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COMMERCIAL PROPOSAL

DOWNHOLE HYDRO PRODUCTION OF MINERALS FROM DENSE AND CLASTIC LAYERS

The proposal is addressed to small mining enterprises operating in placer compacted and large-detached formations of deposits with or without water cut.

The method and equipment is based on hydraulic erosion of the useful thickness of the productive layer by a pressurized hydraulic jet with the issuance of a slurry through the well for enrichment, is divided into two options for its implementation (with preliminary loosening of the formation by an explosion or without it) and takes into account the inaccessibility of the mining area, the difficulty of delivering mining equipment to the fields, supplying it with fuel and lubricants, complete impassability and lack of infrastructure..

Downhole hydraulic mining of alluvial minerals can find application and be effective in the development of small, off-balance, waste and low content of formations by a small complex of equipment transported on trailers to SUVs, tractors, etc.

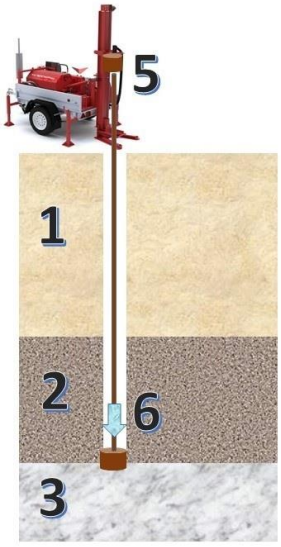
To date, proven high profitability of the business on technical projects of mining operations for gold and diamonds in Central Africa, Suriname, Siberia and the Far East, the Urals of the Russian Federation, Mongolia, sapphires, rubies, garnets, moonstone - in South-East Asia and in Ceylon, amber and jet - in Ukraine and the Kaliningrad region of the Russian Federation, Poland, Leonardite - in Eastern Europe and Uzbekistan, Kazakhstan.

Types of placer and reservoir deposits (including technogenic ones) can be subjected to borehole hydro production (SRS).):

- compacted weathering crusts containing free mineral in clastic mineral structures, as well as Sands and underlain by dense rocky or clay rocks that act as a natural water seal;
- clastic cemented layers with minerals under the condition of its concentration in the clastic massif, cracks or macropores;
- residual ("bottom-hole") minerals in a previously worked mine workings (including in the dumps, the "tails" of enrichment, sub-standard ores and rocks, used as a mine laying;
- containing mineral-rich Sands of buried and permafrost placers with economically acceptable content.

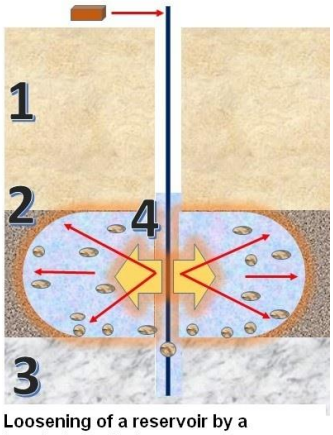
Alluvial and sedimentary compacted clastic layers of minerals are developed according to the scheme: drilling a leader well for the entire thickness of the productive layer, explosive loosening of bed rocks by explosive charge through the well, sinking of a technological well in different layers with the installation of a bottomhole “trap” of enriched minerals of loose and debris material, downhole hydraulic

mining of minerals by erosion of a loosened massif by a pressure jet, delivery of a hydraulic pulp with minerals to an industrial device and its enrichment, excavation of a “trap” with minerals naturally enriched during the SRS for washing, regrinding and collection.



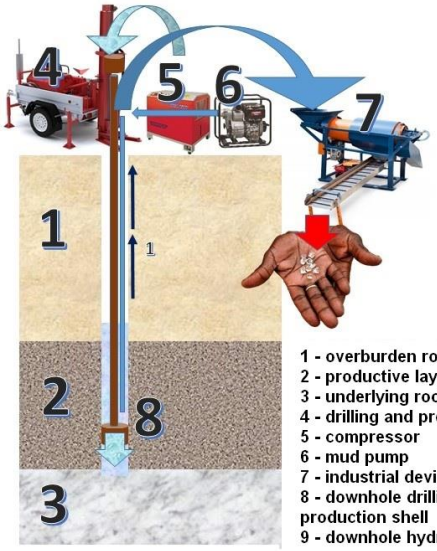
1 - overburden rocks
2 - productive layer
3 - underlying rock
4 - the explosive charge
5 - drilling and production plant
6 - drilling well shell

Leader hole drilling



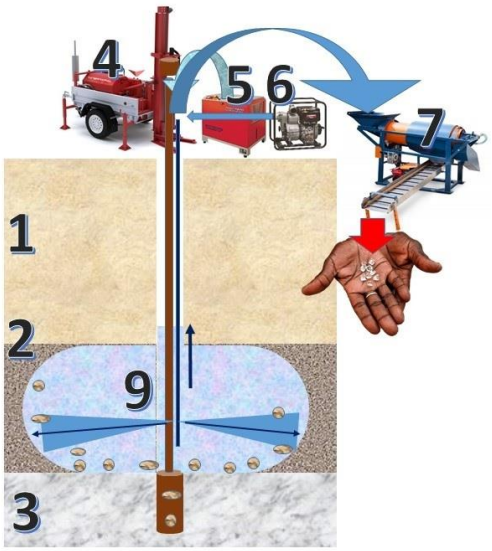
Loosening of a reservoir by a borehole explosion

Alluvial and sedimentary loose clastic layers of minerals are developed according to the scheme: drilling a large diameter technological well for the entire thickness of the formation with deepening in the underlying rocks and installing a bottomhole “trap” of clastic-rich bulk material enriched in minerals, downhole hydraulic mining of minerals by washing out the massif with a pressure jet, issuing a hydraulic pulp with minerals to industrial equipment and its enrichment, excavation of a “trap” with minerals naturally enriched during the SRS for washing, regrinding and collection.



1 - overburden rocks
2 - productive layer
3 - underlying rocks
4 - drilling and production unit
5 - compressor
6 - mud pump
7 - industrial device
8 - downhole drilling and production shell
9 - downhole hydraulic shell

DRILLING A TECHNOLOGICAL WELL



BOREHOLE EXTRACTION OF MINERALS BY THE CHAMBER METHOD

The diameter of leader drilling is 155 mm.

The diameter of a technological well is from 600 mm to 1720 mm.

Depth of field opening by wells and mineral development using the proposed technology is up to 40 m.

Drilling a leader well is carried out on a trailer, self-propelled or trailed diesel mini-unit.

Drilling of a large-diameter technological well is carried out by a mini-installation on a self-propelled or trailed chassis with an autonomous diesel drive.

Optimal: thickness of overburden from 0 to 38 m, useful layer - from 2 m or more.

The package includes:

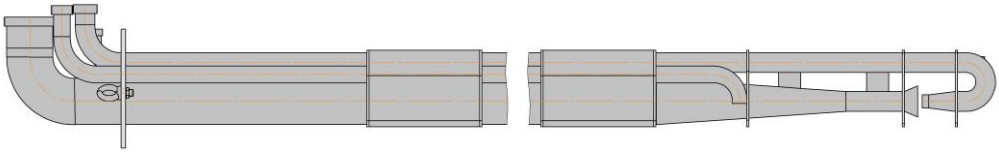
1. technical design and specification of equipment (for the possibility of replacing analogues with manufacturers of other countries at the place of work),

2. technological regulations for the production of work at a specific field for specific mining and geological properties of overburden and containing mineral deposits and the technical task of the customer,

3. set of equipment:

- drilling machines for driving leader and technological wells (self-propelled, trailed diesel, transported on a trailer to an SUV, tractor)


- DHS downhole hydraulic drilling kit




- washing device on trailer chassis

4. passports of products, product warranty.

Transfer of technological documentary support and equipment from the manufacturer to the customer is carried out under the contract:

- with an advance payment of 100% under paragraphs 1 and 2. of the description above. As a result, you get only the technological development inherent in your field and belonging only to you, a detailed description of the technology of work and equipment specifications. Terms of preparation of the material 2.5-2 months.

The cost of this phase is US $ 24,000. We transfer the materials by downloading from a file hosting service or Yandex disk via a link (text in Pdf. Word, graphic material and drawings in Pdf). Execution on paper or CD carriers is possible (by order)

- after you have no questions or want to add (modify) something on the first part of the transferred material, we begin to manufacture equipment for your order. This happens with an advance payment of 60%. Terms of manufacturing and equipment equipment - 2.5-3.5 months. The cost is determined by the specification from the accepted and approved technical project prepared according to the standard of the Customs Union on the basis of Order of the Ministry of Natural Resources of the Russian Federation of June 25, 2010 No. 218 "On approval of requirements for the structure and design documentation for the development of solid mineral deposits, the elimination and conservation of mining and primary mineral processing "(Registered in the Ministry of Justice of the Russian Federation on 08/10/2010 N18104).

- as soon as the equipment is ready at the factory, we will take a picture of it, make a video application on it and issue you an invoice for the remaining 40% of the payment, after which we will invite your representative to the factory to receive equipment, in the workshop conditions he will be trained to work with him on our by specialists.
- we will sign the Acceptance Certificate of the order and transfer it to you as a property.

If desired, a group of designers (2 people), by an additional agreement, can advise the customer during the installation and start of operation of this type of equipment in the field, observe the correctness of the mining technology, and carry out architectural supervision of the design decision.

The cost (exact) of a set of equipment is determined after we receive from you the technical specifications and the geological conditions of the borehole hydraulic production at the field, taking into account your wishes for the convenience of the process, delivery and type of movement of mini-equipment, etc.

The cost of the delivered analogue equipment for DHS moonstone at the Sri Lanka deposit under agreement No. 112-18 of May 04, 2018 for a specific order (for orientation): $ 89,000.

For Russian customers, all payments are made in rubles.

Video: **https://youtu.be/3QHa9QFNRCE**