Trt Application of Advanced Water Exploration Technology in An Iron Mine Roadway

Shuhan Hu

Geological Exploration Co., Ltd.,Handan City, Province056000)

Abstract: TRTAdvanced geological exploration is a relatively advanced Prediction Technology in Mine Roadway Construction.,It has been widely used in mine construction..The hydrogeological conditions of an iron mine are complex.,Mine water inflow is larger,Outburst during Roadway Excavation,Water gushing phenomenon is frequent,Poor stability of surrounding rock.To this end,AdoptedTrtCarry out multiple detection experiments with advanced detection technology,For roadway geological advance detection.Combined with drilling engineering verification, TRTAdvanced detection technology can provide reliable advanced Prediction,Provide reliable geological information in time,It provides an important guarantee for the safety of underground roadway excavation.

Keywords: TRTTechnology;Geological Prediction;Underground Roadway;Advance water exploration;Tomography

Mainly occurs in the contact zone between the sodium quartz diorite and the Triassic xujiashan formation..The main water-filled aquifer of the deposit is the karst fracture aquifer of xujiashan formation.,Dissolved hole,Corrosion fracture is relatively developed,Water-rich,High Head Pressure.Top Contact Zone of sodium quartz diorite,Diagenetic fracture development,Strong Alteration,Water-rich,Direct floor for Orebody.Mine water inflow is larger,Complicated hydrogeological conditions in Mining Area.The disclosure in the Process of shaft and roadway excavation shows that,Tsu,Water gushing phenomenon is frequent,Poor stability of surrounding rock,Construction Progress is greatly affected.

Data collection and Detection Result Analysis

This experiment selects several working faces currently under excavation construction for detection.,Including measures well-320 mMain and auxiliary wells along the middle section-240 mStone gate Lane.By detecting the front of the palm100 mGeological conditions within the scope,Guess the water cut of the front rock,So as to formulate corresponding measures,Avoid Water Inrush threat during Excavation.

UtilizationTrtImage display program of advanced geological prediction system rotates to observe the detection result at any angle,Can give a comprehensive interpretation of the detection results[5].Measure well-320 mThe detection results of the detection points along the middle lane are as shown in Fig.1.Shown.

Analysis shows that:Front of Palm40 m (Mileage68 m)Relatively complete Surrounding Rock,Stable seismic wave velocity;Front of Palm40 mLow impedance anomalies start later,Mileage74 ~ 80 ~ 80 mWave velocity is relatively low,And the low impedance anomaly is continuous.,Presumed to be a partial Fracture Zone,Do not exclude water filling possibility.

Main Auxiliary well-240 mThe detection results of the Detection Points in the middle section of the stone gate

Lane are as shown in Fig.2.Shown.

Figure1.Middle arch location indicates existing Roadway,The rightmost arch circle indicates the position of the Tunnel Face;Dark parts indicate weak geologic bodies,The light part is a relatively complete Rock Mass;Figure1.The length of each square is10 m.Combined with the existing geological data, the prediction results are

Through the map2.Analysis shows that,Front of Palm32 mRelatively complete Surrounding Rock,Stable seismic wave velocity;Front of Palm32 mLow impedance anomalies start later,Noodles with palm32-20 ~ 42.3 mThe above-left wave velocity is relatively low,And the low impedance anomaly is continuous.,Presumed to be a partial Fracture Zone,Do not exclude water filling possibility.

3. TRTComparative analysis with drilling results

To verifyTrtResults of advanced Geological Exploration,And ensure the safety of Roadway Excavation,In the measure well-320 mMain and auxiliary wells along the middle section-240 mThe corresponding faces of the middle section of Shimen lane were constructed.6.A water exploration Drill,Probe range is all50 m.Found in the construction process of water exploration drilling,-320 mFront Face of middle Roadway42,48 mSeparate water gushing12,10 $m^{3.}$/H;But-240 mMiddle Shimen borehole drilling in no waterBut in front32 ~ 43 mThe Met obvious of broken.

ByTRTAdvanced geological prediction results and drilling data contrastFound drilling the location of water out of and advanced prediction abnormal area basic closeShow thatTRTAdvanced detection technology can provide roadway face front

(1)By analysisTRTAdvanced geological prediction resultsAnd and drilling and tunneling disclosure in the contrastVerifyTRTTechnology good of advanced geological prediction EffectCan for roadway advanced water design and construction provide reference.

(2) TRTAdvanced geological prediction detection distance is longOperation simple,Test speed fastThree-dimensional observation image intuitive,Results reliable.

(3) TRTTechnology for with water of accurate prediction has certain of limitationsSoBest and drilling phase combined.The firstTRTAdvanced geological detection delineation low impedance abnormal regionalThen again on the regional targeted to deep-hole Advanced Water Grouting.This not only can

To improve work efficiencyCan reduce drilling quantity.

5. Conclusion

This paper for bauxite mining the of ore grade change frequent of characteristicsDesign the belt conveyor transport ore grade Recognition SystemThe transport system can be continuous transport different grade of OreImprove the bauxite of mining efficiency.In follow-up study in also need to for more a working face at the same time production of Current SituationFurther Optimization DesignImprove the system of Adaptability.

References

1. Lee sailJiang Honglin. TRTAdvanced Detection Technology in Underground Roadway Excavation in should be With[J].Non-Ferrous Metal(Mine part) 2016,68 (4): 57-61.
2. PeakWeeks coppingWeeks bean KernelSuch..Based onTRTTechnology of mine underground geological Advanced Prediction[J]., China Safety Science Journal2014,24 (4): 80-85.
3. Liu JieLiao Springwood. TRTTechnology in tunnel geological advanced prediction in Application [J].Railway building2011(4):77-79.
4. Sun daysChen ZunyiWangcz qiu wangSuch.. TRTGeological advanced Prediction Technology in a mine Mountain of Application Research[J].Mining Engineering2013,11 (2): 10-13.
5. He Yun?Gold KunClock Chung aromatic. TRTAdvanced geological forecast Technology Application Research[J].Traffic Science and Technology2015268(1):92-94.