

Iran's uranium

Only the mission matters

JERUSALEM

Could Israeli and American special forces whisk Iran's 400kg of highly enriched uranium out of the country?

LAST YEAR Donald Trump claimed he had “obliterated” Iran's nuclear programme. The claim was hard to sustain when Iran had managed to hang on to a good portion of its 400kg of highly enriched uranium (HEU), enough for about ten bombs if enriched a little further. “People are going to have to go and get it,” decreed Marco Rubio, America's secretary of state, last week. That would require an unprecedented military operation deep inside Iran. Is it possible?

The first problem is working out where the HEU has been stashed. On March 9th Rafael Grossi, head of the International Atomic Energy Agency, a UN watchdog, said that it was “mainly” at Isfahan, in central Iran, presumably in tunnels whose entrances were sealed off with earth in February. Some also remains at enrichment plants at Natanz and Fordow, the latter buried deep in a mountain that was bombed last June. Even if American and Israeli aims were confined to Isfahan, retrieving the uranium would be a huge undertaking. The MH-47G Chinook helicopters used by America's 160th Special Operations Aviation Regiment, the unit which captured Venezuela's Nicolás Maduro, might reach Isfahan, at least 500km inland, from ships in the Persian Gulf. But they would need refuelling to return. And they would need a quasi-army around them.

On March 7th Mr Trump said that any ground force would be dispatched only if Iran were “so decimated that they wouldn't be able to fight on the ground level”. To achieve that, America would pound Iranian bases in the vicinity of the target. It would then need to send airborne forces to seize a nearby airfield—Badr airbase is 10km from Isfahan's nuclear sites—or, more practically, create a makeshift airstrip. Nuclear-handling equipment, diggers to move earth and rubble from tunnel entrances and other heavy machinery could then be parachuted in on pallets.

Some missions are a choice

At a minimum, a large battlegroup (typically a battalion of troops with additional specialist units, numbering 1,000-plus men) would need to hold a perimeter around the nuclear complex, fighting past any defenders in place. They would need constant air cover above to spot and attack any approaching Iranian forces: real-time satellite coverage, orbiting drones, recon-



naissance planes and strike aircraft. That would require a steady relay of dozens of refuelling tankers to allow enough air power to stay airborne for a long period—potentially days.

Israel's special-forces and combat-engineering corps currently have more relevant and recent experience than American forces in this sort of operation, having worked extensively in the vast networks of tunnels built by Hamas and Hizbullah. Using them would also allow Mr Trump to claim that he had not put American boots on the ground. However, this would stretch Isra-

el's long-range airlift. If Israeli troops were used, they would need to borrow America's vast fleet of cargo planes.

America's Joint Special Operations Command (JSOC) also has relevant expertise, having spent years preparing to secure or seize Pakistani nuclear weapons in a crisis. Squadrons from America's Delta Force and Seal Team Six practised entering deep underground shelters at a site near Las Vegas, aided by the US Army's specialist Nuclear Disablement Teams. One of the biggest challenges, says a former JSOC operative, is moving, communicating and surviving underground. If Mr Trump is serious about invading Isfahan, let alone Natanz and other sites, teams will need to have been rehearsing for months.

The next challenge would be handling the HEU. It is probably stored as uranium hexafluoride (UF₆), a gaseous compound of uranium, in multiple containers to prevent an accidental chain reaction. Daniel Salisbury of the International Institute for Strategic Studies, a think-tank, estimates the full stockpile would require around 19 scuba-type tanks. The containers must be kept apart and stored carefully.

One option would be to blow it up in situ. The UF₆ would “go all over the place, get deposited on walls, rocks, rubble, etc, and be quite difficult to recover,” says Matthew Bunn of Harvard University. It would also release toxic hydrogen fluoride. A second would be to “downblend” the material, he suggests, but the equipment for doing that would need to be trucked in and it would still leave nuclear material. The third would be to extract the HEU and whisk it away. But if moisture enters the cylinders during transport, warns François Diaz-Maurin, an editor at the *Bulletin of Atomic Scientists*, it could interact with the uranium gas to produce toxic uranyl fluoride and hydrofluoric acid gas, potentially causing an explosion.

A Hollywood-style operation would appeal to Mr Trump, who has spoken of the humiliation Americans of his age still feel from the seizure of American hostages in Tehran in 1979. It would give him a set-piece denouement to the war, letting him claim victory even if the Iranian regime remained in place. But Mr Trump will also recall how a botched effort to rescue the hostages from America's embassy, Operation Eagle Claw, doomed Jimmy Carter's presidency. Performing each of these steps at Natanz and Fordow, too, would amount to one of the largest raids in military history.

“There's no doubt that the US can do it,” says a former Western military chief. “They're probably the only military in the world that could. But you either do it incredibly small and insert in a very covert way, or you go in at scale—you essentially turn that part of Iran into the United States of America for a while.” ■



Fission impossible