

Technological innovation as an SDI for the minerals industry

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Milos Island

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SDMI 3

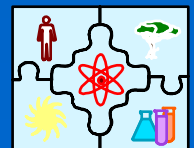
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The Virtual reality (VR) concept

- **VR simulation is the result of a technology that allows someone to see something that isn't really there**
- **Several mining companies are introducing 3D technologies into their working processes, like cutting, bolting, loading and roof support**
- **VR simulation can aid in the decision-making process**

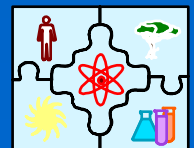
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VR TECHNOLOGY IN THE MINERALS

(1)

The DSK interactive 3D representation of the new road-header, AVSA



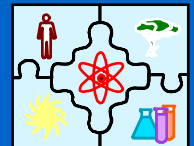
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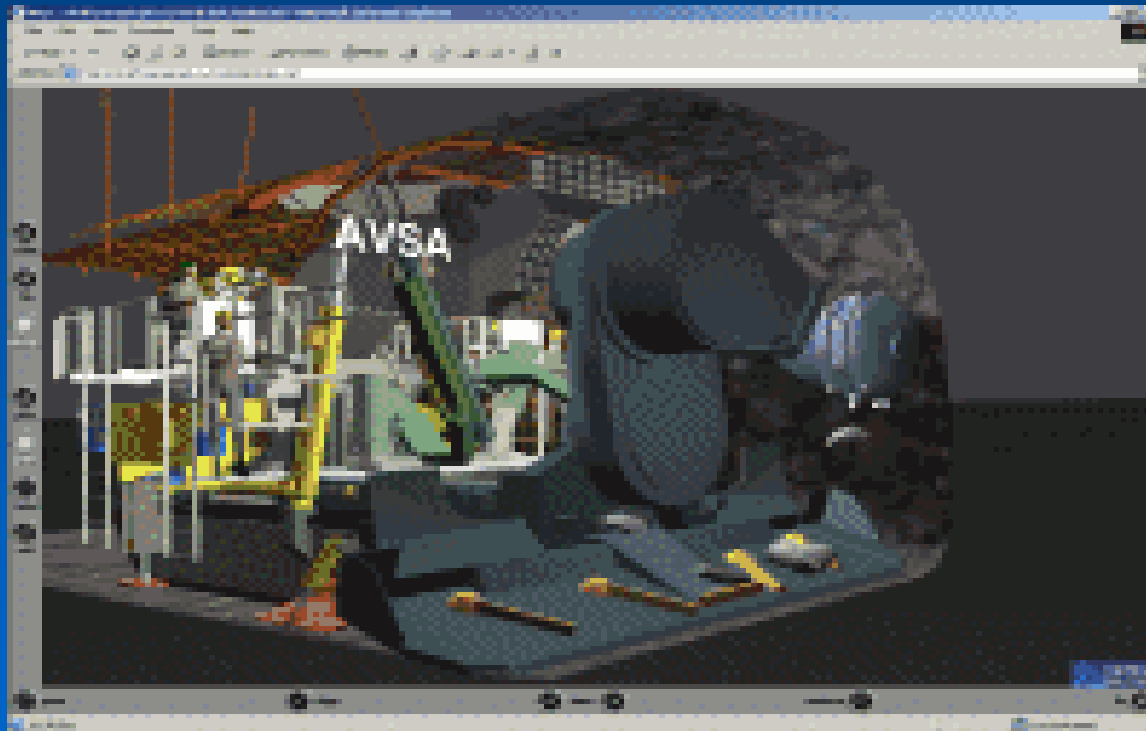
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VR TECHNOLOGY IN THE MINERALS

(2)

The VRML editor of AVSA software



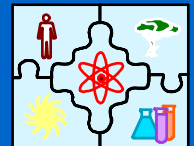
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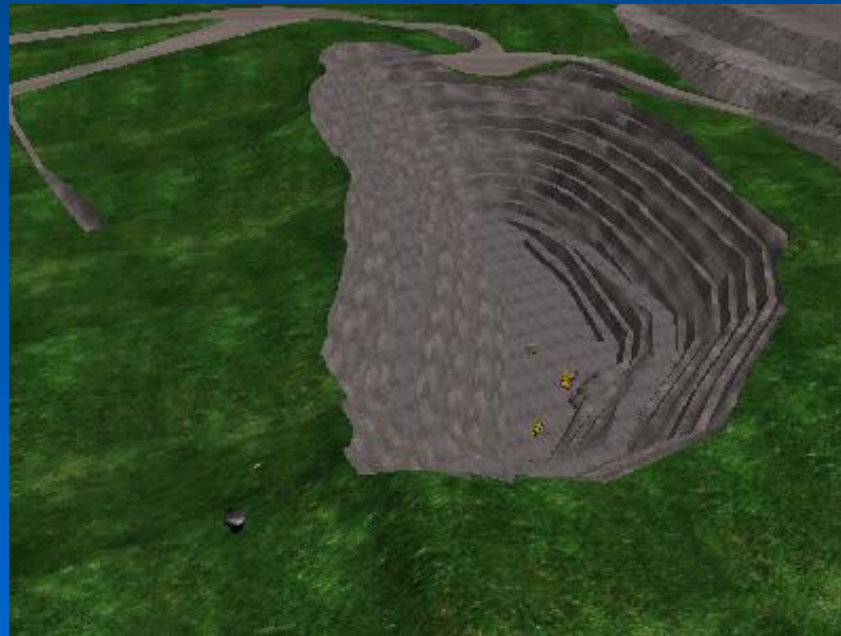
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VR TECHNOLOGY IN THE MINERALS

(3)

3D virtual model of an open pit



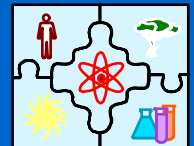
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VR TECHNOLOGY IN THE MINERALS

(4)

The Animation of an excavator



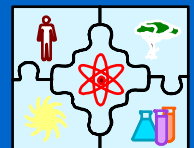
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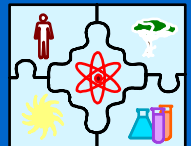
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THE VIRTUALIS EUROPEAN PROJECT

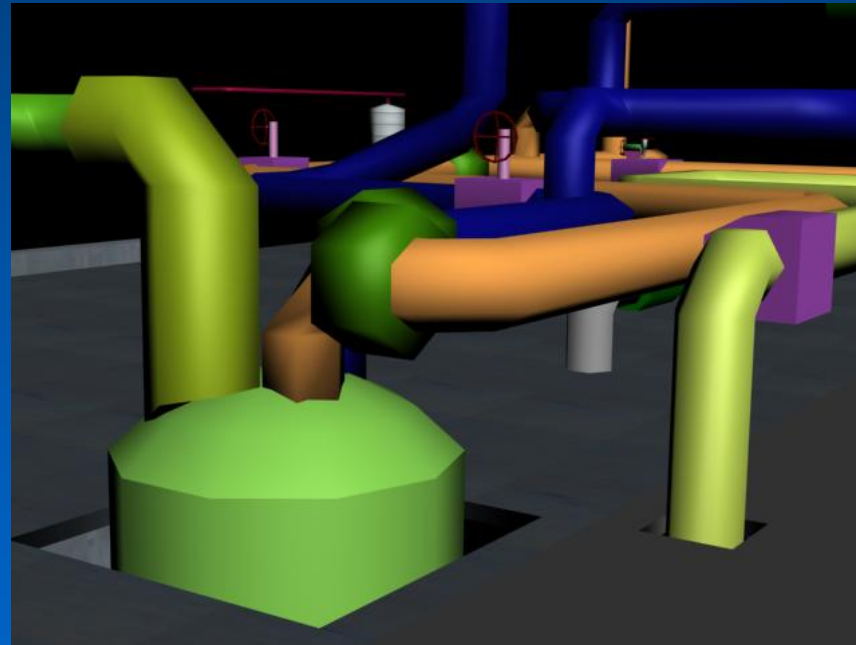
Virtual Reality and Human Factors

- **Training**
- **Safety Assessment**
- **Accident Investigation, and**
- **Safety Management and Audit.**



VIRTUALIS PROJECT (1)

Top view of HP pump



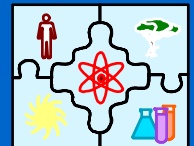
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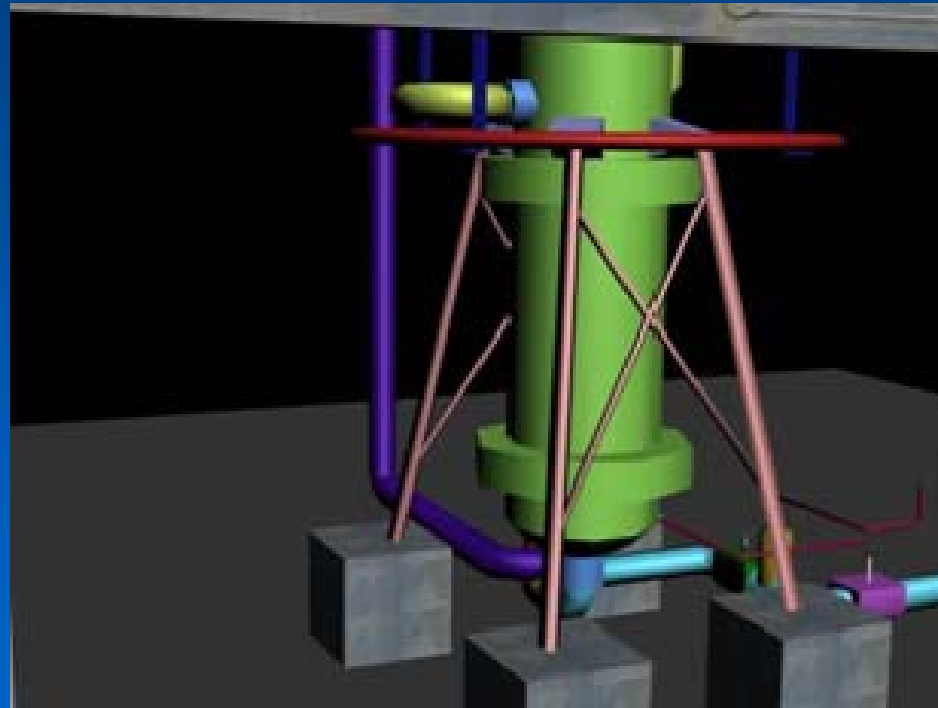
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VIRTHUALIS PROJECT (2)

Front view of HP pump



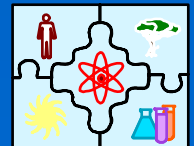
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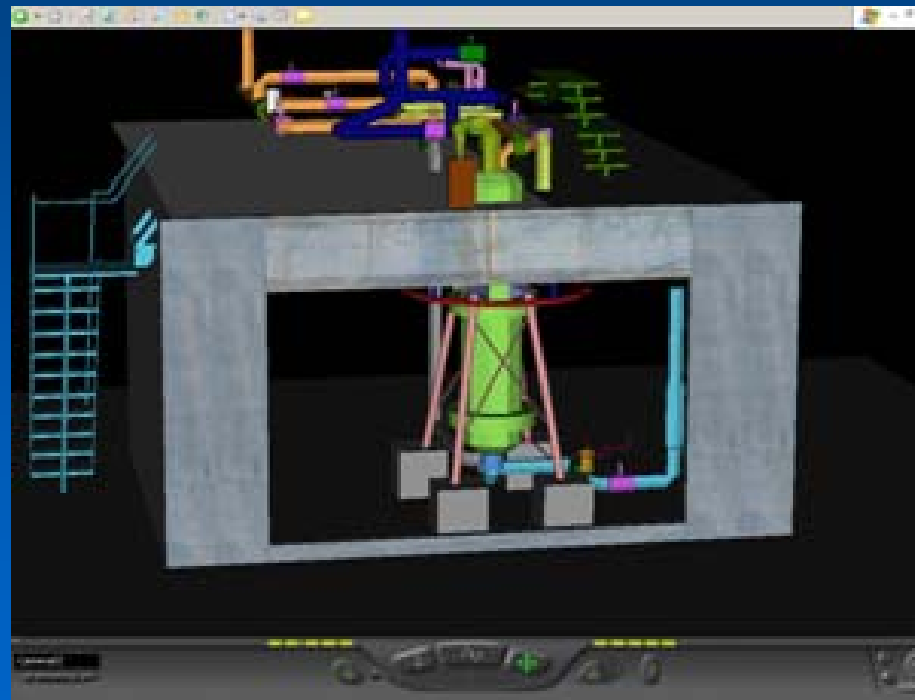
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VIRTHUALIS PROJECT (3)

Internet Screen shot from VRML model of HP pump



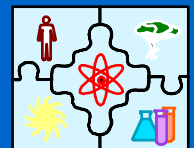
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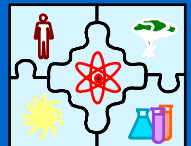
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CONCLUSIONS (1)

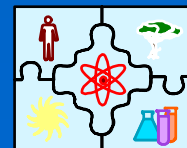
Graphical, interactive environments are most appropriate for training purposes, as they offer:

- **Interactivity and visual appeal= enjoyable learning experience**
- **Augmented environment = data visualization to enhance understanding**
- **Aesthetic appeal and graphical quality= High levels of acceptance.**



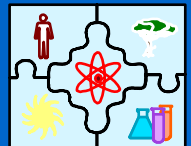
CONCLUSIONS (2)

- **Virtual Reality Techniques in representing hazardous mining industry environments seem very promising, as they can offer extremely good operation and system representation eliminating at the same time any real risk for site operators.:**
 - **in the construction,**
 - **In the operation**
 - **In the maintenance,**
 - **in the accident investigation and risk assessment and, last but not least**
 - **in safety management .**



CONCLUSIONS (3)

- **Using the VR technique, the human factor can be also taken into consideration, as in the VIRTUALIS project**
- **The development of the SAFE-VR technology within the European VIRTUALIS project could be also expanded to the mining industry**
- **<http://www.virtualis.org>**



Thank you for your attention!

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