

(Web site: www.memr.gov.jo)



The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT
X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F
Client Name & Address: مديرية ترسانة المعادن الطبيعية
Sample Type: قذبة
Sample Method: By Client

Date of Receipt: 23/01/ 2022

Reporting Date: 02/02/2022
Test Report No.: 00026/01/2022-CH001-018
Sample Location:-
Testing Date: 01/02/2022

Item	S.ID.	Fe ₂ O ₃ Wt.%	MnO Wt.%	TiO ₂ Wt.%	CaO Wt.%	K ₂ O Wt.%	SO ₃ Wt.%	P ₂ O ₅ Wt.%	SiO ₂ Wt.%	Al ₂ O ₃ Wt.%	MgO Wt.%	Na ₂ O Wt.%	F Wt.%	U Wt.%	L.O.I Wt.%
1	RPHI-BH3-1	1.09	0.015	0.15	40.00	0.12	<0.058	0.58	23.30	1.67	0.98	<0.33	<0.51	<0.0125	32.16
2	RPHI-BH3-2	0.66	<0.012	0.11	44.10	<0.09	<0.058	0.41	18.60	0.97	0.68	<0.33	<0.51	<0.0125	34.45
3	RPHI-BH3-3	0.55	<0.012	0.071	39.60	<0.09	6.10	1.51	23.00	0.76	0.26	<0.33	<0.51	<0.0125	27.92
4	RPHI-BH3-4	<0.23	<0.012	<0.029	44.00	<0.09	0.77	1.36	20.80	<0.55	<0.21	<0.33	<0.51	<0.0125	31.89
5	RPHI-BH3-5	<0.23	<0.012	<0.029	48.90	<0.09	0.22	4.00	13.50	<0.55	<0.21	<0.33	<0.51	<0.0125	32.62
6	RPHI-BH3-6	0.39	<0.012	0.054	46.40	<0.09	0.60	8.75	15.30	0.63	0.26	<0.33	0.75	<0.0125	26.91
7	RPHI-BH3-7	<0.23	<0.012	<0.029	51.80	<0.09	0.15	6.63	8.22	<0.55	<0.21	<0.33	<0.51	<0.0125	32.36
8	RPHI-BH3-8	<0.23	<0.012	<0.029	53.10	<0.09	0.063	4.07	5.96	<0.55	<0.21	<0.33	<0.51	<0.0125	35.97
9	RPHI-BH3-9	<0.23	<0.012	<0.029	50.80	<0.09	0.084	4.70	10.60	<0.55	<0.21	<0.33	<0.51	<0.0125	33.12
10	RPHI-BH3-10	<0.23	<0.012	<0.029	50.50	<0.09	0.65	14.70	7.37	<0.55	<0.21	0.85	1.30	<0.0125	24.34
11	RPHI-BH3-11	<0.23	<0.012	<0.029	39.60	<0.09	0.40	9.48	28.80	<0.55	<0.21	<0.33	0.58	<0.0125	20.84
12	RPHI-BH3-12	<0.23	<0.012	<0.029	53.90	<0.09	1.06	23.00	0.86	<0.55	<0.21	<0.33	2.35	<0.0125	18.68
13	RPHI-BH3-13	<0.23	<0.012	<0.029	51.50	<0.09	1.12	26.40	4.22	<0.55	<0.21	<0.33	2.75	<0.0125	13.70
14	RPHI-BH3-14	<0.23	<0.012	<0.029	48.60	<0.09	0.28	9.54	13.10	<0.55	<0.21	<0.33	0.84	<0.0125	27.45

Reporting Date: 02/02/2022

Test Report No.: 00026/01/2022-CH001-018

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RPHI-BH3-15	< 0.23	< 0.012	< 0.029	44.80	< 0.09	0.12	4.53	21.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	28.51
16	RPHI-BH3-16	< 0.23	< 0.012	< 0.029	48.90	< 0.09	0.76	16.40	11.70	< 0.55	< 0.21	< 0.33	1.45	< 0.0125	20.70
17	RPHI-BH3-17	< 0.23	< 0.012	< 0.029	25.80	< 0.09	0.19	6.29	54.00	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	13.33
18	RPHI-BH3-18	< 0.23	< 0.012	< 0.029	28.60	< 0.09	0.23	8.98	48.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	12.92
19	RPHI-BH3-19	< 0.23	< 0.012	< 0.029	8.60	< 0.09	< 0.058	1.80	85.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	4.16
20	RPHI-BH3-20	< 0.23	< 0.012	< 0.029	10.20	< 0.09	< 0.058	1.12	81.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	6.25
21	RPHI-BH3-21	< 0.23	< 0.012	< 0.029	29.00	< 0.09	< 0.058	3.37	49.40	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	18.12

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayem

Eng. Feryal Yosef

Laboratories & Quality Director : Eng. Maysoon Alkhazheer

Jordan -Amman- Al Byader- 8th Circle . - Telefax +96265504409 - P.O. Box.7
(Web site: www.memr.gov.jo)

Division Head: Eng. Maysoon Alkhazheer

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT
X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab, X.R.F
Client Name & Address: مديرية ترابسات المعادن الطبيعية
Sample Type: صلبية
Sample Method: By Client

Date of Receipt: 23/01/ 2022

Reporting Date: 03/02/2022
Test Report No.: 00027/01/2022-CH001-019
Sample Location:-
Testing Date: 01/02/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	LOI Wt. %
1	RPNI- BH4-1	0.58	< 0.012	0.091	48.00	< 0.09	0.80	18.90	9.32	1.00	0.47	< 0.33	2.21	< 0.0125	18.58
2	RPNI- BH4-2	0.36	< 0.012	0.055	44.50	< 0.09	1.56	12.40	17.50	0.64	0.27	< 0.33	0.97	< 0.0125	21.73
3	RPNI- BH4-3	< 0.23	< 0.012	< 0.029	47.50	< 0.09	2.54	19.00	11.00	< 0.55	< 0.21	< 0.33	2.07	< 0.0125	17.29
4	RPNI- BH4-4	< 0.23	< 0.012	< 0.029	50.10	< 0.09	1.59	24.30	6.83	< 0.55	< 0.21	< 0.33	2.67	< 0.0125	14.05
5	RPNI- BH4-5	< 0.23	< 0.012	< 0.029	46.40	< 0.09	1.05	17.00	16.00	< 0.55	< 0.21	< 0.33	1.51	< 0.0125	17.85
6	RPNI- BH4-6	< 0.23	< 0.012	< 0.029	28.20	< 0.09	0.40	11.20	49.40	< 0.55	< 0.21	< 0.33	0.70	< 0.0125	10.00
7	RPNI- BH4-7	< 0.23	< 0.012	< 0.029	20.30	< 0.09	0.16	6.61	63.10	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	8.91
8	RPNI- BH4-8	< 0.23	< 0.012	< 0.029	7.11	< 0.09	< 0.058	1.85	86.70	< 0.55	< 0.21	0.47	< 0.51	< 0.0125	3.22
9	RPNI- BH4-9	< 0.23	< 0.012	< 0.029	11.40	< 0.09	< 0.058	1.25	79.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	6.84
10	RPNI- BH4-10	< 0.23	< 0.012	< 0.029	39.40	< 0.09	< 0.058	2.78	31.40	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	26.33
11	RPNI- BH4-11	< 0.23	< 0.012	< 0.029	36.50	< 0.09	< 0.058	1.90	36.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	25.34
12	RPNI- BH4-12	< 0.23	< 0.012	< 0.029	29.10	< 0.09	0.34	6.49	48.00	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	15.58
13	RPNI- BH4-13	< 0.23	< 0.012	< 0.029	47.10	< 0.09	0.73	13.50	14.50	< 0.55	< 0.21	< 0.33	1.34	< 0.0125	22.71
14	RPNI- BH4-14	< 0.23	< 0.012	< 0.029	54.20	< 0.09	< 0.058	2.20	11.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	31.85

Reporting Date: 03/02/2022

Test Report No.: 00027/01/2022-CH001-019

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RP/11- BH4-15	< 0.23	< 0.012	< 0.029	50.80	< 0.09	< 0.058	2.07	10.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	36.21
16	RP/11- BH4-16	< 0.23	< 0.012	< 0.029	51.70	< 0.09	< 0.058	1.17	9.56	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	37.51
17	RP/11- BH4-17	< 0.23	< 0.012	< 0.029	40.20	< 0.09	< 0.058	1.43	29.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	28.33
18	RP/11- BH4-18	< 0.23	< 0.012	< 0.029	48.00	< 0.09	< 0.058	1.07	16.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	34.05
19	RP/11- BH4-19	< 0.23	< 0.012	< 0.029	48.40	< 0.09	< 0.058	0.84	15.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	34.93
20	RP/11- BH4-20	< 0.23	< 0.012	< 0.029	48.80	< 0.09	< 0.058	0.70	14.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	35.24
21	RP/11- BH4-21	< 0.23	< 0.012	< 0.029	37.30	< 0.09	< 0.058	1.36	34.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	26.11
22	RP/11- BH4-22	< 0.23	< 0.012	< 0.029	44.40	< 0.09	< 0.058	0.70	23.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	31.55
23	RP/11- BH4-23	< 0.23	< 0.012	< 0.029	43.70	< 0.09	< 0.058	0.95	24.10	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	31.16
24	RP/11- BH4-24	< 0.23	< 0.012	< 0.029	52.10	< 0.09	< 0.058	2.70	9.11	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	35.92
25	RP/11- BH4-25	< 0.23	< 0.012	< 0.029	51.00	< 0.09	< 0.058	1.95	10.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	36.10
26	RP/11- BH4-26	< 0.23	< 0.012	< 0.029	52.10	< 0.09	< 0.058	1.97	9.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	36.09
27	RP/11- BH4-27	< 0.23	< 0.012	< 0.029	51.70	< 0.09	< 0.058	1.94	10.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	35.78
28	RP/11- BH4-28	< 0.23	< 0.012	< 0.029	54.00	< 0.09	< 0.058	3.17	6.24	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	36.49
29	RP/11- BH4-29	< 0.23	< 0.012	< 0.029	54.10	< 0.09	< 0.058	1.55	3.85	< 0.55	1.37	< 0.33	< 0.51	< 0.0125	39.12
30	RP/11- BH4-30	< 0.23	< 0.012	< 0.029	52.40	< 0.09	< 0.058	1.30	5.83	< 0.55	1.47	< 0.33	< 0.51	< 0.0125	38.85

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayem

Eng. Feryal Yosef

Laboratories & Quality Director : Eng. Maysoon Alkhazbee

Jordan -Amman- Al Byader- 8th Circle - - Telefax +9625504409 - P.O. Box:7

(Web site: www.memr.gov.jo)

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT
X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F
Client Name & Address: مديرية ترسانة المعادن الطبيعية
Sample Type: صلب
Sample Method: By Client

Date of Receipt: 25/01/ 2022

Reporting Date: 07/02/2022
Test Report No.: 00033/01/2022-CH001-021
Sample Location:-
Testing Date: 03/02/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPHI BH5-1	1.45	0.017	0.19	31.00	0.17	< 0.058	0.32	37.80	2.16	1.22	< 0.33	< 0.51	< 0.0125	25.56
2	RPHI BH5-2	1.06	< 0.012	0.15	39.30	0.09	0.124	0.42	24.80	1.61	1.06	< 0.33	< 0.51	< 0.0125	31.38
3	RPHI BH5-3	1.08	< 0.012	0.16	37.90	0.09	0.112	0.42	27.50	1.60	0.98	< 0.33	< 0.51	< 0.0125	30.14
4	RPHI BH5-4	0.76	< 0.012	0.11	42.2	< 0.09	0.257	0.41	21.50	1.17	0.73	< 0.33	< 0.51	< 0.0125	32.83
5	RPHI BH5-5	0.93	< 0.012	0.13	38.30	< 0.09	0.816	0.36	27.70	1.42	0.81	< 0.33	< 0.51	< 0.0125	29.44
6	RPHI BH5-6	0.72	< 0.012	0.10	46.80	< 0.09	1.06	0.43	12.70	1.20	0.81	< 0.33	< 0.51	< 0.0125	36.11
7	RPHI BH5-7	< 0.23	< 0.012	< 0.029	42.80	< 0.09	< 0.058	1.16	24.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	30.44
8	RPHI BH5-8	< 0.23	< 0.012	< 0.029	51.40	< 0.09	< 0.058	1.87	9.26	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	37.05
9	RPHI BH5-9	< 0.23	< 0.012	< 0.029	54.10	< 0.09	< 0.058	2.92	4.94	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	37.57
10	RPHI BH5-10	< 0.23	< 0.012	< 0.029	54.00	< 0.09	< 0.058	10.5	4.52	< 0.55	< 0.21	< 0.33	0.51	< 0.0125	30.15
11	RPHI BH5-11	< 0.23	< 0.012	< 0.029	54.20	< 0.09	< 0.058	9.96	3.62	< 0.55	< 0.21	< 0.33	0.60	< 0.0125	30.94
12	RPHI BH5-12	< 0.23	< 0.012	< 0.029	52.50	< 0.09	< 0.058	6.95	7.66	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	32.61
13	RPHI BH5-13	< 0.23	< 0.012	< 0.029	55.40	< 0.09	< 0.058	6.64	1.65	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	35.69
14	RPHI BH5-14	< 0.23	< 0.012	< 0.029	54.70	< 0.09	< 0.058	18.30	2.88	< 0.55	< 0.21	< 0.33	0.89	< 0.0125	22.71

Reporting Date: 07/02/2022

Test Report No.: 00033/01/2022-CH001-021

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RPH1 BHS-15	<0.23	<0.012	<0.029	55.00	<0.09	<0.058	13.00	2.97	<0.55	<0.21	<0.33	0.65	<0.0125	28.18
16	RPH1 BHS-16	<0.23	<0.012	<0.029	54.90	<0.09	0.57	18.00	1.11	<0.55	<0.21	<0.33	1.42	<0.0125	23.85
17	RPH1 BHS-17	<0.23	<0.012	<0.029	54.10	<0.09	<0.058	18.10	3.52	<0.55	<0.21	<0.33	0.72	<0.0125	22.91
18	RPH1 BHS-18	<0.23	<0.012	<0.029	50.90	<0.09	<0.058	24.00	9.45	<0.55	<0.21	<0.33	1.27	<0.0125	14.30
19	RPH1 BHS-19	<0.23	<0.012	<0.029	55.30	<0.09	<0.058	28.20	1.78	<0.55	<0.21	<0.33	1.54	<0.0125	13.83
20	RPH1 BHS-20	<0.23	<0.012	<0.029	54.10	<0.09	<0.058	25.30	3.18	<0.55	<0.21	<0.33	1.25	<0.0125	15.97
21	RPH1 BHS-21	<0.23	<0.012	<0.029	53.00	<0.09	1.06	31.10	1.12	<0.55	<0.21	<0.33	3.62	<0.0125	9.43
22	RPH1 BHS-22	<0.23	<0.012	<0.029	52.70	<0.09	1.03	30.70	2.03	<0.55	<0.21	<0.33	3.53	<0.0125	9.78
23	RPH1 BHS-23	<0.23	<0.012	<0.029	52.30	<0.09	0.84	28.60	3.38	<0.55	<0.21	<0.33	3.42	<0.0125	11.33
24	RPH1 BHS-24	<0.23	<0.012	<0.029	49.30	<0.09	0.81	30.20	9.02	<0.55	<0.21	<0.33	3.27	<0.0125	7.28
25	RPH1 BHS-25	<0.23	<0.012	<0.029	49.70	<0.09	0.83	29.60	8.22	<0.55	<0.21	<0.33	3.26	<0.0125	8.22
26	RPH1 BHS-26	<0.23	<0.012	<0.029	50.90	<0.09	0.98	29.40	5.39	<0.55	<0.21	<0.33	3.23	<0.0125	9.92
27	RPH1 BHS-27	<0.23	<0.012	<0.029	51.30	<0.09	0.97	27.30	5.20	<0.55	<0.21	<0.33	2.97	<0.0125	12.00
28	RPH1 BHS-28	<0.23	<0.012	<0.029	51.10	<0.09	0.98	29.40	5.82	<0.55	<0.21	<0.33	3.13	<0.0125	9.35
29	RPH1 BHS-29	<0.23	<0.012	<0.029	51.30	<0.09	1.01	28.30	5.46	<0.55	<0.21	<0.33	2.99	<0.0125	10.67
30	RPH1 BHS-30	<0.23	<0.012	<0.029	49.80	<0.09	0.92	26.70	7.74	<0.55	<0.21	<0.33	2.88	<0.0125	11.55
31	RPH1 BHS-31	<0.23	<0.012	<0.029	49.90	<0.09	0.95	29.40	7.51	<0.55	<0.21	<0.33	<0.51	3.23	8.64

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayem

Eng. Feryal Yosef

Laboratories & Quality Director : Eng. Maysoun Alkhazbee

Division Head: Eng. Maysoun Alkhazbee

Jordan - Amman- Al Byader- 8th Circle. - Telefax: +9625504409 - P.O. Box.7

(Web site: www.memr.gov.jo)





The Hashemite Kingdom of Jordan

Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT

X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F

Client Name & Address: مديرية دراسات المصادر الطبيعية

CH001-009

Sample Type: صلبة

Sample Method: By Client

Date of Receipt: 09/01/ 2022

Reporting Date: 12/01/2022

Test Report No.: 00010/01/2022-

Sample Location:-

Testing Date: 11/01/2022

Item	S.ID.	Fe ₂ O ₃ Wt.%	MnO Wt.%	TiO ₂ Wt.%	CaO Wt.%	K ₂ O Wt.%	SO ₃ Wt.%	P ₂ O ₅ Wt.%	SiO ₂ Wt.%	Al ₂ O ₃ Wt.%	MgO Wt.%	Na ₂ O Wt.%	F Wt.%	U Wt.%	L.O.I Wt.%
1	RPH1-06-01	3.02	0.037	0.43	24.30	0.41	0.64	0.22	38.90	4.77	2.39	1.43	< 0.51	< 0.0125	23.47
2	RPH1-06-02	0.73	< 0.012	0.12	45.90	< 0.09	9.16	0.79	8.27	1.15	0.42	< 0.33	< 0.51	< 0.0125	33.33
3	RPH1-06-03	0.24	< 0.012	0.038	44.20	< 0.09	5.99	6.54	15.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	26.31
4	RPH1-06-04	< 0.23	< 0.012	< 0.029	54.10	< 0.09	1.28	9.89	2.28	< 0.55	< 0.21	< 0.33	0.93	< 0.0125	31.18
5	RPH1-06-05	< 0.23	< 0.012	< 0.029	48.60	< 0.09	1.26	15.00	11.60	< 0.55	< 0.21	< 0.33	1.32	< 0.0125	21.76
6	RPH1-06-06	< 0.23	< 0.012	< 0.029	50.60	< 0.09	0.80	24.70	7.83	< 0.55	< 0.21	< 0.33	2.73	< 0.0125	13.15
7	RPH1-06-07	< 0.23	< 0.012	< 0.029	52.40	< 0.09	1.06	22.30	4.22	< 0.55	< 0.21	< 0.33	2.57	< 0.0125	17.11
8	RPH1-06-08	< 0.23	< 0.012	< 0.029	53.80	< 0.09	0.97	20.40	1.89	< 0.55	< 0.21	< 0.33	2.17	< 0.0125	20.68
9	RPH1-06-09	< 0.23	< 0.012	< 0.029	47.60	< 0.09	0.69	21.00	13.30	< 0.55	< 0.21	< 0.33	2.14	< 0.0125	15.15
10	RPH1-06-10	< 0.23	< 0.012	< 0.029	53.20	< 0.09	1.33	33.10	0.77	< 0.55	< 0.21	< 0.33	3.70	< 0.0125	7.66
11	RPH1-06-11	< 0.23	< 0.012	< 0.029	53.60	< 0.09	1.24	32.30	0.74	< 0.55	< 0.21	< 0.33	3.56	< 0.0125	8.54
12	RPH1-06-12	< 0.23	< 0.012	< 0.029	53.50	< 0.09	1.17	33.80	0.77	< 0.55	< 0.21	< 0.33	3.92	< 0.0125	6.77
13	RPH1-06-13	< 0.23	< 0.012	< 0.029	53.00	< 0.09	1.15	32.50	1.82	< 0.55	< 0.21	< 0.33	3.68	< 0.0125	7.74
14	RPH1-06-14	< 0.23	< 0.012	< 0.029	50.80	< 0.09	0.95	28.80	6.38	< 0.55	< 0.21	< 0.33	3.33	< 0.0125	9.65
15	RPH1-06-15	< 0.23	< 0.012	< 0.029	45.10	< 0.09	0.80	24.70	17.60	< 0.55	< 0.21	< 0.33	2.34	< 0.0125	9.24

Note: The results were done on dry basis.

- * THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- * TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- * THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem

Eng. Feryal Yosef

Laboratories & Quality Director : Eng .Maysoon Alkhzahee

Division Head: Eng .Maysoon Alkhzahee

Jordan –Amman- Al Byader- 8th Circle . – Telefax +96265504409 – P.O. Box.7



The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT

X-RAY SPECTROMETRIC LOI ANALYSIS

Division Chemical & Mineral Analysis Lab. X.R.F
Client Name & Address : مديرية براسات المعادن الطبيعية
Sample Type: صلب
Sample Method: By Client

Date of Receipt: 09/01/2022

Reporting Date: 12/01/2022
Test Report No.: 00010/01/2022-CH001-009
Sample Location:-
Testing Date: 11/01/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPHI-06-01	3.02	0.037	0.43	24.30	0.41	0.64	0.22	38.90	4.77	2.39	1.43	<0.51	<0.0125	23.47
2	RPHI-06-02	0.73	<0.012	0.12	45.90	<0.09	9.16	0.79	8.27	1.15	0.42	<0.33	<0.51	<0.0125	33.33
3	RPHI-06-03	0.24	<0.012	0.038	44.20	<0.09	5.99	6.54	15.80	<0.55	<0.21	<0.33	<0.51	<0.0125	26.31
4	RPHI-06-04	<0.23	<0.012	<0.029	54.10	<0.09	1.28	9.89	2.28	<0.55	<0.21	<0.33	0.93	<0.0125	31.18
5	RPHI-06-05	<0.23	<0.012	<0.029	48.60	<0.09	1.26	15.00	11.60	<0.55	<0.21	<0.33	1.32	<0.0125	21.76
6	RPHI-06-06	<0.23	<0.012	<0.029	50.60	<0.09	0.80	24.70	7.83	<0.55	<0.21	<0.33	2.73	<0.0125	13.15
7	RPHI-06-07	<0.23	<0.012	<0.029	52.40	<0.09	1.06	22.30	4.22	<0.55	<0.21	<0.33	2.57	<0.0125	17.11
8	RPHI-06-08	<0.23	<0.012	<0.029	53.80	<0.09	0.97	20.40	1.89	<0.55	<0.21	<0.33	2.17	<0.0125	20.68
9	RPHI-06-09	<0.23	<0.012	<0.029	47.60	<0.09	0.69	21.00	13.30	<0.55	<0.21	<0.33	2.14	<0.0125	15.15
10	RPHI-06-10	<0.23	<0.012	<0.029	53.20	<0.09	1.33	33.10	0.77	<0.55	<0.21	<0.33	3.70	<0.0125	7.66
11	RPHI-06-11	<0.23	<0.012	<0.029	53.60	<0.09	1.24	32.30	0.74	<0.55	<0.21	<0.33	3.56	<0.0125	8.54
12	RPHI-06-12	<0.23	<0.012	<0.029	53.50	<0.09	1.17	33.80	0.77	<0.55	<0.21	<0.33	3.92	<0.0125	6.77
13	RPHI-06-13	<0.23	<0.012	<0.029	53.00	<0.09	1.15	32.50	1.82	<0.55	<0.21	<0.33	3.68	<0.0125	7.74
14	RPHI-06-14	<0.23	<0.012	<0.029	50.80	<0.09	0.95	28.80	6.38	<0.55	<0.21	<0.33	3.33	<0.0125	9.65
15	RPHI-06-15	<0.23	<0.012	<0.029	45.10	<0.09	0.80	24.70	17.60	<0.55	<0.21	<0.33	2.34	<0.0125	9.24

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH WEAR STRAP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayem

Eng. Feryal Yosef

Eng. Feryal Yosef

Laboratories & Quality Director : Eng. Maysoun Alkhazhee
Jordan - Amman - Al Byader - 8th Circle - P.O. Box 7

(Web site: www.memr.gov.jo)

Division Head: Eng. Maysoun Alkhazhee

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



The Hashemite Kingdom of Jordan

Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT

X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F

Client Name & Address: مديرية ترسانة المعادن الطبيعية

Sample Type: صلب

Sample Method: By Client

Date of Receipt: 09/01/ 2022

Reporting Date: 16/01/2022

Test Report No.: 0001 I/01/2022-CH001-010

Sample Location:-

Testing Date: 11/01/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	LOI Wt. %
1	RPH2-07-01	0.40	< 0.012	0.061	48.20	< 0.09	3.45	0.90	9.76	0.71	0.36	< 0.33	< 0.51	< 0.0125	36.10
2	RPH2-07-02	0.28	< 0.012	0.044	44.80	< 0.09	12.00	0.95	9.68	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	31.60
3	RPH2-07-03	< 0.23	< 0.012	< 0.029	46.10	< 0.09	3.92	1.31	15.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	32.86
4	RPH2-07-04	< 0.23	< 0.012	< 0.029	40.80	< 0.09	1.10	1.63	27.10	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	28.79
5	RPH2-07-05	< 0.23	< 0.012	< 0.029	48.40	< 0.09	0.33	1.68	13.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	35.16
6	RPH2-07-06	0.33	< 0.012	0.031	43.80	< 0.09	<	3.12	21.40	0.64	< 0.21	< 0.33	< 0.51	< 0.0125	30.42
7	RPH2-07-07	< 0.23	< 0.012	< 0.029	43.90	< 0.09	0.13	1.79	21.70	0.55	< 0.21	< 0.33	< 0.51	< 0.0125	31.59
8	RPH2-07-08	0.28	< 0.012	0.053	51.40	< 0.09	<	1.49	8.56	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	37.65
9	RPH2-07-09	< 0.23	< 0.012	< 0.029	52.20	< 0.09	0.28	7.70	5.86	< 0.55	< 0.21	< 0.33	0.67	< 0.0125	32.51
10	RPH2-07-10	< 0.23	< 0.012	< 0.029	54.80	< 0.09	0.98	21.60	0.44	< 0.55	< 0.21	< 0.33	2.27	< 0.0125	19.79
11	RPH2-07-11	< 0.23	< 0.012	< 0.029	42.80	< 0.09	0.33	9.95	24.00	< 0.55	< 0.21	< 0.33	0.71	< 0.0125	22.01

Reporting Date: 16/01/2022

Test Report No.: 0001/01/2022-CH001-010

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
12	RPH2-07-12	< 0.23	< 0.012	< 0.029	49.30	< 0.09	0.42	13.60	11.50	< 0.55	< 0.21	< 0.33	1.15	< 0.0125	23.73
13	RPH2-07-13	< 0.23	< 0.012	< 0.029	54.00	< 0.09	1.24	29.30	0.30	< 0.55	< 0.21	< 0.33	3.35	< 0.0125	11.75
14	RPH2-07-14	< 0.23	< 0.012	< 0.029	54.30	< 0.09	1.10	23.00	0.51	< 0.55	< 0.21	< 0.33	3.67	< 0.0125	18.31
15	RPH2-07-15	< 0.23	< 0.012	< 0.029	28.10	< 0.09	0.58	13.60	47.50	< 0.55	< 0.21	0.67	0.90	< 0.0125	8.13
16	RPH2-07-16	< 0.23	< 0.012	< 0.029	49.00	< 0.09	1.15	25.50	9.94	< 0.55	< 0.21	< 0.33	2.59	< 0.0125	11.69
17	RPH2-07-17	< 0.23	< 0.012	< 0.029	52.10	< 0.09	0.91	29.10	4.50	< 0.55	< 0.21	< 0.33	3.14	< 0.0125	10.21
18	RPH2-07-18	< 0.23	< 0.012	< 0.029	52.90	< 0.09	1.20	33.30	2.24	< 0.55	< 0.21	< 0.33	3.76	< 0.0125	6.54

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem
Eng. Feryal Yosef

(Signatures)

Laboratories & Quality Director : Eng. Maysoun Alkhazhee

(Signature)

Division Head: Eng. Maysoun Alkhazhee

(Signature)

Jordan -Amman- Al Byader- 8th Circle . - Telefax +96265504409 - P.O. Box.7
(Web site: www.memr.gov.jo)



The Hashemite Kingdom of Jordan

Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT

X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F

Client Name & Address: مديرية براسات المعادن الطبيعية

Sample Type: صلبة

Sample Method: By Client

Date of Receipt: 09/01/ 2022

Reporting Date: 18/01/2022

Test Report No.: 00012/01/2022-CH001-011

Sample Location:-

Testing Date: 11/01/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	LOI Wt. %
1	RPHI-08-01	1.60	0.025	0.216	26.60	0.16	0.25	0.40	43.60	2.28	1.25	< 0.33	< 0.51	< 0.0125	23.58
2	RPHI-08-02	0.69	< 0.012	0.093	35.90	< 0.09	1.03	0.50	32.20	1.05	0.70	< 0.33	< 0.51	< 0.0125	27.78
3	RPHI-08-03	0.54	< 0.012	0.080	40.30	< 0.09	3.37	0.43	23.90	0.75	0.48	< 0.33	< 0.51	< 0.0125	30.19
4	RPHI-08-04	< 0.23	< 0.012	0.039	45.70	< 0.09	0.85	0.50	17.20	< 0.55	0.27	< 0.33	< 0.51	< 0.0125	34.83
5	RPHI-08-05	< 0.23	< 0.012	0.026	39.00	< 0.09	0.50	0.51	29.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	29.45
6	RPHI-08-06	< 0.23	< 0.012	< 0.029	47.30	< 0.09	< 0.058	0.95	14.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	36.46
7	RPHI-08-07	0.29	< 0.012	0.029	41.50	< 0.09	0.072	2.42	24.80	0.58	< 0.21	< 0.33	< 0.51	< 0.0125	30.16
8	RPHI-08-08	< 0.23	< 0.012	< 0.029	50.30	< 0.09	< 0.058	0.70	10.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	37.77
9	RPHI-08-09	< 0.23	< 0.012	< 0.029	43.10	< 0.09	< 0.058	0.71	24.10	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	31.78
10	RPHI-08-10	< 0.23	< 0.012	< 0.029	47.20	< 0.09	0.12	1.30	16.00	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	34.79
11	RPHI-08-11	< 0.23	< 0.012	< 0.029	50.50	< 0.09	< 0.058	1.07	9.71	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	37.92

وزارة الطاقة والثروة المعدنية

مديرية المختبرات والجودة

Reporting Date: 18/01/2022

Test Report No.: 00012/01/2022-CH001-011

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
12	RP01-08-12	< 0.23	< 0.012	< 0.029	47.90	< 0.09	< 0.058	1.28	14.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	35.40
13	RP01-08-13	0.25	< 0.012	< 0.029	49.10	< 0.09	< 0.058	2.72	12.20	0.58	< 0.21	< 0.33	< 0.51	< 0.0125	34.97
14	RP01-08-14	< 0.23	< 0.012	< 0.029	53.30	< 0.09	< 0.058	1.47	5.18	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	39.37
15	RP01-08-15	< 0.23	< 0.012	< 0.029	53.60	< 0.09	0.26	7.67	3.27	< 0.55	< 0.21	< 0.33	0.65	< 0.0125	33.75
16	RP01-08-16	< 0.23	< 0.012	< 0.029	52.40	< 0.09	0.13	5.82	5.74	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	34.86
17	RP01-08-17	0.37	< 0.012	0.053	51.80	< 0.09	0.46	16.40	5.00	0.75	< 0.21	< 0.33	1.76	< 0.0125	23.33
18	RP01-08-18	0.23	< 0.012	0.033	49.10	< 0.09	0.14	7.36	11.40	< 0.55	< 0.21	< 0.33	0.67	< 0.0125	30.54

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayem
Eng. Feryal Yosef

Division Head: Eng. Maysoon Alkhazhee

Laboratories & Quality Director : Eng. Maysoon Alkhazhee

Jordan -Amman- Al Byader- 8th Circle . - Telefax +96265504409 - P.O. Box.7
(Web site: www.memr.gov.jo)

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



The Hashemite Kingdom of Jordan

Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT

X-RAY SPECTROMETRIC& LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F

Client Name & Address: مديرية دراسات المصادر الطبيعية

Sample Type: صلبة

Sample Method: By Client

Date of Receipt: 09/01/ 2022

Reporting Date: 16/01/2022

Test Report No.: 0001 1/01/2022-CH 001-010

Sample Location:-

Testing Date: 11/01/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPH2-07-01	0.40	< 0.012	0.061	48.20	< 0.09	3.45	0.90	9.76	0.71	0.36	< 0.33	< 0.51	< 0.0125	36.10
2	RPH2-07-02	0.28	< 0.012	0.044	44.80	< 0.09	12.00	0.95	9.68	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	31.60
3	RPH2-07-03	< 0.23	< 0.012	< 0.029	46.10	< 0.09	3.92	1.31	15.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	32.86
4	RPH2-07-04	< 0.23	< 0.012	< 0.029	40.80	< 0.09	1.10	1.63	27.10	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	28.79
5	RPH2-07-05	< 0.23	< 0.012	< 0.029	48.40	< 0.09	0.33	1.68	13.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	35.16
6	RPH2-07-06	0.33	< 0.012	0.031	43.80	< 0.09	<	3.12	21.40	0.64	< 0.21	< 0.33	< 0.51	< 0.0125	30.42
7	RPH2-07-07	< 0.23	< 0.012	< 0.029	43.90	< 0.09	0.13	1.79	21.70	0.55	< 0.21	< 0.33	< 0.51	< 0.0125	31.59
8	RPH2-07-08	0.28	< 0.012	0.053	51.40	< 0.09	<	1.49	8.56	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	37.65
9	RPH2-07-09	< 0.23	< 0.012	< 0.029	52.20	< 0.09	0.28	7.70	5.86	< 0.55	< 0.21	< 0.33	0.67	< 0.0125	32.51
10	RPH2-07-10	< 0.23	< 0.012	< 0.029	54.80	< 0.09	0.98	21.60	0.44	< 0.55	< 0.21	< 0.33	2.27	< 0.0125	19.79
11	RPH2-07-11	< 0.23	< 0.012	< 0.029	42.80	< 0.09	0.33	9.95	24.00	< 0.55	< 0.21	< 0.33	0.71	< 0.0125	22.01

Item	S.ID.	Fe ₂ O ₃ Wt.%	MnO Wt.%	TiO ₂ Wt.%	CaO Wt.%	K ₂ O Wt.%	SO ₃ Wt.%	P ₂ O ₅ Wt.%	SiO ₂ Wt.%	Al ₂ O ₃ Wt.%	MgO Wt.%	Na ₂ O Wt.%	F Wt.%	U Wt.%	L.O.I Wt.%
12	RPH2-07-12	< 0.23	< 0.012	< 0.029	49.30	< 0.09	0.42	13.60	11.50	< 0.55	< 0.21	< 0.33	1.15	< 0.0125	23.73
13	RPH2-07-13	< 0.23	< 0.012	< 0.029	54.00	< 0.09	1.24	29.30	0.30	< 0.55	< 0.21	< 0.33	3.35	< 0.0125	11.75
14	RPH2-07-14	< 0.23	< 0.012	< 0.029	54.30	< 0.09	1.10	23.00	0.51	< 0.55	< 0.21	< 0.33	3.67	< 0.0125	18.31
15	RPH2-07-15	< 0.23	< 0.012	< 0.029	28.10	< 0.09	0.58	13.60	47.50	< 0.55	< 0.21	0.67	0.90	< 0.0125	8.13
16	RPH2-07-16	< 0.23	< 0.012	< 0.029	49.00	< 0.09	1.15	25.50	9.94	< 0.55	< 0.21	< 0.33	2.59	< 0.0125	11.69
17	RPH2-07-17	< 0.23	< 0.012	< 0.029	52.10	< 0.09	0.91	29.10	4.50	< 0.55	< 0.21	< 0.33	3.14	< 0.0125	10.21
18	RPH2-07-18	< 0.23	< 0.012	< 0.029	52.90	< 0.09	1.20	33.30	2.24	< 0.55	< 0.21	< 0.33	3.76	< 0.0125	6.54

Note: The results were done on dry basis.

- * THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- * TEST REPORT IS ONLY VAILD WITH MEMR STAMP & SIGNATURES.
- * THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head: Eng .Maysoon Alkhzahee

Laboratories & Quality Director : Eng .Maysoon Alkhzahee

Jordan –Amman- Al Byader- 8th Circle . – Telefax +96265504409 – P.O. Box.7

(Web site: www.memr.gov.jo)



The Hashemite Kingdom of Jordan

Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT

X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F

Client Name & Address: مديرية ترسانة المعادن الطبيعية

Sample Type: صلبة

Sample Method: By Client

Date of Receipt: 16/01/2022

Reporting Date: 20/01/2022

Test Report No.: 00017/01/2022-CH001-012

Sample Location:-

Testing Date: 20/01/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	LOI Wt. %
1	RPHI-09-01	1.97	0.042	0.26	32.6	0.19	0.081	0.48	33.00	3.09	1.47	< 0.33	< 0.51	< 0.0125	26.85
2	RPHI-09-02	0.69	0.021	0.090	44.00	< 0.09	0.16	0.42	19.00	1.08	0.59	< 0.33	< 0.51	< 0.0125	33.98
3	RPHI-09-03	0.23	< 0.012	0.036	48.20	< 0.09	0.18	0.48	14.00	< 0.55	0.23	< 0.33	< 0.51	< 0.0125	36.17
4	RPHI-09-04	< 0.23	< 0.012	0.036	49.60	< 0.09	< 0.058	0.50	11.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	37.91
5	RPHI-09-05	< 0.23	< 0.012	< 0.029	50.50	< 0.09	< 0.058	0.63	10.60	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	37.86
6	RPHI-09-06	< 0.23	< 0.012	< 0.029	49.40	< 0.09	< 0.058	0.80	12.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	36.61
7	RPHI-09-07	< 0.23	< 0.012	< 0.029	50.50	< 0.09	0.14	1.36	10.40	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	37.03
8	RPHI-09-08	< 0.23	< 0.012	0.029	51.60	< 0.09	< 0.058	0.46	7.26	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	40.00
9	RPHI-09-09	< 0.23	< 0.012	< 0.029	47.30	< 0.09	< 0.058	1.04	15.80	< 0.55	0.21	< 0.33	< 0.51	< 0.0125	34.94
10	RPHI-09-10	0.30	< 0.012	< 0.029	46.60	< 0.09	< 0.058	2.75	16.90	0.57	0.26	< 0.33	< 0.51	< 0.0125	32.59
11	RPHI-09-11	< 0.23	< 0.012	< 0.029	52.70	< 0.09	< 0.058	1.52	6.47	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	38.77

وزارة الطاقة والثروة المعدنية

مديرية المختبرات والجودة

Reporting Date: 20/01/2022

Test Report No.: 00017/01/2022-CH001-012

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
12	RPHI-09-12	< 0.23	< 0.012	< 0.029	53.60	< 0.09	0.060	3.55	4.07	< 0.55	0.29	< 0.33	< 0.17	< 0.0125	37.51
13	RPHI-09-13	< 0.23	< 0.012	< 0.029	51.90	< 0.09	0.36	8.40	6.47	< 0.55	0.27	< 0.33	0.67	< 0.0125	31.58
14	RPHI-09-14	< 0.23	< 0.012	< 0.029	53.50	< 0.09	0.88	20.80	2.27	< 0.55	< 0.21	< 0.33	2.44	< 0.0125	19.91
15	RPHI-09-15	< 0.23	< 0.012	< 0.029	49.10	< 0.09	0.59	14.90	11.70	< 0.55	< 0.21	< 0.33	1.46	< 0.0125	22.08
16	RPHI-09-16	< 0.23	< 0.012	< 0.029	49.10	< 0.09	0.70	19.80	10.80	< 0.55	< 0.21	< 0.33	1.95	< 0.0125	17.22
17	RPHI-09-17	< 0.23	< 0.012	< 0.029	52.80	< 0.09	1.01	24.30	3.12	< 0.55	< 0.13	< 0.33	2.70	< 0.0125	15.93
18	RPHI-09-18	< 0.23	< 0.012	< 0.029	53.40	< 0.09	0.74	15.60	3.35	< 0.55	< 0.13	< 0.33	1.56	< 0.0125	25.06
19	RPHI-09-19	< 0.23	< 0.012	< 0.029	38.40	< 0.09	0.086	4.90	32.60	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	23.57

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayem
Eng. Feryal Yosef

Laboratories & Quality Director : Eng. Maysoon Alkhazhac

Division Head: Eng. Maysoon Alkhazhac

Jordan -Amman- Al Byader- 8th Circle . - Telefax +96265504409 - P.O. Box 7
(Web site: www.memr.gov.jo)

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT
X-RAY SPECTROMETRIC LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F
Client Name & Address: مديرية براسات المعادن الطبيعية
Sample Type: صلب
Sample Method: By Client

Date of Receipt: 16/01/2022

Reporting Date: 30/01/2022
Test Report No.: 00018/01/2022-CH001-014
Sample Location:-
Testing Date: 26/01/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPHI-10-01	2.40	0.036	0.31	24.90	0.21	1.00	0.51	40.30	3.57	2.22	1.62	<0.51	<0.0125	22.93
2	RPHI-10-02	1.06	0.013	0.14	32.70	<0.09	3.80	0.53	34.70	1.51	1.05	<0.33	<0.51	<0.0125	24.45
3	RPHI-10-03	0.49	<0.012	0.07	38.20	<0.09	18.8	0.82	17.8	0.78	0.31	<0.33	<0.51	<0.0125	22.71
4	RPHI-10-04	<0.23	<0.012	0.03	50.80	<0.09	2.70	1.00	8.06	<0.55	<0.21	<0.33	<0.51	<0.0125	36.61
5	RPHI-10-05	<0.23	<0.012	0.03	46.30	<0.09	1.49	3.58	16.8	<0.55	<0.21	<0.33	<0.51	<0.0125	30.84
6	RPHI-10-06	<0.23	<0.012	<0.029	51.30	<0.09	1.36	10.3	6.69	<0.55	<0.21	<0.33	0.90	<0.0125	28.87
7	RPHI-10-07	<0.23	<0.012	<0.029	51.90	<0.09	0.23	7.00	7.50	<0.55	<0.21	<0.33	0.63	<0.0125	32.48
8	RPHI-10-08	<0.23	<0.012	0.03	51.30	<0.09	0.042	1.16	8.32	<0.55	0.30	<0.33	<0.51	<0.0125	38.17
9	RPHI-10-09	<0.23	<0.012	<0.029	52.10	<0.09	0.72	22.20	5.17	<0.55	<0.21	<0.33	2.35	<0.0125	17.05
10	RPHI-10-10	<0.23	<0.012	<0.029	50.50	<0.09	0.59	20.30	8.72	<0.55	<0.21	<0.33	1.81	<0.0125	17.73
11	RPHI-10-11	<0.23	<0.012	<0.029	52.80	<0.09	0.75	23.80	3.56	<0.55	<0.21	<0.33	2.73	<0.0125	16.27
12	RPHI-10-12	<0.23	<0.012	<0.029	47.10	<0.09	1.15	25.90	12.70	<0.55	<0.21	<0.33	2.78	<0.0125	10.01
13	RPHI-10-13	<0.23	<0.012	<0.029	53.40	<0.09	1.02	22.30	1.33	<0.55	<0.21	<0.33	2.40	<0.0125	19.34
14	RPHI-10-14	<0.23	<0.012	<0.029	18.60	<0.09	0.20	6.58	65.5	<0.55	<0.21	0.41	<0.51	<0.0125	7.62

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayem
Eng. Feryal Yosef

Laboratories & Quality Director : Eng. Maysoon Alkhazhace
Jordan - Amman- Al Byader- 8th Circle - - Telefax +96265504409
(Web site: www.memr.gov.jo)

Division Head: Eng. Maysoon Alkhazhace



The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/Laboratories & Quality Directorate

TEST REPORT
X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F
Client Name & Address: مديرية دراسات المعادن الطبيعية
Sample Type: صلب
Sample Method: By Client

Reporting Date: 31/01/2022
Test Report No.: 00019/01/2022-CH001-015
Sample Location:-
Testing Date: 30/01/2022

Date of Receipt: 16/01/ 2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	LOI Wt. %
1	RPH1-11-01	1.71	0.019	0.24	35.20	0.19	0.36	0.49	27.10	2.57	1.70	0.79	< 0.51	< 0.0125	29.65
2	RPH1-11-02	0.63	< 0.012	0.091	42.90	< 0.09	1.86	0.43	19.50	0.99	0.68	< 0.33	< 0.51	< 0.0125	32.91
3	RPH1-11-03	0.34	< 0.012	0.050	40.30	< 0.09	2.18	0.41	26.10	0.61	0.39	< 0.33	< 0.51	< 0.0125	29.69
4	RPH1-11-04	0.29	< 0.012	0.035	44.90	< 0.09	0.51	1.40	20.00	0.58	< 0.21	< 0.33	< 0.51	< 0.0125	32.22
5	RPH1-11-05	< 0.23	< 0.012	< 0.029	48.80	< 0.09	0.017	1.40	14.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	34.29
6	RPH1-11-06	< 0.23	< 0.012	< 0.029	48.10	< 0.09	0.82	15.90	12.30	< 0.55	< 0.21	< 0.33	1.60	< 0.0125	20.49
7	RPH1-11-07	< 0.23	< 0.012	< 0.029	51.20	< 0.09	0.48	10.70	8.51	< 0.55	< 0.21	< 0.33	1.08	< 0.0125	27.82
8	RPH1-11-08	< 0.23	< 0.012	< 0.029	53.5	< 0.09	0.59	20.50	3.40	< 0.55	< 0.21	< 0.33	2.12	< 0.0125	19.89
9	RPH1-11-09	< 0.23	< 0.012	< 0.029	54.00	< 0.09	0.64	17.40	2.04	< 0.55	< 0.21	< 0.33	1.88	< 0.0125	23.95
10	RPH1-11-10	< 0.23	< 0.012	< 0.029	54.50	< 0.09	0.89	25.50	0.46	< 0.55	< 0.21	< 0.33	2.70	< 0.0125	15.83
11	RPH1-11-11	< 0.23	< 0.012	< 0.029	52.00	< 0.09	0.69	23.10	5.36	< 0.55	< 0.21	< 0.33	2.46	< 0.0125	15.96
12	RPH1-11-12	< 0.23	< 0.012	< 0.029	52.80	< 0.09	1.12	27.70	2.46	< 0.55	< 0.21	< 0.33	3.23	< 0.0125	12.63
13	RPH1-11-13	< 0.23	< 0.012	< 0.029	53.40	< 0.09	1.39	25.60	0.97	< 0.55	< 0.21	< 0.33	2.83	< 0.0125	15.61
14	RPH1-11-14	< 0.23	< 0.012	< 0.029	30.80	< 0.09	0.34	9.71	44.90	< 0.55	< 0.21	< 0.33	0.53	< 0.0125	13.49

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

Reporting Date: 31/01/2022

Test Report No.: 00019/01/2022-CH001-015

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RPHI-11-15	< 0.23	< 0.012	< 0.029	51.70	< 0.09	1.15	32.40	3.87	< 0.55	< 0.21	< 0.33	3.74	< 0.0125	6.84
16	RPHI-11-16	< 0.23	< 0.012	< 0.029	53.00	< 0.09	1.02	33.30	1.87	< 0.55	< 0.21	< 0.33	3.91	< 0.0125	6.66
17	RPHI-11-17	< 0.23	< 0.012	< 0.029	47.70	< 0.09	0.84	29.80	12.30	< 0.55	< 0.21	< 0.33	3.06	< 0.0125	6.25
18	RPHI-11-18	< 0.23	< 0.012	< 0.029	46.90	< 0.09	0.73	25.00	14.50	< 0.55	< 0.21	< 0.33	2.68	< 0.0125	10.15
19	RPHI-11-19	< 0.23	< 0.012	< 0.029	51.70	< 0.09	0.67	22.70	7.40	< 0.55	< 0.21	< 0.33	2.29	< 0.0125	15.15
20	RPHI-11-20	< 0.23	< 0.012	< 0.029	53.80	< 0.09	0.23	10.40	3.97	< 0.55	< 0.21	< 0.33	0.80	< 0.0125	30.70
21	RPHI-11-21	< 0.23	< 0.012	< 0.029	51.30	< 0.09	0.31	11.50	8.59	< 0.55	< 0.21	< 0.33	0.94	< 0.0125	27.22
22	RPHI-11-22	< 0.23	< 0.012	< 0.029	46.10	< 0.09	0.60	19.20	16.30	< 0.55	< 0.21	< 0.33	1.77	< 0.0125	15.91
23	RPHI-11-23	< 0.23	< 0.012	< 0.029	45.60	< 0.09	0.67	17.80	17.30	< 0.55	< 0.21	< 0.33	1.63	< 0.0125	16.81
24	RPHI-11-24	< 0.23	< 0.012	< 0.029	44.30	< 0.09	0.22	8.65	21.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	24.98

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head: Eng. Maysoon Alkhzahee

Laboratories & Quality Director : Eng. Maysoon Alkhzahee

Jordan - Amman- Al Byader- 8th Circle - Telefax +96265504409 - P.O. Box. 7

(Web site: www.memr.gov.jo)

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT
X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F
Client Name & Address : مديرية تراسات المعادن الطبيعية
Sample Type: صلبة
Sample Method: By Client

Date of Receipt: 25/01/ 2022

Reporting Date: 06/02/2022
Test Report No.: 00032/01/2022-CH 001-020
Sample Location:-
Testing Date: 02/02/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPHI BH12 1	0.39	< 0.012	0.066	49.80	< 0.09	6.03	0.53	4.53	0.71	0.28	< 0.33	< 0.51	< 0.0125	37.61
2	RPHI BH12 2	0.35	< 0.012	0.062	52.20	< 0.09	1.69	0.41	4.38	0.66	0.35	< 0.33	< 0.51	< 0.0125	39.85
3	RPHI BH12 3	0.30	< 0.012	0.053	48.50	< 0.09	3.31	0.43	10.30	< 0.55	0.22	< 0.33	< 0.51	< 0.0125	36.32
4	RPHI BH12 4	< 0.23	< 0.012	< 0.029	51.20	< 0.09	1.17	0.49	8.68	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	38.00
5	RPHI BH12 5	0.35	< 0.012	0.06	51.00	< 0.09	0.57	0.53	8.12	0.67	0.24	< 0.33	< 0.51	< 0.0125	38.46
6	RPHI BH12 6	< 0.23	< 0.012	0.035	49.1	< 0.09	0.51	0.72	12.8	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	36.24
7	RPHI BH12 7	< 0.23	< 0.012	0.036	51.6	< 0.09	0.60	0.84	8.35	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	37.96
8	RPHI BH12 8	< 0.23	< 0.012	< 0.029	51.6	< 0.09	< 0.058	0.87	8.48	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	38.27
9	RPHI BH12 9	0.24	< 0.012	< 0.029	46.2	< 0.09	0.08	1.50	17.7	0.61	0.31	< 0.33	< 0.51	< 0.0125	33.37
10	RPHI BH12 10	0.41	< 0.012	0.048	46.5	< 0.09	0.08	2.63	16.8	0.82	< 0.21	< 0.33	< 0.51	< 0.0125	32.53
11	RPHI BH12 11	< 0.23	< 0.012	< 0.029	52.8	< 0.09	< 0.058	1.22	6.32	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	39.42
12	RPHI BH12 12	0.24	< 0.012	< 0.029	53.5	< 0.09	< 0.058	3.40	4.32	0.57	< 0.21	< 0.33	< 0.51	< 0.0125	37.35
13	RPHI BH12 13	< 0.23	< 0.012	< 0.029	53.5	< 0.09	0.63	15.8	3.09	< 0.55	< 0.21	< 0.33	1.50	< 0.0125	24.77
14	RPHI BH12 14	0.35	< 0.012	0.047	46.5	< 0.09	0.68	18.2	14.1	0.89	< 0.21	< 0.33	1.77	< 0.0125	17.30

Reporting Date: 06/02/2022

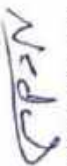
Test Report No.: 00032/01/2022-CH 001-020

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RPHI BH12 15	0.26	< 0.012	0.035	48.00	< 0.09	0.96	26.10	10.50	0.59	< 0.21	< 0.33	2.82	< 0.0125	10.69
16	RPHI BH12 16	< 0.23	< 0.012	< 0.029	52.20	< 0.09	1.26	27.90	2.62	< 0.55	< 0.21	< 0.33	3.13	< 0.0125	12.18
17	RPHI BH12 17	< 0.23	< 0.012	< 0.029	52.70	< 0.09	1.41	18.10	3.26	< 0.55	< 0.21	< 0.33	1.84	< 0.0125	22.23
18	RPHI BH12 18	< 0.23	< 0.012	< 0.029	42.00	< 0.09	1.03	22.60	22.60	< 0.55	< 0.21	< 0.33	2.21	< 0.0125	9.25
19	RPHI BH12 19	< 0.23	< 0.012	< 0.029	49.60	< 0.09	1.12	28.10	8.24	< 0.55	< 0.21	< 0.33	3.25	< 0.0125	9.53
20	RPHI BH12 20	< 0.23	< 0.012	< 0.029	41.70	< 0.09	0.76	24.00	23.70	< 0.55	< 0.21	< 0.33	2.12	< 0.0125	7.60

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem
Eng. Feryal Yosef



Laboratories & Quality Director : Eng. Maysoon Alkhazbee

Division Head: Eng. Maysoon Alkhazbee



Jordan -Amman- Al Byader- 8th Circle . - Telefax +96255504409 - P.O. Box 7
(Web site: www.memr.gov.jo)



The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT
X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F

Reporting Date: 13/02/2022

Test Report No.: 00042/02/2022-CH 001-027

Client Name & Address: مديرية نرسات المعاصر الطبيعية

Sample Location:-

Sample Type: صلبة

Sample Method: By Client

Date of Receipt: 03/02/ 2022

Testing Date: 10/02/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPH1-BH13-1	0.89	0.012	0.13	42.40	<0.09	10.40	0.70	12.10	1.40	0.76	<0.33	<0.51	<0.0125	31.13
2	RPH1-BH13-2	<0.23	<0.012	<0.029	53.80	<0.09	2.81	0.49	3.60	<0.55	<0.21	<0.33	<0.51	<0.0125	39.01
3	RPH1-BH13-3	<0.23	<0.012	<0.029	51.00	<0.09	0.43	0.49	10.20	<0.55	<0.21	<0.33	<0.51	<0.0125	37.57
4	RPH1-BH13-4	<0.23	<0.012	0.042	47.90	<0.09	0.88	0.39	15.20	<0.55	<0.21	<0.33	<0.51	<0.0125	34.95
5	RPH1-BH13-5	<0.23	<0.012	<0.029	47.80	<0.09	0.61	0.96	15.60	<0.55	<0.21	<0.33	<0.51	<0.0125	34.56
6	RPH1-BH13-6	<0.23	<0.012	<0.029	50.20	<0.09	0.21	1.03	11.50	<0.55	<0.21	<0.33	<0.51	<0.0125	36.60
7	RPH1-BH13-7	<0.23	<0.012	<0.029	50.20	<0.09	<0.058	1.10	11.00	<0.55	<0.21	<0.33	<0.51	<0.0125	36.85
8	RPH1-BH13-8	<0.23	<0.012	<0.029	48.50	<0.09	0.51	1.60	13.60	0.62	0.23	<0.33	<0.51	<0.0125	34.78
9	RPH1-BH13-9	<0.23	<0.012	<0.029	48.20	<0.09	<0.058	2.14	14.50	<0.55	<0.21	<0.33	<0.51	<0.0125	34.19
10	RPH1-BH13-10	0.33	<0.012	0.037	48.20	<0.09	<0.058	2.49	14.00	0.79	<0.21	<0.33	<0.51	<0.0125	33.97
11	RPH1-BH13-11	<0.23	<0.012	<0.029	49.70	<0.09	<0.058	1.90	11.80	0.58	<0.21	<0.33	<0.51	<0.0125	35.63
12	RPH1-BH13-12	<0.23	<0.012	<0.029	53.10	<0.09	0.22	6.20	4.50	<0.55	0.25	<0.33	0.51	<0.0125	34.59
13	RPH1-BH13-13	<0.23	<0.012	<0.029	53.80	<0.09	0.27	8.27	4.15	<0.55	<0.21	<0.33	0.66	<0.0125	32.61
14	RPH1-BH13-14	<0.23	<0.012	<0.029	54.80	<0.09	0.31	7.77	2.24	<0.55	<0.21	<0.33	0.61	<0.0125	34.12

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

Reporting Date: 13/02/2022

Test Report No.: 00042/02/2022-CH001-027

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RPH1-BH13-15	< 0.23	< 0.012	< 0.029	44.20	< 0.09	< 0.058	4.90	21.60	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	28.40
16	RPH1-BH13-16	< 0.23	< 0.012	< 0.029	47.60	< 0.09	0.40	13.10	14.30	< 0.55	< 0.21	< 0.33	1.13	< 0.0125	23.17
17	RPH1-BH13-17	< 0.23	< 0.012	< 0.029	53.40	< 0.09	1.00	23.00	1.29	< 0.55	< 0.21	< 0.33	2.73	< 0.0125	18.44
18	RPH1-BH13-18	< 0.23	< 0.012	< 0.029	53.10	< 0.09	0.87	16.70	3.22	< 0.55	< 0.21	< 0.33	1.72	< 0.0125	24.09
19	RPH1-BH13-19	< 0.23	< 0.012	< 0.029	40.40	< 0.09	0.77	19.60	26.90	< 0.55	< 0.21	< 0.33	1.77	< 0.0125	10.43
20	RPH1-BH13-20	0.30	< 0.012	0.045	39.50	< 0.09	0.80	18.80	27.20	< 0.55	< 0.21	< 0.33	1.78	< 0.0125	11.04
21	RPH1-BH13-21	< 0.23	< 0.012	< 0.029	42.30	< 0.09	0.61	18.10	32.60	< 0.55	< 0.21	< 0.33	1.55	< 0.0125	13.72
22	RPH1-BH13-22	< 0.23	< 0.012	< 0.029	50.00	< 0.09	0.65	21.40	9.28	< 0.55	< 0.21	< 0.33	2.22	< 0.0125	16.33
23	RPH1-BH13-23	< 0.23	< 0.012	< 0.029	49.50	< 0.09	0.74	25.00	9.49	< 0.55	< 0.21	< 0.33	2.70	< 0.0125	12.38

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem
Eng. Feryal Yosef

Laboratories & Quality Director : Eng. Maysoon Alkhzaheer

Division Head: Eng. Maysoon Alkhzaheer

Jordan - Amman - Al Byader - 8th Circle - - Telefax +96265504409 - P.O. Box 7

(Web site: www.memr.gov.jo)

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



The Hashemite Kingdom of Jordan

Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT

X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis Lab. X.R.F

Client Name & Address: مديرية ترسانة المعادن الطبيعية

Sample Type: طين

Sample Method: By Client

Date of Receipt: 02/02/ 2022

Reporting Date: 10/02/2022

Test Report No.: 00040/02/2022-CH001-025

Sample Location:-

Testing Date: 09/02/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	LOI Wt. %
1	RPNI-BH14-1	1.59	0.022	0.21	38.60	0.22	< 0.058	1.31	23.60	2.55	1.20	< 0.33	< 0.51	< 0.0125	30.74
2	RPNI-BH14-2	1.60	0.017	0.22	34.60	0.18	< 0.058	1.53	31.00	2.45	1.14	< 0.33	< 0.51	< 0.0125	27.23
3	RPNI-BH14-3	1.43	0.016	0.19	35.10	0.15	< 0.058	1.60	31.10	2.17	1.00	< 0.33	< 0.51	< 0.0125	27.24
4	RPNI-BH14-4	1.70	0.016	0.25	32.00	0.18	< 0.058	1.54	36.10	2.48	1.08	< 0.33	< 0.51	< 0.0125	24.68
5	RPNI-BH14-5	1.88	0.021	0.30	35.00	0.25	< 0.058	1.85	29.60	2.83	1.13	< 0.33	< 0.51	< 0.0125	27.18
6	RPNI-BH14-6	2.02	0.020	0.31	28.90	0.22	< 0.058	2.22	40.30	2.93	1.10	< 0.33	< 0.51	< 0.0125	21.93
7	RPNI-BH14-7	2.08	0.020	0.41	23.90	0.23	< 0.058	2.30	49.30	2.72	0.99	< 0.33	< 0.51	< 0.0125	18.02
8	RPNI-BH14-8	1.64	0.017	0.30	29.40	0.17	< 0.058	3.00	41.10	2.20	0.82	< 0.33	< 0.51	< 0.0125	21.17
9	RPNI-BH14-9	1.82	0.022	0.24	33.90	0.19	< 0.058	5.59	31.60	2.80	0.85	< 0.33	< 0.51	< 0.0125	22.69
10	RPNI-BH14-10	0.33	< 0.012	0.050	44.90	< 0.09	0.21	8.56	18.30	0.55	0.22	< 0.33	0.57	< 0.0125	26.34
11	RPNI-BH14-11	< 0.23	< 0.012	< 0.029	51.90	< 0.09	0.62	17.1	5.82	< 0.55	< 0.21	< 0.33	1.77	< 0.0125	22.41
12	RPNI-BH14-12	< 0.23	< 0.012	0.030	46.80	< 0.09	0.45	13.8	15.30	< 0.55	< 0.21	< 0.33	1.24	< 0.0125	21.77
13	RPNI-BH14-13	< 0.23	< 0.012	< 0.029	45.20	< 0.09	0.29	13.4	17.70	< 0.55	< 0.21	< 0.33	1.28	< 0.0125	21.73
14	RPNI-BH14-14	< 0.23	< 0.012	< 0.029	50.60	< 0.09	0.20	9.81	9.03	< 0.55	< 0.21	< 0.33	0.77	< 0.0125	29.11

Reporting Date: 10/02/2022

Test Report No.: 00040/02/2022-CH001-025

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RPPI-BH14-15	< 0.23	< 0.012	0.038	41.70	< 0.09	0.085	6.30	25.00	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	25.84
16	RPPI-BH14-16	< 0.23	< 0.012	< 0.029	34.40	< 0.09	0.094	7.17	38.40	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	19.40
17	RPPI-BH14-17	< 0.23	< 0.012	< 0.029	29.90	< 0.09	< 0.058	3.59	47.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	18.72
18	RPPI-BH14-18	< 0.23	< 0.012	< 0.029	19.60	< 0.09	< 0.058	1.90	65.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	12.89
19	RPPI-BH14-19	< 0.23	< 0.012	< 0.029	19.30	< 0.09	< 0.058	1.49	66.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	12.70
20	RPPI-BH14-20	< 0.23	< 0.012	< 0.029	19.00	< 0.09	< 0.058	1.36	66.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	12.41
21	RPPI-BH14-21	< 0.23	< 0.012	< 0.029	13.20	< 0.09	< 0.058	1.32	75.40	< 0.55	< 0.21	1.12	< 0.51	< 0.0125	8.72

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayem

Eng. Feryal Yosef

Laboratories & Quality Director : Eng. Maysoon Alkhazhee

Division Head: Eng. Maysoon Alkhazhee

Jordan- Amman- Al Byader- 8th Circle . - Telefax +96255504409 - P.O. Box 7
(Web site: www.memr.gov.jo)

وزارة الطاقة والمياه
مديرية المختبرات والجودة



The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT

X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F

Client Name & Address: مديرية دراسات المعادن الطبيعية

Sample Type: صلبة

Sample Method: By Client

Date of Receipt: 02/02/ 2022

Reporting Date: 10/02/2022

Test Report No.: 00039/02/2022-CH001-024

Sample Location:-

Testing Date: 09/02/2022

Item	S.ID.	Fe ₂ O ₃ Wt.%	MnO Wt.%	TiO ₂ Wt.%	CaO Wt.%	K ₂ O Wt.%	SO ₃ Wt.%	P ₂ O ₅ Wt.%	SiO ₂ Wt.%	Al ₂ O ₃ Wt.%	MgO Wt.%	Na ₂ O Wt.%	F Wt.%	U Wt.%	L.O.I Wt.%
1	RPH1-BH15-A1	<0.23	<0.012	<0.029	40.20	<0.09	5.94	14.70	22.6	<0.55	<0.21	<0.33	1.39	<0.0125	14.54
2	RPH1-BH15-A2	<0.23	<0.012	<0.029	51.80	<0.09	4.73	26.00	1.65	<0.55	<0.21	<0.33	3.04	<0.0125	12.59
3	RPH1-BH15-A3	<0.23	<0.012	<0.029	52.20	<0.09	1.77	19.90	3.97	<0.55	<0.21	<0.33	1.94	<0.0125	19.92
4	RPH1-BH15-A4	<0.23	<0.012	<0.029	51.80	<0.09	1.76	21.90	3.36	<0.55	<0.21	<0.33	2.53	<0.0125	18.28
5	RPH1-BH15-A5	<0.23	<0.012	<0.029	48.10	<0.09	0.93	15.70	12.2	<0.55	<0.21	<0.33	1.44	<0.0125	21.24
6	RPH1-BH15-A6	<0.23	<0.012	<0.029	40.70	<0.09	0.91	18.60	25.2	<0.55	<0.21	<0.33	1.94	<0.0125	12.47
7	RPH1-BH15-A7	<0.23	<0.012	<0.029	51.50	<0.09	1.08	30.00	4.54	<0.55	<0.21	<0.33	3.24	<0.0125	9.46
8	RPH1-BH15-A8	<0.23	<0.012	<0.029	52.40	<0.09	1.14	28.70	2.91	<0.55	<0.21	<0.33	3.19	<0.0125	11.46
9	RPH1-BH15-A9	<0.23	<0.012	<0.029	50.60	<0.09	1.08	28.60	6.27	<0.55	<0.21	<0.33	3.10	<0.0125	10.19

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem

Eng. Feryal Yosef

Laboratories & Quality Director : Eng. Maysoon Alkhzahee

Division Head: Eng. Maysoon Alkhzahee

وزارة الطاقة والثروة المعدنية

مديرية المختبرات والجودة

Jordan - Amman- Al Byader- 8th Circle . - Telefax +96265504408 - P.O. Box 7

(Web site: www.memr.gov.jo)



The Hashemite Kingdom of Jordan

Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT

X-RAY SPECTROMETRIC LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F
Client Name & Address: مديرية ترسانة المعسل الطبيعية
Sample Type: صلبة
Sample Method: By Client

Date of Receipt: 01/02/ 2022

Reporting Date: 09/02/2022
Test Report No.: 00038/02/2022-CH001-023
Sample Location:-
Testing Date: 06/02/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	LOI Wt. %
1	RPH1- BH 15-B1	0.69	0.019	0.096	44.70	< 0.09	0.83	8.70	15.80	1.04	0.61	< 0.33	1.12	< 0.0125	26.35
2	RPH1- BH 15-B2	0.45	< 0.012	0.072	48.80	< 0.09	6.81	6.27	5.23	0.77	0.35	< 0.33	0.65	< 0.0125	30.58
3	RPH1- BH 15-B3	< 0.23	< 0.012	< 0.029	49.90	< 0.09	2.28	19.20	7.42	< 0.55	< 0.21	< 0.33	2.06	< 0.0125	18.62
4	RPH1- BH 15-B4	< 0.23	< 0.012	< 0.029	49.40	< 0.09	1.56	19.80	9.47	< 0.55	< 0.21	< 0.33	2.11	< 0.0125	17.35
5	RPH1- BH 15-B5	< 0.23	< 0.012	< 0.029	53.20	< 0.09	1.21	29.90	1.53	< 0.55	< 0.21	< 0.33	3.30	< 0.0125	10.81
6	RPH1- BH 15-B6	< 0.23	< 0.012	< 0.029	52.30	< 0.09	1.38	28.80	2.42	< 0.55	< 0.21	< 0.33	3.24	< 0.0125	11.47
7	RPH1- BH 15-B7	< 0.23	< 0.012	< 0.029	52.40	< 0.09	1.27	24.60	3.09	< 0.55	< 0.21	< 0.33	2.60	< 0.0125	15.78
8	RPH1- BH 15-B8	< 0.23	< 0.012	< 0.029	29.90	< 0.09	0.54	11.20	45.30	< 0.55	< 0.21	0.41	0.85	< 0.0125	11.61
9	RPH1- BH 15-B9	< 0.23	< 0.012	< 0.029	28.20	< 0.09	0.39	10.10	48.80	< 0.55	< 0.21	0.68	0.56	< 0.0125	11.23
10	RPH1- BH 15-B10	< 0.23	< 0.012	< 0.029	50.00	< 0.09	1.01	31.50	7.46	< 0.55	< 0.21	< 0.33	3.47	< 0.0125	6.45
11	RPH1- BH 15-B11	< 0.23	< 0.012	< 0.029	37.00	< 0.09	0.40	16.30	33.10	< 0.55	< 0.21	< 0.33	1.52	< 0.0125	11.64
12	RPH1- BH 15-B12	< 0.23	< 0.012	< 0.029	40.10	< 0.09	0.56	22.00	27.00	< 0.55	< 0.21	< 0.33	2.11	< 0.0125	8.17
13	RPH1- BH 15-B13	< 0.23	< 0.012	< 0.029	44.50	< 0.09	0.60	25.40	18.70	< 0.55	< 0.21	< 0.33	2.47	< 0.0125	8.17
14	RPH1- BH 15-B14	< 0.23	< 0.012	< 0.029	45.30	< 0.09	0.77	28.30	16.50	< 0.55	< 0.21	< 0.33	3.01	< 0.0125	6.02

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

Reporting Date: 09/02/2022

Test Report No.: 00038/02/2022-CH/001-023

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RPHI- BH 15-B15	< 0.23	< 0.012	< 0.029	40.30	< 0.09	0.61	21.00	26.5	< 0.55	< 0.21	< 0.33	2.04	< 0.0125	9.49
16	RPHI- BH 15-B16	< 0.23	< 0.012	< 0.029	46.20	< 0.09	0.53	23.10	16.4	< 0.55	< 0.21	< 0.33	2.14	< 0.0125	11.55
17	RPHI- BH 15-B17	< 0.23	< 0.012	< 0.029	36.20	< 0.09	0.36	18.80	34.4	< 0.55	< 0.21	< 0.33	1.65	< 0.0125	8.48
18	RPHI- BH 15-B18	< 0.23	< 0.012	< 0.029	24.70	< 0.09	0.19	12.20	55.6	< 0.55	< 0.21	< 0.33	0.80	< 0.0125	6.43

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem

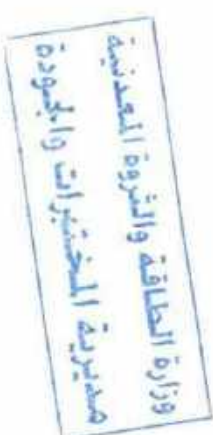
Eng. Feryal Yosef

Division Head: Eng. Maysoon Alkhazhee

Laboratories & Quality Director : Eng. Maysoon Alkhazhee

Jordan - Amman- Al Byader- 8th Circle . - Telefax +96265504409 - P.O. Box 7

(Web site: www.memr.gov.jo)





The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT
X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F.
Client Name & Address: مديرية دراسات المعادن الطبيعية
Sample Type: صلبه
Sample Method: By Client
Date of Receipt: 14/02/ 2022
Reporting Date: 16/02/2022
Test Report No.: 00053/02/2022-CH001-028
Sample Location:-
Testing Date: 15/02/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	LOI Wt. %
1	RPH1-BH16-1	0.84	0.012	0.12	43.30	<0.09	<0.058	0.69	19.30	1.33	0.66	<0.33	<0.51	<0.0125	33.71
2	RPH1-BH16-2	0.37	<0.012	0.07	48.80	<0.09	<0.058	0.34	11.40	0.63	0.37	<0.33	<0.51	<0.0125	37.98
3	RPH1-BH16-3	<0.23	<0.012	0.043	49.40	<0.09	<0.058	0.40	11.00	<0.55	0.28	<0.33	<0.51	<0.0125	38.29
4	RPH1-BH16-4	<0.23	<0.012	<0.029	46.40	<0.09	0.45	0.54	17.50	<0.55	<0.21	<0.33	<0.51	<0.0125	34.57
5	RPH1-BH16-5	<0.23	<0.012	0.032	44.70	<0.09	0.29	0.60	20.30	<0.55	<0.21	<0.33	<0.51	<0.0125	33.36
6	RPH1-BH16-6	<0.23	<0.012	<0.029	45.70	<0.09	0.11	0.92	18.70	<0.55	<0.21	<0.33	<0.51	<0.0125	33.91
7	RPH1-BH16-7	<0.23	<0.012	0.031	44.50	<0.09	0.14	1.32	21.00	<0.55	<0.21	<0.33	<0.51	<0.0125	32.27
8	RPH1-BH16-8	0.23	<0.012	0.041	46.40	<0.09	<0.058	2.00	17.60	<0.55	<0.21	<0.33	<0.51	<0.0125	33.17
9	RPH1-BH16-9	<0.23	<0.012	<0.029	50.30	<0.09	0.10	5.00	10.30	<0.55	<0.21	<0.33	<0.51	<0.0125	33.53
10	RPH1-BH16-10	<0.23	<0.012	0.037	51.20	<0.09	0.52	14.80	6.67	<0.55	<0.21	<0.33	1.51	<0.0125	24.80
11	RPH1-BH16-11	<0.23	<0.012	0.052	48.80	<0.09	0.21	8.91	12.70	<0.55	<0.21	<0.33	0.62	<0.0125	28.12
12	RPH1-BH16-12	<0.23	<0.012	0.035	46.70	<0.09	0.35	12.10	15.40	<0.55	<0.21	<0.33	1.21	<0.0125	23.70
13	RPH1-BH16-13	<0.23	<0.012	<0.029	49.50	<0.09	0.84	22.70	8.89	<0.55	<0.21	<0.33	2.46	<0.0125	15.46
14	RPH1-BH16-14	<0.23	<0.012	<0.029	53.20	<0.09	1.24	25.9	1.50	<0.55	<0.21	<0.33	2.86	<0.0125	15.15

مديرية دراسات المعادن الطبيعية
مديرية دراسات المعادن الطبيعية

Reporting Date: 16/02/2022

Test Report No.: 00053/02/2022-CH001-023

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RPHI-BH16-15	< 0.23	< 0.012	< 0.029	40.40	< 0.09	0.66	16.70	26.30	< 0.55	< 0.21	< 0.33	1.47	< 0.0125	14.24
16	RPHI-BH16-16*	< 0.23	< 0.012	< 0.029	52.40	< 0.09	1.24	33.30	1.75	< 0.55	< 0.21	< 0.33	3.88	< 0.0125	7.26
17	RPHI-BH16-17	< 0.23	< 0.012	< 0.029	52.60	< 0.09	1.35	31.80	1.42	< 0.55	< 0.21	< 0.33	3.58	< 0.0125	9.16
18	RPHI-BH16-18	< 0.23	< 0.012	< 0.029	52.10	< 0.09	1.07	33.80	2.32	< 0.55	< 0.21	< 0.33	4.06	< 0.0125	6.36

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head: Eng. Maysoon Alkhzahee

Laboratories & Quality Director : Eng. Maysoon Alkhzahee



Jordan - Amman - Al Byadar - 8th Circle - Telefax +96265504409 - P.O. Box 7
(Web site: www.memr.gov.jo)



The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate
TEST REPORT
X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F
Client Name & Address: مديرية دراسات المعادن الطبيعية
Sample Type: صلبة
Sample Method: By Client
Date of Receipt: 14/02/ 2022
Reporting Date: 23/02/2022
Test Report No.: 00054/02/2022-CH001-029
Sample Location:-
Testing Date: 22/02/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPH1-BH17-1	1.08	0.013	0.150	39.20	<0.09	0.085	0.69	25.30	1.72	0.96	<0.33	<0.51	<0.0125	30.73
2	RPH1-BH17-2	0.58	<0.012	0.088	43.60	<0.09	<0.058	0.58	20.40	0.95	0.58	<0.33	<0.51	<0.0125	33.18
3	RPH1-BH17-3	0.45	<0.012	0.074	43.70	<0.09	0.44	0.34	21.10	0.73	0.44	<0.33	<0.51	<0.0125	32.69
4	RPH1-BH17-4	<0.23	<0.012	0.035	47.80	<0.09	1.11	0.56	13.90	<0.55	<0.21	<0.33	<0.51	<0.0125	35.74
5	RPH1-BH17-5	<0.23	<0.012	<0.029	47.70	<0.09	0.53	0.79	14.80	<0.55	<0.21	<0.33	<0.51	<0.0125	35.58
6	RPH1-BH17-6	0.29	<0.012	0.040	44.80	<0.09	0.53	0.64	19.10	<0.55	0.31	<0.33	<0.51	<0.0125	33.79
7	RPH1-BH17-7	0.25	<0.012	0.032	42.20	<0.09	0.30	0.62	23.80	<0.55	<0.21	0.94	<0.51	<0.0125	31.32
8	RPH1-BH17-8	<0.23	<0.012	<0.029	48.80	<0.09	<0.058	0.72	13.60	<0.55	<0.21	<0.33	<0.51	<0.0125	36.18
9	RPH1-BH17-9	0.24	<0.012	0.037	46.90	<0.09	<0.058	0.95	16.80	<0.55	<0.21	<0.33	<0.51	<0.0125	34.33
10	RPH1-BH17-10	0.27	<0.012	0.035	44.30	<0.09	<0.058	0.97	21.30	0.56	<0.21	<0.33	<0.51	<0.0125	32.45
11	RPH1-BH17-11	0.27	<0.012	0.035	45.20	<0.09	<0.058	0.58	20.30	0.62	0.22	<0.33	<0.51	<0.0125	32.71
12	RPH1-BH17-12	0.31	<0.012	0.040	40.90	<0.09	<0.058	0.98	23.30	<0.55	<0.21	<0.33	<0.51	<0.0125	33.66
13	RPH1-BH17-13	0.36	<0.012	0.043	41.20	<0.09	<0.058	1.40	22.50	0.73	<0.21	<0.33	<0.51	<0.0125	33.60
14	RPH1-BH17-14	0.38	<0.012	0.046	47.10	<0.09	<0.058	1.90	11.20	0.78	<0.21	<0.33	<0.51	<0.0125	38.38

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

Reporting Date: 23/02/2022

Test Report No.: 00054/02/2022-CH001-029

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RPH1-BH17-15	0.37	<0.012	0.050	46.20	<0.09	<0.058	3.30	14.10	0.72	0.29	<0.33	<0.51	<0.0125	34.77
16	RPH1-BH17-16	0.36	<0.012	0.054	48.50	<0.09	0.11	6.94	7.77	0.75	0.29	<0.33	<0.51	<0.0125	34.72
17	RPH1-BH17-17	0.37	<0.012	0.051	35.40	<0.09	0.21	9.74	30.50	0.70	0.40	<0.33	0.71	<0.0125	21.93
18	RPH1-BH17-18	0.29	<0.012	0.046	46.40	<0.09	0.46	15.00	11.00	0.61	<0.21	<0.33	1.36	<0.0125	24.57
19	RPH1-BH17-19	0.46	<0.012	0.063	37.40	<0.09	0.38	13.2	26.10	0.86	0.29	<0.33	1.04	<0.0125	20.23
20	RPH1-BH17-20	0.43	<0.012	0.058	38.20	<0.09	0.50	16.3	24.90	0.77	0.25	<0.33	1.33	<0.0125	17.22
21	RPH1-BH17-21	0.33	<0.012	0.054	45.10	<0.09	0.64	19.00	12.00	0.68	0.24	<0.33	1.99	<0.0125	20.00
22	RPH1-BH17-22	0.27	<0.012	0.040	25.20	<0.09	0.35	9.36	49.60	<0.55	<0.21	<0.33	0.60	<0.0125	14.06
23	RPH1-BH17-23	0.39	<0.012	0.046	27.20	<0.09	0.19	8.02	46.00	0.66	<0.21	<0.33	<0.51	<0.0125	16.90
24	RPH1-BH17-24	<0.23	<0.012	<0.029	30.70	<0.09	0.11	6.73	40.80	<0.55	<0.21	<0.33	<0.51	<0.0125	20.61

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head: Eng. Maysoon Alkhzahee

Laboratories & Quality Director : Eng. Maysoon Alkhzahee

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

Jordan - Amman - Al Byader - 8th Circle - - Telefax +96205504409 - P.O. Box.7

(Web site: www.memr.gov.jo)



The Hashemite Kingdom of Jordan

Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT

X-RAY SPECTROMETRIC & IOL ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F

Client Name & Address: مديرية دراسات المعادن الطبيعية

Sample Type: صلبة

Sample Method: By Client

Date of Receipt: 20/02/ 2022

Reporting Date: 24/02/2022

Test Report No.: 00056/02/2022-CH001-031

Sample Location:-

Testing Date: 22/02/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPH1-BH18-01	0.33	< 0.012	0.061	50.60	< 0.09	0.080	0.38	8.27	0.65	0.43	< 0.33	< 0.51	< 0.0125	39.10
2	RPH1-BH18-02	0.34	< 0.012	0.063	47.00	< 0.09	2.71	0.39	13.90	0.62	0.36	< 0.33	< 0.51	< 0.0125	34.65
3	RPH1-BH18-03	< 0.23	< 0.012	0.032	50.80	< 0.09	2.30	0.52	8.48	< 0.55	0.28	< 0.33	< 0.51	< 0.0125	37.20
4	RPH1-BH18-04	< 0.23	< 0.012	< 0.029	51.50	< 0.09	0.36	0.59	8.49	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	38.55
5	RPH1-BH18-05	< 0.23	< 0.012	< 0.029	43.40	< 0.09	0.22	0.71	23.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	31.34
6	RPH1-BH18-06	< 0.23	< 0.012	0.040	39.30	< 0.09	0.048	0.69	30.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	28.44
7	RPH1-BH18-07	0.33	< 0.012	0.053	38.70	< 0.09	0.41	1.18	30.80	0.65	< 0.21	< 0.33	< 0.51	< 0.0125	27.75
8	RPH1-BH18-08	< 0.23	< 0.012	0.040	42.90	< 0.09	0.40	2.33	24.00	0.59	< 0.21	< 0.33	< 0.51	< 0.0125	29.42
9	RPH1-BH18-09	< 0.23	< 0.012	0.045	44.30	< 0.09	0.73	2.72	21.10	0.58	< 0.21	< 0.33	< 0.51	< 0.0125	30.22
10	RPH1-BH18-10	< 0.23	< 0.012	< 0.029	42.70	< 0.09	< 0.058	2.17	25.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	29.14
11	RPH1-BH18-11	< 0.23	< 0.012	< 0.029	53.40	< 0.09	0.55	10.50	5.13	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	29.93
12	RPH1-BH18-12	< 0.23	< 0.012	< 0.029	54.50	< 0.09	0.18	6.98	4.24	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	33.85
13	RPH1-BH18-13	< 0.23	< 0.012	< 0.029	50.80	< 0.09	0.36	15.50	9.32	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	23.24
14	RPH1-BH18-14	< 0.23	< 0.012	< 0.029	53.10	< 0.09	0.77	20.90	5.01	< 0.55	< 0.21	< 0.33	0.66	< 0.0125	19.34

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

Reporting Date: 24/02/2022

Test Report No.: 00056/02/2022-CH001-031

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RPHI-BH18-15	< 0.23	< 0.012	< 0.029	44.40	< 0.09	0.54	17.10	20.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	16.72
16	RPHI-BH18-16	< 0.23	< 0.012	< 0.029	51.20	< 0.09	1.08	29.00	7.16	< 0.55	< 0.21	< 0.33	0.85	< 0.0125	10.56
17	RPHI-BH18-17	< 0.23	< 0.012	< 0.029	51.40	< 0.09	0.94	25.50	7.48	< 0.55	< 0.21	< 0.33	0.69	< 0.0125	13.86
18	RPHI-BH18-18	< 0.23	< 0.012	< 0.029	53.70	< 0.09	0.96	31.20	3.37	< 0.55	< 0.21	< 0.33	0.90	< 0.0125	9.68
19	RPHI-BH18-19	< 0.23	< 0.012	< 0.029	43.90	< 0.09	0.75	22.60	19.60	< 0.55	< 0.21	< 0.33	2.16	< 0.0125	10.88
20	RPHI-BH18-20	< 0.23	< 0.012	< 0.029	32.00	< 0.09	0.34	14.30	42.60	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	10.00
21	RPHI-BH18-21	< 0.23	< 0.012	< 0.029	36.30	< 0.09	0.34	14.90	34.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	12.40
22	RPHI-BH18-22	< 0.23	< 0.012	< 0.029	38.10	< 0.09	0.51	20.90	31.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	7.98
23	RPHI-BH18-23	< 0.23	< 0.012	< 0.029	27.90	< 0.09	0.30	16.10	49.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	5.23
24	RPHI-BH18-24	< 0.23	< 0.012	< 0.029	20.00	< 0.09	0.11	10.40	64.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	4.52

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head: Eng. Maysoon Alkhzahee

Laboratories & Quality Director : Eng. Maysoon Alkhzahee

Jordan -Amman- Al Byader- 8th Circle . - Telefax +96265504408 - P.O. Box 7
(Web site: www.memr.gov.jo)



The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT

X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F

Client Name & Address: مديرية دراسات المعادن الطبيعية

Sample Type: صلب

Sample Method: By Client

Date of Receipt: 20/02/ 2022

Reporting Date: 28/02/2022

Test Report No.: 00057/02/2022-CH001-032

Sample Location:-

Testing Date: 23/02/2022

Item	S.ID.	Fe ₂ O ₃ Wt.%	MnO Wt.%	TiO ₂ Wt.%	CaO Wt.%	K ₂ O Wt.%	SO ₃ Wt.%	P ₂ O ₅ Wt.%	SiO ₂ Wt.%	Al ₂ O ₃ Wt.%	MgO Wt.%	Na ₂ O Wt.%	F Wt.%	U Wt.%	L.O.I Wt.%
1	RPH1-BH 19 1	1.36	0.017	0.19	44.60	0.12	<0.058	0.47	13.70	2.23	1.20	<0.33	<0.51	<0.0125	36.08
2	RPH1-BH 19 2	0.69	<0.012	0.11	48.00	<0.09	<0.058	0.37	11.50	1.16	0.70	<0.33	<0.51	<0.0125	37.45
3	RPH1-BH 19 3	0.41	<0.012	0.073	49.50	<0.09	2.37	0.44	8.98	0.73	0.43	<0.33	<0.51	<0.0125	37.02
4	RPH1-BH 19 4	0.25	<0.012	0.050	47.80	<0.09	4.39	0.61	12.00	<0.55	0.27	<0.33	<0.51	<0.0125	34.15
5	RPH1-BH 19 5	<0.23	<0.012	0.031	52.40	<0.09	0.33	0.68	6.40	<0.55	<0.21	<0.33	<0.51	<0.0125	39.48
6	RPH1-BH 19 6	<0.23	<0.012	<0.029	41.80	<0.09	0.16	0.72	24.60	<0.55	<0.21	0.69	<0.51	<0.0125	31.38
7	RPH1-BH 19 7	<0.23	<0.012	<0.029	41.00	<0.09	0.075	0.69	26.00	<0.55	<0.21	0.84	<0.51	<0.0125	30.50
8	RPH1-BH 19 8	<0.23	<0.012	0.030	43.50	<0.09	<0.058	0.96	22.90	<0.55	<0.21	<0.33	<0.51	<0.0125	31.88
9	RPH1-BH 19 9	<0.23	<0.012	<0.029	46.60	<0.09	<0.058	1.27	17.20	<0.55	<0.21	<0.33	<0.51	<0.0125	34.18
10	RPH1-BH 19 10	<0.23	<0.012	<0.029	48.60	<0.09	<0.058	2.56	13.90	<0.55	<0.21	<0.33	<0.51	<0.0125	34.23
11	RPH1-BH 19 11	<0.23	<0.012	0.035	45.10	<0.09	0.25	6.96	19.50	<0.55	<0.21	<0.33	<0.51	<0.0125	27.45
12	RPH1-BH 19 12	<0.23	<0.012	0.031	49.10	<0.09	0.12	6.22	12.60	<0.55	<0.21	<0.33	<0.51	<0.0125	31.31
13	RPH1-BH 19 13	<0.23	<0.012	0.03	51.30	<0.09	<0.058	4.54	9.17	<0.55	<0.21	<0.33	<0.51	<0.0125	34.30
14	RPH1-BH 19 14	<0.23	<0.012	<0.029	51.20	<0.09	0.19	9.92	8.42	<0.55	<0.21	<0.33	<0.51	<0.0125	29.16

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

Reporting Date: 28/02/2022

Test Report No.: 00057/02/2022-CH001-032

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RPHI-BH 19 15	<0.23	<0.012	<0.029	53.20	<0.09	0.34	12.80	5.45	<0.55	<0.21	<0.33	<0.51	<0.0125	27.54
16	RPHI-BH 19 16	<0.23	<0.012	<0.029	46.00	<0.09	0.44	15.40	17.10	<0.55	<0.21	<0.33	<0.51	<0.0125	19.77
17	RPHI-BH 19 17	<0.23	<0.012	<0.029	49.20	<0.09	0.44	15.70	12.00	<0.55	<0.21	<0.33	<0.51	<0.0125	21.91
18	RPHI-BH 19 18	<0.23	<0.012	<0.029	38.40	<0.09	0.28	12.50	30.90	<0.55	<0.21	0.69	<0.51	<0.0125	16.75
19	RPHI-BH 19 19	<0.23	<0.012	<0.029	41.50	<0.09	0.50	21.40	26.00	<0.55	<0.21	<0.33	<0.51	<0.0125	9.93
20	RPHI-BH 19 20	<0.23	<0.012	<0.029	42.80	<0.09	0.56	22.00	23.30	<0.55	<0.21	<0.33	<0.51	<0.0125	10.70
21	RPHI-BH 19 21	<0.23	<0.012	<0.029	39.30	<0.09	0.50	20.10	29.80	<0.55	<0.21	<0.33	<0.51	<0.0125	9.67

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head: Eng. Maysoon Alkhzaheer

Laboratories & Quality Director : Eng. Maysoon Alkhzaheer

Jordan - Amman- Al Byader- 8th Circle . - Telefax +96265504409 - P.O. Box 7
(Web site: www.memr.gov.jo)





The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/Laboratories & Quality Directorate
TEST REPORT
X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F
Client Name & Address: مديرية دراسات المعادن الطبيعية
Sample Type: صلبة
Sample Method: By Client

Reporting Date: 2/03/2022
Test Report No.: 00065/02/2022-CH001-036
Sample Location:-
Testing Date: 27/02/2022

Date of Receipt: 23/02/ 2022

Item	S. ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPHI-BH 20 01	1.79	0.033	0.27	30.70	0.33	5.20	0.55	33.40	2.64	1.00	< 0.33	< 0.51	< 0.0125	24.14
2	RPHI-BH 20 02	< 0.23	< 0.012	0.030	44.40	< 0.09	6.52	0.81	15.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	31.91
3	RPHI-BH 20 03	< 0.23	< 0.012	< 0.029	41.70	< 0.09	1.15	1.35	25.60	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	29.62
4	RPHI-BH 20 04	< 0.23	< 0.012	< 0.029	47.00	< 0.09	0.92	1.15	15.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	34.16
5	RPHI-BH 20 05	< 0.23	< 0.012	< 0.029	44.90	< 0.09	0.53	1.32	20.00	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	32.49
6	RPHI-BH 20 06	< 0.23	< 0.012	0.032	44.50	< 0.09	0.26	2.19	20.90	0.60	< 0.21	< 0.33	< 0.51	< 0.0125	31.27
7	RPHI-BH 20 07	< 0.23	< 0.012	< 0.029	52.40	< 0.09	< 0.058	2.02	7.27	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	37.55
8	RPHI-BH 20 08	< 0.23	< 0.012	< 0.029	46.30	< 0.09	< 0.058	1.63	18.40	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	33.06
9	RPHI-BH 20 09	< 0.23	< 0.012	< 0.029	53.50	< 0.09	0.29	8.43	4.37	< 0.55	< 0.21	< 0.33	0.68	< 0.0125	32.54
10	RPHI-BH 20 10	< 0.23	< 0.012	< 0.029	53.60	< 0.09	0.21	5.60	5.21	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	34.74
11	RPHI-BH 20 11	< 0.23	< 0.012	< 0.029	51.00	< 0.09	0.58	20.10	7.96	< 0.55	< 0.21	< 0.33	2.10	< 0.0125	18.16
12	RPHI-BH 20 12	< 0.23	< 0.012	< 0.029	54.60	< 0.09	0.55	15.60	1.87	< 0.55	< 0.21	< 0.33	1.50	< 0.0125	25.73
13	RPHI-BH 20 13	< 0.23	< 0.012	< 0.029	52.10	< 0.09	0.81	29.80	4.79	< 0.55	< 0.21	< 0.33	3.17	< 0.0125	9.27
14	RPHI-BH 20 14	< 0.23	< 0.012	< 0.029	54.30	< 0.09	0.98	29.80	2.44	< 0.55	< 0.21	< 0.33	1.10	< 0.0125	11.25

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

Reporting Date: 2/03/2022

Test Report No.: 00065/02/2022-CH001-036

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RPHI-BH 20 15	< 0.23	< 0.012	< 0.029	52.00	< 0.09	0.67	15.70	7.07	< 0.55	< 0.21	< 0.33	0.58	< 0.0125	23.74
16	RPHI-BH 20 16	< 0.23	< 0.012	< 0.029	52.70	< 0.09	0.92	32.90	5.11	< 0.55	< 0.21	< 0.33	1.23	< 0.0125	7.04
17	RPHI-BH 20 17	< 0.23	< 0.012	< 0.029	54.90	< 0.09	1.19	36.00	0.70	< 0.55	< 0.21	< 0.33	1.13	< 0.0125	5.99
18	RPHI-BH 20 18	< 0.23	< 0.012	< 0.029	55.20	< 0.09	1.28	35.30	0.16	< 0.55	< 0.21	< 0.33	1.13	< 0.0125	6.90
19	RPHI-BH 20 19	< 0.23	< 0.012	< 0.029	54.70	< 0.09	1.17	33.00	1.34	< 0.55	< 0.21	< 0.33	1.09	< 0.0125	8.59
20	RPHI-BH 20 20	< 0.23	< 0.012	< 0.029	53.00	< 0.09	1.00	35.00	1.94	< 0.55	< 0.21	< 0.33	3.9	< 0.0125	5.06
21	RPHI-BH 20 21	< 0.23	< 0.012	< 0.029	52.10	< 0.09	0.45	16.50	5.39	< 0.55	< 0.21	< 0.33	1.71	< 0.0125	23.75
22	RPHI-BH 20 22	< 0.23	< 0.012	< 0.029	49.70	< 0.09	0.66	22.80	9.81	< 0.55	< 0.21	< 0.33	2.34	< 0.0125	14.66

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head: Eng. Maysoon Alkhzahee

Laboratories & Quality Director : Eng. Maysoon Alkhzahee

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

Jordan - Amman- Al Byader- 8th Circle - Telefax +96265504409 - P.O. Box.7
(Web site: www.memr.gov.jo)



The Hashemite Kingdom of Jordan

Ministry of Energy and Mineral Resources/Laboratories & Quality Directorate

TEST REPORT

X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F

Client Name & Address: مديرية دراسات المعادن الطبيعية

Sample Type: صلبة

Sample Method: By Client

Date of Receipt: 24/02/ 2022

Reporting Date: 6/03/2022

Test Report No.: 00066/02/2022-CH001-037

Sample Location:-

Testing Date: 28/02/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPHI-PH 21-1	1.10	0.013	0.15	38.50	0.096	<0.058	0.77	25.70	1.78	1.03	<0.33	<0.51	<0.0125	30.84
2	RPHI-PH 21-2	0.65	<0.012	0.096	44.20	<0.09	0.23	0.52	18.90	1.05	0.58	<0.33	<0.51	<0.0125	33.67
3	RPHI-PH 21-3	0.66	<0.012	0.095	37.10	<0.09	4.89	0.77	26.60	1.09	0.46	<0.33	<0.51	<0.0125	28.02
4	RPHI-PH 21-4	<0.23	<0.012	<0.029	49.70	<0.09	1.80	0.81	11.10	<0.55	<0.21	<0.33	<0.51	<0.0125	36.12
5	RPHI-PH 21-5	<0.23	<0.012	0.031	46.30	<0.09	2.46	0.70	16.20	<0.55	<0.21	<0.33	<0.51	<0.0125	33.77
6	RPHI-PH 21-6	<0.23	<0.012	<0.029	47.70	<0.09	0.56	1.23	14.00	<0.55	<0.21	0.79	<0.51	<0.0125	35.13
7	RPHI-PH 21-7	<0.23	<0.012	<0.029	37.90	<0.09	<0.058	1.28	33.30	<0.55	<0.21	<0.33	<0.51	<0.0125	27.02
8	RPHI-PH 21-8	<0.23	<0.012	<0.029	35.90	<0.09	<0.058	1.62	36.60	<0.55	<0.21	<0.33	<0.51	<0.0125	25.23
9	RPHI-PH 21-9	0.24	<0.012	<0.029	44.00	<0.09	<0.058	1.56	21.40	0.61	0.40	<0.33	<0.51	<0.0125	31.73
10	RPHI-PH 21-10	0.36	<0.012	0.034	36.70	<0.09	<0.058	2.62	34.60	0.71	<0.21	<0.33	<0.51	<0.0125	24.82
11	RPHI-PH 21-11	<0.23	<0.012	<0.029	44.70	<0.09	<0.058	2.09	20.50	0.58	<0.21	<0.33	<0.51	<0.0125	31.49
12	RPHI-PH 21-12	<0.23	<0.012	<0.029	49.20	<0.09	0.57	14.00	11.80	<0.55	<0.21	<0.33	0.54	<0.0125	23.42
13	RPHI-PH 21-13	<0.23	<0.012	<0.029	52.20	<0.09	0.94	22.60	5.56	<0.55	<0.21	<0.33	0.97	<0.0125	17.45
14	RPHI-PH 21-14	<0.23	<0.012	<0.029	54.00	<0.09	0.54	20.20	3.15	<0.55	<0.21	<0.33	1.00	<0.0125	20.95

وزارة الطاقة والثروة المعدنية

مديرية المختبرات والجودة

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RPHI-PH 21-15	< 0.23	< 0.012	0.03	50.70	< 0.09	0.48	16.40	8.34	0.57	< 0.21	< 0.33	0.67	< 0.0125	22.49
16	RPHI-PH 21-16	< 0.23	< 0.012	< 0.029	54.60	< 0.09	0.95	31.50	0.57	< 0.55	< 0.21	< 0.33	1.57	< 0.0125	10.65
17	RPHI-PH 21-17	< 0.23	< 0.012	< 0.029	54.60	< 0.09	0.55	21.00	0.53	< 0.55	< 0.21	< 0.33	2.38	< 0.0125	20.73
18	RPHI-PH 21-18	< 0.23	< 0.012	< 0.029	54.30	< 0.09	0.81	25.20	0.69	< 0.55	< 0.21	< 0.33	2.81	< 0.0125	16.00
19	RPHI-PH 21-19	< 0.23	< 0.012	< 0.029	53.10	< 0.09	1.07	26.70	0.37	< 0.55	< 0.21	< 0.33	2.99	< 0.0125	15.72
20	RPHI-PH 21-20	< 0.23	< 0.012	< 0.029	48.10	< 0.09	0.83	23.80	11.80	< 0.55	< 0.21	< 0.33	2.59	< 0.0125	12.75
21	RPHI-PH 21-21	< 0.23	< 0.012	< 0.029	53.50	< 0.09	1.26	32.10	0.42	< 0.55	< 0.21	< 0.33	3.77	< 0.0125	8.89
22	RPHI-PH 21-22	< 0.23	< 0.012	< 0.029	50.50	< 0.09	0.77	24.20	7.67	< 0.55	< 0.21	< 0.33	2.40	< 0.0125	14.36
23	RPHI-PH 21-23	< 0.23	< 0.012	< 0.029	51.80	< 0.09	0.86	27.90	4.68	< 0.55	< 0.21	< 0.33	3.08	< 0.0125	11.46
24	RPHI-PH 21-24	< 0.23	< 0.012	< 0.029	46.20	< 0.09	0.56	19.80	17.30	< 0.55	< 0.21	< 0.33	0.47	< 0.0125	15.40
25	RPHI-PH 21-25	< 0.23	< 0.012	< 0.029	39.60	< 0.09	0.55	19.40	28.30	< 0.55	< 0.21	< 0.33	0.32	< 0.0125	11.12
26	RPHI-PH 21-26	< 0.23	< 0.012	< 0.029	44.70	< 0.09	0.77	26.70	19.90	< 0.55	< 0.21	< 0.33	0.58	< 0.0125	7.33
27	RPHI-PH 21-27	< 0.23	< 0.012	< 0.029	31.60	< 0.09	0.42	17.30	43.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	6.94
28	RPHI-PH 21-28	< 0.23	< 0.012	< 0.029	13.00	< 0.09	0.011	4.21	76.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	5.35
29	RPHI-PH 21-29	< 0.23	< 0.012	< 0.029	39.00	< 0.09	1.04	2.92	29.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	26.80

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head: Eng. Maysoon Alkhzahee

Laboratories & Quality Director : Eng. Maysoon Alkhzahee



Jordan - Amman- Al Byader- 8th Circle . - Telefax +96265504408 - P.O. Box 7

(Web site: www.memr.gov.jo)

X-Ray Diffraction Analysis Test Report



Test Report No.	:000666/02/2022 CH07-18	Test Report Date:	07/03/2022
Lab Name	: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources		
Lab Address	: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)		
Client Name	: مديرية در اسات المصادر الطبيعية		
Client Address	:		
Division	: Chemical & Mineral Analysis Lab	Testing Location	: At the Lab facility.
Methods Used	: MEMR002-2020	Lab Ref. Work	: W1-REP-02
		Instruction	Used for: X Ray diffraction analysis
Sampling Method	: By the customer	Sample Reception Date:	24/02/2022
Sample Type	: Solid	Sample Location:	-
Testing Date	:24/02/2022		
Tension (KV)	: 40	Radiation	: Cu
Current (mA)	: 30	Angle Range(2θ)	: (5-70)°
Item	Serial No.	Sample ID	Phase Identification
1	1651	Rph1-BH 21 16	Major Carbonate-fluorapatite , Calcite
			Minor -
			Trace Anhydrite
			Uncertainty (if required) NA

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

X-Ray Diffraction Analysis Test Report



Test Report No. :00066/02/2022 CH07-18

Test Report Date: 07/03/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): **Eng. Kholoud Ayyash**

Eng. Linda Al-Makadmeh

Division Head (Name and Sign): **Eng. Maysoon Al-Khzahee**

Technical Manager (Name and Sign): **Chem. Hanady Al Sharif**

Lab Manager (Name and Sign): **Eng. Maysoon Al-Khzahee**

وزارة الطاقة والصناعة
 مديرية المختبرات والجودة



The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT

X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F
Client Name & Address: مديرية دراسات المعادن الطبيعية
Sample Type: صلب
Sample Method: By Client

Reporting Date: 09/03/2022
Test Report No.: 00063/02/2022-CH001-035
Sample Location:-
Testing Date: 01/03/2022

Date of Receipt: 23/02/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	LOI Wt. %
1	RPH1-BH 22-1	1.39	0.018	0.20	41.80	0.11	<0.058	0.35	19.30	2.19	1.14	<0.33	<0.51	<0.0125	33.48
2	RPH1-BH 22-2	1.06	0.015	0.16	39.20	<0.09	<0.058	0.53	24.60	1.68	1.00	<0.33	<0.51	<0.0125	31.66
3	RPH1-BH 22-3	0.60	<0.012	0.090	41.50	<0.09	<0.058	0.66	24.50	0.97	0.53	<0.33	<0.51	<0.0125	31.07
4	RPH1-BH 22-4	<0.23	<0.012	<0.029	43.70	<0.09	<0.058	0.70	23.20	<0.55	<0.21	<0.33	<0.51	<0.0125	31.86
5	RPH1-BH 22-5	<0.23	<0.012	0.043	42.30	<0.09	0.090	7.20	15.60	<0.55	<0.21	<0.33	<0.51	<0.0125	34.11
6	RPH1-BH 22-6	<0.23	<0.012	<0.029	47.00	<0.09	0.080	0.55	17.20	<0.55	<0.21	<0.33	<0.51	<0.0125	34.81
7	RPH1-BH 22-7	<0.23	<0.012	<0.029	44.20	<0.09	<0.058	0.68	22.30	<0.55	<0.21	<0.33	<0.51	<0.0125	32.59
8	RPH1-BH 22-8	<0.23	<0.012	<0.029	46.80	<0.09	<0.058	0.70	19.20	<0.55	<0.21	<0.33	<0.51	<0.0125	32.98
9	RPH1-BH 22-9	<0.23	<0.012	<0.029	47.10	<0.09	<0.058	1.01	17.20	<0.55	<0.21	<0.33	<0.51	<0.0125	34.32
10	RPH1-BH 22-10	<0.23	<0.012	<0.029	39.20	<0.09	<0.058	1.29	30.60	<0.55	<0.21	<0.33	<0.51	<0.0125	28.45
11	RPH1-BH 22-11	<0.23	<0.012	<0.029	39.00	<0.09	<0.058	1.36	30.10	<0.55	<0.21	<0.33	<0.51	<0.0125	28.80
12	RPH1-BH 22-12	<0.23	<0.012	<0.029	39.30	<0.09	<0.058	2.07	30.00	<0.55	<0.21	<0.33	<0.51	<0.0125	27.83
13	RPH1-BH 22-13	<0.23	<0.012	<0.029	49.00	<0.09	<0.058	2.01	12.90	<0.55	<0.21	<0.33	<0.51	<0.0125	35.33
14	RPH1-BH 22-14	<0.23	<0.012	<0.029	48.00	<0.09	0.15	5.46	13.80	<0.55	<0.21	<0.33	<0.51	<0.0125	31.51

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



Reporting Date: 09/03/2022

Test Report No.: 00063/02/2022-CH001-035

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RPHI-BH 22-15	< 0.23	< 0.012	< 0.029	54.60	< 0.09	0.43	13.10	1.64	< 0.55	< 0.21	< 0.33	1.24	< 0.0125	28.87
16	RPHI-BH 22-16	< 0.23	< 0.012	< 0.029	54.90	< 0.09	0.26	9.62	1.20	< 0.55	< 0.21	< 0.33	0.88	< 0.0125	32.81
17	RPHI-BH 22-17	< 0.23	< 0.012	< 0.029	53.40	< 0.09	0.25	10.00	4.49	< 0.55	< 0.21	< 0.33	0.79	< 0.0125	30.86
18	RPHI-BH 22-18	< 0.23	< 0.012	< 0.029	54.20	< 0.09	0.67	19.60	1.52	< 0.55	< 0.21	< 0.33	1.94	< 0.0125	21.98
19	RPHI-BH 22-19	< 0.23	< 0.012	< 0.029	53.80	< 0.09	1.26	31.00	0.21	< 0.55	< 0.21	< 0.33	3.57	< 0.0125	10.02
20	RPHI-BH 22-20	< 0.23	< 0.012	< 0.029	54.20	< 0.09	1.11	26.40	0.41	< 0.55	< 0.21	< 0.33	2.86	< 0.0125	14.97
21	RPHI-BH 22-21	< 0.23	< 0.012	< 0.029	48.60	< 0.09	0.72	25.20	10.80	< 0.55	< 0.21	< 0.33	2.61	< 0.0125	11.90
22	RPHI-BH 22-22	< 0.23	< 0.012	< 0.029	51.10	< 0.09	1.03	32.40	5.37	< 0.55	< 0.21	< 0.33	3.45	< 0.0125	6.59
23	RPHI-BH 22-23	< 0.23	< 0.012	< 0.029	52.40	< 0.09	0.60	18.80	5.04	< 0.55	< 0.21	< 0.33	1.93	< 0.0125	21.16
24	RPHI-BH 22-24	< 0.23	< 0.012	< 0.029	46.70	< 0.09	0.52	18.10	15.30	< 0.55	< 0.21	< 0.33	1.72	< 0.0125	17.51
25	RPHI-BH 22-25	< 0.23	< 0.012	< 0.029	46.00	< 0.09	0.67	24.10	15.90	< 0.55	< 0.21	< 0.33	2.59	< 0.0125	10.61

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head: Eng. Maysoon Alkhahee

Laboratories & Quality Director : Eng. Maysoon Alkhahee

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

Jordan -Amman- Al Byader- 8th Circle . - Telefax +9625504409 - P.O. Box.7
(Web site: www.memr.gov.jo)





The Hashemite Kingdom of Jordan

Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT

X-RAY SPECTROMETRIC & IOL ANALYSIS

Division Chemical & Mineral Analysis Lab. X.R.F

Client Name & Address: مديرية ترسانة المعادن الطبيعية

Sample Type: صلب

Sample Method: By Client

Date of Receipt: 28/02/2022

Reporting Date: 14/03/2022

Test Report No.: 00067/02/2022-CH 001-042

Sample Location:-

Testing Date: 9/03/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPBH-PH 23A-1	2.74	0.026	0.34	31.10	0.44	0.54	0.57	27.30	4.82	2.32	0.66	< 0.51	< 0.0125	29.06
2	RPBH-PH 23A-2	2.65	0.025	0.36	34.50	0.33	0.59	0.42	23.0	4.54	2.51	0.41	< 0.51	< 0.0125	30.69
3	RPBH-PH 23A-3	1.85	0.015	0.24	39.50	0.17	0.24	0.40	18.20	3.06	2.03	< 0.33	< 0.51	< 0.0125	34.22
4	RPBH-PH 23A-4	1.21	< 0.012	0.16	43.60	0.11	0.076	0.46	15.40	2.01	1.43	< 0.33	< 0.51	< 0.0125	35.52
5	RPBH-PH 23A-5	0.42	< 0.012	0.054	47.00	< 0.09	0.082	0.66	14.40	0.80	0.54	< 0.33	< 0.51	< 0.0125	36.03
6	RPBH-PH 23A-6	< 0.23	< 0.012	0.030	51.00	< 0.09	< 0.058	1.29	8.47	0.59	0.24	< 0.33	< 0.51	< 0.0125	38.19
7	RPBH-PH 23A-7	0.27	< 0.012	0.034	49.70	< 0.09	0.064	3.07	11.10	0.64	< 0.21	< 0.33	< 0.51	< 0.0125	34.89
8	RPBH-PH 23A-8	< 0.23	< 0.012	< 0.029	52.60	< 0.09	< 0.058	1.26	6.51	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	39.04
9	RPBH-PH 23A-9	< 0.23	< 0.012	< 0.029	53.90	< 0.09	0.30	7.45	3.66	< 0.55	< 0.21	< 0.33	0.65	< 0.0125	33.43
10	RPBH-PH 23A-10	< 0.23	< 0.012	< 0.029	54.20	< 0.09	0.18	8.07	2.28	< 0.55	< 0.21	< 0.33	0.85	< 0.0125	33.95
11	RPBH-PH 23A-11	< 0.23	< 0.012	< 0.029	54.50	< 0.09	0.28	9.14	2.25	< 0.55	< 0.21	< 0.33	1.02	< 0.0125	32.63
12	RPBH-PH 23A-12	< 0.23	< 0.012	< 0.029	53.70	< 0.09	0.25	13.50	2.62	< 0.55	< 0.21	< 0.33	1.47	< 0.0125	28.11
13	RPBH-PH 23A-13	< 0.23	< 0.012	< 0.029	54.10	< 0.09	0.53	21.60	1.05	< 0.55	< 0.21	< 0.33	2.30	< 0.0125	20.32
14	RPBH-PH 23A-14	< 0.23	< 0.012	< 0.029	54.30	< 0.09	0.55	20.40	0.55	< 0.55	< 0.21	< 0.33	2.24	< 0.0125	21.84

مديرية ترسانة المعادن الطبيعية
مديرية ترسانة المعادن الطبيعية
مديرية ترسانة المعادن الطبيعية

Reporting Date: 14/03/2022

Test Report No.: 00067/02/2022-CH001-042

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RPHI-PH 23A-15	0.25	< 0.012	0.039	51.90	< 0.09	0.70	27.40	3.07	0.66	< 0.21	< 0.33	3.03	< 0.0125	12.78
16	RPHI-PH 23A-16	< 0.23	< 0.012	< 0.029	54.10	< 0.09	0.33	17.20	2.13	< 0.55	< 0.21	< 0.33	1.71	< 0.0125	24.32
17	RPHI-PH 23A-17	0.60	< 0.012	0.077	39.70	< 0.09	0.15	9.78	25.90	1.23	< 0.21	0.38	0.74	< 0.0125	21.20
18	RPHI-PH 23A-18	0.24	< 0.012	0.034	29.10	< 0.09	0.25	15.20	44.50	< 0.55	< 0.21	0.72	1.28	< 0.0125	7.95

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayem
Eng. Feryal Yosef

Division Head: Eng. Maysoon Alkhazhee

Laboratories & Quality Director : Eng. Maysoon Alkhazhee

Jordan - Amman- Al Byader- 8th Circle . - Telefax +9626504409 - P.O. Box 7
(Web site: www.memr.gov.jo)



The Hashemite Kingdom of Jordan

Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT

X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F

Client Name & Address: مديرية ترسانة المعادن الطبيعية

Sample Type: صلب

Sample Method: By Client

Date of Receipt: 29/02/ 2022

Reporting Date: 15/03/2022

Test Report No.: 00068/02/2022-CH001-041

Sample Location:-

Testing Date: 9/03/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₂ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	LOI Wt. %
1	RPn1-PH 23B-1	0.81	< 0.012	0.12	42.20	< 0.09	7.58	0.70	16.40	1.39	0.71	< 0.33	< 0.51	< 0.0125	29.95
2	RPn1-PH 23B-2	0.48	< 0.012	0.066	36.70	< 0.09	15.10	0.90	20.90	0.88	0.25	0.41	< 0.51	< 0.0125	24.70
3	RPn1-PH 23B-3	0.28	< 0.012	0.037	43.60	< 0.09	3.25	1.40	20.30	0.66	< 0.21	< 0.33	< 0.51	< 0.0125	30.56
4	RPn1-PH 23B-4	< 0.23	< 0.012	< 0.029	40.70	< 0.09	0.95	1.48	27.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	28.47
5	RPn1-PH 23B-5	< 0.23	< 0.012	< 0.029	41.90	< 0.09	0.90	2.77	25.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	28.12
6	RPn1-PH 23B-6	< 0.23	< 0.012	< 0.029	42.50	< 0.09	0.61	4.48	26.00	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	26.16
7	RPn1-PH 23B-7	< 0.23	< 0.012	< 0.029	50.20	< 0.09	0.48	6.58	11.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	30.97
8	RPn1-PH 23B-8	< 0.23	< 0.012	< 0.029	52.70	< 0.09	0.43	8.96	6.31	< 0.55	< 0.21	< 0.33	0.71	< 0.0125	30.66
9	RPn1-PH 23B-9	< 0.23	< 0.012	< 0.029	52.70	< 0.09	0.19	9.19	6.42	< 0.55	< 0.21	< 0.33	0.79	< 0.0125	30.54
10	RPn1-PH 23B-10	< 0.23	< 0.012	< 0.029	53.40	< 0.09	0.83	18.30	2.78	< 0.55	< 0.21	< 0.33	1.98	< 0.0125	22.43
11	RPn1-PH 23B-11	< 0.23	< 0.012	< 0.029	44.90	< 0.09	0.85	22.00	17.20	< 0.55	< 0.21	< 0.33	2.13	< 0.0125	12.49
12	RPn1-PH 23B-12	< 0.23	< 0.012	< 0.029	52.30	< 0.09	0.85	20.10	4.82	< 0.55	< 0.21	< 0.33	2.04	< 0.0125	19.63
13	RPn1-PH 23B-13	< 0.23	< 0.012	< 0.029	51.10	< 0.09	0.52	16.30	6.81	< 0.55	< 0.21	< 0.33	1.68	< 0.0125	23.00
14	RPn1-PH 23B-14	0.26	< 0.012	< 0.029	49.20	< 0.09	1.05	27.00	8.00	0.71	< 0.21	< 0.33	3.02	< 0.0125	10.52

وزارة الطاقة والصناعة والثروة
مديرية المختبرات والجودة

Reporting Date: 15/03/2022

Test Report No.: 00067/02/2022-CH001-041

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RP#1-PH 23B-15	< 0.23	< 0.012	< 0.029	34.70	< 0.09	0.74	20.00	35.40	< 0.55	< 0.21	0.94	1.60	< 0.0125	6.50
16	RP#1-PH 23B-16	< 0.23	< 0.012	< 0.029	23.70	< 0.09	0.39	10.70	56.90	< 0.55	< 0.21	< 0.33	0.61	< 0.0125	7.19
17	RP#1-PH 23B-17	< 0.23	< 0.012	< 0.029	11.90	< 0.09	< 0.58	3.11	78.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	5.69
18	RP#1-PH 23B-18	< 0.23	< 0.012	< 0.029	31.60	< 0.09	< 0.58	2.25	44.00	< 0.55	0.39	< 0.33	< 0.51	< 0.0125	21.60
19	RP#1-PH 23B-19	< 0.23	< 0.012	< 0.029	38.90	< 0.09	< 0.58	2.39	32.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	25.98
20	RP#1-PH 23B-20	< 0.23	< 0.012	< 0.029	45.00	< 0.09	< 0.58	3.56	21.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	29.35
21	RP#1-PH 23B-21	< 0.23	< 0.012	< 0.029	32.20	< 0.09	< 0.58	1.53	43.10	< 0.55	< 0.21	1.12	< 0.51	< 0.0125	21.91
22	RP#1-PH 23B-22	< 0.23	< 0.012	< 0.029	46.10	< 0.09	< 0.58	1.38	20.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	31.60
23	RP#1-PH 23B-23	< 0.23	< 0.012	< 0.029	41.40	< 0.09	< 0.58	1.09	28.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	28.83
24	RP#1-PH 23B-24	< 0.23	< 0.012	< 0.029	38.10	< 0.09	< 0.58	1.35	34.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	26.11
25	RP#1-PH 23B-25	< 0.23	< 0.012	< 0.029	43.00	< 0.09	< 0.58	0.90	25.40	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	30.26
26	RP#1-PH 23B-26	< 0.23	< 0.012	< 0.029	38.60	< 0.09	< 0.58	1.25	33.00	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	26.86
27	RP#1-PH 23B-27	< 0.23	< 0.012	< 0.029	37.70	< 0.09	< 0.58	1.16	33.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	27.34

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayem

Eng. Feryal Yosef

Laboratories & Quality Director : Eng. Maysoun Alkhaznee

Division Head: Eng. Maysoun Alkhaznee

Jordan -Amman- Al Byader- 8th Circle - Tel: +96255504409 - P.O. Box 7

(Web site: www.memr.gov.jo)

وزارة الطاقة والبنية التحتية
مديرية المختبرات والجودة



The Hashemite Kingdom of Jordan

Ministry of Energy and Mineral Resources/Laboratories & Quality Directorate

TEST REPORT

X-RAY SPECTROMETRIC LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F

Client Name & Address: مديرية ترسانة المعادن الطبيعية

Sample Type: صلب

Sample Method: By Client

Date of Receipt: 28/02/2022

Reporting Date: 17/03/2022

Test Report No.: 00069/02/2022-CH001-043

Sample Location:-

Testing Date: 9/03/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	LOI Wt. %
1	RPH1-PH 24-1	0.99	0.018	0.14	43.60	0.12	0.14	3.42	18.40	1.63	0.84	<0.33	<0.51	<0.0125	30.73
2	RPH1-PH 24-2	0.38	<0.012	0.071	51.30	<0.09	0.20	2.45	7.70	0.71	0.43	<0.33	<0.51	<0.0125	36.79
3	RPH1-PH 24-3	<0.23	<0.012	<0.029	53.10	<0.09	1.15	7.36	4.68	<0.55	<0.21	<0.33	0.57	<0.0125	32.75
4	RPH1-PH 24-4	<0.23	<0.012	<0.029	49.20	<0.09	1.03	13.90	12.10	<0.55	<0.21	<0.33	0.19	<0.0125	23.30
5	RPH1-PH 24-5	<0.23	<0.012	<0.029	41.30	<0.09	0.88	10.40	25.60	<0.55	<0.21	<0.33	0.94	<0.0125	20.67
6	RPH1-PH 24-6	<0.23	<0.012	<0.029	50.80	<0.09	0.95	27.50	8.51	<0.55	<0.21	<0.33	0.81	<0.0125	11.12
7	RPH1-PH 24-7	<0.23	<0.012	<0.029	51.10	<0.09	0.83	24.80	8.58	<0.55	<0.21	<0.33	0.76	<0.0125	13.77
8	RPH1-PH 24-8	<0.23	<0.012	<0.029	49.10	<0.09	0.78	27.50	11.40	<0.55	<0.21	<0.33	0.82	<0.0125	9.82
9	RPH1-PH 24-9	<0.23	<0.012	<0.029	44.20	<0.09	1.07	26.20	20.00	<0.55	<0.21	<0.33	0.73	<0.0125	7.36
10	RPH1-PH 24-10	<0.23	<0.012	<0.029	17.30	<0.09	0.15	8.81	68.20	<0.55	<0.21	<0.33	0.51	<0.0125	4.08
11	RPH1-PH 24-11	<0.23	<0.012	<0.029	17.40	<0.09	<0.058	9.29	68.40	<0.55	<0.21	0.34	<0.51	<0.0125	3.82
12	RPH1-PH 24-12	<0.23	<0.012	<0.029	10.60	<0.09	<0.058	2.87	80.20	<0.55	<0.21	0.62	<0.51	<0.0125	4.58
13	RPH1-PH 24-13	<0.23	<0.012	<0.029	25.20	<0.09	<0.058	1.87	56.40	<0.55	<0.21	<0.33	<0.51	<0.0125	16.18
14	RPH1-PH 24-14	<0.23	<0.012	<0.029	28.60	<0.09	<0.058	2.04	50.40	<0.55	<0.21	<0.33	<0.51	<0.0125	18.93

وزارة الطاقة والمعادن

مديرية المختبرات والجودة

Reporting Date: 17/03/2022

Test Report No.: 00067/02/2022-CH001-042

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RP#1-PH 24-15	< 0.23	< 0.012	< 0.029	36.00	< 0.09	0.13	6.09	36.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	20.88
16	RP#1-PH 24-16	< 0.23	< 0.012	< 0.029	42.60	< 0.09	< 0.058	1.48	22.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	33.18
17	RP#1-PH 24-17	< 0.23	< 0.012	< 0.029	43.10	< 0.09	< 0.058	1.15	25.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	30.39
18	RP#1-PH 24-18	< 0.23	< 0.012	< 0.029	46.30	< 0.09	< 0.058	1.27	19.40	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	33.05
19	RP#1-PH 24-19	< 0.23	< 0.012	< 0.029	39.90	< 0.09	< 0.058	1.25	33.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	25.50
20	RP#1-PH 24-20	< 0.23	< 0.012	< 0.029	26.70	< 0.09	< 0.058	2.16	52.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	17.80
21	RP#1-PH 24-21	< 0.23	< 0.012	< 0.029	29.90	< 0.09	< 0.058	1.41	48.10	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	20.48
22	RP#1-PH 24-22	< 0.23	< 0.012	< 0.029	46.30	< 0.09	< 0.058	1.37	18.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	33.26
23	RP#1-PH 24-23	< 0.23	< 0.012	< 0.029	33.30	< 0.09	< 0.058	1.40	41.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	23.20
24	RP#1-PH 24-24	< 0.23	< 0.012	< 0.029	41.80	< 0.09	< 0.058	0.95	26.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	30.27

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayem
Eng. Feryal Yosef

Laboratories & Quality Director : Eng. Maysoon Alkhazbee

Jordan - Amman- Al Byader- 8th Circle . - Telefax +96265504409 - P.O. Box:7
(Web site: www.memrf.gov.jo)



The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT
X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F.
Client Name & Address: مديرية دراسات المعاصر الطبيعية
Sample Type: صلب
Sample Method: By Client
Date of Receipt: 28/02/ 2022
Reporting Date: 21/03/2022
Test Report No.: 00070/02/2022-CH001-044
Sample Location:-
Testing Date: 14/03/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPH1-PH 25-1	0.83	0.013	0.12	41.50	<0.09	0.69	0.62	19.80	1.39	1.91	<0.33	<0.51	<0.0125	32.96
2	RPH1-PH 25-2	0.27	<0.012	0.049	44.20	<0.09	9.72	1.09	13.20	0.57	0.50	<0.33	<0.51	<0.0125	30.37
3	RPH1-PH 25-3	<0.23	<0.012	<0.029	47.00	<0.09	1.09	1.30	16.40	<0.55	0.35	<0.33	<0.51	<0.0125	33.25
4	RPH1-PH 25-4	<0.23	<0.012	<0.029	39.00	<0.09	0.41	1.26	29.00	<0.55	0.36	<0.33	<0.51	<0.0125	29.31
5	RPH1-PH 25-5	0.27	<0.012	0.033	38.70	<0.09	0.23	2.36	30.40	0.68	0.37	<0.33	<0.51	<0.0125	26.90
6	RPH1-PH 25-6	0.27	<0.012	0.042	40.00	<0.09	0.17	1.98	28.60	0.62	0.27	<0.33	<0.51	<0.0125	28.04
7	RPH1-PH 25-7	<0.23	<0.012	<0.029	49.70	<0.09	0.23	4.00	11.5	<0.55	0.24	<0.33	<0.51	<0.0125	33.48
8	RPH1-PH 25-8	<0.23	<0.012	<0.029	50.70	<0.09	0.062	3.80	9.80	<0.55	0.38	<0.33	<0.51	<0.0125	34.71
9	RPH1-PH 25-9	<0.23	<0.012	<0.029	51.10	<0.09	0.062	5.28	9.37	<0.55	<0.21	<0.33	<0.51	<0.0125	33.70
10	RPH1-PH 25-10	<0.23	<0.012	<0.029	49.90	<0.09	0.16	8.14	11.70	<0.55	<0.21	<0.33	0.60	<0.0125	29.43
11	RPH1-PH 25-11	<0.23	<0.012	<0.029	52.40	<0.09	0.57	17.70	5.50	<0.55	<0.21	<0.33	1.79	<0.0125	21.77
12	RPH1-PH 25-12	<0.23	<0.012	<0.029	53.40	<0.09	0.86	20.40	2.09	<0.55	<0.21	<0.33	2.32	<0.0125	20.68
13	RPH1-PH 25-13	<0.23	<0.012	<0.029	49.00	<0.09	0.76	19.60	10.30	<0.55	<0.21	<0.33	2.09	<0.0125	18.10
14	RPH1-PH 25-14	<0.23	<0.012	<0.029	50.10	<0.09	0.74	29.40	7.87	<0.55	<0.21	<0.33	3.25	<0.0125	8.52

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

Reporting Date: 21/03/2022

Test Report No.: 00070/02/2022-CH001-044

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RPH1-PH 25-15	<0.23	<0.012	0.03	36.40	<0.09	0.16	6.80	35.70	0.061	<0.21	<0.33	0.21	<0.0125	20.61
16	RPH1-PH 25-16	<0.23	<0.012	<0.029	51.30	<0.09	1.12	32.10	4.16	<0.55	<0.21	1.76	0.95	<0.0125	8.37
17	RPH1-PH 25-17	<0.23	<0.012	<0.029	40.70	<0.09	0.74	24.40	26.30	<0.55	<0.21	0.71	0.48	<0.0125	6.50
18	RPH1-PH 25-18	<0.23	<0.012	<0.029	24.40	<0.09	0.27	13.20	56.20	<0.55	<0.21	0.55	<0.51	<0.0125	5.29
19	RPH1-PH 25-19	<0.23	<0.012	<0.029	28.10	<0.09	0.37	15.90	49.30	<0.55	<0.21	0.75	<0.51	<0.0125	5.45
20	RPH1-PH 25-20	<0.23	<0.012	<0.029	26.10	<0.09	0.26	12.40	52.50	<0.55	<0.21	1.19	<0.51	<0.0125	7.47
21	RPH1-PH 25-21	<0.23	<0.012	<0.029	33.70	<0.09	0.18	9.53	40.70	<0.55	<0.21	<0.33	<0.51	<0.0125	15.83
22	RPH1-PH 25-22	<0.23	<0.012	<0.029	32.90	<0.09	0.30	10.50	40.10	<0.55	<0.21	0.95	0.71	<0.0125	14.51
23	RPH1-PH 25-23	<0.23	<0.012	<0.029	37.80	<0.09	0.40	10.80	32.70	<0.55	<0.21	<0.33	0.73	<0.0125	17.53
24	RPH1-PH 25-24	<0.23	<0.012	<0.029	50.60	<0.09	1.23	32.20	5.11	<0.55	<0.21	<0.33	3.84	<0.0125	6.77

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head: Eng. Maysoon Alkhzahee

Laboratories & Quality Director : Eng. Maysoon Alkhzahee

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

Jordan -Amman- Al Byader- 8th Circle . - Telefax +96265504409 - P.O. Box.7
(Web site: www.memr.gov.jo)



The Hashemite Kingdom of Jordan
Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT
X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F.
Client Name & Address: مديرية ترسانة المعادن الطبيعية
Sample Type: صلب
Sample Method: By Client

Date of Receipt: 03/04/2022

Reporting Date: 14/04/2022
Test Report No.: 00104/04/2022-CH 001-049
Sample Location:-
Testing Date: 10/04/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	LOI Wt. %
1	RP/1-BH26-1	1.37	0.02	0.18	37.20	0.15	<0.058	0.31	26.70	2.01	1.16	<0.33	<0.51	<0.0125	30.80
2	RP/1-BH26-2	0.74	<0.012	0.11	39.40	<0.09	<0.058	0.33	26.20	1.10	0.85	<0.33	<0.51	<0.0125	31.25
3	RP/1-BH26-3	0.49	<0.012	0.083	43.60	<0.09	0.082	0.56	20.70	0.74	0.49	<0.33	<0.51	<0.0125	33.24
4	RP/1-BH26-4	0.40	<0.012	0.067	46.80	<0.09	1.21	3.50	15.00	0.59	0.36	<0.33	<0.51	<0.0125	31.96
5	RP/1-BH26-5	<0.23	<0.012	0.030	43.60	<0.09	0.32	3.95	22.80	<0.55	<0.21	<0.33	<0.51	<0.0125	28.58
6	RP/1-BH26-6	<0.23	<0.012	0.035	50.80	<0.09	0.28	9.63	8.93	<0.55	<0.21	<0.33	0.74	<0.0125	29.03
7	RP/1-BH26-7	<0.23	<0.012	0.033	51.00	<0.09	0.22	7.87	8.56	<0.55	<0.21	<0.33	0.57	<0.0125	31.21
8	RP/1-BH26-8	0.24	<0.012	0.049	49.20	<0.09	0.14	7.00	11.60	<0.55	0.21	<0.33	<0.51	<0.0125	30.69
9	RP/1-BH26-9	<0.23	<0.012	<0.029	52.70	<0.09	0.50	17.00	4.43	<0.55	<0.21	<0.33	1.88	<0.0125	23.13
10	RP/1-BH26-10	<0.23	<0.012	0.031	53.00	<0.09	0.59	16.40	3.28	<0.55	<0.21	<0.33	1.67	<0.0125	24.32
11	RP/1-BH26-11	<0.23	<0.012	<0.029	46.10	<0.09	0.62	17.10	16.00	<0.55	<0.21	<0.33	1.38	<0.0125	18.53
12	RP/1-BH26-12	<0.23	<0.012	<0.029	46.40	<0.09	0.61	23.20	14.50	<0.55	<0.21	<0.33	2.34	<0.0125	12.50
13	RP/1-BH26-13	<0.23	<0.012	<0.029	48.70	<0.09	0.60	22.80	11.30	<0.55	<0.21	<0.33	2.35	<0.0125	14.09
14	RP/1-BH26-14	<0.23	<0.012	<0.029	49.80	<0.09	0.72	24.50	9.21	<0.55	<0.21	<0.33	2.40	<0.0125	13.17

تمت التحليل في
مديرية ترسانة المعادن الطبيعية
بالتاريخ 10/04/2022

Reporting Date: 14/04/2022

Test Report No.: 00104/04/2022-CH001-049

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
15	RPN1-BN26-15	< 0.23	< 0.012	< 0.029	48.80	< 0.09	0.76	24.80	10.60	< 0.55	< 0.21	< 0.33	2.46	< 0.0125	12.24
16	RPN1-BN26-16	< 0.23	< 0.012	< 0.029	23.20	< 0.09	0.16	8.89	58.10	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	8.50
17	RPN1-BN26-17	< 0.23	< 0.012	< 0.029	16.50	< 0.09	< 0.058	6.20	69.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	6.77
18	RPN1-BN26-18	< 0.23	< 0.012	< 0.029	9.29	< 0.09	< 0.058	1.61	83.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	4.86
19	RPN1-BN26-19	< 0.23	< 0.012	< 0.029	19.40	< 0.09	< 0.058	3.02	66.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	11.07
20	RPN1-BN26-20	< 0.23	< 0.012	< 0.029	33.60	< 0.09	< 0.058	1.21	41.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	23.67
21	RPN1-BN26-21	< 0.23	< 0.012	< 0.029	35.70	< 0.09	0.15	5.50	37.00	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	21.23
22	RPN1-BN26-22	< 0.23	< 0.012	< 0.029	39.70	< 0.09	0.26	7.61	28.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	22.44
23	RPN1-BN26-23	< 0.23	< 0.012	< 0.029	48.00	< 0.09	< 0.058	2.98	15.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	33.24
24	RPN1-BN26-24	< 0.23	< 0.012	< 0.029	40.60	< 0.09	< 0.058	2.85	28.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	27.52
25	RPN1-BN26-25	< 0.23	< 0.012	< 0.029	40.80	< 0.09	< 0.058	1.41	28.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	28.80
26	RPN1-BN26-26	< 0.23	< 0.012	< 0.029	35.70	< 0.09	< 0.058	3.58	37.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	23.07
27	RPN1-BN26-27	< 0.23	< 0.012	< 0.029	40.80	< 0.09	< 0.058	3.01	28.10	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	27.50
28	RPN1-BN26-28	< 0.23	< 0.012	0.033	46.80	< 0.09	< 0.058	1.04	18.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	33.36
29	RPN1-BN26-29	< 0.23	< 0.012	< 0.029	46.40	< 0.09	< 0.058	1.24	18.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	33.60

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.

Analyzed by: Eng. Nidal Tayem

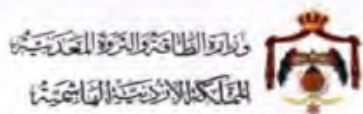
Eng. Feryal Yosef

Laboratories & Quality Director : Eng. Maysoon Alkhazhee

Division Head: Eng. Maysoon Alkhazhee

Jordan - Amman- Al Byader- 8th Circle . - Telefax +96255504409 - P.O. Box 7

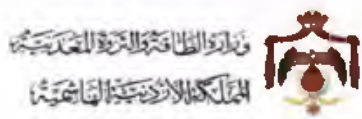
(Web site: www.memr.gov.jo)



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00115/04/2022 -CH001-055								Test Report Date : 17/04/2022							
Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources															
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman – Jordan (www.memr.gov.jo)															
Client Name : مديرية دراسات المصادر الطبيعية															
Client Address : -															
Division : Chemical & Mineral Analysis Lab / XRF Lab								Testing Location : At the Lab facility.							
Methods Used : BS EN 15309-2007								Lab Ref. Work Instruction : WI-REP-01				Used for : XRF spectrometric analysis & LOI			
Sampling Method : By the customer								Sample Reception Date : 10/04/2022							
Sample Type : صلبة								Sample Location : -							
Testing Date : 11/04/2022															

Item	S.ID	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPH1-BH27-1	2.70	0.038	0.36	23.70	0.48	0.44	0.47	44.60	4.17	1.62	< 0.33	< 0.51	< 0.0125	21.37
2	RPH1-BH27-2	1.39	0.016	0.19	36.80	0.13	0.065	0.30	27.70	2.12	1.16	< 0.33	< 0.51	< 0.0125	30.15
3	RPH1-BH27-3	1.00	< 0.012	0.14	40.70	< 0.09	< 0.058	0.33	23.00	1.52	1.02	< 0.33	< 0.51	< 0.0125	32.25
4	RPH1-BH27- 4	0.32	< 0.012	0.055	45.00	< 0.09	0.62	0.43	18.70	0.56	0.39	< 0.33	< 0.51	< 0.0125	33.91
5	RPH1-BH27- 5	< 0.23	< 0.012	< 0.029	46.50	< 0.09	0.19	0.46	17.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	34.71
6	RPH1-BH27- 6	< 0.23	< 0.012	< 0.029	47.60	< 0.09	0.33	0.65	16.10	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	34.97
7	RPH1-BH27- 7	< 0.23	< 0.012	< 0.029	47.00	< 0.09	0.42	0.98	16.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	34.16
8	RPH1-BH27- 8	< 0.23	< 0.012	0.034	44.90	< 0.09	0.33	0.99	19.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	33.02
9	RPH1-BH27 -9	< 0.23	< 0.012	0.032	41.90	< 0.09	0.46	1.49	25.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	29.92
10	RPH1-BH27-10	< 0.23	< 0.012	< 0.029	46.20	< 0.09	0.13	2.21	18.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	32.40
11	RPH1-BH27-11	< 0.23	< 0.012	< 0.029	43.90	< 0.09	< 0.058	1.95	22.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	30.86
12	RPH1-BH27- 12	< 0.23	< 0.012	< 0.029	50.10	< 0.09	0.24	7.26	10.70	< 0.55	< 0.21	< 0.33	0.58	< 0.0125	30.72



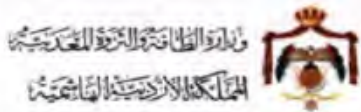
X-Ray Spectrometric Analysis Test Report

Test Report No. : 00115/04/2022 -CH001-055

Test Report Date : 17/04/2022

Item	S.ID.	Fe ₂ O ₃ Wt.%	MnO Wt.%	TiO ₂ Wt.%	CaO Wt.%	K ₂ O Wt.%	SO ₃ Wt.%	P ₂ O ₅ Wt.%	SiO ₂ Wt.%	Al ₂ O ₃ Wt.%	MgO Wt.%	Na ₂ O Wt.%	F Wt.%	U Wt.%	L.O.I Wt.%
13	RPH1-BH27- 13	< 0.23	< 0.012	< 0.029	48.80	< 0.09	0.16	6.61	13.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	30.29
14	RPH1-BH27- 14	< 0.23	< 0.012	< 0.029	51.20	< 0.09	0.38	14.90	8.05	< 0.55	< 0.21	< 0.33	1.57	< 0.0125	23.79
15	RPH1-BH27- 15	< 0.23	< 0.012	< 0.029	52.10	< 0.09	0.22	9.92	7.04	< 0.55	< 0.21	< 0.33	0.87	< 0.0125	29.78
16	RPH1-BH27- 16	< 0.23	< 0.012	< 0.029	51.50	< 0.09	0.25	11.30	8.15	< 0.55	< 0.21	< 0.33	0.90	< 0.0125	27.74
17	RPH1-BH27- 17	< 0.23	< 0.012	< 0.029	49.50	< 0.09	0.30	13.60	12.30	< 0.55	< 0.21	< 0.33	1.17	< 0.0125	22.97
18	RPH1-BH27- 18	< 0.23	< 0.012	< 0.029	52.20	< 0.09	0.83	25.50	4.28	< 0.55	< 0.21	< 0.33	2.76	< 0.0125	14.28
19	RPH1-BH27- 19	< 0.23	< 0.012	< 0.029	51.50	< 0.09	0.55	18.90	6.68	< 0.55	< 0.21	< 0.33	1.86	< 0.0125	20.29
20	RPH1-BH27- 20	< 0.23	< 0.012	< 0.029	53.20	< 0.09	0.76	21.40	2.90	< 0.55	< 0.21	< 0.33	2.37	< 0.0125	19.26
21	RPH1-BH27- 21	< 0.23	< 0.012	< 0.029	53.00	< 0.09	0.76	20.80	2.68	< 0.55	< 0.21	< 0.33	2.02	< 0.0125	20.61
22	RPH1-BH27-22	< 0.23	< 0.012	< 0.029	52.40	< 0.09	0.61	18.80	5.45	< 0.55	< 0.21	< 0.33	1.82	< 0.0125	20.85
23	RPH1-BH27-23	< 0.23	< 0.012	< 0.029	51.30	< 0.09	0.83	23.60	6.18	< 0.55	< 0.21	< 0.33	2.48	< 0.0125	15.46
24	RPH1-BH27-24	< 0.23	< 0.012	< 0.029	36.80	< 0.09	0.46	15.30	33.30	< 0.55	< 0.21	< 0.33	1.12	< 0.0125	12.86
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00115/04/2022 -CH001-055

Test Report Date : 17/04/2022

Notes:

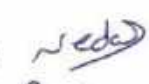
- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

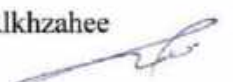
Opinions and Interpretations:

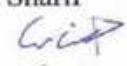
NA.....
.....
.....

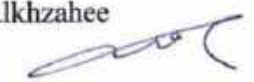
Additional Comments:

NA.....
.....
.....

Analyzed by (Name and Sign) : Eng. Nidal Tayyem 
Eng. Feryal Yosef 

Division Head (Name and Sign) : Eng. Maysoon Alkhzahee 

Technical Manager (Name and Sign) : Chemist Hanady Al Sharif 

Lab Manager (Name and Sign) : Eng. Maysoon Alkhzahee 





X-Ray Spectrometric Analysis Test Report

Test Report No.	: 00117/04/2022 -CH001-056	Test Report Date	: 12/05/2022
Lab Name	: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources		
Lab Address	: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)		
Client Name	: مديرية دراسات المعادن الطبيعية		
Client Address	: عمان		
Division	: Chemical & Mineral Analysis Lab / XRF Lab	Testing Location	: At the Lab facility.
Methods Used	: BS EN 15309-2007	Lab Ref. Work Instruction	: WI-REP-01
		Used for	: XRF spectrometric analysis & LOI
Sampling Method	: By the customer	Sample Reception Date	: 17/04/2022
Sample Type	: صلبة	Sample Location	:
Testing Date	: 10/05/2022		

Item	S.ID.	Fe ₂ O ₃ Wt.%	MnO Wt.%	TiO ₂ Wt.%	CaO Wt.%	K ₂ O Wt.%	SO ₃ Wt.%	P ₂ O ₅ Wt.%	SiO ₂ Wt.%	Al ₂ O ₃ Wt.%	MgO Wt.%	Na ₂ O Wt.%	F Wt.%	U Wt.%	LOI Wt.%
1	RPH1-BH28-1	3.57	0.040	0.41	14.50	0.54	<0.058	0.43	57.30	5.46	1.90	0.61	<0.51	<0.0125	15.27
2	RPH1-BH28-2	2.64	0.022	0.30	14.70	0.26	0.14	0.41	62.00	3.92	1.40	<0.33	<0.51	<0.0125	14.20
3	RPH1-BH28-3	1.98	0.015	0.24	20.00	0.16	0.36	0.42	55.10	2.82	1.15	<0.33	<0.51	<0.0125	17.72
4	RPH1-BH28-4	0.98	<0.012	0.13	27.20	<0.09	<0.058	0.47	47.80	1.42	0.59	<0.33	<0.51	<0.0125	21.30
5	RPH1-BH28-5	0.82	<0.012	0.13	38.70	<0.09	<0.058	0.33	27.90	1.26	0.67	<0.33	<0.51	<0.0125	30.20
6	RPH1-BH28-6	0.85	<0.012	0.13	36.10	<0.09	0.090	0.40	30.50	1.33	0.82	0.91	<0.51	<0.0125	28.86
7	RPH1-BH28-7	<0.23	<0.012	0.030	49.10	<0.09	<0.058	0.38	12.60	<0.55	0.24	<0.33	<0.51	<0.0125	37.12
8	RPH1-BH28-8	<0.23	<0.012	<0.029	49.80	<0.09	<0.058	1.13	12.20	<0.55	<0.21	<0.33	<0.51	<0.0125	36.28
9	RPH1-BH28-9	0.27	<0.012	0.044	41.10	<0.09	<0.058	1.65	26.80	<0.55	0.21	<0.33	<0.51	<0.0125	29.43
10	RPH1-BH28-10	<0.23	<0.012	0.032	49.00	<0.09	<0.058	0.65	12.90	<0.55	0.22	<0.33	<0.51	<0.0125	36.59
11	RPH1-BH28-11	<0.23	<0.012	<0.029	53.80	<0.09	<0.058	0.85	4.75	<0.55	<0.21	<0.33	<0.51	<0.0125	40.19
12	RPH1-BH28-12	<0.23	<0.012	<0.029	48.40	<0.09	0.14	8.09	13.80	<0.55	<0.21	<0.33	0.58	<0.0125	28.45



X-Ray Spectrometric Analysis Test Report

Test Report No. :

00117/04/2022 -CH001-056

Test Report Date : 12/05/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
13	RPH1-BH28-13	< 0.23	< 0.012	0.029	50.20	< 0.09	0.075	8.18	10.60	< 0.55	< 0.21	< 0.33	0.62	< 0.0125	29.76
14	RPH1-BH28-14	< 0.23	< 0.012	< 0.029	53.30	< 0.09	0.16	15.40	3.87	< 0.55	< 0.21	< 0.33	1.55	< 0.0125	25.29
15	RPH1-BH28-15	< 0.23	< 0.012	< 0.029	54.10	< 0.09	< 0.058	8.35	3.65	< 0.55	< 0.21	< 0.33	0.72	< 0.0125	32.97
16	RPH1-BH28-16	< 0.23	< 0.012	< 0.029	54.80	< 0.09	0.069	10.00	2.18	< 0.55	< 0.21	< 0.33	0.84	< 0.0125	31.86
17	RPH1-BH28-17	< 0.23	< 0.012	< 0.029	52.70	< 0.09	0.35	21.00	4.18	< 0.55	< 0.21	< 0.33	2.19	< 0.0125	19.27
18	RPH1-BH28-18	< 0.23	< 0.012	< 0.029	52.90	< 0.09	0.36	21.40	3.52	< 0.55	< 0.21	< 0.33	2.40	< 0.0125	19.22
19	RPH1-BH28-19	< 0.23	< 0.012	< 0.029	54.30	< 0.09	0.50	22.40	0.99	< 0.55	< 0.21	< 0.33	2.36	< 0.0125	19.24
20	RPH1-BH28-20	< 0.23	< 0.012	< 0.029	50.30	< 0.09	0.58	22.40	7.44	< 0.55	< 0.21	< 0.33	2.25	< 0.0125	16.43
21	RPH1-BH28-21	< 0.23	< 0.012	< 0.029	51.60	< 0.09	0.72	28.20	4.42	< 0.55	< 0.21	< 0.33	3.10	< 0.0125	11.75
22	RPH1-BH28-22	< 0.23	< 0.012	< 0.029	44.70	< 0.09	0.37	18.50	18.40	< 0.55	< 0.21	< 0.33	1.71	< 0.0125	16.07
23	RPH1-BH28-23	< 0.23	< 0.012	< 0.029	44.90	< 0.09	0.45	21.80	17.80	< 0.55	< 0.21	< 0.33	1.95	< 0.0125	12.79
24	RPH1-BH28-24	< 0.23	< 0.012	< 0.029	40.00	< 0.09	0.20	12.50	28.60	< 0.55	< 0.21	< 0.33	0.96	< 0.0125	17.54
25	RPH1-BH28-25	< 0.23	< 0.012	< 0.029	48.30	< 0.09	0.48	22.30	11.90	< 0.55	< 0.21	< 0.33	2.26	< 0.0125	14.60
26	RPH1-BH28-26	< 0.23	< 0.012	< 0.029	18.50	< 0.09	< 0.058	8.03	66.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	6.21
27	RPH1-BH28-27	< 0.23	< 0.012	< 0.029	20.00	< 0.09	< 0.058	8.60	63.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	6.65
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

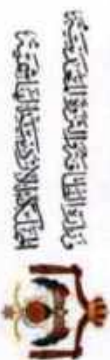
This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.

وزارة الطاقة
المعدنية
شركة البترول
والمعادن

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00117/04/2022 -CH001-056	Test Report Date : 12/05/2022
Notes: - The results were done on dry basis. - The results stated in this test report relates only to the tested sample. - This test report is only valid with stamp and signature. - The results stated in this test report shall not be reproduced except in full, without written approval of the lab. - The laboratory does not apply the decision rule.	
Opinions and Interpretations: NA..... 	
Additional Comments: NA..... 	
Analyzed by (Name and Sign) : Eng. Nidal Tayyem  Eng. Feryal Yosef 	Division Head (Name and Sign) : Eng. Maysoon Alkhzahee 
Technical Manager (Name and Sign) : Chemist Hanady Al Sharif 	Lab Manager (Name and Sign) : Eng. Maysoon Alkhzahee 

وزارة الطاقة والمياه
 مديرية المختبرات والمختبرية



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00128/04/2022 -CH001-061

Test Report Date : 18/05/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية دراسات المعادن الطبيعية
Client Address :

Division : Chemical & Mineral Analysis Lab / XRF Lab

Testing Location : At the Lab facility.

Methods Used : BS EN 15309-2007 Lab Ref. Work Instruction

: WL-REP-01

Used for : XRF spectrometric analysis & LOI

Sampling Method : By the customer

Sample Type : صلبة

Sample Reception Date : 26/04/2022

Testing Date : 15/05/2022

Sample Location : -

Item	S.ID.	Fe ₂ O ₃ Wt.%	MnO Wt.%	TiO ₂ Wt.%	CaO Wt.%	K ₂ O Wt.%	SO ₃ Wt.%	P ₂ O ₅ Wt.%	SiO ₂ Wt.%	Al ₂ O ₃ Wt.%	MgO Wt.%	Na ₂ O Wt.%	F Wt.%	U Wt.%	L.O.I Wt.%
1	RPH1-BH29-1	1.31	0.016	0.18	34.80	0.12	< 0.058	0.41	32.00	1.91	1.06	< 0.33	< 0.51	< 0.0125	28.19
2	RPH1-BH29-2	0.46	< 0.012	0.71	46.50	< 0.09	3.27	0.39	14.10	0.72	0.46	< 0.33	< 0.51	< 0.0125	34.01
3	RPH1-BH29-3	0.24	< 0.012	0.048	47.30	< 0.09	3.25	0.49	14.30	< 0.55	0.29	< 0.33	< 0.51	< 0.0125	33.64
4	RPH1-BH29-4	0.23	< 0.012	0.040	47.20	< 0.09	2.11	7.51	14.30	< 0.55	0.25	< 0.33	0.61	< 0.0125	27.33
5	RPH1-BH29-5	< 0.23	< 0.012	< 0.029	49.30	< 0.09	0.61	4.67	13.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	30.86
6	RPH1-BH29-6	< 0.23	< 0.012	< 0.029	54.40	< 0.09	0.37	7.58	3.81	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	33.07
7	RPH1-BH29-7	< 0.23	< 0.012	< 0.029	54.30	< 0.09	< 0.058	2.19	5.79	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	37.43
8	RPH1-BH29-8	< 0.23	< 0.012	< 0.029	54.80	< 0.09	0.53	13.80	2.22	< 0.55	< 0.21	< 0.33	1.54	< 0.0125	26.82
9	RPH1-BH29-9	< 0.23	< 0.012	< 0.029	54.40	< 0.09	1.09	19.00	1.61	< 0.55	< 0.21	< 0.33	1.97	< 0.0125	21.76
10	RPH1-BH29-10	< 0.23	< 0.012	< 0.029	48.70	< 0.09	0.68	15.00	13.7	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	21.12
11	RPH1-BH29-11	< 0.23	< 0.012	< 0.029	53.30	< 0.09	0.88	22.10	5.79	< 0.55	< 0.21	< 0.33	0.98	< 0.0125	16.67
12	RPH1-BH29-12	< 0.23	< 0.012	< 0.029	52.90	< 0.09	1.03	27.50	4.92	< 0.55	< 0.21	< 0.33	1.13	< 0.0125	12.35



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00128/04/2022 -CH001-061

Test Report Date : 18/05/2022

[illegible]

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00128/04/2022 -CH001-061

Test Report Date : 18/05/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head (Name and Sign)

: Eng. Maysoon Alkhzaheer

Technical Manager (Name and Sign) : Chemist Hanady Al Sharif

Lab Manager (Name and Sign)

: Eng. Maysoon Alkhzaheer

وزارة الصحة والسكان
مديرية المختبرات والجودة

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00172/05/2022 -CH001-076

Test Report Date : 06/06/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
 Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name :
 Client Address :
 : -

Division : Chemical & Mineral Analysis Lab / XRF Lab

Testing Location : At the Lab facility.

Methods Used : BS EN 15309-2007 Lab Ref. Work Instruction : WL-REP-01 Used for : XRF spectrometric analysis & LOI

Sampling Method : By the customer
 Sample Type : صلبة

Sample Reception Date : 30/05/2022

Testing Date : 05/06/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPHI-BH31A-1	1.00	0.016	0.13	29.20	< 0.09	0.16	0.40	44.00	1.48	0.76	< 0.33	< 0.51	< 0.0125	22.78
2	RPHI-BH31A-2	0.69	< 0.012	0.090	22.80	< 0.09	< 0.058	0.44	56.40	0.81	0.43	< 0.33	< 0.51	< 0.0125	18.36
3	RPHI-BH31A-3	0.47	< 0.012	0.074	30.60	< 0.09	< 0.058	0.78	46.30	0.63	0.30	< 0.33	< 0.51	< 0.0125	20.80
4	RPHI-BH31A-4	0.33	< 0.012	0.061	37.40	< 0.09	< 0.058	0.43	33.20	< 0.55	0.23	< 0.33	< 0.51	< 0.0125	27.83
5	RPHI-BH31A-5	0.37	< 0.012	0.066	39.90	< 0.09	0.16	0.38	28.80	< 0.55	0.28	< 0.33	< 0.51	< 0.0125	29.60
6	RPHI-BH31A-6	< 0.23	< 0.012	0.051	46.20	< 0.09	< 0.058	0.36	18.10	< 0.55	0.24	< 0.33	< 0.51	< 0.0125	34.41
7	RPHI-BH31A-7	< 0.23	< 0.012	0.036	50.00	< 0.09	< 0.058	0.47	12.20	< 0.55	0.21	< 0.33	< 0.51	< 0.0125	36.72
8	RPHI-BH31A-8	< 0.28	< 0.012	0.036	49.80	< 0.09	< 0.058	0.46	12.20	< 0.55	0.21	< 0.33	< 0.51	< 0.0125	36.93
9	RPHI-BH31A-9	< 0.23	< 0.012	0.030	45.80	< 0.09	< 0.058	0.70	19.60	< 0.55	0.21	< 0.33	< 0.51	< 0.0125	33.17
10	RPHI-BH31A-10	< 0.23	< 0.012	0.030	45.40	< 0.09	< 0.058	0.65	19.70	< 0.55	0.21	< 0.33	< 0.51	< 0.0125	33.50
11	RPHI-BH31A-11	< 0.23	< 0.012	< 0.029	42.90	< 0.09	< 0.058	0.81	22.10	< 0.55	0.21	< 0.33	< 0.51	< 0.0125	33.50
12	RPHI-BH31A-12	< 0.23	< 0.012	0.032	47.50	< 0.09	< 0.058	1.66	14.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	34.46

وزارة الطاقة والموارد المعدنية

مديرية المختبرات والجودة

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00172/05/2022 -CH001-076

Test Report Date : 06/06/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
13	RPHI-BH31A-13	0.26	< 0.012	0.040	46.20	< 0.09	< 0.058	2.45	18.80	0.57	< 0.21	< 0.33	< 0.51	< 0.0125	31.46
14	RPHI-BH31A-14	< 0.23	< 0.012	< 0.029	45.70	< 0.09	< 0.058	1.58	20.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	31.88
15	RPHI-BH31A-15	0.42	< 0.012	0.060	48.30	< 0.09	0.25	10.90	11.80	0.79	0.27	< 0.33	0.89	< 0.0125	26.25
16	RPHI-BH31A-16	0.47	< 0.012	0.067	48.10	< 0.09	0.29	11.80	12.20	0.82	0.29	< 0.33	1.14	< 0.0125	24.84
17	RPHI-BH31A-17	0.31	< 0.012	0.045	49.90	< 0.09	0.20	8.99	9.75	0.60	0.22	< 0.33	0.76	< 0.0125	29.07
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00172/05/2022 -CH001-076

Test Report Date : 06/06/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayem
Eng. Feryal Yosef

Technical Manager (Name and Sign) : Chemist Hanady Al Sharif

Division Head (Name and Sign) : Eng. Maysoon Alkhazhace

Lab Manager (Name and Sign) : Eng. Maysoon Alkhazhace

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00173/05/2022 -CH001-077

Test Report Date : 06/06/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية دراسات المصادر الطبيعية
Client Address : -

Division : Chemical & Mineral Analysis Lab / XRF Lab

Testing Location : At the Lab facility.

Methods Used : BS EN 15309-2007 Lab Ref. Work Instruction : WL-REP-01 Used for : XRF spectrometric analysis & LOI

Sampling Method : By the customer
Sample Type : صلبة
Testing Date : 05/06/2022

Sample Reception Date : 30/05/2022
Sample Location : -

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	LOI Wt. %
1	RPH1-BH31B-1	0.82	< 0.012	0.12	44.70	< 0.09	< 0.058	0.29	16.20	1.33	0.85	< 0.33	< 0.51	< 0.0125	35.67
2	RPH1-BH31B-2	0.35	< 0.012	0.058	49.80	< 0.09	< 0.058	0.34	9.57	0.62	0.62	< 0.33	< 0.51	< 0.0125	38.59
3	RPH1-BH31B-3	0.47	< 0.012	0.075	46.20	< 0.09	0.72	0.70	14.50	0.76	0.86	< 0.33	< 0.51	< 0.0125	35.71
4	RPH1-BH31B-4	< 0.23	< 0.012	< 0.029	51.30	< 0.09	< 0.058	0.62	9.42	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	38.09
5	RPH1-BH31B-5	< 0.23	< 0.012	0.030	50.70	< 0.09	0.37	1.06	9.69	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	37.34
6	RPH1-BH31B-6	< 0.23	< 0.012	0.029	51.40	< 0.09	0.19	1.15	8.43	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	37.99
7	RPH1-BH31B-7	< 0.23	< 0.012	< 0.029	54.60	< 0.09	0.30	7.06	2.01	< 0.55	< 0.21	< 0.33	0.54	< 0.0125	35.06
8	RPH1-BH31B-8	< 0.23	< 0.012	< 0.029	53.40	< 0.09	0.12	4.07	4.42	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	37.05
9	RPH1-BH31B-9	< 0.23	< 0.012	< 0.029	53.10	< 0.09	0.17	7.16	5.35	< 0.55	< 0.21	< 0.33	0.63	< 0.0125	33.22
10	RPH1-BH31B-10	< 0.23	< 0.012	< 0.029	49.50	< 0.09	0.19	8.20	11.40	< 0.55	< 0.21	< 0.33	0.47	< 0.0125	29.97
11	RPH1-BH31B-11	< 0.23	< 0.012	< 0.029	42.20	< 0.09	0.38	13.40	23.80	< 0.55	< 0.21	< 0.33	1.12	< 0.0125	18.62
12	RPH1-BH31B-12	< 0.23	< 0.012	< 0.029	44.60	< 0.09	0.40	13.90	19.90	< 0.55	< 0.21	< 0.33	1.12	< 0.0125	19.82



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00173/05/2022 -CH001-077

Test Report Date : 06/06/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
13	RPHI-BH31B-13	< 0.23	< 0.012	< 0.029	30.70	< 0.09	0.27	12.40	42.80	< 0.55	< 0.21	< 0.33	0.94	< 0.0125	12.69
14	RPHI-BH31B-14	< 0.23	< 0.012	< 0.029	52.40	< 0.09	1.25	32.90	2.03	< 0.55	< 0.21	< 0.33	3.55	< 0.0125	7.82
15	RPHI-BH31B-15	< 0.23	< 0.012	< 0.029	52.30	0.16	1.15	32.60	1.47	< 0.55	< 0.21	1.28	3.65	< 0.0125	7.24
16	RPHI-BH31B-16	< 0.23	< 0.012	< 0.029	52.50	< 0.09	1.07	33.40	2.46	< 0.55	< 0.21	< 0.33	3.62	< 0.0125	6.90
17	RPHI-BH31B-17	< 0.23	< 0.012	< 0.029	53.50	< 0.09	1.01	34.60	0.51	< 0.55	< 0.21	< 0.33	4.13	< 0.0125	6.23
18	RPHI-BH31B-18	< 0.23	< 0.012	< 0.029	53.20	< 0.09	0.99	34.10	1.02	< 0.55	< 0.21	< 0.33	4.08	< 0.0125	6.53
19	RPHI-BH31B-19	< 0.23	< 0.012	< 0.029	50.50	< 0.09	0.88	31.40	6.10	< 0.55	< 0.21	< 0.33	3.51	< 0.0125	7.46
20	RPHI-BH31B-20	< 0.23	< 0.012	< 0.029	51.10	< 0.09	1.07	32.40	4.62	< 0.55	< 0.21	< 0.33	3.82	< 0.0125	6.84
21	RPHI-BH31B-21	< 0.23	< 0.012	< 0.029	50.30	< 0.09	1.04	32.10	5.75	< 0.55	< 0.21	0.44	3.43	< 0.0125	6.72
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00173/05/2022 -CH001-077

Test Report Date : 06/06/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayem
Eng. Feryal Yosef

Nidal Tayem
Feryal Yosef

Division Head (Name and Sign)

: Eng. Maysoun Alkhazae

Maysoun Alkhazae

Technical Manager (Name and Sign) : Chemist Hanady Al Sharif

Hanady Al Sharif

Lab Manager (Name and Sign)

: Eng. Maysoun Alkhazae

Maysoun Alkhazae

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00150/05/2022 -CH001-068

Test Report Date : 29/05/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية ترسانات المعادن الطبيعية
Client Address : -

Division : Chemical & Mineral Analysis Lab / XRF Lab

Testing Location : At the Lab facility.

Methods Used : BS EN 15309-2007 Lab Ref. Work Instruction : WL-REP-01 Used for : XRF spectrometric analysis & LOI

Sampling Method : By the customer
Sample Type : صلبة
Testing Date : 25/05/2022

Sample Reception Date : 19/05/2022
Sample Location :

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPHI-BH32-1	1.20	0.019	0.18	40.90	0.12	<0.058	0.40	21.50	1.84	0.89	<0.33	<0.51	<0.0125	32.92
2	RPHI-BH32-2	0.77	<0.012	0.13	45.60	<0.09	0.37	0.66	14.30	1.31	0.71	<0.33	<0.51	<0.0125	36.10
3	RPHI-BH32-3	0.31	<0.012	0.060	44.10	<0.09	1.42	0.39	18.70	<0.55	0.33	<0.33	<0.51	<0.0125	34.16
4	RPHI-BH32-4	<0.23	<0.012	0.037	47.80	<0.09	0.96	0.39	13.90	<0.55	0.23	<0.33	<0.51	<0.0125	36.21
5	RPHI-BH32-5	<0.23	<0.012	0.031	46.30	<0.09	0.51	0.48	16.70	<0.55	<0.21	<0.33	<0.51	<0.0125	35.37
6	RPHI-BH32-6	<0.23	<0.012	<0.029	51.90	<0.09	0.25	0.62	7.87	<0.55	<0.21	<0.33	<0.51	<0.0125	39.09
7	RPHI-BH32-7	<0.23	<0.012	<0.029	51.90	<0.09	0.17	0.46	7.58	<0.55	<0.21	<0.33	<0.51	<0.0125	39.59
8	RPHI-BH32-8	<0.23	<0.012	<0.029	50.30	<0.09	<0.058	0.57	11.00	<0.55	<0.21	<0.33	<0.51	<0.0125	37.83
9	RPHI-BH32-9	<0.23	<0.012	<0.029	47.70	<0.09	<0.058	0.75	16.30	<0.55	<0.21	<0.33	<0.51	<0.0125	34.92
10	RPHI-BH32-10	<0.23	<0.012	<0.029	47.00	<0.09	<0.058	0.71	16.80	<0.55	<0.21	<0.33	<0.51	<0.0125	34.83
11	RPHI-BH32-11	<0.23	<0.012	<0.029	37.40	<0.09	<0.058	0.97	33.60	0.57	<0.21	<0.33	<0.51	<0.0125	27.11
12	RPHI-BH32-12	<0.23	<0.012	0.035	39.90	<0.09	<0.058	0.95	28.90	0.56	<0.21	<0.33	<0.51	<0.0125	29.19

مدير ترسانات المعادن الطبيعية

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00150/05/2022 -CH001-068

Test Report Date : 29/05/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TI ₂ O ₃ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
13	RPH1-BH32-13	0.28	< 0.012	0.033	38.00	< 0.09	< 0.058	2.21	31.50	0.66	< 0.21	< 0.33	< 0.51	< 0.0125	27.16
14	RPH1-BH32-14	< 0.23	< 0.012	< 0.029	45.80	< 0.09	< 0.058	1.21	19.00	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	33.21
15	RPH1-BH32-15	< 0.23	< 0.012	< 0.029	46.40	< 0.09	0.16	4.07	16.70	< 0.55	0.29	< 0.33	< 0.51	< 0.0125	31.45
16	RPH1-BH32-16	< 0.23	< 0.012	< 0.029	52.90	< 0.09	0.49	11.70	3.68	< 0.55	< 0.21	< 0.33	1.16	< 0.0125	29.70
17	RPH1-BH32-17	< 0.23	< 0.012	< 0.029	47.10	< 0.09	0.16	5.61	16.40	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	29.95
18	RPH1-BH32-18	< 0.23	< 0.012	< 0.029	54.40	< 0.09	0.35	10.50	3.19	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	31.08
19	RPH1-BH32-19	< 0.23	< 0.012	< 0.029	40.20	< 0.09	0.20	7.03	28.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	23.42
20	RPH1-BH32-20	< 0.23	< 0.012	< 0.029	39.50	< 0.09	0.23	9.53	29.10	< 0.55	< 0.21	< 0.33	0.66	< 0.0125	20.60
21	RPH1-BH32-21	< 0.23	< 0.012	< 0.029	54.10	< 0.09	0.66	17.40	4.66	< 0.55	< 0.21	< 0.33	1.82	< 0.0125	21.12
22	RPH1-BH32-22	< 0.23	< 0.012	< 0.029	51.90	< 0.09	0.44	11.60	7.59	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	27.82
23	RPH1-BH32-23	< 0.23	< 0.012	< 0.029	28.50	< 0.09	0.11	6.15	48.60	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	15.54
24	RPH1-BH32-24	< 0.23	< 0.012	< 0.029	31.40	< 0.09	0.21	8.53	43.00	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	16.53
25	RPH1-BH32-25	< 0.23	< 0.012	< 0.029	50.00	< 0.09	1.04	28.20	7.81	< 0.55	< 0.21	< 0.33	2.93	< 0.0125	9.96
26	RPH1-BH32-26	< 0.23	< 0.012	< 0.029	52.70	< 0.09	0.93	24.90	3.40	< 0.55	< 0.21	< 0.33	2.35	< 0.0125	15.70
27	RPH1-BH32-27	< 0.23	< 0.012	< 0.029	30.40	< 0.09	0.34	13.20	44.80	< 0.55	< 0.21	< 0.33	1.01	< 0.0125	10.20
28	RPH1-BH32-28	< 0.23	< 0.012	< 0.029	17.60	< 0.09	0.059	6.27	68.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	7.14
29	RPH1-BH32-29	< 0.23	< 0.012	< 0.029	23.20	< 0.09	0.24	10.60	57.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	7.22
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.

وزارة الطاقة والبنية التحتية
مديرية المختبرات والجودة

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00150/05/2022 -CH001-068

Test Report Date : 29/05/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head (Name and Sign) : Eng. Mayssoon Alkhazhace

Technical Manager (Name and Sign) : Chemist Hanady Al Sharif

Lab Manager (Name and Sign) : Eng. Mayssoon Alkhazhace

وزارة الطاقة والثروة المعدنية

مديرية المختبرات والجودة

X-Ray Diffraction Analysis Test Report



Test Report No. : 00150/05/2022 CH07-37

Test Report Date: 30/05/2022

Lab Name

: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources

Lab Address

: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman – Jordan (www.memr.gov.jo)

Client Name

: مديرية نرسات المعاصر الطبيعية

Client Address

: -

Division

: Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used

: MEMR002-2020

Lab Ref. Work Instruction

: WL-REP-02

Used for: X Ray diffraction analysis

Sampling Method

: By the customer

Sample Type

: Solid

Testing Date

: 22/05/2022

Sample Reception Date: 19/05/2022

Sample Location: -

Tension (KV)

: 40

Radiation

: Cu

Current (mA)

: 30

Angle Range(2 θ)

: (5-70)°

Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
1	1698	BH-32 (25)	Calcite, Carbonate-fluorapatite	-	Quartz, Anhydrite	NA
2	1699	BH-32 (26)	Calcite, Carbonate-fluorapatite	-	Quartz, Anhydrite	NA

وزارة الطاقة والثروة المعدنية

مديرية النسابات والنسابة

X-Ray Diffraction Analysis Test Report



Test Report No. : 00150/05/2022 CH07-37

Test Report Date: 30/05/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A

Additional Comments:

N/A

Analyzed by (Name and Sign): Eng. Kholoud Ayyash

Eng. Linda Al-Makhdmech

Division Head (Name and Sign): Eng. Maysoon Al-Khazae

Technical Manager (Name and Sign): Chem. Handay Al Sharif

Handwritten signature of Chem. Handay Al Sharif

Lab Manager (Name and Sign): Eng. Maysoon Al-Khazae

Handwritten signature of Eng. Maysoon Al-Khazae

وزارة الطاقة والثروة المعدنية
 مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No.	: 00151/05/2022 -CH001-071	Test Report Date	: 30/05/2022
Lab Name	: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources		
Lab Address	: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)		
Client Name	: مديرية دراسات المصادر الطبيعية		
Client Address	: -		
Division	: Chemical & Mineral Analysis Lab / XRF Lab	Testing Location	: At the Lab facility.
Methods Used	: BS EN 15309-2007	Lab Ref. Work Instruction	: WI-REP-01
		Used for	: XRF spectrometric analysis & LOI
Sampling Method	: By the customer	Sample Reception Date	: 19/05/2022
Sample Type	: صلبة	Sample Location	: -
Testing Date	: 29/05/2022		

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPH1-BH33-1	1.42	0.019	0.19	37.70	0.16	< 0.058	0.38	26.30	2.21	1.11	< 0.33	< 0.51	< 0.0125	30.49
2	RPH1-BH33-2	0.60	< 0.012	0.098	47.70	< 0.09	0.26	0.34	12.30	0.98	0.64	< 0.33	< 0.51	< 0.0125	37.02
3	RPH1-BH33-3	< 0.23	< 0.012	0.043	48.70	< 0.09	0.68	0.47	13.60	< 0.55	< 0.23	< 0.33	< 0.51	< 0.0125	35.71
4	RPH1-BH33-4	< 0.23	< 0.012	< 0.029	35.20	< 0.09	0.17	0.60	37.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	25.84
5	RPH1-BH33-5	< 0.23	< 0.012	< 0.029	37.40	< 0.09	0.33	0.66	34.10	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	27.13
6	RPH1-BH33-6	< 0.23	< 0.012	< 0.029	47.50	< 0.09	0.10	0.88	16.40	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	34.63
7	RPH1-BH33-7	< 0.23	< 0.012	< 0.029	46.20	< 0.09	< 0.058	0.76	18.40	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	34.14
8	RPH1-BH33-8	0.28	< 0.012	0.036	50.00	< 0.09	< 0.058	1.60	10.70	0.69	0.22	< 0.33	< 0.51	< 0.0125	36.41
9	RPH1-BH33-9	< 0.23	< 0.012	0.030	40.30	< 0.09	< 0.058	2.02	28.40	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	28.30
10	RPH1-BH33-10	< 0.23	< 0.012	< 0.029	52.40	< 0.09	< 0.058	1.05	7.52	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	38.55
11	RPH1-BH33-11	0.27	< 0.012	< 0.029	53.10	< 0.09	0.065	3.20	4.73	< 0.55	0.31	< 0.33	< 0.51	< 0.0125	37.53
12	RPH1-BH33-12	< 0.23	< 0.012	< 0.029	52.80	< 0.09	0.23	6.91	5.69	< 0.55	< 0.21	< 0.33	0.77	< 0.0125	33.30

وزارة الطاقة والثروة المعدنية



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00151/05/2022 -CH001-071

Test Report Date : 30/05/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
13	RPH1-BH33-13	<0.23	<0.012	<0.029	52.90	<0.09	0.24	9.24	5.36	<0.55	<0.21	<0.33	0.86	<0.0125	31.23
14	RPH1-BH33-14	<0.23	<0.012	<0.029	36.30	<0.09	0.22	8.51	35.90	<0.55	<0.21	<0.33	0.68	<0.0125	18.17
15	RPH1-BH33-15	<0.23	<0.012	<0.029	50.40	<0.09	0.43	12.00	9.75	<0.55	<0.21	<0.33	1.03	<0.0125	26.14
16	RPH1-BH33-16	<0.23	<0.012	<0.029	50.70	<0.09	0.42	10.60	8.34	<0.55	<0.21	<0.33	0.83	<0.0125	28.35
17	RPH1-BH33-17	<0.23	<0.012	<0.029	29.70	<0.09	0.39	11.20	46.10	<0.55	<0.21	<0.33	0.77	<0.0125	11.33
18	RPH1-BH33-18	<0.23	<0.012	<0.029	41.60	<0.09	0.41	24.80	24.30	<0.55	<0.21	<0.33	2.57	<0.0125	6.30
19	RPH1-BH33-19	<0.23	<0.012	<0.029	51.10	<0.09	0.92	32.80	5.40	<0.55	<0.21	<0.33	3.81	<0.0125	5.87
20	RPH1-BH33-20	<0.23	<0.012	<0.029	34.30	<0.09	0.44	17.20	37.80	<0.55	<0.21	<0.33	1.29	<0.0125	8.92
21	RPH1-BH33-21	<0.23	<0.012	<0.029	41.60	<0.09	0.43	16.40	25.10	<0.55	<0.21	<0.33	1.38	<0.0125	14.91
22	RPH1-BH33-22	<0.23	<0.012	<0.029	34.90	<0.09	0.37	14.70	37.20	<0.55	<0.21	<0.33	1.04	<0.0125	11.66
23	RPH1-BH33-23	<0.23	<0.012	<0.029	26.00	<0.09	0.15	9.77	52.20	<0.55	<0.21	<0.33	0.57	<0.0125	10.67
24	RPH1-BH33-24	<0.23	<0.012	<0.029	35.50	<0.09	0.29	12.30	36.50	<0.55	<0.21	<0.33	0.81	<0.0125	14.47
25	RPH1-BH33-25	<0.23	<0.012	<0.029	27.40	<0.09	0.14	9.20	50.70	<0.55	<0.21	<0.33	<0.51	<0.0125	11.47
26	RPH1-BH33-26	<0.23	<0.012	<0.029	27.40	<0.09	0.27	12.40	50.70	<0.55	<0.21	<0.33	0.77	<0.0125	8.35
27	RPH1-BH33-27	<0.23	<0.012	<0.029	10.80	<0.09	<0.058	3.81	81.10	<0.55	<0.21	<0.33	<0.51	<0.0125	4.18
28	RPH1-BH33-28	<0.23	<0.012	<0.029	11.30	<0.09	<0.058	3.45	80.70	<0.55	<0.21	<0.33	<0.51	<0.0125	4.51
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.

وزارة الطاقة والمياه
المملكة العربية السعودية

مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00151/05/2022 -CH001-071

Test Report Date : 30/05/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....
.....
.....
.....

Additional Comments:

NA.....
.....
.....
.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head (Name and Sign) : Eng. Maysoon Alkhzahee

Technical Manager (Name and Sign)

: Chemist Hanady Al Sharif

Lab Manager (Name and Sign) : Eng. Maysoon Alkhzahee

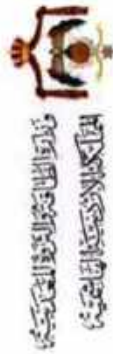
وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

X-Ray Diffraction Analysis Test Report



Test Report No.	: 00151/05/2022 CH07-38	Test Report Date:	30/05/2022			
Lab Name	: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources					
Lab Address	: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)					
Client Name	: مديرية دراسات المصادر الطبيعية					
Client Address	: -					
Division	: Chemical & Mineral Analysis Lab					
Methods Used	: MEMR002-2020	Lab Ref. Work Instruction	: WI-REP-02			
Used for:	X Ray diffraction analysis					
Sampling Method	: By the customer					
Sample Type	: Solid					
Testing Date	: 22 /05/2022					
Sample Reception Date:	19 /05/2022					
Sample Location:	-					
Tension (KV)	: 40	Radiation	: Cu			
Current (mA)	: 30	Angle Range(2θ)	: (5-70)°			
Item	Serial No.	Sample ID	Phase Identification		Uncertainty (if required)	
			Major	Minor	Trace	
I	1700	BH-33 (16)	Calcite	Carbonate-fluorapatite	Quartz	NA

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



X-Ray Diffraction Analysis Test Report



Test Report No. : 00151/05/2022 CH07-38

Test Report Date: 30/05/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): **Eng.Kholoud Ayyash**

Eng.linda Al-Makadmeh

Technical Manager (Name and Sign): **Chem. Hanady Al Sharif**

Division Head (Name and Sign): **Eng.Maysoon Al-Khzaheh**

Lab Manager (Name and Sign): **Eng.Maysoon Al-Khzaheh**

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00174/05/2022 -CH001-082

Test Report Date : 09/06/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية ندراسات المعادن الطبيعية
Client Address : -

Division : Chemical & Mineral Analysis Lab / XRF Lab

Testing Location : At the Lab facility.

Methods Used : BS EN 15309-2007 Lab Ref. Work Instruction : WL-REP-01 Used for : XRF spectrometric analysis & LOI

Sampling Method : By the customer
Sample Type : صلبة

Sample Reception Date : 30/05/2022

Testing Date : 07/06/2022

Sample Location : -

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	LOI Wt. %
1	RPH1-BH34-1	2.91	0.038	0.41	22.20	0.54	< 0.058	0.84	45.50	4.60	1.86	< 0.33	< 0.51	< 0.0125	20.48
2	RPH1-BH34-2	0.643	< 0.012	0.095	44.80	< 0.09	0.13	0.54	16.10	1.04	0.73	< 0.33	< 0.51	< 0.0125	35.93
3	RPH1-BH34-3	0.36	< 0.012	0.061	48.10	< 0.09	0.33	0.38	11.90	0.62	0.45	< 0.33	< 0.51	< 0.0125	37.74
4	RPH1-BH34-4	0.23	< 0.012	0.048	49.70	< 0.09	2.03	0.37	10.20	< 0.55	0.36	< 0.33	< 0.51	< 0.0125	36.69
5	RPH1-BH34-5	< 0.23	< 0.012	< 0.029	53.00	< 0.09	0.51	0.60	5.19	< 0.55	0.22	< 0.33	< 0.51	< 0.0125	40.02
6	RPH1-BH34-6	< 0.23	< 0.012	< 0.029	53.40	< 0.09	0.19	0.87	5.82	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	39.26
7	RPH1-BH34-7	< 0.23	< 0.012	0.031	53.30	< 0.09	< 0.058	0.67	5.35	< 0.55	0.22	< 0.33	< 0.51	< 0.0125	39.78
8	RPH1-BH34-8	< 0.23	< 0.012	< 0.029	44.70	< 0.09	< 0.058	1.43	20.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	32.26
9	RPH1-BH34-9	< 0.23	< 0.012	< 0.029	45.20	< 0.09	0.27	1.08	19.60	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	33.11
10	RPH1-BH34-10	0.26	< 0.012	< 0.029	49.70	< 0.09	< 0.058	2.00	12.00	0.56	< 0.21	< 0.33	< 0.51	< 0.0125	35.38
11	RPH1-BH34-11	< 0.23	< 0.012	< 0.029	51.10	< 0.09	0.22	7.00	8.01	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	32.22
12	RPH1-BH34-12	< 0.23	< 0.012	< 0.029	53.80	< 0.09	0.38	10.20	4.23	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	30.32

مديرية المختبرات والجودة

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00174/05/2022 -CH001-082

Test Report Date : 09/06/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
13	RPHI-BH34-13	< 0.23	< 0.012	< 0.029	54.10	< 0.09	0.73	19.20	1.28	< 0.55	< 0.21	< 0.33	2.08	< 0.0125	22.30
14	RPHI-BH34-14	< 0.23	< 0.012	< 0.029	53.30	< 0.09	0.61	14.80	3.99	< 0.55	< 0.21	< 0.33	1.61	< 0.0125	25.61
15	RPHI-BH34-15	< 0.23	< 0.012	< 0.029	53.70	< 0.09	0.57	18.00	2.30	< 0.55	< 0.21	< 0.33	1.88	< 0.0125	23.43
16	RPHI-BH34-16	< 0.23	< 0.012	< 0.029	46.20	< 0.09	0.14	6.17	16.40	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	30.31
17	RPHI-BH34-17	0.27	< 0.012	< 0.029	48.80	< 0.09	0.91	25.20	10.80	< 0.55	< 0.21	< 0.33	2.41	< 0.0125	11.06
18	RPHI-BH34-18	< 0.23	< 0.012	0.030	52.00	< 0.09	0.95	23.10	4.72	< 0.55	< 0.21	< 0.33	2.56	< 0.0125	16.04
19	RPHI-BH34-19	< 0.23	< 0.012	< 0.029	50.90	< 0.09	0.57	17.00	8.97	< 0.55	< 0.21	< 0.33	1.63	< 0.0125	20.42
20	RPHI-BH34-20	< 0.23	< 0.012	< 0.029	52.30	< 0.09	0.90	19.80	3.94	< 0.55	< 0.21	< 0.33	1.83	< 0.0125	20.66
21	RPHI-BH34-21	0.33	< 0.012	0.035	48.60	< 0.09	0.76	17.60	10.80	< 0.55	< 0.21	< 0.33	1.78	< 0.0125	19.61
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.

وزارة الطاقة والمياه
 مديرية المختبرات والتجربة



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00174/05/2022-CH001-082

Test Report Date : 09/06/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayyem
Eng. Feryal Yosef

Nidal Tayyem
Feryal Yosef

Division Head (Name and Sign) : Eng. Maysoon Alkhazbee

Maysoon Alkhazbee

Technical Manager (Name and Sign) : Chemist Hanady Al Sharif

Hanady Al Sharif

Lab Manager (Name and Sign) : Eng. Maysoon Alkhazbee

بإدارة المختبر
بإدارة المختبر



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00180/06/2022 -CH001-083 Test Report Date : 09/06/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية دراسات المصادر الطبيعية
Client Address : -

Division : Chemical & Mineral Analysis Lab / XRF Lab Testing Location : At the Lab facility.

Methods Used	: BS EN 15309-2007	Lab Ref. Work Instruction	: WL-REP-01	Used for	: XRF spectrometric analysis & LOI
Sampling Method	: By the customer	Sample Reception Date	: 02/06/2022		
Sample Type	: صلبة	Sample Location	: -		
Testing Date	: 08/06/2022				

Item	S.ID.	FeO ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	LOI Wt. %
1	RPH1-BH35-1	0.74	< 0.012	0.12	41.50	< 0.09	4.35	0.50	18.80	1.12	0.72	< 0.33	< 0.51	< 0.0125	32.10
2	RPH1-BH35-2	0.69	< 0.012	0.12	42.80	< 0.09	4.81	0.35	16.60	0.99	0.64	< 0.33	< 0.51	< 0.0125	32.90
3	RPH1-BH35-3	0.86	< 0.012	0.14	41.50	< 0.09	5.16	0.35	16.50	1.28	0.81	< 0.33	< 0.51	< 0.0125	33.36
4	RPH1-BH35-4	< 0.23	< 0.012	< 0.029	39.60	< 0.09	1.51	0.50	28.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	29.16
5	RPH1-BH35-5	< 0.23	< 0.012	< 0.029	41.90	< 0.09	0.54	0.58	26.10	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	30.72
6	RPH1-BH35-6	< 0.23	< 0.012	< 0.029	49.10	< 0.09	0.49	0.46	13.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	36.31
7	RPH1-BH35-7	< 0.23	< 0.012	< 0.029	49.40	< 0.09	0.24	0.75	12.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	36.44
8	RPH1-BH35-8	0.28	< 0.012	< 0.029	48.10	< 0.09	0.25	0.95	15.00	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	35.15
9	RPH1-BH35-9	< 0.23	< 0.012	< 0.029	51.70	< 0.09	< 0.058	0.88	7.69	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	38.96
10	RPH1-BH35-10	< 0.23	< 0.012	< 0.029	47.20	< 0.09	< 0.058	0.97	16.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	34.46
11	RPH1-BH35-11	< 0.23	< 0.012	< 0.029	48.00	< 0.09	< 0.058	2.00	14.00	0.58	0.35	< 0.33	< 0.51	< 0.0125	34.86
12	RPH1-BH35-12	< 0.23	< 0.012	< 0.029	52.50	< 0.09	0.085	2.59	9.45	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	34.53



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00180/06/2022 -CH001-083		Test Report Date : 09/06/2022													
Item	S.ID.	Fe ₂ O ₃ Wt.%	MnO Wt.%	TiO ₂ Wt.%	CaO Wt.%	K ₂ O Wt.%	SO ₃ Wt.%	P ₂ O ₅ Wt.%	SiO ₂ Wt.%	Al ₂ O ₃ Wt.%	MgO Wt.%	Na ₂ O Wt.%	F Wt.%	U Wt.%	LOI Wt.%
13	RPH1-BH35-13	<0.23	<0.012	<0.029	53.70	<0.09	<0.058	1.70	4.83	<0.55	0.21	<0.33	<0.51	<0.0125	38.98
14	RPH1-BH35-14	<0.23	<0.012	<0.029	52.90	<0.09	0.76	15.10	3.44	<0.55	<0.21	<0.33	1.76	<0.0125	25.74
15	RPH1-BH35-15	<0.23	<0.012	<0.029	54.80	<0.09	0.48	10.50	0.86	<0.55	<0.21	<0.33	1.00	<0.0125	32.12
16	RPH1-BH35-16	<0.23	<0.012	<0.029	54.20	<0.09	0.84	20.50	0.95	<0.55	<0.21	<0.33	2.25	<0.0125	21.07
17	RPH1-BH35-17	<0.23	<0.012	<0.029	39.30	<0.09	0.27	6.39	29.20	<0.55	<0.21	<0.33	<0.51	<0.0125	24.08
18	RPH1-BH35-18	<0.23	<0.012	<0.029	48.10	<0.09	0.80	17.90	12.20	<0.55	<0.21	<0.33	1.75	<0.0125	19.02
19	RPH1-BH35-19	<0.23	<0.012	<0.029	47.10	<0.09	0.42	11.00	14.80	<0.55	<0.21	<0.33	1.00	<0.0125	25.44
20	RPH1-BH35-20	<0.23	<0.012	<0.029	47.30	<0.09	0.71	15.00	14.20	<0.55	<0.21	<0.33	1.31	<0.0125	21.19
21	RPH1-BH35-21	<0.23	<0.012	<0.029	25.90	<0.09	0.23	6.37	50.50	<0.55	<0.21	1.36	<0.51	<0.0125	15.30
22	RPH1-BH35-22	<0.23	<0.012	<0.029	26.70	<0.09	1.07	21.90	18.40	<0.55	<0.21	<0.33	2.23	<0.0125	12.37
23	RPH1-BH35-23	<0.23	<0.012	<0.029	35.00	<0.09	0.37	9.56	51.80	<0.55	<0.21	<0.33	<0.51	<0.0125	10.35
24	RPH1-BH35-24	<0.23	<0.012	<0.029	33.90	<0.09	0.65	20.90	36.00	<0.55	<0.21	<0.33	1.73	<0.0125	5.99
25	RPH1-BH35-25	<0.23	<0.012	<0.029	23.50	<0.09	0.23	9.77	56.70	<0.55	<0.21	<0.33	1.78	<0.0125	4.70
26	RPH1-BH35-26	<0.23	<0.012	<0.029	27.00	<0.09	0.27	10.50	50.90	<0.55	<0.21	<0.33	0.70	<0.0125	8.12
27	RPH1-BH35-27	<0.23	<0.012	<0.029	26.30	<0.09	0.15	7.00	52.70	<0.55	<0.21	<0.33	0.66	<0.0125	9.81
28	RPH1-BH35-28	<0.23	<0.012	<0.029	25.10	<0.09	<0.058	3.45	56.10	<0.55	<0.21	<0.33	<0.51	<0.0125	12.81
29	RPH1-BH35-29	<0.23	<0.012	<0.029	19.50	<0.09	<0.058	3.37	65.40	<0.55	<0.21	<0.33	<0.51	<0.0125	14.89
30	RPH1-BH35-30	<0.23	<0.012	<0.029	19.50	<0.09	<0.058	3.37	65.40	<0.55	<0.21	<0.33	<0.51	<0.0125	10.67
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00180/06/2022 -CH001-083

Test Report Date : 09/06/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head (Name and Sign) : Eng. Maysoon Alkhzaheer

Technical Manager (Name and Sign)

: Chemist Hanady Al Sharif

Lab Manager (Name and Sign) : Eng. Maysoon Alkhzaheer

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No.

: 00181/06/2022 -CH001-084

Test Report Date : 16/06/2022

Lab Name

: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources

Lab Address

: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name

: مديرية نرسك المعسل الطبيعي

Client Address

: -

Division

: Chemical & Mineral Analysis Lab / XRF Lab

Testing Location : At the Lab facility.

Methods Used

: BS EN 15309-2007

Lab Ref. Work Instruction

: WI-REP-01

Used for

: XRF spectrometric analysis & LOI

Sampling Method

: By the customer

Sample Type

: صلبة

Sample Reception Date : 02/06/2022

Testing Date

: 05/06/2022

Sample Location : -

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPHI-BH36-1	0.36	< 0.012	0.056	49.50	< 0.09	5.92	0.56	5.84	0.64	0.47	< 0.33	< 0.51	< 0.0125	36.64
2	RPHI-BH36-2	0.50	< 0.012	0.077	44.50	< 0.09	7.34	0.45	12.30	0.82	0.63	< 0.33	< 0.51	< 0.0125	33.02
3	RPHI-BH36-3	0.29	< 0.012	0.050	50.50	< 0.09	1.38	0.66	9.22	< 0.55	0.42	< 0.33	< 0.51	< 0.0125	36.91
4	RPHI-BH36-4	0.24	< 0.012	0.040	49.80	< 0.09	1.78	1.30	8.70	0.56	0.31	< 0.33	< 0.51	< 0.0125	36.57
5	RPHI-BH36-5	0.25	< 0.012	< 0.029	50.30	< 0.09	0.81	3.28	8.78	< 0.55	0.38	< 0.33	< 0.51	< 0.0125	35.09
6	RPHI-BH36-6	< 0.23	< 0.012	< 0.029	53.40	< 0.09	0.68	10.50	3.04	< 0.55	< 0.21	< 0.33	1.04	< 0.0125	30.37
7	RPHI-BH36-7	< 0.23	< 0.012	< 0.029	42.70	< 0.09	0.37	5.74	23.90	< 0.55	< 0.21	< 0.33	2.18	< 0.0125	26.67
8	RPHI-BH36-8	0.28	< 0.012	< 0.029	52.10	< 0.09	0.93	21.20	4.12	< 0.55	< 0.21	< 0.33	1.73	< 0.0125	20.31
9	RPHI-BH36-9	< 0.23	< 0.012	< 0.029	44.50	< 0.09	0.84	18.10	14.40	< 0.55	< 0.21	< 0.33	0.67	< 0.0125	13.24
10	RPHI-BH36-10	< 0.23	< 0.012	< 0.029	28.90	< 0.09	0.40	10.60	45.80	< 0.55	< 0.21	< 0.33	1.83	< 0.0125	18.72
11	RPHI-BH36-11	0.27	< 0.012	< 0.029	48.60	< 0.09	0.94	18.40	11.20	< 0.55	< 0.21	< 0.33	1.83	< 0.0125	18.72
12	RPHI-BH36-12	< 0.23	< 0.012	< 0.029	18.90	< 0.09	0.17	5.24	63.10	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	11.46



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00181/06/2022-CH001-084

Test Report Date : 16/06/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
13	RPH1-BH36-13	< 0.23	< 0.012	< 0.029	17.20	< 0.09	0.16	6.71	67.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	7.98
14	RPH1-BH36-14	< 0.23	< 0.012	< 0.029	18.60	< 0.09	0.13	6.72	66.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	7.06
15	RPH1-BH36-15	< 0.23	< 0.012	< 0.029	19.60	< 0.09	0.22	7.96	63.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	7.55
16	RPH1-BH36-16	< 0.23	< 0.012	< 0.029	27.00	< 0.09	0.34	9.25	51.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	11.14
17	RPH1-BH36-17	< 0.23	< 0.012	< 0.029	22.70	< 0.09	0.22	7.88	58.60	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	9.24
18	RPH1-BH36-18	< 0.23	< 0.012	< 0.029	37.50	< 0.09	< 0.058	3.36	34.60	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	24.30
19	RPH1-BH36-19	< 0.23	< 0.012	< 0.029	16.90	< 0.09	< 0.058	1.82	69.40	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	24.30
20	RPH1-BH36-20	< 0.23	< 0.012	< 0.029	10.30	< 0.09	< 0.058	1.40	80.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	7.15
21	RPH1-BH36-21	< 0.23	< 0.012	< 0.029	9.00	< 0.09	< 0.058	0.98	84.10	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	5.34
22	RPH1-BH36-22	< 0.23	< 0.012	< 0.029	15.20	< 0.09	< 0.058	2.92	73.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	8.04
23	RPH1-BH36-23	< 0.23	< 0.012	< 0.029	16.30	< 0.09	< 0.058	1.47	71.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	10.32
24	RPH1-BH36-24	< 0.23	< 0.012	< 0.029	30.30	< 0.09	< 0.058	1.39	47.40	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	20.75
25	RPH1-BH36-25	< 0.23	< 0.012	< 0.029	20.70	< 0.09	< 0.058	2.00	63.40	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	13.24
26	RPH1-BH36-26	< 0.23	< 0.012	< 0.029	32.50	< 0.09	0.50	8.81	42.00	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	15.71
27	RPH1-BH36-27	< 0.23	< 0.012	< 0.029	22.60	< 0.09	< 0.058	3.00	61.00	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	13.34
28	RPH1-BH36-28	< 0.23	< 0.012	< 0.029	25.60	< 0.09	0.17	4.34	54.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	14.58
Uncertainty (if reported):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00181/06/2022 -CH001-084

Test Report Date : 16/06/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayyem
Eng. Feryal Yosef

Technical Manager (Name and Sign) ; Chemist Hanady Al Sharif

Division Head (Name and Sign) : Eng. Maysoun Alkhazhaee

Lab Manager (Name and Sign) : Eng. Maysoun Alkhazhaee

وزارة الطاقة والبنية التحتية

مديرية المختبرات والجودة

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00206/06/2022 -CH001-096

Test Report Date : 03/07/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
 Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية نرسات المعادن الطبيعية
 Client Address : -

Division : Chemical & Mineral Analysis Lab / XRF Lab

Testing Location : At the Lab facility.

Methods Used : BS EN 15309-2007 Lab Ref. Work Instruction : WL-REP-01 Used for : XRF spectrometric analysis & LOI

Sampling Method : By the customer
 Sample Type : صلبة
 Testing Date : 27/06/2022

Sample Reception Date : 21/06/2022
 Sample Location : -

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPHI-BH37-1	0.90	0.013	0.14	36.80	< 0.09	1.90	0.57	30.00	1.32	0.67	< 0.33	< 0.51	< 0.0125	27.56
2	RPHI-BH37-2	0.67	< 0.012	0.11	42.20	< 0.09	2.09	0.47	20.90	1.00	0.57	< 0.33	< 0.51	< 0.0125	31.93
3	RPHI-BH37-3	0.29	< 0.012	0.059	47.10	< 0.09	1.24	0.48	14.90	< 0.55	0.30	< 0.33	< 0.51	< 0.0125	35.18
4	RPHI-BH37-4	< 0.23	< 0.012	0.052	46.30	< 0.09	1.21	0.58	16.50	< 0.55	0.22	< 0.33	< 0.51	< 0.0125	34.46
5	RPHI-BH37-5	< 0.23	< 0.012	0.050	48.10	< 0.09	1.24	0.64	13.60	< 0.55	0.24	< 0.33	< 0.51	< 0.0125	35.55
6	RPHI-BH37-6	< 0.23	< 0.012	0.031	48.50	< 0.09	0.71	0.67	14.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	35.29
7	RPHI-BH37-7	< 0.23	< 0.012	0.030	50.30	< 0.09	0.33	0.92	9.42	0.63	0.39	< 0.33	< 0.51	< 0.0125	37.76
8	RPHI-BH37-8	< 0.23	< 0.012	< 0.029	45.60	< 0.09	0.46	1.05	18.00	0.56	0.39	< 0.33	< 0.51	< 0.0125	33.61
9	RPHI-BH37-9	< 0.23	< 0.012	0.031	47.90	< 0.09	0.55	1.12	13.70	0.62	0.43	< 0.33	< 0.51	< 0.0125	35.35
10	RPHI-BH37-10	< 0.23	< 0.012	0.030	45.50	< 0.09	0.098	1.51	19.00	< 0.55	0.30	< 0.33	< 0.51	< 0.0125	32.86
11	RPHI-BH37-11	0.26	< 0.012	< 0.029	49.00	< 0.09	< 0.058	1.56	12.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	35.70
12	RPHI-BH37-12	< 0.23	< 0.012	< 0.029	52.40	< 0.09	< 0.058	1.70	7.38	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	37.81

مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00206/06/2022 -CH001-096

Test Report Date : 03/07/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
13	RPH1-BH37-13	< 0.23	< 0.012	< 0.029	48.00	< 0.09	< 0.058	2.70	8.40	< 0.55	0.28	< 0.33	< 0.51	< 0.0125	39.95
14	RPH1-BH37-14	< 0.23	< 0.012	< 0.029	45.00	< 0.09	0.84	16.00	17.70	< 0.55	< 0.21	< 0.33	1.38	< 0.0125	18.64
15	RPH1-BH37-15	< 0.23	< 0.012	< 0.029	51.70	< 0.09	0.56	10.50	6.92	< 0.55	< 0.21	< 0.33	0.86	< 0.0125	28.93
16	RPH1-BH37-16	< 0.23	< 0.012	< 0.029	48.50	< 0.09	0.90	17.90	10.90	< 0.55	< 0.21	< 0.33	1.91	< 0.0125	19.59
17	RPH1-BH37-17	< 0.23	< 0.012	< 0.029	43.10	< 0.09	0.60	12.90	22.30	< 0.55	< 0.21	< 0.33	1.05	< 0.0125	19.80
18	RPH1-BH37-18	< 0.23	< 0.012	< 0.029	46.40	< 0.09	0.77	17.30	15.40	< 0.55	< 0.21	< 0.33	1.63	< 0.0125	18.15
19	RPH1-BH37-19	< 0.23	< 0.012	< 0.029	43.10	< 0.09	0.62	15.70	21.90	< 0.55	< 0.21	< 0.33	1.26	< 0.0125	17.18
20	RPH1-BH37-20	< 0.23	< 0.012	< 0.029	50.50	< 0.09	0.76	13.40	7.87	< 0.55	0.28	< 0.33	1.41	< 0.0125	25.34
21	RPH1-BH37-21	< 0.23	< 0.012	< 0.029	37.80	< 0.09	0.78	11.60	31.50	< 0.55	< 0.21	< 0.33	0.78	< 0.0125	17.11
22	RPH1-BH37-22	< 0.23	< 0.012	< 0.029	23.80	< 0.09	0.43	9.02	56.10	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	9.21
23	RPH1-BH37-23	< 0.23	< 0.012	< 0.029	34.40	< 0.09	0.71	17.10	36.60	< 0.55	< 0.21	< 0.33	1.45	< 0.0125	9.27
24	RPH1-BH37-24	< 0.23	< 0.012	< 0.029	16.50	< 0.09	0.085	4.85	69.10	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	8.41
25	RPH1-BH37-25	< 0.23	< 0.012	< 0.029	26.40	< 0.09	0.19	6.38	52.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	13.80
26	RPH1-BH37-26	< 0.23	< 0.012	< 0.029	26.30	< 0.09	0.17	6.08	52.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	14.08
27	RPH1-BH37-27	< 0.23	< 0.012	< 0.029	27.40	< 0.09	0.24	6.62	50.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	14.28
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.

وزارة الطاقة والمياه
مديرية المختبرات والجودة

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00206/06/2022 -CH001-096

Test Report Date : 03/07/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

Analized by (Name and Sign)

: Eng. Nidal Tayem
Eng. Feryal Yosef



Division Head (Name and Sign) : Eng. Maysoun Alkhazhee



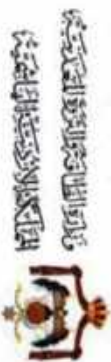
Technical Manager (Name and Sign) : Chemist Hanady Al Sharif



Lab Manager (Name and Sign) : Eng. Maysoun Alkhazhee



وزارة الطاقة والثروة المعدنية
 مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00202/06/2022-CH001-094

Test Report Date : 26/06/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية تراسات المعادن الطبيعية
Client Address : -

Division : Chemical & Mineral Analysis Lab / XRF Lab

Testing Location : At the Lab facility.

Methods Used : BS EN 15309-2007 Lab Ref. Work Instruction : WI-REP-01 Used for : XRF spectrometric analysis & LOI

Sampling Method : By the customer
Sample Type : صلبة
Testing Date : 20/06/2022

Sample Reception Date : 19/06/2022
Sample Location : -

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPH1-BH39-1	3.57	0.051	0.47	15.40	0.78	< 0.058	0.42	55.70	5.55	1.89	< 0.33	< 0.51	< 0.0125	15.56
2	RPH1-BH39-2	2.41	0.026	0.29	20.80	0.30	< 0.058	0.38	52.70	3.63	1.38	< 0.33	< 0.51	< 0.0125	18.10
3	RPH1-BH39-3	2.76	0.024	0.35	15.10	0.28	< 0.058	0.33	61.70	4.00	1.40	< 0.33	< 0.51	< 0.0125	14.03
4	RPH1-BH39-4	1.90	0.017	0.23	24.60	0.18	0.092	0.33	48.50	2.67	1.04	< 0.33	< 0.51	< 0.0125	20.43
5	RPH1-BH39-5	2.07	0.017	0.30	15.10	0.17	0.25	0.30	65.20	2.64	0.93	< 0.33	< 0.51	< 0.0125	13.02
6	RPH1-BH39-6	1.72	0.014	0.25	17.40	0.12	0.14	0.33	62.30	2.14	0.82	< 0.33	< 0.51	< 0.0125	14.69
7	RPH1-BH39-7	1.83	0.014	0.28	18.70	0.13	< 0.058	0.33	59.80	2.35	0.91	< 0.33	< 0.51	< 0.0125	15.67
8	RPH1-BH39-8	1.36	< 0.012	0.21	18.60	< 0.09	< 0.058	0.40	61.30	1.68	0.63	< 0.33	0.60	< 0.0125	15.11
9	RPH1-BH39-9	0.52	< 0.012	0.075	20.60	< 0.09	< 0.058	0.52	61.30	0.70	0.22	< 0.33	< 0.51	< 0.0125	15.53
10	RPH1-BH39-10	0.69	< 0.012	0.10	29.60	< 0.09	< 0.058	0.40	45.40	0.95	0.35	< 0.33	< 0.51	< 0.0125	22.44
11	RPH1-BH39-11	0.65	0.020	0.072	30.20	< 0.09	< 0.058	0.46	44.00	0.92	0.58	< 0.33	< 0.51	< 0.0125	23.09
12	RPH1-BH39-12	0.48	0.014	0.061	37.90	< 0.09	< 0.058	0.45	31.30	0.69	0.43	< 0.33	< 0.51	< 0.0125	28.70

مديرية المعادن الطبيعية والجودة

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00202/06/2022 -CH001-094

Test Report Date : 26/06/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
13	RPH1-BH39-13	0.59	0.022	0.067	38.90	< 0.09	< 0.058	0.40	28.70	0.85	0.58	< 0.33	< 0.51	< 0.0125	29.96
14	RPH1-BH39-14	0.39	0.017	0.036	23.90	< 0.09	< 0.058	0.58	57.00	0.56	0.23	< 0.33	< 0.51	< 0.0125	16.82
15	RPH1-BH39-15	0.36	0.016	0.030	21.50	< 0.09	< 0.058	0.50	60.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	16.18
16	RPH1-BH39-16	0.57	0.015	0.055	23.60	< 0.09	< 0.058	0.91	55.10	0.80	0.37	< 0.33	< 0.51	< 0.0125	18.07
17	RPH1-BH39-17	0.77	0.037	0.056	15.60	< 0.09	< 0.058	0.67	69.00	0.90	0.34	< 0.33	< 0.51	< 0.0125	12.10
18	RPH1-BH39-18	0.41	0.026	0.033	23.50	< 0.09	< 0.058	0.65	56.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	17.41
19	RPH1-BH39-19	0.30	0.016	0.029	25.70	< 0.09	< 0.058	0.93	52.80	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	19.23
20	RPH1-BH39-20	0.23	0.015	< 0.029	23.20	< 0.09	< 0.058	0.64	58.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	16.81
21	RPH1-BH39-21	0.27	0.014	< 0.029	22.60	< 0.09	< 0.058	0.64	59.40	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	15.96
22	RPH1-BH39-22	0.29	< 0.012	0.030	25.90	< 0.09	< 0.058	0.60	53.60	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	18.74
23	RPH1-BH39-23	0.31	< 0.012	0.034	26.30	< 0.09	< 0.058	0.56	52.70	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	19.05
24	RPH1-BH39-24	0.43	< 0.012	0.048	30.80	< 0.09	< 0.058	0.55	44.70	0.68	< 0.21	< 0.33	< 0.51	< 0.0125	22.73
25	RPH1-BH39-25	0.49	< 0.012	0.058	27.20	< 0.09	< 0.058	0.58	50.40	0.79	< 0.21	< 0.33	< 0.51	< 0.0125	20.37
26	RPH1-BH39-26	0.32	< 0.012	0.037	23.10	< 0.09	< 0.058	0.61	58.10	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	16.75
27	RPH1-BH39-27	0.43	< 0.012	0.051	22.50	< 0.09	< 0.058	0.66	58.80	0.69	< 0.21	< 0.33	< 0.51	< 0.0125	16.38
28	RPH1-BH39-28	0.42	< 0.012	0.046	24.20	< 0.09	< 0.058	0.68	56.40	0.66	< 0.21	< 0.33	< 0.51	< 0.0125	17.62
29	RPH1-BH39-29	0.31	< 0.012	0.036	23.80	< 0.09	< 0.058	0.65	56.90	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	17.28
30	RPH1-BH39-30	0.47	< 0.012	0.052	29.80	< 0.09	< 0.058	0.66	46.40	0.74	< 0.21	< 0.33	< 0.51	< 0.0125	21.83
31	RPH1-BH39-31	0.63	0.016	0.069	32.70	< 0.09	< 0.058	0.63	40.90	0.92	< 0.21	< 0.33	< 0.51	< 0.0125	24.04
32	RPH1-BH39-32	0.55	0.019	0.055	31.40	< 0.09	< 0.058	0.70	43.40	0.78	< 0.21	< 0.33	< 0.51	< 0.0125	23.03
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.

وزارة الطاقة والصناعة
 المديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00202/06/2022 -CH001-094

Test Report Date : 26/06/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head (Name and Sign) : Eng. Maysoon Alkhazhee

Technical Manager (Name and Sign) : Chemist Hanady Al Sharif

Lab Manager (Name and Sign) : Eng. Maysoon Alkhazhee

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00217/07/2022 -CH001-101

Test Report Date : 13/07/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
 Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman – Jordan (www.memr.gov.jo)

Client Name : مديرية تراسات المعادن الطبيعية
 Client Address : -

Division : Chemical & Mineral Analysis Lab / XRF Lab

Testing Location : At the Lab facility.

Methods Used : BS EN 15309-2007 Lab Ref. Work Instruction : WL-REP-01 Used for : XRF spectrometric analysis & LOI

Sampling Method : By the customer
 Sample Type : صلبة
 Testing Date : 13/07/2022

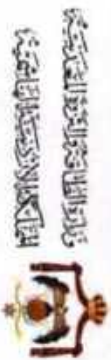
Sample Reception Date : 05/07/2022
 Sample Location : -

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPHI-BH 41 -02	0.66	< 0.012	0.10	32.70	< 0.09	0.18	0.46	39.10	0.95	0.49	< 0.33	< 0.51	< 0.0125	25.36
2	RPHI-BH 41 -05	0.50	< 0.012	0.068	42.40	< 0.09	< 0.058	0.36	22.10	0.83	0.61	< 0.33	< 0.51	< 0.0125	33.10
3	RPHI-BH 41 -07	0.34	< 0.012	0.049	38.20	< 0.09	< 0.058	0.47	31.20	0.58	0.37	< 0.33	< 0.51	< 0.0125	28.81
4	RPHI-BH 41 -13	0.97	0.038	0.11	43.90	< 0.09	< 0.058	0.47	17.70	1.50	0.77	< 0.33	< 0.51	< 0.0125	34.50
5	RPHI-BH 41 -21	< 0.23	< 0.012	0.032	49.00	< 0.09	< 0.058	0.52	10.80	0.62	0.69	< 0.33	< 0.51	< 0.0125	38.11
6	RPHI-BH 41 -26	0.28	< 0.012	0.036	38.50	< 0.09	< 0.058	2.54	30.80	0.59	0.27	< 0.33	< 0.51	< 0.0125	26.98
7	RPHI-BH 41 -27	< 0.23	< 0.012	< 0.029	37.10	< 0.09	< 0.058	2.18	34.00	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	25.94
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.

وزارة الطاقة والثروة المعدنية

مديرية تراسات المعادن الطبيعية



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00217/07/2022 -CH001-101

Test Report Date : 13/07/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

.....

Additional Comments:

NA.....

.....

Analyzed by (Name and Sign)

: Eng. Nidal Taycem
Eng. Feryal Yosef

Nidal Taycem

Division Head (Name and Sign)

: Eng. Maysoun Alkhazhee

Maysoun Alkhazhee

Technical Manager (Name and Sign)

: Chemist Hanady Al Sharif

Lab Manager (Name and Sign)

: Eng. Maysoun Alkhazhee

Maysoun Alkhazhee

وزارة الطاقة والثروة المعدنية

مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00248/08/2022 -CH001-119		Test Report Date : 17/08/2022													
Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources															
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)															
Client Name : مديرية دراسات المصادر الطبيعية															
Client Address : -															
Division : Chemical & Mineral Analysis Lab / XRF Lab		Testing Location : At the Lab facility.													
Methods Used : BS EN 15309-2007		Lab Ref. Work Instruction : WI-REP-01													
		Used for : XRF spectrometric analysis & LOI													
Sampling Method : By the customer															
Sample Type : صلبة															
Testing Date : 10/08/2022															
Sample Reception Date : 08/08/2022															
Sample Location : -															
Item	S.ID.	Fe ₂ O ₃ Wt.%	MnO Wt.%	TiO ₂ Wt.%	CaO Wt.%	K ₂ O Wt.%	SO ₃ Wt.%	P ₂ O ₅ Wt.%	SiO ₂ Wt.%	Al ₂ O ₃ Wt.%	MgO Wt.%	Na ₂ O Wt.%	F Wt.%	U Wt.%	L.O.I Wt.%
1	RPH1-BH42-13	3.24	0.048	0.50	27.20	0.26	<0.058	0.85	34.60	6.43	1.84	0.50	<0.51	<0.0125	24.60
2	RPH1-BH42-14	1.39	0.065	0.18	40.40	<0.09	<0.058	0.80	22.70	2.55	0.75	<0.34	<0.51	<0.0125	31.08
3	RPH1-BH42-15	0.58	0.043	0.074	46.50	<0.09	<0.058	0.40	14.80	1.04	0.42	<0.34	<0.51	<0.0125	35.80
4	RPH1-BH42-16	0.30	0.020	0.045	52.70	<0.09	<0.058	0.50	5.09	0.73	0.45	<0.34	<0.51	<0.0125	40.21
5	RPH1-BH42-17	<0.23	<0.012	0.035	47.20	<0.09	<0.058	0.62	21.20	0.56	0.36	<0.34	<0.51	<0.0125	35.23
6	RPH1-BH42-18	0.27	<0.012	0.037	44.50	<0.09	<0.058	0.51	14.60	<0.55	0.46	<0.34	<0.51	<0.0125	32.46
7	RPH1-BH42-19	0.24	<0.012	0.033	47.90	<0.09	<0.058	1.09	11.80	0.56	0.59	<0.34	<0.51	<0.0125	35.74
8	RPH1-BH42-20	0.23	<0.012	0.033	48.70	<0.09	<0.058	0.38	11.80	0.64	0.84	<0.34	<0.51	<0.0125	36.95
9	RPH1-BH42-21	0.38	<0.012	0.036	48.60	<0.09	<0.058	0.38	25.10	<0.55	0.60	<0.34	<0.51	<0.0125	37.29
10	RPH1-BH42-22	0.31	<0.012	0.030	41.60	<0.09	<0.058	0.38	13.80	<0.55	0.54	<0.34	<0.51	<0.0125	31.46
11	RPH1-BH42-23	0.31	<0.012	<0.029	47.30	<0.09	<0.058	0.56							36.70

وزارة الطاقة والثروة المعدنية

مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00248/08/2022 -CH001-119

Test Report Date : 17/08/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
12	RPH1-BH42-24	0.43	<0.012	0.047	51.00	<0.09	<0.058	0.39	7.30	0.70	0.52	<0.34	<0.51	<0.0125	39.55
13	RPH1-BH42-25	0.34	<0.012	0.039	51.30	<0.09	<0.058	0.52	7.51	0.62	0.49	<0.34	<0.51	<0.0125	39.15
14	RPH1-BH42-26	0.32	<0.012	0.043	46.40	<0.09	<0.058	0.50	16.50	0.66	0.45	<0.34	<0.51	<0.0125	35.07
15	RPH1-BH42-27	1.06	0.021	0.13	38.40	<0.09	<0.058	1.95	27.70	1.85	0.87	<0.34	<0.51	<0.0125	28.00
16	RPH1-BH42-28	0.34	<0.012	0.042	32.20	<0.09	<0.058	0.80	38.50	0.62	0.27	<0.34	<0.51	<0.0125	27.26
17	RPH1-BH42-29	<0.23	<0.012	<0.029	32.10	<0.09	<0.058	0.90	42.60	<0.55	<0.21	<0.34	<0.51	<0.0125	23.27
18	RPH1-BH42-30	<0.23	<0.012	<0.029	28.50	<0.09	<0.058	0.80	49.00	<0.55	0.38	<0.34	<0.51	<0.0125	21.01
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.

وزارة الطاقة والكهرباء
مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No.

: 00248/08/2022 -CH001-119

Test Report Date : 17/08/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head (Name and Sign) : Eng. Maysoon Alkhzahee

Technical Manager (Name and Sign)

: Chemist Hanady Al Sharif

Lab Manager (Name and Sign) : Eng. Maysoon Alkhzahee

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00222/07/2022-CH001-106

Test Report Date : 25/07/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
 Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية دراسات المعادن الطبيعية
 Client Address : -

Division : Chemical & Mineral Analysis Lab / XRF Lab

Testing Location : At the Lab facility.

Methods Used : BS EN 15309-2007 Lab Ref. Work Instruction : WI-REP-01

Used for : XRF spectrometric analysis & LOI

Sampling Method : By the customer
 Sample Type : صلبة
 Testing Date : 24/07/2022

Sample Reception Date : 17/07/2022
 Sample Location : -

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPHI-BH 42-02	1.94	0.026	0.22	31.40	0.21	<0.058	0.34	35.20	3.04	1.32	<0.33	<0.51	<0.0125	26.24
2	RPHI-BH 42-03	1.27	0.014	0.15	39.50	0.091	<0.058	0.29	24.10	2.02	1.01	<0.33	<0.51	<0.0125	31.51
3	RPHI-BH 42-04	0.72	<0.012	0.11	39.30	<0.09	0.14	0.30	27.30	1.07	0.73	<0.33	<0.51	<0.0125	30.29
4	RPHI-BH 42-05	0.51	0.015	0.075	42.50	<0.09	0.064	0.31	22.70	0.83	0.60	<0.33	<0.51	<0.0125	32.41
5	RPHI-BH 42-06	0.47	0.016	0.070	43.70	<0.09	<0.058	0.32	20.90	0.80	0.56	<0.33	<0.51	<0.0125	33.15
6	RPHI-BH 42-07	0.83	0.018	0.11	42.90	<0.09	<0.058	0.30	20.20	1.38	0.79	<0.33	<0.51	<0.0125	33.44
7	RPHI-BH 42-08	0.58	0.014	0.083	45.40	<0.09	<0.058	0.29	16.60	0.97	0.73	<0.33	<0.51	<0.0125	35.32
8	RPHI-BH 42-09	0.83	0.017	0.11	34.70	<0.09	<0.058	0.30	34.40	1.29	0.95	<0.33	<0.51	<0.0125	27.38
9	RPHI-BH 42-10	1.72	0.031	0.21	29.60	<0.09	<0.058	0.50	40.10	2.50	1.78	<0.33	<0.51	<0.0125	23.53
10	RPHI-BH 42-11	2.36	0.048	0.33	30.20	0.11	<0.058	0.70	34.70	4.16	1.75	<0.33	<0.51	<0.0125	25.69
11	RPHI-BH 42-12	2.88	0.052	0.43	26.50	0.19	<0.058	0.90	38.60	5.47	1.59	<0.33	<0.51	<0.0125	23.43
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00222/07/2022 -CH001-106

Test Report Date : 25/07/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayem
Eng. Feryal Yosef

Division Head (Name and Sign) : Eng. Maysoun Alkhzahee

Technical Manager (Name and Sign)

: Chemist Hanady Al Sharif

Lab Manager (Name and Sign) : Eng. Maysoun Alkhzahee

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00295/09/2022-CH001-138

Test Report Date : 27/09/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
 Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية نرسات المعادن الطبيعية
 Client Address : -

Division : Chemical & Mineral Analysis Lab / XRF Lab
 Testing Location : At the Lab facility.

Methods Used : BS EN 15309-2007 Lab Ref. Work Instruction : WI-REP-01 Used for : XRF spectrometric analysis & LOI

Sampling Method : By the customer
 Sample Type : صلبة
 Testing Date : 25/09/2022
 Sample Reception Date : 20/09/2022
 Sample Location :

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPHI-BH 47-1	2.05	0.037	0.32	27.60	0.33	6.76	0.52	36.50	3.14	1.47	<0.34	<0.51	<0.0125	21.24
2	RPHI-BH 47-2	0.18	<0.012	0.036	40.10	<0.09	8.24	0.49	25.30	<0.55	<0.21	<0.34	<0.51	<0.0125	25.12
3	RPHI-BH 47-3	<0.23	<0.012	<0.029	45.70	<0.09	3.55	0.43	18.4	<0.55	0.23	<0.34	<0.51	<0.0125	31.50
4	RPHI-BH 47-4	<0.23	<0.012	<0.029	47.50	<0.09	1.32	0.54	17.30	<0.55	<0.21	<0.34	<0.51	<0.0125	33.05
5	RPHI-BH 47-5	<0.23	<0.012	<0.029	46.90	<0.09	1.47	0.57	18.30	<0.55	<0.21	<0.34	<0.51	<0.0125	32.49
6	RPHI-BH 47-6	<0.23	<0.012	<0.029	45.80	<0.09	0.81	0.93	19.70	<0.55	<0.21	<0.34	<0.51	<0.0125	32.45
7	RPHI-BH 47-7	<0.23	<0.012	<0.029	47.90	<0.09	0.26	1.00	16.70	<0.55	<0.21	<0.34	<0.51	<0.0125	33.79
8	RPHI-BH 47-8	<0.23	<0.012	<0.029	49.10	<0.09	0.35	0.95	14.60	<0.55	<0.21	<0.34	<0.51	<0.0125	34.61
9	RPHI-BH 47-9	0.23	<0.012	<0.029	37.20	<0.09	<0.058	1.67	33.70	<0.55	<0.21	<0.34	<0.51	<0.0125	26.66
10	RPHI-BH 47-10	<0.23	<0.012	<0.029	45.50	<0.09	<0.058	1.70	20.40	<0.55	<0.21	<0.34	<0.51	<0.0125	31.76
11	RPHI-BH 47-11	<0.23	<0.012	<0.029	47.40	<0.09	0.51	10.30	15.30	<0.55	<0.21	<0.34	0.83	<0.0125	25.40

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00295/09/2022 -CH001-138

Test Report Date : 27/09/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
12	RPH1-BH 47- 12	< 0.23	< 0.012	< 0.029	54.20	< 0.09	0.59	13.70	2.46	< 0.55	< 0.21	< 0.34	1.46	< 0.0125	27.32
13	RPH1-BH 47- 13	< 0.23	< 0.012	< 0.029	54.40	< 0.09	0.65	17.20	1.99	< 0.55	< 0.21	< 0.34	1.78	< 0.0125	23.80
14	RPH1-BH 47- 14	< 0.23	< 0.012	< 0.029	54.70	< 0.09	0.49	12.60	1.88	< 0.55	< 0.21	< 0.34	1.28	< 0.0125	28.79
15	RPH1-BH 47- 15	< 0.23	< 0.012	< 0.029	51.80	< 0.09	0.54	16.30	6.66	< 0.55	< 0.21	< 0.34	1.58	< 0.0125	22.92
16	RPH1-BH 47- 16	< 0.23	< 0.012	< 0.029	53.60	< 0.09	0.54	17.30	3.08	< 0.55	< 0.21	< 0.34	1.70	< 0.0125	23.52
17	RPH1-BH 47- 17	< 0.23	< 0.012	< 0.029	54.30	< 0.09	0.92	22.30	1.63	< 0.55	< 0.21	< 0.34	2.31	< 0.0125	18.33
18	RPH1-BH 47- 18	< 0.23	< 0.012	< 0.029	52.50	< 0.09	1.07	21.60	3.64	< 0.55	< 0.21	< 0.34	2.15	< 0.0125	18.79
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00295/09/2022 -CH001-138

Test Report Date : 27/09/2022

Notes:

- **The results were done on dry basis.**
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head (Name and Sign) : Eng. Nidal Tayyem

Technical Manager (Name and Sign)

: Chemist Hanady Al Sharif

Lab Manager (Name and Sign) : Eng. Maysoon Alkhazabee

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00204/06/2022-CH001-095

Test Report Date : 26/06/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
 Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية لدراسات المعادن الطبيعية
 Client Address : -

Division : Chemical & Mineral Analysis Lab / XRF Lab

Testing Location : At the Lab facility.

Methods Used : BS EN 15309-2007 Lab Ref. Work Instruction : WL-REP-01 Used for : XRF spectrometric analysis & LOI
 Sampling Method : By the customer
 Sample Type : صلبة
 Testing Date : 23/06/2022
 Sample Reception Date : 20/06/2022
 Sample Location :

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RCA 1-AC-1	< 0.23	< 0.012	< 0.029	57.10	< 0.09	1.63	18.20	0.74	< 0.55	< 0.21	< 0.33	2.13	< 0.0125	19.36
2	RCA 1-AC-2	< 0.23	< 0.012	< 0.029	54.40	< 0.09	1.26	17.50	0.39	< 0.55	< 0.21	< 0.33	1.86	< 0.0125	24.45
3	RCA 1-AC-3	< 0.23	< 0.012	< 0.029	53.80	< 0.09	2.06	21.90	0.29	< 0.55	< 0.21	< 0.33	2.35	< 0.0125	19.48
4	RCA 1-AC-4	< 0.23	< 0.012	< 0.029	18.30	< 0.09	0.42	9.26	65.00	< 0.55	< 0.21	0.33	< 0.51	< 0.0125	5.22
5	RCA 1-AC-5	< 0.23	< 0.012	< 0.029	26.90	< 0.09	0.89	16.60	48.20	< 0.55	< 0.21	0.46	1.21	< 0.0125	4.81
6	RCA 1-AC-6	< 0.23	< 0.012	< 0.029	55.90	< 0.09	0.23	7.45	0.17	< 0.55	< 0.21	< 0.33	0.63	< 0.0125	35.56
7	RCA 1-AC-7	< 0.23	< 0.012	< 0.029	20.60	< 0.09	0.62	12.40	59.70	< 0.55	< 0.21	< 0.33	0.71	< 0.0125	4.34
8	RCA 1-AC-8	< 0.23	< 0.012	< 0.029	49.70	< 0.09	1.06	19.80	8.86	< 0.55	< 0.21	< 0.33	1.96	< 0.0125	18.62
9	RCA 1-AC-9	< 0.23	< 0.012	< 0.029	54.00	< 0.09	1.21	20.70	0.36	< 0.55	< 0.21	< 0.33	2.21	< 0.0125	21.38
10	RCA 1-AC-10	< 0.23	< 0.012	< 0.029	53.80	< 0.09	1.15	20.40	1.25	< 0.55	< 0.21	< 0.33	2.04	< 0.0125	21.25
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00204/06/2022-CH001-095

Test Report Date : 26/06/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head (Name and Sign) : Eng. Maysoon Alkhzahee

Technical Manager (Name and Sign)

: Chemist Hanady Al Sharif

Lab Manager (Name and Sign) : Eng. Maysoon Alkhzahee

وزارة الطاقة والصناعة
مديرية المختبرات والجودة

X-Ray Diffraction Analysis Test Report



Test Report No. :00147/05/2022 CH07-36

Test Report Date: 24/05/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources

Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية دراسات المعادن الطبيعية

Client Address : -

Division : Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used : MEMR002-2020

Lab Ref. Work Instruction

: WI-REP-02

Used for: X Ray diffraction analysis

Sampling Method : By the customer

Sample Type : Solid

Testing Date : 18/05/2022

Sample Reception Date: 16/05/2022

Sample Location: -

Tension (KV) : 40

Radiation : Cu

Current (mA) : 30

Angle Range(2 θ) : (5-70) $^{\circ}$

Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
1	1694	BH-30C (13)	Carbonate-fluorapatite	Calcite, Quartz	Anhydrite	NA

وزارة الطاقة والثروة المعدنية
 مديرية المختبرات والجودة

X-Ray Diffraction Analysis Test Report

Test Report No. :00147/05/2022 CH07-36

Test Report Date: 24/05/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): Eng. Kholoud Ayvash

Eng. Linda Al-Makadmeh

Division Head (Name and Sign): Eng. Maysoun Al-Khazaei

Technical Manager (Name and Sign): Chem. Hanny Al Sharif

Lab Manager (Name and Sign): Eng. Maysoun Al-Khazaei

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00245/08/2022 -CH001-116

Test Report Date : 11/08/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources

Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية نرسات المسطر الطبيعية

Client Address :

Division : Chemical & Mineral Analysis Lab / XRF Lab

Testing Location : At the Lab facility.

Methods Used : BS EN 15309-2007

Lab Ref. Work Instruction

: WL-REP-01

Used for : XRF spectrometric analysis & LOI

Sampling Method

: By the customer

Sample Type

: صلبة

Sample Reception Date : 03/08/2022

Testing Date

: 08/08/2022

Sample Location :-

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RC-31B - 20	< 0.23	< 0.012	< 0.009	37.80	< 0.09	0.58	17.80	31.30	< 0.55	< 0.21	< 0.33	1.32	< 0.0125	11.08
2	RC-31B - 21	< 0.23	< 0.012	< 0.009	55.30	< 0.09	0.56	16.90	< 0.23	< 0.55	< 0.21	< 0.33	1.69	< 0.0125	25.39
3	RC-31B - 23	< 0.23	< 0.012	< 0.009	54.90	< 0.09	0.71	19.80	0.52	< 0.55	< 0.21	< 0.33	1.94	< 0.0125	22.01
4	RC-31B - 25	< 0.23	< 0.012	< 0.009	54.80	< 0.09	0.83	20.70	< 0.23	< 0.55	< 0.21	< 0.33	2.12	< 0.0125	21.37
5	RC-31C - 2	< 0.23	< 0.012	< 0.009	55.00	< 0.09	0.77	20.40	< 0.23	< 0.55	< 0.21	< 0.33	2.05	< 0.0125	21.48
Uncertainty (if required) :		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.

وزارة الطاقة والموارد المعدنية

مديرية نرسات المسطر الطبيعية



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00245/08/2022 -CH001-116

Test Report Date : 11/08/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayyem
Eng. Feryal Yosef

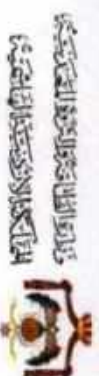
Division Head (Name and Sign) : Eng. Maysoon Alkhazhnee

Technical Manager (Name and Sign)

: Chemist Hanady Al Sharif

Lab Manager (Name and Sign)

: Eng. Maysoon Alkhazhnee



Bulk Density By Weight

Test Report No. : 00245/08/2022 SO-371

Test Report Date : 4/8/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman – Jordan (www.memr.gov.jo)

Client Name : مديرية دراسات المعادن الطبيعية
Client Address : -

Division : Soil and Rock Mechanics

Testing Location : At the Lab facility.

Sampling Method : By the customer

Sample Reception Date : 3/8/2022

Sample Type : صلبة

Sample Location : -

Testing Date : 3/8/2022

Sample Id	RC-31 B (23)	RC-31 C (2)
bulk density, ρ (g/cm^3)	1.35	1.20

Analyzed by (Name and Sign) : Chem. Anaam Elzazaibeh.

Division Head (Name and Sign) : Eng. Husni Alsager.

Lab Manager (Name and Sign): Eng. Maysoon Alkhzaheh.

وزارة الطاقة والبنية التحتية
مديرية الدراسات والمختبرات والجيوديزية



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00213/06/2022-CH001-100

Test Report Date : 04/07/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية نرسات المعادن الطبيعية
Client Address :-

Division : Chemical & Mineral Analysis Lab / XRF Lab

Testing Location : At the Lab facility.

Methods Used : BS EN 15309-2007

Lab Ref. Work Instruction

: WT-REP-01

Used for

: XRF spectrometric analysis & LOI

Sampling Method : By the customer

Sample Type : صلبة

Sample Reception Date : 28/06/2022

Testing Date : 30/06/2022

Sample Location : -

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RC 31B-1	2.20	0.031	0.30	36.30	0.39	<0.058	0.41	25.40	3.59	1.53	<0.33	<0.51	<0.0125	29.86
2	RC 31B-2	0.71	<0.012	0.10	48.00	<0.09	<0.058	0.36	11.00	1.15	0.75	<0.33	<0.51	<0.0125	37.85
3	RC 31B-3	0.36	<0.012	0.054	47.60	<0.09	0.090	0.56	13.70	0.58	0.47	<0.33	<0.51	<0.0125	36.60
4	RC 31B-4	<0.23	<0.012	0.034	52.90	<0.09	0.62	0.52	5.39	<0.55	0.26	<0.33	<0.51	<0.0125	39.75
5	RC 31B-5	0.24	<0.012	0.035	50.10	<0.09	0.38	1.07	10.20	<0.55	0.25	<0.33	<0.51	<0.0125	37.31
6	RC 31B-6	<0.23	<0.012	<0.029	54.30	<0.09	0.29	5.05	3.32	<0.55	<0.21	<0.33	<0.51	<0.0125	36.15
7	RC 31B-7	<0.23	<0.012	0.031	53.30	<0.09	0.54	17.00	3.67	<0.55	<0.21	<0.33	1.84	<0.0125	23.11
8	RC 31B-13	<0.23	<0.012	<0.029	50.50	<0.09	0.52	18.90	8.19	<0.55	<0.21	<0.33	1.77	<0.0125	19.60
9	RC 31B-14	<0.23	<0.012	<0.029	50.20	<0.09	0.34	11.60	9.49	<0.55	<0.21	<0.33	1.03	<0.0125	27.06
10	RC 31B-15	<0.23	<0.012	<0.029	48.60	<0.09	0.29	10.30	13.00	<0.55	<0.21	<0.33	1.07	<0.0125	26.53
11	RC 31B-16	<0.23	<0.012	<0.029	52.80	<0.09	1.15	30.70	2.39	<0.55	<0.21	<0.33	3.47	<0.0125	9.31
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00213/06/2022 -CH001-100

Test Report Date : 04/07/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayem
Eng. Feryal Yosef

Division Head (Name and Sign) : Eng. Maysoun Alkhazhee

Technical Manager (Name and Sign)

: Chemist Hanady Al Sharif

Lab Manager (Name and Sign) : Eng. Maysoun Alkhazhee

وزارة الطاقة والثروة المعدنية

مديرية المختبرات والجودة

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00264/08/2022 -CH001-127		Test Report Date : 28/08/2022	
Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources			
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman – Jordan (www.memr.gov.jo)			
Client Name : مديرية دراسات المصادر الطبيعية			
Client Address :-			
Division : Chemical & Mineral Analysis Lab / XRF Lab		Testing Location : At the Lab facility.	
Methods Used : BS EN 15309-2007		Lab Ref. Work Instruction : WI-REP-01	
		Used for : XRF spectrometric analysis & LOI	
Sampling Method : By the customer		Sample Reception Date : 22/08/2022	
Sample Type : صلبة		Sample Location : -	
Testing Date : 24/08/2022			

Item	S.ID.	Fe ₂ O ₃ Wt.%	MnO Wt.%	TiO ₂ Wt.%	CaO Wt.%	K ₂ O Wt.%	SO ₃ Wt.%	P ₂ O ₅ Wt.%	SiO ₂ Wt.%	Al ₂ O ₃ Wt.%	MgO Wt.%	Na ₂ O Wt.%	F Wt.%	U Wt.%	L.O.I Wt.%
1	RC 43 7A	< 0.23	< 0.012	< 0.029	54.30	< 0.09	0.75	14.20	0.66	< 0.55	< 0.21	< 0.34	1.65	< 0.0125	28.08
2	RC 43 8	< 0.23	< 0.012	< 0.029	51.90	< 0.09	0.55	12.50	6.13	< 0.55	< 0.21	< 0.34	1.20	< 0.0125	27.54
3	RC 43 9	< 0.23	< 0.012	< 0.029	55.40	< 0.09	< 0.058	0.80	0.52	< 0.55	0.23	< 0.34	< 0.51	< 0.0125	42.43
4	RC 43 10A	< 0.23	< 0.012	0.035	54.20	< 0.09	0.29	9.80	2.40	< 0.55	< 0.21	< 0.34	0.87	< 0.0125	31.80
5	RC 43 10C	< 0.23	< 0.012	< 0.029	55.50	< 0.09	0.29	8.87	0.43	< 0.55	< 0.21	< 0.34	0.73	< 0.0125	33.96
6	RC 43 11	< 0.23	< 0.012	< 0.029	55.50	< 0.09	0.45	15.70	0.58	< 0.55	< 0.21	< 0.34	1.51	< 0.0125	26.14
7	RC 43 11A	< 0.23	< 0.012	< 0.029	51.10	< 0.09	0.38	11.40	8.87	< 0.55	< 0.21	< 0.34	0.89	< 0.0125	27.29
8	RC 43 12	0.33	< 0.012	< 0.029	54.90	< 0.09	0.41	10.00	0.46	< 0.55	< 0.21	< 0.34	0.95	< 0.0125	32.79
9	RC 43 12A	< 0.23	< 0.012	< 0.029	56.50	< 0.09	< 0.058	3.70	0.35	< 0.55	< 0.21	< 0.34	< 0.51	< 0.0125	39.22
10	RC 43 13	< 0.23	< 0.012	< 0.029	54.30	< 0.09	0.91	21.60	0.75	< 0.55	< 0.21	< 0.34	2.35	< 0.0125	19.95
11	RC 43 14	< 0.23	< 0.012	< 0.029	55.30	< 0.09	0.89	20.10	0.99	< 0.55	< 0.21	< 0.34	2.16	< 0.0125	20.48

مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00264/08/2022 -CH001-127

Test Report Date : 28/08/2022

Item	S.ID.	Fe ₂ O ₃ Wt.%	MnO Wt.%	TiO ₂ Wt.%	CaO Wt.%	K ₂ O Wt.%	SO ₃ Wt.%	P ₂ O ₅ Wt.%	SiO ₂ Wt.%	Al ₂ O ₃ Wt.%	MgO Wt.%	Na ₂ O Wt.%	F Wt.%	U Wt.%	L.O.I Wt.%
12	RC 43 16	<0.23	<0.012	<0.029	54.60	<0.09	0.67	18.00	0.69	<0.55	<0.21	<0.34	1.90	<0.0125	23.82
13	RC 43 17	<0.23	<0.012	<0.029	55.10	<0.09	0.58	17.20	<0.23	<0.55	<0.21	<0.34	1.65	<0.0125	25.26
14	RC 43 18A	<0.23	<0.012	<0.029	52.30	<0.09	0.76	18.70	5.16	<0.55	<0.21	<0.34	1.91	<0.0125	21.02
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.

وزارة الصناعة والتجارة
مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00264/08/2022 -CH001-127

Test Report Date : 28/08/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....
.....
.....

Additional Comments:

NA.....
.....
.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayyem

Eng. Feryal Yosef

Division Head (Name and Sign) : Eng. Nidal Tayyem

Technical Manager (Name and Sign)

: Chemist Hanady Al Sharif

Lab Manager (Name and Sign) : Eng. Maysoon Alkhzahee





Bulk Density By Weight

Test Report No.	: 00264/08/2022 SO-404	Test Report Date	: 22/8/2022
Lab Name	: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources		
Lab Address	: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)		
Client Name	: مديرية دراسات المصادر الطبيعية		
Client Address	:		
Division	: Soil and Rock Mechanics	Testing Location	: At the Lab facility.
Sampling Method	: By the customer		
Sample Type	: صلبة		
Testing Date	: 22/8/2022		
Sample Id	RC-43-12	RC-43-16	RC-43-11
bulk density, ρ (g/cm ³)	1.57	1.24	1.64
Analyzed by (Name and Sign)	: Chem. Layla Alshar. 	Division Head (Name and Sign)	: Eng. Husni Alsaqer. 
Lab Manager (Name and Sign): Eng. Maysoon Alkhzahee.			

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No.	: 00256/08/2022-CH001-126		Test Report Date	: 24/08/2022											
Lab Name	: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources														
Lab Address	: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)														
Client Name	: مديرية دراسات المعادن الطبيعية														
Client Address	: -														
Division	: Chemical & Mineral Analysis Lab / XRF Lab														
	Testing Location : At the Lab facility.														
Methods Used	: BS EN 15309-2007	Lab Ref. Work Instruction	: WL-REP-01	Used for : XRF spectrometric analysis & LOI											
Sampling Method	: By the customer														
Sample Type	: صلبة														
Testing Date	: 22/08/2022														
	Sample Reception Date : 15/08/2022														
	Sample Location : -														
Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RC 44 - 9	0.31	<0.012	0.030	47.20	<0.09	1.34	1.33	14.20	<0.55	0.32	<0.34	<0.51	<0.0125	34.74
2	RC 44 - 10	0.33	<0.012	0.035	42.90	<0.09	0.32	2.77	22.50	0.75	0.24	<0.34	<0.51	<0.0125	30.12
3	RC 44 - 11	<0.23	<0.012	<0.029	48.60	<0.09	<0.058	1.34	13.90	<0.55	<0.21	<0.34	<0.51	<0.0125	35.48
4	RC 44 - 12	<0.23	<0.012	<0.029	51.50	<0.09	0.47	8.18	6.65	<0.55	0.23	<0.34	0.77	<0.0125	31.46
5	RC 44 - 13	<0.23	<0.012	<0.029	49.60	<0.09	0.38	8.09	11.10	<0.55	<0.21	<0.34	0.60	<0.0125	29.94
6	RC 44 - 14	<0.23	<0.012	<0.029	53.00	<0.09	0.62	15.90	4.39	<0.55	<0.21	<0.34	1.66	<0.0125	24.29
7	RC 44 - 15	<0.23	<0.012	<0.029	53.30	<0.09	0.58	16.1	3.82	<0.55	<0.21	<0.34	1.63	<0.0125	24.45
8	RC 44 - 16	<0.23	<0.012	<0.029	54.20	<0.09	0.82	21.60	1.39	<0.55	<0.21	<0.34	2.28	<0.0125	19.58
9	RC 44 - 17	<0.23	<0.012	<0.029	53.80	<0.09	1.20	24.70	0.88	<0.55	<0.21	<0.34	2.76	<0.0125	16.56
10	RC 44 - 18	<0.23	<0.012	<0.029	53.90	<0.09	1.61	22.00	1.00	<0.55	<0.21	<0.34	2.35	<0.0125	19.00
11	RC 44 - 19	<0.23	<0.012	<0.029	42.90	<0.09	0.74	13.70	22.50	<0.55	<0.21	<0.34	1.24	<0.0125	18.81

مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00256/08/2022-CH001-126

Test Report Date : 24/08/2022

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
12	RC 44 - 20	< 0.23	< 0.012	< 0.029	52.70	< 0.09	1.35	26.40	2.70	< 0.55	< 0.21	< 0.34	2.77	< 0.0125	13.90
13	RC 44 - 21	< 0.23	< 0.012	< 0.029	35.20	< 0.09	0.74	17.60	35.00	< 0.55	< 0.21	< 0.34	1.44	< 0.0125	9.28
14	RC 44 - 22	< 0.23	< 0.012	< 0.029	47.20	< 0.09	0.91	24.70	13.50	< 0.55	< 0.21	< 0.34	2.53	< 0.0125	11.07
15	RC 44 - 23	< 0.23	< 0.012	< 0.029	43.10	< 0.09	0.64	17.60	21.90	< 0.55	< 0.21	< 0.34	1.64	< 0.0125	15.08
16	RC 44 - 24	< 0.23	< 0.012	< 0.029	43.30	< 0.09	0.91	20.10	20.50	< 0.55	< 0.21	< 0.34	1.89	< 0.0125	13.04
17	RC 44 - 25	< 0.23	< 0.012	< 0.029	27.00	< 0.09	0.35	8.96	51.80	< 0.55	< 0.21	< 0.34	< 0.51	< 0.0125	11.13
18	RC 44 - 26	< 0.23	< 0.012	< 0.029	27.70	< 0.09	0.17	6.32	50.50	< 0.55	< 0.21	< 0.34	< 0.51	< 0.0125	14.61
19	RC 44 - 27	< 0.23	< 0.012	< 0.029	11.70	< 0.09	< 0.058	2.37	79.80	< 0.55	< 0.21	< 0.34	< 0.51	< 0.0125	5.90
20	RC 44 - 28	< 0.23	< 0.012	< 0.029	9.43	< 0.09	< 0.058	1.40	83.70	< 0.55	< 0.21	< 0.34	< 0.51	< 0.0125	5.25
21	RC 44 - 29	< 0.23	< 0.012	< 0.029	24.00	< 0.09	< 0.058	2.05	58.30	< 0.55	< 0.21	< 0.34	< 0.51	< 0.0125	15.50
22	RC 44 - 30	< 0.23	< 0.012	< 0.029	35.30	< 0.09	< 0.058	2.00	38.40	< 0.55	< 0.21	< 0.34	< 0.51	< 0.0125	24.27
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.

وزارة الطاقة والبنية التحتية
مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00256/08/2022-CH001-126

Test Report Date : 24/08/2022

Notes:

- **The results were done on dry basis.**
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....
.....
.....
.....

Additional Comments:

NA.....
.....
.....
.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head (Name and Sign) : Eng. Maysoon Alkhzahee

Technical Manager (Name and Sign)

: Chemist Hanady Al Sharif

Lab Manager (Name and Sign) : Eng. Maysoon Alkhzahee

وزارة الصحة
مديرية المختبرات والجودة

X-Ray Spectrometric Analysis Test Report

Test Report No.		: 00287/09/2022 -CH001-137										Test Report Date : 26/09/2022					
Lab Name		: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources															
Lab Address		: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman – Jordan (www.memr.gov.jo)															
Client Name		: مديرية دراسات المصادر الطبيعية															
Client Address		:-															
Division		: Chemical & Mineral Analysis Lab / XRF Lab										Testing Location : At the Lab facility.					
Methods Used		: BS EN 15309-2007				Lab Ref. Work Instruction				: WI-REP-01				Used for : XRF spectrometric analysis & LOI			
Sampling Method		: By the customer															
Sample Type		: صلبة															
Testing Date		: 21/09/2022															
Item	S.ID.	Fe ₂ O ₃ Wt.%	MnO Wt.%	TiO ₂ Wt.%	CaO Wt.%	K ₂ O Wt.%	SO ₃ Wt.%	P ₂ O ₅ Wt.%	SiO ₂ Wt.%	Al ₂ O ₃ Wt.%	MgO Wt.%	Na ₂ O Wt.%	F Wt.%	U Wt.%	L.O.I Wt.%		
1	RC 45 11 B – 01	< 0.23	< 0.012	< 0.029	55.00	< 0.09	0.59	21.40	0.32	< 0.55	< 0.21	< 0.34	2.32	< 0.0125	20.20		
2	RC 45 11 C – 02	< 0.23	< 0.012	< 0.029	55.60	< 0.09	0.35	17.30	0.51	< 0.55	< 0.21	< 0.34	1.65	< 0.0125	24.34		
3	RC 45 12 A – 03	< 0.23	< 0.012	< 0.029	55.30	< 0.09	0.62	20.50	0.37	< 0.55	0.23	< 0.34	1.94	< 0.0125	21.15		
4	RC 45 12 B – 04	< 0.23	< 0.012	< 0.029	54.90	< 0.09	1.01	20.00	0.33	< 0.55	< 0.21	< 0.34	2.09	< 0.0125	21.48		
5	RC 45 13 D – 05	< 0.23	< 0.012	< 0.029	54.20	< 0.09	0.77	21.70	0.77	< 0.55	< 0.21	< 0.34	2.31	< 0.0125	20.04		
6	RC 45 14 A – 06	< 0.23	< 0.012	< 0.029	52.20	< 0.09	1.21	33.30	2.42	< 0.55	< 0.21	< 0.34	3.79	< 0.0125	6.84		
7	RC 45 14 B – 07	< 0.23	< 0.012	< 0.029	52.80	< 0.09	1.23	33.80	1.72	< 0.55	< 0.21	< 0.34	3.93	< 0.0125	6.18		
8	RC 45 15 – 08	< 0.23	< 0.012	< 0.029	54.90	< 0.09	0.68	21.80	< 0.23	< 0.55	< 0.21	< 0.34	2.28	< 0.0125	20.13		
9	RC 45 16 – 09	< 0.23	< 0.012	< 0.029	54.80	< 0.09	0.71	21.10	< 0.23	< 0.55	< 0.21	< 0.34	2.35	< 0.0125	20.60		
10	RC 45 18 – 10	< 0.23	< 0.012	< 0.029	55.00	< 0.09	0.56	20.20	0.35	< 0.55	< 0.21	< 0.34	2.22	< 0.0125	21.48		
11	RC 45 09 – 11	< 0.23	< 0.012	< 0.029	55.00	< 0.09	0.46	14.30	0.35	< 0.55	0.24	< 0.34	1.52	< 0.0125	27.94		

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00287/09/2022 -CH001-137

Test Report Date : 26/09/2022

Item	S.ID.	Fe ₂ O ₃ Wt.%	MnO Wt.%	TiO ₂ Wt.%	CaO Wt.%	K ₂ O Wt.%	SO ₃ Wt.%	P ₂ O ₅ Wt.%	SiO ₂ Wt.%	Al ₂ O ₃ Wt.%	MgO Wt.%	Na ₂ O Wt.%	F Wt.%	U Wt.%	L.O.I Wt.%
12	RC 45 10 A - 12	<0.23	<0.012	<0.029	55.20	<0.09	0.44	16.40	0.33	<0.55	<0.21	<0.34	1.77	<0.0125	25.59
13	RC 45 10 B - 13	<0.23	<0.012	<0.029	54.70	<0.09	0.16	10.70	2.41	<0.55	<0.21	<0.34	1.12	<0.0125	30.90
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.

وزارة الطاقة والمياه
 المديرية المختبرات والجودة

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00287/09/2022 -CH001-137

Test Report Date : 26/09/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head (Name and Sign)

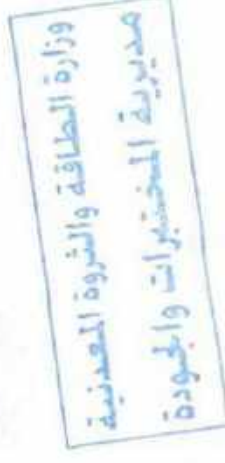
: Eng. Nidal Tayyem

Technical Manager (Name and Sign)

: Chemist Hanady Al Sharif

Lab Manager (Name and Sign)

: Eng. Maysoon Alkhzahee



Relative Density (S.G.) and Absorption of Coarse Aggregate Test Report



Test Report No. : 00244/08/2022 SO-10-280		Test Report Date : 8/8/2022	
Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources			
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)			
Client Name : مديرية دراسات المصادر الطبيعية			
Client Address : -			
Division : Soil and Rock Mechanics		Testing Location : At the Lab facility.	
Methods Used : ASTM C 127-15		Lab Ref. Work Instruction : WI-REP-09	
		Used for : Relative Density and Absorption	
Sampling Method : By the customer		Sample Reception Date : 2/8/2022	
Sample Type : صلبة		Sample Location : -	
Testing Date : 2/8/2022			
Type of Material: صلبة			
Total Weight of Sample: N/A			
Item	Description	Sample	Uncertainty (if required)
1	Sample ID	Rph 1-BH 46(1-17)	N/R
2	Relative Density (oven dry basis)	2.55	N/R
3	Relative Density (S.S.D dry basis)	2.59	N/R
4	Apparent Relative Density	2.66	N/R
5	Absorption %	1.7	N/R

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty are evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

Relative Density (S.G.) and Absorption of Coarse Aggregate Test Report



Test Report No. : 00244/08/2022 SO-10-280

Test Report Date : 8/8/2022

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign)

: Tech. Maha Obaid.

Division Head (Name and Sign) : Eng. Husni Alsaqer.

Technical Manager (Name and Sign)

: Chem. Hanady Al-Sharif.

Lab Manager (Name and Sign) : Eng. Maysoon Alkhzahee.

X-Ray Spectrometric Analysis Test Report

Test Report No.	: 00244/08/2022 -CH001-117	Test Report Date	: 11/08/2022
Lab Name	: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources		
Lab Address	: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)		
Client Name	: مديرية دراسات المصادر الطبيعية		
Client Address	: -		
Division	: Chemical & Mineral Analysis Lab / XRF Lab	Testing Location	: At the Lab facility.
Methods Used	: BS EN 15309-2007	Lab Ref. Work Instruction	: WI-REP-01
		Used for	: XRF spectrometric analysis & LOI

Sampling Method	: By the customer	Sample Reception Date	: 02/08/2022
Sample Type	: صلبة	Sample Location	: -
Testing Date	: 08/08/2022		

Item	S.ID.	Fe ₂ O ₃ Wt.%	MnO Wt.%	TiO ₂ Wt.%	CaO Wt.%	K ₂ O Wt.%	SO ₃ Wt.%	P ₂ O ₅ Wt.%	SiO ₂ Wt.%	Al ₂ O ₃ Wt.%	MgO Wt.%	Na ₂ O Wt.%	F Wt.%	U Wt.%	L.O.I Wt.%
1	RPH1-BH46-1	<0.23	<0.012	<0.029	55.40	<0.09	0.21	0.65	1.65	<0.55	<0.21	<0.34	<0.51	<0.0125	41.92
2	RPH1-BH46-2	0.58	<0.012	0.078	45.80	<0.09	0.49	2.65	14.80	1.87	0.56	<0.34	<0.51	<0.0125	33.10
3	RPH1-BH46-3	<0.23	<0.012	<0.029	53.50	<0.09	<0.058	2.90	4.78	<0.55	<0.21	<0.34	<0.51	<0.0125	38.16
4	RPH1-BH46-4	<0.23	<0.012	<0.029	50.50	<0.09	0.25	2.41	10.10	0.57	<0.21	<0.34	<0.51	<0.0125	35.96
5	RPH1-BH46-5	<0.23	<0.012	<0.029	53.40	<0.09	2.67	1.90	3.34	<0.55	<0.21	<0.34	<0.51	<0.0125	38.27
6	RPH1-BH46-6	<0.23	<0.012	<0.029	47.20	<0.09	0.16	1.24	16.00	<0.55	<0.21	<0.34	<0.51	<0.0125	34.85
7	RPH1-BH46-7	<0.23	<0.012	<0.029	53.80	<0.09	<0.058	2.00	5.03	<0.55	<0.21	<0.34	<0.51	<0.0125	38.69
8	RPH1-BH46-8	<0.23	<0.012	<0.029	55.40	<0.09	0.60	13.20	<0.23	<0.55	<0.21	<0.34	1.49	<0.0125	29.28
9	RPH1-BH46-9	<0.23	<0.012	<0.029	56.00	<0.09	<0.058	2.61	0.55	<0.55	<0.21	<0.34	<0.51	<0.0125	40.51
10	RPH1-BH46-10	<0.23	<0.012	<0.029	56.00	<0.09	0.19	7.29	<0.23	<0.55	<0.21	<0.34	0.58	<0.0125	35.75
11	RPH1-BH46-11	<0.23	<0.012	<0.029	22.10	<0.09	0.41	9.18	59.70	<0.55	<0.21	0.44	<0.51	<0.0125	7.55

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00244/08/2022 -CH001-117 Test Report Date : 11/08/2022

Item	S.ID.	Fe ₂ O ₃ Wt.%	MnO Wt.%	TiO ₂ Wt.%	CaO Wt.%	K ₂ O Wt.%	SO ₃ Wt.%	P ₂ O ₅ Wt.%	SiO ₂ Wt.%	Al ₂ O ₃ Wt.%	MgO Wt.%	Na ₂ O Wt.%	F Wt.%	U Wt.%	L.O.I Wt.%
12	RPH1-BH46-12	< 0.23	< 0.012	< 0.029	54.60	< 0.09	0.62	16.90	1.27	< 0.55	< 0.21	< 0.34	1.71	< 0.0125	24.76
13	RPH1-BH46-13	< 0.23	< 0.012	< 0.029	49.70	< 0.09	0.59	14.10	10.70	< 0.55	< 0.21	< 0.34	1.21	< 0.0125	23.46
14	RPH1-BH46-14	< 0.23	< 0.012	< 0.029	41.60	< 0.09	0.58	15.10	25.40	< 0.55	< 0.21	< 0.34	1.17	< 0.0125	16.03
15	RPH1-BH46-15	< 0.23	< 0.012	< 0.029	49.40	< 0.09	0.58	13.50	11.30	< 0.55	< 0.21	< 0.34	1.19	< 0.0125	23.92
16	RPH1-BH46-16	< 0.23	< 0.012	< 0.029	53.40	< 0.09	0.54	11.10	4.24	< 0.55	< 0.21	< 0.34	0.98	< 0.0125	29.53
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00244/08/2022 -CH001-117

Test Report Date : 11/08/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....
.....
.....
.....

Additional Comments:

NA.....
.....
.....
.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head (Name and Sign) : Eng. Maysoon Alkhzaheer

Technical Manager (Name and Sign)

: Chemist Hanady Al Sharif

Lab Manager (Name and Sign) : Eng. Maysoon Alkhzaheer

وزارة الطاقة والفحم
مديرية المختبرات والجودة



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00229/07/2022 -CH001-112

Test Report Date : 27/07/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources

Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية المشتك الطبيعية

Client Address : -

Division : Chemical & Mineral Analysis Lab / XRF Lab

Testing Location : At the Lab facility.

Methods Used : BS EN 15309-2007 Lab Ref. Work Instruction : W1-REP-01 Used for : XRF spectrometric analysis & LOI

Sampling Method : By the customer

Sample Type : صلبة

Testing Date : 25/07/2022

Sample Reception Date : 19/07/2022

Sample Location : -

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RC-31B - 08	< 0.23	< 0.012	< 0.009	55.90	< 0.09	0.30	10.60	0.53	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	32.17
2	RC-31B - 11	< 0.23	< 0.012	< 0.009	52.40	< 0.09	0.18	8.130	7.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	31.65
3	RC-31B - 12	< 0.23	< 0.012	< 0.009	30.80	< 0.09	0.78	19.20	42.80	< 0.55	< 0.21	0.66	< 0.51	< 0.0125	4.83
4	RC-31B - 17	< 0.23	< 0.012	< 0.009	47.20	< 0.09	0.70	19.30	15.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	16.89
5	RC-31B - 19	< 0.23	< 0.012	< 0.009	55.60	< 0.09	0.73	20.30	0.43	< 0.55	< 0.21	< 0.33	0.55	< 0.0125	22.21
6	RC-31 - 14	< 0.23	< 0.012	0.009	55.80	< 0.09	0.80	17.90	0.20	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	24.63
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.

وزارة الطاقة والثروة المعدنية



X-Ray Spectrometric Analysis Test Report

Test Report No. : 00229/07/2022 -CH001-112 Test Report Date : 27/07/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayyem
Eng. Feryal Yosef

Division Head (Name and Sign) : Eng. Maysoon Alkhazhaee

Technical Manager (Name and Sign)

: Chemist Hanady Al Sharif

Lab Manager (Name and Sign)

: Eng. Maysoon Alkhazhaee

وزارة الطاقة والكهرباء

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00212/06/2022 -CH001-099

Test Report Date : 04/07/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
 Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.menr.gov.jo)

Client Name : مديرية لرأسات المعادن الطبيعية
 Client Address : -

Division : Chemical & Mineral Analysis Lab / XRF Lab

Testing Location : At the Lab facility.

Methods Used : BS EN 15309-2007 Lab Ref. Work Instruction : WL-REP-01 Used for : XRF spectrometric analysis & LOI

Sampling Method : By the customer
 Sample Type : صلبة
 Testing Date : 30/06/2022

Sample Reception Date : 28/06/2022
 Sample Location :

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RC 31A-1	0.68	< 0.012	0.10	43.90	< 0.09	< 0.058	0.38	19.10	1.08	0.56	< 0.33	< 0.51	< 0.0125	34.25
2	RC 31A-2	0.66	< 0.012	0.11	46.30	< 0.09	0.074	0.46	14.90	1.07	0.63	< 0.33	< 0.51	< 0.0125	35.79
3	RC 31A-3	0.58	< 0.012	0.092	38.90	< 0.09	3.42	0.44	26.80	0.82	0.53	< 0.33	< 0.51	< 0.0125	28.48
4	RC 31A-4	0.30	< 0.012	0.048	46.10	< 0.09	3.49	1.07	14.60	< 0.55	0.30	< 0.33	< 0.51	< 0.0125	33.60
5	RC 31A-5	< 0.23	< 0.012	< 0.029	50.10	< 0.09	0.51	0.85	11.30	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	36.77
6	RC 31A-6	< 0.23	< 0.012	0.034	50.20	< 0.09	0.39	1.57	10.60	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	36.53
7	RC 31A-7	< 0.23	< 0.012	0.030	52.40	< 0.09	0.58	4.31	6.78	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	35.16
8	RC 31A-8	< 0.23	< 0.012	< 0.029	54.80	< 0.09	0.27	8.30	3.13	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	33.02
9	RC 31A-9	< 0.23	< 0.012	< 0.029	47.80	< 0.09	0.17	6.72	15.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	29.30
10	RC 31A-10	< 0.23	< 0.012	0.043	42.80	< 0.09	0.25	8.23	23.50	< 0.55	< 0.21	< 0.33	< 0.51	< 0.0125	24.38
11	RC 31A-11	0.39	< 0.012	0.072	46.60	< 0.09	0.72	19.00	14.00	0.61	< 0.21	< 0.33	1.83	< 0.0125	16.62

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00212/06/2022 -CH001-099

Test Report Date : 04/07/2022

Item	SID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
12	RC 31A - 12	< 0.23	< 0.012	< 0.029	50.60	< 0.09	0.69	16.00	8.02	< 0.55	< 0.21	< 0.33	1.64	< 0.0125	22.52
13	RC 31A - 13	< 0.23	< 0.012	< 0.029	44.00	< 0.09	0.97	22.80	19.00	< 0.55	< 0.21	< 0.33	2.51	< 0.0125	10.40
14	RC 31A - 15	0.28	< 0.012	0.045	46.50	< 0.09	1.16	24.60	13.60	< 0.55	< 0.21	< 0.33	2.43	< 0.0125	10.87
15	RC 31A - 16	0.28	< 0.012	0.047	44.30	< 0.09	1.01	21.20	18.10	< 0.55	< 0.21	< 0.33	2.07	< 0.0125	12.52
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00212/06/2022 -CH001-099

Test Report Date : 04/07/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayem
Eng. Feryal Yosef



Division Head (Name and Sign)

: Eng. Maysoon Alkhazhee



Technical Manager (Name and Sign) : Chemist Hanady Al Sharif



Lab Manager (Name and Sign)

: Eng. Maysoon Alkhazhee



وزارة الطاقة والثروة المعدنية
 مديرية المختبرات والجودة

X-Ray Spectrometric Analysis Test Report

Test Report No.

: 00296/09/2022 -CH001-140

Test Report Date : 03/10/2022

Lab Name

: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources

Lab Address

: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name

: مديرية نرسات المعادن الطبيعية

Client Address

: -

Division

: Chemical & Mineral Analysis Lab / XRF Lab

Testing Location : At the Lab facility.

Methods Used

: BS EN 15309-2007

Lab Ref. Work Instruction

: WI-REP-01

Used for

: XRF spectrometric analysis & LOI

Sampling Method

: By the customer

Sample Type

: صلبة

Sample Reception Date : 20/09/2022

Testing Date

: 28/09/2022

Sample Location :

Item	S.ID.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
1	RPD-1	< 0.23	< 0.012	< 0.029	52.30	< 0.09	1.11	32.90	2.99	< 0.55	< 0.21	< 0.34	3.59	< 0.0125	6.90
2	RPD-2	< 0.23	< 0.012	< 0.029	52.50	< 0.09	0.73	31.20	3.71	< 0.55	< 0.21	< 0.34	3.40	< 0.0125	8.42
3	RPD-3	< 0.23	< 0.012	< 0.029	53.00	< 0.09	1.03	31.90	2.04	< 0.55	< 0.21	< 0.34	3.49	< 0.0125	8.43
4	RPD-4	< 0.23	< 0.012	< 0.029	50.50	< 0.09	0.98	30.20	6.33	< 0.55	< 0.21	< 0.34	3.35	< 0.0125	8.40
5	RPD-5	< 0.23	< 0.012	< 0.029	44.30	< 0.09	0.71	26.90	18.60	< 0.55	< 0.21	< 0.34	2.68	< 0.0125	6.61
6	RPD-6	< 0.23	< 0.012	< 0.029	53.30	< 0.09	1.35	33.10	0.76	< 0.55	< 0.21	< 0.34	3.90	< 0.0125	7.43
7	RPD-7	< 0.23	< 0.012	< 0.029	52.80	< 0.09	1.26	31.80	1.82	< 0.55	< 0.21	< 0.34	3.72	< 0.0125	8.57
8	RPD-8	< 0.23	< 0.012	< 0.029	51.80	< 0.09	1.14	33.10	3.72	< 0.55	< 0.21	< 0.34	3.81	< 0.0125	6.41
9	RPD-9	< 0.23	< 0.012	< 0.029	48.80	< 0.09	1.00	29.90	9.87	< 0.55	< 0.21	< 0.34	3.23	< 0.0125	7.08
10	RPD-10	< 0.23	< 0.012	< 0.029	52.50	< 0.09	1.17	33.10	2.69	< 0.55	< 0.21	< 0.34	3.84	< 0.0125	6.71
11	RPD-11	< 0.23	< 0.012	< 0.029	52.60	< 0.09	1.17	32.40	1.59	< 0.55	< 0.21	< 0.34	3.67	< 0.0125	8.46

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00296/09/2022 -CH001-140

Test Report Date : 03/10/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
12	RPD-12	< 0.23	< 0.012	< 0.029	53.60	< 0.09	1.08	32.10	1.07	< 0.55	< 0.21	< 0.34	3.53	< 0.0125	8.58
13	RPD-13	< 0.23	< 0.012	< 0.029	48.90	< 0.09	1.04	29.20	9.67	< 0.55	< 0.21	< 0.34	3.01	< 0.0125	8.03
14	RPD-14	< 0.23	< 0.012	< 0.029	47.70	< 0.09	0.97	30.70	11.70	< 0.55	< 0.21	< 0.34	3.28	< 0.0125	5.50
15	RPD-15	< 0.23	< 0.012	< 0.029	53.00	< 0.09	1.29	33.90	1.01	< 0.55	< 0.21	< 0.34	3.83	< 0.0125	6.83
16	RPD-16	< 0.23	< 0.012	< 0.029	52.40	< 0.09	1.32	32.10	1.84	< 0.55	< 0.21	< 0.34	3.66	< 0.0125	8.54
17	RPD-17	< 0.23	< 0.012	< 0.029	52.50	< 0.09	1.10	34.10	2.31	< 0.55	< 0.21	< 0.34	3.86	< 0.0125	5.98
18	RPD-18	< 0.23	< 0.012	< 0.029	52.10	< 0.09	0.96	29.40	4.26	< 0.55	< 0.21	< 0.34	3.20	< 0.0125	9.96
19	RPD-19	< 0.23	< 0.012	< 0.029	48.70	< 0.09	0.78	30.80	10.50	< 0.55	< 0.21	< 0.34	3.17	< 0.0125	5.97
20	RPD-20	< 0.23	< 0.012	< 0.029	53.50	< 0.09	1.15	34.90	0.52	< 0.55	< 0.21	< 0.34	4.12	< 0.0125	5.71
21	RPD-21	< 0.23	< 0.012	< 0.029	53.50	< 0.09	1.20	33.70	0.49	< 0.55	< 0.21	< 0.34	3.94	< 0.0125	7.09
22	RPD-22	< 0.23	< 0.012	< 0.029	53.20	< 0.09	1.10	32.20	1.66	< 0.55	< 0.21	< 0.34	3.60	< 0.0125	8.21
23	RPD-23	< 0.23	< 0.012	< 0.029	51.10	< 0.09	0.93	33.50	5.14	< 0.55	< 0.21	< 0.34	3.95	< 0.0125	5.36
24	RPD-24	< 0.23	< 0.012	< 0.029	53.40	< 0.09	0.83	30.50	1.19	< 0.55	< 0.21	< 0.34	3.67	< 0.0125	10.27
25	RPD-25	1.03	< 0.012	< 0.029	52.60	< 0.09	1.24	32.50	0.66	< 0.55	< 0.21	< 0.34	3.64	< 0.0125	8.27
26	RPD-26	< 0.23	< 0.012	< 0.029	53.40	< 0.09	1.19	29.20	0.53	< 0.55	< 0.21	< 0.34	3.34	< 0.0125	12.15
27	RPD-27	< 0.23	< 0.012	< 0.029	47.40	< 0.09	0.66	23.70	13.30	< 0.55	< 0.21	< 0.34	2.58	< 0.0125	12.22
28	RPD-28	< 0.23	< 0.012	< 0.029	49.30	< 0.09	1.16	31.00	8.66	< 0.55	< 0.21	< 0.34	3.24	< 0.0125	6.55
29	RPD-29	< 0.23	< 0.012	< 0.029	48.00	< 0.09	0.94	28.80	11.50	< 0.55	< 0.21	< 0.34	3.04	< 0.0125	7.53
30	RPD-30	< 0.23	< 0.012	< 0.029	52.80	< 0.09	1.29	30.90	1.67	< 0.55	< 0.21	< 0.34	3.57	< 0.0125	9.56
31	RPD-31	< 0.23	< 0.012	< 0.029	51.80	< 0.09	1.18	32.40	2.95	< 0.55	< 0.21	< 0.34	3.88	< 0.0125	7.69
32	RPD-32	< 0.23	< 0.012	< 0.029	51.90	< 0.09	1.08	32.90	3.10	< 0.55	< 0.21	< 0.34	3.80	< 0.0125	7.13

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00296/09/2022 -CH001-140

Test Report Date : 03/10/2022

Item	S.I.D.	Fe ₂ O ₃ Wt. %	MnO Wt. %	TiO ₂ Wt. %	CaO Wt. %	K ₂ O Wt. %	SO ₃ Wt. %	P ₂ O ₅ Wt. %	SiO ₂ Wt. %	Al ₂ O ₃ Wt. %	MgO Wt. %	Na ₂ O Wt. %	F Wt. %	U Wt. %	L.O.I Wt. %
33	RPD- 33	< 0.23	< 0.012	< 0.029	50.70	< 0.09	0.98	32.10	5.63	< 0.55	< 0.21	< 0.34	3.63	< 0.0125	6.81
34	RPD- 34	< 0.23	< 0.012	< 0.029	53.10	< 0.09	0.95	34.30	1.51	< 0.55	< 0.21	< 0.34	4.00	< 0.0125	6.11
35	RPD- 35	< 0.23	< 0.012	< 0.029	52.10	< 0.09	0.93	33.60	2.93	< 0.55	< 0.21	< 0.34	3.90	< 0.0125	6.35
36	RPD- 36	< 0.23	< 0.012	< 0.029	50.80	< 0.09	0.88	31.80	5.64	< 0.55	< 0.21	< 0.34	3.52	< 0.0125	7.17
37	RPD- 37	1.39	< 0.012	< 0.029	49.20	< 0.09	1.05	31.60	5.83	< 0.55	< 0.21	< 0.34	3.60	< 0.0125	7.13
38	RPD- 38	< 0.23	< 0.012	< 0.029	51.30	< 0.09	1.02	33.00	4.23	< 0.55	< 0.21	< 0.34	3.83	< 0.0125	6.51
39	RPD- 39	< 0.23	< 0.012	< 0.029	51.30	< 0.09	1.12	32.20	4.39	< 0.55	< 0.21	< 0.34	3.23	< 0.0125	6.91
Uncertainty (if required):		-	-	-	-	-	-	-	-	-	-	-	-	-	-

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

وزارة الطاقة والثروة المعدنية

مديرية المختبرات والجودة

X-Ray Spectrometric Analysis Test Report

Test Report No. : 00296/09/2022 -CH001-140

Test Report Date : 03/10/2022

Notes:

- The results were done on dry basis.
- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

NA.....

Additional Comments:

NA.....

Analyzed by (Name and Sign)

: Eng. Nidal Tayyem
Eng. Feryal Yosef

Acting Division Head (Name and Sign) : Eng. Nidal Tayyem

Technical Manager (Name and Sign)

: Chemist Hanady Al Sharif

Lab Manager (Name and Sign) : Eng. Maysoon Alkhazbee

X-Ray Diffraction Analysis Test Report



Test Report No. : 00204/06/2022 CH07-47

Test Report Date: 26/06/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
 Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية ترسانت المعادن الطبيعية
 Client Address : -

Division : Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used : MEMR002-2020 Lab Ref. Work : WI-REP-02 Used for: X Ray diffraction analysis
 Instruction

Sampling Method : By the customer
 Sample Type : Solid
 Testing Date : 23/06/2022

Sample Reception Date: 20/06/2022
 Sample Location: -

Tension (KV)	: 40	Radiation		: Cu	
Current (mA)	: 30	Angle Range(2θ)		: (5-70)°	
Item	Serial No.	Sample ID	Phase Identification		Uncertainty (if required)
			Major	Minor	
1	1731	RCA1-ACI	Calcite, Carbonate-fluorapatite		NA

X-Ray Diffraction Analysis Test Report



Test Report No. :00204/06/2022 CH07-47

Test Report Date: 26/06/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): Eng.Kholoud Ayvash

Eng.linda Al-Mahdameh

Division Head (Name and Sign): Eng.Maysoon Al-Khzahee

Technical Manager (Name and Sign): Chem. Hanady Al Sharif

Lab Manager (Name and Sign): Eng.Maysoon Al-Khzahee

وزارة الطاقة والثروة المعدنية
 مديرية المختبرات والبجودة

X-Ray Diffraction Analysis Test Report

Test Report No. : 00240/12/2021 CH07-01		Test Report Date: 02/01/2022	
Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources			
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman – Jordan (www.memr.gov.jo)			
Client Name : مديرية الجيولوجيا ودراسات المصادر الطبيعية			
Client Address : عمان وزارة الطاقة			
Division : Chemical & Mineral Analysis Lab		Testing Location : At the Lab facility.	
Methods Used : MEMR002-2020		Lab Ref. Work : WI-REP-02	Used for: X Ray diffraction analysis
Sampling Method : By the customer		Sample Reception Date: 26/12/2021	
Sample Type : Solid		Sample Location: -	
Testing Date : 27/12/2021			
Tension (KV) : 40		Radiation : Cu	
Current (mA) : 30		Angle Range(2θ) : (5°-70°)	



X-Ray Diffraction Analysis Test Report



Test Report No. : 00240/12/2021 CH07-01

Test Report Date: 02/01/2022

Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
5	1548	Rph-01-S6	Calcite, Carbonate-fluorapatite	Quartz	-	NA
6	1549	Rph-01-S7	Quartz, Calcite	Carbonate-fluorapatite	-	NA
7	1550	Rph-01-S8	Quartz, Calcite	Carbonate-fluorapatite	-	NA
8	1551	Rph-01-S9	Quartz, Calcite	Carbonate-fluorapatite	-	NA
9	1552	Rph-01-S10	Quartz	Calcite, Carbonate-fluorapatite	-	NA
10	1553	Rph-02-S4	Calcite, Quartz	-	Carbonate-fluorapatite	NA
11	1554	Rph-02-S5	Calcite, Carbonate-fluorapatite	-	Quartz	NA
12	1555	Rph-02-S6	Calcite, Carbonate-fluorapatite, Quartz	-	-	NA
13	1556	Rph-02-S7	Carbonate-fluorapatite, Apatite, Calcite	-	Quartz	NA
14	1557	Rph-02-S8	Calcite, Carbonate-fluorapatite	Quartz	-	NA
15	1558	Rph-02-S9	Calcite	Carbonate-fluorapatite	Quartz	NA

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:



X-Ray Diffraction Analysis Test Report



Test Report No. : 00240/12/2021 CH07-01

Test Report Date: 02/01/2022

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A

Additional Comments:

N/A

Analyzed by (Name and Sign): *Eng. Kholoud Ayyash*

Eng. Linda Al-Makadmeh

Technical Manager (Name and Sign): *Chem. Hanady Al Sharif*

Division Head (Name and Sign): *Eng. Maysoon Al-Khzahee*

Lab Manager (Name and Sign): *Eng. Maysoon Al-Khzahee*

X-Ray Diffraction Analysis Test Report



Test Report No. : 0010-01-2022 CH07-04

Test Report Date: 16-01-2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
 Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman – Jordan (www.memr.gov.jo)

Client Name : مديرية دراسات المعادن الطبيعية
 Client Address : عمان

Division : Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used : MEMR002-2020 Lab Ref. Work : WL-REP-02 Used for: X Ray diffraction analysis
 Instruction

Sampling Method : By the customer
 Sample Type : solid
 Testing Date : 10-01-2022

Sample Reception Date: 09-01-2022
 Sample Location: -

Tension (KV)		: 40		Radiation		: Cu	
Current (mA)		: 30		Angle Range(2 θ)		: (5-70)*	
Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)	
			Major	Minor	Trace		
1	1626	Rph1-06-08	Calcite ,Fluorapatite	-	Quartz , Gypsum	NA	

وزارة الطاقة والموارد المعدنية
 مديرية دراسات المعادن الطبيعية

X-Ray Diffraction Analysis Test Report



Test Report No. : 0010-01-2022 CH07-04

Test Report Date: 16-01-2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): Eng. Kholoud Ayyash

Eng. Linda Al-Makadmeh

Division Head (Name and Sign): Eng. Maysoun Al-Khazae

Technical Manager (Name and Sign): Chem. Hanady Al Sharif

Lab Manager (Name and Sign): Eng. Maysoun Al-Khazae

وزارة الطاقة والمعادن
مديرية المختبرات والفحوصات

X-Ray Diffraction Analysis Test Report



Test Report No. : 0011-01-2022 CH07-05

Test Report Date: 16-01-2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
 Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman – Jordan (www.memr.gov.jo)

Client Name : مديرية دراسات المعادن الطبيعية
 Client Address : عمان

Division : Chemical & Mineral Analysis Lab
 Testing Location : At the Lab facility.

Methods Used : MEMR002-2020
 Lab Ref. Work : WL-REP-02
 Instruction : Used for: X Ray diffraction analysis

Sampling Method : By the customer
 Sample Type : Solid
 Testing Date : 10-01-2022
 Sample Reception Date: 09-01-2022
 Sample Location: -

Tension (KV)		: 40	Radiation		: Cu	
Current (mA)		: 30	Angle Range(2θ)		: (5-70)°	
Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
1	1627	Rph1-07-08	Calcite	-	Quartz	NA



X-Ray Diffraction Analysis Test Report



Test Report No. :0011-01-2022 CH07-05

Test Report Date:16-01-2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): Eng.Motlouid Ayush

Eng.linda Al-Makadmeh

Division Head (Name and Sign): Eng.Maysoon Al-Khzahee

Technical Manager (Name and Sign): Chem. Handdy Al Sharif

Lab Manager (Name and Sign): Eng.Maysoon Al-Khzahee

وزارة الصناعة والتجارة
مديرية المختبرات والجودة

X-Ray Diffraction Analysis Test Report



Test Report No. : 0012-01-2022 Ch07-06

Test Report Date: 16-01-2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
 Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman – Jordan (www.memr.gov.jo)

Client Name : مديرية تراسات المعادن الطبيعية
 Client Address : عمان

Division : Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used : MEMR002-2020 Lab Ref. Work : WL-REP-02 Used for: X Ray diffraction analysis
 Instruction

Sampling Method : By the customer
 Sample Type : Solid
 Testing Date : 10-01-2022

Sample Reception Date: 09-01-2022
 Sample Location:-

Tension (KV)		: 40		Radiation		: Cu	
Current (mA)		: 30		Angle Range(2θ)		: (5-70)°	
Item	Serial No.	Sample ID	Phase Identification				Uncertainty (if required)
			Major	Minor	Trace		
1	1628	Rph1-08-08	Calcite	-	Quartz	NA	

وزارة الطاقة والثروة المعدنية
 مديرية المختبرات والجودة

X-Ray Diffraction Analysis Test Report



Test Report No. :0012-01-2022 Ch07-06

Test Report Date: 16-01-2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): Eng.Kholoud Ayvash

Eng.linda Al-Makadmeh

Division Head (Name and Sign): Eng.Maysoon Al-Khazheer

Technical Manager (Name and Sign): Chem. Hamady Al Sharif

Lab Manager (Name and Sign): Eng.Maysoon Al-Khazheer

وزارة الصحة العامة
مديرية المختبرات والجودة



X-Ray Diffraction Analysis Test Report



Test Report No. : 00053/02/2022 CH07-12

Test Report Date: 16/02/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman – Jordan (www.memr.gov.jo)

Client Name : مديرية دراسات المعادن الطبيعية
Client Address : -

Division : Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used : MEMR002-2020 Lab Ref. Work : W1-REP-02 Used for: X Ray diffraction analysis
Instruction

Sampling Method : By the customer
Sample Type : Solid
Testing Date : 14/02/2022
Sample Reception Date: 14/02/2022
Sample Location: -

Tension (KV)		: 40		Radiation		: Cu	
Current (mA)		: 30		Angle Range(2θ)		: (5-70)°	
Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)	
			Major	Minor	Trace		
1	1642	Rphl-BH16 13	Calcite	Carbonate-fluorapatite	Quartz	NA	

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

X-Ray Diffraction Analysis Test Report



Test Report No. : 00053/02/2022 CH07-12

Test Report Date: 16/02/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A

Additional Comments:

N/A

Analyzed by (Name and Sign): Eng. Kholoud Ayyash

Eng. Imda Al-Makadneh

Division Head (Name and Sign): Eng. Maysoun Al-Khzahee

Technical Manager (Name and Sign): Chem. Hanady Al Sharif

Lab Manager (Name and Sign): Eng. Maysoun Al-Khzahee

X-Ray Diffraction Analysis Test Report

Test Report No. :0054-02-2022 CH07-13

Test Report Date:22-02-2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية دراسات المعادن الطبيعية
Client Address : -

Division : Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used : MEMR002-2020 Lab Ref. Work : W1-REP-02 Used for: X Ray diffraction analysis
Instruction

Sampling Method : By the customer
Sample Type : solid
Testing Date :21-02-2022
Sample Reception Date:14-2-2022
Sample Location: -

Tension (K V) : 40 Radiation : Cu
Current (mA) : 30 Angle Range : (5-70)°

Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
1	I643a	Rph1-BH 17-21	Calcite,Fluorapatite	Quartz	-	NA

Test Report No. :0054-02-2022 CH07-13

Test Report Date: 22-02-2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards, The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A

Additional Comments:

• • • • •

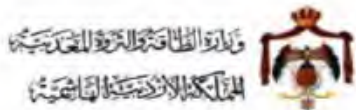
Analyzed by (Name and Sign): *Eng. Kholoud Ayyash*

Eng. Linda Al-Makadmeh

Division Head (Name and Sign): *Eng. Maysoon Al-Khzahee*

Technical Manager (Name and Sign): *Chem. Hanady Al Sharif*

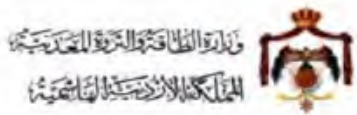
Lab Manager (Name and Sign): Eng. Maysoon Al-Khazaei



X-Ray Diffraction Analysis Test Report



Test Report No.	:00066/02/2022 CH07-18	Test Report Date:	07/03/2022			
Lab Name	: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources					
Lab Address	: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman – Jordan (www.memr.gov.jo)					
Client Name	: مديرية دراسات المصادر الطبيعية					
Client Address	:					
Division	: Chemical & Mineral Analysis Lab	Testing Location	: At the Lab facility.			
Methods Used	: MEMR002-2020	Lab Ref. Work Instruction	: WI-REP-02			
		Used for:	X Ray diffraction analysis			
Sampling Method	: By the customer	Sample Reception Date:	24/02/2022			
Sample Type	: Solid	Sample Location:	-			
Testing Date	:24/02/2022					
Tension (KV)	: 40	Radiation	: Cu			
Current (mA)	: 30	Angle Range(2θ)	: (5-70)°			
Item	Serial No.	Sample ID	Phase Identification	Uncertainty (if required)		
			Major	Minor	Trace	
1	1651	Rph1-BH 21 16	Carbonate-fluorapatite , Calcite	-	Anhydrite	NA



X-Ray Diffraction Analysis Test Report



Test Report No. :00066/02/2022 CH07-18

Test Report Date: 07/03/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): **Eng. Kholoud Ayyash**

Eng. Linda Al-Makadmeh

Division Head (Name and Sign): **Eng. Maysoon Al-Khzahee**

Technical Manager (Name and Sign): **Chem. Hanady Al Sharif**

Lab Manager (Name and Sign): **Eng. Maysoon Al-Khzahee**

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



X-Ray Diffraction Analysis Test Report



JAS
Jordanian Accreditation Unit
Accreditation Unit
TEST-061

Test Report No. : 00063/02/2022 CH07-19

Test Report Date: 14/03/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية دراست المصالح الطبيعية
Client Address : عمان

Division : Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used : MEMR002-2020 Lab Ref. Work : W1-REP-02 Used for: X Ray diffraction analysis
Instruction

Sampling Method : By the customer
Sample Type : Solid
Testing Date : 24/02/2022

Sample Reception Date: 23/02/2022
Sample Location: -

Tension (KV) : 40
Current (mA) : 30

Radiation : Cu
Angle Range(2 θ) : (5-70) $^{\circ}$

Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
1	1648	Rph1-BH 22 21	Carbonate-fluorapatite, Calcite	Quartz	Anhydrite	NA

نتيجة الاختبارات والجودة
مديرية دراست المصالح الطبيعية
الهيئة العامة للغذاء والدواء



X-Ray Diffraction Analysis Test Report



Test Report No. :00063/02/2022 CH07-19

Test Report Date: 14/03/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): *Eng. Kholoud Ayyash*

Eng. Linda Al-Makadmeh

Division Head (Name and Sign): *Eng. Maysoon Al-Khzahee*

[Signature]

Technical Manager (Name and Sign): *Chem. Hanady Al Sharif*

Lab Manager (Name and Sign): *Eng. Maysoon Al-Khzahee*

[Signature]

وزارة الطاقة والصناعة
المختبرات والجودة

X-Ray Diffraction Analysis Test Report



Test Report No. : 00067/02/2022 CH07-20

Test Report Date: 14/03/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
 Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman – Jordan (www.memr.gov.jo)

Client Name : مديرية تراسات المصادر الطبيعية
 Client Address : عمان
 Division : Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used : MEMR002-2020
 Lab Ref. Work : WI-REP-02
 Instruction : Used for: X Ray diffraction analysis

Sampling Method : By the customer
 Sample Type : Solid
 Testing Date : 28/02/2022
 Sample Reception Date: 28/02/2022
 Sample Location: -

Tension (KV) : 40
 Radiation : Cu
 Current (mA) : 30
 Angle Range(2θ)° : (5-70)°

Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
1	1653	Rphl-BH23A 15	Carbonate-fluorapatite, Calcite	Quartz	Anhydrite	NA
2	1654	Rphl-BH23A 18	Quartz	Carbonate-fluorapatite, Calcite	Feldspar	NA

X-Ray Diffraction Analysis Test Report



Test Report No. :00067/02/2022 CH07-20

Test Report Date: 14/03/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): Eng.Kholoud Ayyash

Eng.linda Al-Makadneh

Division Head (Name and Sign): Eng.Maysoon Al-Khazakee

Technical Manager (Name and Sign): Chem. Hanady Al Sharif

Lab Manager (Name and Sign): Eng.Maysoon Al-Khazakee

X-Ray Diffraction Analysis Test Report



Test Report No. : 00069/02/2022 CH07-22

Test Report Date: 15/03/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
 Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية دراسات المعادن الطبيعية
 Client Address : عمان
 Division : Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used : MEMR002-2020
 Lab Ref. Work : W1-REP-02
 Instruction : Used for: X Ray diffraction analysis

Sampling Method : By the customer
 Sample Type : Solid
 Testing Date : 01/03/2022

Sample Reception Date: 01/03/2022
 Sample Location: -

Tension (KV) : 40
 Current (mA) : 30
 Radiation : Cu
 Angle Range(2θ)* : (5-70)*

Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
1	1659	Rph1-BH24 6	Carbonate-fluorapatite, Calcite	Quartz	Anhydrite	NA
2	1660	Rph1-BH24 24	Calcite	Quartz	-	NA

ملاحظة والفحوصات المعدنية

المختبرات والجيولوجيا

X-Ray Diffraction Analysis Test Report



Test Report No. :00069/02/2022 CH07-22

Test Report Date: 15/03/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): Eng.Kholoud Ayyash

Eng.Linda Al-Makadmeh

Division Head (Name and Sign): Eng.Maysoon Al-Khzahee

Technical Manager (Name and Sign): Chem. Hanady Al Sharif

Lab Manager (Name and Sign): Eng.Maysoon Al-Khzahee

مملكة البحرين
 الاختبارات والجودة

X-Ray Diffraction Analysis Test Report

Test Report No. : 00070/02/2022 CH07-21

Test Report Date: 14/03/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية المشتات الطبيعية
Client Address : عمان
Division : Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used : MEMR002-2020 Lab Ref. Work : W1-REP-02 Used for: X Ray diffraction analysis
Instruction

Sampling Method : By the customer
Sample Type : Solid
Testing Date : 28/02/2022

Sample Reception Date: 28/02/2022
Sample Location: -

Tension (KV) : 40

Radiation

: Cu

Current (mA) : 30

Angle Range(2θ)°

: (5-70)°

Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
1	1656	Rph1-BH-25 15	Calcite, Quartz	Carbonate-fluorapatite	-	NA
2	1657	Rph1-BH-25 24	Carbonate-fluorapatite	Calcite	Quartz, Anhydrite	NA

أمانة المشتات الطبيعية

مديرية المشتات الطبيعية



X-Ray Diffraction Analysis Test Report



JAS
Jamaica Accreditation Scheme
لظام الاعتماد في
Accreditation Unit
TEST-061

Test Report No. :00070/02/2022 CH07-21

Test Report Date: 14/03/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): Eng.Kholoud Ayyash

Division Head (Name and Sign): Eng.Maysoun Al-Khzahee

Eng.linda Al-Makadmeh

Technical Manager (Name and Sign): Chem. Hanydy Al Sharif

Lab Manager (Name and Sign): Eng.Maysoun Al-Khzahee

وزارة الطاقة والثروة المعدنية
مركز الاختبارات والجودة



X-Ray Diffraction Analysis Test Report



JAS
Jordanian Accreditation System
Accreditation Unit
TEST-061

Test Report No. : 00104/04/2022 CH07-24

Test Report Date: 13-04-2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية دراسات المعادن الطبيعية
Client Address : -

Division : Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used : MEMR002-2020 Lab Ref. Work : WI-REP-02 Used for: X Ray diffraction analysis
Instruction

Sampling Method : By the customer
Sample Type : Solid
Testing Date : 05/04/2022

Sample Reception Date: 03/04/2022
Sample Location: -

Tension (KV) : 40

Radiation : Cu

Current (mA) : 30

Angle Range(2 θ) : (5-70) $^{\circ}$

Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
1	1670	Rph1-BH26 10	Calcite	Carbonate-fluorapatite	Quartz	NA

X-Ray Diffraction Analysis Test Report



Test Report No. : 00104/04/2022 CH07-24

Test Report Date: 13-04-2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A

Additional Comments:

N/A

Analyzed by (Name and Sign): Eng. Kholoud Ayyash

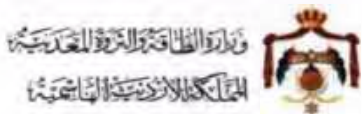
Eng. Linda Al-Makadneh

Division Head (Name and Sign): Eng. Maysoon Al-Khazae

Technical Manager (Name and Sign): Chem. Hanady Al Sharif

Lab Manager (Name and Sign): Eng. Maysoon Al-Khazae

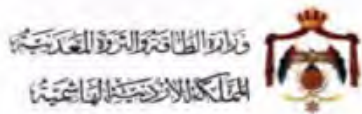
وزارة الطاقة والصحة المعدنية
مديرية المختبرات والجودة



X-Ray Diffraction Analysis Test Report



Test Report No.	: 00115/04/2022 CH07-27	Test Report Date:	18/04/2022			
Lab Name	: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources					
Lab Address	: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman – Jordan (www.memr.gov.jo)					
Client Name	: مديرية دراسات المصادر الطبيعية					
Client Address	: -					
Division	: Chemical & Mineral Analysis Lab	Testing Location	: At the Lab facility.			
Methods Used	: MEMR002-2020	Lab Ref. Work Instruction	: WI-REP-02 Used for: X Ray diffraction analysis			
Sampling Method	: By the customer	Sample Reception Date:	10/04/2022			
Sample Type	: Solid	Sample Location:	-			
Testing Date	: 13/04/2022					
Tension (KV)	: 40	Radiation	: Cu			
Current (mA)	: 30	Angle Range(2 θ)	: (5-70)°			
Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
1	1671	Rph1-BH27 16	Calcite	Carbonate-fluorapatite	Quartz	NA
2	1672	Rph1-BH27 24	Calcite, Quartz	Carbonate-fluorapatite	-	NA



X-Ray Diffraction Analysis Test Report



Test Report No. : 00115/04/2022 CH07-27

Test Report Date: 18/04/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

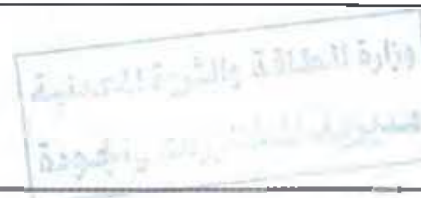
Analyzed by (Name and Sign): **Eng.Kholoud Ayyash**

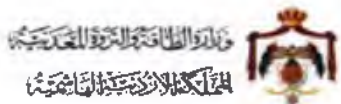
Eng.linda Al-Makadmeh

Division Head (Name and Sign): **Eng.Maysoon Al-Khzahee**

Technical Manager (Name and Sign): **Chem. Hanady Al Sharif**

Lab Manager (Name and Sign): **Eng.Maysoon Al-Khzahee**

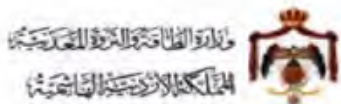




X-Ray Diffraction Analysis Test Report



Test Report No.	: 00117/04/2022 CH07-28	Test Report Date:	21/04/2022			
Lab Name	: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources					
Lab Address	: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman – Jordan (www.memr.gov.jo)					
Client Name	: مديرية دراسات المصادر الطبيعية					
Client Address	: -					
Division	: Chemical & Mineral Analysis Lab	Testing Location	: At the Lab facility.			
Methods Used	: MEMR002-2020	Lab Ref. Work Instruction	: WI-REP-02			
		Used for:	X Ray diffraction analysis			
Sampling Method	: By the customer	Sample Reception Date:	19/04/2022			
Sample Type	: Solid	Sample Location:	-			
Testing Date	: 20/04/2022					
Tension (KV)	: 40	Radiation	: Cu			
Current (mA)	: 30	Angle Range(2θ)	: (5-70)°			
Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
1	1675	Rph1-BH28 (19)	Calcite	Carbonate-fluorapatite	Quartz	NA
2	1676a	Rph1-BH28 (21)	Carbonate-fluorapatite, Calcite	-	Quartz	NA
3	1677	Rph1-BH28 (25)	Carbonate-fluorapatite, Calcite	Quartz	-	NA



X-Ray Diffraction Analysis Test Report



Test Report No. : 00117/04/2022 CH07-28

Test Report Date: 21/04/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

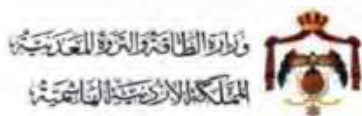
N/A.....

Analyzed by (Name and Sign): *Eng. Kholoud Ayyash*
Eng. Linda Al-Makadmeh

Division Head (Name and Sign): *Eng. Maysoon Al-Khzahee*

Technical Manager (Name and Sign): *Chem. Hanady Al Sharif*

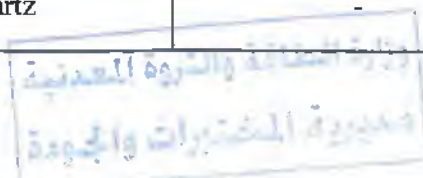
Lab Manager (Name and Sign): *Eng. Maysoon Al-Khzahee*



X-Ray Diffraction Analysis Test Report



Test Report No.	:00128/04/2022 CH07-30	Test Report Date:	27/04/2022			
Lab Name	: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources					
Lab Address	: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman – Jordan (www.memr.gov.jo)					
Client Name	: مديرية دراسات المصادر الطبيعية					
Client Address	: -					
Division	: Chemical & Mineral Analysis Lab	Testing Location	: At the Lab facility.			
Methods Used	: MEMR002-2020	Lab Ref. Work Instruction	: WI-REP-02			
		Used for:	X Ray diffraction analysis			
Sampling Method	: By the customer	Sample Reception Date:	26 /04/2022			
Sample Type	: Solid	Sample Location:	-			
Testing Date	: 26/04/2022					
Tension (KV)	: 40	Radiation	: Cu			
Current (mA)	: 30	Angle Range(2θ)	: (5-70)°			
Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
1	1682	Rph1-BH29 (12)	Carbonate-fluorapatite, Calcite	Quartz	-	NA



X-Ray Diffraction Analysis Test Report

Test Report No. :00128/04/2022 CH07-30

Test Report Date: 27/04/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): **Eng.Kholoud Ayyash**

Eng.linda Al-Makadmeh

Division Head (Name and Sign): **Eng.Maysoon Al-Khzahee**

Technical Manager (Name and Sign): **Chem. Hanady Al Sharif**

Lab Manager (Name and Sign): **Eng.Maysoon Al-Khzahee**

X-Ray Diffraction Analysis Test Report



Test Report No. :00147/05/2022 CH07-36

Test Report Date: 24/05/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources

Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية دراسات المعادن الطبيعية

Client Address : -

Division : Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used : MEMR002-2020

Lab Ref. Work Instruction

: WI-REP-02

Used for: X Ray diffraction analysis

Sampling Method : By the customer

Sample Type : Solid

Testing Date : 18/05/2022

Sample Reception Date: 16/05/2022

Sample Location: -

Tension (KV) : 40

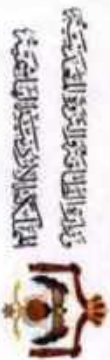
Radiation : Cu

Current (mA) : 30

Angle Range(2 θ) : (5-70)°

Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
1	1694	BH-30C (13)	Carbonate-fluorapatite	Calcite, Quartz	Anhydrite	NA

وزارة الطاقة والثروة المعدنية
 مديرية المختبرات والجودة



X-Ray Diffraction Analysis Test Report



Test Report No. :00147/05/2022 CH07-36

Test Report Date: 24/05/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): Eng. Kholoud Ayvash

Eng. Linda Al-Makadmeh

Division Head (Name and Sign): Eng. Maysoon Al-Khazaei

Eng. Maysoon Al-Khazaei

Technical Manager (Name and Sign): Chem. Handy Al Sharif

Lab Manager (Name and Sign): Eng. Maysoon Al-Khazaei

Eng. Maysoon Al-Khazaei

X-Ray Diffraction Analysis Test Report



Test Report No. : 00172/05/2022 CH07-41

Test Report Date: 07/06/2022

Lab Name

: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources

Lab Address

: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name

: مديرية دراسات المعادن الطبيعية

Client Address

: -

Division

: Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used

: MEMR002-2020

Lab Ref. Work Instruction

: W1-REP-02

Used for: X Ray diffraction analysis

Sampling Method

: By the customer

Sample Type

: Solid

Testing Date

: 01/06/2022

Sample Reception Date: 30/05/2022

Sample Location: -

Tension (KV)	: 40	Radiation	: Cu			
Current (mA)	: 30	Angle Range(2θ)	: (5-70)°			
Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
1	1707	Rphl-BH 31A (15)	Calcite	Carbonate-fluorapatite	Quartz	NA

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



X-Ray Diffraction Analysis Test Report



JAS
Jordanian Accreditation System
للمعيار القياسي
Accreditation Unit
TEST-061

Test Report No. :00172/05/2022 CH07-41

Test Report Date: 07/06/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): *Eng. Kholoud Ayash*

Eng. Linda Al-Makhadmeh

Division Head (Name and Sign): *Eng. Maysoon Al-Khzahe*

Lab Manager (Name and Sign): *Eng. Maysoon Al-Khzahe*

Technical Manager (Name and Sign): *Chem. Hanady Al Sharif*

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



X-Ray Diffraction Analysis Test Report



JAS
Jordanian Accreditation Unit
TEST-061

Test Report No. :00173/05/2022 CH07-42

Test Report Date: 07/06/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman – Jordan (www.memr.gov.jo)

Client Name : مديرية نرسات المعسل الطنفة
Client Address : -

Division : Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used : MEMR002-2020 Lab Ref. Work : W1-REP-02 Used for: X Ray diffraction analysis
Instruction

Sampling Method : By the customer
Sample Type : Solid
Testing Date : 01/06/2022

Sample Reception Date: 30/05/2022
Sample Location: -

Tension (KV)	: 40	Radiation	: Cu		
Current (mA)	: 30	Angle Range(2 θ)	: (5-70)*		
Item	Serial No.	Sample ID	Phase Identification		Uncertainty (if required)
1	1708	Rph1-BH 31B (20)	Major	Minor	Trace
			Carbonate-fluorapatite	Calcite	Quartz, Anhydrite
					NA



X-Ray Diffraction Analysis Test Report



Test Report No. :00173/05/2022 CH07-42

Test Report Date: 07/06/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): *Eng. Kholoud Ayyash*

Eng. Linda Al-Mahadmeh

Division Head (Name and Sign): *Eng. Maysoon Al-Khzahee*

Eng. Maysoon Al-Khzahee

Technical Manager (Name and Sign): *Chem. Handy Al Sharif*

Chem. Handy Al Sharif

Lab Manager (Name and Sign): *Eng. Maysoon Al-Khzahee*

Eng. Maysoon Al-Khzahee

وزارة الطاقة والصناعة

مديرية المختبرات والجودة



X-Ray Diffraction Analysis Test Report



JAS
Accredited Unit
TEST-061

Test Report No. : 00150/05/2022 CH07-37

Test Report Date: 30/05/2022

Lab Name

: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources

Lab Address

: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name

: مديرية دراسات المعادن الطبيعية

Client Address

: -

Division

: Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used

: MEMR002-2020

Lab Ref. Work
Instruction

: W1-REP-02

Used for: X Ray diffraction analysis

Sampling Method

: By the customer

Sample Type

: Solid

Testing Date

: 22/05/2022

Sample Reception Date: 19/05/2022

Sample Location: -

Tension (KV)

: 40

Radiation

: Cu

Current (mA)

: 30

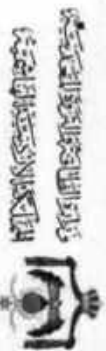
Angle Range(2 θ)

: (5-70) $^{\circ}$

Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
1	1698	BH-32 (25)	Calcite, Carbonate- fluorapatite	-	Quartz, Anhydrite	NA
2	1699	BH-32 (26)	Calcite, Carbonate- fluorapatite	-	Quartz, Anhydrite	NA

وزارة الطاقة والثروة المعدنية

مديرية المختبرات والجودة



X-Ray Diffraction Analysis Test Report



JAS
Japan Accreditation System
Accreditation Unit
TEST-061

Test Report No. : 00150/05/2022 CH07-37

Test Report Date: 30/05/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): Eng. Kholoud Ayyash

Eng. Linda Al-Mahadneh

Technical Manager (Name and Sign): Chem. Hanady Al Sharif

Division Head (Name and Sign): Eng. Maysoon Al-Khazae

Lab Manager (Name and Sign): Eng. Maysoon Al-Khazae

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

X-Ray Diffraction Analysis Test Report

Test Report No. : 00151/05/2022 CH07-38		Test Report Date: 30/05/2022	
Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources			
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)			
Client Name : مديرية دراسات المصادر الطبيعية			
Client Address : -			
Division : Chemical & Mineral Analysis Lab		Testing Location : At the Lab facility.	
Methods Used : MEMR002-2020		Lab Ref. Work Instruction : WI-REP-02	
		Used for: X Ray diffraction analysis	
Sampling Method : By the customer		Sample Reception Date: 19 /05/2022	
Sample Type : Solid		Sample Location: -	
Testing Date : 22 /05/2022			
Tension (KV) : 40		Radiation : Cu	
Current (mA) : 30		Angle Range(2 θ) : (5-70)°	
Phase Identification			
Item	Serial No.	Sample ID	Uncertainty (if required)
1	1700	BH-33 (16)	NA
		Major	Minor
		Calcite	Carbonate-fluorapatite
			Truce
			Quartz

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



X-Ray Diffraction Analysis Test Report



Test Report No. :00151/05/2022 CH07-38	Test Report Date: 30/05/2022
This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%. Notes: - The results stated in this test report relates only to the tested sample. - This test report is only valid with stamp and signature. - The results stated in this test report shall not be reproduced except in full, without written approval of the lab. - Based on relative XRD high peak data: (Major, Minor, Trace) - XRD Diffractogram will be attached with the report - The laboratory does not apply the decision rule.	
Opinions and Interpretations: N/A.....	
Additional Comments: N/A.....	
Analyzed by (Name and Sign): <i>Eng. Khouloud Ayyash</i> <i>Eng. Linda Al-Makadmeh</i>	Division Head (Name and Sign): <i>Eng. Maysoon Al-Khazheer</i>
Technical Manager (Name and Sign): <i>Chem. Hanady Al Sharif</i>	Lab Manager (Name and Sign): <i>Eng. Maysoon Al-Khazheer</i>

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

X-Ray Diffraction Analysis Test Report



Test Report No. : 00174/05/2022 CH07-43

Test Report Date: 09/06/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية ترسانات المعادن الطبيعية
Client Address : -

Division : Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used : MEMR002-2020 Lab Ref. Work : WI-REP-02 Used for: X Ray diffraction analysis
Instruction

Sampling Method : By the customer
Sample Type : Solid
Testing Date : 01/06/2022
Sample Reception Date: 30/05/2022
Sample Location: -

Tension (KV) : 40 Radiation : Cu
Current (mA) : 30 Angle Range(2θ) : (5-70)*

Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
1	1709	Rphl-BH 34 (20)	Carbonate-fluorapatite, Calcite	-	Quartz	NA

X-Ray Diffraction Analysis Test Report



Test Report No. :00174/05/2022 CH07-43

Test Report Date: 09/06/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....

Additional Comments:

N/A.....

Analyzed by (Name and Sign): Eng.Kholoud Alyash

Eng.linda Al-Mahadmeh

Division Head (Name and Sign): Eng.Maysoon Al-Khzahee

Technical Manager (Name and Sign): Chem. Hanady Al Sharif

Lab Manager (Name and Sign): Eng.Maysoon Al-Khzahee



X-Ray Diffraction Analysis Test Report



JAS
Accreditation Unit
TEST-061

Test Report No.	:00180/06/2022 CH07-44		Test Report Date:	09/06/2022	
Lab Name	: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources				
Lab Address	: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)				
Client Name	: مديرية دراسات المعادن الطبيعية				
Client Address	: -				
Division	: Chemical & Mineral Analysis Lab				
Testing Location	: At the Lab facility.				
Methods Used	: MEMR002-2020	Lab Ref. Work Instruction	: W1-REP-02	Used for: X Ray diffraction analysis	
Sampling Method	: By the customer				
Sample Type	: Solid				
Testing Date	: 02/06/2022				
Tension (KV)	: 40	Radiation	: Cu		
Current (mA)	: 30	Angle Range(2 θ)	: (5-70)°		
Item	Serial No.	Sample ID	Phase Identification		
			Major	Minor	Trace
1	1711	Rph1-BH 35 (22)	Carbonate-fluorapatite, Calcite, Quartz	-	Anhydrite
					Uncertainty (if required)
					NA

TR-CH-07 rev 2.0

وزارة الطاقة والثروة المعدنية
مديرية المعادن الطبيعية
Page 1 of 2



X-Ray Diffraction Analysis Test Report

Test Report No. :00180/06/2022 CH07-44

Test Report Date: 09/06/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A

Additional Comments:

N/A

Analyzed by (Name and Sign): *Eng. Khaloud Ayyash*

Eng. Linda Al-Makhadmeh

Division Head (Name and Sign): *Eng. Maysoon Al-Khazhee*

Technical Manager (Name and Sign): *Chem. Hanady Al Sharif*

Lab Manager (Name and Sign): *Eng. Maysoon Al-Khazhee*

X-Ray Diffraction Analysis Test Report



Test Report No. : 00181/06/2022 CH07-46

Test Report Date: 15/06/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
 Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية براسات المعادن الطبيعية
 Client Address : -

Division : Chemical & Mineral Analysis Lab

Testing Location : At the Lab facility.

Methods Used : MEMR002-2020 Lab Ref. Work : WL-REP-02 Used for: X Ray diffraction analysis
 Instruction

Sampling Method : By the customer
 Sample Type : Solid
 Testing Date : 02/06/2022

Sample Reception Date: 02/06/2022
 Sample Location: -

Tension (KV) : 40 Radiation : Cu
 Current (mA) : 30 Angle Range(2θ) : (5-70)°

Item	Serial No.	Sample ID	Phase Identification			Uncertainty (if required)
			Major	Minor	Trace	
1	1712	Rph1-BH 36 (22)	Quartz	-	Calcite, Carbonate- fluorapatite	NA

وزارة الطاقة والموارد المعدنية
 مديرية المختبرات والجودة



X-Ray Diffraction Analysis Test Report



Test Report No. :00181/06/2022 CH07-46

Test Report Date: 15/06/2022

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty is evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- Based on relative XRD high peak data: (Major, Minor, Trace)
- XRD Diffractogram will be attached with the report
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A

Additional Comments:

N/A

Analyzed by (Name and Sign): Eng. Khouloud Ayyash

Eng. Linda Al-Mekhadneh

Division Head (Name and Sign): Eng. Marysoun Al-Khazhe

Technical Manager (Name and Sign): Chem. Hanady Al Sharif

Lab Manager (Name and Sign): Eng. Marysoun Al-Khazhe

وزارة الطاقة والصناعة
مديرية المختبرات والجودة



The Hashemite Kingdom of Jordan

Ministry of Energy and Mineral Resources/ Laboratories & Quality Directorate

TEST REPORT

X-RAY SPECTROMETRIC & LOI ANALYSIS

Division Chemical & Mineral Analysis/Lab. X.R.F

Reporting Date: 23/02/2022

Client Name & Address: مديرية دراسات المصادر الطبيعية

Sample Type: صلبة

Sample Location:-

Sample Method: By Client

Item	TEST REPORT NO.	S.ID.	Cl Wt. %
1	00018/01/2022	RPH1-10-12	0.11
2	00019/01/2022	RPH1-11-16	0.15
3	00026/01/2022	RPH1- BH3-13	0.19
4	00027/01/2022	RPH1- BH4-4	0.31
5	00033/01/2022	RPH1 BH5-21	0.13
6	00037/02/2022	RPH1- BH2A-9	0.031
7	00039/02/2022	RPH1-BH15-A7	0.28
8	00040/02/2022	RPH1-BH14-11	0.14
9	00042/02/2022	RPH1 -BH13-23	0.077

Note: The results were done on dry basis.

- THE TEST RESULTS RELATE ONLY TO THE ITEMS TESTED & BROUGHT BY CLIENT
- TEST REPORT IS ONLY VALID WITH MEMR STAMP & SIGNATURES.
- THE TEST WAS PERFORMED ACCORDING TO YOUR REQUEST.
- CI RESULTS WERE DONE USING STANDARDLESS METHOD

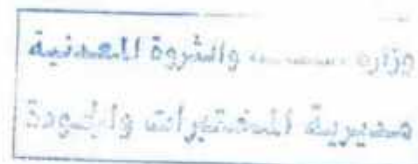
Analyzed by: Eng. Nidal Tayyem

Eng. Feryal Yosef

Division Head: Eng. Maysoon Alkhzahee

Laboratories & Quality Director : Eng .Maysoon Alkhzahee

Jordan -Amman- Al Byader- 8th Circle . - Telefax +96265504409 - P.O. Box.7
(Web site: www.memr.gov.jo)



Relative Density (S.G.) and Absorption of Coarse Aggregate Test Report

Test Report No. : 00244/08/2022 SO-10-280 Test Report Date : 8/8/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية دراسات المصادر الطبيعية
Client Address : -

Division : Soil and Rock Mechanics
Methods Used : ASTM C 127-15 Lab Ref. Work Instruction : WI-REP-09 Testing Location : At the Lab facility.

Sampling Method : By the customer
Sample Type : صلبة
Testing Date : 2/8/2022

Sample Reception Date : 2/8/2022
Sample Location : -

Type of Material: صلبة		
Total Weight of Sample: N/A		
Item	Description	Sample
1	Sample ID	Rph 1-BH 46(1-17)
2	Relative Density (oven dry basis)	2.55
3	Relative Density (S.S.D dry basis)	2.59
4	Apparent Relative Density	2.66
5	Absorption %	1.7
		Uncertainty (if required)
		N/R
		N/R
		N/R
		N/R
		N/R

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty are evaluated in accordance with ASTM standards. The coverage factor (k=2) so that the coverage probability is approximately 95%.

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

Relative Density (S.G.) and Absorption of Coarse Aggregate Test Report



Test Report No. : 00244/08/2022 SO-10-280

Test Report Date : 8/8/2022

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....
.....
.....

Additional Comments:

N/A.....
.....
.....

Analyzed by (Name and Sign)

: Tech. Maha Obaid.

Division Head (Name and Sign) : Eng. Husni Alsaqer.

Technical Manager (Name and Sign)

: Chem. Hanady Al-Sharif.

Lab Manager (Name and Sign) : Eng. Maysoon Alkhahee.

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

Bulk Density By Weight

Test Report No. : 00234/07/2022 SO-347	Test Report Date : 25/7/2022
Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources	
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)	
Client Name : مديرية دراسات المعادن الطبيعية	
Client Address : -	
Division : Soil and Rock Mechanics	Testing Location : At the Lab facility.
Sampling Method : By the customer	Sample Reception Date : 24/7/2022
Sample Type : صلبة	Sample Location : -
Testing Date : 25/7/2022	
Sample Id	Setion-1
bulk density, ρ (g/cm ³)	2.36
Analyzed by (Name and Sign) : Eng. Ahmad Abu Ras.	Division Head (Name and Sign) : Eng. Husni Alsager.
Lab Manager (Name and Sign): Eng. Maysoon Alkhzahe.	

وزارة الطاقة والموارد المعدنية
 مديرية دراسات المعادن الطبيعية

Relative Density (S.G.) and Absorption of Coarse Aggregate Test Report

Test Report No. : 00244/08/2022 SO-10-280 Test Report Date : 8/8/2022

Lab Name : Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources
Lab Address : Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)

Client Name : مديرية دراسات المصادر الطبيعية
Client Address : -

Division : Soil and Rock Mechanics
Methods Used : ASTM C 127-15 Lab Ref. Work Instruction : WI-REP-09 Testing Location : At the Lab facility.

Sampling Method : By the customer
Sample Type : صلبة
Testing Date : 2/8/2022

Sample Reception Date : 2/8/2022
Sample Location : -

Type of Material: صلبة		
Total Weight of Sample: N/A		
Item	Description	Sample
1	Sample ID	Rph 1-BH 46(1-17)
2	Relative Density (oven dry basis)	2.55
3	Relative Density (S.S.D dry basis)	2.59
4	Apparent Relative Density	2.66
5	Absorption %	1.7
		Uncertainty (if required)
		N/R
		N/R
		N/R
		N/R
		N/R

This test is traceable to SI units and is following ISO/IEC 17025:2017. While measurement uncertainty are evaluated in accordance with ASTM standards. The coverage factor ($k=2$) so that the coverage probability is approximately 95%.

Relative Density (S.G.) and Absorption of Coarse Aggregate Test Report



Test Report No. : 00244/08/2022 SO-10-280

Test Report Date : 8/8/2022

Notes:

- The results stated in this test report relates only to the tested sample.
- This test report is only valid with stamp and signature.
- The results stated in this test report shall not be reproduced except in full, without written approval of the lab.
- The laboratory does not apply the decision rule.

Opinions and Interpretations:

N/A.....
.....
.....

Additional Comments:

N/A.....
.....
.....

Analyzed by (Name and Sign)

: Tech. Maha Obaid.

Division Head (Name and Sign) : Eng. Husni Alsaqer.

Technical Manager (Name and Sign)

: Chem. Hanady Al-Sharif.

Lab Manager (Name and Sign) : Eng. Maysoon Alkhzahee.

وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة



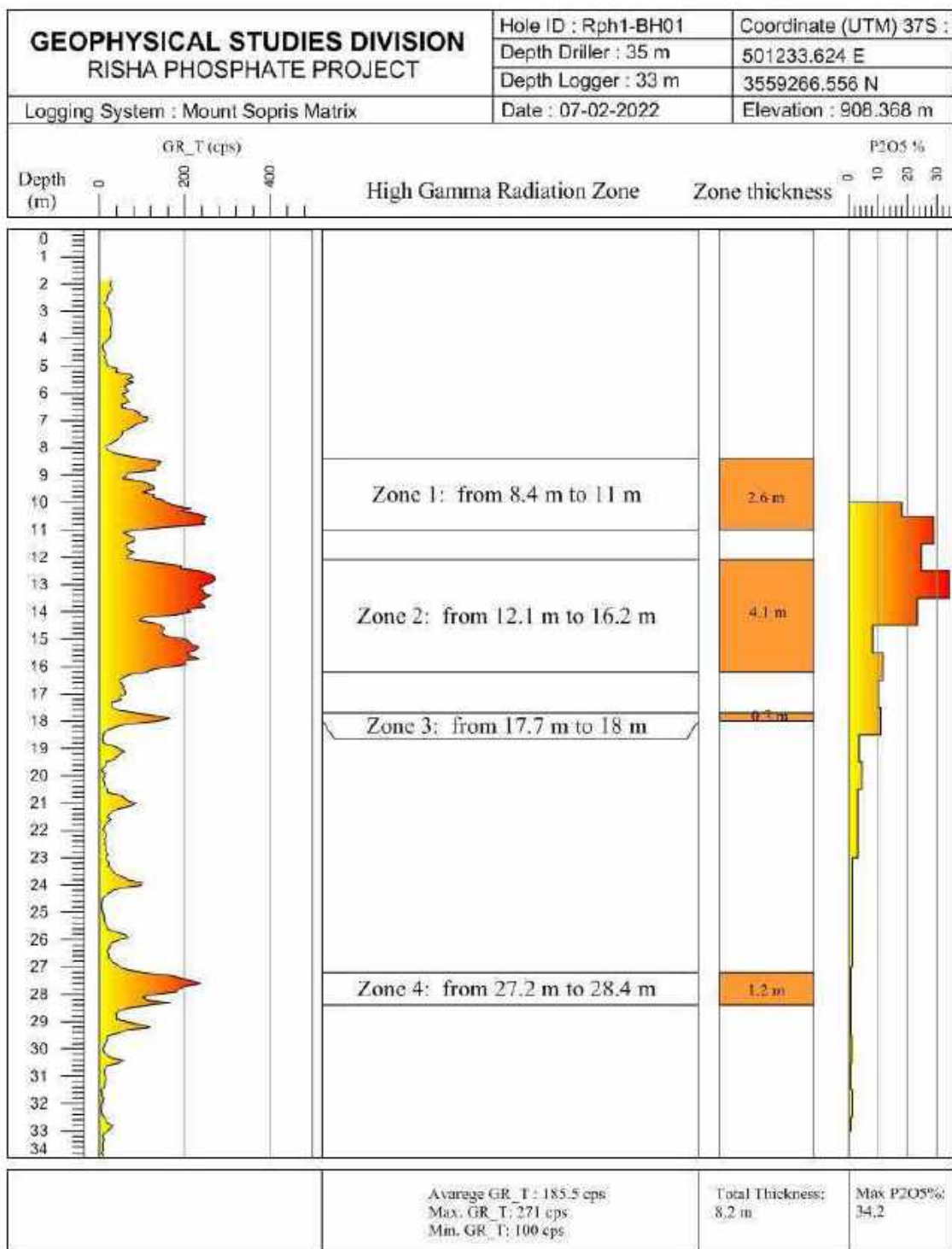
Bulk Density By Weight

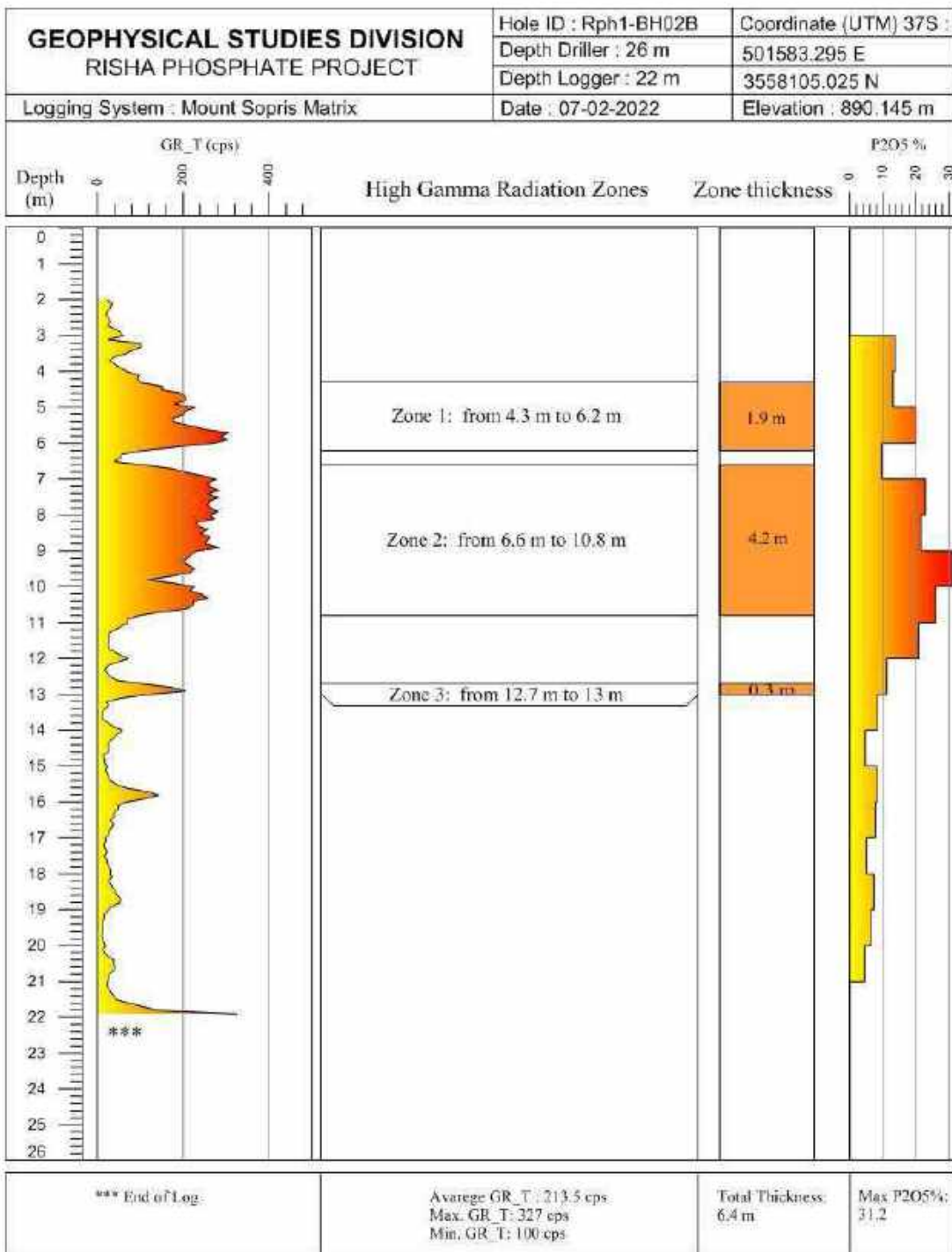
Test Report No.	: 00264/08/2022 SO-404	Test Report Date	: 22/8/2022
Lab Name	: Laboratories of Quality Directorate at the Ministry of Energy and Mineral Resources		
Lab Address	: Ministry of Energy and Mineral Resources - 8th Circle Bayader Wadi Al Seer, Amman - Jordan (www.memr.gov.jo)		
Client Name	: مديرية دراسات المصادر الطبيعية		
Client Address	:		
Division	: Soil and Rock Mechanics	Testing Location	: At the Lab facility.
Sampling Method : By the customer			
Sample Type	: صلبة		
Testing Date	: 22/8/2022		
Sample Id	RC-43-12	RC-43-16	RC-43-11
bulk density, ρ (g/cm ³)	1.57	1.24	1.64
Analyzed by (Name and Sign)	: Chem. Layla Alshar. 	Division Head (Name and Sign)	: Eng. Husni Alsaqer. 
Lab Manager (Name and Sign): Eng. Maysoon Alkhzahee.			

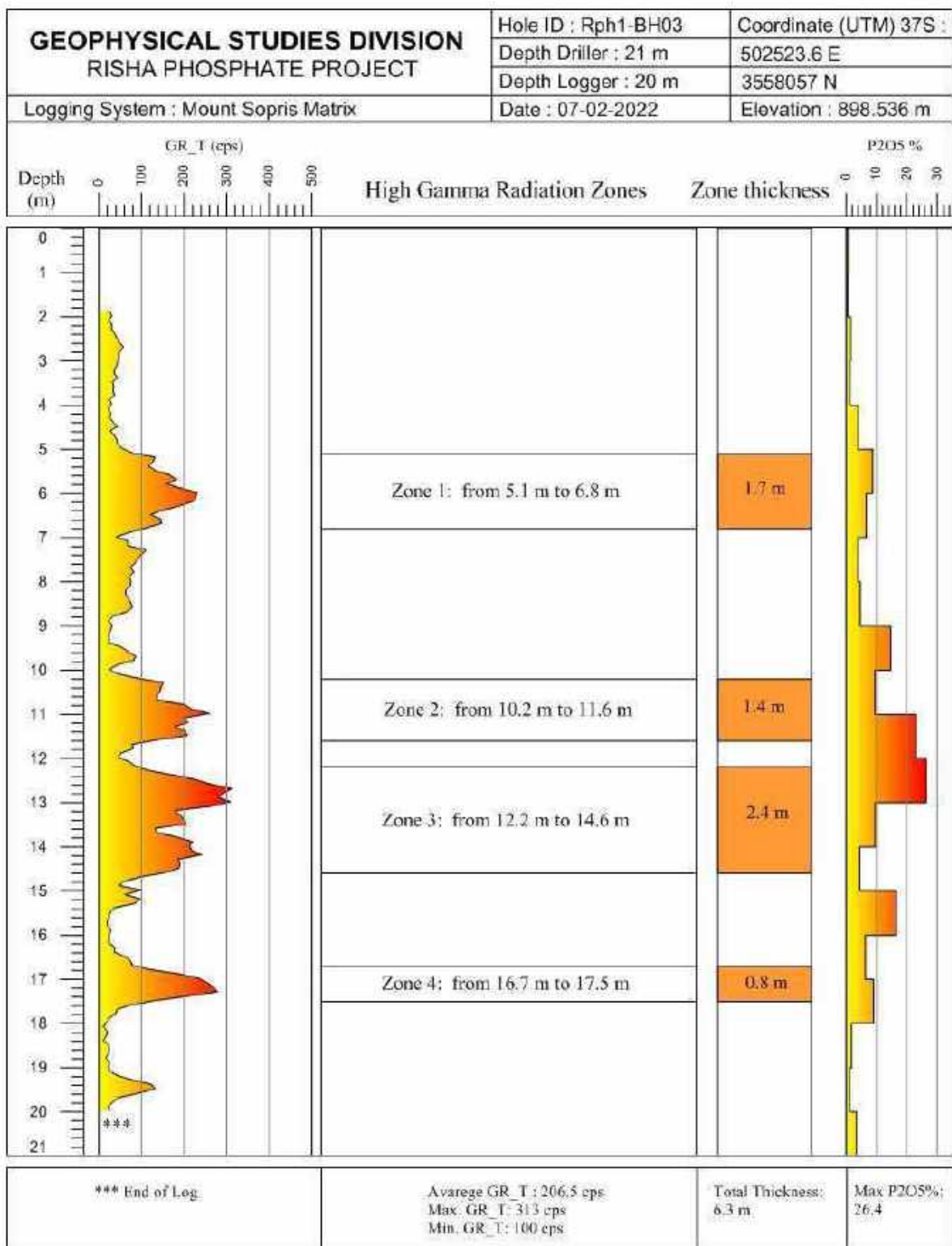
وزارة الطاقة والثروة المعدنية
مديرية المختبرات والجودة

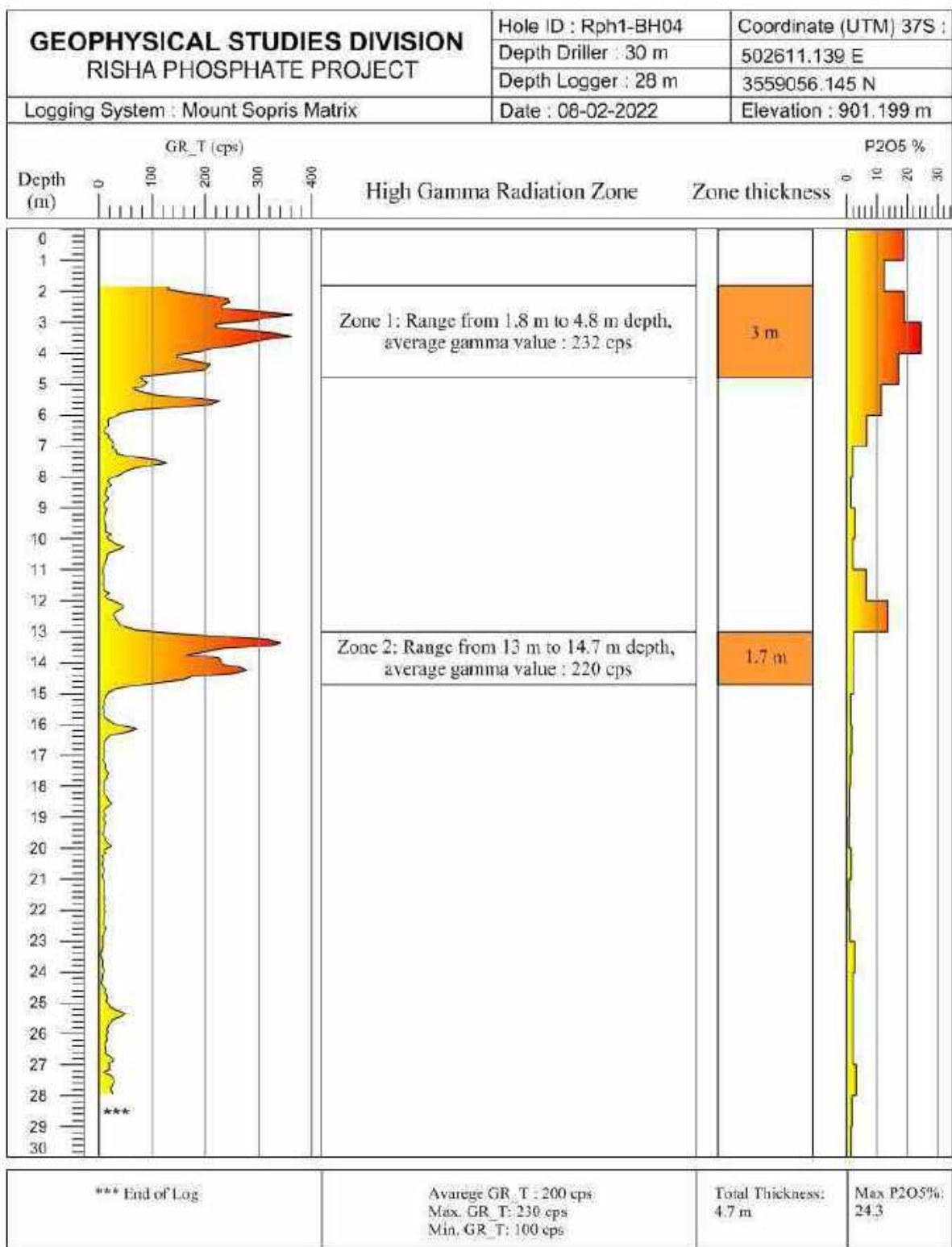
Appendix No. 2

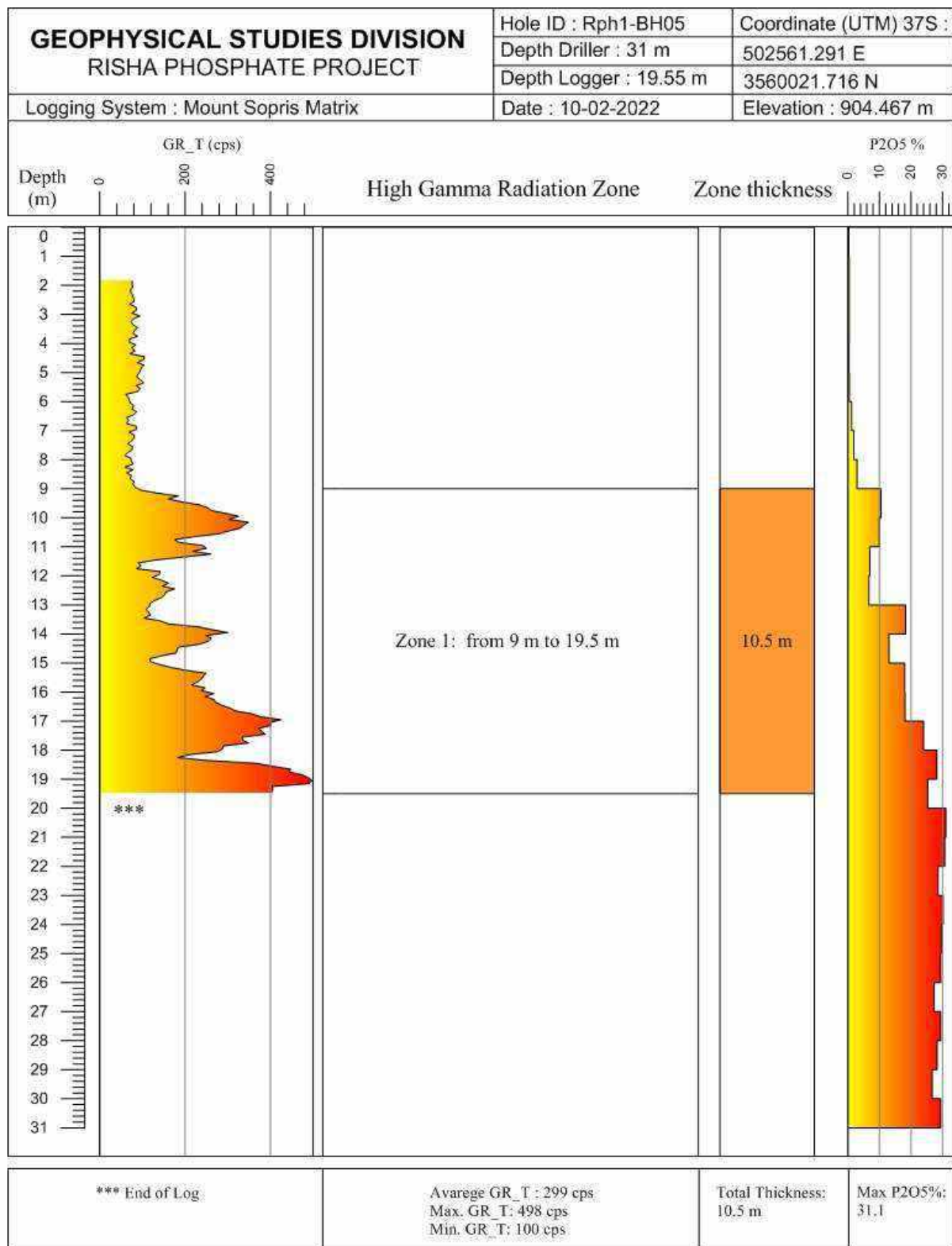
Geophysical Gamma Log

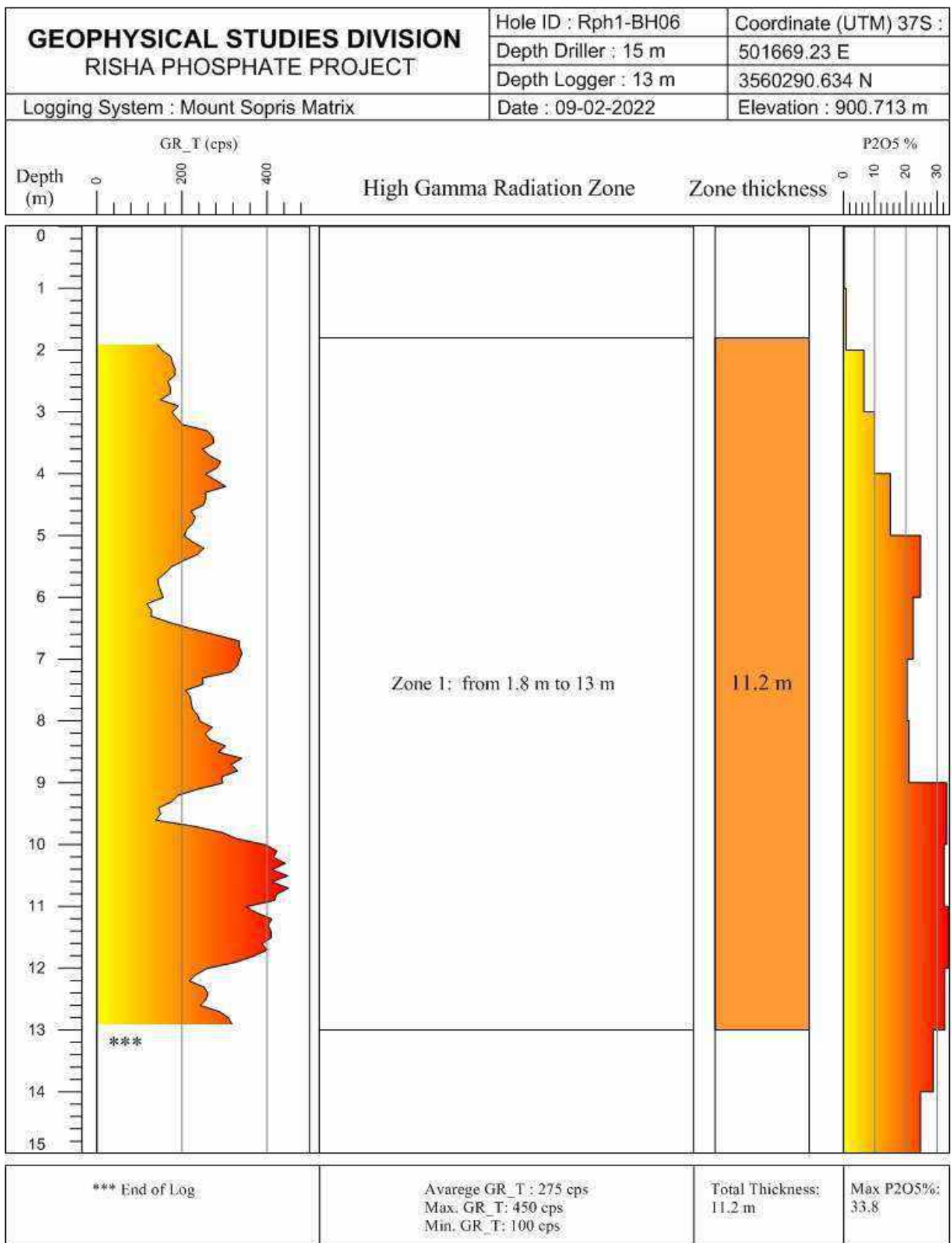


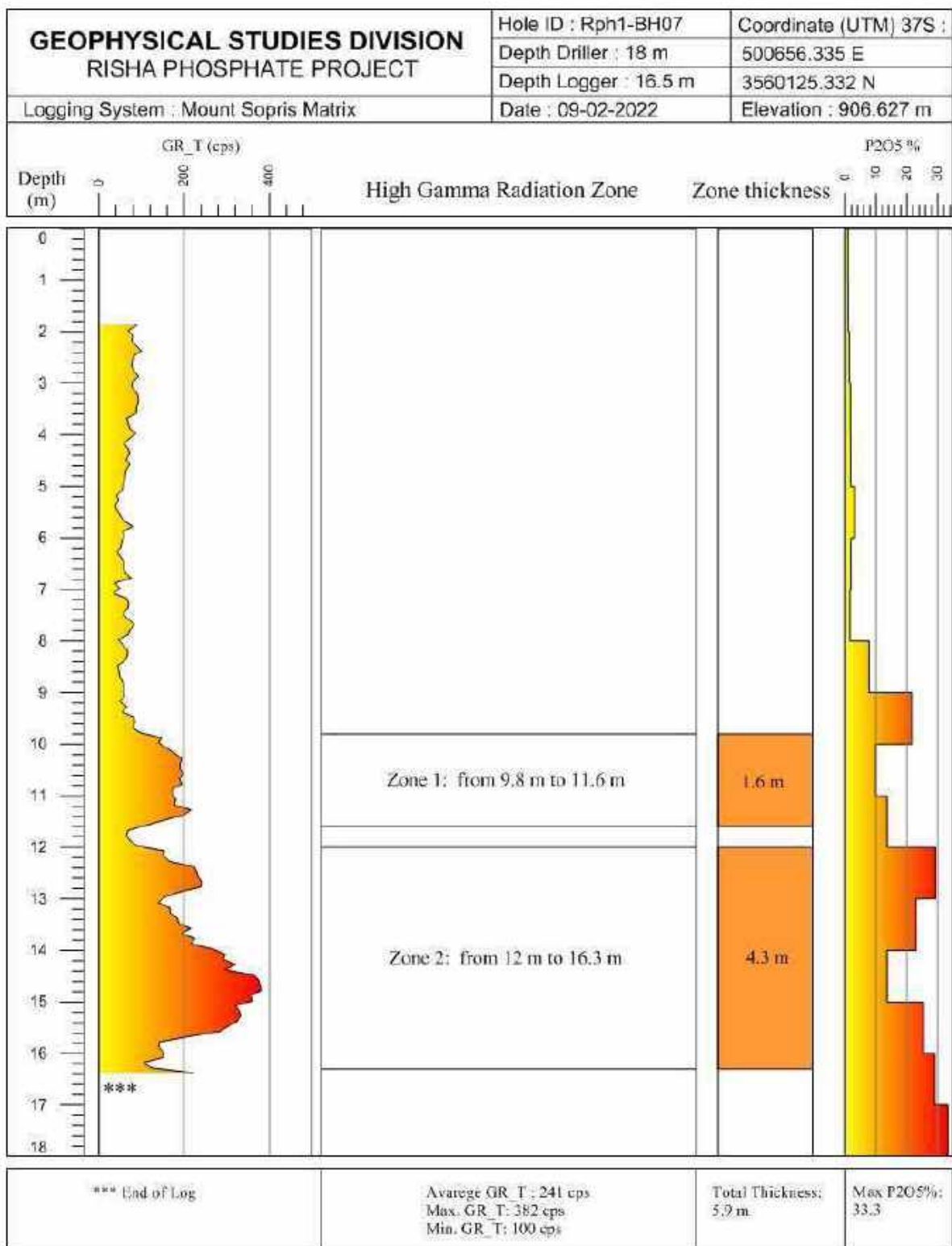


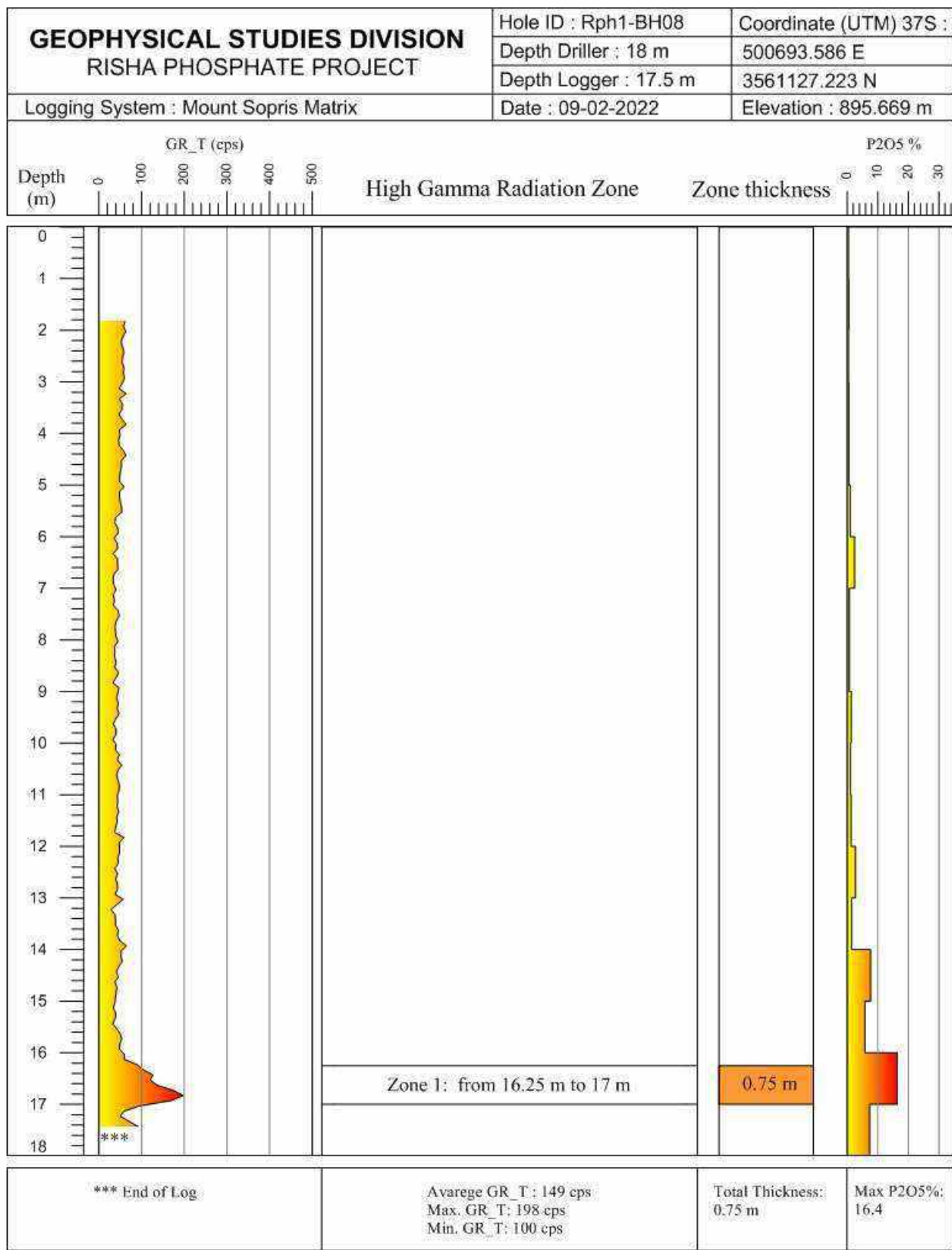


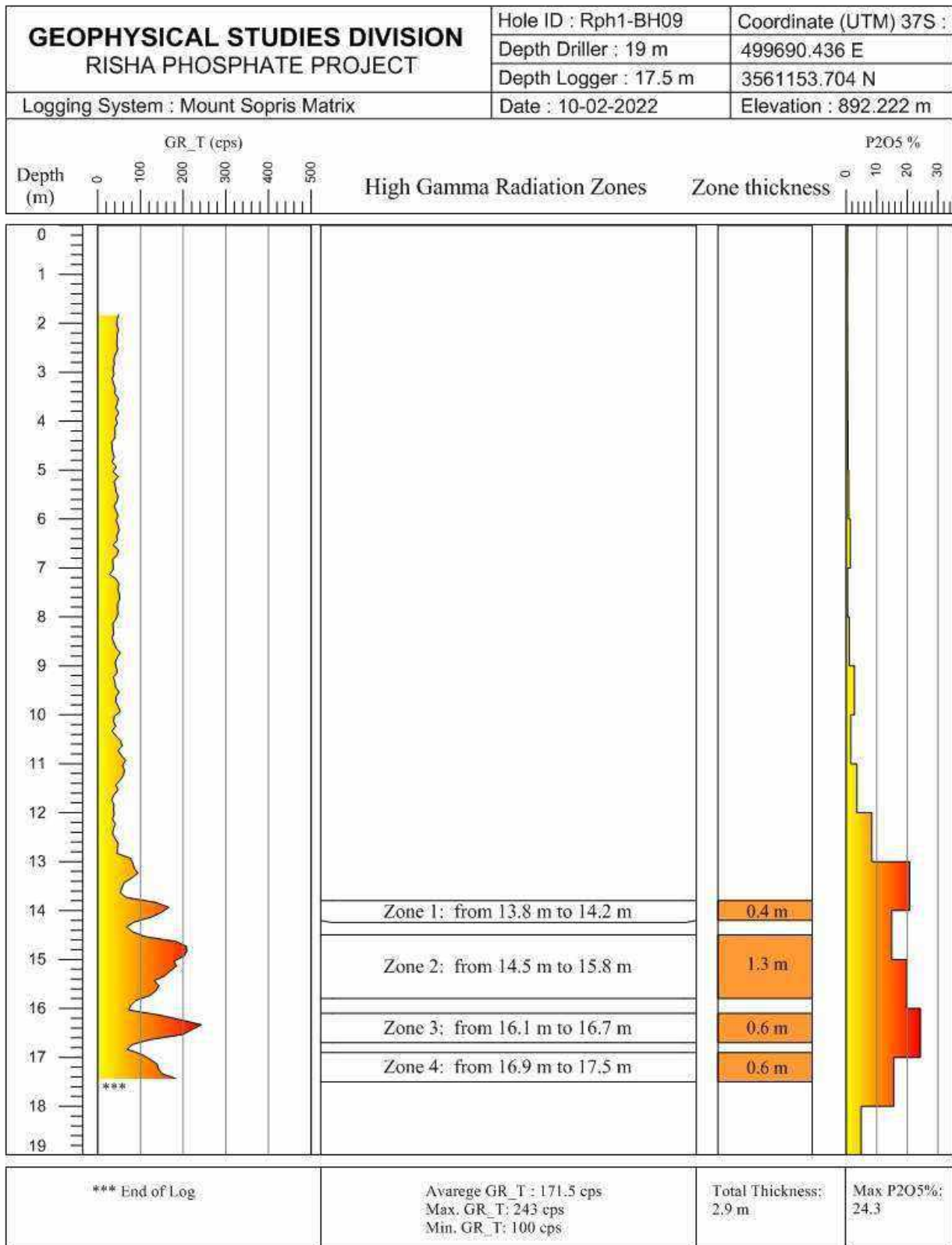


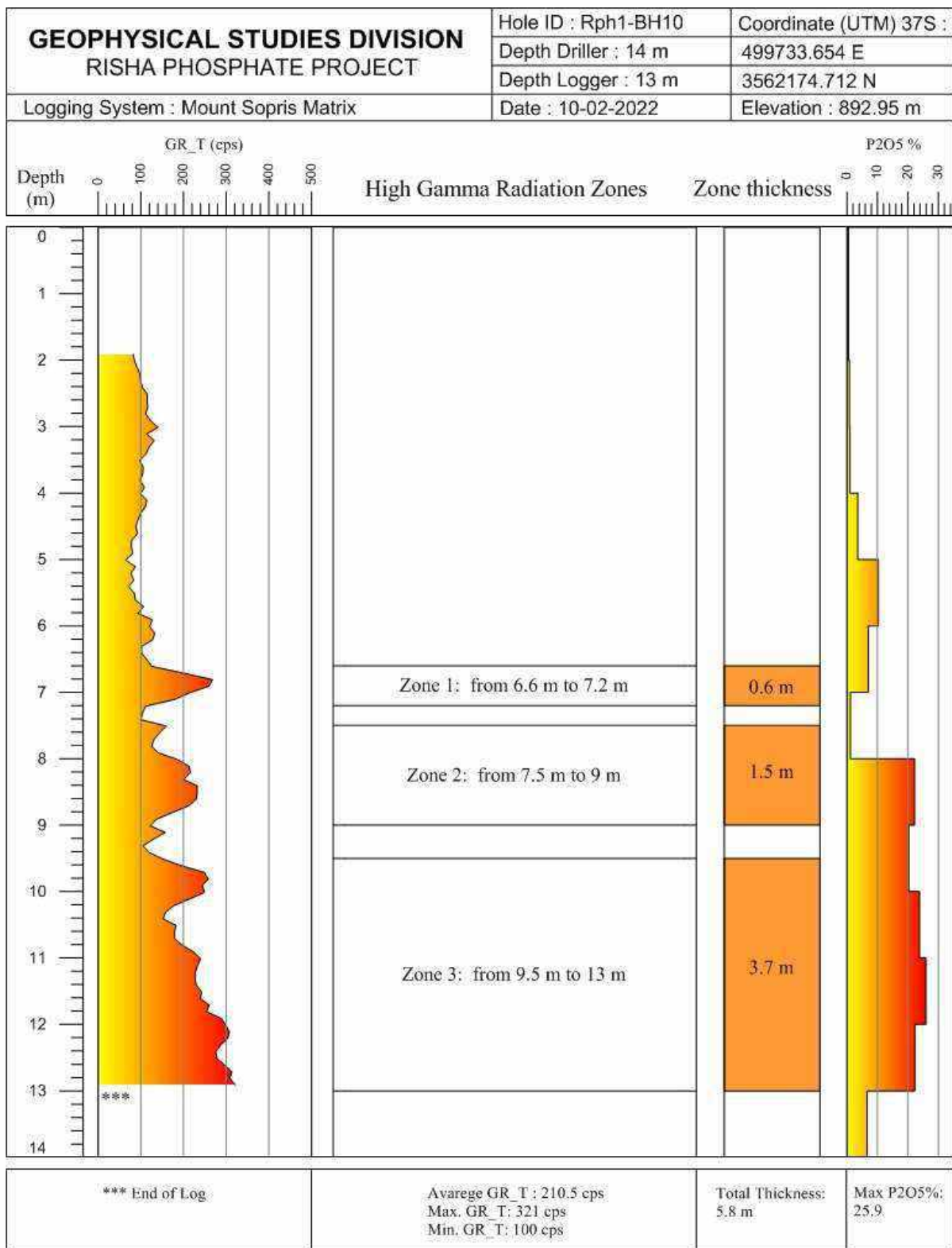


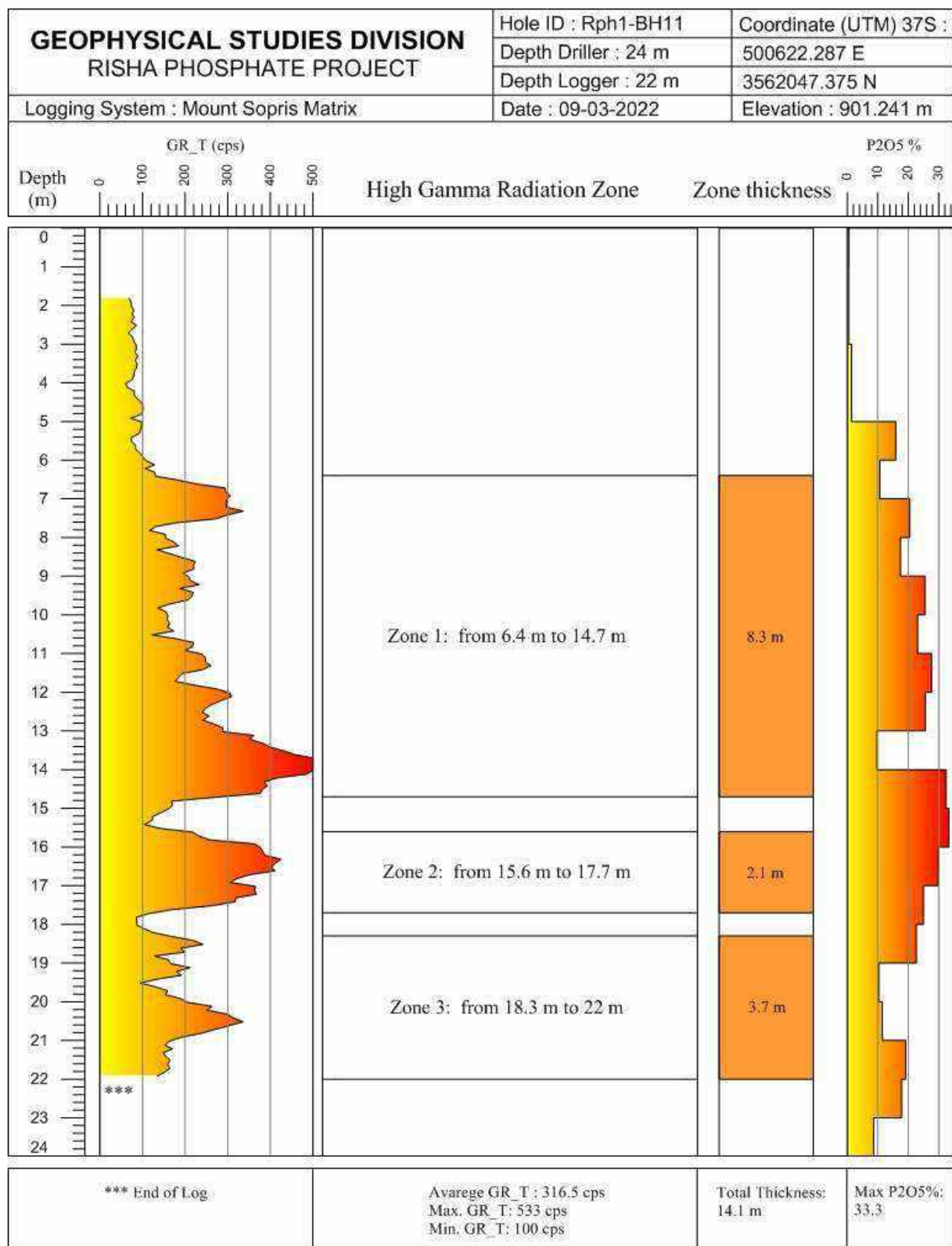


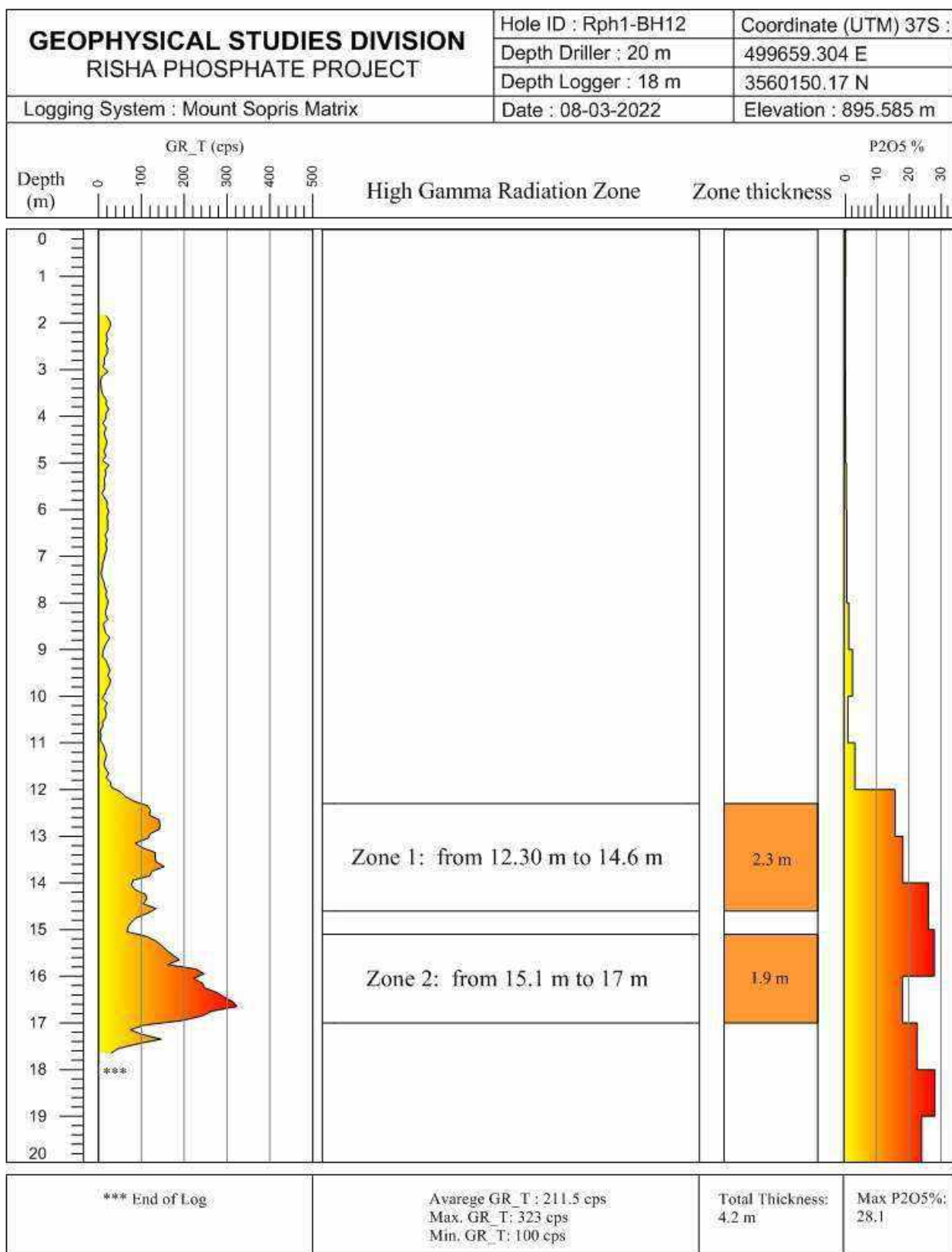


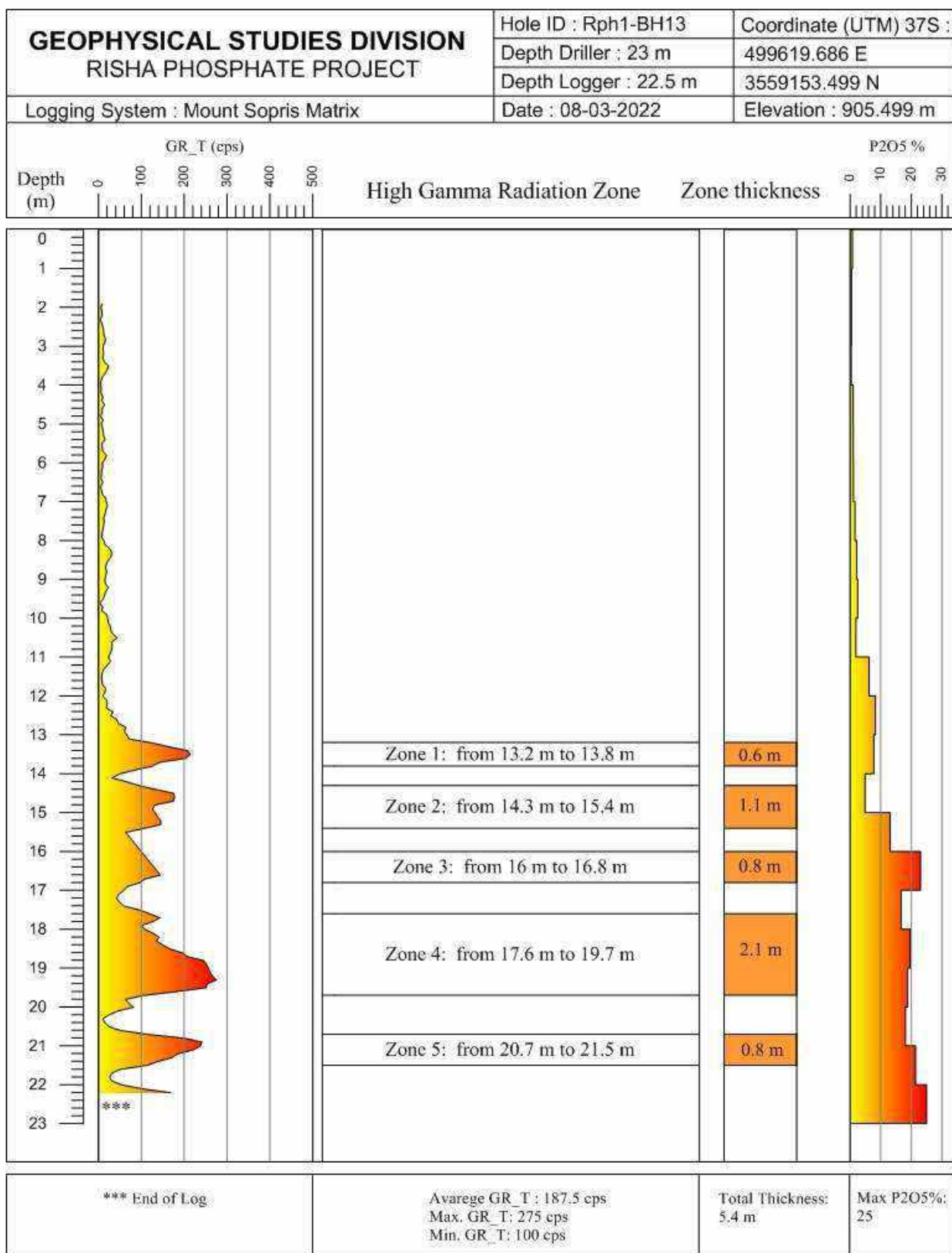


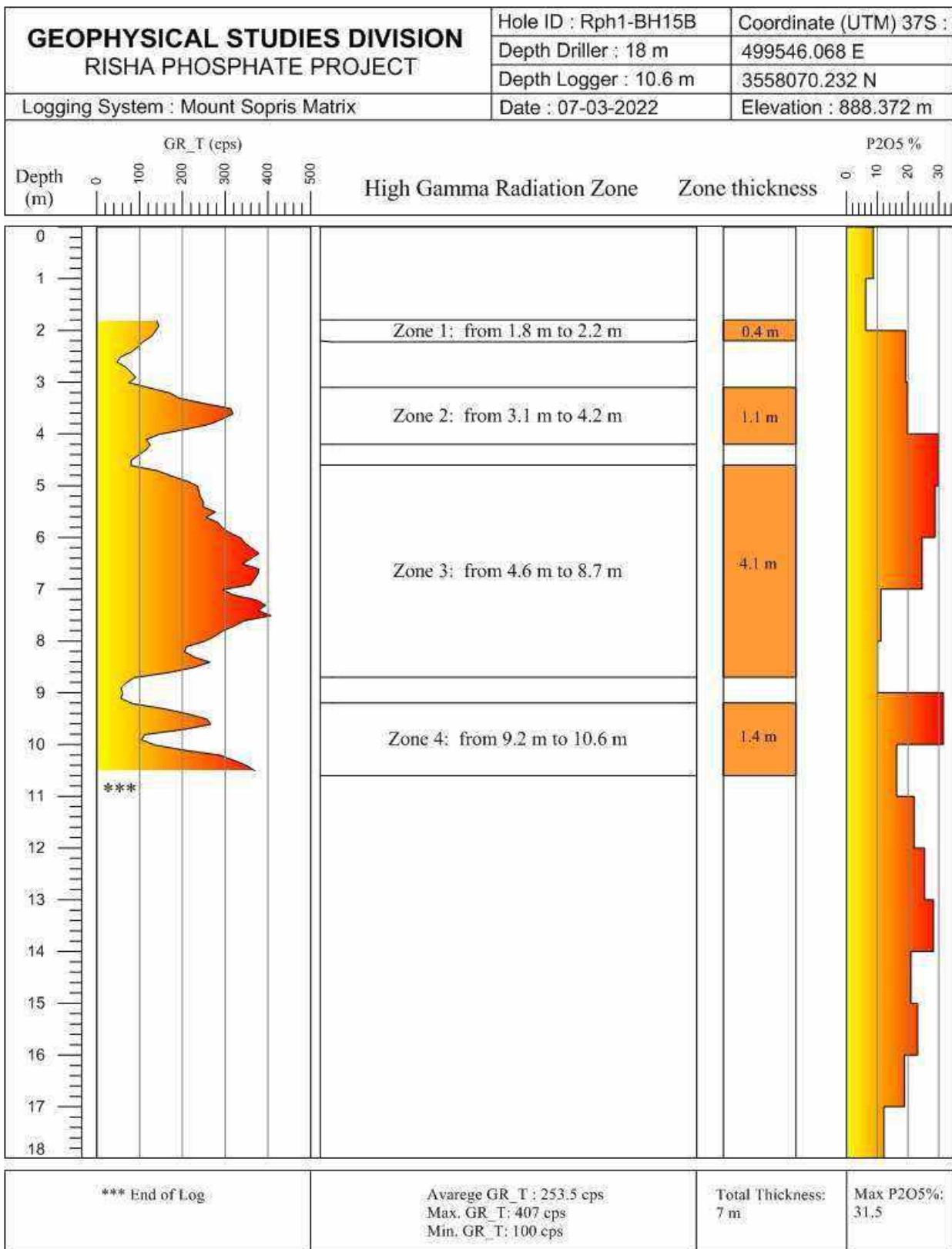


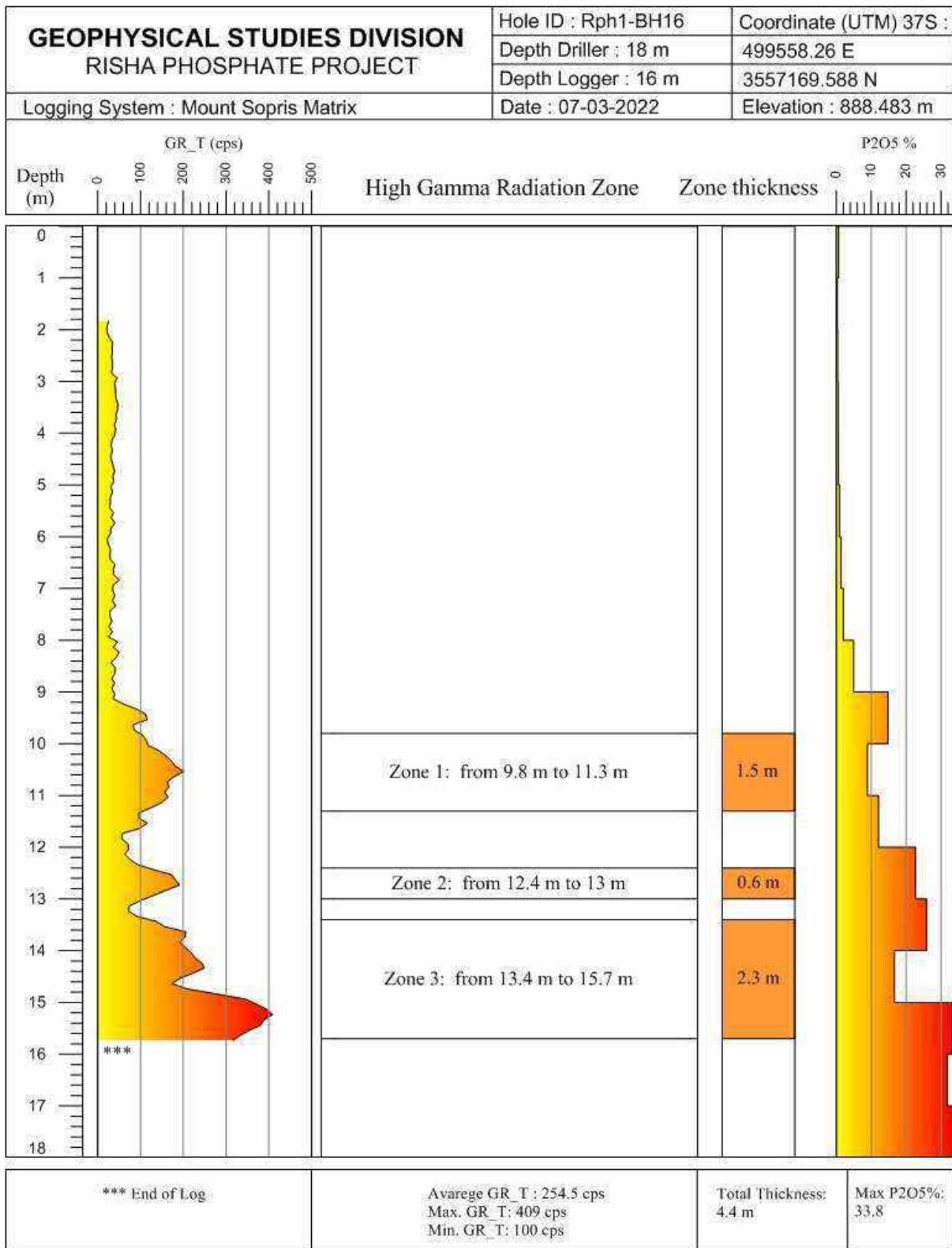


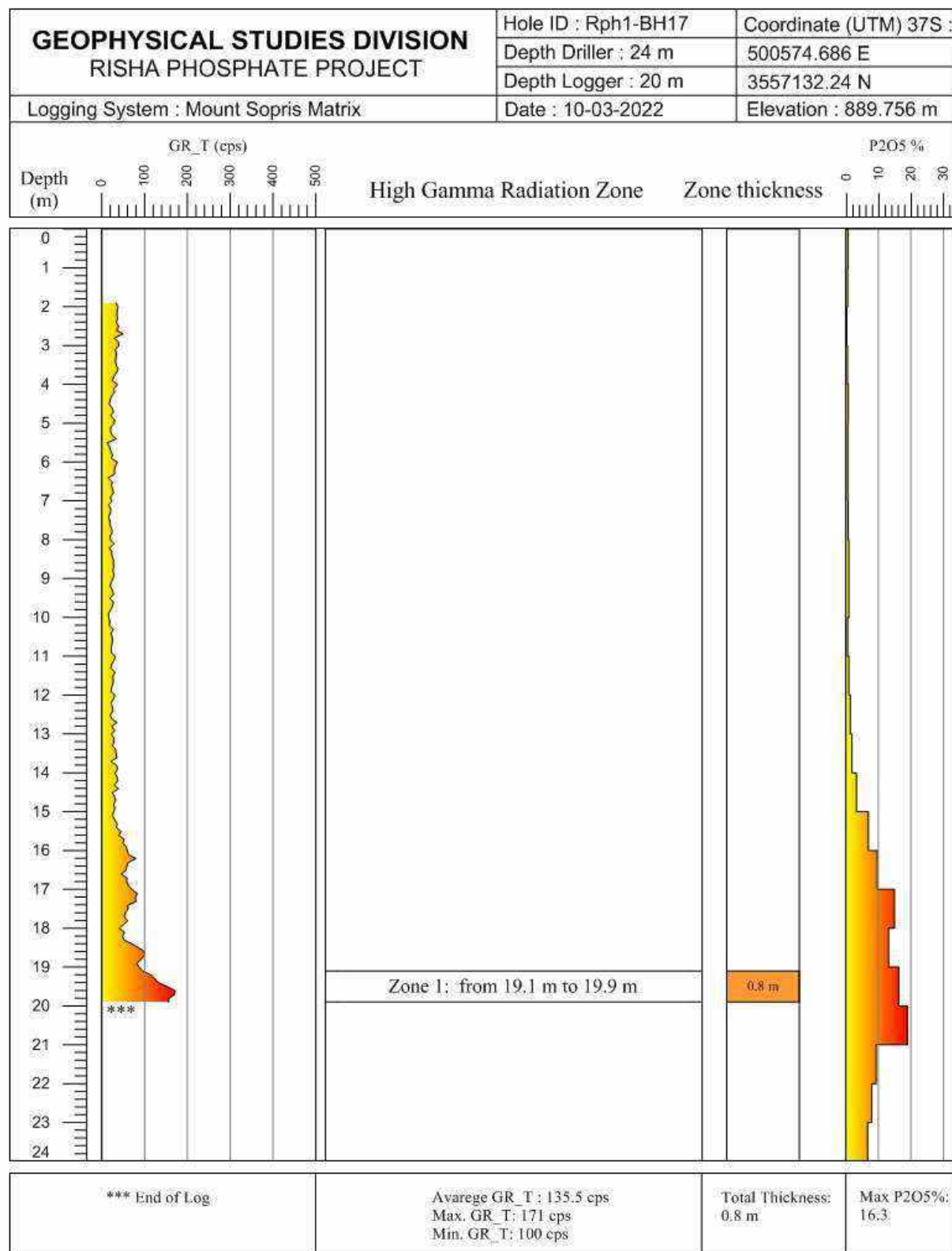


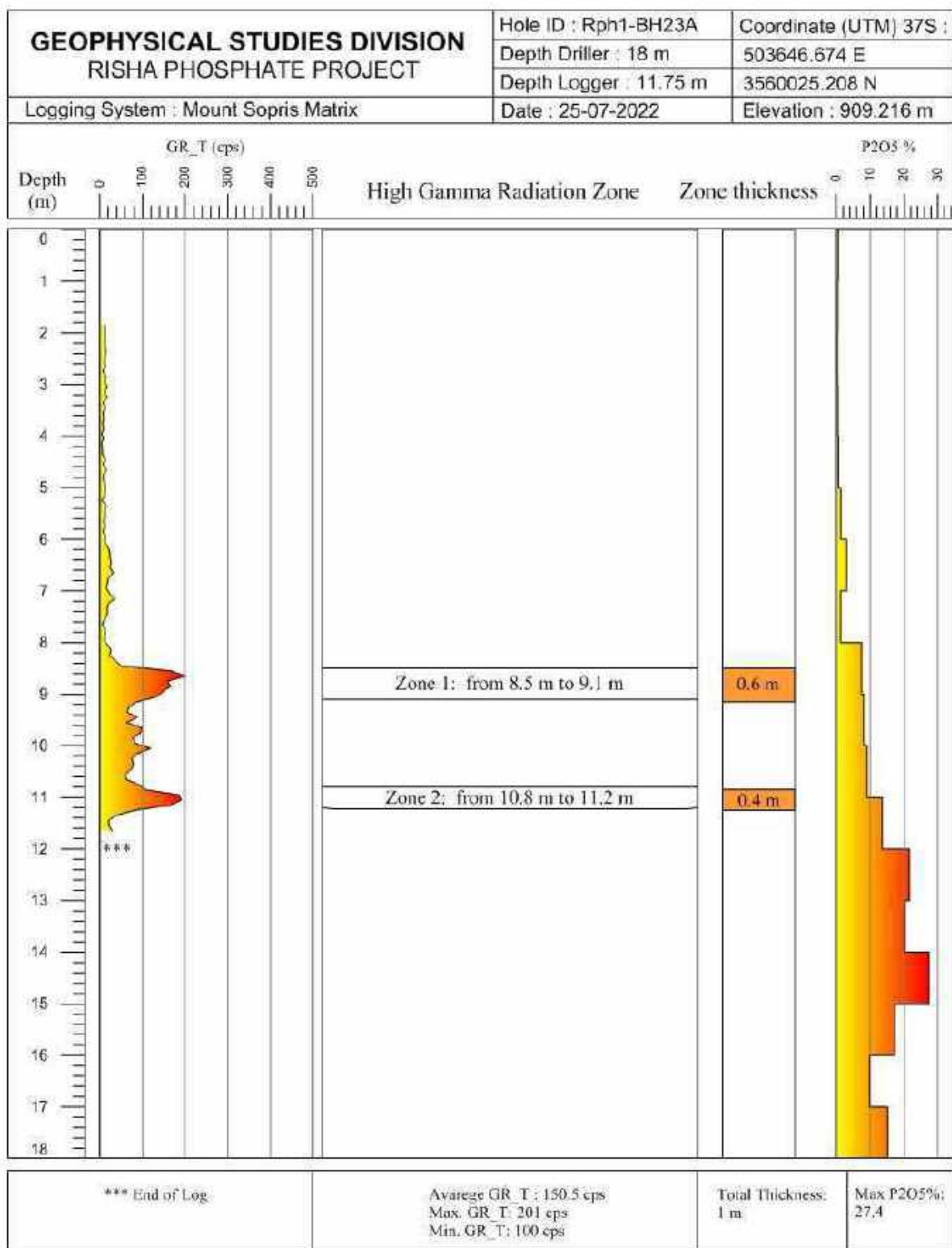


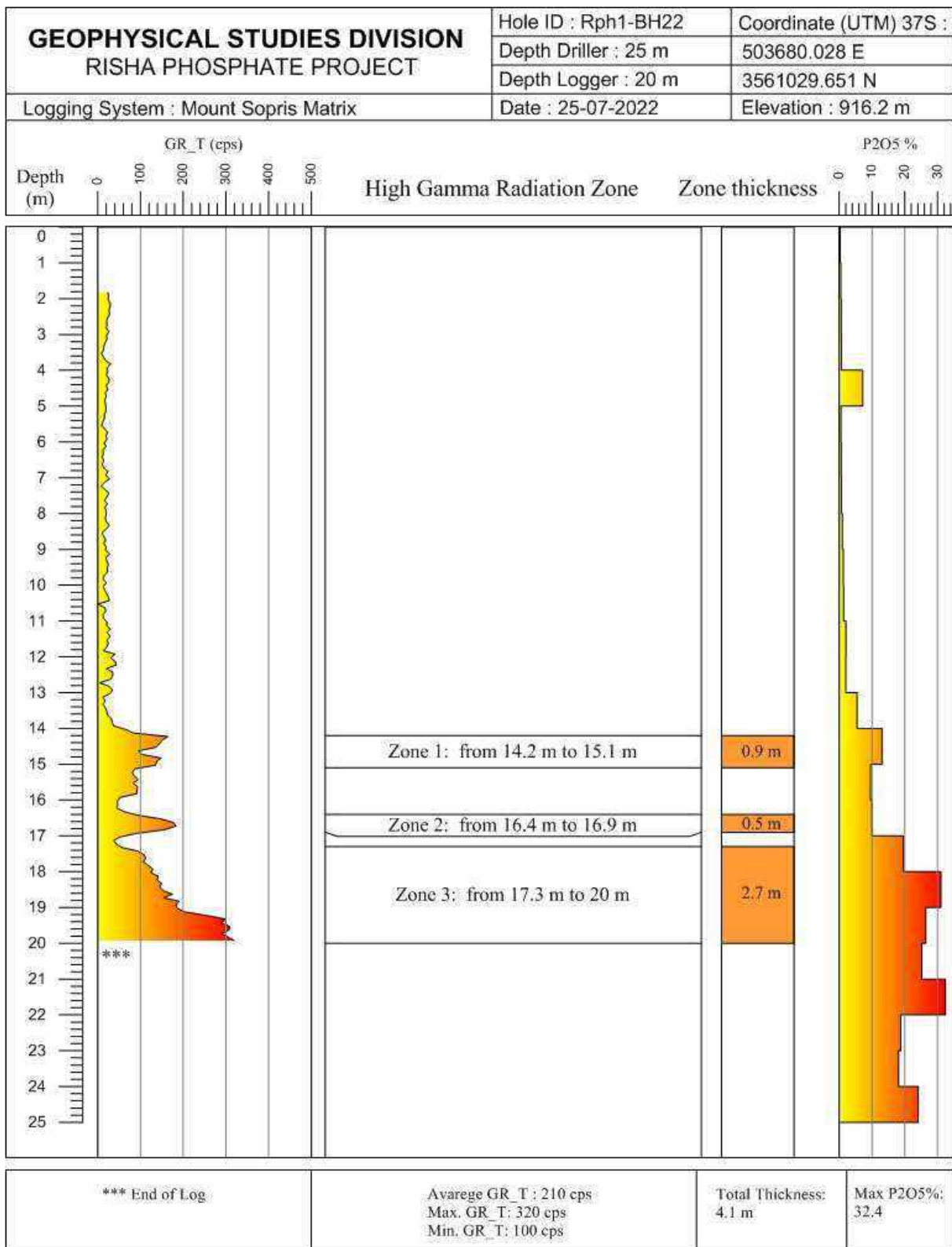


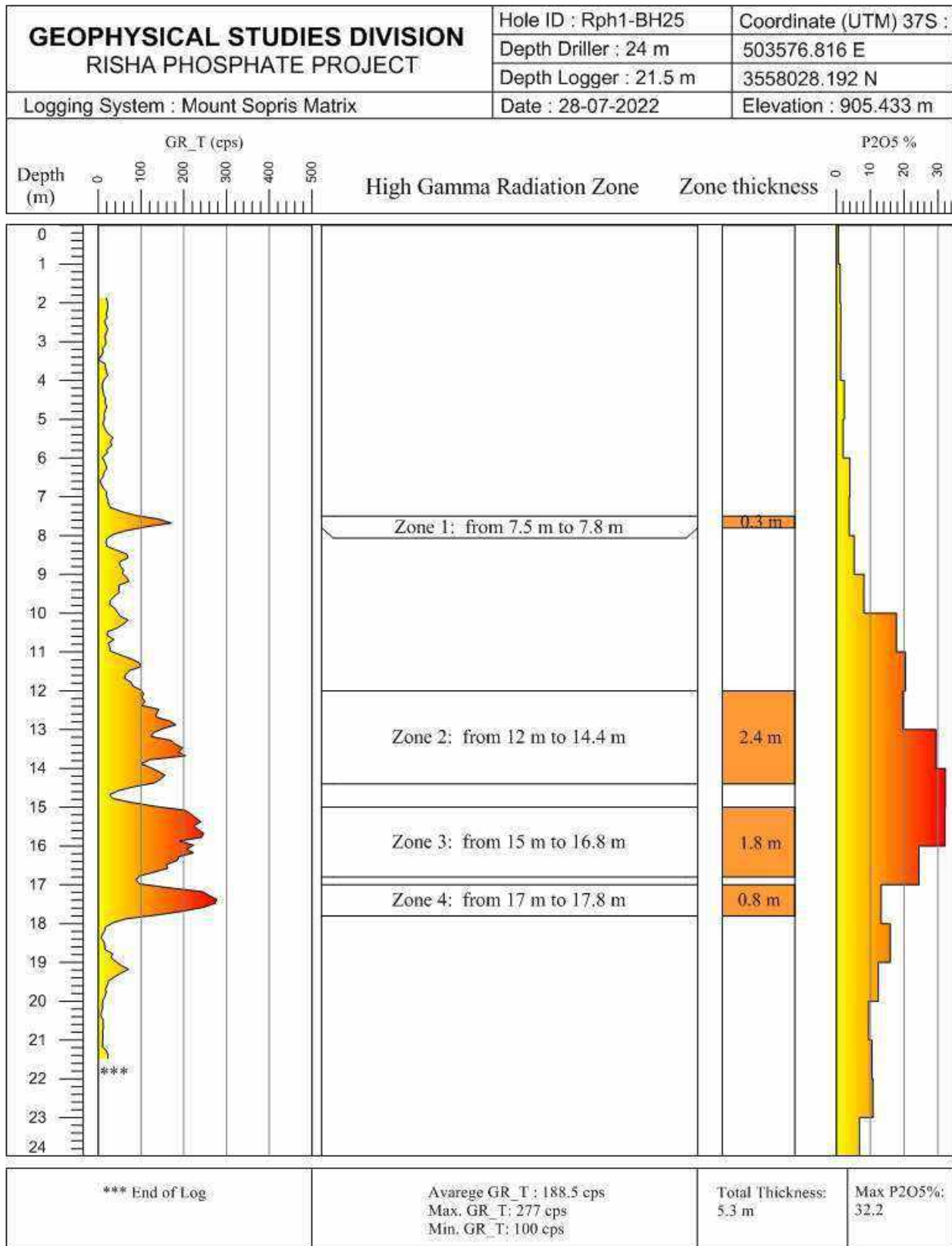


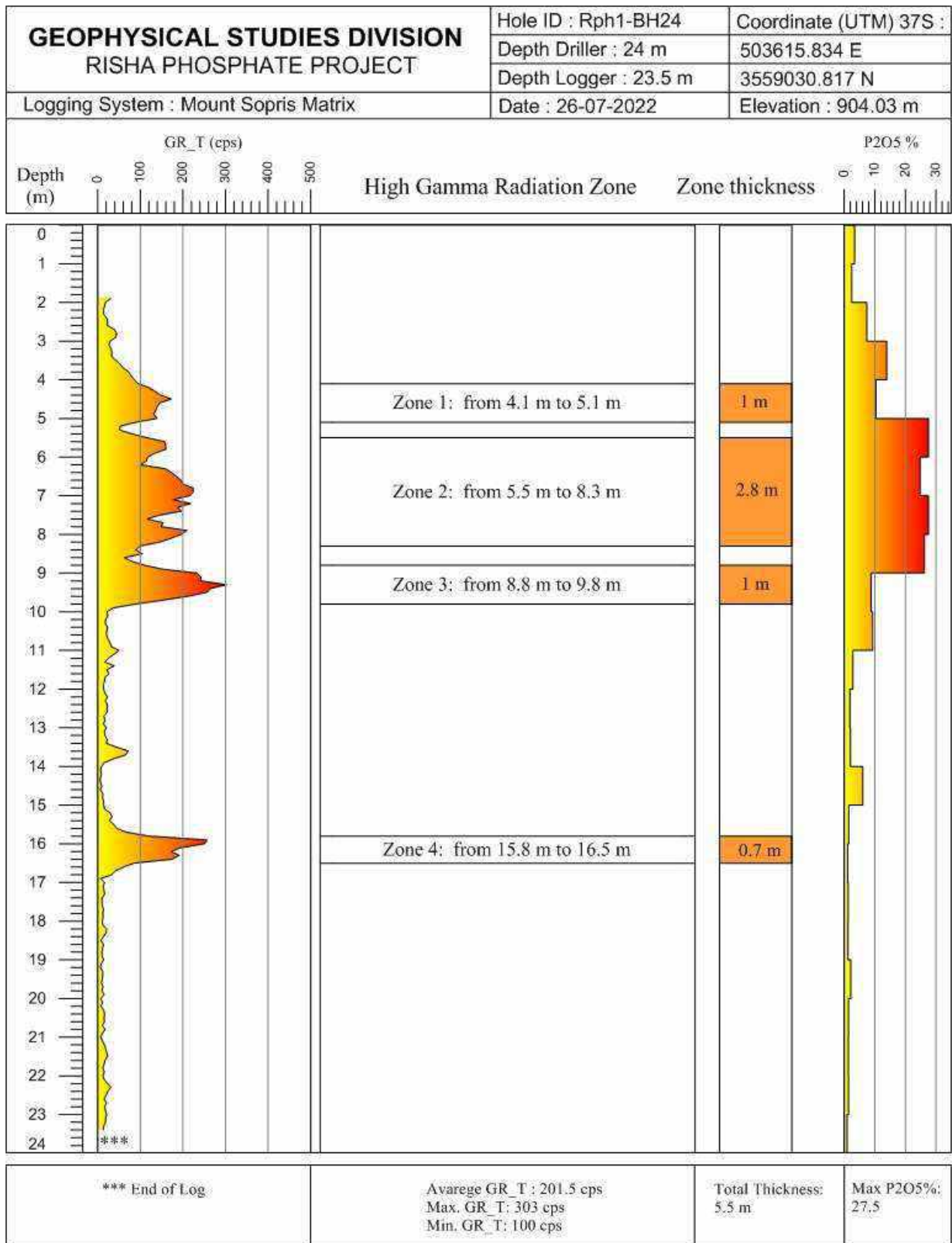


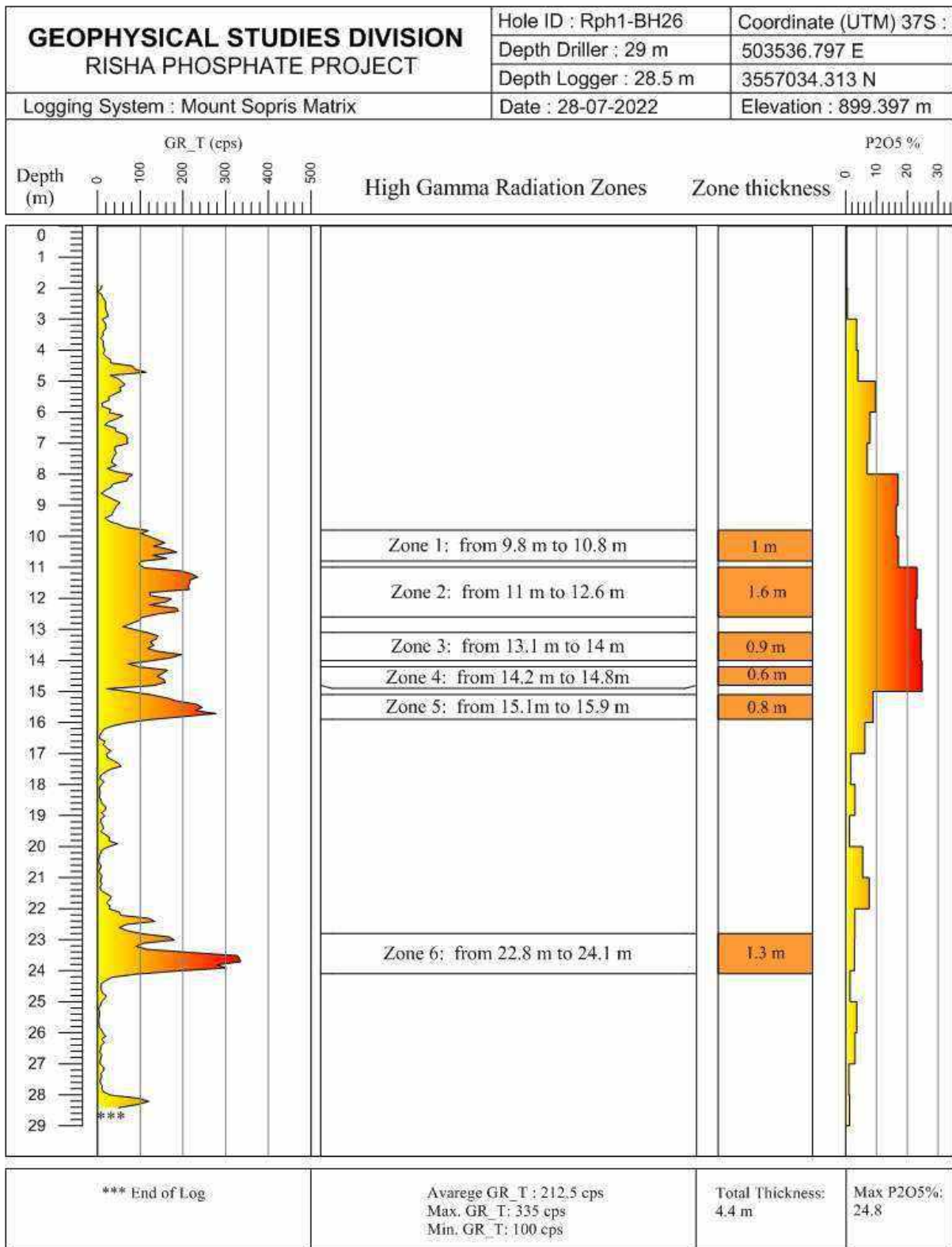


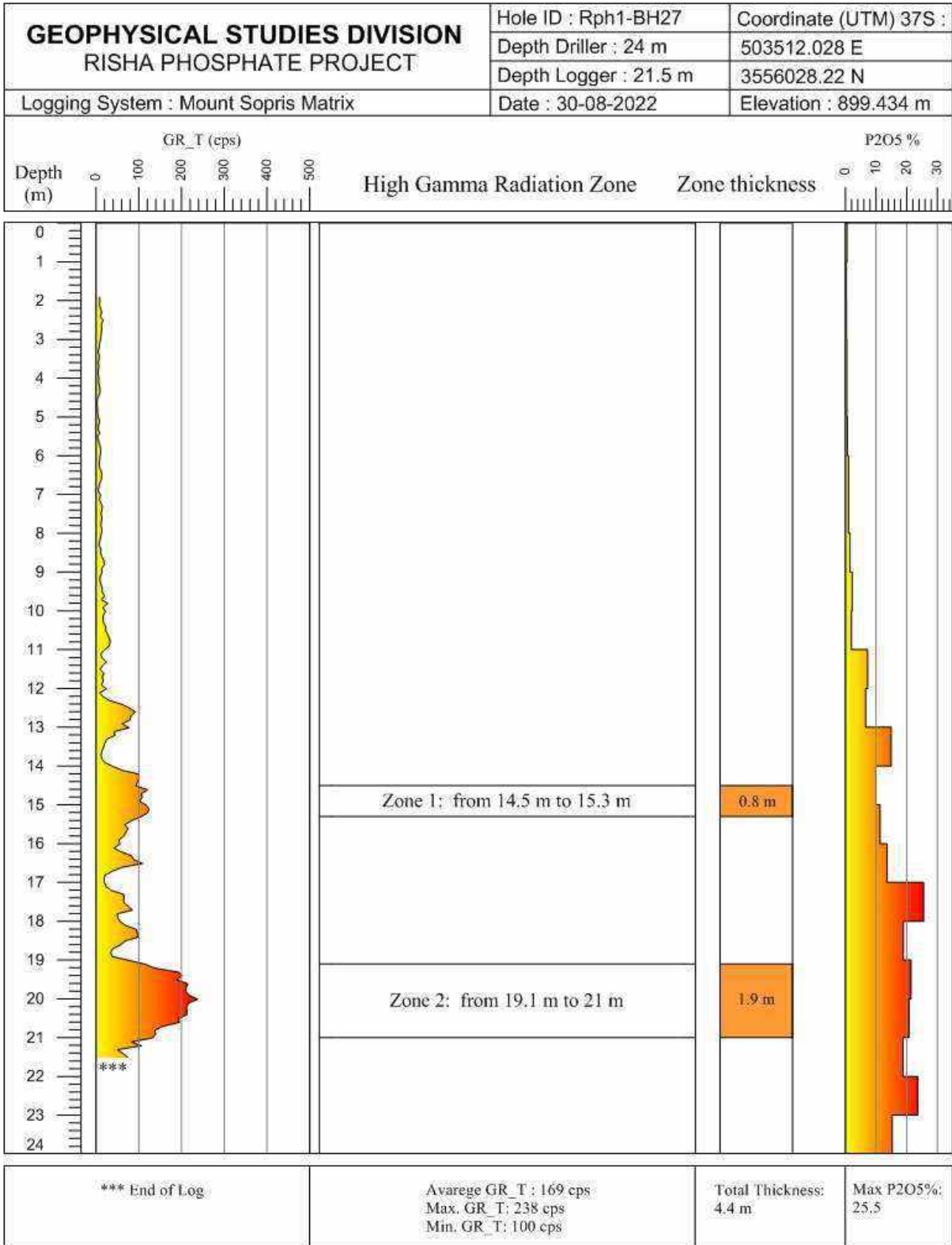


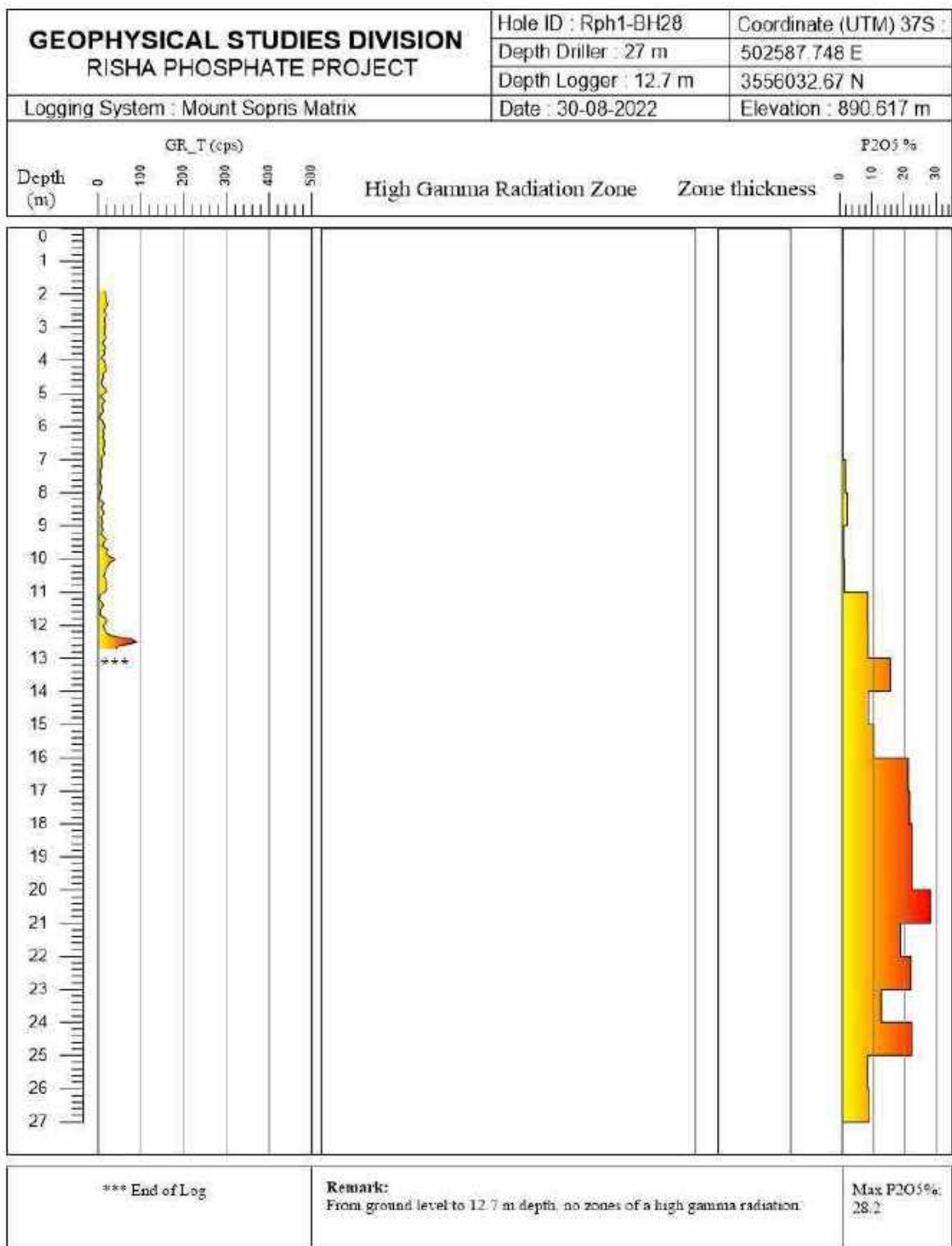


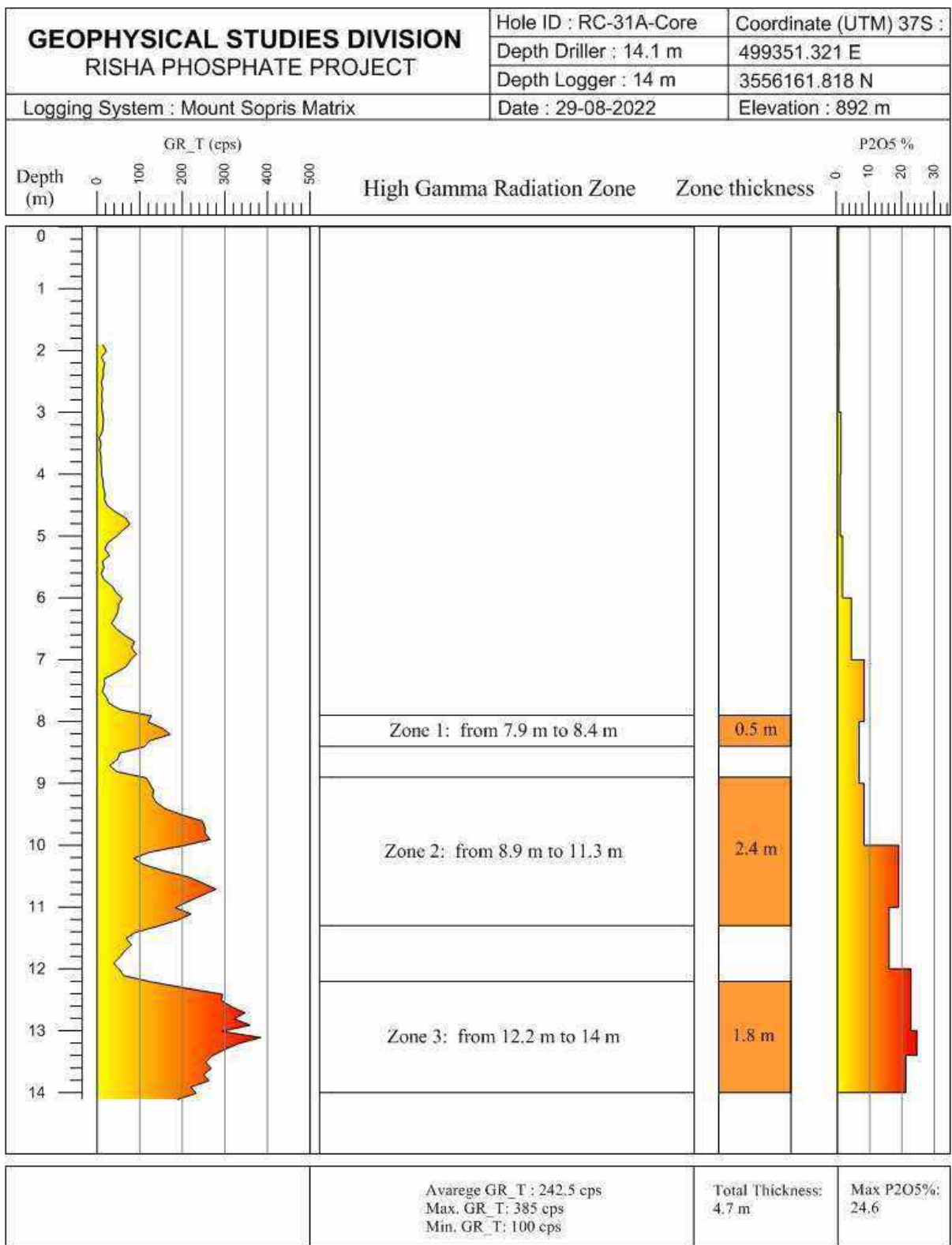


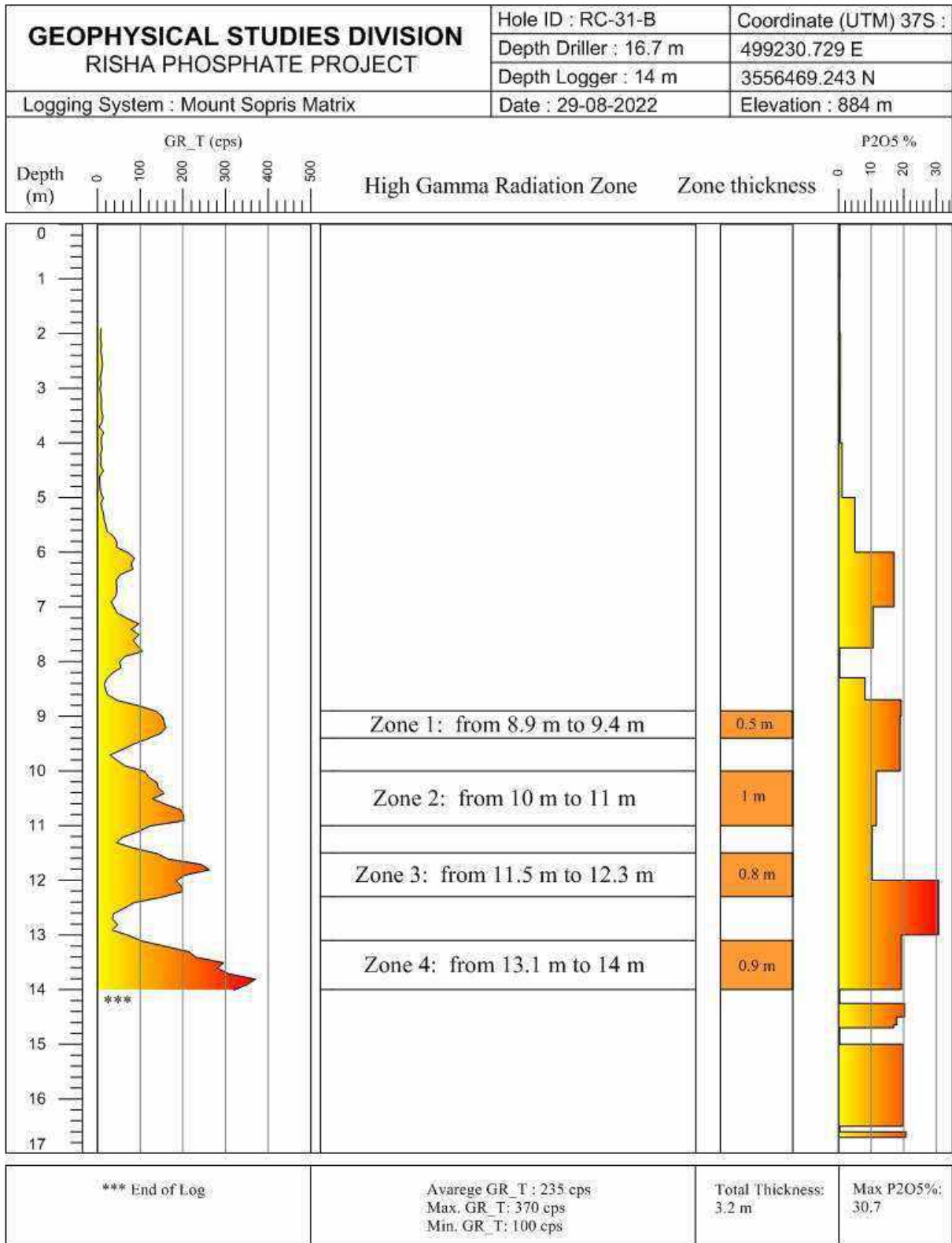












GEOPHYSICAL STUDIES DIVISION
RISHA PHOSPHATE PROJECT

Hole ID : RC-31C-Core

Coordinate (UTM) 37S :

Depth Driller : 15.5 m

499230,729 E

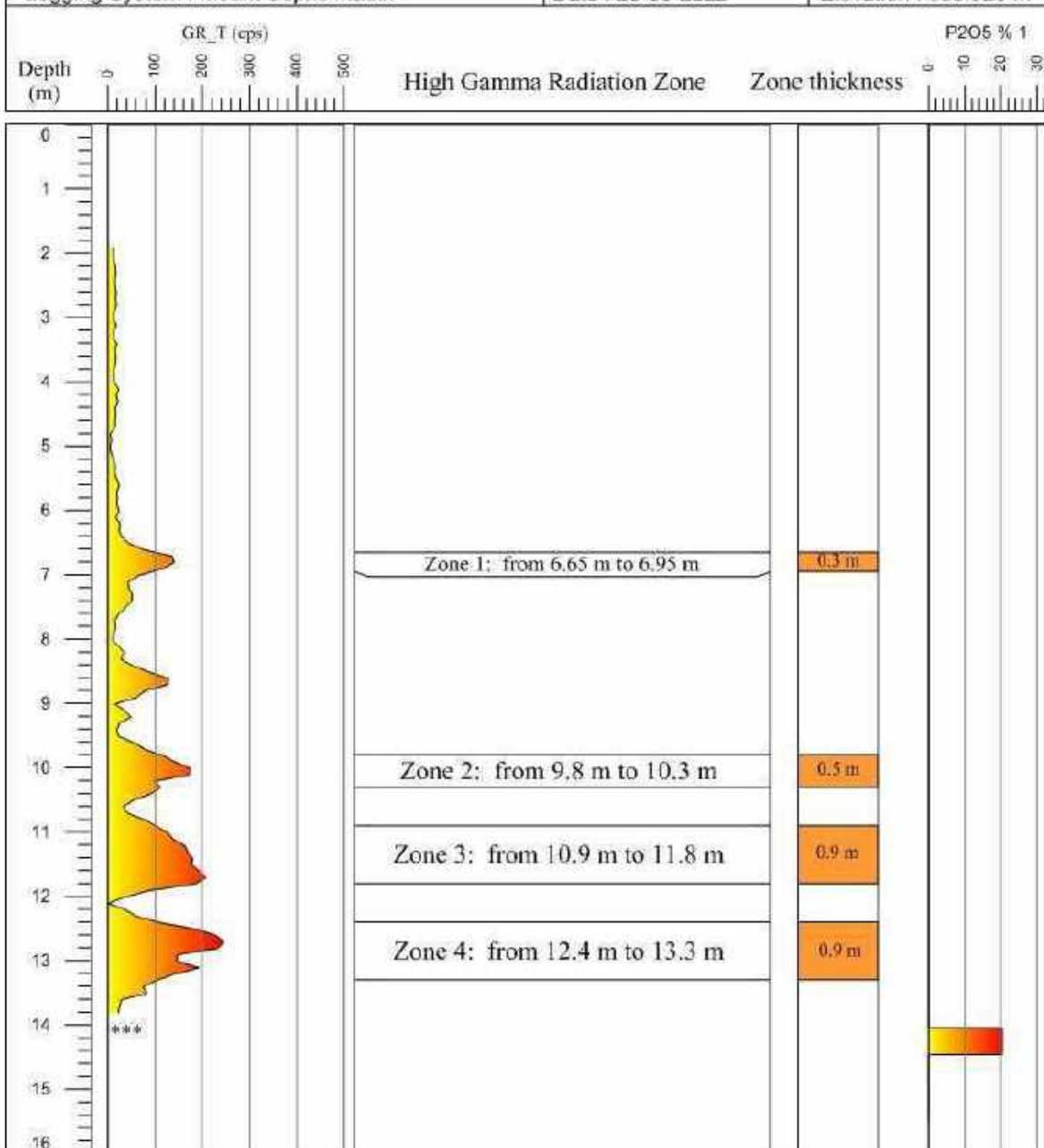
Depth Logger : 13.75 m

3556469.243 N

Logging System : Mount Sopris Matrix

Date : 29-08-2022

Elevation : 886.923 m

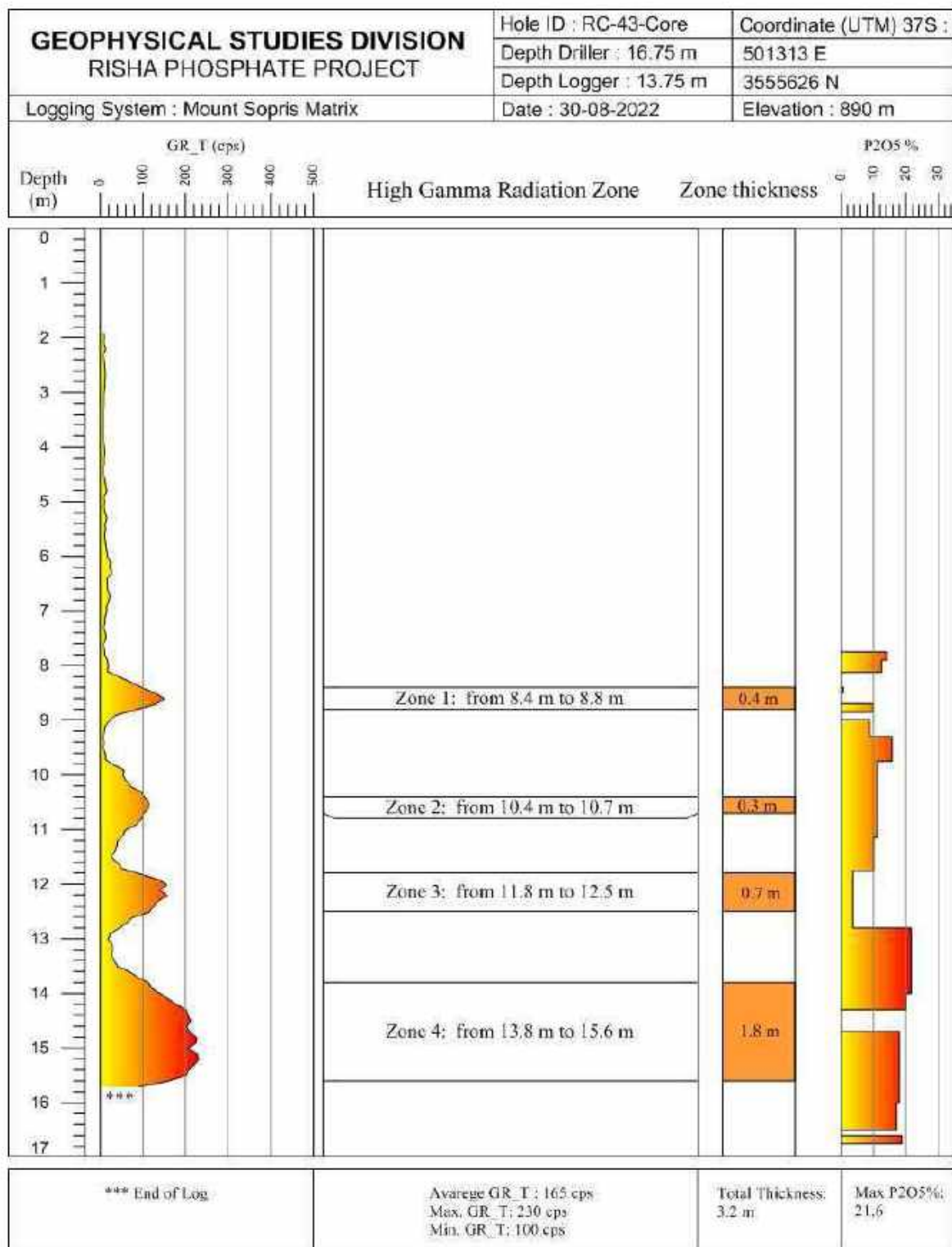


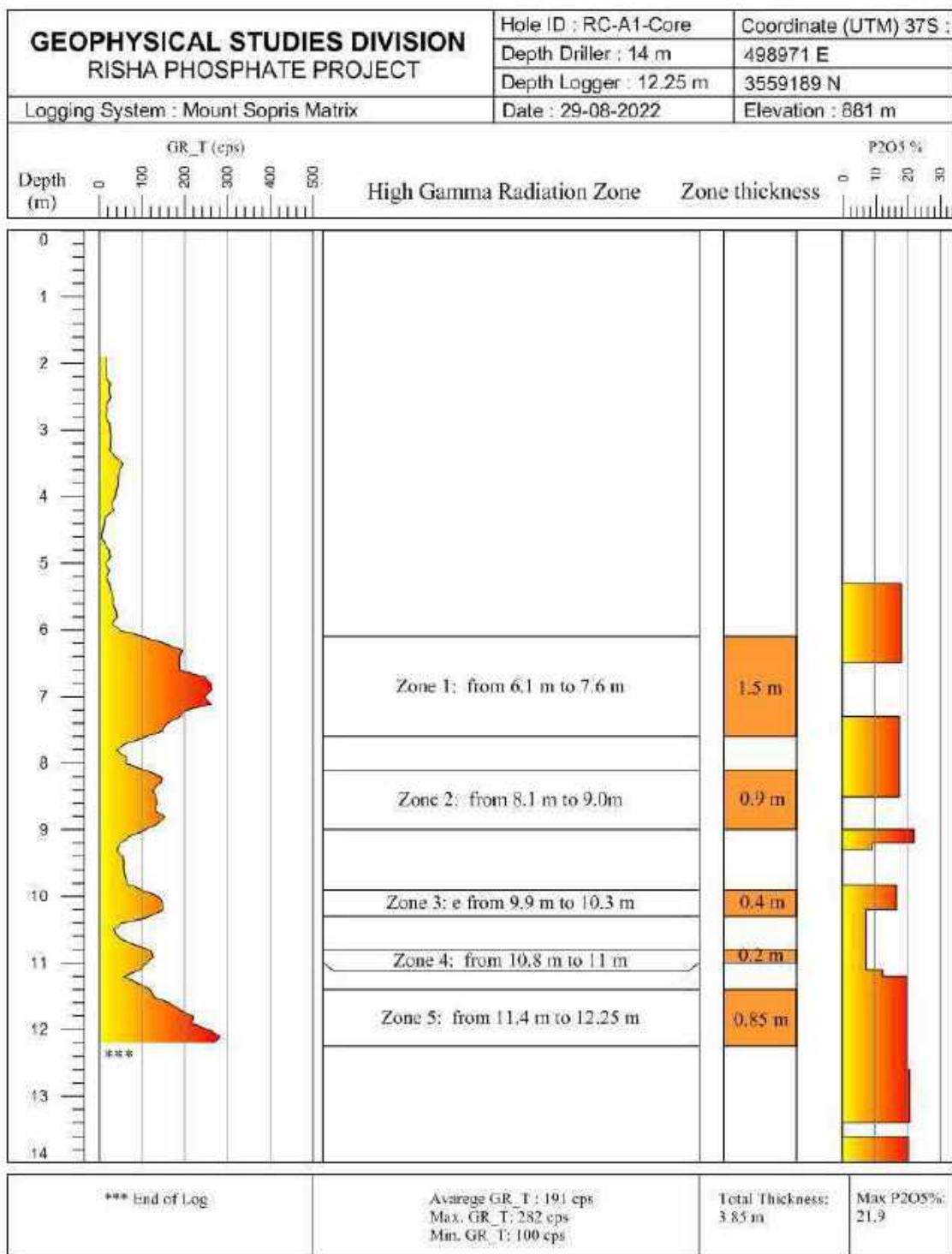
*** End of Log

Average GR_T: 173 cps
Max. GR_T: 246 cps
Min. GR_T: 100 cps

Total Thickness:
4.4 m

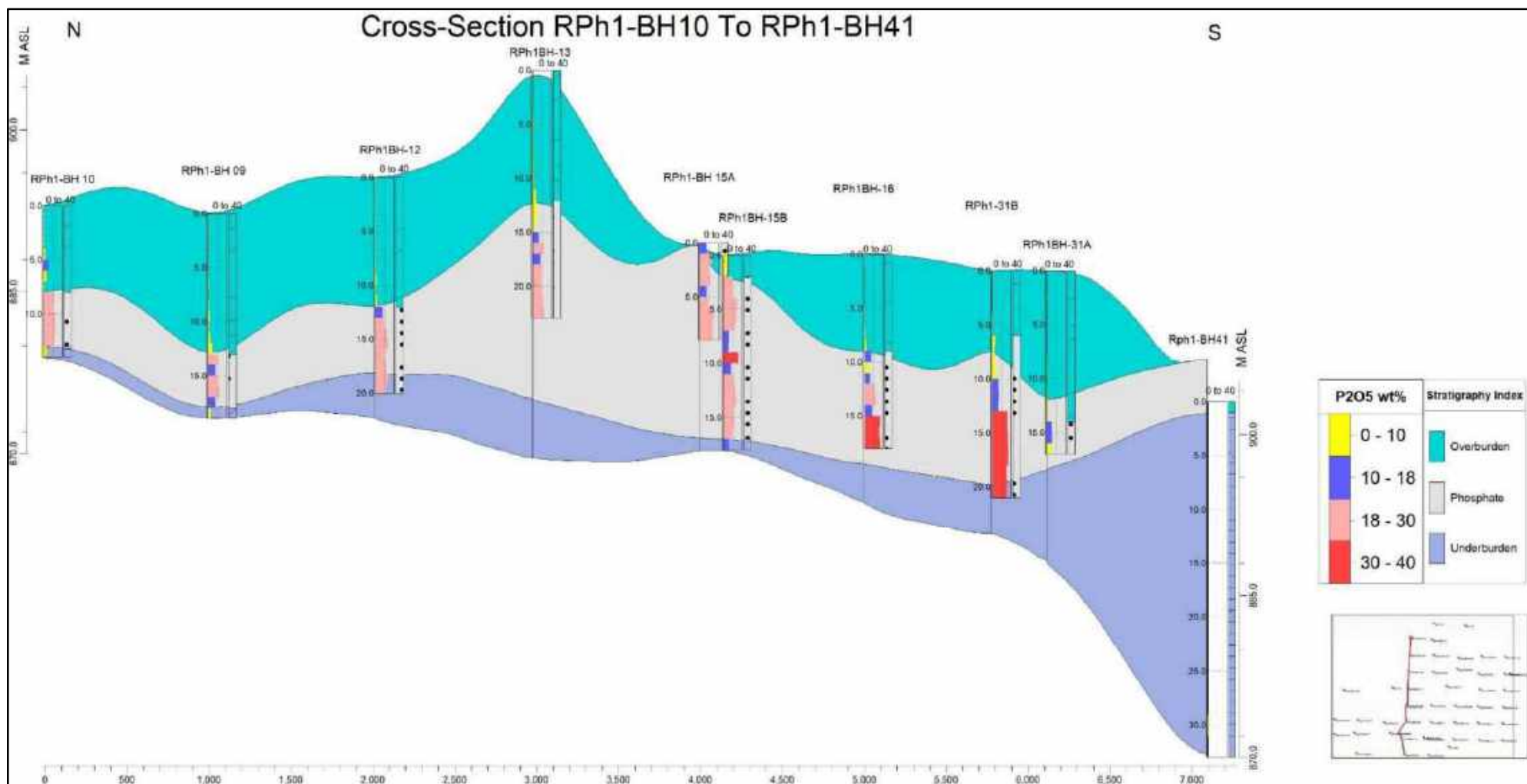
Max P2O5%:
20,4





Appendix No. 3

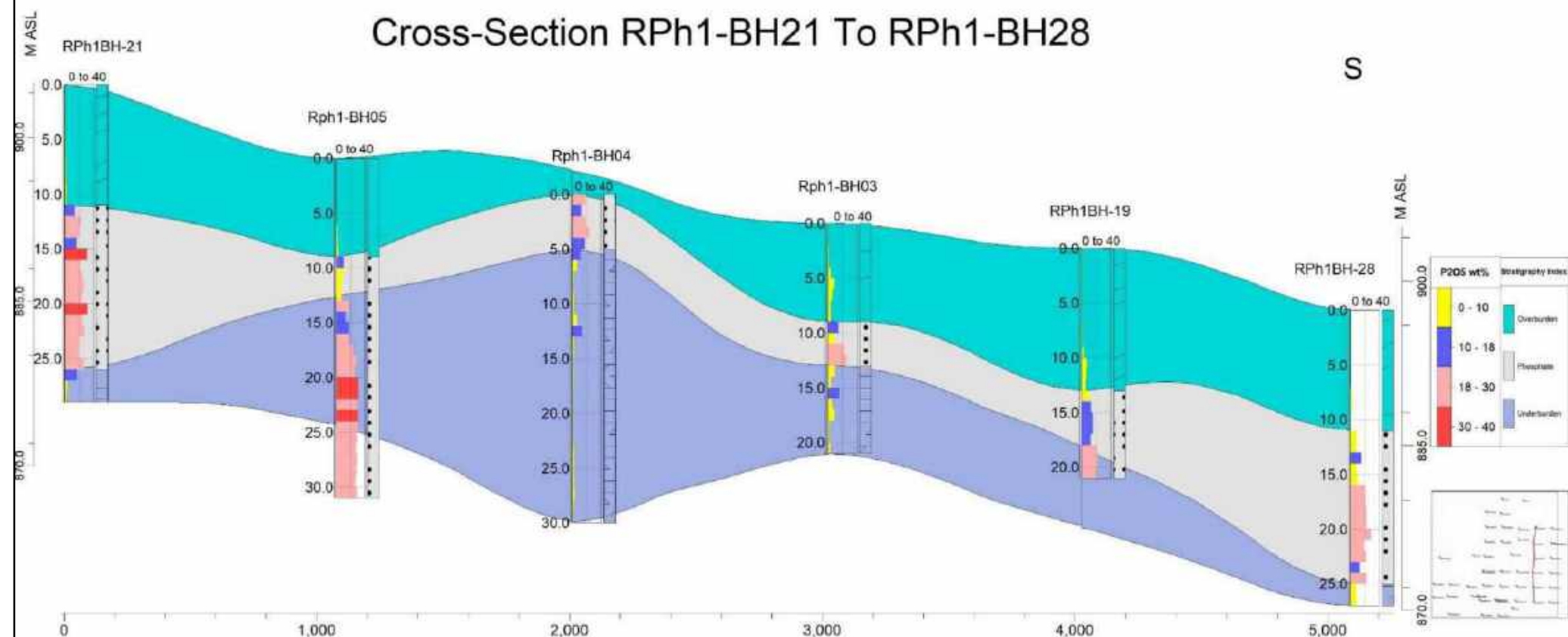
Stratigraphy Sections



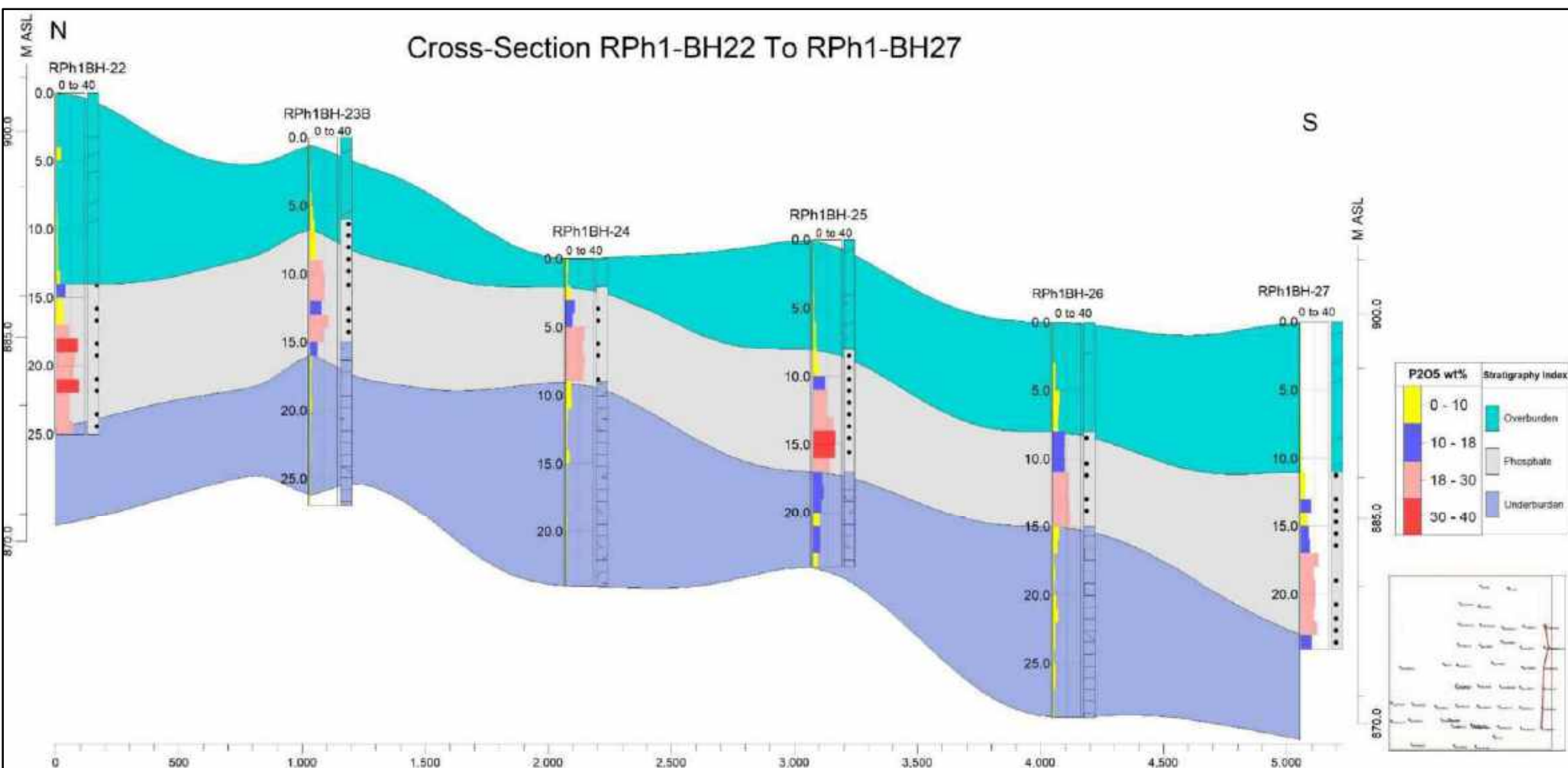
N

Cross-Section RPh1-BH21 To RPh1-BH28

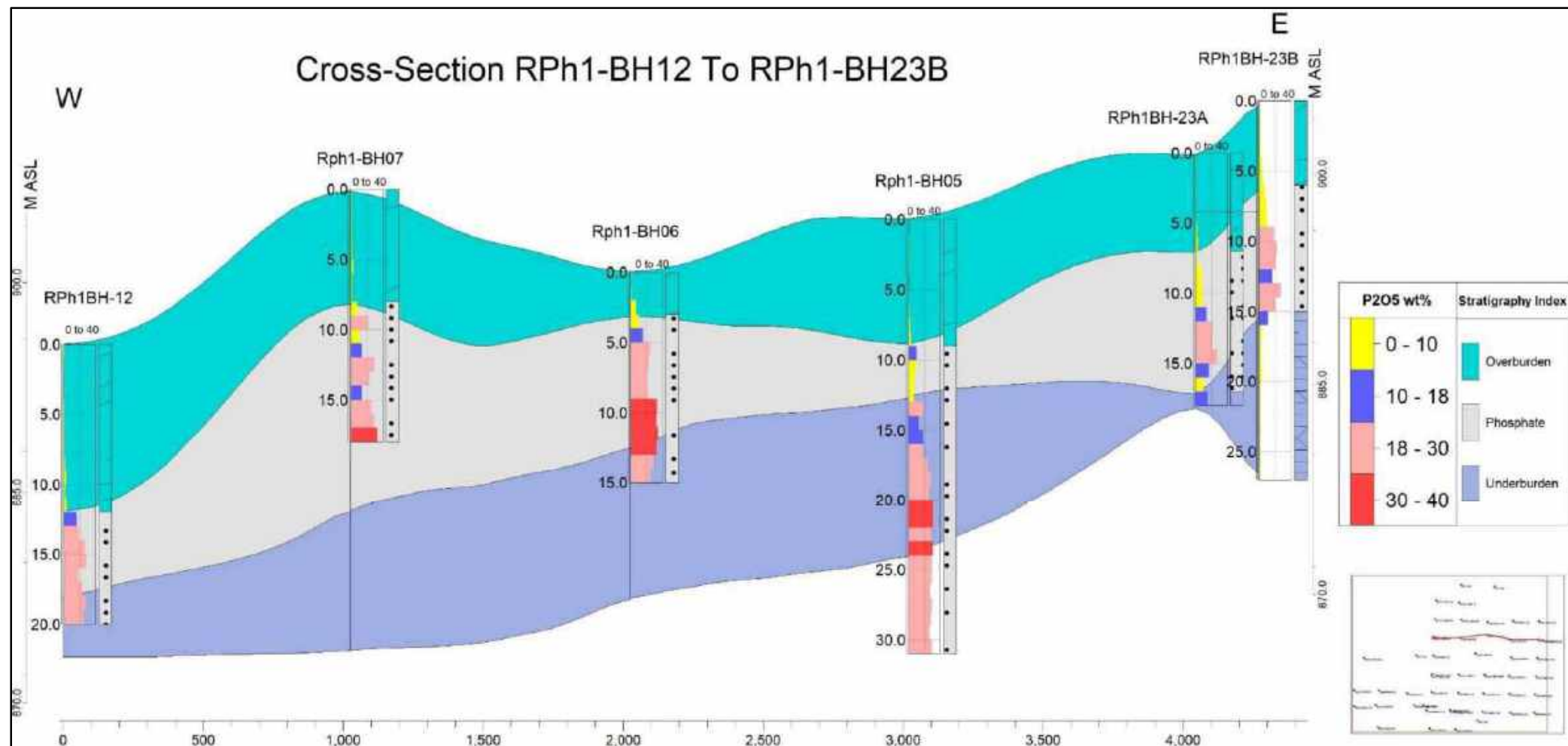
S



Cross-Section RPh1-BH22 To RPh1-BH27

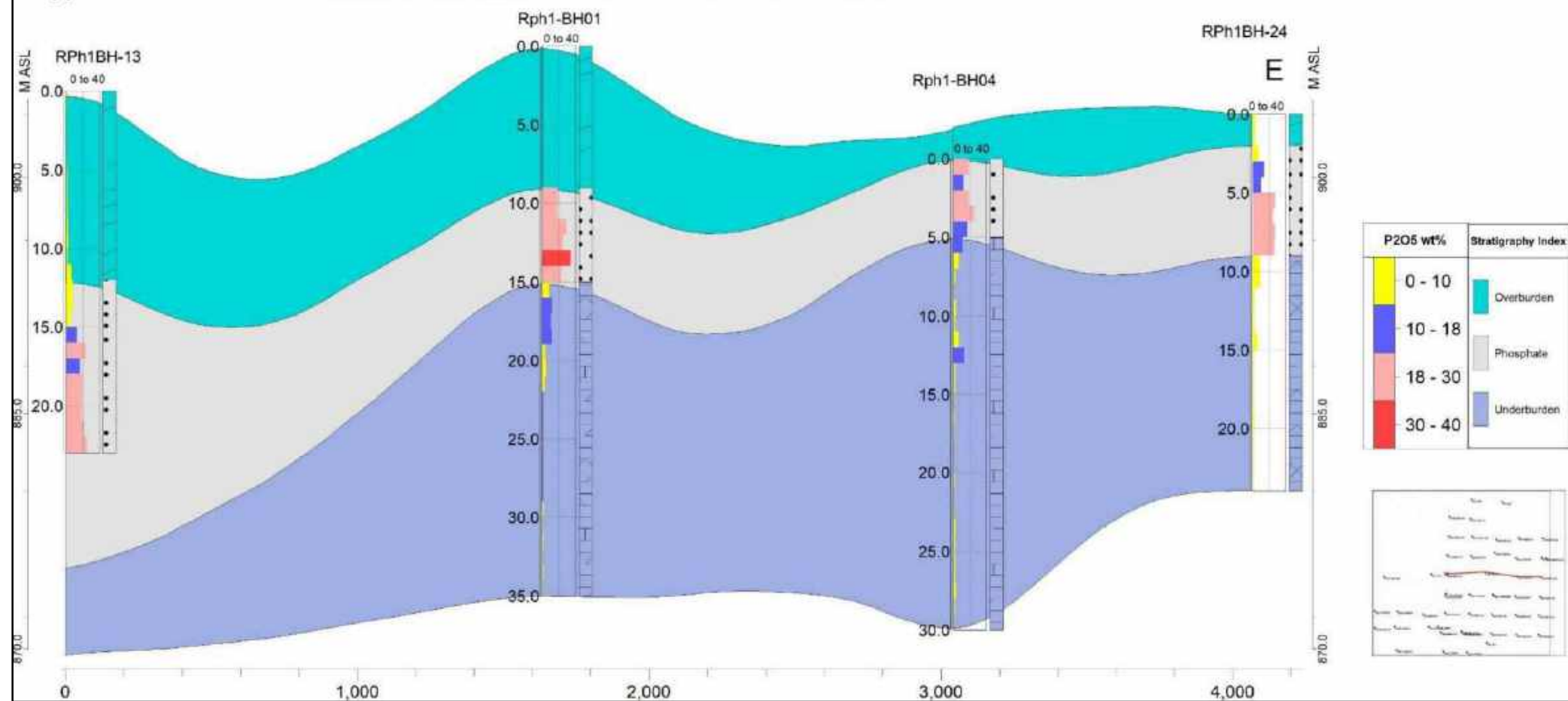


Cross-Section RPh1-BH12 To RPh1-BH23B

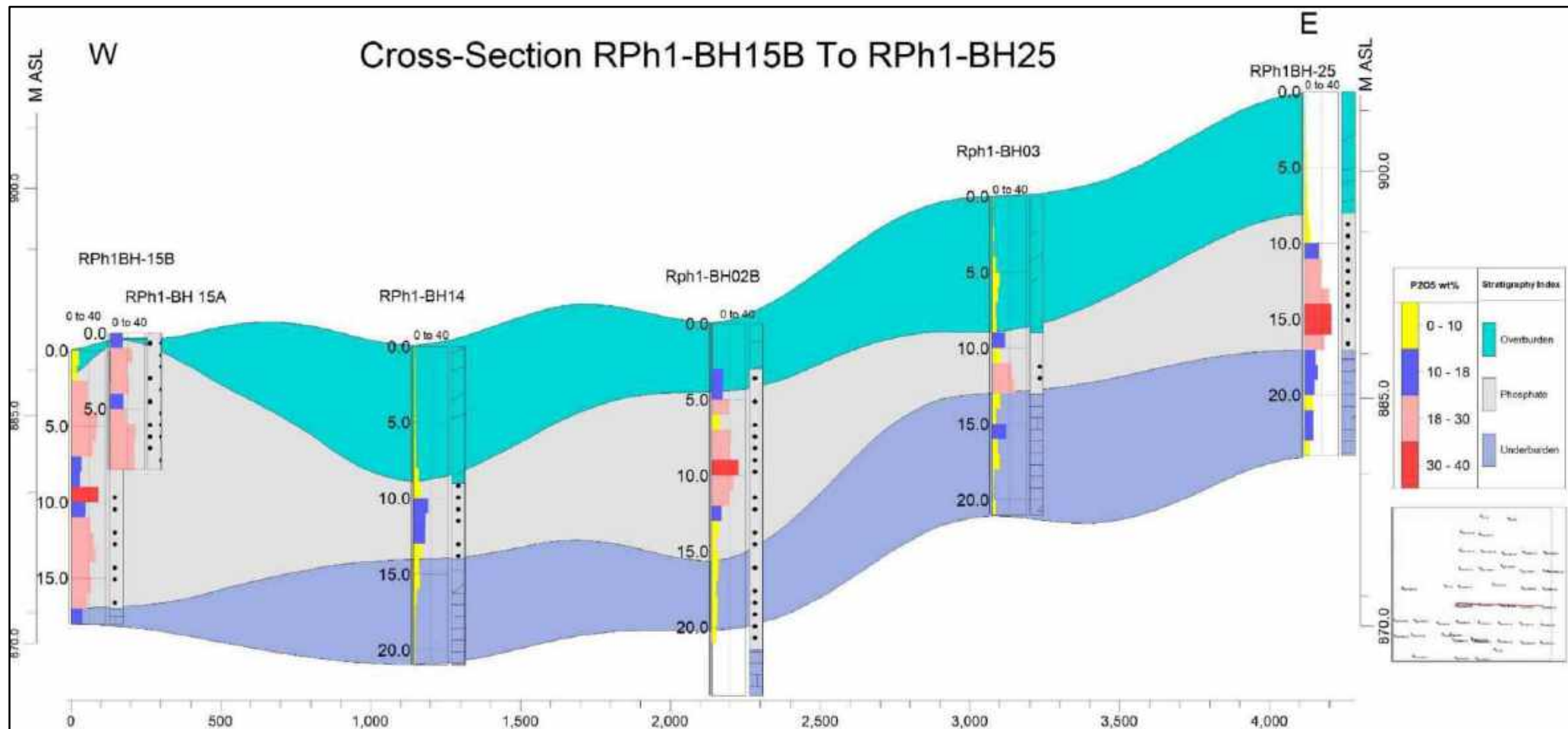


W

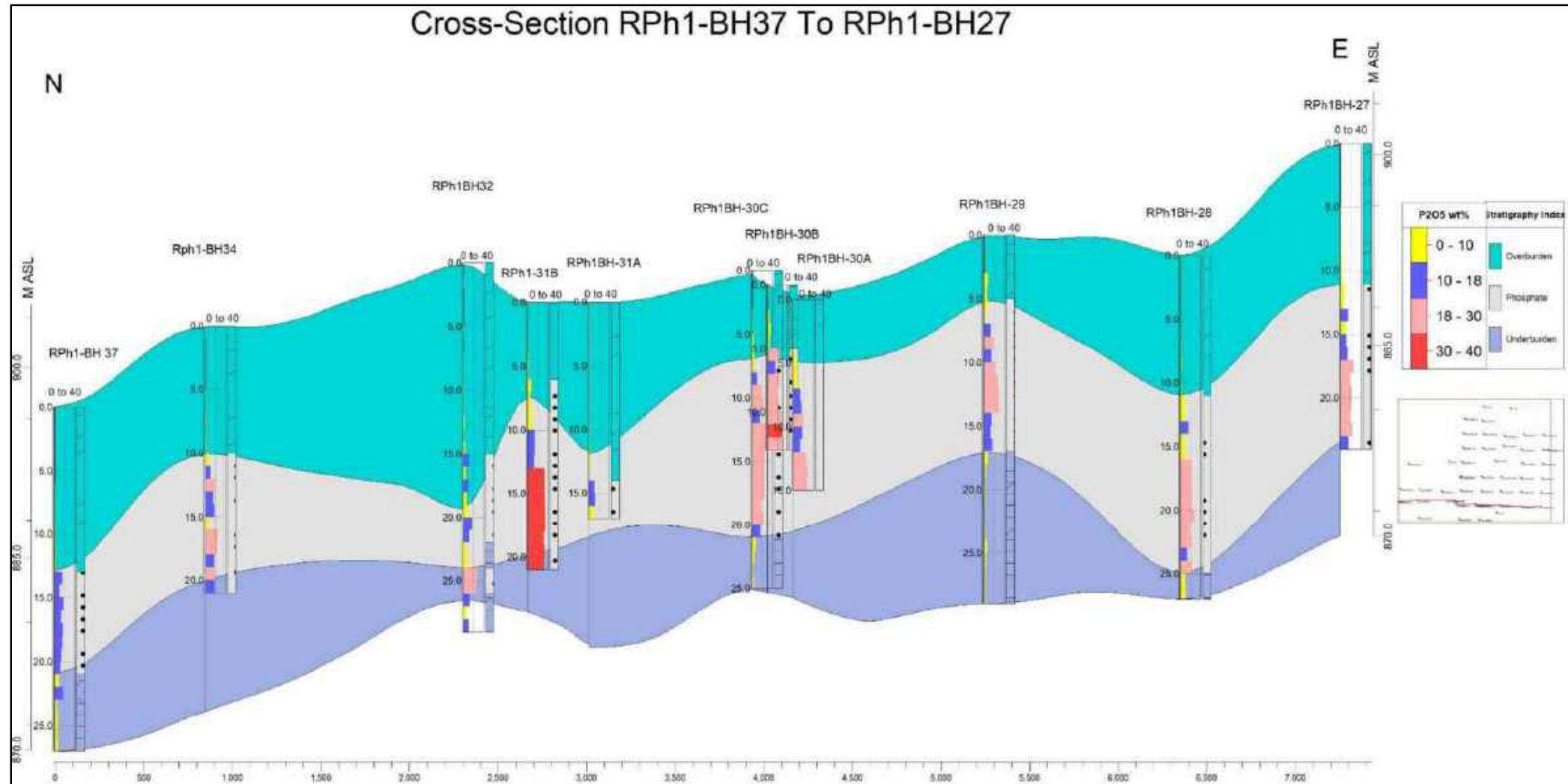
Cross-Section RPh1-BH13 To RPh1-BH24



Cross-Section RPh1-BH15B To RPh1-BH25



Cross-Section RPh1-BH37 To RPh1-BH27



Appendix 04

Lithology Log



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH01

Drilling Depth: 35.0 m

Drilling Type (D.T): Cutting

No. Samples: 19

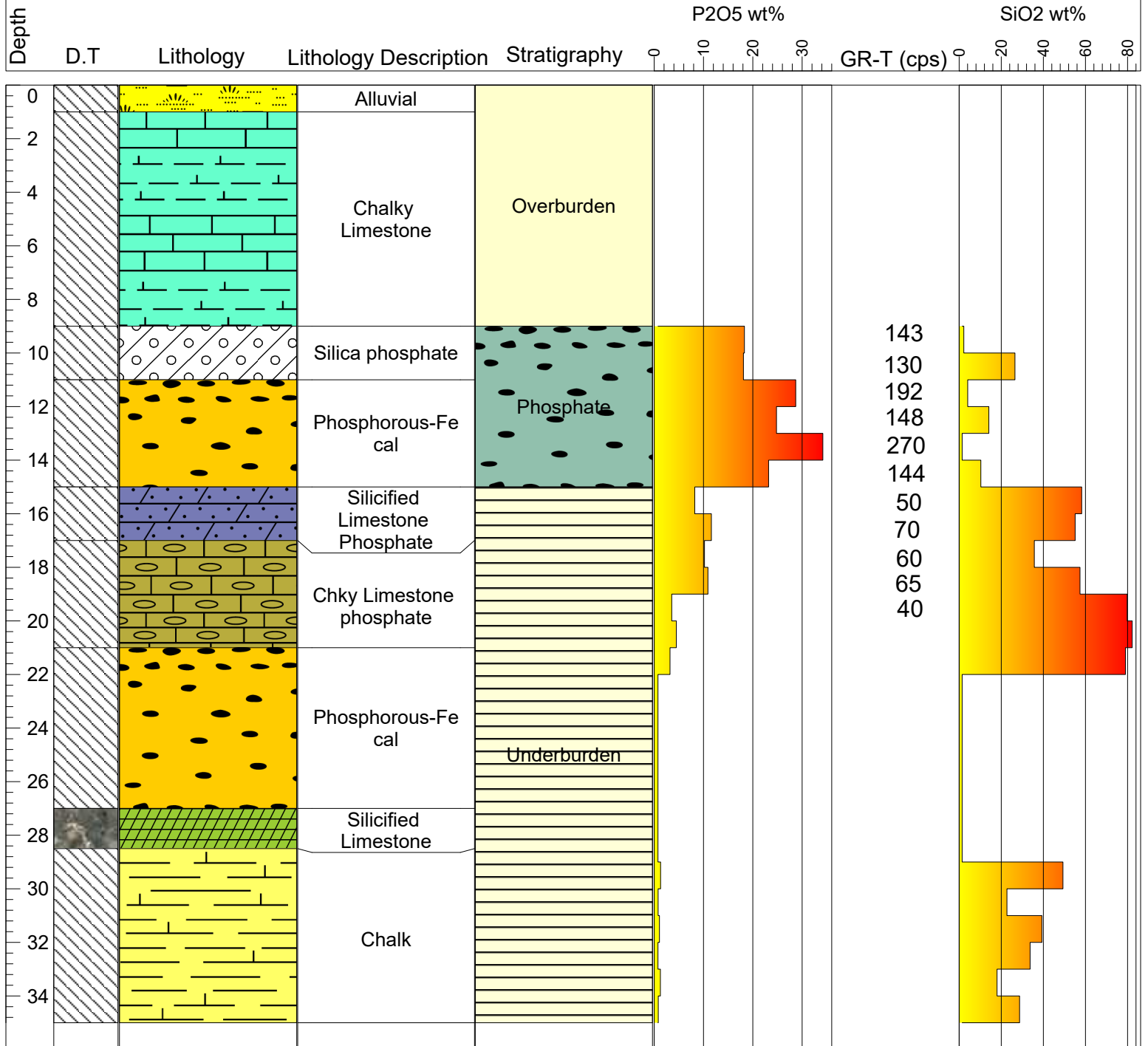
Coordinate (UTM) 37N

501233 E

3559266 N

908 ASL

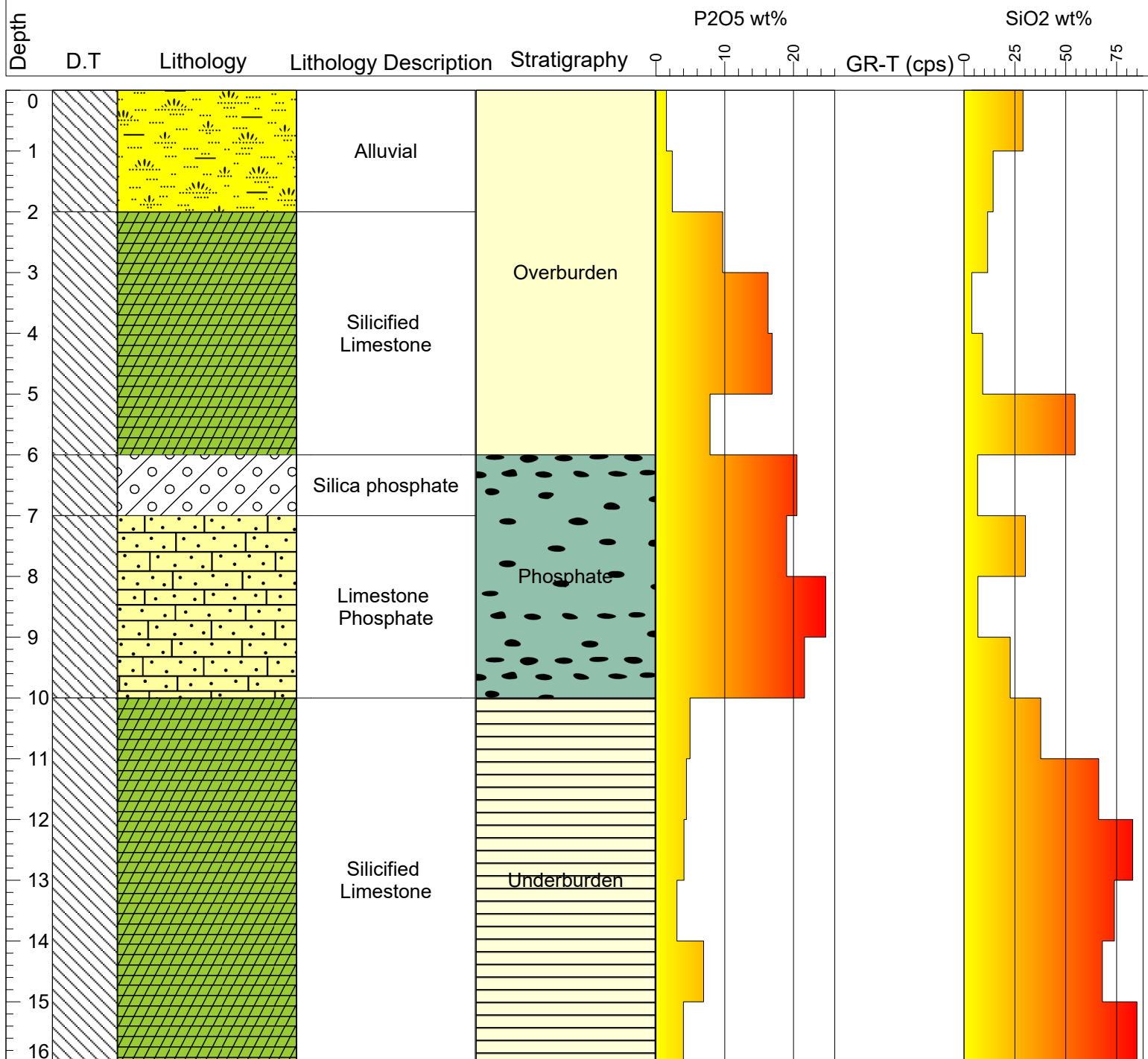
Risha Phosphate Prospecting Project



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		

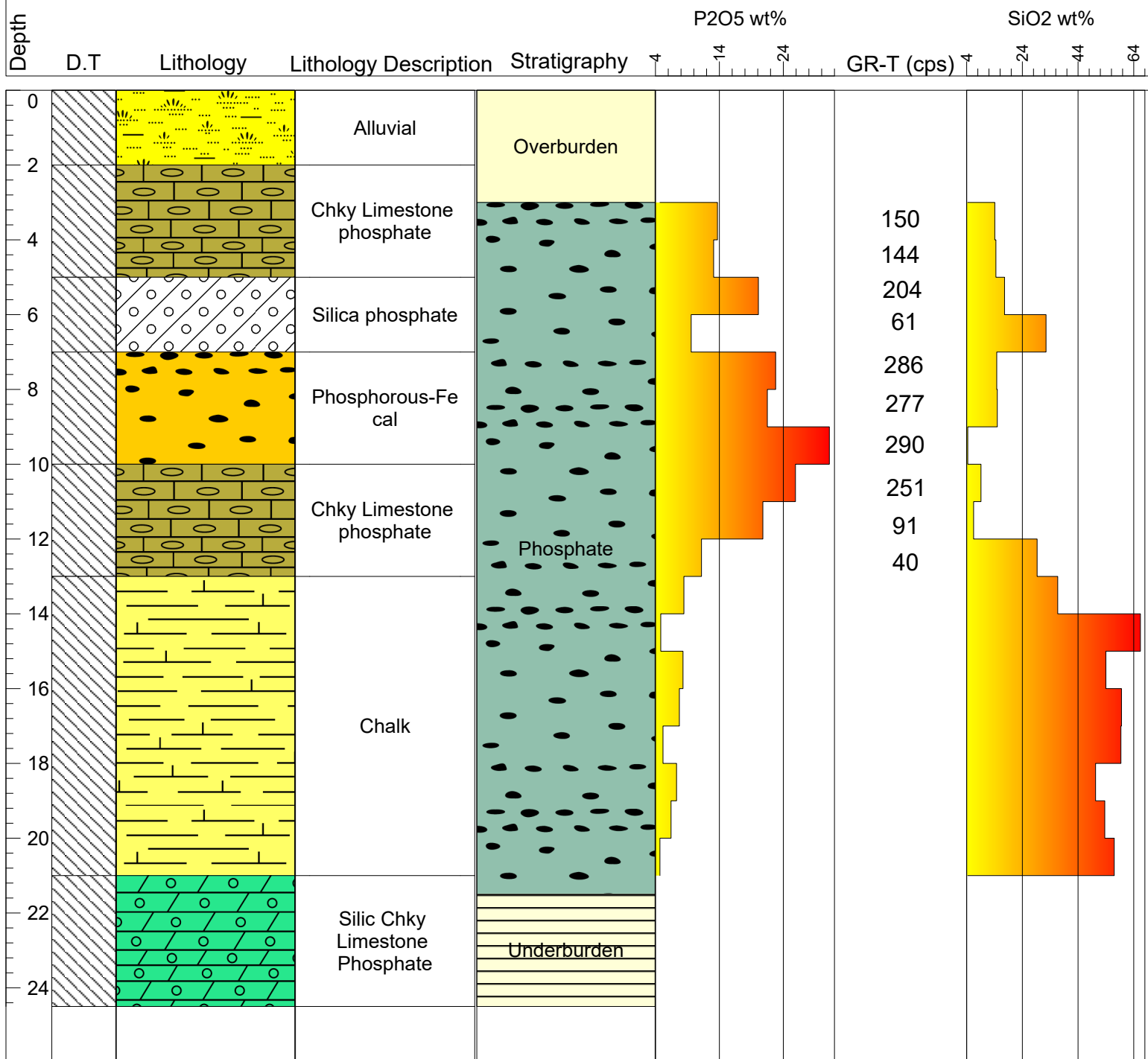
 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH02A	Coordinate (UTM) 37N
	Drilling Depth: 16.0 m	501583 E
	Drilling Type (D.T): Cutting	3558103 N
	No. Samples: 16	890 ASL
Risha Phosphate Prospecting Project		



Legend

 Alluvial	 Chert	 Chky Limestone phosphate	 Cutting
 Limestone	 Phosphatic Limestone	 Silic Chky limestone	 Core
 Chalky Limestone	 Limestone Phosphate	 Silicified Limestone Phosphate	 Overburden
 Silicified Limestone	 Phosphorous-Fecal	 Silic Chky Limestone Phosphate	 Phosphate
 Chalk	 Silica phosphate		 Underburden

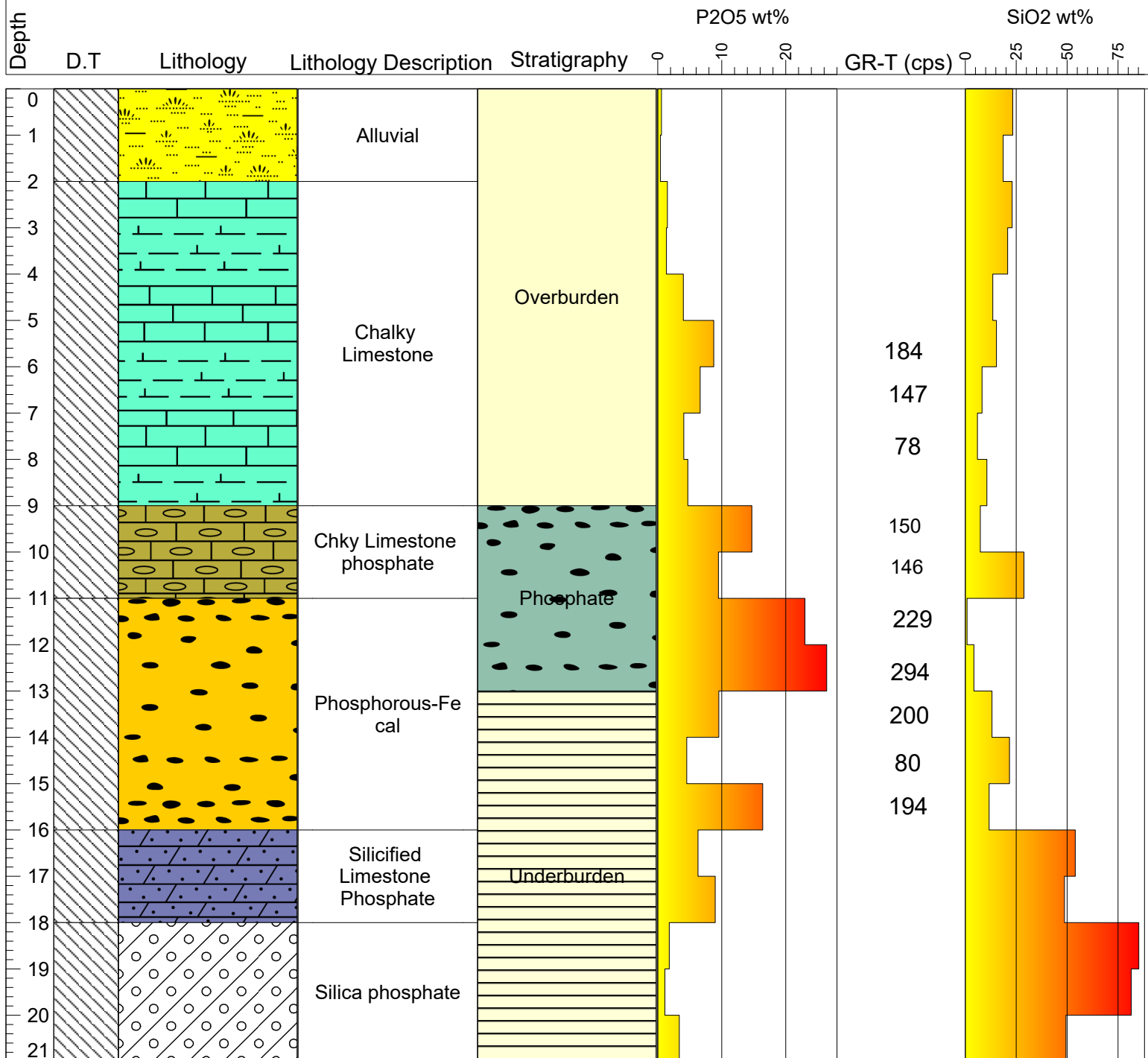
 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH02B	Coordinate (UTM) 37N
	Drilling Depth: 24.5 m	501583 E
	Drilling Type (D.T): Cutting	3558105 N
	No. Samples: 18	890 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		Underburden

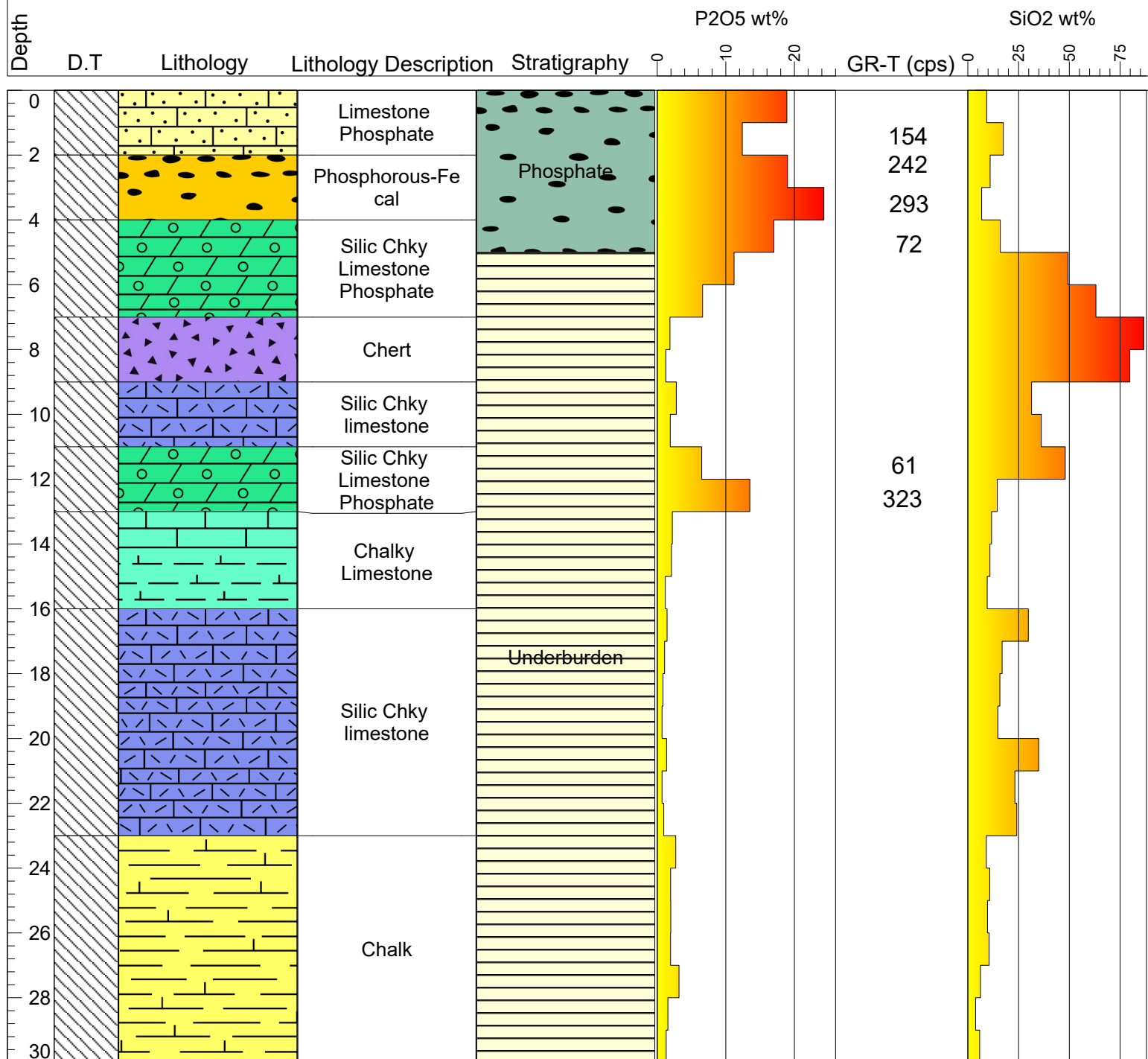
 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH03	Coordinate (UTM) 37N
	Drilling Depth: 21.0 m	502523 E
	Drilling Type (D.T): Cutting	3558056 N
	No. Samples: 21	898 ASL
Risha Phosphate Prospecting Project		



Legend

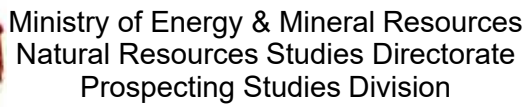
	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		

 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH04	Coordinate (UTM) 37N
	Drilling Depth: 30.0 m	502611 E
	Drilling Type (D.T): Cutting	3559056 N
	No. Samples: 30	901 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		



Coordinate (UTM) 37N

502561 E

3560021 N

904 ASL

[illegible]



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH06

Drilling Depth: 15.0 m

Drilling Type (D.T): Cutting

No. Samples: 15

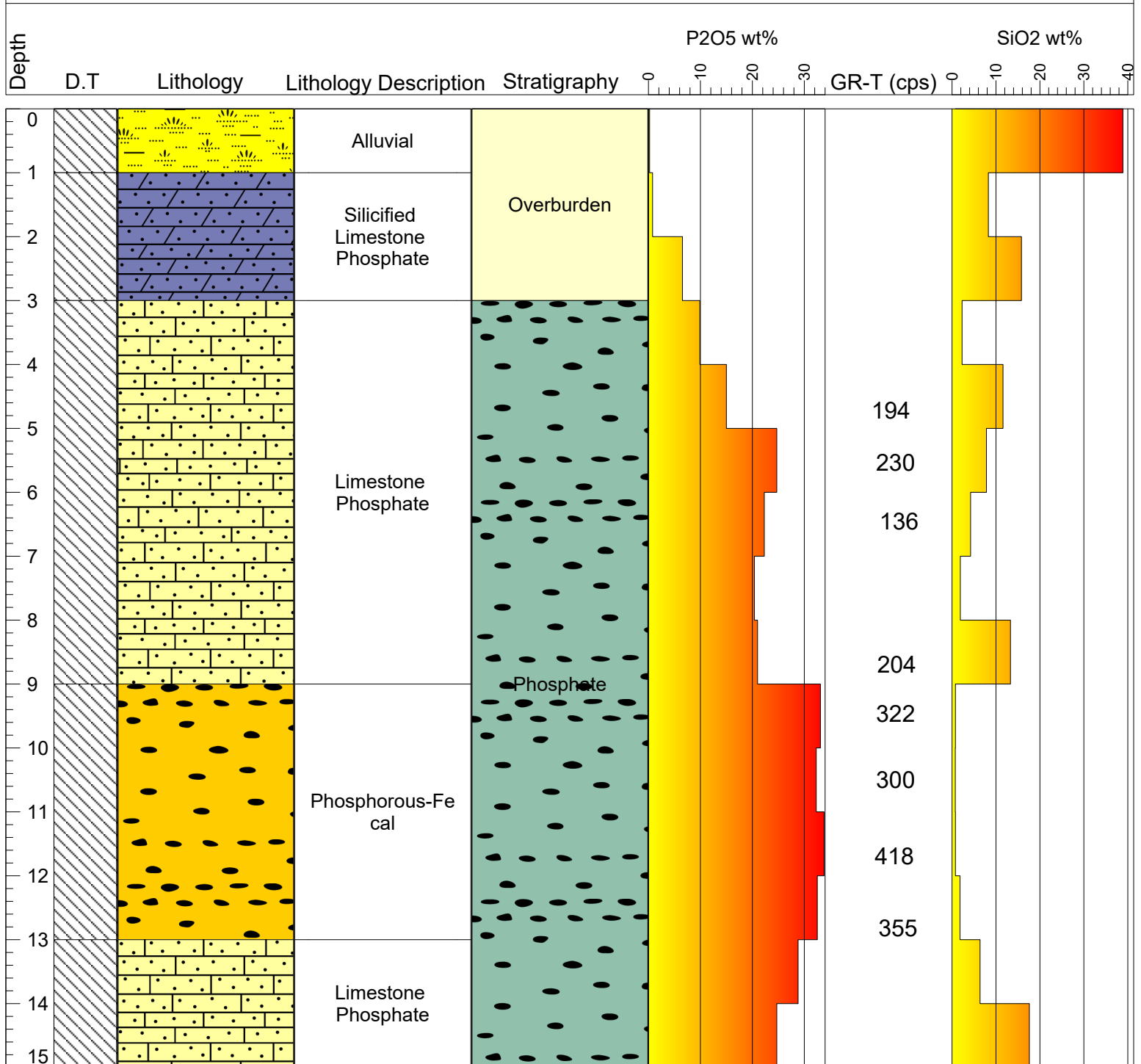
Coordinate (UTM) 37N

501669 E

3560290 N

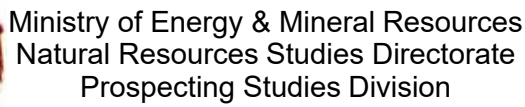
901 ASL

Risha Phosphate Prospecting Project



Legend

Alluvial	Chert	Chky Limestone phosphate	Cutting
Limestone	Phosphatic Limestone	Silic Chky limestone	Core
Chalky Limestone	Limestone Phosphate	Silicified Limestone Phosphate	Overburden
Silicified Limestone	Phosphorous-Fecal	Silic Chky Limestone Phosphate	Phosphate
Chalk	Silica phosphate		Underburden



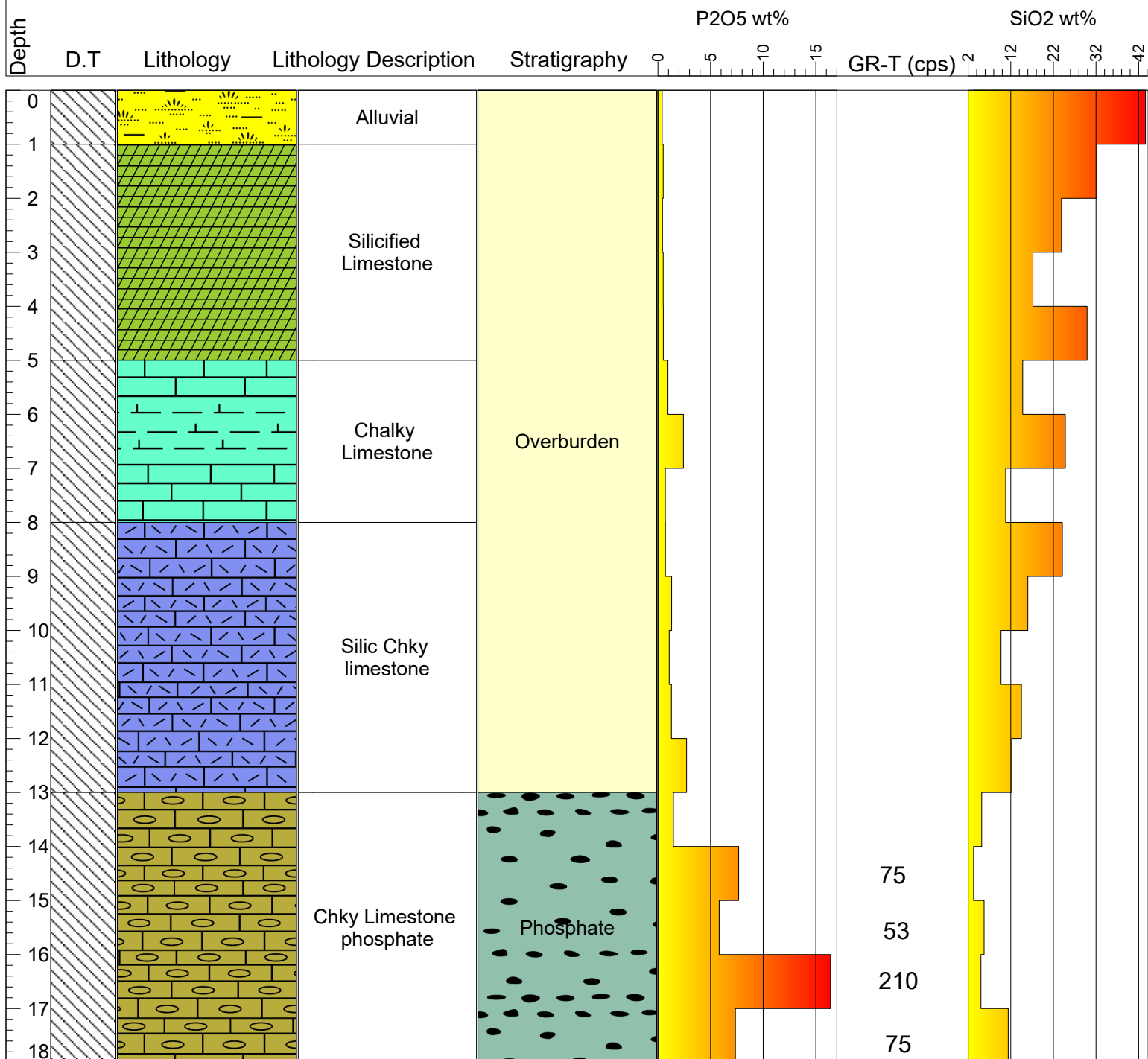
No. Samples: 18

907 ASL

[illegible]

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate				Underburden

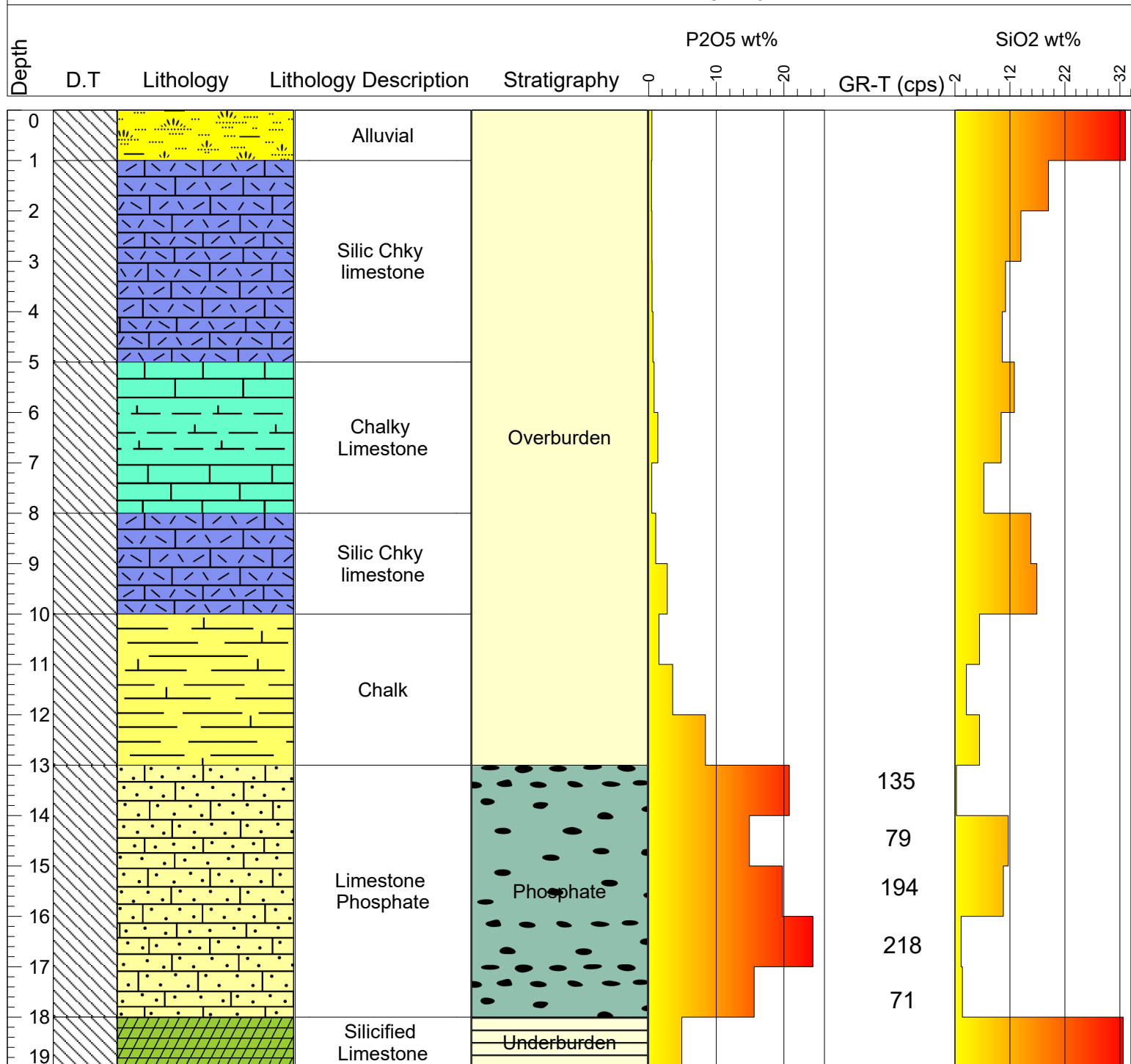
 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH08	Coordinate (UTM) 37N
	Drilling Depth: 21.0 m	500693 E
	Drilling Type (D.T): Cutting	3561127 N
	No. Samples: 18	896 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate				Underburden

 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH09	Coordinate (UTM) 37N
	Drilling Depth: 19.0 m	499690 E
	Drilling Type (D.T): Cutting	3561153 N
	No. Samples: 19	892 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH10

Drilling Depth: 14.0 m

Drilling Type (D.T): Cutting

No. Samples: 14

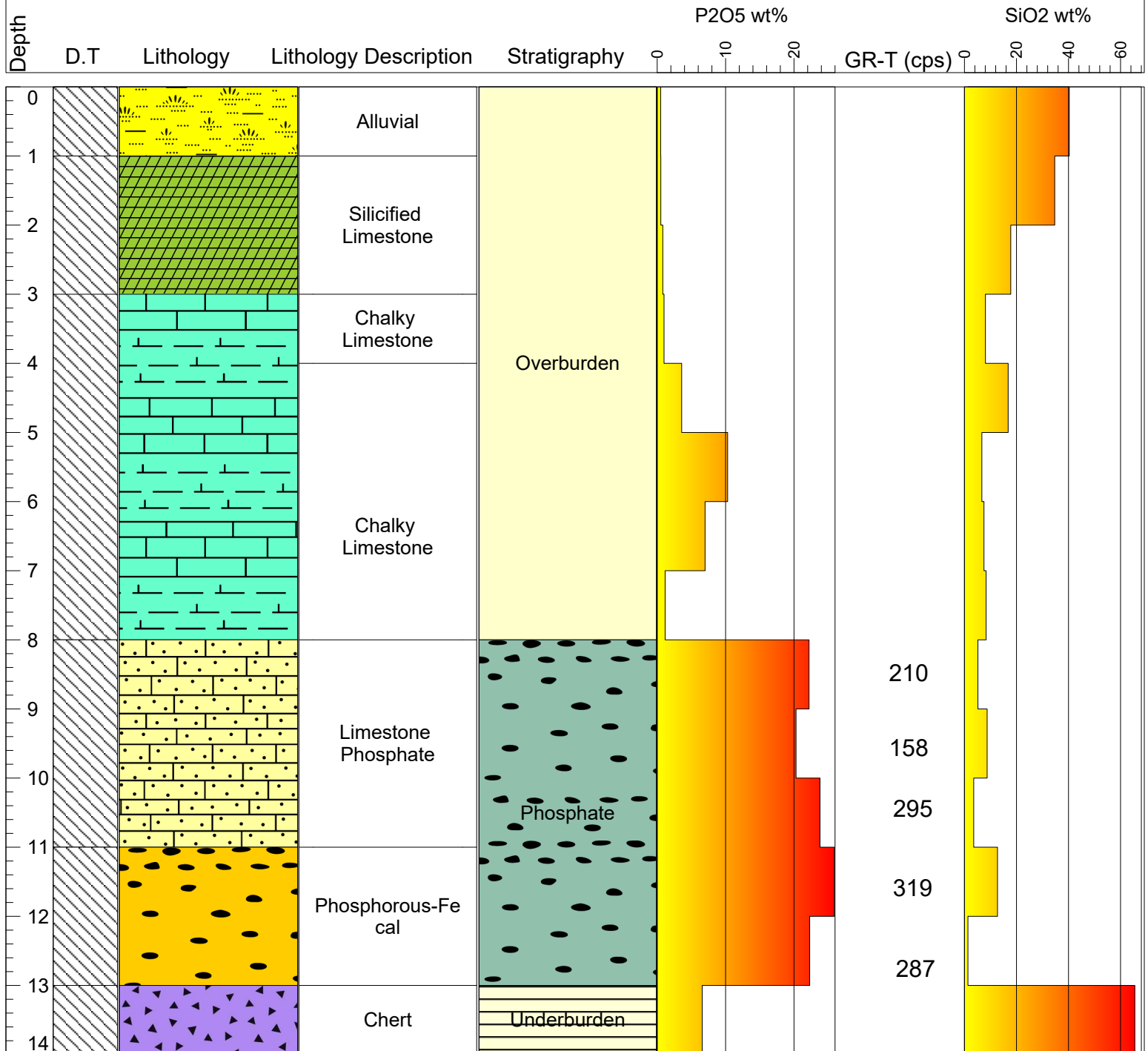
Coordinate (UTM) 37N

499733 E

3562174 N

893 ASL

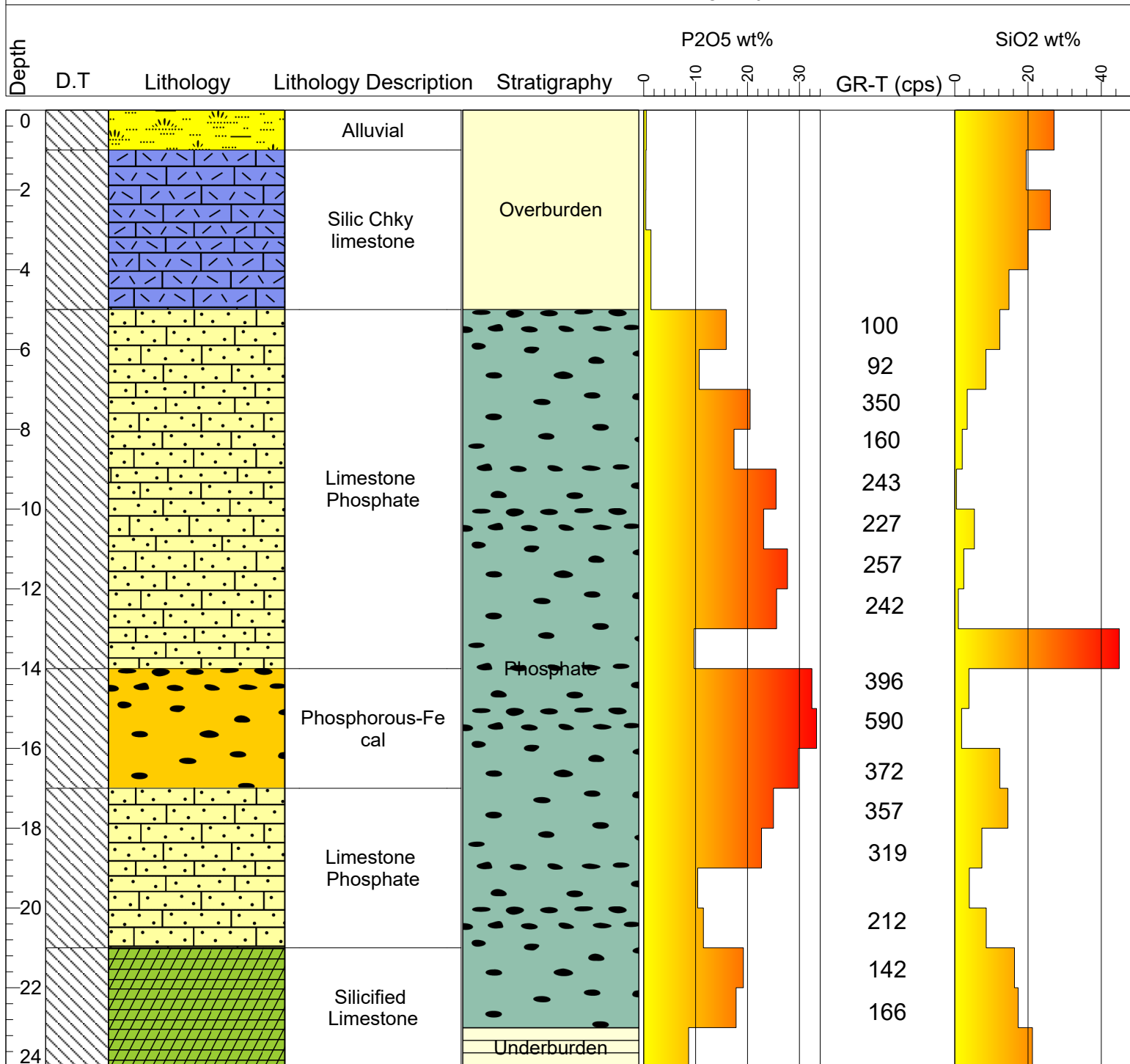
Risha Phosphate Prospecting Project



Legend



 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH11	Coordinate (UTM) 37N
	Drilling Depth: 24.0 m	500622 E
	Drilling Type (D.T): Cutting	3562047 N
	No. Samples: 14	901 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH12

Drilling Depth: 20.0 m

Drilling Type (D.T): Cutting

No. Samples: 20

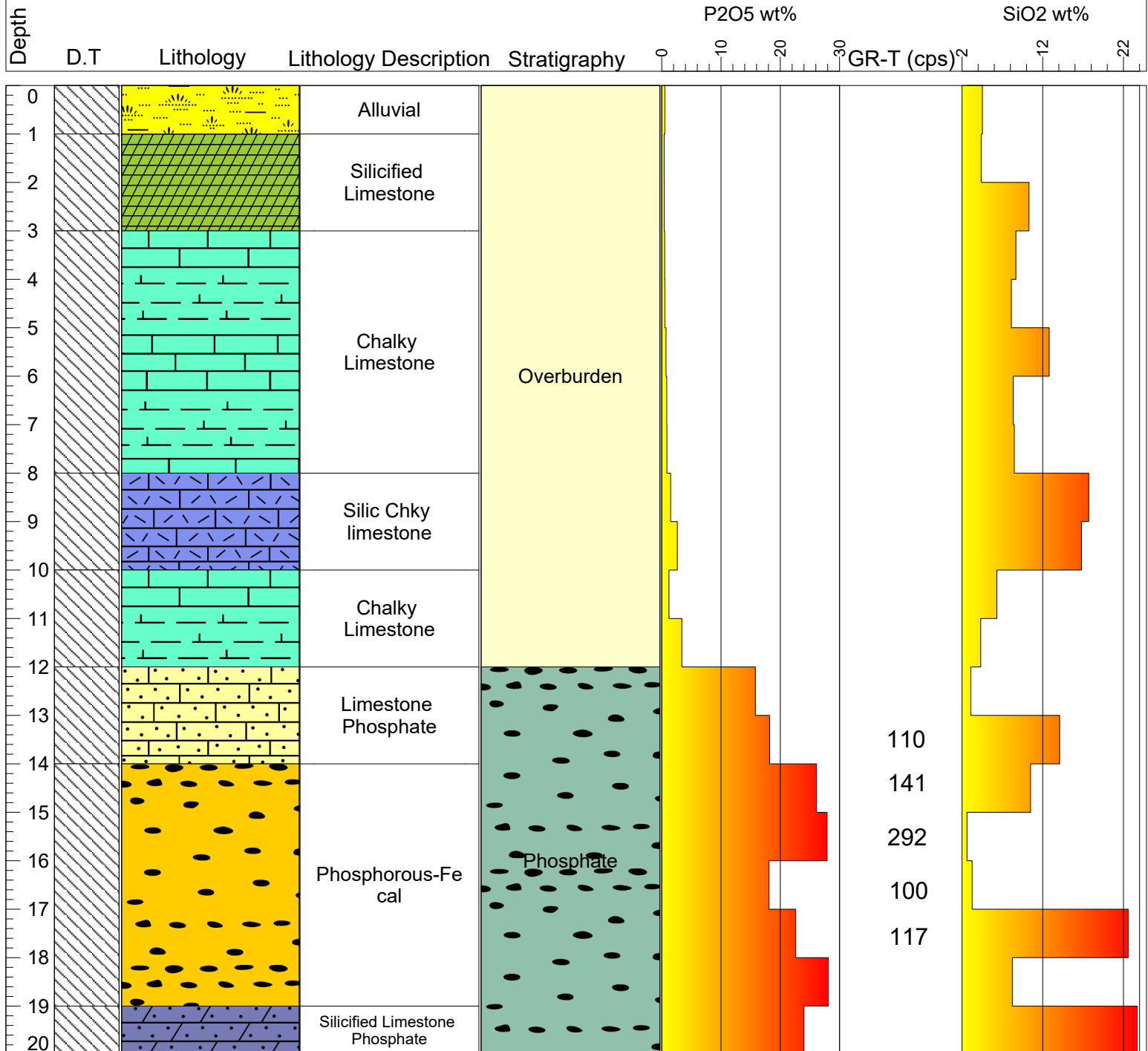
Coordinate (UTM) 37N

499659 E

3560150 N

896 ASL

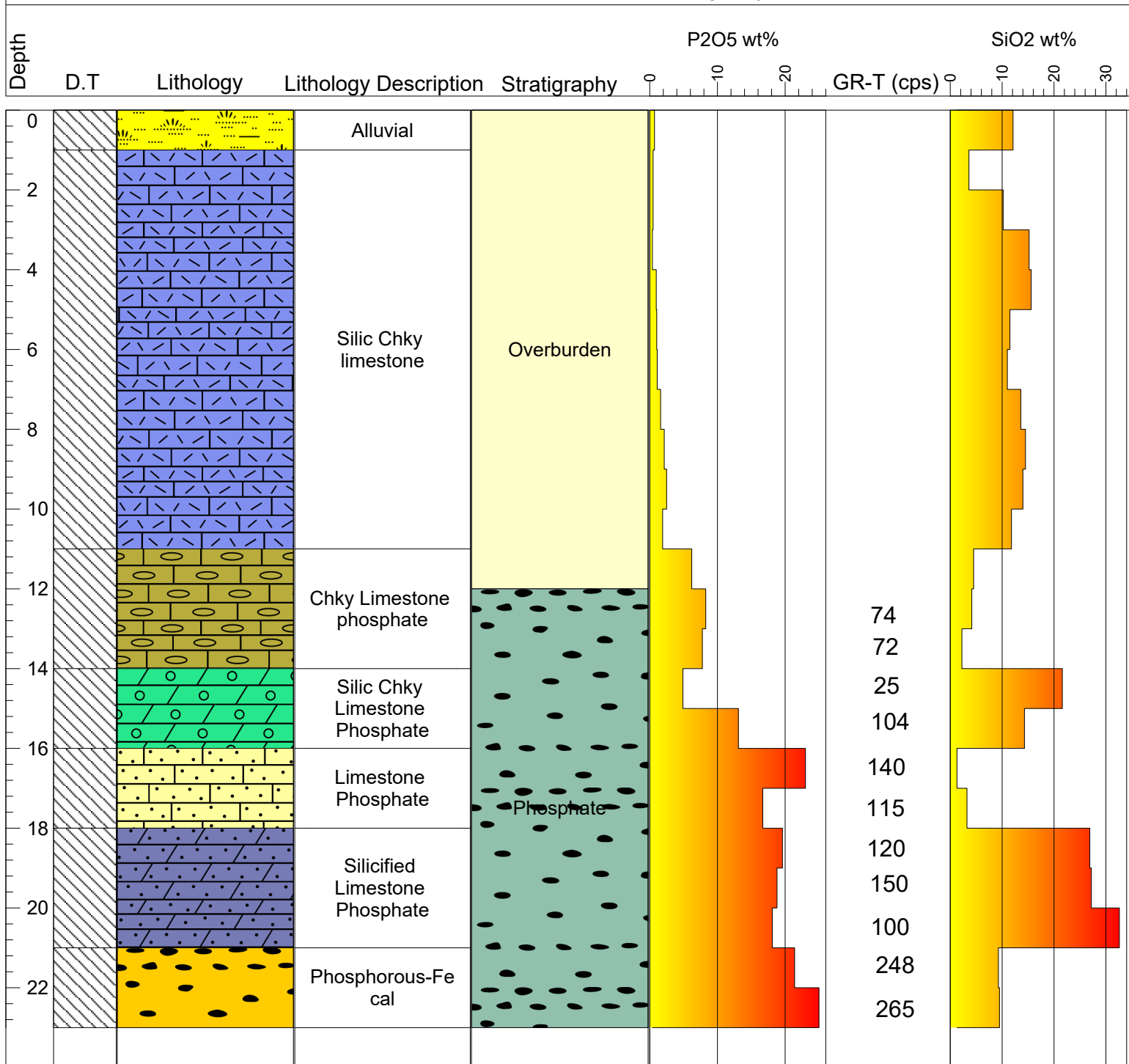
Risha Phosphate Prospecting Project



Legend



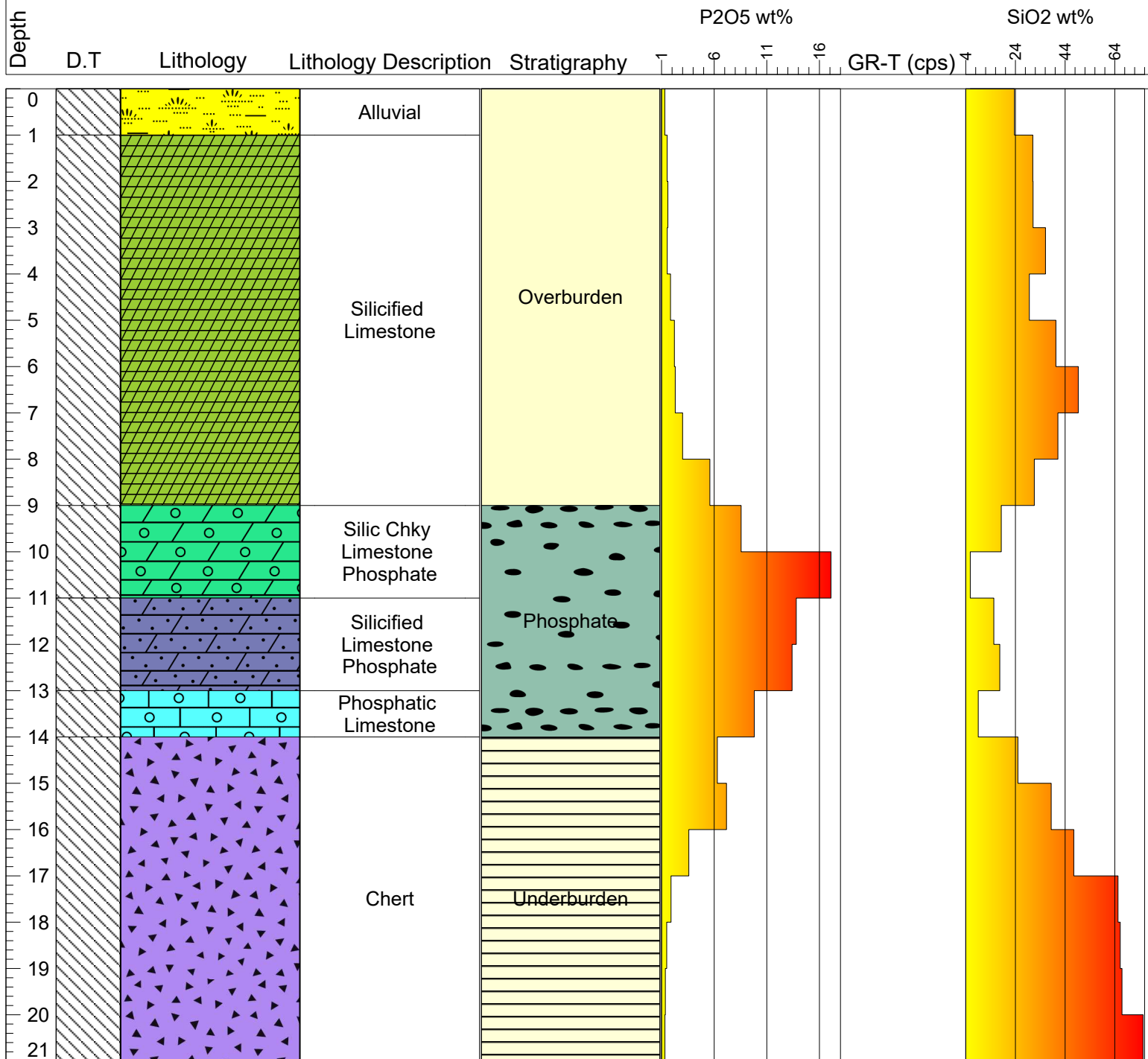
 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH13	Coordinate (UTM) 37N
	Drilling Depth: 23.0 m	499619 E
	Drilling Type (D.T): Cutting	3559153 N
	No. Samples: 23	905 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate				Underburden

 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH14	Coordinate (UTM) 37N
	Drilling Depth: 21.0 m	500586 E
	Drilling Type (D.T): Cutting	3558132 N
	No. Samples: 21	888 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH15A

Drilling Depth: 9.0 m

Drilling Type (D.T): Cutting

No. Samples: 9

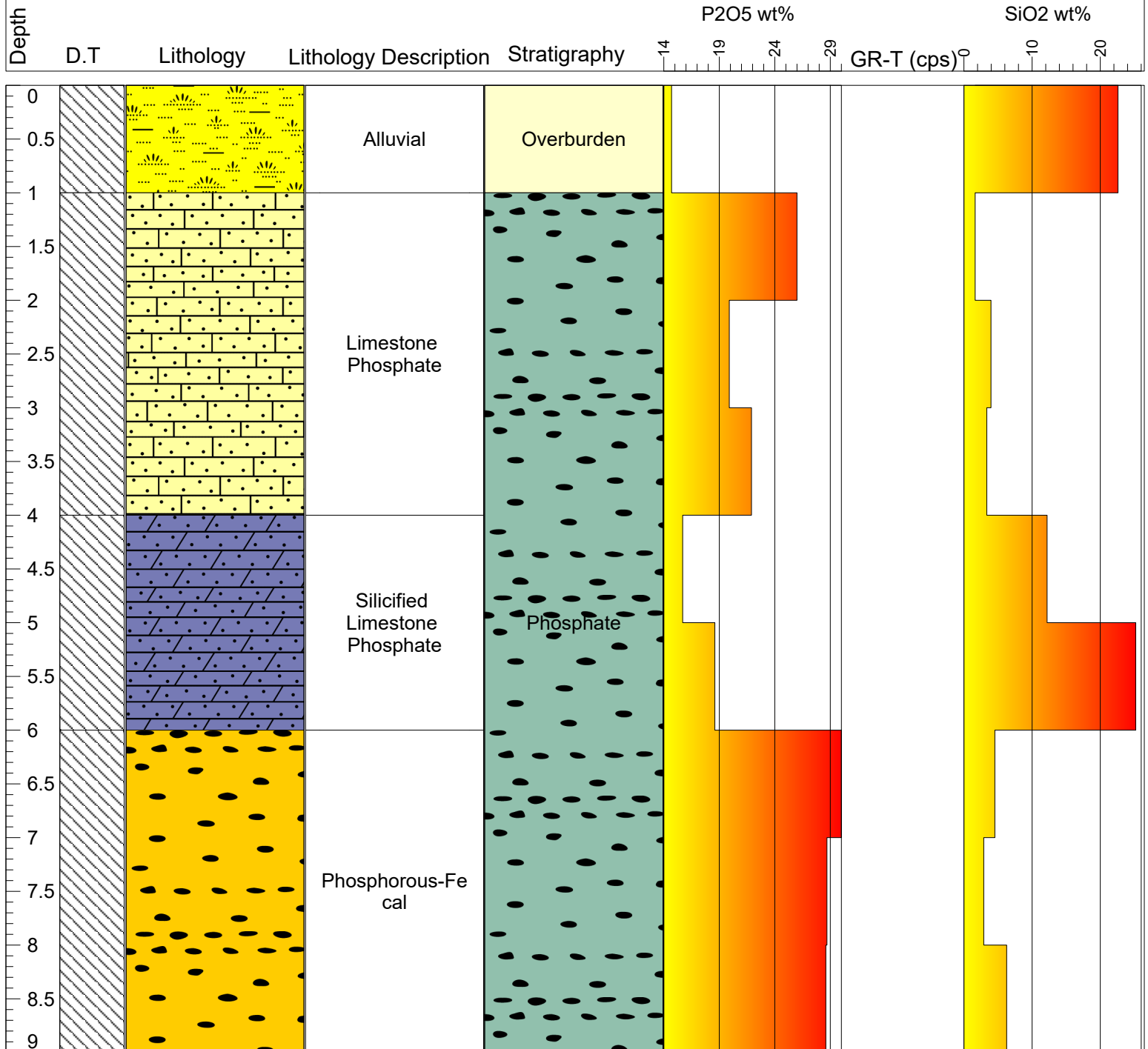
Coordinate (UTM) 37N

499592 E

3558163 N

889 ASL

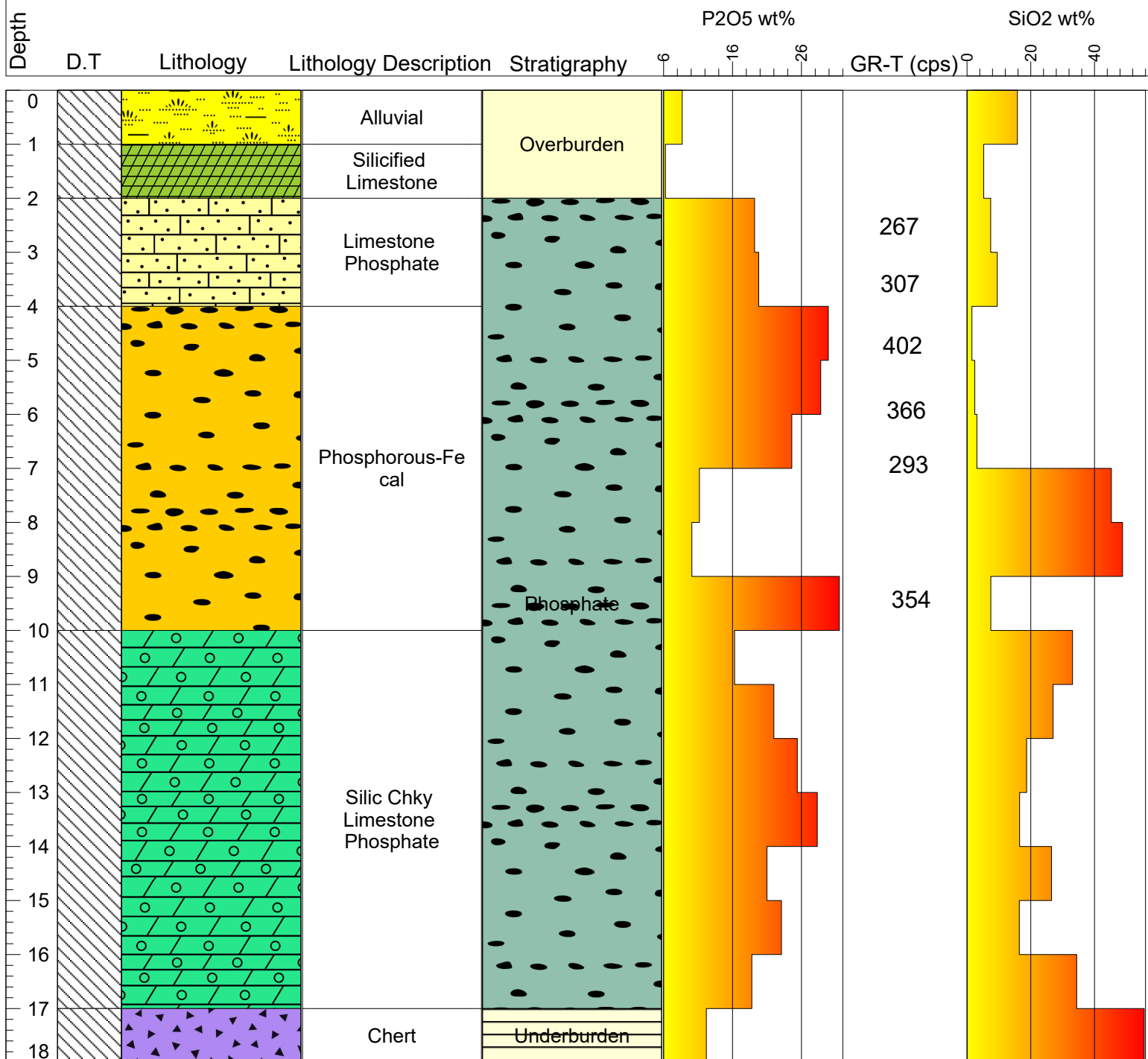
Risha Phosphate Prospecting Project



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate				Underburden

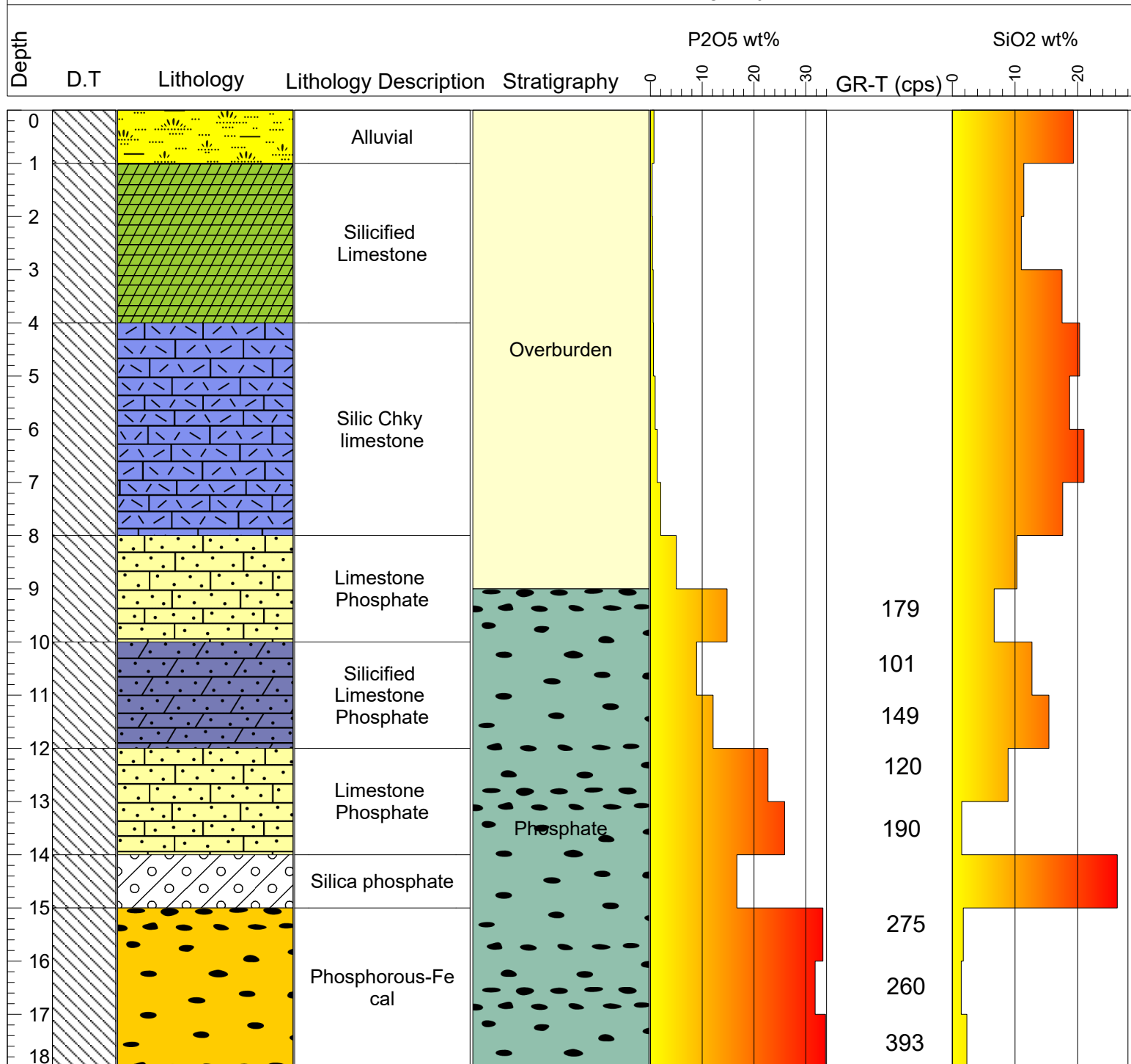
 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH15B	Coordinate (UTM) 37N
	Drilling Depth: 18.0 m	499546 E
	Drilling Type (D.T): Cutting	3558070 N
	No. Samples: 18	888 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		

 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH16	Coordinate (UTM) 37N
	Drilling Depth: 18.0 m	499558 E
	Drilling Type (D.T): Cutting	3557169 N
	No. Samples: 18	888 ASL
Risha Phosphate Prospecting Project		





Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH17

Drilling Depth: 24.0 m

Drilling Type (D.T): Cutting

No. Samples: 24

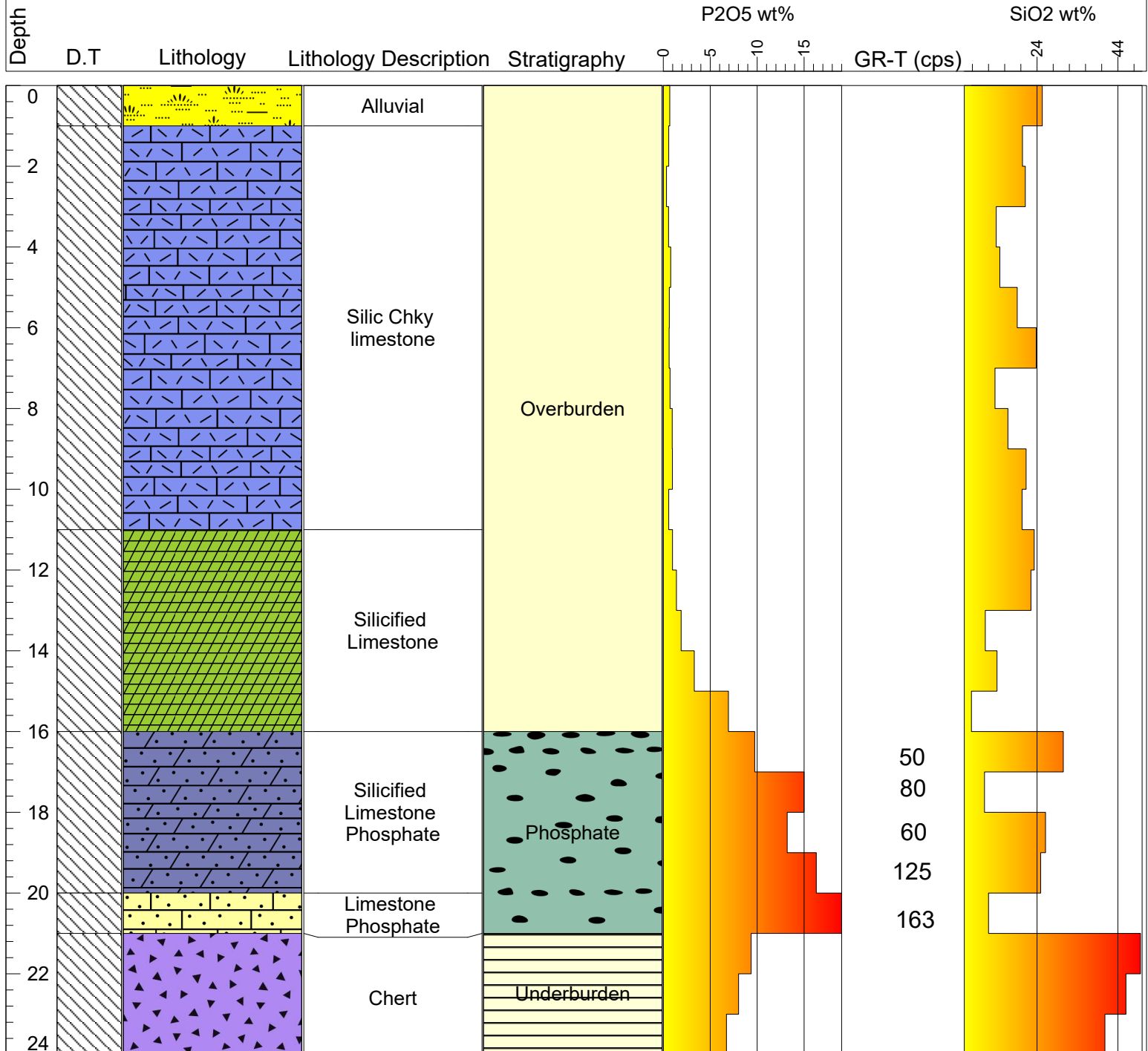
Coordinate (UTM) 37N

500574 E

3557132 N

889 ASL

Risha Phosphate Prospecting Project



Legend





Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH18

Drilling Depth: 24.0 m

Drilling Type (D.T): Cutting

No. Samples: 24

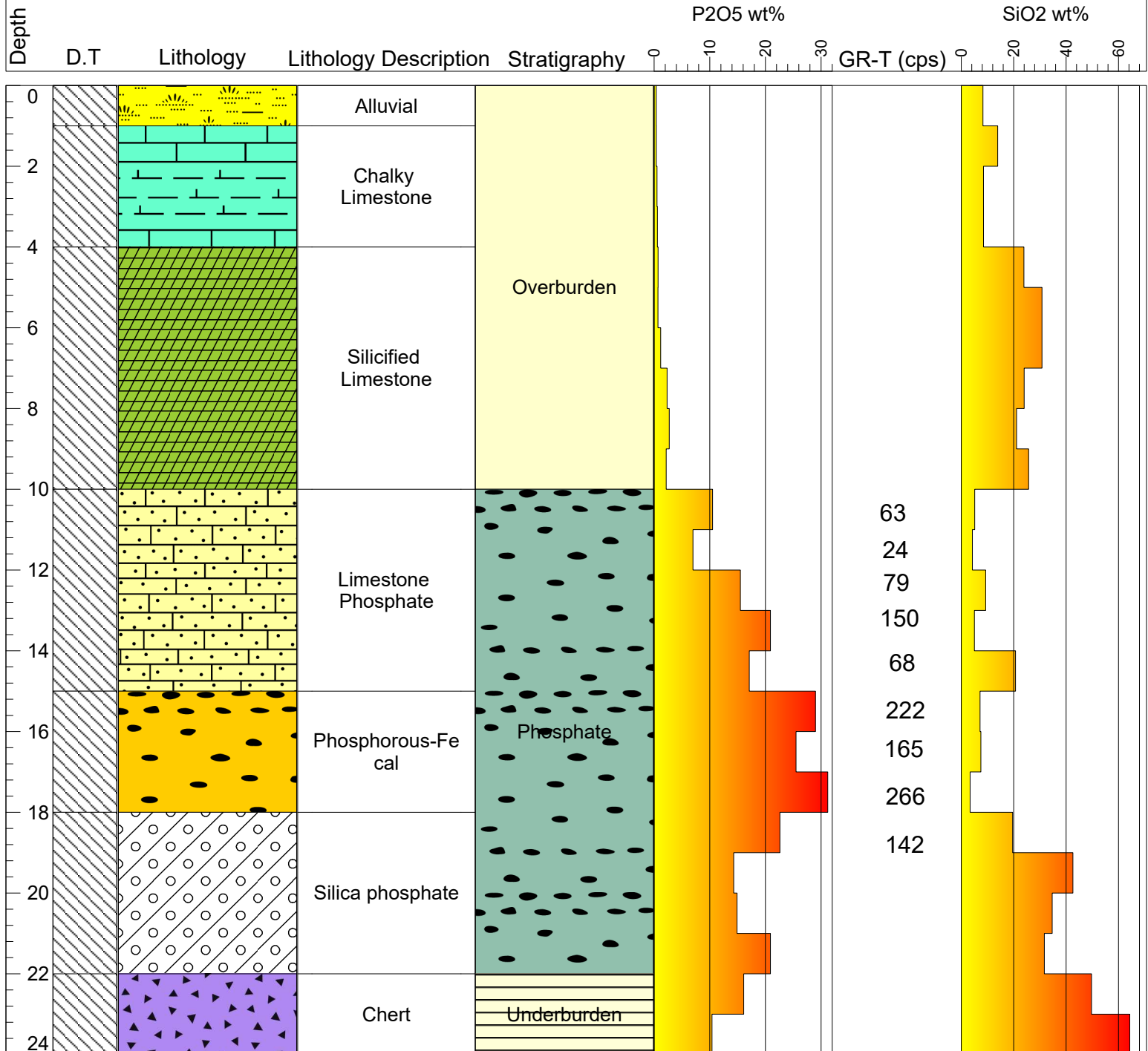
Coordinate (UTM) 37N

501546 E

3557100 N

894 ASL

Risha Phosphate Prospecting Project



Legend





Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH19

Drilling Depth: 21.0 m

Drilling Type (D.T): Cutting

No. Samples: 21

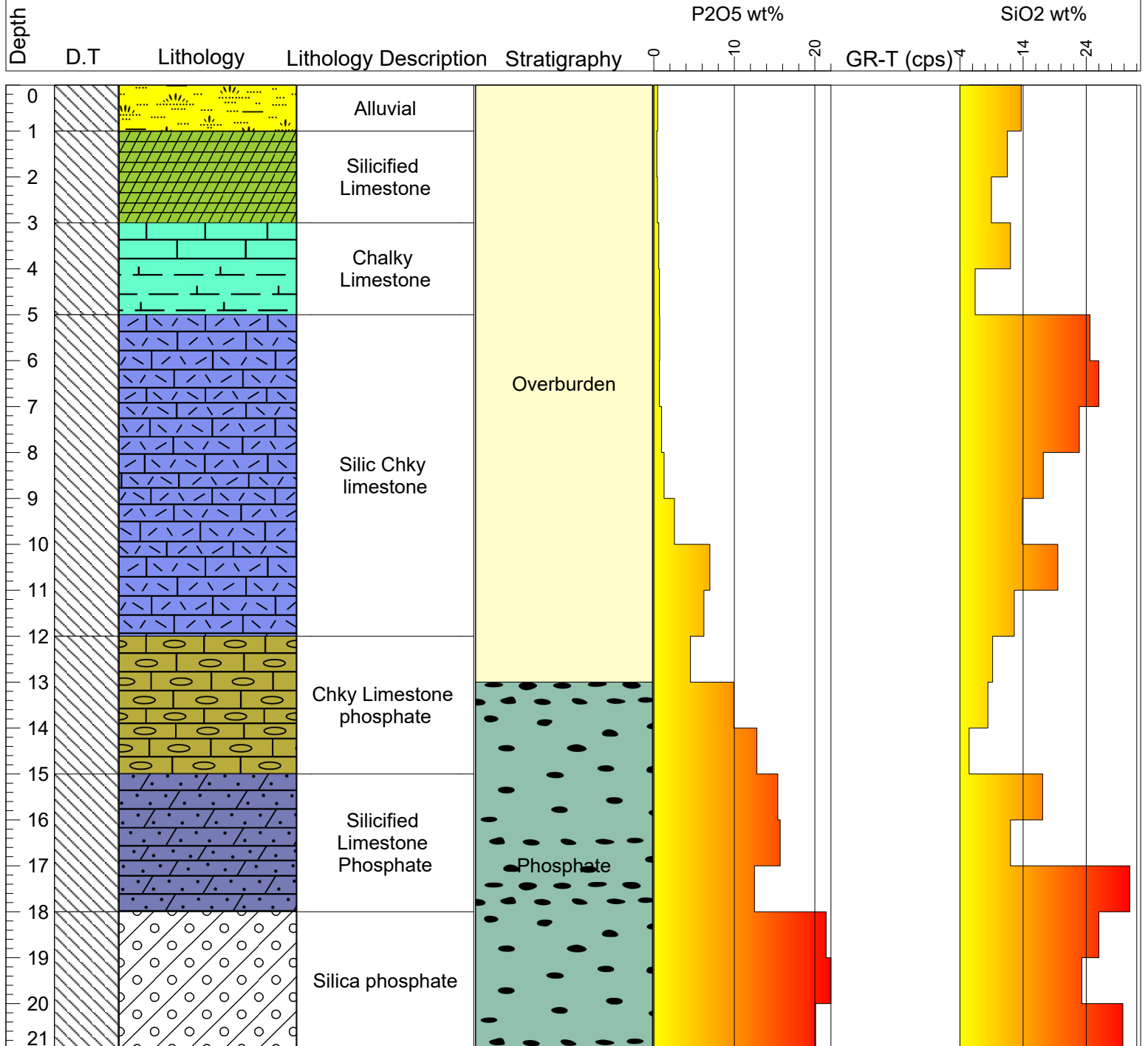
Coordinate (UTM) 37N

502544 E

3557071 N

896 ASL

Risha Phosphate Prospecting Project



Legend





Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH20

Drilling Depth: 22.0 m

Drilling Type (D.T): Cutting

No. Samples: 22

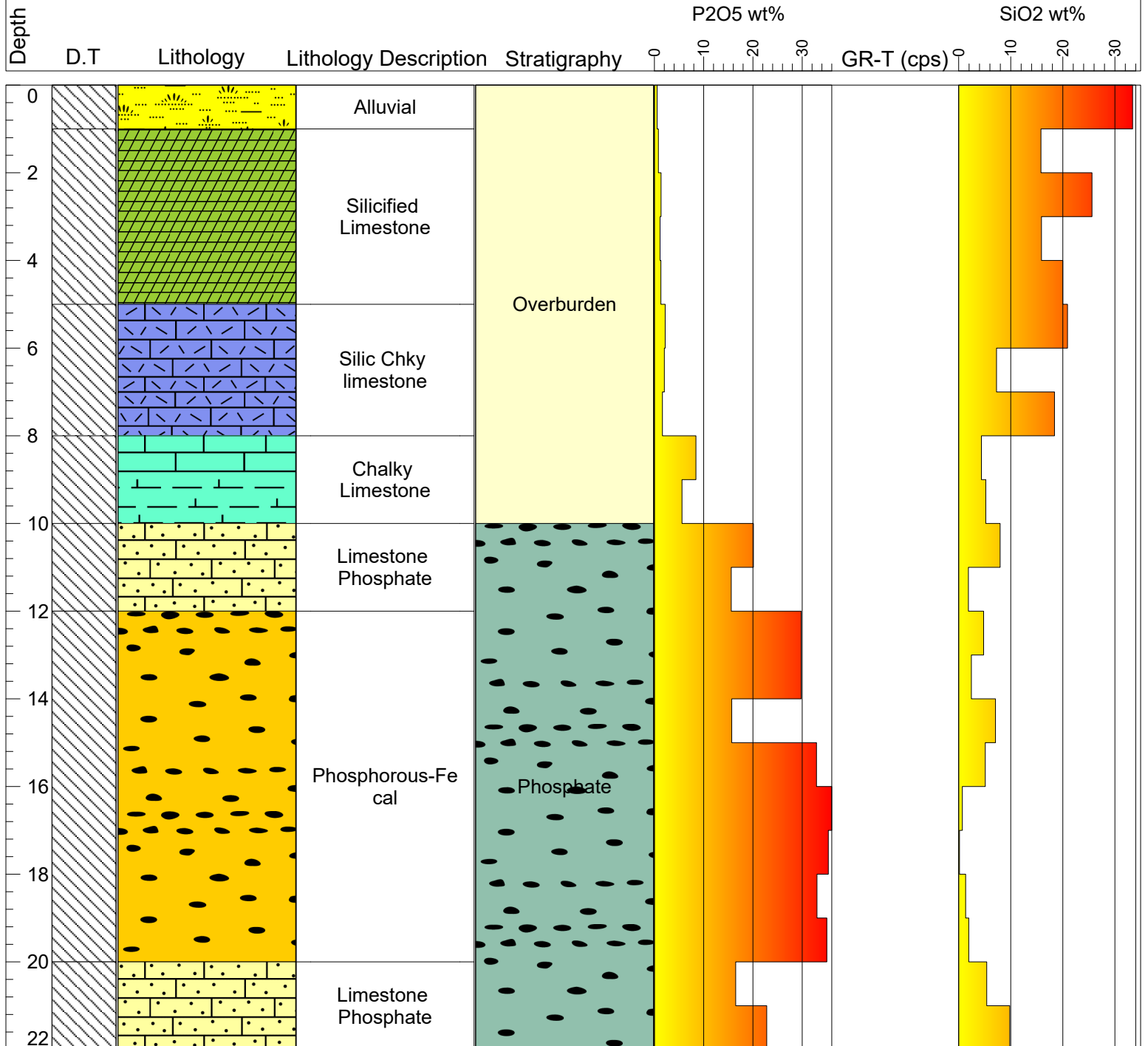
Coordinate (UTM) 37N

501712 E

3560986 N

901 ASL

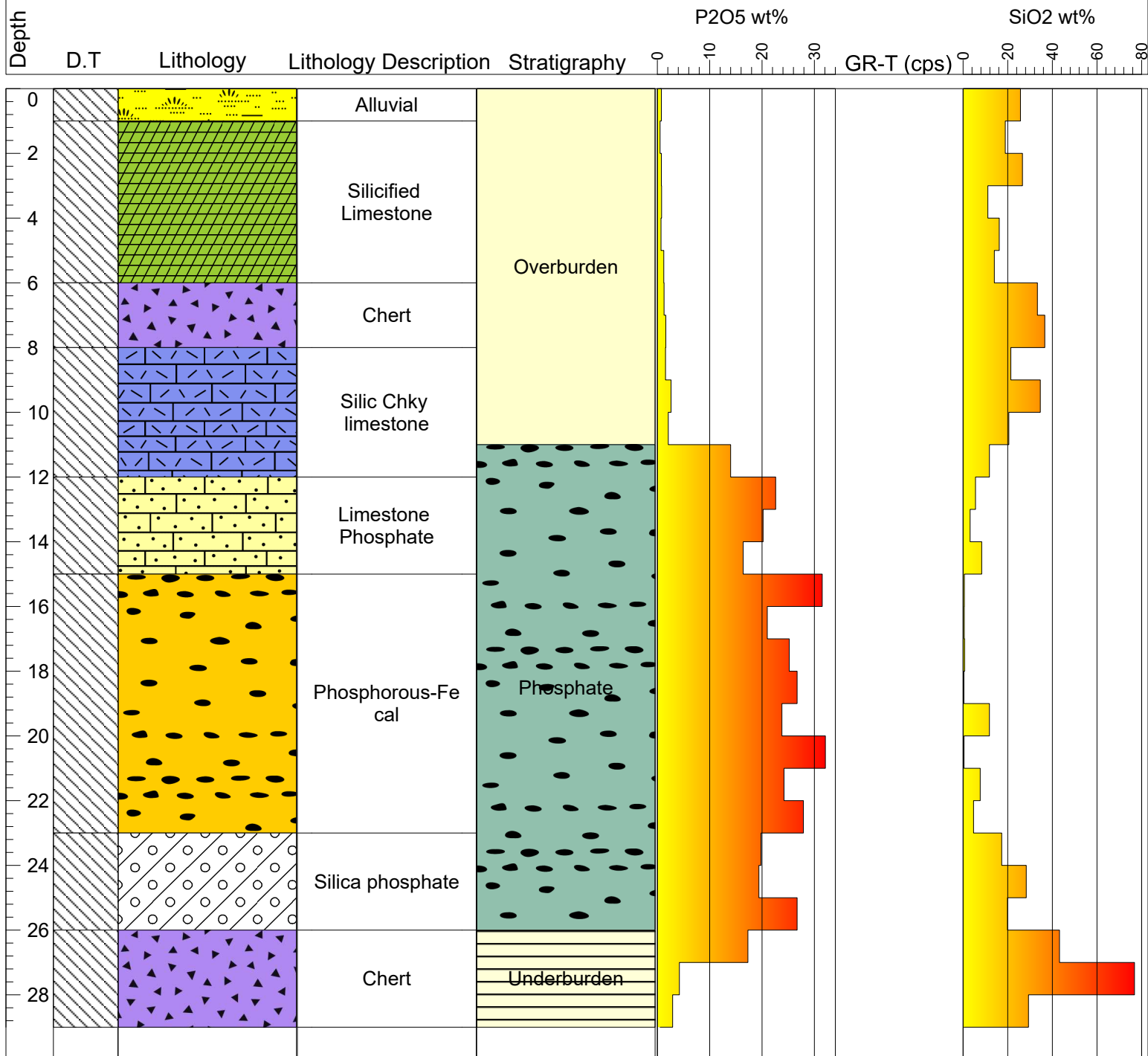
Risha Phosphate Prospecting Project



Legend



 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH21	Coordinate (UTM) 37N
	Drilling Depth: 29.0 m	502679 E
	Drilling Type (D.T): Cutting	3561053 N
	No. Samples: 29	911 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		Underburden



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH22

Drilling Depth: 25.0 m

Drilling Type (D.T): Cutting

No. Samples: 25

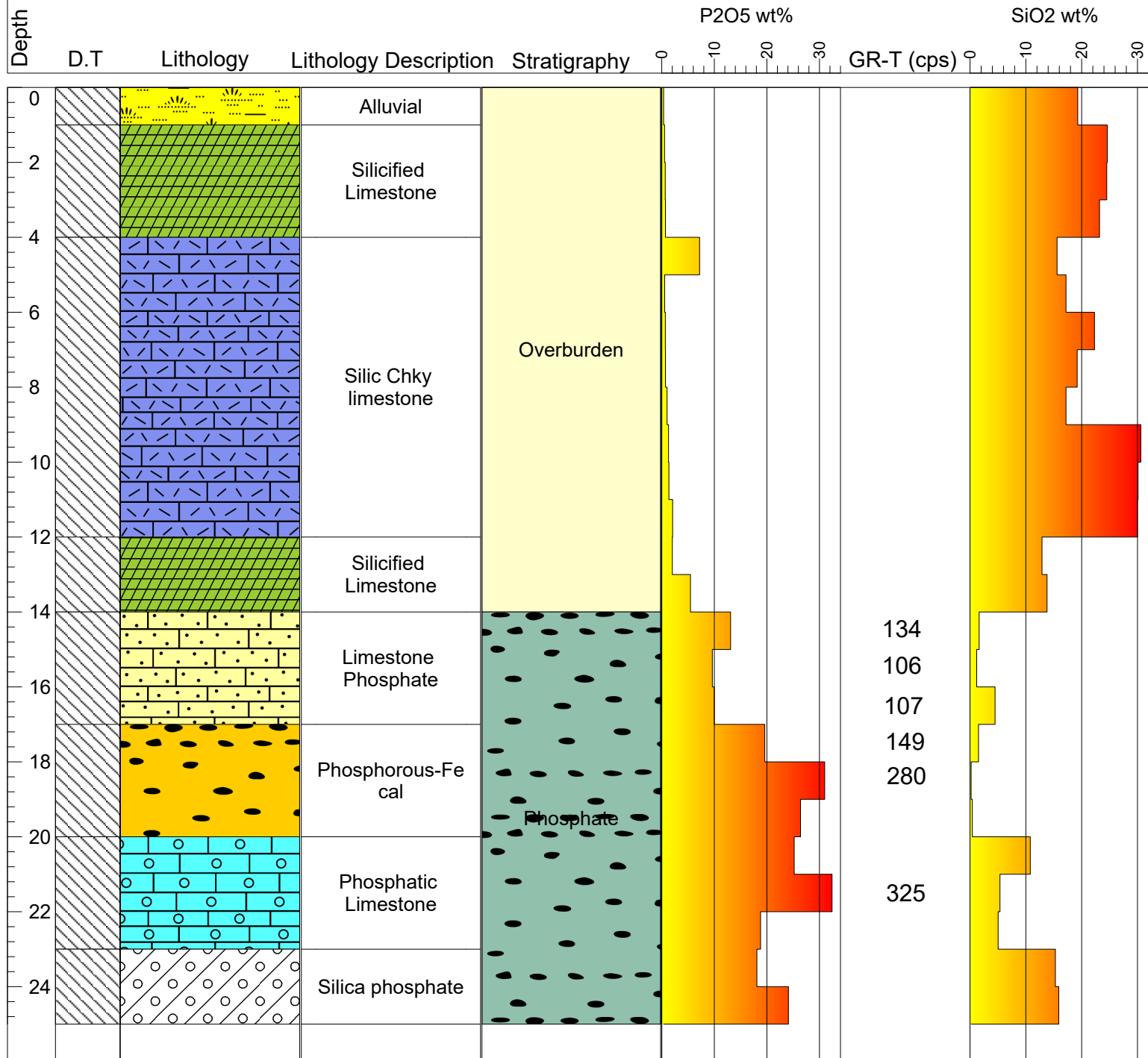
Coordinate (UTM) 37N

503680 E

3561029 N

916 ASL

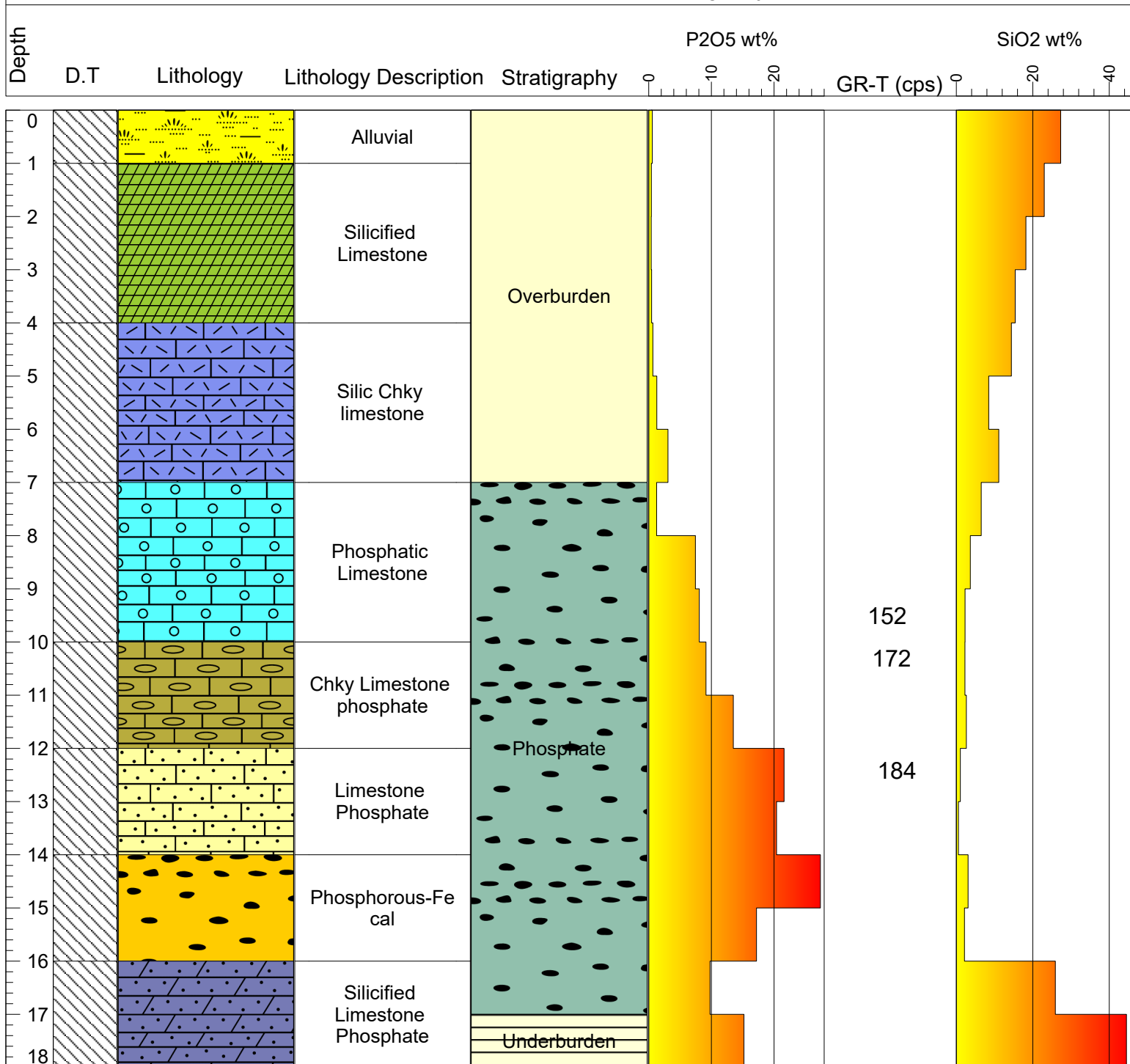
Risha Phosphate Prospecting Project



Legend

- | | | | |
|----------------------|----------------------|--------------------------------|-------------|
| Alluvial | Chert | Chky Limestone phosphate | Cutting |
| Limestone | Phosphatic Limestone | Silic Chky limestone | Core |
| Chalky Limestone | Limestone Phosphate | Silicified Limestone Phosphate | Overburden |
| Silicified Limestone | Phosphorous-Fecal | Silic Chky Limestone Phosphate | Phosphate |
| Chalk | Silica phosphate | | Underburden |

 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH23A	Coordinate (UTM) 37N
	Drilling Depth: 18.0 m	503646 E
	Drilling Type (D.T): Cutting	3560025 N
	No. Samples: 18	909 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH23B

Drilling Depth: 27.0 m

Drilling Type (D.T): Cutting

No. Samples: 27

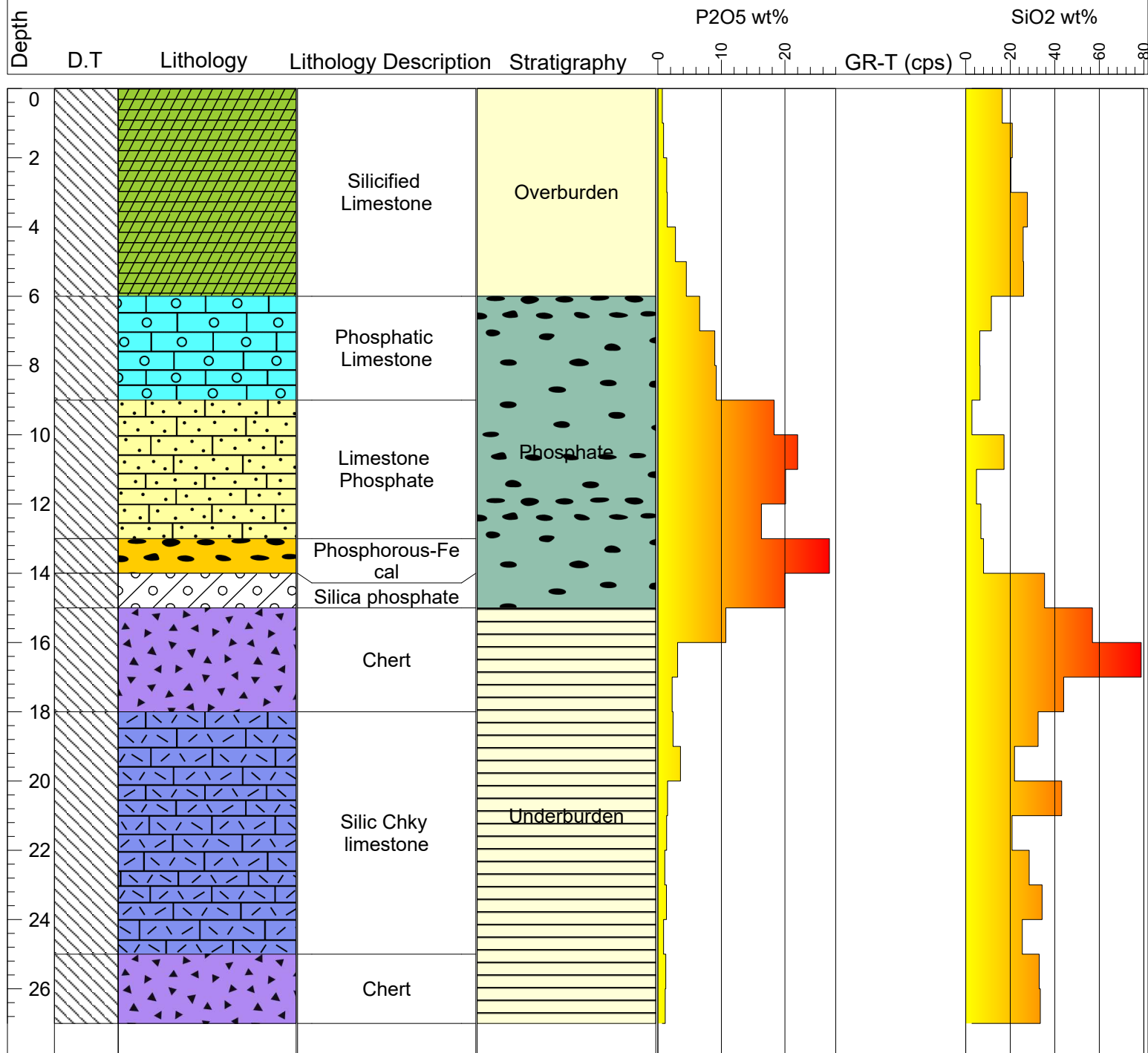
Coordinate (UTM) 37N

503854 E

3560003 N

913 ASL

Risha Phosphate Prospecting Project



Legend

Alluvial	Chert	Chky Limestone phosphate	Cutting
Limestone	Phosphatic Limestone	Silic Chky limestone	Core
Chalky Limestone	Limestone Phosphate	Silicified Limestone Phosphate	Overburden
Silicified Limestone	Phosphorous-Fecal	Silic Chky Limestone Phosphate	Phosphate
Chalk	Silica phosphate		Underburden



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH24

Drilling Depth: 24.0 m

Drilling Type (D.T): Cutting

No. Samples: 24

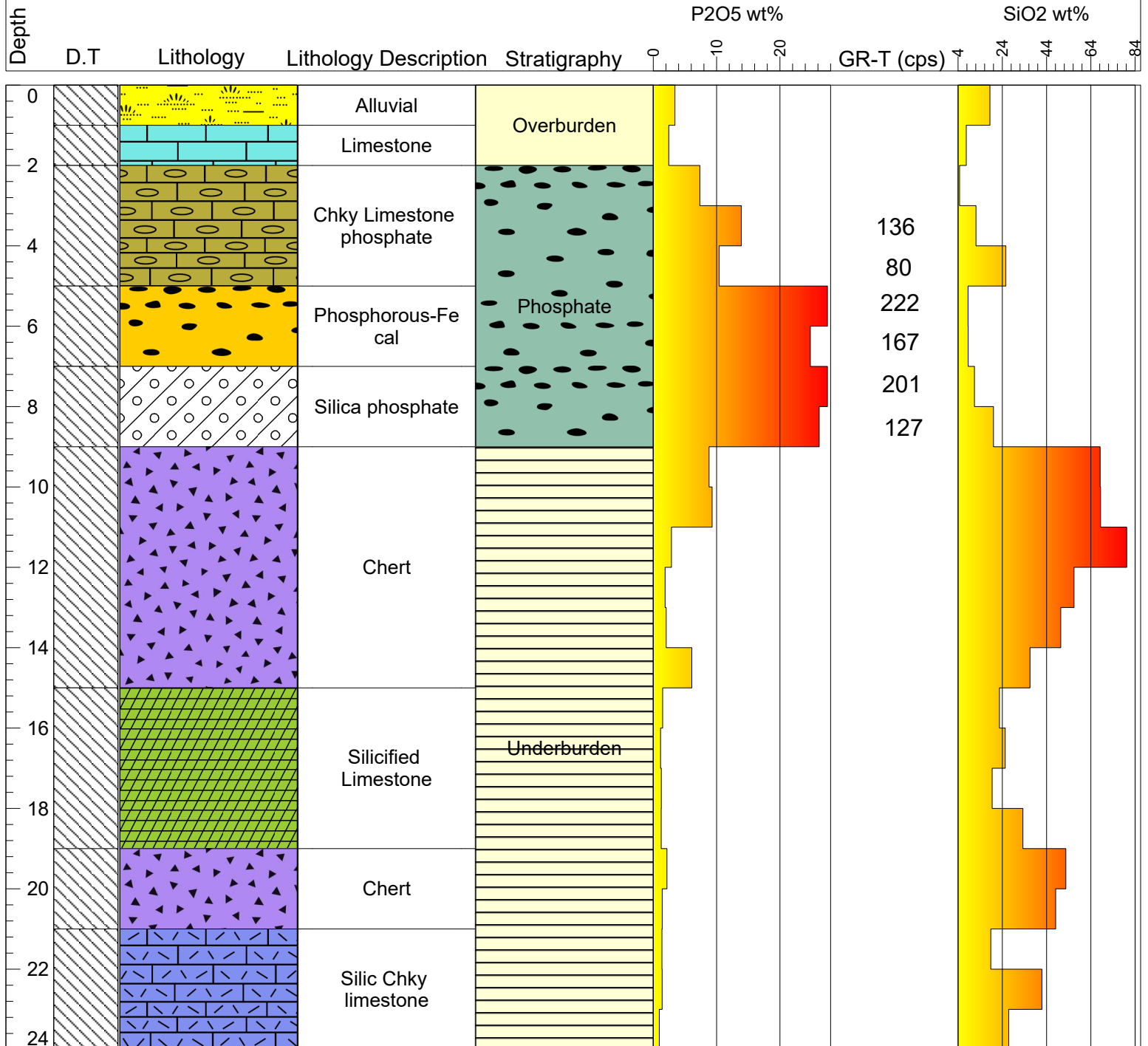
Coordinate (UTM) 37N

503615 E

3559030 N

904 ASL

Risha Phosphate Prospecting Project



Legend





Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH25

Drilling Depth: 24.0 m

Drilling Type (D.T): Cutting

No. Samples: 24

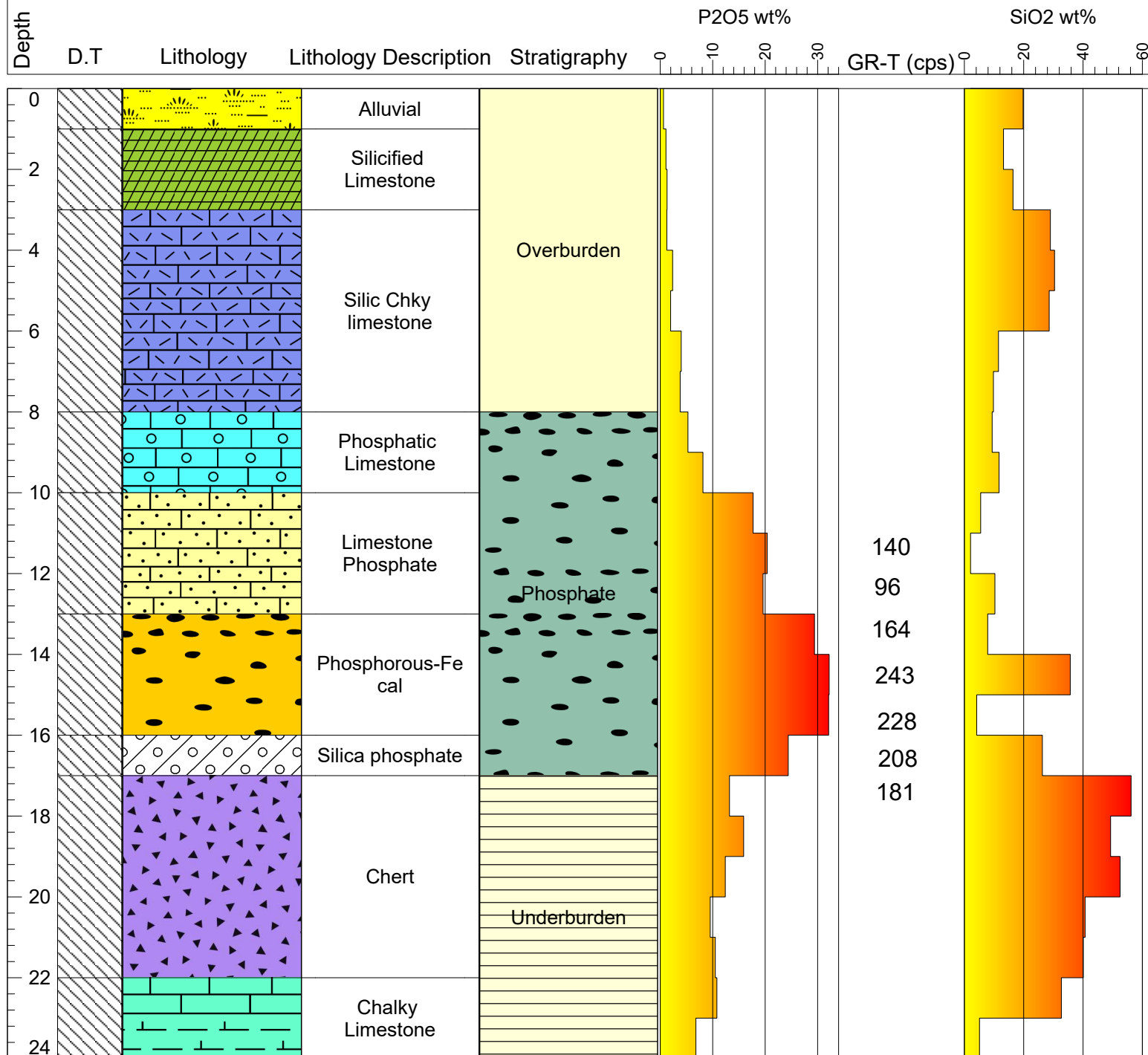
Coordinate (UTM) 37N

503576 E

3558028 N

905 ASL

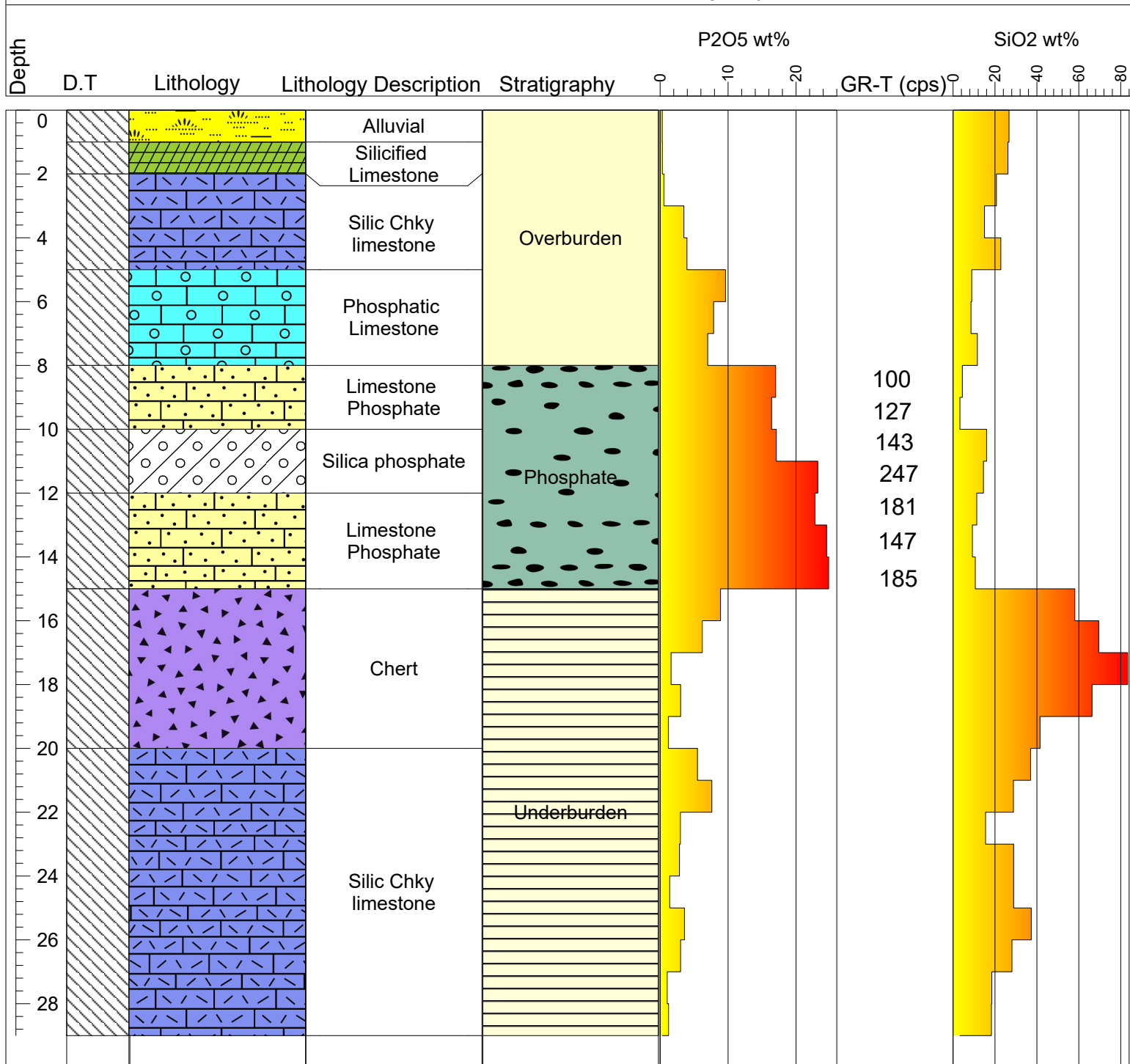
Risha Phosphate Prospecting Project



Legend

Alluvial	Chert	Chky Limestone phosphate	Cutting
Limestone	Phosphatic Limestone	Silic Chky limestone	Core
Chalky Limestone	Limestone Phosphate	Silicified Limestone Phosphate	Overburden
Silicified Limestone	Phosphorous-Fecal	Silic Chky Limestone Phosphate	Phosphate
Chalk	Silica phosphate		Underburden

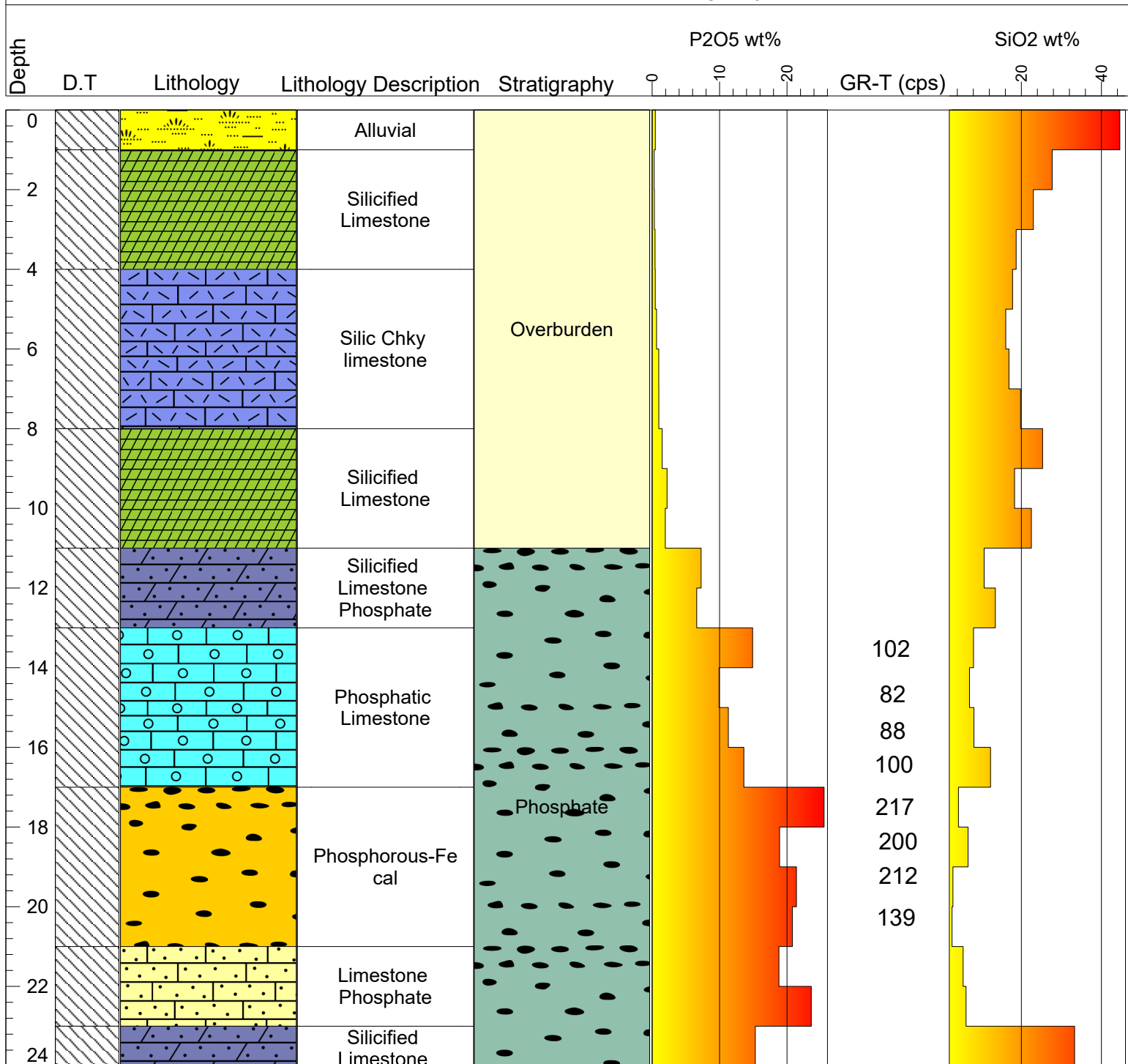
 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH26	Coordinate (UTM) 37N
	Drilling Depth: 29.0 m	503536 E
	Drilling Type (D.T): Cutting	3557034 N
	No. Samples: 29	899 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		Underburden

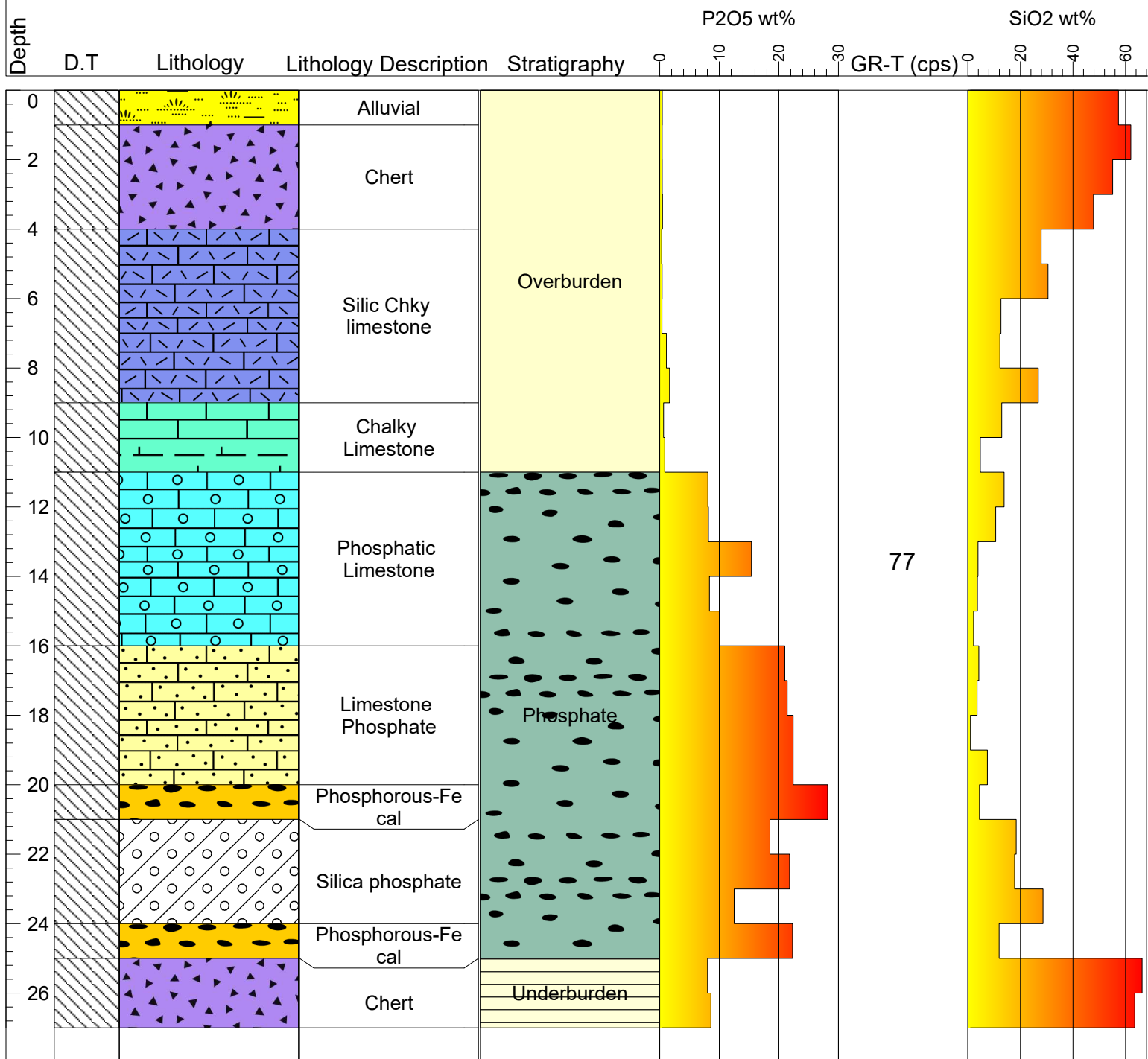
 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH27	Coordinate (UTM) 37N
	Drilling Depth: 24.0 m	503512 E
	Drilling Type (D.T): Cutting	3556028 N
	No. Samples: 24	899 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate				Underburden

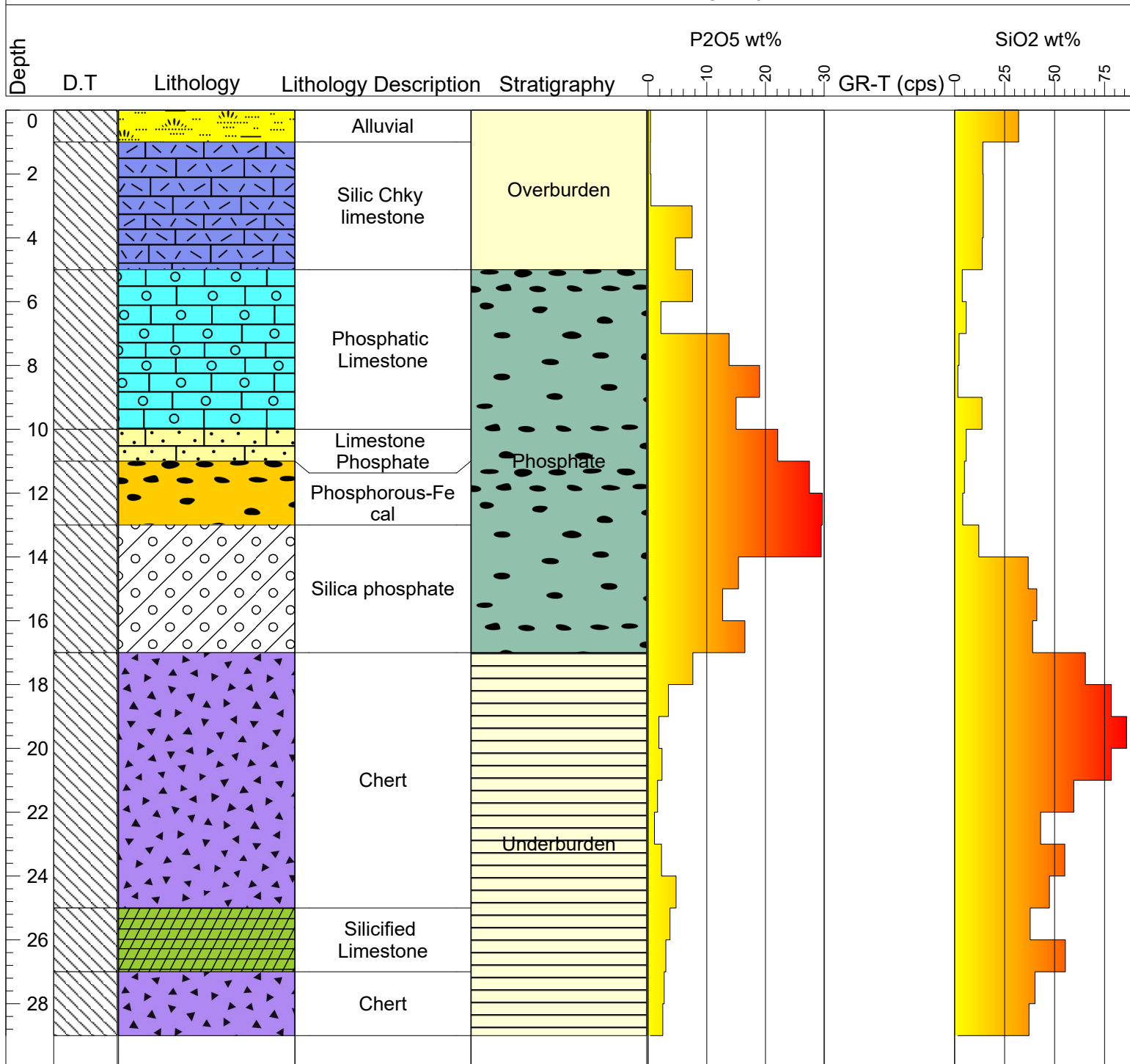
 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH28	Coordinate (UTM) 37N
	Drilling Depth: 27.0 m	502587 E
	Drilling Type (D.T): Cutting	3556032 N
	No. Samples: 27	890 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		Underburden

 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH29	Coordinate (UTM) 37N
	Drilling Depth: 29.0 m	501512 E
	Drilling Type (D.T): Cutting	3556101 N
	No. Samples: 29	892 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate				Underburden



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH30A

Drilling Depth: 15.0 m

Drilling Type (D.T): Cutting

No. Samples: 15

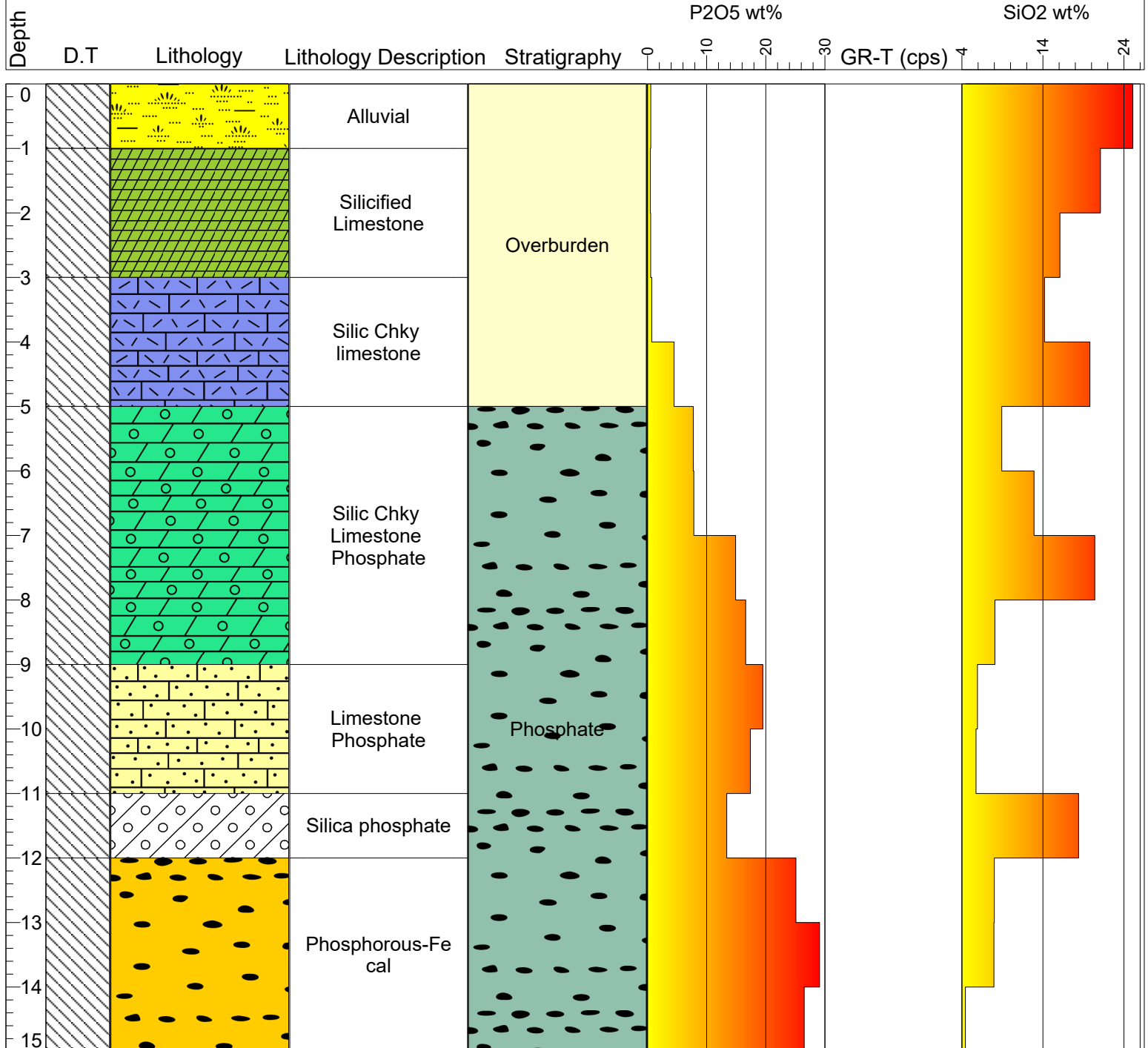
Coordinate (UTM) 37N

500424 E

3556115 N

887 ASL

Risha Phosphate Prospecting Project



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate				Underburden



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH30B

Drilling Depth: 13.0 m

Drilling Type (D.T): Cutting

No. Samples: 13

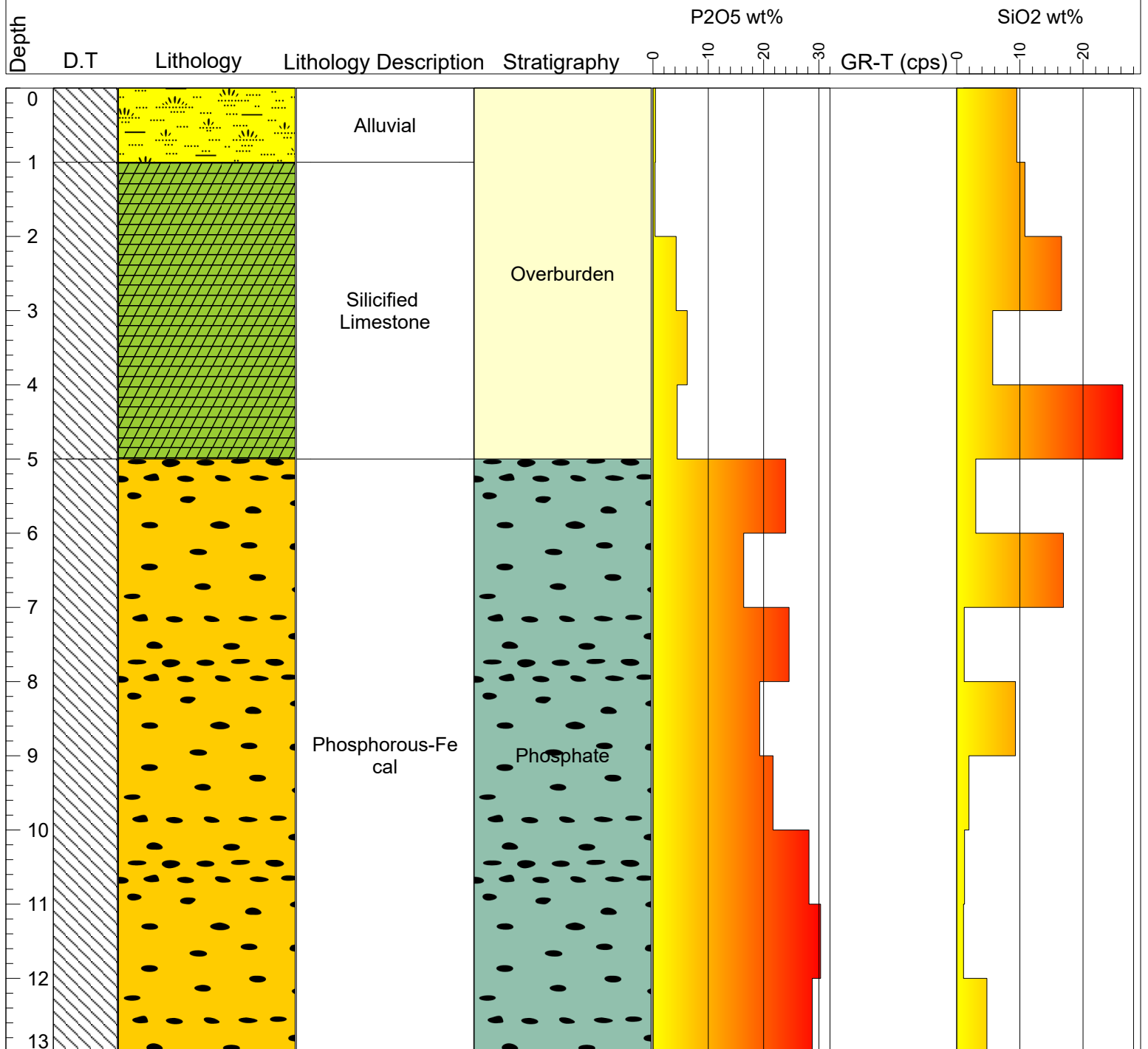
Coordinate (UTM) 37N

500281 E

3556142 N

888 ASL

Risha Phosphate Prospecting Project



Legend

Alluvial	Chert	Chky Limestone phosphate	Cutting
Limestone	Phosphatic Limestone	Silic Chky limestone	Core
Chalky Limestone	Limestone Phosphate	Silicified Limestone Phosphate	Overburden
Silicified Limestone	Phosphorous-Fecal	Silic Chky Limestone Phosphate	Phosphate
Chalk	Silica phosphate		Underburden



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH30C

Drilling Depth: 25.0 m

Drilling Type (D.T): Cutting

No. Samples: 25

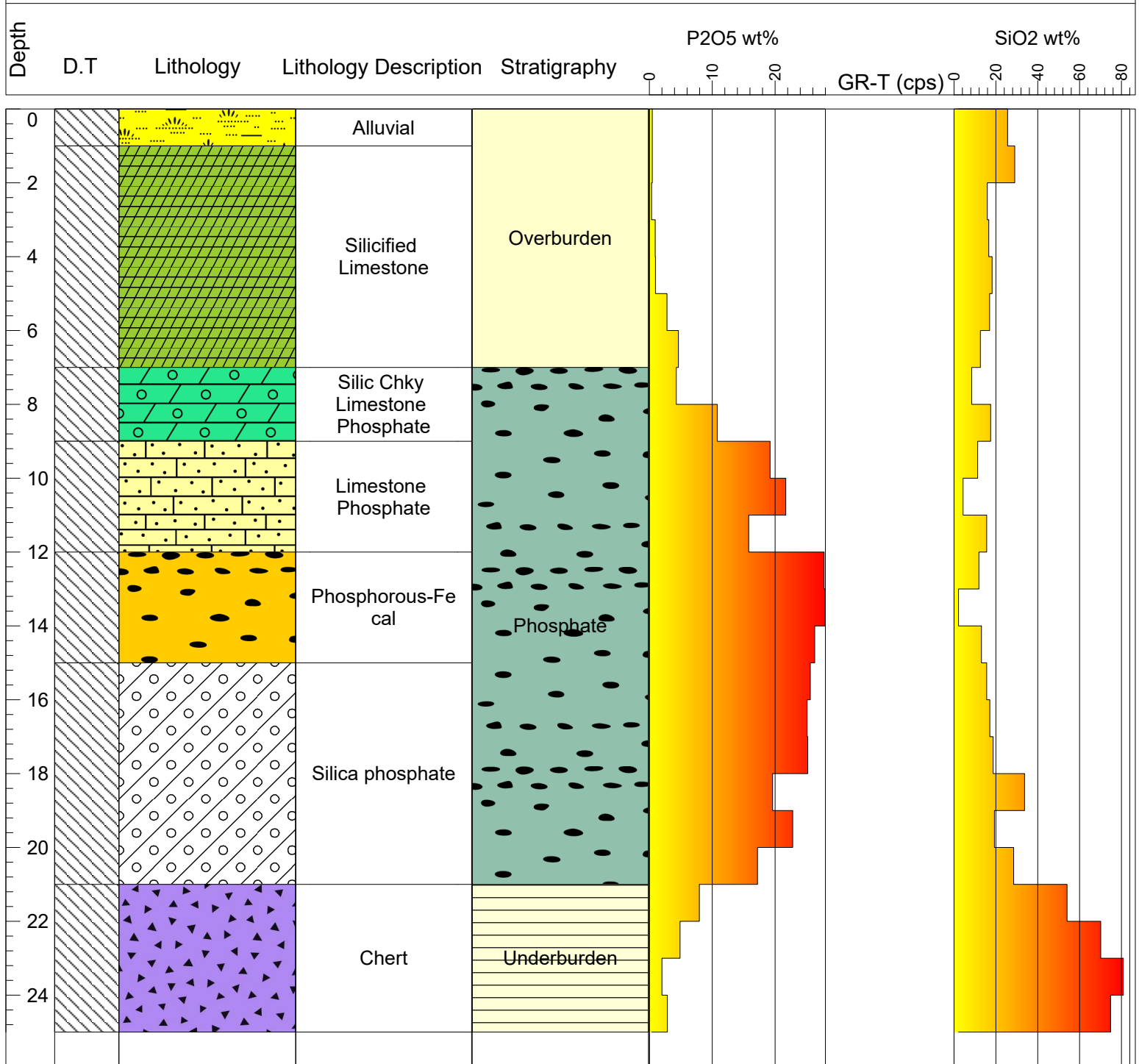
Coordinate (UTM) 37N

500263 E

3556228 N

889 ASL

Risha Phosphate Prospecting Project



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		Underburden



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH31A

Drilling Depth: 17.0 m

Drilling Type (D.T): Cutting

No. Samples: 17

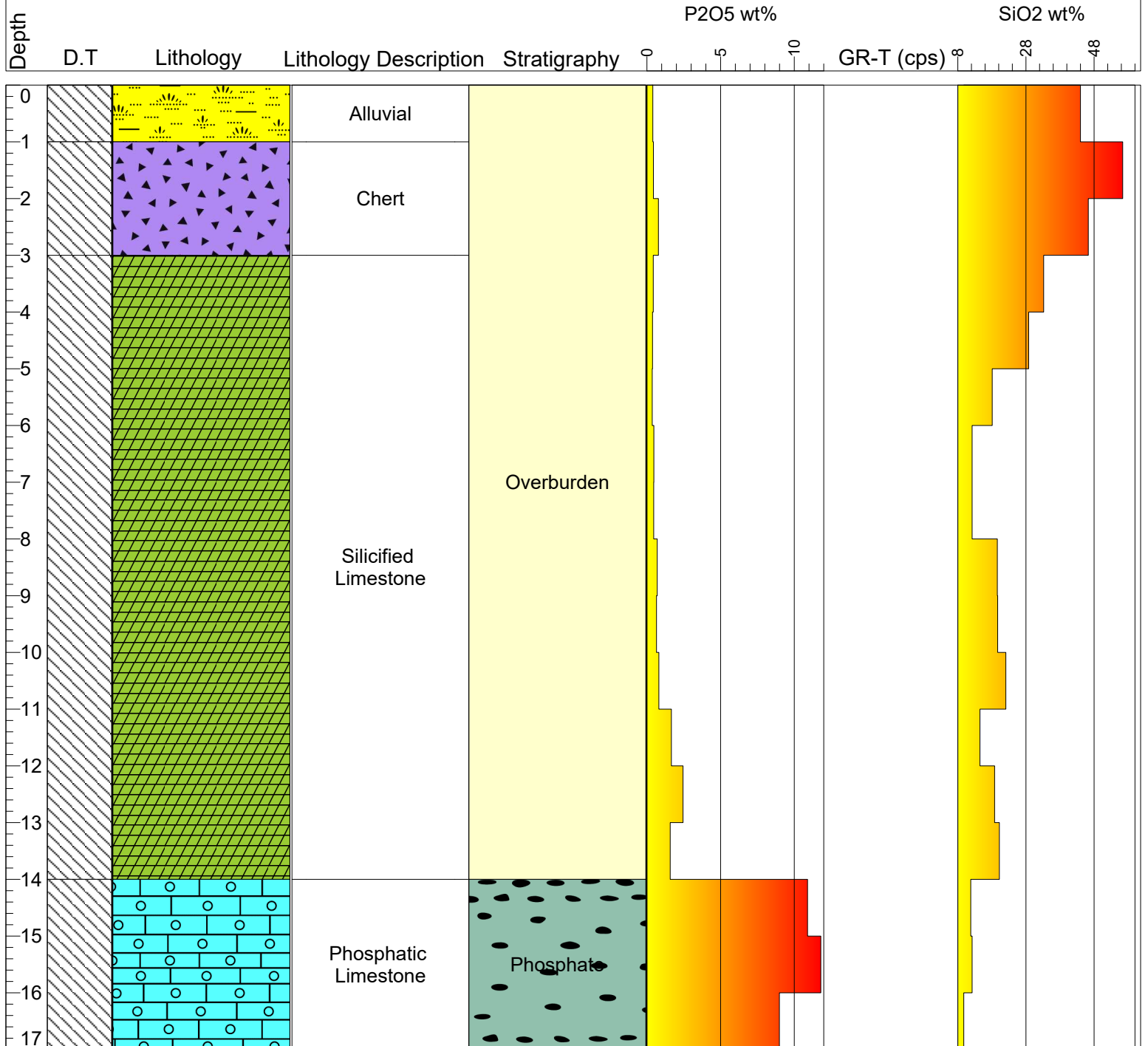
Coordinate (UTM) 37N

499351 E

3556161 N

887 ASL

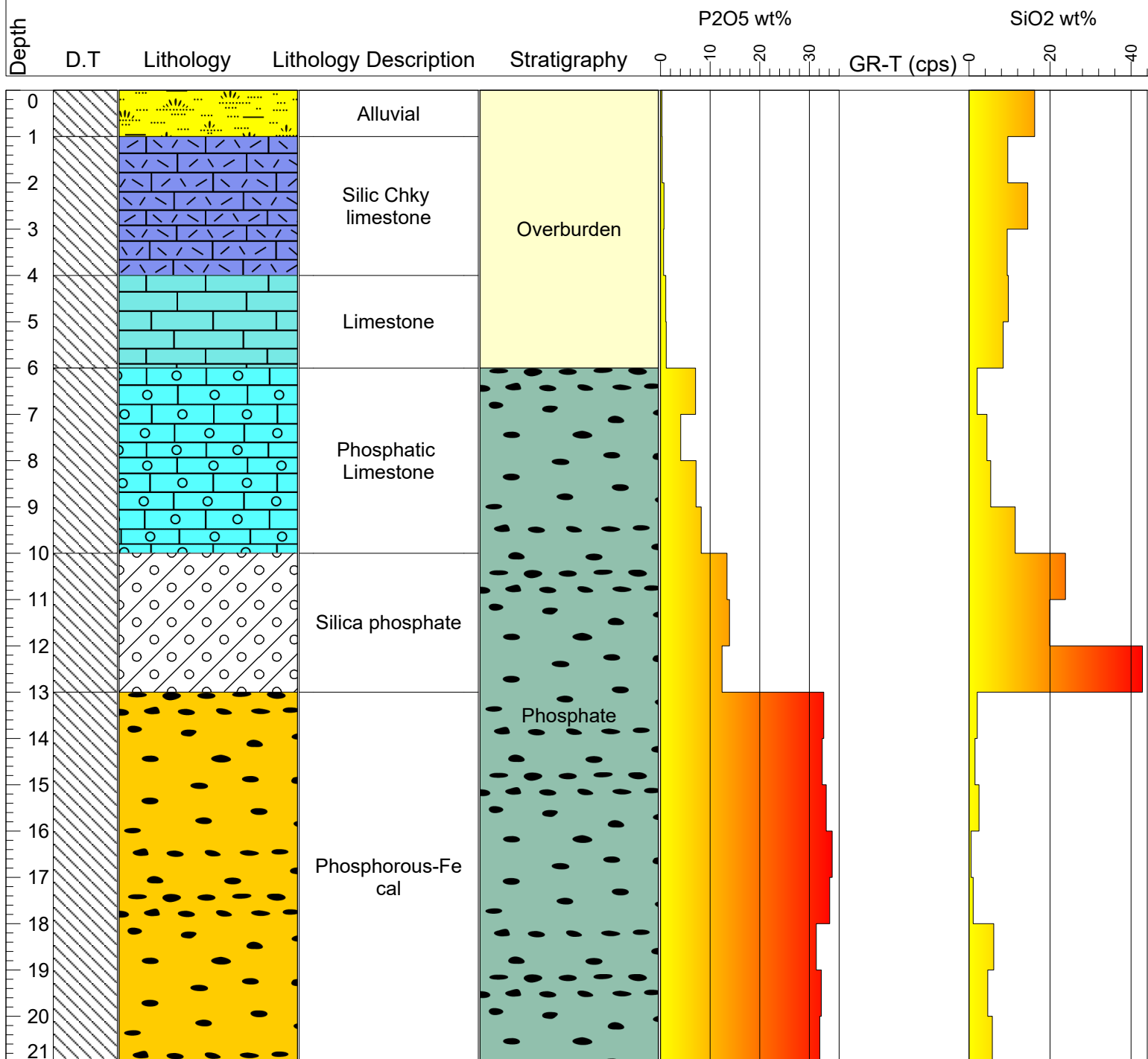
Risha Phosphate Prospecting Project



Legend

- | | | | |
|----------------------|----------------------|--------------------------------|-------------|
| Alluvial | Chert | Chky Limestone phosphate | Cutting |
| Limestone | Phosphatic Limestone | Silic Chky limestone | Core |
| Chalky Limestone | Limestone Phosphate | Silicified Limestone Phosphate | Overburden |
| Silicified Limestone | Phosphorous-Fecal | Silic Chky Limestone Phosphate | Phosphate |
| Chalk | Silica phosphate | | Underburden |

 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH31B	Coordinate (UTM) 37N
	Drilling Depth: 21.0 m	499230 E
	Drilling Type (D.T): Cutting	3556469 N
	No. Samples: 42	887 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH32

Drilling Depth: 29.0 m

Drilling Type (D.T): Cutting

No. Samples: 29

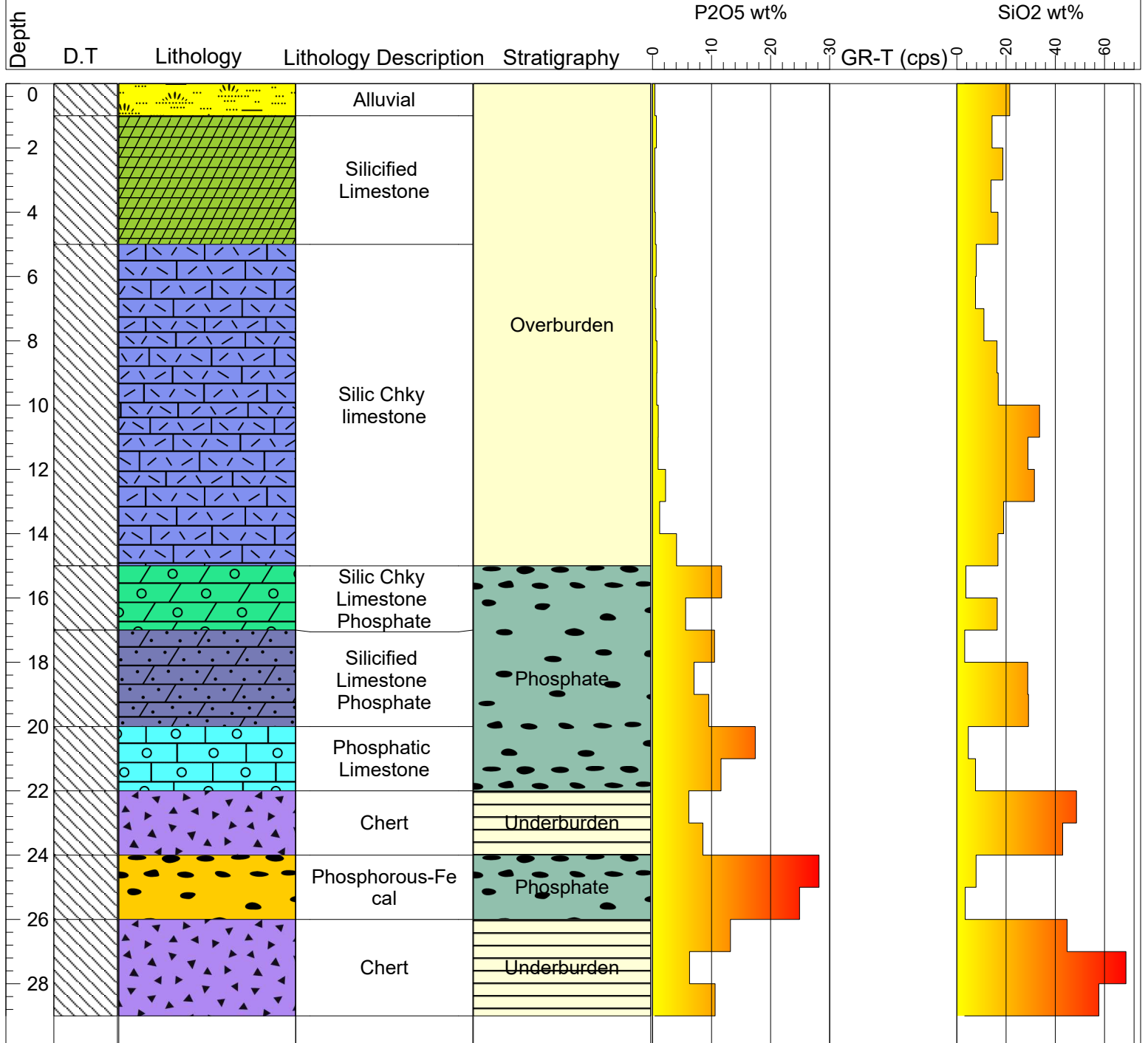
Coordinate (UTM) 37N

498874 E

3556459 N

890 ASL

Risha Phosphate Prospecting Project



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH33

Drilling Depth: 28.0 m

Drilling Type (D.T): Cutting

No. Samples: 28

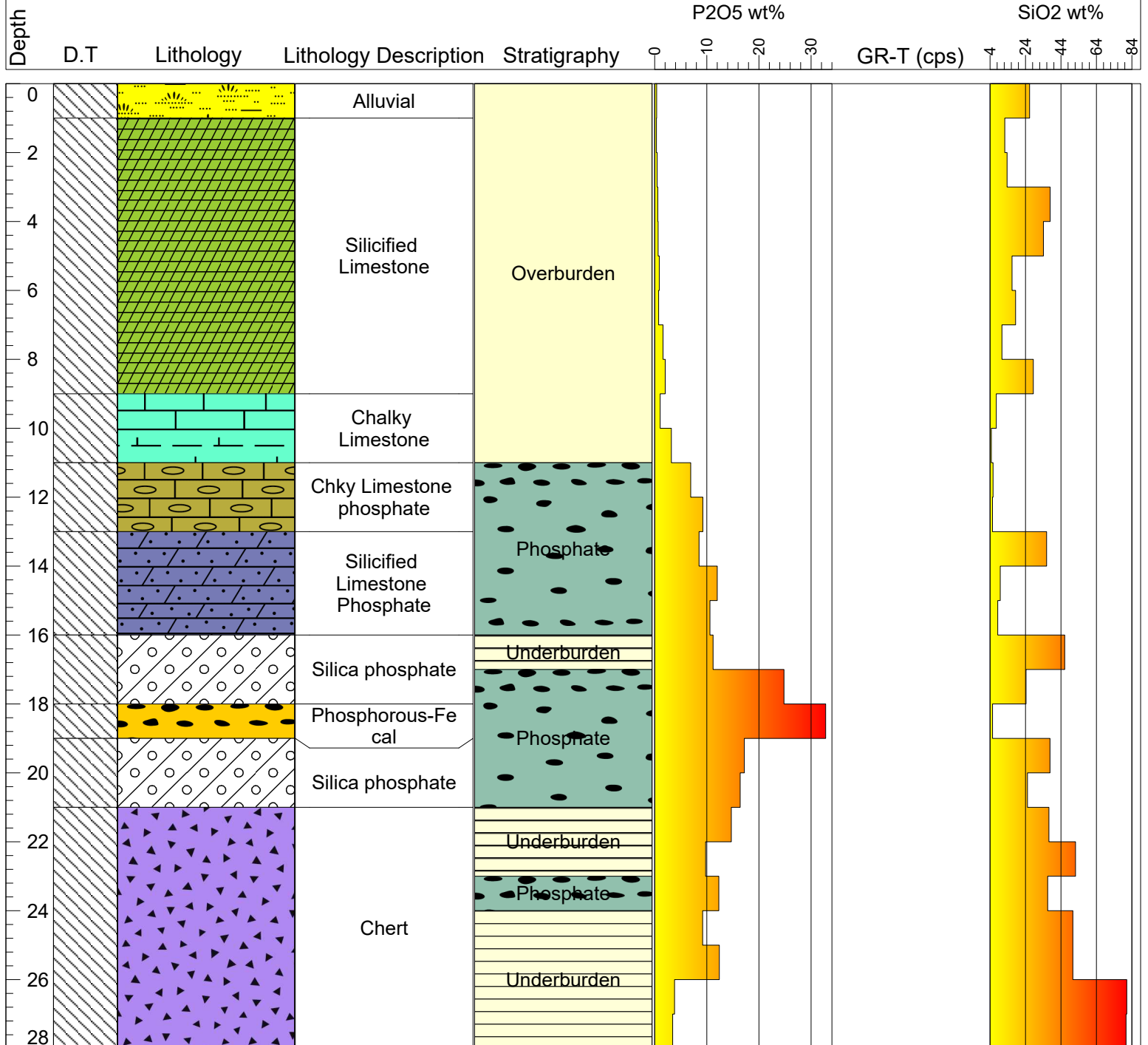
Coordinate (UTM) 37N

498622 E

3557098 N

888 ASL

Risha Phosphate Prospecting Project



Legend

Alluvial	Chert	Chky Limestone phosphate	Cutting
Limestone	Phosphatic Limestone	Silic Chky limestone	Core
Chalky Limestone	Limestone Phosphate	Silicified Limestone Phosphate	Overburden
Silicified Limestone	Phosphorous-Fecal	Silic Chky Limestone Phosphate	Phosphate
Chalk	Silica phosphate		Underburden



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH34

Drilling Depth: 21.0 m

Drilling Type (D.T): Cutting

No. Samples: 21

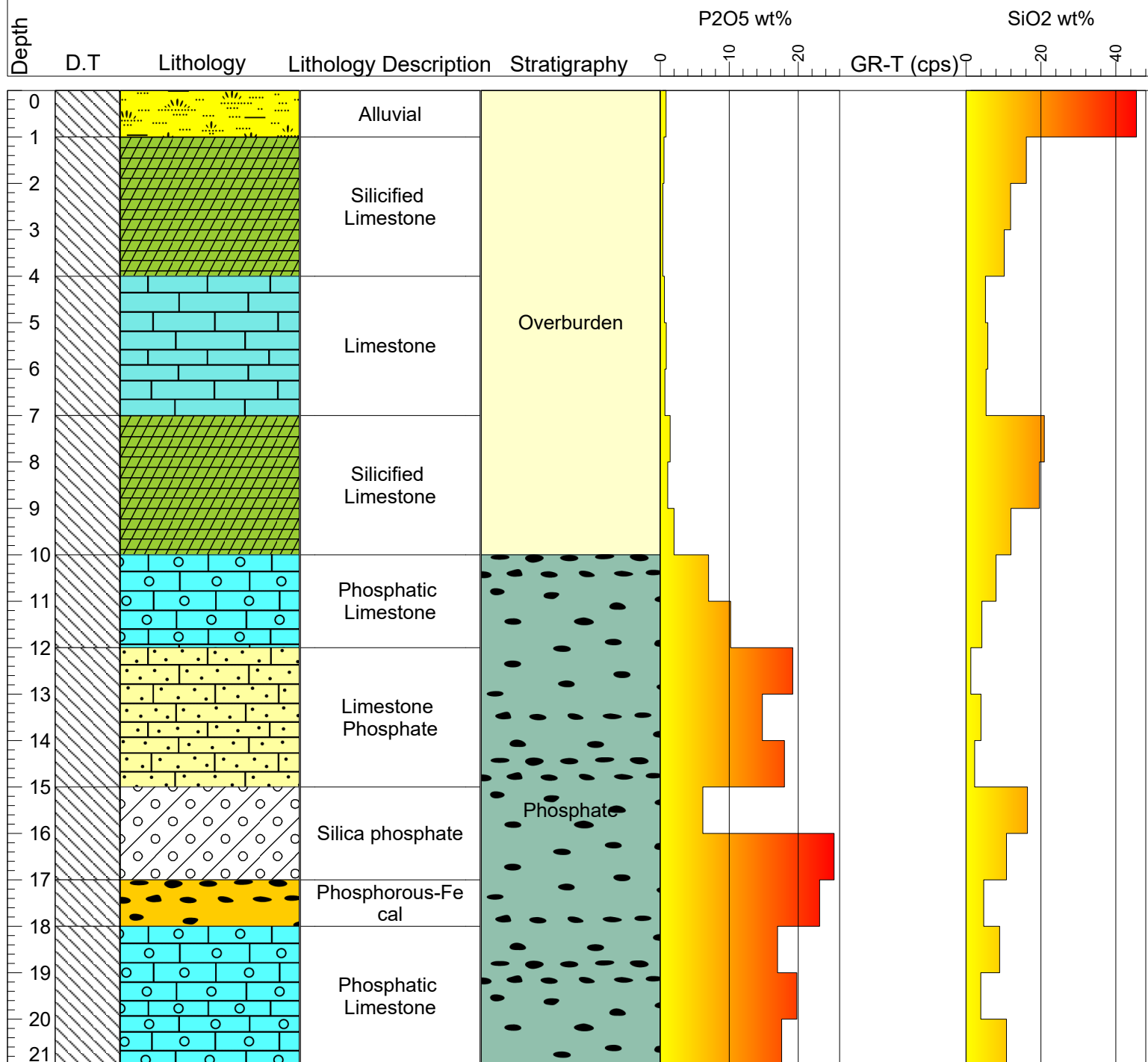
Coordinate (UTM) 37N

497408 E

3556454 N

885 ASL

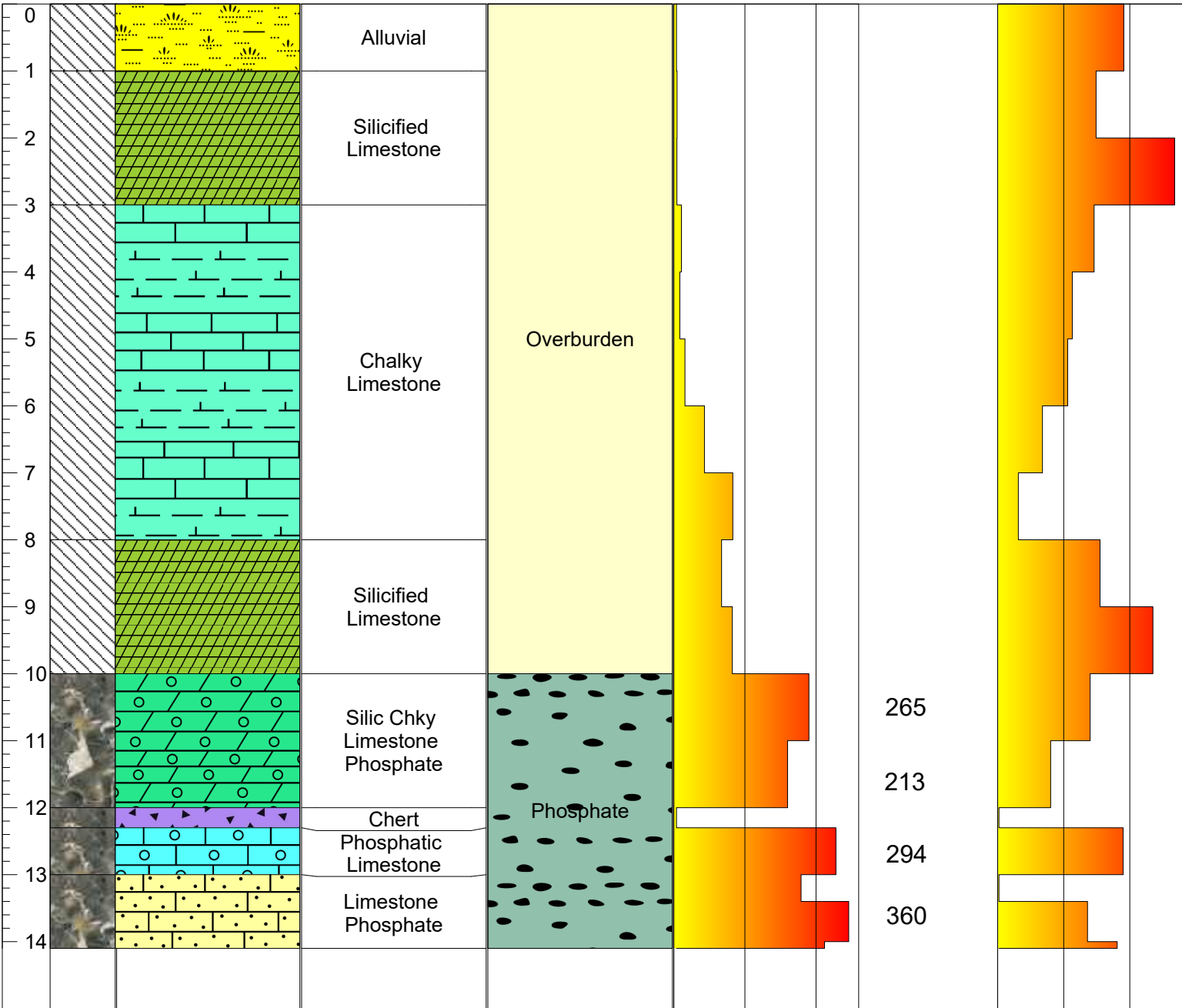
Risha Phosphate Prospecting Project



Legend



 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RC-31A	Coordinate (UTM) 37N
	Drilling Depth: 14.10 m	499351 E
	Drilling Type (D.T): Coring	3556161 N
	No. Samples: 16	887 ASL
Risha Phosphate Prospecting Project		
Depth D.T Lithology Lithology Description Stratigraphy P2O5 wt% GR-T (cps) SiO2 wt%		



Legend			
	Alluvial		Chert
	Limestone		Phosphatic Limestone
	Chalky Limestone		Limestone Phosphate
	Silicified Limestone		Phosphorous-Fecal
	Chalk		Silica phosphate
	Chky Limestone phosphate		Silic Chky limestone
	Cutting		Silicified Limestone Phosphate
	Core		Silic Chky Limestone Phosphate
	Overburden		Phosphate
	Underburden		



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RC-31B

Drilling Depth: 16.70 m

Drilling Type (D.T): Coring

No. Samples: 20

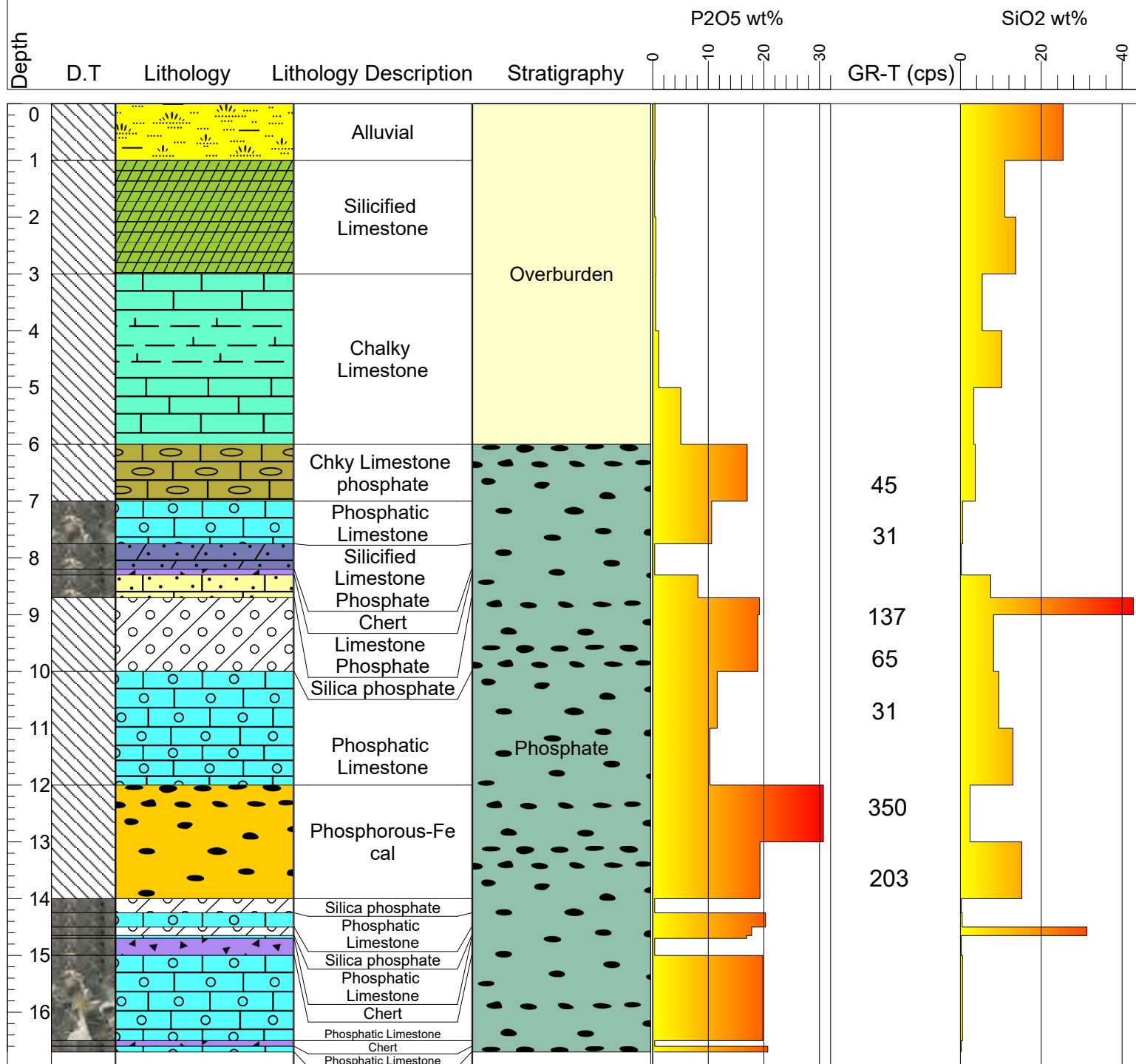
Coordinate (UTM) 37N

499230 E

3556469 N

887 ASL

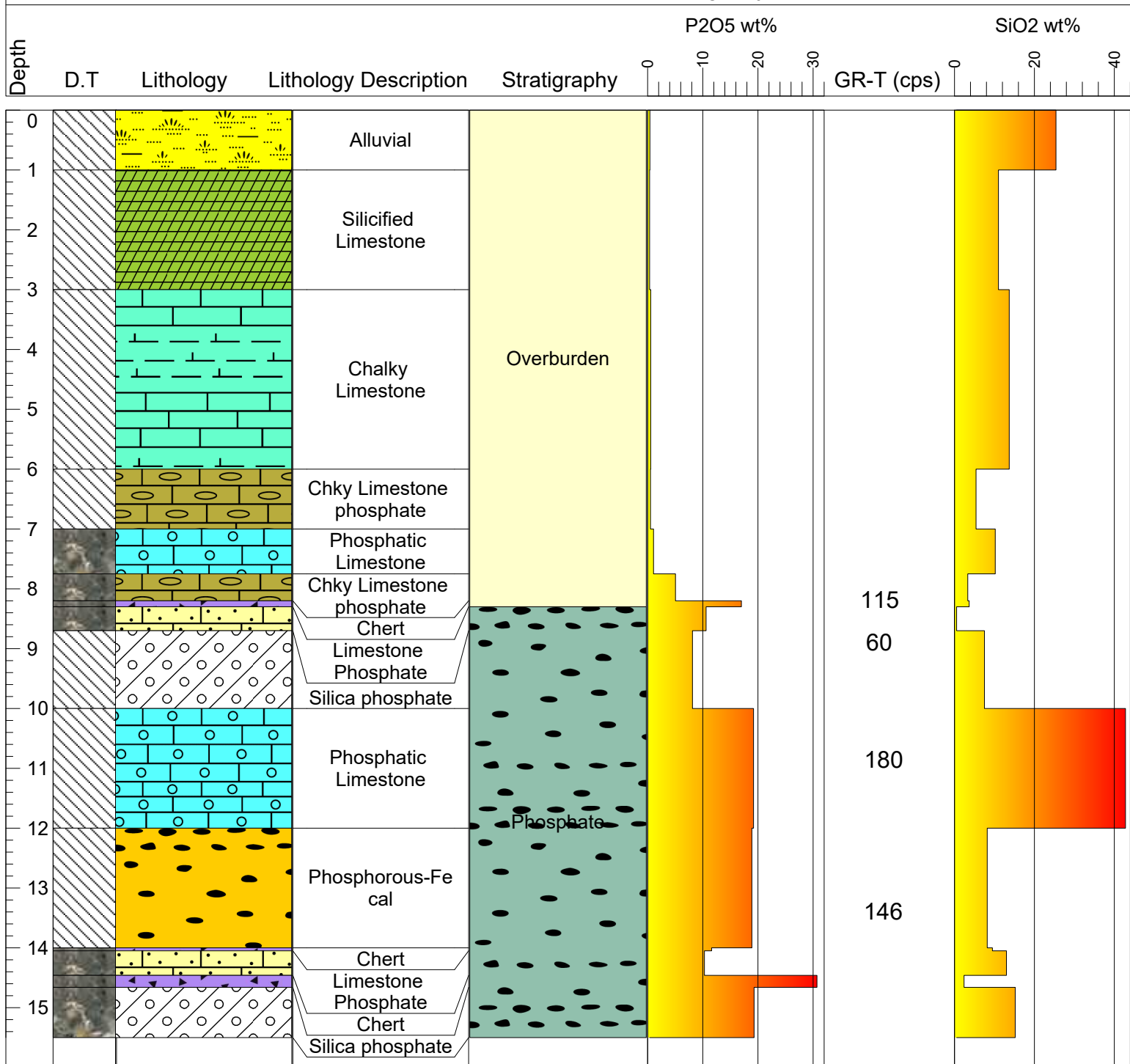
Risha Phosphate Prospecting Project



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate				Underburden

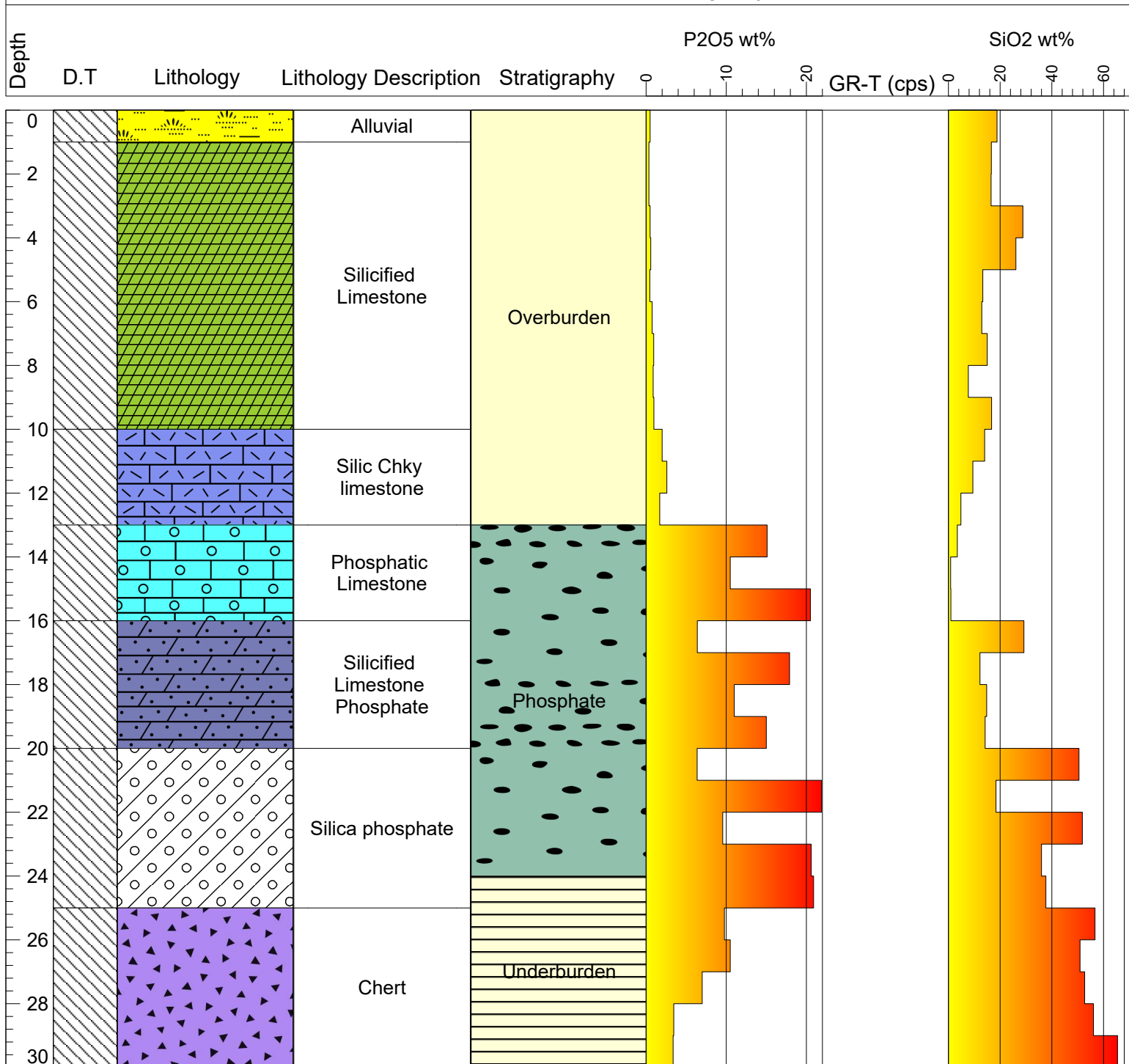
 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RC-31C	Coordinate (UTM) 37N
	Drilling Depth: 15.50 m	499230 E
	Drilling Type (D.T): Coring	3556469 N
	No. Samples: 15	887 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate				Underburden

 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH35	Coordinate (UTM) 37N
	Drilling Depth: 30.0 m	497532 E
	Drilling Type (D.T): Cutting	3557245 N
	No. Samples: 30	889 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH36

Drilling Depth: 28.0 m

Drilling Type (D.T): Cutting

No. Samples: 28

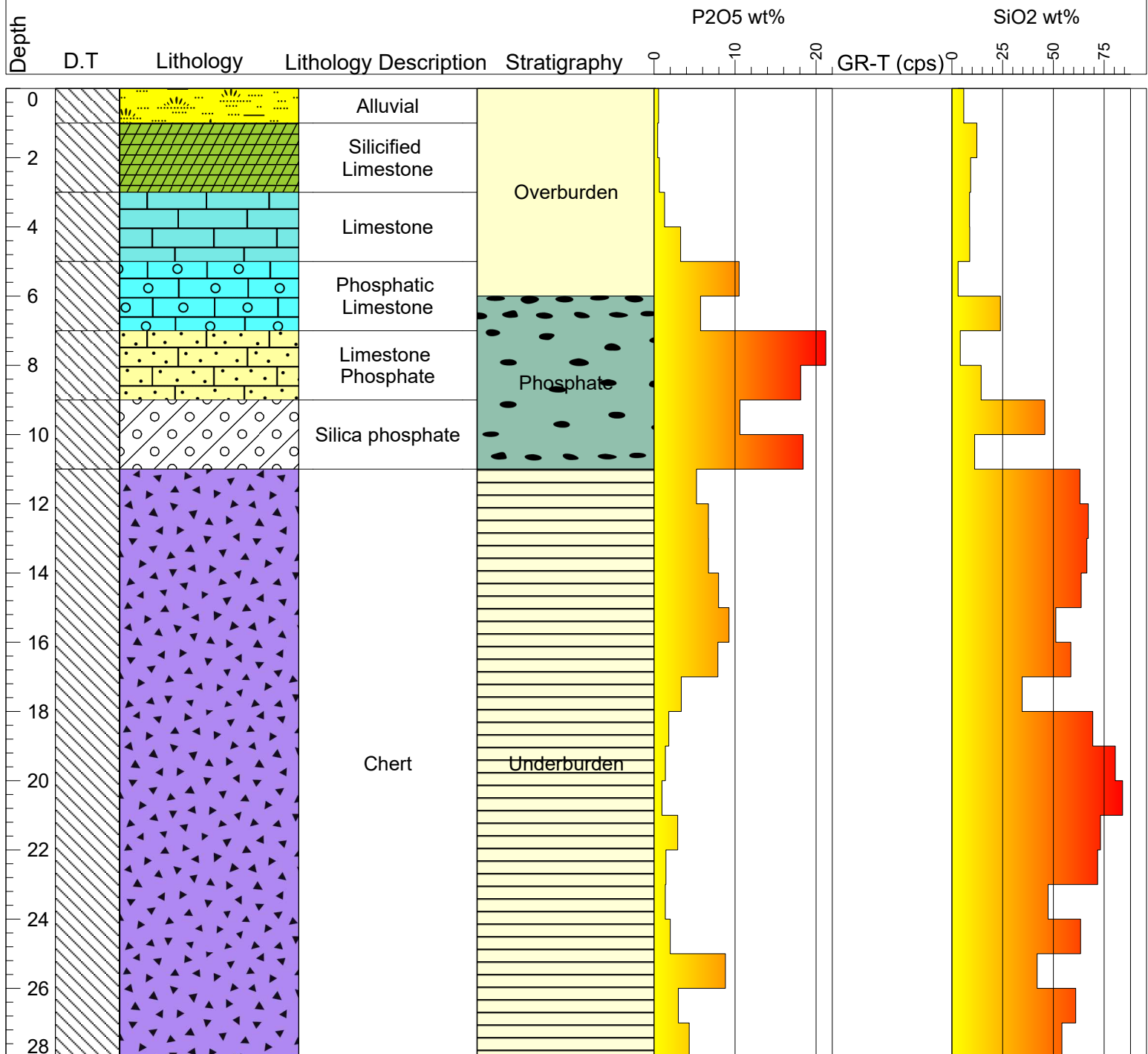
Coordinate (UTM) 37N

496571 E

3557272 N

880 ASL

Risha Phosphate Prospecting Project



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate				Underburden



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH37

Drilling Depth: 27.0 m

Drilling Type (D.T): Cutting

No. Samples: 27

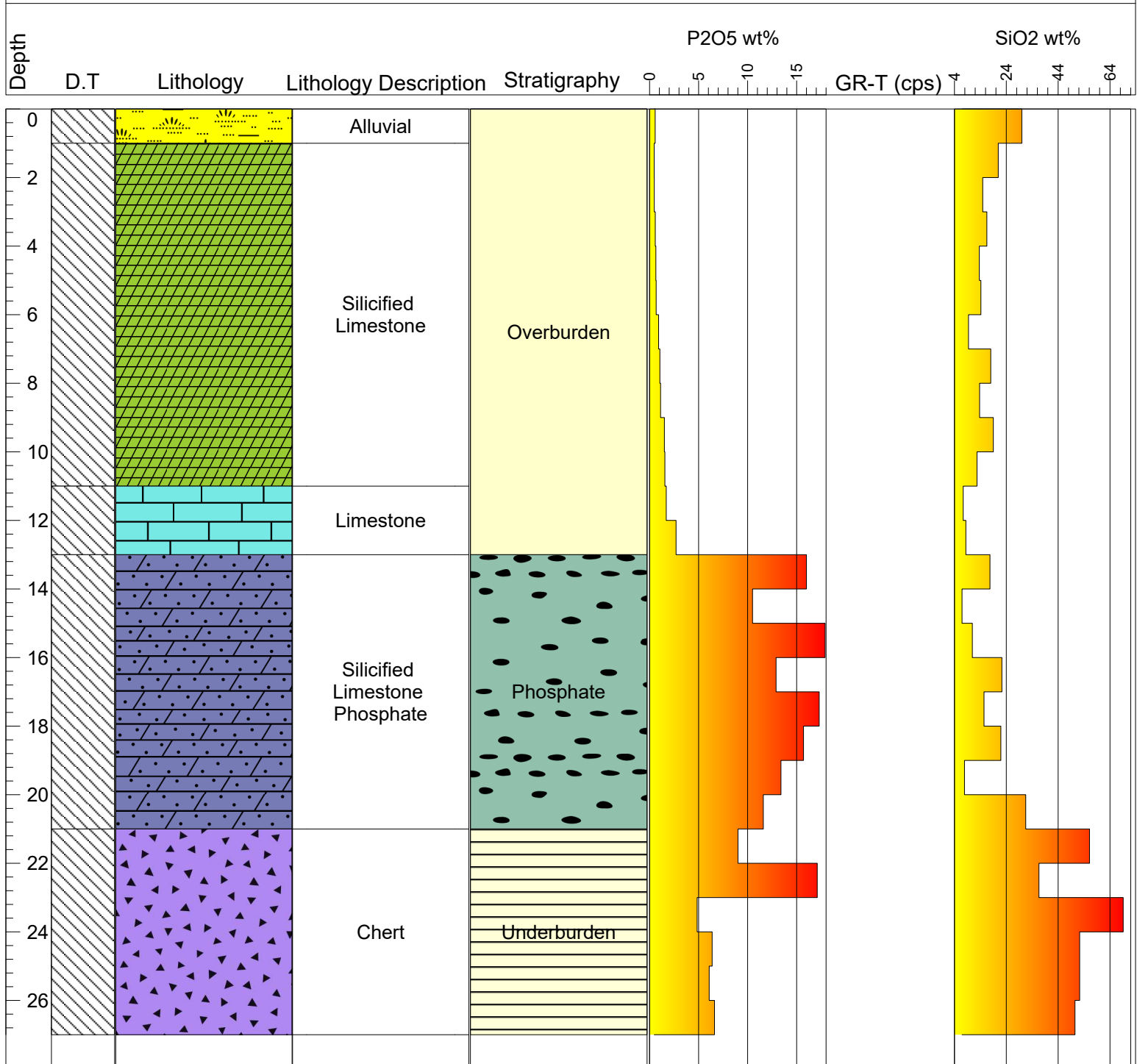
Coordinate (UTM) 37N

496580 E

3556388 N

878 ASL

Risha Phosphate Prospecting Project



Legend





Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH39

Drilling Depth: 32.0 m

Drilling Type (D.T): Cutting

No. Samples: 32

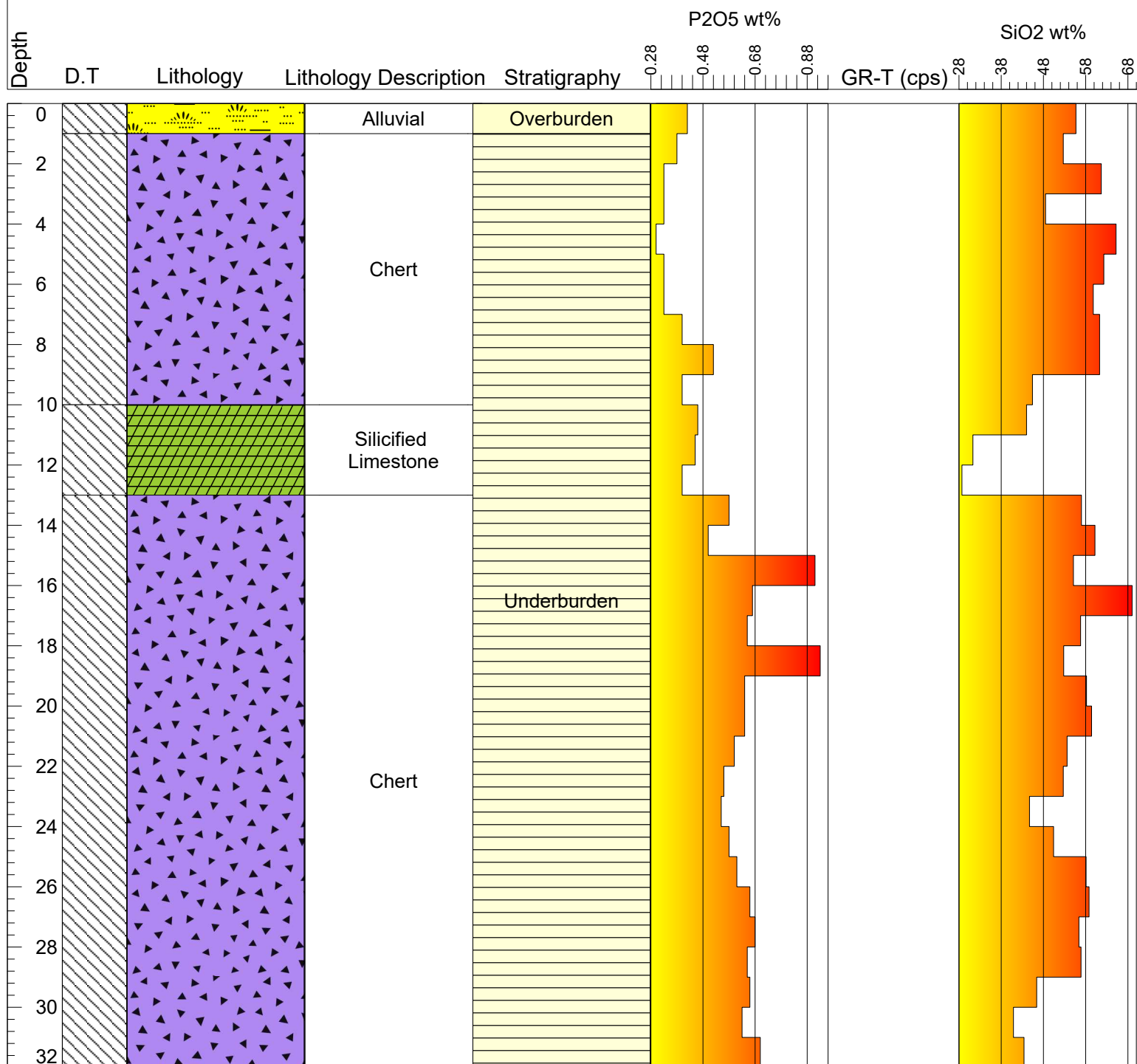
Coordinate (UTM) 37N

497492 E

3555254 N

870 ASL

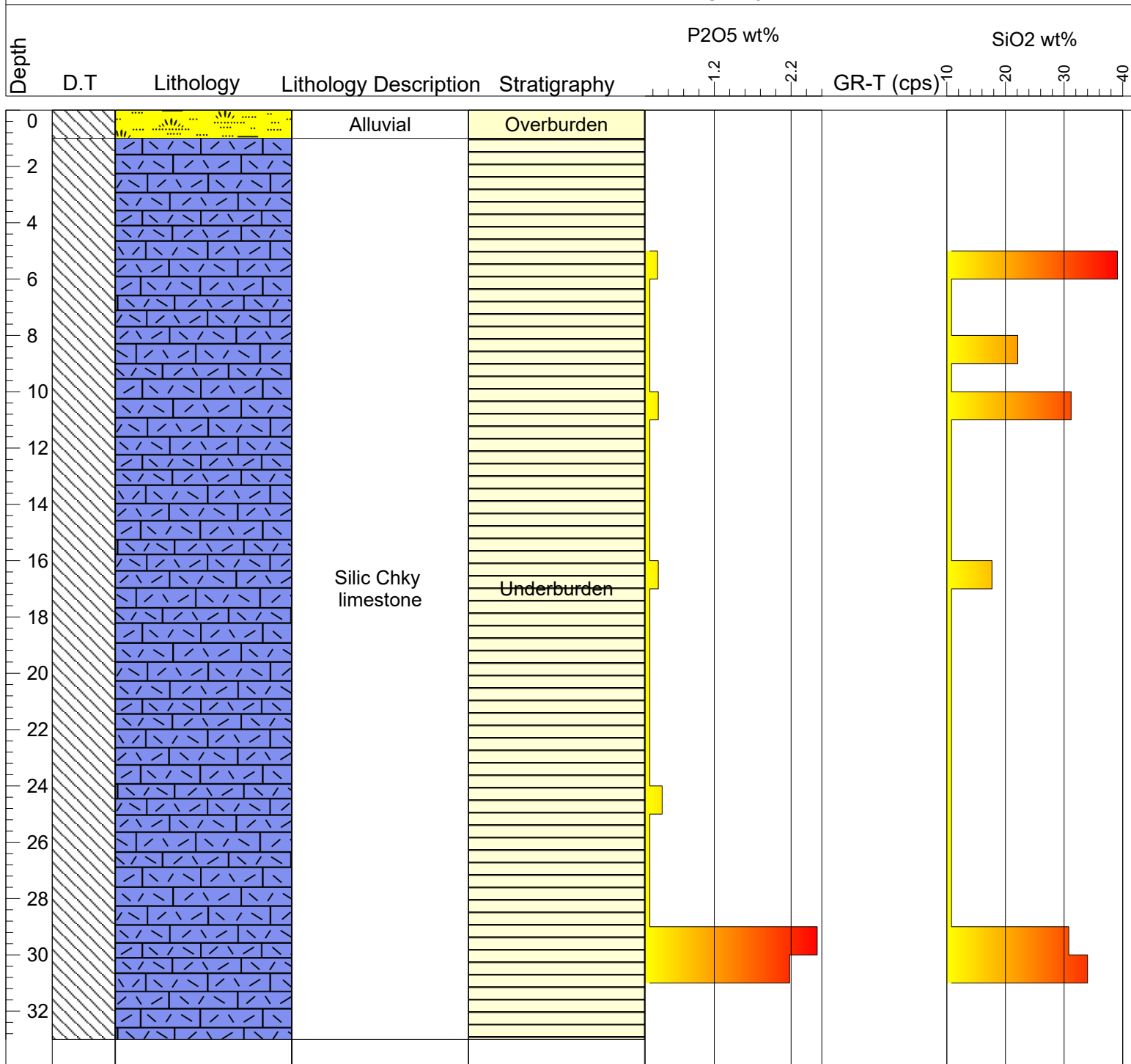
Risha Phosphate Prospecting Project



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate				Underburden

 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-BH41	Coordinate (UTM) 37N
	Drilling Depth: 33.0 m	499472 E
	Drilling Type (D.T): Cutting	3555173 N
	No. Samples: 07	875 ASL
Risha Phosphate Prospecting Project		



Legend

 Alluvial	 Chert	 Chky Limestone phosphate	 Cutting
 Limestone	 Phosphatic Limestone	 Silic Chky limestone	 Core
 Chalky Limestone	 Limestone Phosphate	 Silicified Limestone Phosphate	 Overburden
 Silicified Limestone	 Phosphorous-Fecal	 Silic Chky Limestone Phosphate	 Phosphate
 Chalk	 Silica phosphate		 Underburden



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH42

Drilling Depth: 30.0 m

Drilling Type (D.T): Cutting

No. Samples: 29

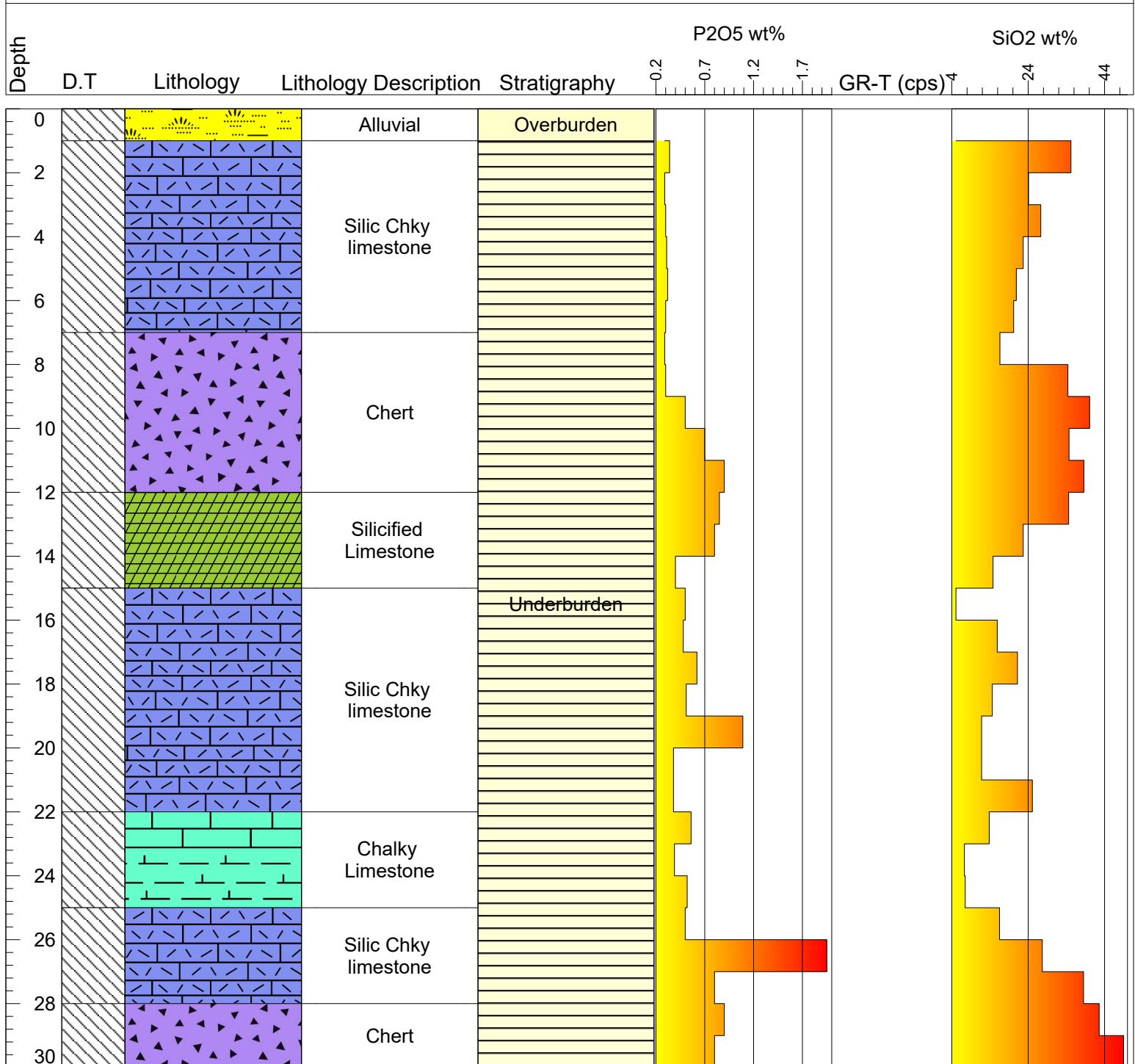
Coordinate (UTM) 37N

500477 E

3555133 N

876 ASL

Risha Phosphate Prospecting Project



Legend





Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RPh1-BH46

Drilling Depth: 22.2 m

Drilling Type (D.T): Cutting

No. Samples: 16

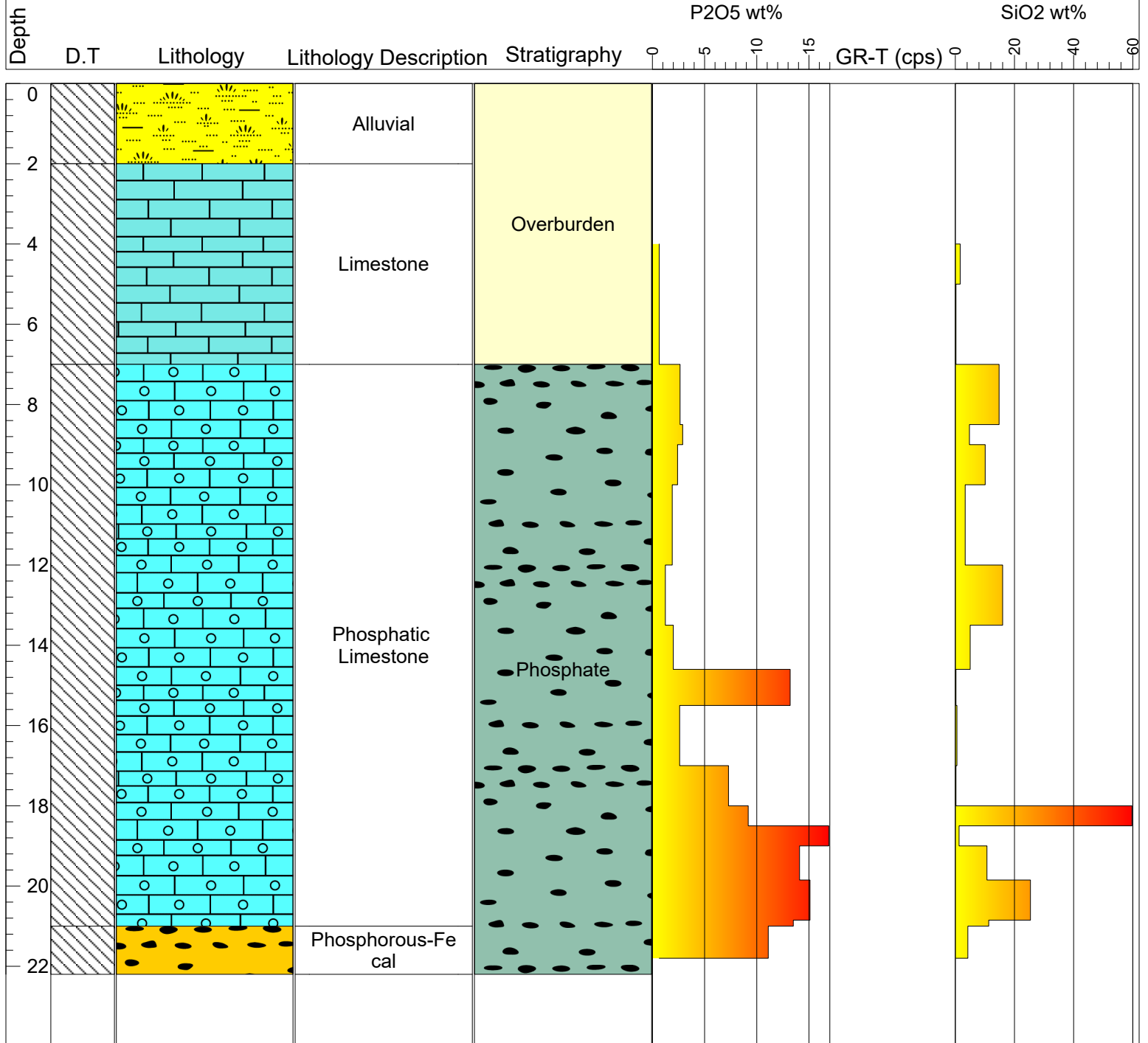
Coordinate (UTM) 37N

496965 E

3559029 N

908 ASL

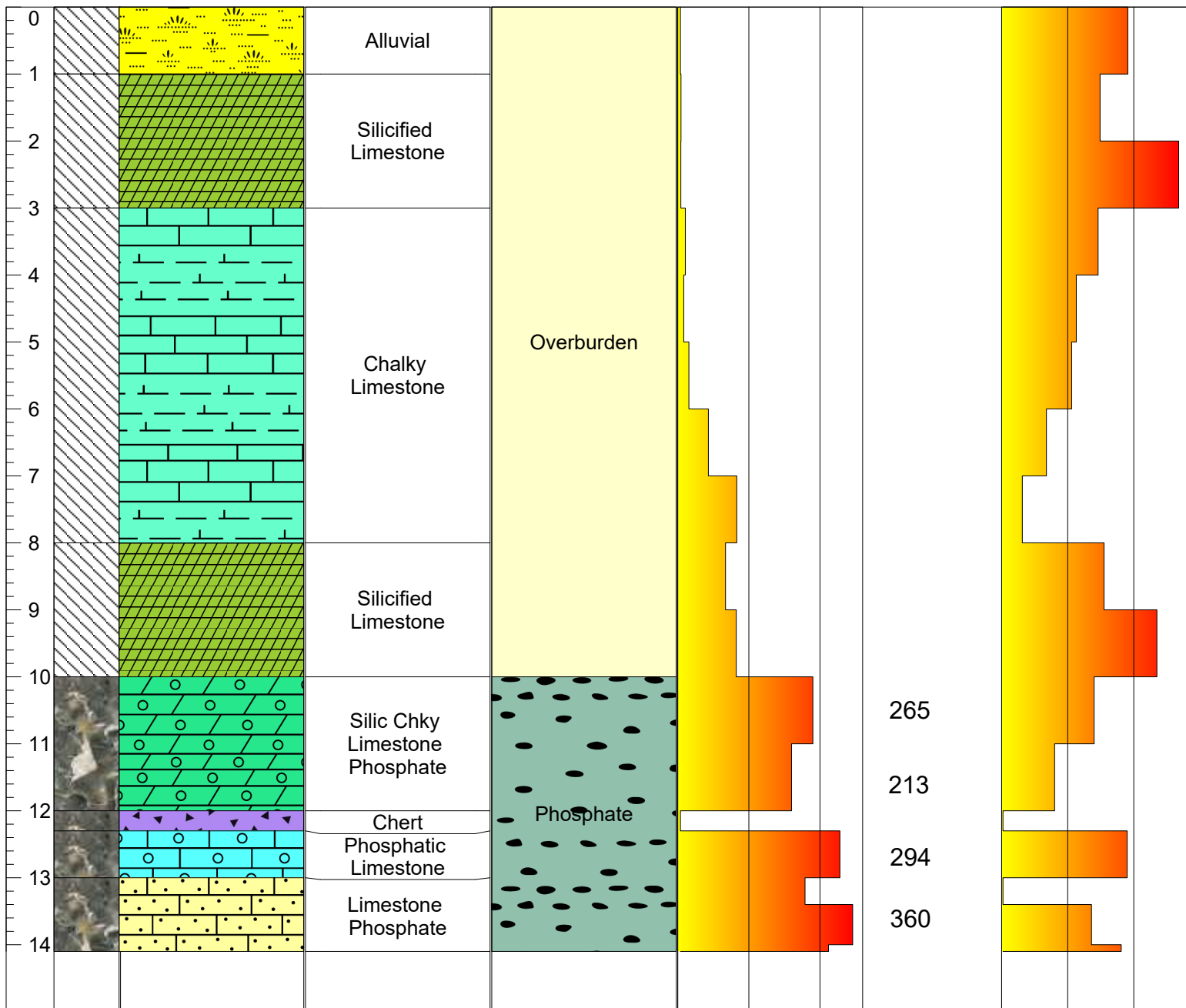
Risha Phosphate Prospecting Project



Legend

Alluvial	Chert	Chky Limestone phosphate	Cutting
Limestone	Phosphatic Limestone	Silic Chky limestone	Core
Chalky Limestone	Limestone Phosphate	Silicified Limestone Phosphate	Overburden
Silicified Limestone	Phosphorous-Fecal	Silic Chky Limestone Phosphate	Phosphate
Chalk	Silica phosphate		Underburden

	Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RC-31A			Coordinate (UTM) 37N					
		Drilling Depth: 14.10 m			499351 E					
		Drilling Type (D.T): Coring			3556161 N					
		No. Samples: 16			887 ASL					
Risha Phosphate Prospecting Project										
Depth	D.T	Lithology	Lithology Description	Stratigraphy	P2O5 wt%			SiO2 wt%		
					GR-T (cps)					



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RC-31B

Drilling Depth: 16.70 m

Drilling Type (D.T): Coring

No. Samples: 20

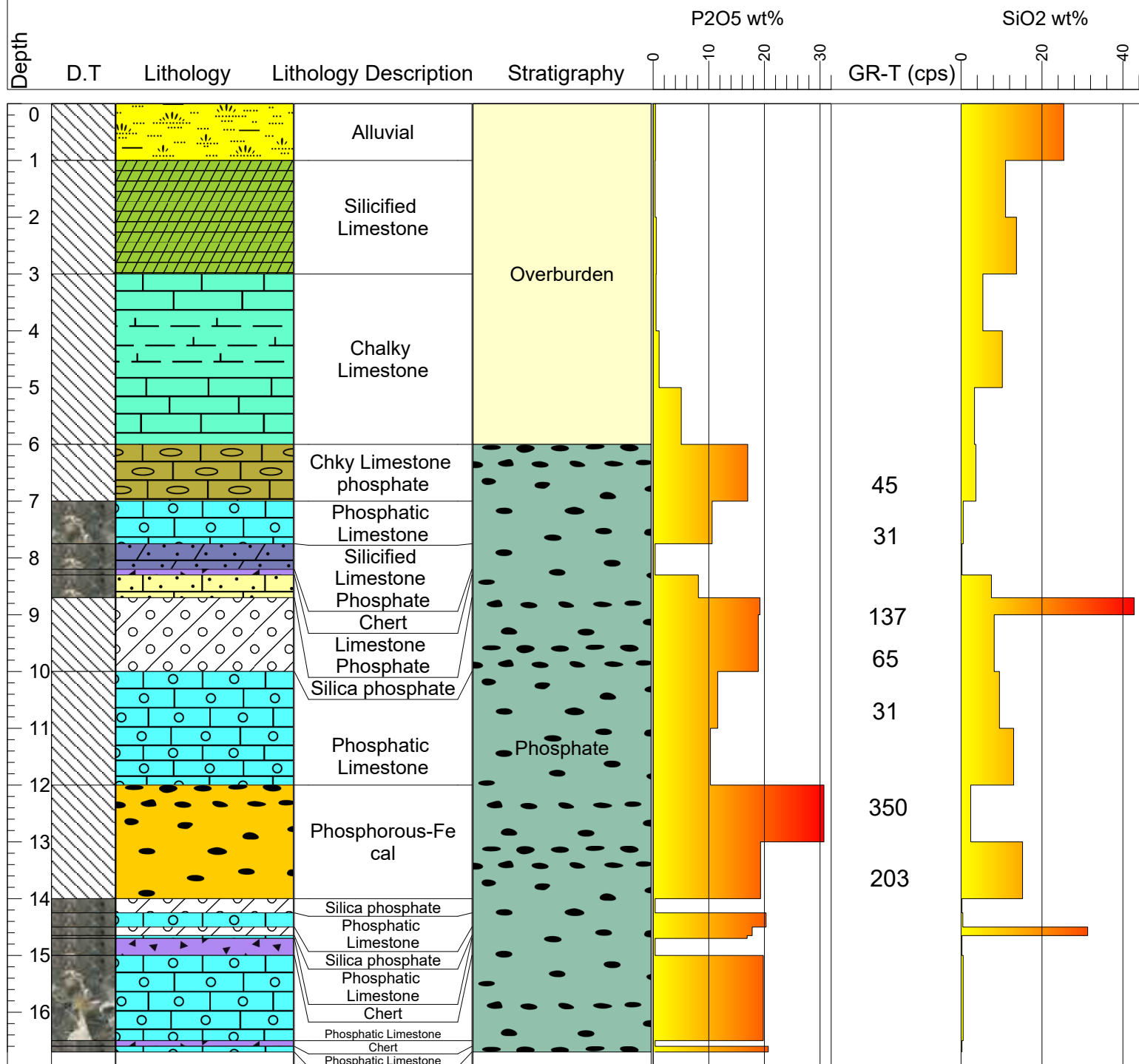
Coordinate (UTM) 37N

499230 E

3556469 N

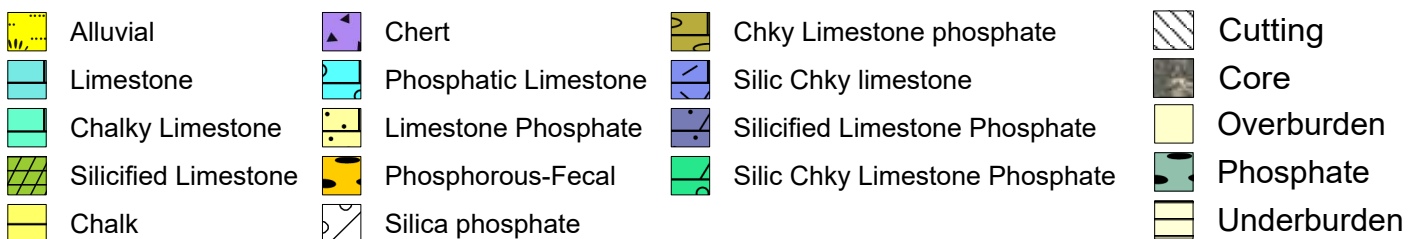
887 ASL

Risha Phosphate Prospecting Project

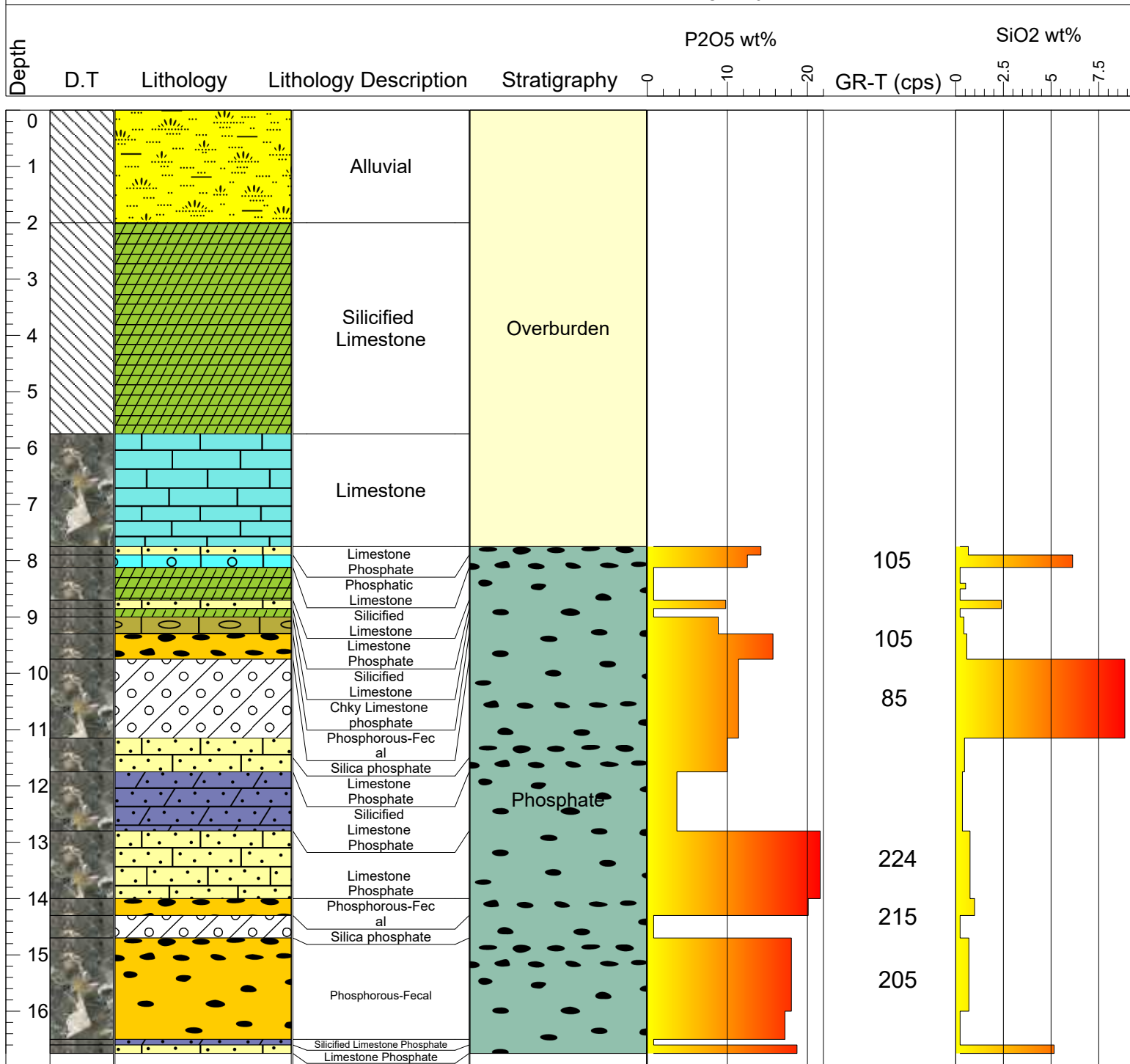


Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate				Underburden



 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RC-43	Coordinate (UTM) 37N
	Drilling Depth: 16.75 m	501313 E
	Drilling Type (D.T): Coring	3555626 N
	No. Samples: 14	890 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RC-44

Drilling Depth: 28.0 m

Drilling Type (D.T): Coring

No. Samples: 22

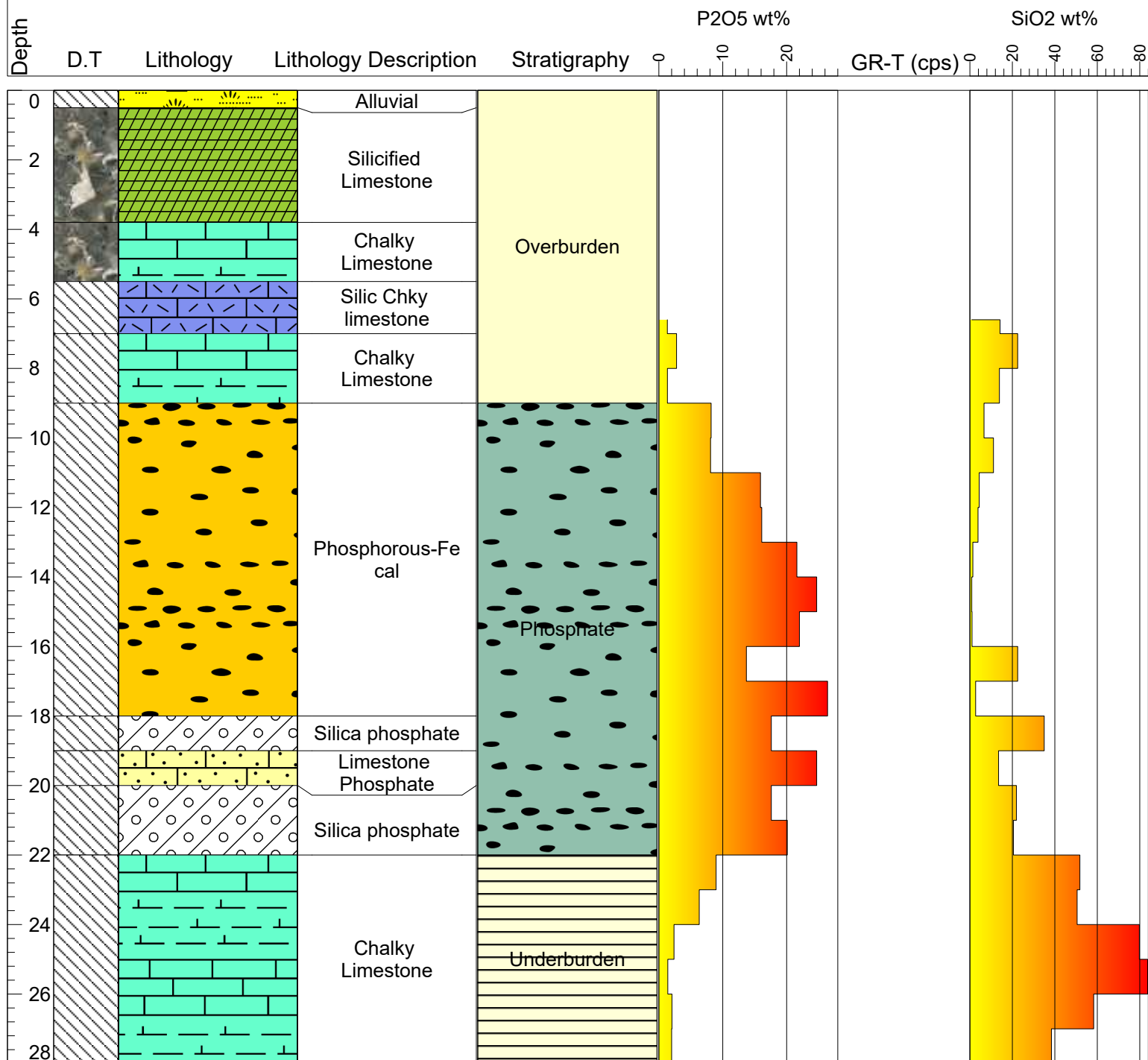
Coordinate (UTM) 37N

500685 E

3563040 N

907 ASL

Risha Phosphate Prospecting Project



Legend

- | | | | |
|----------------------|----------------------|--------------------------------|-------------|
| Alluvial | Chert | Chky Limestone phosphate | Cutting |
| Limestone | Phosphatic Limestone | Silic Chky limestone | Core |
| Chalky Limestone | Limestone Phosphate | Silicified Limestone Phosphate | Overburden |
| Silicified Limestone | Phosphorous-Fecal | Silic Chky Limestone Phosphate | Phosphate |
| Chalk | Silica phosphate | | Underburden |



Ministry of Energy & Mineral Resources
Natural Resources Studies Directorate
Prospecting Studies Division

Hole ID : RC-45

Drilling Depth: 22.4 m

Drilling Type (D.T): Coring

No. Samples: 15

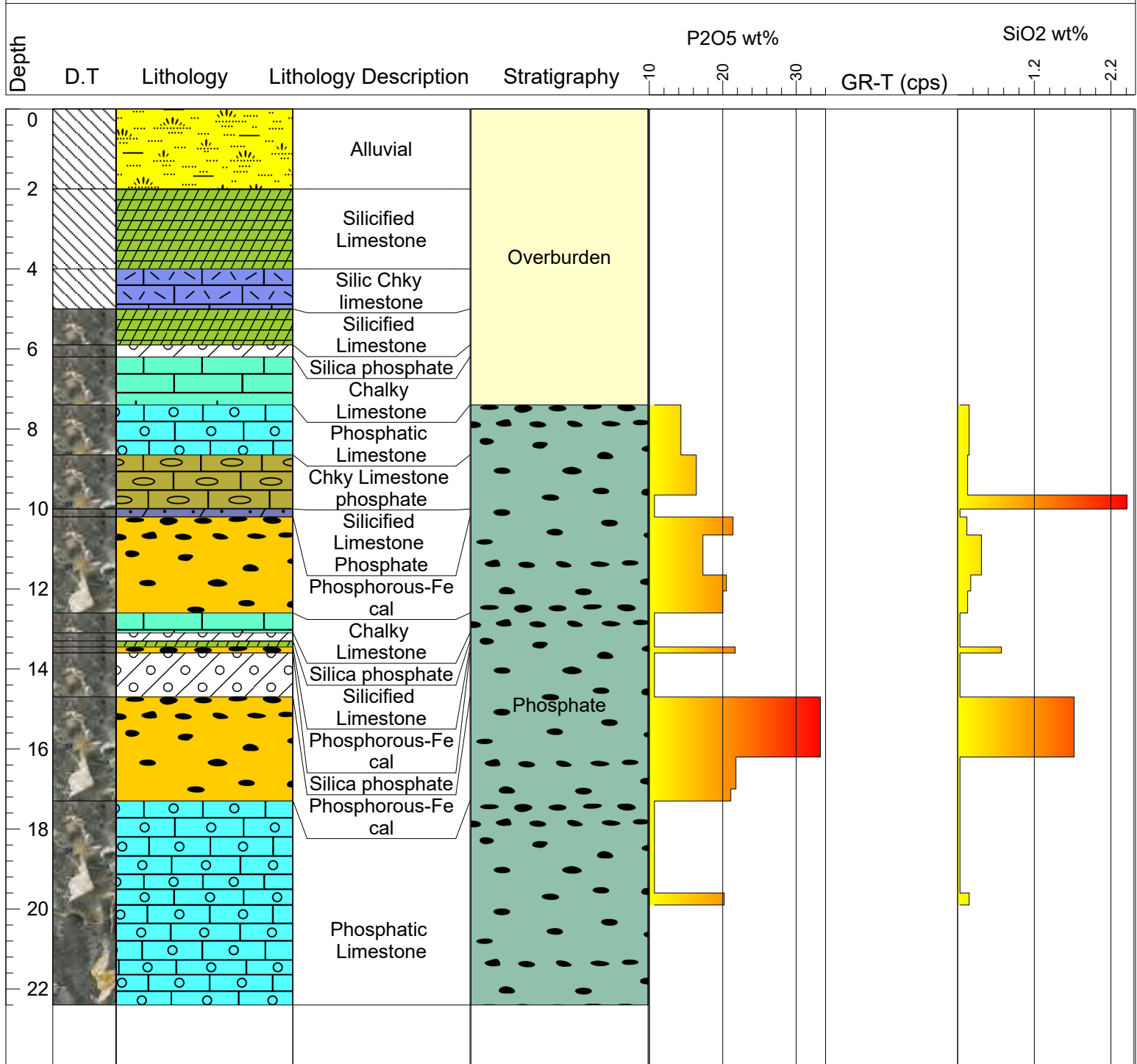
Coordinate (UTM) 37N

501982 E

3562920 N

916 ASL

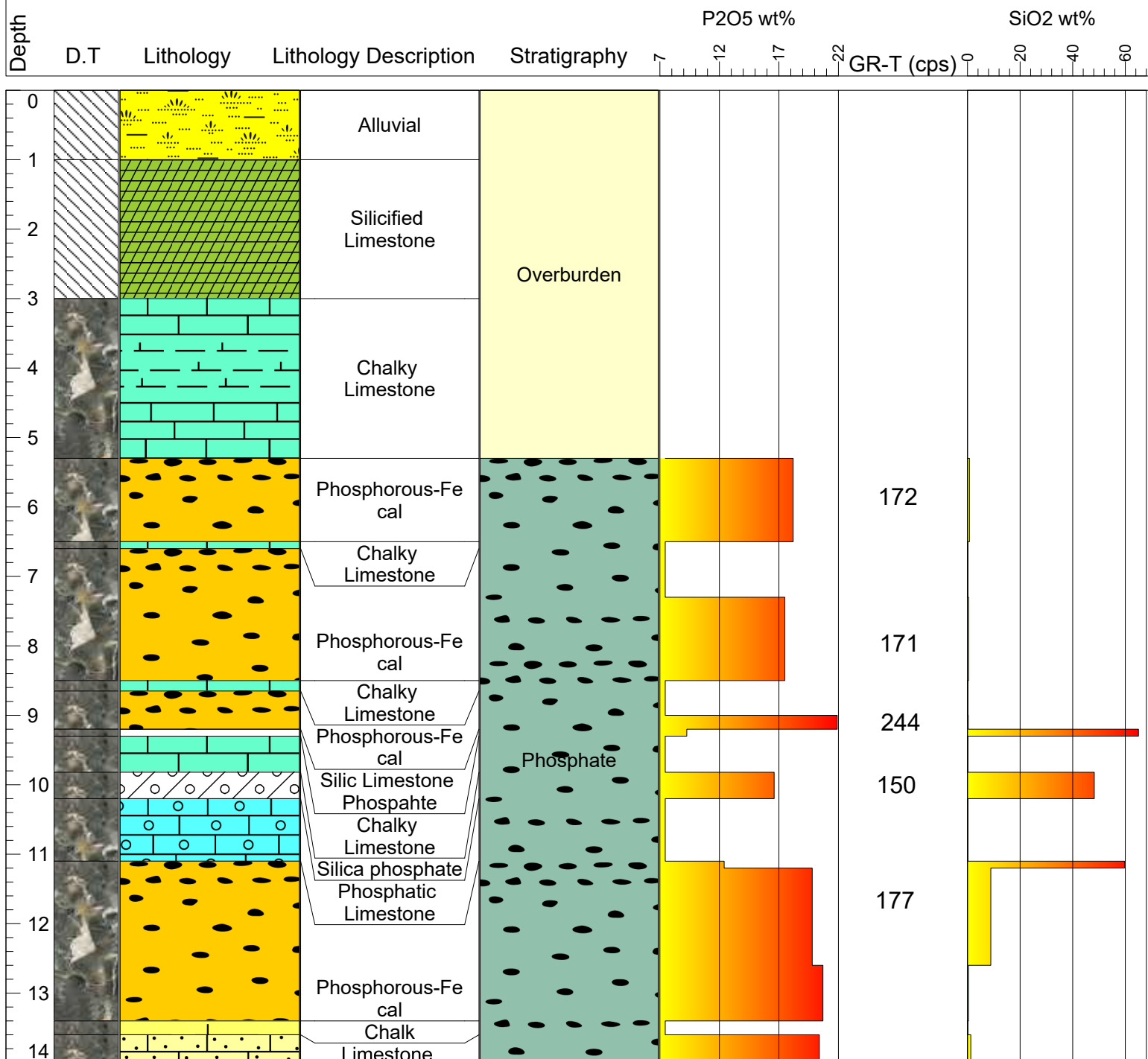
Risha Phosphate Prospecting Project



Legend

- | | | | |
|----------------------|----------------------|--------------------------------|-------------|
| Alluvial | Chert | Chky Limestone phosphate | Cutting |
| Limestone | Phosphatic Limestone | Silic Chky limestone | Core |
| Chalky Limestone | Limestone Phosphate | Silicified Limestone Phosphate | Overburden |
| Silicified Limestone | Phosphorous-Fecal | Silic Chky Limestone Phosphate | Phosphate |
| Chalk | Silica phosphate | | Underburden |

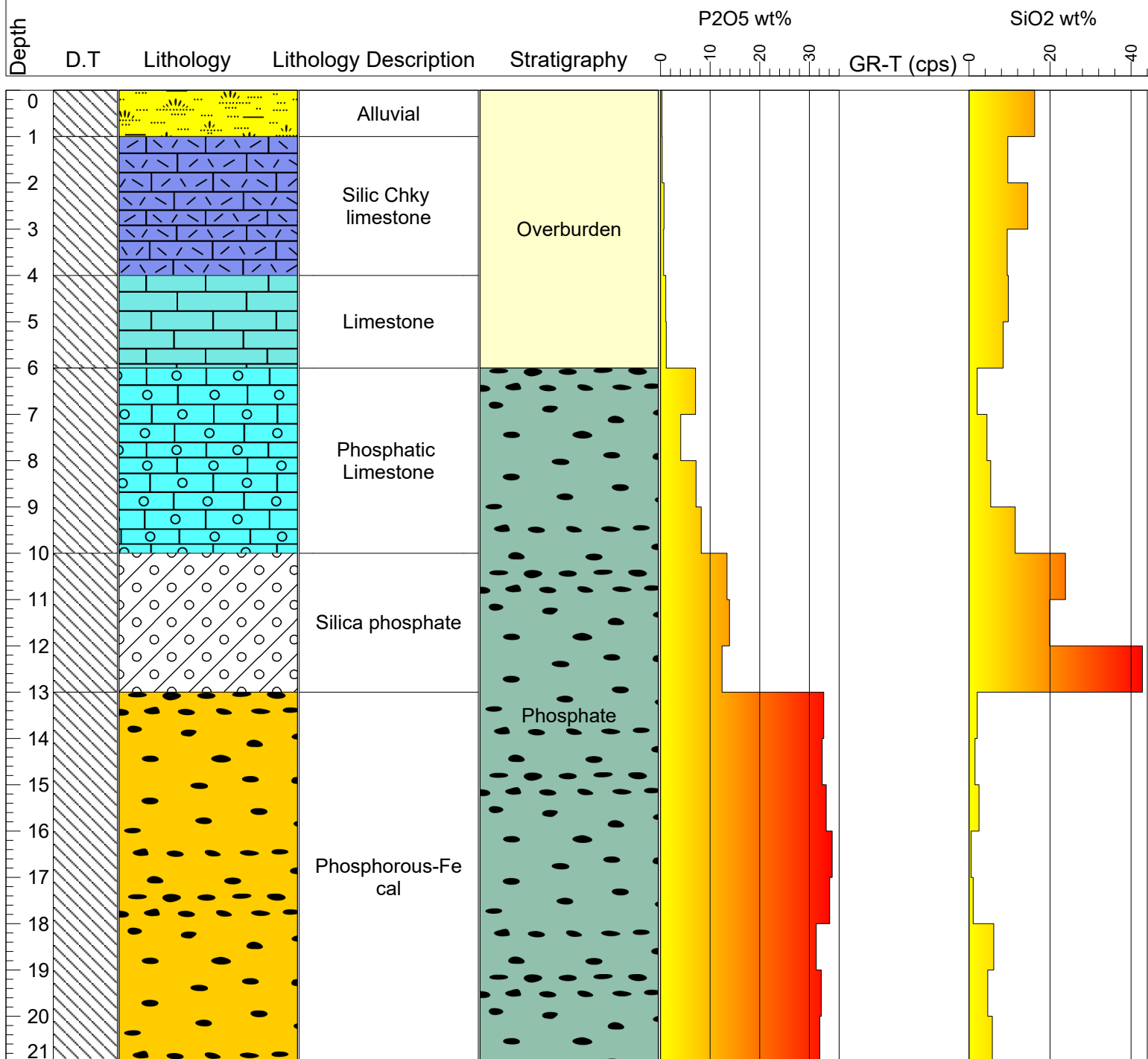
 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RC-A1	Coordinate (UTM) 37N
	Drilling Depth: 14.0 m	501982 E
	Drilling Type (D.T): Coring	3559189 N
	No. Samples: 10	881 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate				Underburden

 Ministry of Energy & Mineral Resources Natural Resources Studies Directorate Prospecting Studies Division	Hole ID : RPh1-31B	Coordinate (UTM) 37N
	Drilling Depth: 21.0 m	499230 E
	Drilling Type (D.T): Coring	3556469 N
	No. Samples: 42	887 ASL
Risha Phosphate Prospecting Project		



Legend

	Alluvial		Chert		Chky Limestone phosphate		Cutting
	Limestone		Phosphatic Limestone		Silic Chky limestone		Core
	Chalky Limestone		Limestone Phosphate		Silicified Limestone Phosphate		Overburden
	Silicified Limestone		Phosphorous-Fecal		Silic Chky Limestone Phosphate		Phosphate
	Chalk		Silica phosphate		Underburden		