**2023**

**Year 12 Earth and Environmental Science – Unit 3**

**Task 2: Mine Site Case Study**

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| --- | --- | --- | --- |
| **Assessment Type:** |  | Name: |  |
| Extended Task |  |
| **Duration & Conditions:**  4 lessons |  | Teacher: |  |
| Individual research |  |  |  |
| **Assessment weighting:**  10 % of year mark |  | Date: |  |

|  |  |
| --- | --- |
| **Total Mark** |  |

*I acknowledge that all the information contained in this task is my own work and not taken from other sources. If other sources have been used they have been acknowledged in my references.*

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(Student Signature)

*Please see SEQTA for teacher feedback and comments.*

**Task:**

Your task for this assessment is to research aspects relating to the life of one of the many mines in Western Australia.

Choosing from one of the below West Australian Mine Sites, you need to provide a detailed description of each of the points listed. Maps and diagrams can be used to illustrate your response.

Western Australian Mine Sites:

|  |  |
| --- | --- |
| * Barrow Island Gorgon Project | * BHP Nickel, Leinster |
| * BHP Iron Ore, Newman | * Kalgoorlie Consolidated Gold Mine, Kalgoorlie |
| * Rio Tinto Argyle Diamond, Lake Argyle | * Alcoa Huntly Mine, Pinjarra |

Mine Site Chosen:

**Exploration: (6 marks)**

Discuss **two** exploration techniques which are used to locate this resource. Relate the techniques to the properties of the source rock.

**Mining or Extraction: (7 marks)**

With reference to the chosen resource, discuss the type of mining taking place and relate this to the depth, size of the resource deposit and grade of the deposit. Include a diagram showing the deposit.

**Environmental Issues: (6 marks)**

Discuss **two** impacts of this mining on the environment, and any measures that are being taken to minimise this impact.

**Social and Heritage Issues: (4 marks)**

Describe **two** possible impacts of mining or processing on the surrounding community or on the traditional owners of the land.

**Economic Significance: (6 marks)**

Discuss the economic importance of this resource to the Western Australian economy (export dollars, markets, jobs, construction of infrastructure (roads, ports, railways etc.), and the longevity of the operation.

**Reference List (2 marks)**

**Marking Key:**

|  |  |  |
| --- | --- | --- |
| **Section** | **Possible mark** | **Allocated mark** |
| **Exploration** |  |  |
| Names two techniques used to locate the resource | 1–2 |  |
| Describes the exploration processes in detail relating them to the properties of the source rock | 1–4 |  |
| **Total** | | **/6** |
| **Mining or extraction** |  |  |
| Includes a geological map or labelled diagram of the resource site | 1–2 |  |
| Describes main method of extraction, e.g. open cut/underground | 1–2 |  |
| Relates type of mining to characteristics of ore deposit | 1–3 |  |
| **Total** | | **/7** |
| **Environmental issues** |  |  |
| Discusses two environmental impacts of mining such as:  land clearing, due to transporting, due to waste, due to processing of ore | 1–4 |  |
| Describes issues arising in relation to traditional land owners | 1–2 |  |
|  | | **/6** |
| **Social and heritage issues** |  |  |
| Describes two effects on the community or traditional owners in detail | 1–4 |  |
| **Total** | | **/4** |
| **Economic significance** |  |  |
| Describes the economic significance to Australia (dollars, markets) | 1–2 |  |
| Discusses current and future job opportunities | 1–2 |  |
| Estimates the longevity of the resource i.e. the timeframe for exhaustion of the resource | 1–2 |  |
| **Total** | | **/6** |
| **References** |  |  |
| 1–2 references  Three or more references | 1  2 |  |
| **Total** | | **/2** |