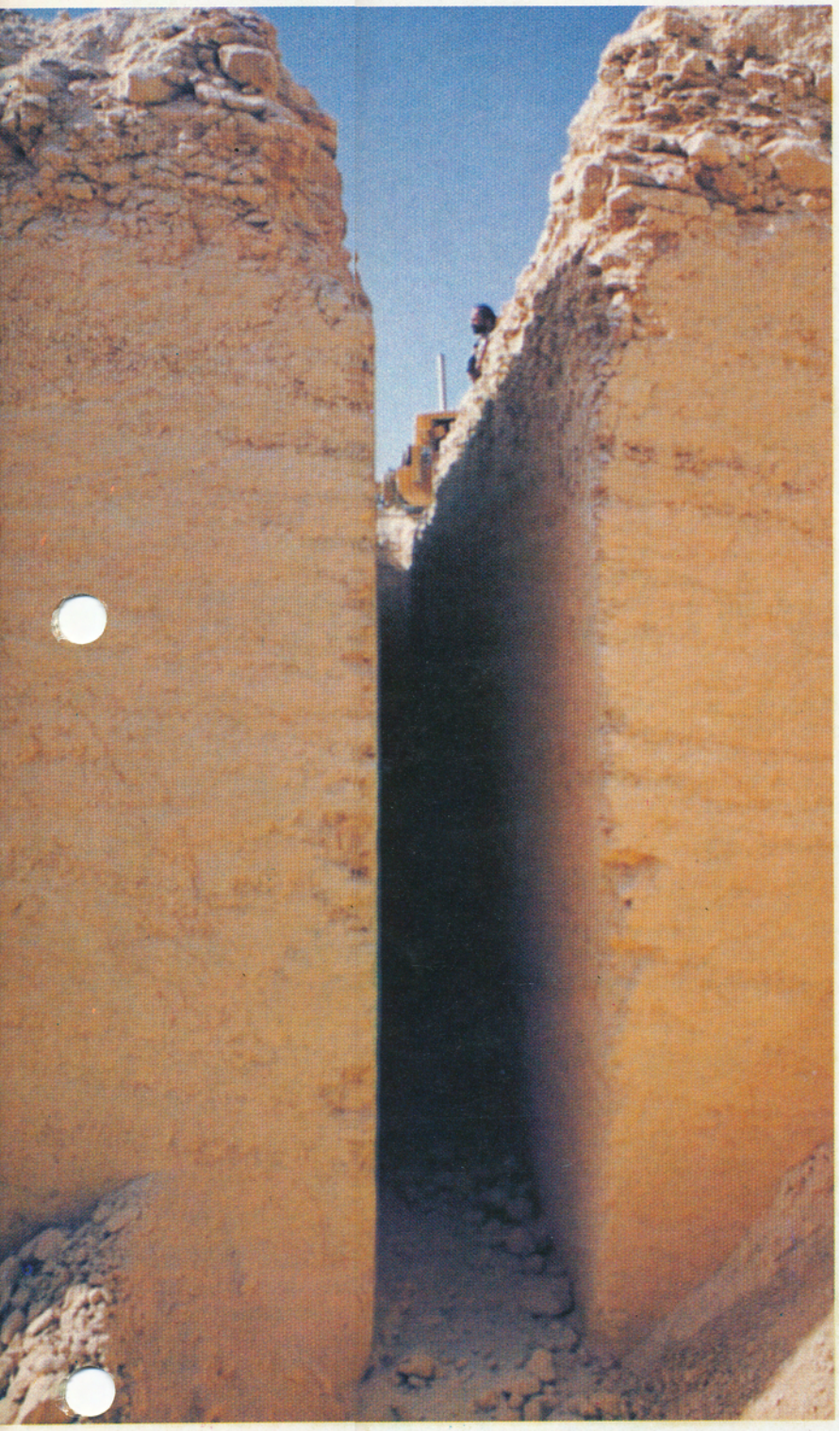
DECEMBER 1980

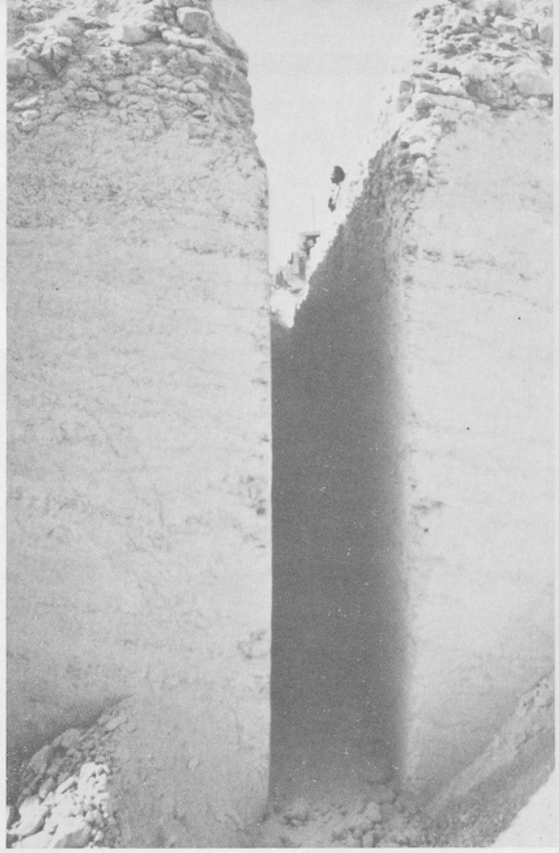
WORLD CONSTRUCTION

THE GLOBAL MAGAZINE INCLUDING INGENIERIA INTERNACIONAL CONSTRUCCION AND ENGINEERING CONSTRUCTION WORLD



TRENCHING

Unique machine saws through rock



TRENCHING

Trencher cut rock quickly in Saudi Arabia

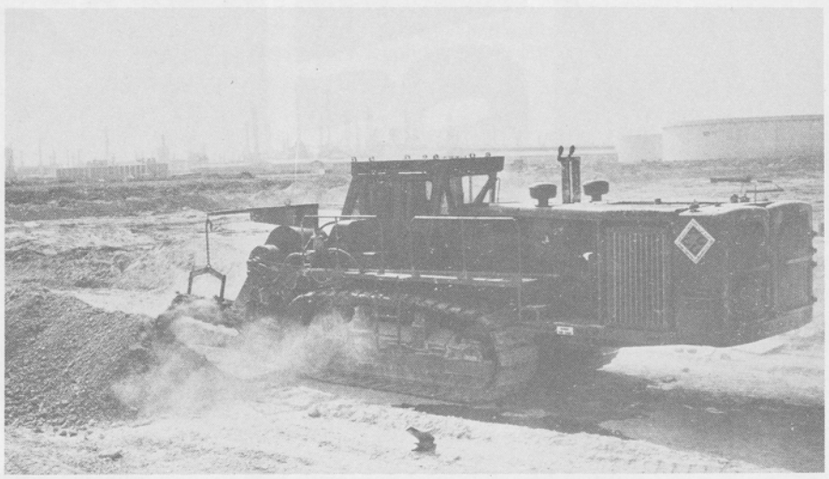
Blasting and backhoe rock removal are not the only way to trench in tough conditions. A newly-developed machine cuts trenching time and costs, thanks to a unique equipment design.

SAWING THROUGH ROCK, the new Roc-Saw trencher was used to excavate up to 140 m^3/hr on Saudi Arabian projects. The machine makes two passes in solid rock, leaving a rock core which is then removed by a backhoe. The two passes ensure that the core looses its support and most of its strength, for easier removal.

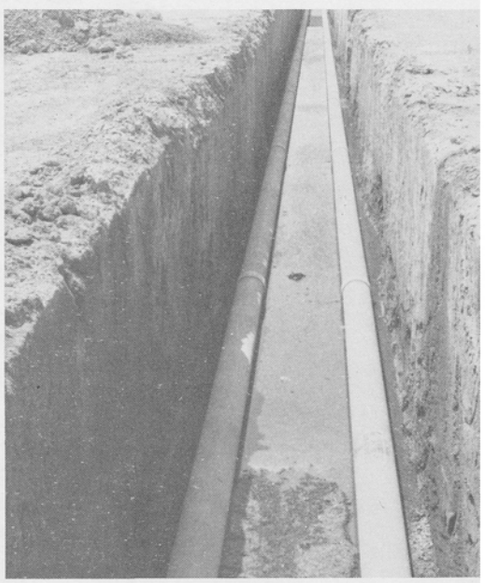
At one project, the trench cut was 45-cm wide and 3-m deep. The solid limestone formation had a tested strength of 560 to 700 kg/cm^2. The Roc-Saw, manufactured by the Boring & Tunneling Company of America, Inc., cut this trench at a rate of more than 0,9 m/min. Tooth and cutter chain wear were almost imperceptable. This helped the contractor complete the project at lower costs, and in less time, than the alternative methods of blasting and excavating with backhoes.

Petromin Pipeline project

The first Saudi Arabian project on which the Roc-Saw was used was trenching for a 22-km cooling water pipeline for the Petromin Refinery located at Riyadh. Trenching rates were



AT THE PETROMIN Refinery in Riyadh, the Roc-Saw cut 22-km of trenches for a cooling water pipeline. Trenching rates were to 60 m^3/hr in the limestone formation testing to 700 kg/cm^2.



HOCHTIEF'S JEDDAH AIRPORT project required trenches for utility lines. The work, originally estimated at 18 months, was completed in about five months using the Roc-Saw. This trench is 2-m wide and 3-m deep, and was cut in three passes. A backhoe cleaned out the small amount of material left between each pass.

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40 to 60 m^3/hr, on the 1-m wide, 3-m deep rock trench. Manholes were cut by the trencher every 100 m.

Jeddah Airport project

The Roc-Saw excavated 70 to 140 m^3/hr on the Jeddah Airport project. Hochtief, West Germany, was the contractor.

After evaluating the machine's performance on the Riyadh project, the contractor believed it could be used to complete an 18-month trenching project in six months. Using one wheel trencher and one backhoe, the project was actually finished in about five months. Downtime on the two-shift project was minimal, according to the Hochtief Equipment Chief, Arnold Sandkamp.

Trenches on the project were needed for 80-cm water pipelines, sewer lines, gas and oil lines, electric cables, and telephone cables. ■

Creusement de tranchées dans des conditions difficiles

Le sautage et l'enlèvement de roches à la pelleteuse ne sont pas les seules façons de creuser dans des conditions difficiles. Une machine mise au point récemment réduit la durée et les coûts de creusement grâce à une construction de matériel unique.

Grabenaushub unter schwierigen Bedingungen

Sprengen und Felsabbau mit dem Löffeltiefbagger sind nicht der einzige Weg zum Graben unter schwierigen Bedingungen. Dank ihrer einzigartigen Konstruktion reduziert eine neu entwickelte Maschine Zeit und Kosten.

Abertura de valas em condições difíceis

A remoção de pedras por detonação de explosivos e com o uso de retro-escavadeiras não são as únicas maneiras de se abrirem valas sob condições difíceis. Uma recentemente desenvolvida máquina corta bastante o tempo e os custos da abertura de valas, graças a um desenho exclusivo do equipamento.

Excavación de zanjas en condiciones difíciles

La voladura y remoción de rocas con retroexcavadora no son la única manera de abrir zanjas en condiciones difíciles. Una máquina recién desarrollada reduce el tiempo y el costo del zanjado, gracias a un diseño de equipo totalmente original.

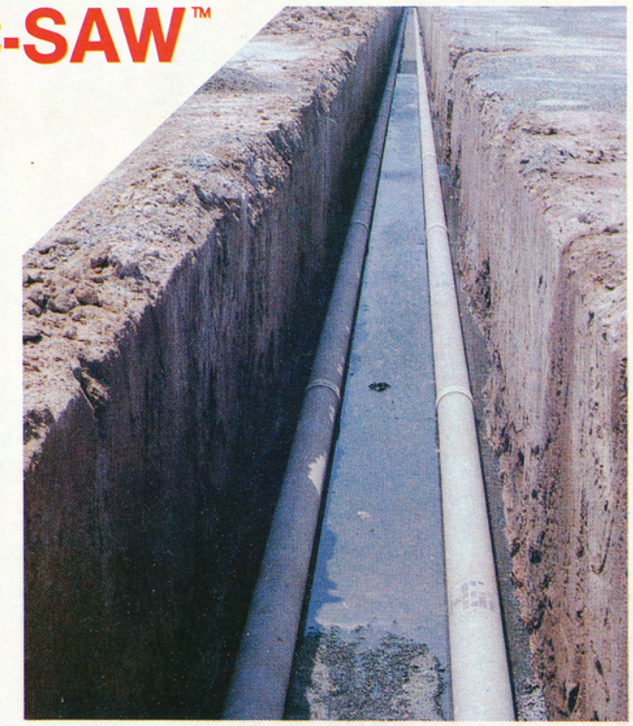
شق الخنادق في الظروف القاسية

لم تعد طريقة التفجير وازالة المخلفات الصخرية بالمعزقة الخلفية هي الطريقة الوحيدة المستخدمة في الظروف القاسية ، حيث تم بفضل تصميم فريد للمعدات ، ابتكار آلة جديدة متطورة تختصر الوقت اللازم لعملية الخندقة ، مع تخفيض تكلفتها .

The BorTunco ROC-SAW™ TRENCHER

Proven Worldwide on the Toughest Pipeline Construction Projects

To its impressive list of difficult pipeline projects worldwide, the Roc Saw has added two new pipeline trenching projects in Saudi Arabia.
One project is for Petromin, the state oil company, at Riyadh. This involves trenching 22 kilometers of limestone caprock and sandstone for a 24-inch pipeline.
The second project is at the Jeddah Airport, involving over 400 kilometers of trenching through coral rock and limestone for the burial of water and sewer pipelines and for electric and communications cables.



This 10-foot trench, through limestone caprock, was made with three passes of the Roc-Saw, each pass being 18-inches wide. A hydraulic backhoe was used to clean out the ditch. This pipeline trench carries dual, 80cm water lines.

General equipment manager Arnold Sandkamp (left) and maintenance manager, Joe Maus, of Hochtief Contractors were extremely pleased with the Roc-Saw. On their Jeddah Airport project the Roc-Saw reduced completion time from 18 months using five specially designed conventional trenching machines, to five months using one Roc-Saw.

The Roc-Saw cutting through 10,000 psi limestone caprock on the Petromin Pipeline Project in Riyadh, Saudi Arabia. Trenched material was fine enough to backfill into the ditch.

Le Roc Saw vient d'ajouter, à sa liste impressionnante de projets mondiaux difficiles de canalisation, deux projets nouveaux pour tranchées de canalisation à l'Arabie saoudite.

Un projet est pour Petromin, la compagnie petrolière de l'état à Riyadh. Ce dernier s'agit de creuser des tranchées pour une distance de 22 kilomètres de pierres calcaires, têtes du gisement, et le grès, pour un oléoduc de 24 pouces.

Le second projet est pour l'aérodrome de Jeddah. Il s'agit de creuser plus de 400 kilomètres dans les roches coralliennes et pierres calcaires, pour enterrer les conduits d'eaux et égouts, aussi bien que les câbles électriques et de communications.

A la impresionante lista de difíciles proyectos de turberías realizados en el mundo entero, la Roc Saw ha añadido dos nuevos proyectos de zanjado para tuberías en Arabia Saudita.

Un proyecto es para Petromin, la compañía estatal de petróleos, en Riyadh. La obra consiste en abrir 22 kilómetros de zanja en caliza de cubierta y arenisca para un oleoducto de 24 pulgadas.

El segundo proyecto está ubicado en el Aeropuerto de Jeddah y comprende más de 400 kilómetros de zanja en roca de coral y caliza para enterrar tuberías de agua y alcantarillado y cables eléctricos y de comunicaciones.

À sua impressionante lista de difíceis projetos de canalizações em todo o mundo, a Roc Saw soma agora dois novos projetos de trincheiras para oleodutos na Arábia Saudita.

Um projeto é para a Petromin, a companhia petrolífera estatal, em Riyadh. Esse projeto compreende a perfuração de trincheiras em 22 quilômetros de pedra calcárea e arenito para a instalação de um oleoduto de 24 polegadas de diâmetro.

O segundo projeto é no aeroporto de Jeddah, compreendendo mais de 400 quilômetros de perfuração de trincheiras através de rocha coral e pedra calcárea para a instalação subterrânea de encanamentos de água e esgotos e para cabos elétricos e de comunicações.

Seiner eindrucksvollen Liste schwieriger weltweiter Pipelineprojekte hat Roc Saw zwei neue Grabenaushubprojekte für Rohrfernleitungen in Saudi Arabien hinzugefügt. Eines der Projekte wird für Petromin, die staatliche Ölgesellschaft in Riyadh durchgeführt. Hierbei müssen 22 Kilometer Kalkdeckgestein und Sandstein für eine Rohrleitung von 61 cm Durchmesser ausgehoben werden. Das zweite Projekt wird am Flughafen Jeddah ausgeführt und umfasst Grabenaushubarbeiten über eine Länge von 400 Kilometern durch Korallenfels und Kalkstein für erdverlegte Wasser- und Abwasserfernleitungen sowie für elektrische und Fernmeldekabel.

اضافت " روك سو " الى قائمة مشروعاتها الصعبة لانشاء خطوط الانابيب على النطاق العالمي والتي حازت الاعجاب دائمـــا ، مشروعان جديدان لحفر خنادق خطـــوط الانابيب في المملكة العربية السعودية .

ويتفذ احد هذه المشروعات لحساب شركة الزيوت الوطنية " بترومين " بمدينـــة الرياض . ويشمل هذا المشروع على حفـــر خندق يبلغ طوله ٢٢ كيلو مترا لخطـــوط انابيب قطرها ٢٤ بوصة في الصخور السطحية من الحجر الجيري والحجر الرملي .

اما المشروع الثاني ، فيتم تنفيـــذه في مطار جده حيث يحفر خندق لاكثـــر من مسافة ٤٠٠ كيلومترا في الصخـــور المرجانية والحجر الجيري وذلك لدفـــن أنابيب المياه وخطوط انابيب الصـــرف والكابلات الخاصة بشبكات الكهرباء وشبكات الاتصالات .