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# **Introduction to Heap Leach Operations**

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## Non-Heap Leach vs Heap Leach

- Pictures that follow are for illustrative purposes only.
- The places depicted in the photos are not owned by, nor the property of Marmota, and are presented to aid conceptual understanding of the process.

## 9 main unit processes

1. **Crushing**
2. **Grinding**
3. **Classification**
4. **Gravity Gold Recovery**
5. **Leaching**
6. **Adsorption**
7. **Carbon Elution**
8. **Gold Recovery**
9. **Tailings Storage**

## 4 main unit processes

1. **Crushing**
2. **Agglomeration and Stacking**
3. **Ore Irrigation**
4. **Gold Recovery**

# Heap Leach Benefits

- **Simple operation**
- **Can be operated with very few people**
- **Low capital requirement**
- **Low operating cost option**
- **Relatively quick installation**
- **No tailings dam**

# 1. Crushing



## 2. Agglomeration and Stacking

**Stacking**

**Agglomeration**



### 3. Ore Irrigation





## 4. Gold recovery



# Typical Heap Leach Operation



# Disclaimer

## Disclaimer

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## Cautionary Statement

Estimates of exploration target sizes mentioned above should not be misunderstood or misconstrued as estimates of Mineral Resources. The estimates of exploration target sizes are conceptual in nature and there has been insufficient results received from drilling completed to date to estimate a Mineral Resource compliant with the JORC Code (2004) guidelines. Furthermore, it is uncertain if further exploration will result in the determination of a Mineral Resource.

## Forward Looking Statement

This report may contain forward looking statements that are subject to risk factors which are based on MEU’s expectations relating to future events. Forward-looking statements are subject to risks, uncertainties and other factors, many of which are outside the control of MEU, which could cause actual results to differ materially from such statements. MEU makes no undertaking to update or revise the forward-looking statements made in this report to reflect events or circumstances after the date of this release.

## Competent Persons Statement

Information in this exploration update relating to Exploration Targets, Exploration Results and Mineral Resources is based on information compiled by Dr Kevin Wills, who is a Member of the Australasian Institute of Mining and Metallurgy. He has sufficient experience which is relevant to the styles of mineralisation, metallurgical testwork and types of deposits under consideration and to the activities being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the “Australasian Code of Reporting of Exploration Results, Mineral Resources and Ore Reserves.” Dr Wills consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

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