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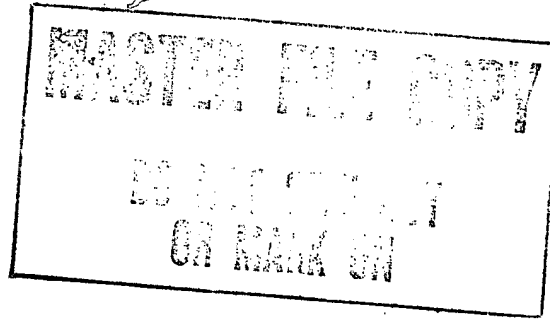


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Alternatives to Khark: Implications of New Iranian Facilities To Export Oil



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An Intelligence Assessment

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NESA 86-10015
March 1986

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Alternatives to Khark: Implications of New Iranian Facilities To Export Oil

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An Intelligence Assessment

This paper was prepared by [Redacted] Office of
Near Eastern and South Asian Analysis, with
contributions from [Redacted] the Office of
Global Issues and [Redacted]
NESA. [Redacted]

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Comments and queries are welcome and may be
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[Redacted]

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**Alternatives to Khark:
Implications of New Iranian
Facilities To Export Oil**

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Key Judgments

*Information available
as of 4 March 1986
was used in this report.*

Tehran is developing new oil export facilities to enable it to maintain earnings, keep its economy afloat, and continue the war against Iraq, whether or not the Iraqis put the Iranian export terminals at Jazireh-ye Khark (Khark Island) out of operation. Projects that are nearly complete or are contracted for, together with repairs under way at Khark, will give Iran a potential export capacity for onshore oil of 6 million barrels per day (b/d) by this spring and 7 million b/d in late 1986, well over its export level in recent years of 1.5-1.8 million b/d. The new facilities, by providing substantial redundant loading capacity, will make this export level more secure. They will also give Tehran the option of using some of its 1 million b/d of surplus production capacity to boost oil shipments in an effort to maintain revenues in the face of falling oil prices.

The new facilities are within range of Iraqi aircraft, and we expect Baghdad to attack them and tankers loading at them. Nonetheless, the redundant capacity they will provide and the ease with which some of the new facilities can be repaired will make it even more difficult for Iraq to squeeze Iran financially. Unless the Iraqis adopt significantly more aggressive tactics than they have used so far, the new facilities will help Tehran to avoid—despite the oil price war—austerity measures that could spark domestic unrest and undermine the Iranian war effort.

As a result, Iran's new oil export options will dim already faint hopes for a softening in Iranian terms for peace or significant political change in Tehran while Khomeini lives. At the same time, they will reduce the danger that Iran, out of desperation, would dramatically escalate the war in the Persian Gulf by attacking Gulf Arab oil facilities or attempting to close the Strait of Hormuz.

Iraq will have to consider new tactics to force Iran to the negotiating table, and it may expand the air war to other economic targets and possibly to Iranian cities. In any event, more Iraqis will conclude that President Saddam Husayn is unable to end the war.

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**Alternatives to Khark:
Implications of New Iranian
Facilities To Export Oil**



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The Iraqi air campaign against Iran's oil export facilities at Jazireh-ye Khark (Khark Island) has had only temporary effects on the level of Iranian exports. It has, however, raised the risk of a prolonged cutoff of exports from Khark and consequently of major Iranian retaliation that could affect the interests of the Arab Gulf states, the United States, and US allies that depend on Persian Gulf oil. The initial attack on 15 August 1985 and a raid on 19 September inflicted substantial damage on the loading terminals. Exports from Khark were interrupted for several days after the latter attack and again briefly after raids on 14 and 15 November. Iraqi attacks in early 1986—including raids beginning on 23 January at Ganaveh, the location of the final control manifold for oil going to Khark—caused further interruptions.



Tehran also has vowed to prevent anyone from exporting oil from the Gulf if Iran cannot export its own oil. Iran has not yet struck oil facilities in the Gulf states, although it has fired missiles at empty tankers bound for Gulf Arab ports. We believe Iran's military response in the Gulf has been limited for several reasons: the Iranians have been able to repair enough of the damage at Khark to avoid prolonged loss of income; Iran has few military resources to retaliate with airstrikes or blockades; and Tehran would risk uncontrolled escalation or Western intervention if it attempted a major attack on Gulf Arab oil exports. An additional consideration, however, is that Tehran is accelerating the development of alternative export routes for its oil to keep revenues flowing and its war effort going even if Khark is knocked out.

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Alternative Iranian Facilities

The National Iranian Oil Company (NIOC) has considered several projects for new oil export facilities, including one that is virtually complete, another for which contracts have been awarded, and others that we believe Iran will postpone. The nearly completed facility will link the existing pipeline manifold at Ganaveh to a new loading facility about 25 kilometers offshore, between Ganaveh and Khark. Two 42-inch pipelines have been laid to terminate in water at least 20 meters deep. This facility will enable tankers to load oil from floating hoses and single-point mooring (SPM) buoys and will have an estimated capacity of about 2 million barrels per day (b/d).

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The closest thing to a tit-for-tat Iranian response has been a few ineffective air raids against Iraqi military and oil installations near the border. The Iranian ground offensive that began along the Shatt al Arab on 9 February and led to the capture of Al Faw may also have been intended partly as punishment for the Iraqi airstrikes against Iranian oil facilities. We believe, however, that Tehran would have undertaken such an operation anyway as part of its strategy of using its numerical superiority in ground forces to inflict defeats on Iraq and weaken Saddam Husayn's political position.

We estimate that, if repairs under way at Khark Island and Ganaveh are completed, nearly 4 million b/d of capacity will be restored there. The new SPMs thus will give Iran a potential export capacity in the northern Gulf that is three or four times the 1.5-1.8 million b/d of oil it exported during most of 1984 and

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Iranian leaders have frequently threatened to make the Gulf states pay for their support to Baghdad.



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Iranian Projects for Alternative Oil Export Facilities

Description	Status	Estimated Capacity (million b/d)	Estimated Cost (billion US \$)	Remarks
Two 42-inch pipelines from existing pipeline manifold at Ganaveh to single-point mooring buoys about 25 kilometers offshore.	Nearly complete	2	0.07	Iraqi airstrikes at Ganaveh may be delaying operation.
Conversion of partly completed 56-inch IGAT2 gas pipeline to carry oil southeast to a new terminal on the coast, probably at Taheri. Construction of link pipelines to Gachsaran and other major inland airfields, a 40-kilometer pipeline from Kangan gas processing plant to Taheri, and a pumping station.	Contracts awarded; construction with standard techniques will require eight to 10 months	1	1-1.5	IGAT2's original purpose—export of gas to USSR—would be abandoned, but dispute over price makes such sales unlikely anyway.
Pipeline from Kangan or Taheri to a terminal east of Strait of Hormuz, probably at Jask.	NIOC and Majles have considered but so far rejected because of high cost and required lead-time of at least two years	1-2	4	Iranians may reconsider after war as long-term project to make oil exports more secure.
Pipeline based on existing plans for Pars gas pipeline, which originally was designed to bring gas from Pars field to inject into onshore oilfields. Redesigning pipeline would bring crude oil south.	Tehran considering, but probably will not adopt revised plan	1	Undetermined	Gas injection needed soon to correct for low reservoir pressures in main Iranian oilfields.

1985. The additional capacity will give Tehran a greater chance to maintain exports in the face of damage from Iraqi attacks than it would with Khark Island alone. [redacted]

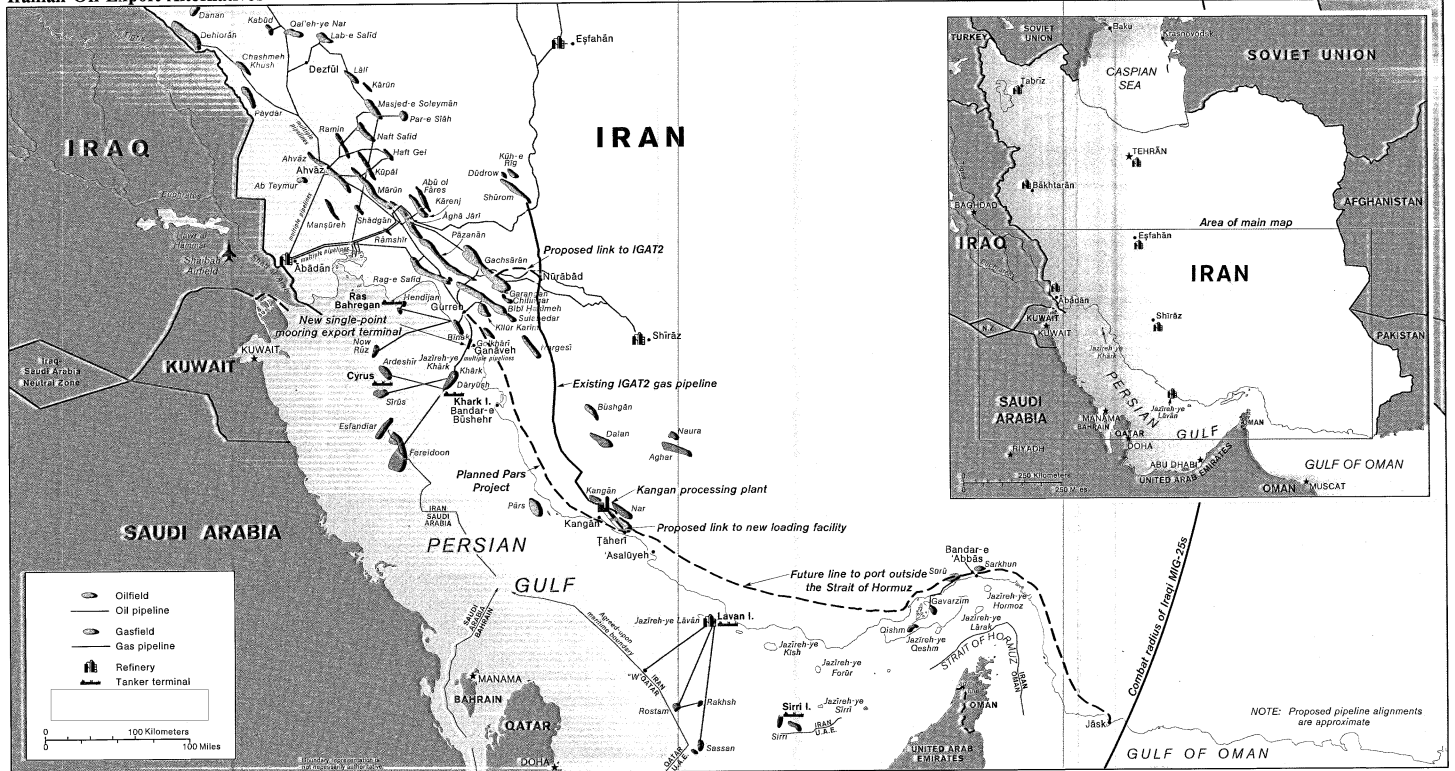
[redacted] contracts have been let for an additional project, which involves laying pipe approximately 80 kilometers from the major inland Gachsaran oilfield eastward across the mountains to connect with the partly completed 56-inch IGAT2 gas pipeline. This line originally was designed to take gas from Iran's southern gasfields to the USSR. Additional adjustments in existing pipelines will have to be made for oil from Iran's other major oilfields to reach this line, and a pumping station will have to be added for the line to handle oil rather than gas. The IGAT2 gas project may have to be abandoned, but this would be only a nominal sacrifice because Moscow currently has little interest in gas at prices Tehran is likely to offer. [redacted]

The existing IGAT2 line ends at the Kangan gas processing plant, requiring NIOC to lay a linking pipeline from there to an oil-loading terminal on the coast, probably at Taheri, which is 40 kilometers from Kangan. [redacted] such a terminal will add approximately 1 million b/d of oil export capacity and will cost \$1-1.5 billion. The estimated completion time of eight to 10 months could be cut by up to half, at higher cost, by using additional construction crews and an intensified work schedule and by paying premium prices for parts and equipment. In addition to giving Iran even more export capacity, perhaps by the end of 1986, this project will reduce Tehran's reliance on the pipeline complex at Ganaveh, through which oil flows to Khark and will flow to the new SPMs. [redacted]

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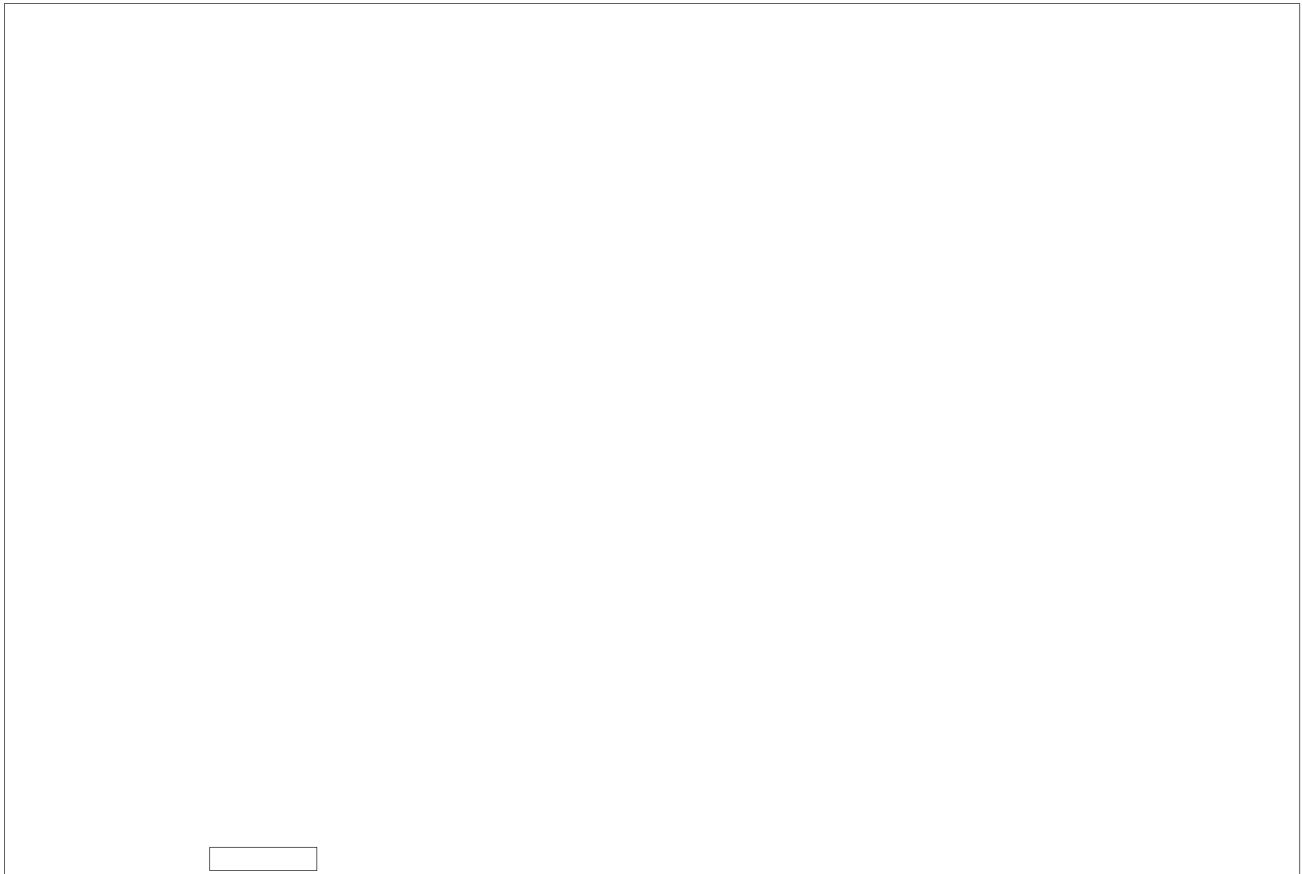
Iranian Oil Export Alternatives



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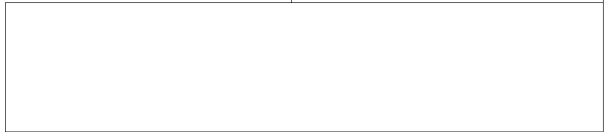


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Completion of this project would give Tehran the option to continue the pipeline from Kangan or Taheri to a point outside the Strait of Hormuz, probably Jask, should it desire an even more secure outlet. We believe that the Iranians will continue to postpone this option, however, because of the high cost and long leadtime required. We believe Tehran also will delay acting on another project it has considered: construction of a pipeline based on existing plans for the Pars gas pipeline—which was designed to bring gas from the offshore Pars field northward to inject into the major onshore oilfields—to bring crude oil south. Iran's main oilfields must soon have gas injection to sustain current production levels, and we believe the Pars gas project or something similar must be completed in the next three years to avoid or minimize permanent damage to the fields. 

Besides constructing additional outlets for its onshore oil production, Iran is likely to try to expand its offshore production from its oilfields in the lower Gulf. This oil can be loaded at Jazireh-ye Lavan (Lavan Island) or Sirri Island, which are farther from Iraqi airbases than the existing or planned facilities for handling onshore oil. 

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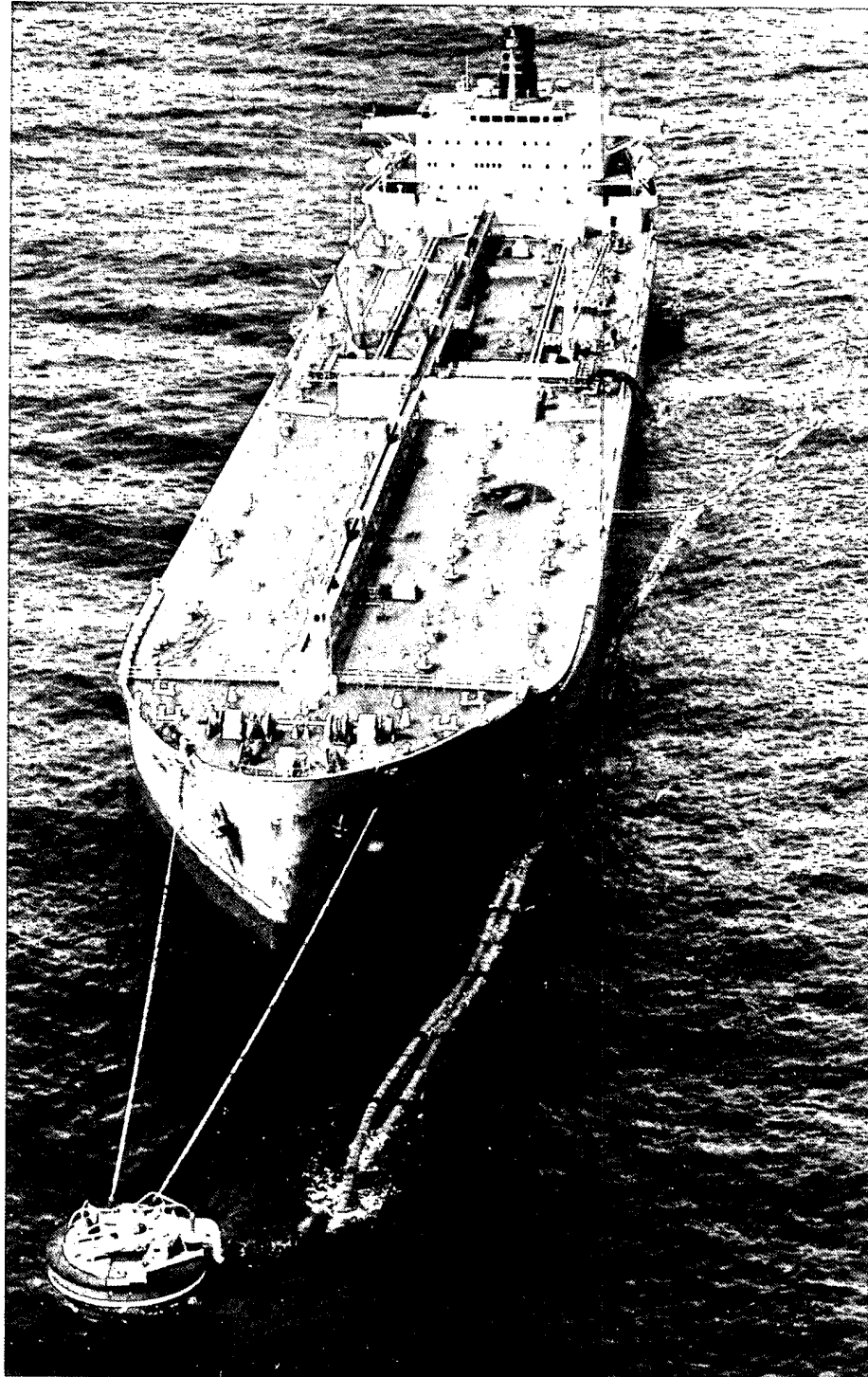
Vulnerability to Iraqi Attacks

We believe Iraq will launch additional airstrikes to disrupt the construction or operation of at least some of Iran's alternative export facilities. The raid at

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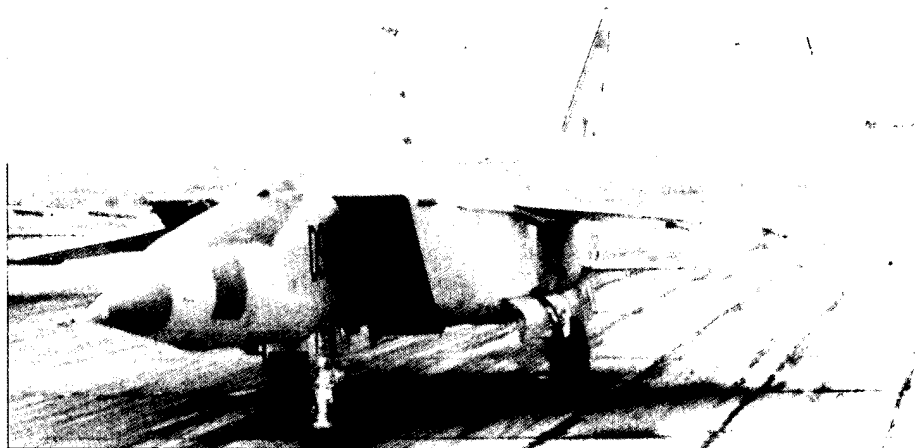
*Tanker loading oil at a typical
single-point mooring (SPM)
buoy.*



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Iraq has relied principally on the MIG-25 to attack Iranian oil facilities. [redacted]

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Ganaveh on 23 January was probably stimulated in part by Iran's public claims that it had completed its nearby offshore loading facility. The new installations that Iran is constructing or is likely to construct during the coming year will be vulnerable to Iraqi attacks in many of the ways Khark Island is. Facilities as far southeast as Taheri will be within range of Iraq's MIG-25s, which have a combat radius of about 1,200 kilometers and have been used in most of the raids on Khark, as well as of Iraqi F-1s and MIG-23s. Iranian air defenses will continue to be plagued by maintenance problems, shortages of skilled personnel, and Tehran's reluctance to use its dwindling supply of F-14s as interceptors. Iraq's pending deployment of French-made AS-30 laser-guided air-to-surface missiles should improve the accuracy of Iraqi pilots while allowing them to stay farther away from whatever air defenses the Iranians manage to deploy. According to a source of the [redacted] it will be "mid-1986" before Iraqi pilots are ready to use the AS-30. [redacted]

Most of the installations associated with the IGAT2 line will be more difficult to destroy than facilities in the vicinity of Khark Island and Ganaveh. The pipeline itself will pass through inland mountain valleys that are not conducive to low-altitude attacks. The proposed export terminal at Taheri will be much smaller than that at Khark and will have storage tanks dispersed in clusters, [redacted] Pumping stations—which Iraq has attacked successfully in the past—will be the most vulnerable facilities. [redacted]

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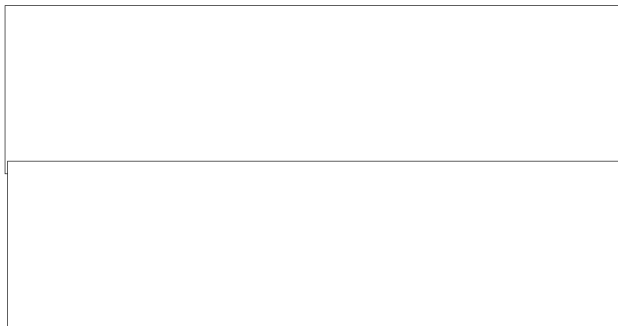
Iraqi Strategy and Tactics. We believe the outcome of an Iraqi air campaign against the new Iranian oil facilities will depend—like the campaign against Khark Island—at least as much on Iraq's will as on its capability. Baghdad can inflict substantially more damage than it has so far on both Khark and the tankers calling at the island. [redacted]

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Types of Targets. The floating hoses and SPM buoys will be more difficult to hit than large, fixed targets. Moreover, the buoys and hoses and the pipelines feeding them will be relatively easy to repair or replace if spare parts are available. Iraqi pilots, however, have demonstrated their ability to hit small targets in the Gulf during their raids on Iranian offshore oil platforms. Baghdad also might curtail use of these facilities by expanding its use of F-1s armed with Exocet missiles to attack tankers and by repeatedly hitting the pipeline junction at Ganaveh. [redacted]

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months to see if they can change Iranian policy by attacking the new export facilities as well as Khark. If the Iranians put up substantial air defenses around the new installations, the Iraqis would rely heavily on the sort of high-altitude tactics they have used at Khark, hoping to harass construction and repair and to score some lucky hits. [redacted]

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If this tactic proved ineffective, Baghdad would have to consider yet another phase in its air war. The Iraqis might launch strikes on key facilities (such as power plants and refineries) needed for the production of critical domestic goods and services. Somewhat less likely would be direct attacks on cities to demoralize Iranian civilians. Either of these tactics, particularly strikes against cities, would risk provoking new Iranian attacks with Scud missiles against Iraqi cities. [redacted]

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We believe Baghdad's air campaign also has been restrained by strong concern about losses of aircraft and their possible effect on Iraqi morale, a lesser concern about long-term relations with Iran, and possibly urgings for restraint by Iraq's Gulf Arab allies. [redacted]

Saddam Husayn's motives for keeping steady pressure on Khark are also reasons he is likely to wage an air campaign against the new Iranian installations. Indeed, the Iranian decision to proceed with construction of these facilities removes one of Saddam's rationales for restraint in attacking Khark. The other reasons for restraint—including fear of Iranian escalation, the prospect of increased losses of aircraft, and pressure from Moscow—are likely to temper Iraq's attacks on the new facilities, which could be disabled for extended periods only if Iraq used more aggressive tactics, more advanced weapons, and/or a larger bombing campaign than it has to date. [redacted]

Iranian Financial and Budgetary Considerations

The availability of alternative facilities to export oil would be of paramount importance to the Iranian economy in the event Iraqi attacks shut down Khark for extended periods. Iran receives at least 95 percent of its foreign earnings from sales of oil, and nearly 90 percent of the oil it exports—including all of its onshore production—flows through Khark. [redacted]

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The slack oil market and, to a lesser extent, the Iraqi attacks on tankers and Khark Island, already have caused a serious shortage of foreign exchange and taken a heavy toll on the Iranian economy. To maintain its dwindling reserves of foreign exchange, Tehran slashed imports during the first six months of 1985 by about one-third from the previous year's levels. This worsened shortages of consumer goods, raw materials, and spare parts and caused industrial output to fall by 25 percent, according to the Iranian press. [redacted]

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We believe the Iraqis' tactics will reflect the caution they have displayed throughout the war but will also be based on their reading of Iranian air defenses. Most of the raids on Khark, for example, have been low-risk missions involving two strike aircraft flying at a speed of over 1,300 knots and an altitude of over 18,000 meters. They have, however, effectively used lower speeds, lower altitudes, and/or more aircraft against targets that are more lightly defended than Khark, such as a steel mill near Ahvaz and several offshore oil platforms. [redacted]

Possibility of Escalation. If Iran demonstrates it can maintain oil exports even without Khark, Baghdad will have to decide whether to escalate the air war again to induce Tehran to negotiate. The Iraqis' past behavior suggests they will take several weeks or even

[redacted] Further curtailment of Iranian oil exports would quickly threaten Tehran with a severe foreign exchange shortage and reduction of living standards. The completion

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Economic Consequences for Iran of an Interruption of Oil Exports

If exports of Iran's onshore oil production were stopped completely, *we estimate Tehran could maintain its current reduced level of imports for only about three months, using its readily available foreign exchange reserves and its remaining export revenues. In view of Tehran's responses to previous interruptions of its oil exports, we believe it would try to adjust to such a cutoff with more drastic cuts in imports. Even large cuts from the already austere levels, however, would not help for long. For example, with a 25-percent reduction in imports of food, medicine, and military goods, and a 50-percent cut in everything else, our analysis indicates that foreign exchange reserves would run out in six or seven months.* []

If oil exports were only partly cut off, *Tehran might muddle through indefinitely, but not without additional harm to the economy. With exports of about 800,000 b/d—the rate immediately following the attack on 19 September—and a price of \$20 per barrel, Iran could maintain its current rate of imports for four or five months. With the additional import cuts described above, it could continue indefinitely. Imports at this reduced level, however, would depress living standards further and could spark domestic unrest that would put increased pressure on the regime to end the war.* []

of new export terminals, especially coupled with repairs to some of the damaged facilities at Khark, would make such hardships considerably less likely. []

The cost of new export facilities had deterred Tehran until recently from beginning construction of alternatives to Khark. Weighed against the risk of substantially decreased oil revenues, however, neither the floating terminals off Ganaveh nor the conversion of the IGAT2 pipeline appears prohibitively expensive, particularly since foreign financing and barter arrangements to pay for the construction are possible.

We believe the Iranians will continue to delay any commitment to the more costly project of a pipeline to Jask, except perhaps in the event of substantial Iraqi-inflicted damage to existing and projected export sites. []

Prospects for Increased Oil Sales

We believe Iran's expanded export capacity—to the extent it survives Iraqi attacks—will encourage Tehran to consider boosting the volume of its oil exports to compensate for lower oil prices. So far, Iran has been one of the strongest voices within OPEC in favor of restraining oil production to keep prices from falling. Tehran announced in late January it would halve its production and stop selling oil on the spot market, but we believe this was partly an effort to make the best of the interruption in exports caused by the initial raid at Ganaveh. If Saudi Arabia and other leading OPEC members persist in a high-production strategy to regain market share from non-OPEC producers, we believe Tehran will reconsider. Iran's new Petroleum Minister, Qolam Reza Aqazadeh, will be tempted to ease Iran's immediate economic troubles by using some of Iran's 1 million b/d of surplus oil production capacity to increase exports. Aqazadeh is closely associated with Prime Minister Musavi and other ministers who have long advocated an increase in oil sales. []

Efforts by Iraq, in particular, to increase oil exports are likely to stimulate the Iranians to do likewise. Iraq is Tehran's immediate enemy, and its oil revenues support the Iraqi war effort. Aqazadeh has publicly threatened to export two additional barrels of oil for every barrel that Iraq exports above its OPEC quota. Iranian reluctance to carry out this threat will diminish if higher output from Iraq or other OPEC members sustains the Saudi-led price war that caused oil prices to drop precipitously in early 1986. Iraqi Oil Minister Uraybi told US officials in January that Baghdad intends to export up to 2.35 million b/d—well over its OPEC quota of 1.2 million b/d—as its new pipelines to Turkish and Saudi terminals come into operation. []

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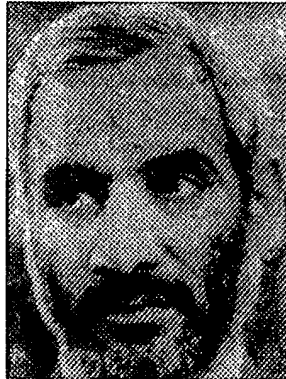
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Iranian Petroleum Minister
Qolam Reza Aqazadeh. [redacted]



Effects on Iranian War Policy

We believe the establishment of new oil export facilities, by helping Iran to maintain its revenues despite Iraqi attacks, will bolster Tehran's determination to continue the war. The small chance that Iran will soften its peace terms while Khomeini is alive may become even smaller because the new export options make it less likely that domestic discontent resulting from economic austerity will force the regime to give up its war aim of toppling Saddam Husayn. [redacted]

The availability of alternative oil facilities, however, will also reduce the danger that Iran, in retaliation for Iraqi attacks, would launch major airstrikes against Gulf Arab oil facilities or would try to close the Strait of Hormuz to oil exports from the Gulf states—actions that could draw the United States into the Iran-Iraq conflict. Tehran's behavior and rhetoric since the beginning of the Iraqi campaign against Khark demonstrate that its preeminent concern is to maintain its oil exports and that it is not eager to widen the war in the Gulf. President Khamenei and other Iranian leaders have publicly stated they would attempt to close the Strait to Arab oil exports only if Iran's exports were cut off, not just reduced. They note this has not yet happened and express confidence it is not likely to happen. [redacted]

Without a sustained, substantial reduction in Iranian oil exports, Tehran probably would see little advantage in trying to cut off the Gulf Arabs' oil exports. Iran has used the threat of attacks on the Gulf states' facilities to try—with little success so far—to dissuade them from aiding Iraq. We doubt that execution of the threat would make the Gulf states more inclined to stop helping Baghdad. Instead, it might

destroy the modicum of trust with Tehran that the members of the Gulf Cooperation Council have built by taking a more evenhanded approach toward the war, particularly at their summit meeting in Muscat last autumn. Even if the Gulf states end their support for Baghdad, this would not directly and immediately curtail the Iraqi war effort or achieve Khomeini's goal of toppling Saddam Husayn. Similar considerations would apply to any Iranian attempt to close the Strait of Hormuz, which almost certainly would elicit Western intervention and probably would interrupt exports of oil from Iran's offshore fields in the southern Gulf as well as cut off many seaborne imports to Iran. [redacted]

In short, Iran probably would dramatically expand the war in the Gulf only as a last resort—in the event that substantial cuts in its oil revenues made it unlikely it could prosecute the war and stay afloat economically for long—and this will become less likely as the new export facilities come into operation. We believe the Iranians would still try to retaliate for even moderately effective Iraqi attacks on Khark or other major Iranian economic installations. As long as they did not face near-term economic ruin, however, they would use less drastic options, such as terrorist attacks against Iraqi officials or an expansion of their ground offensive. [redacted]

Political Effects in Tehran and Baghdad

We expect the increased security for Iran's economic lifeline will bolster the Khomeini regime's hold on power. The lack of an effective organized opposition to the clerics means that a severe economic or military crisis probably would be necessary to cause major political change in Tehran as long as Khomeini lives. The greater redundancy in Iranian oil export facilities will make it less likely that Iraqi attacks will precipitate such a crisis. [redacted]

Saddam Husayn's domestic political vulnerability is likely to increase because of his apparently dwindling chance to force Iran to the bargaining table. The US Embassy in Baghdad reports that Iraqi morale already is depressed, though not defeatist. Iraqi frustration will probably grow over the prospect of seemingly

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unending losses on the battlefield. The disabling of Khark Island had promised to be Iraq's trump card. The loss of any hope for that card—even if it were played more effectively—to win the war makes the ineffectiveness of Saddam's strategy clearer than ever to most Iraqis. These perceptions will not, by themselves, be sufficient to remove Saddam, who maintains a ruthless grip on power. They will make it more likely, however, that other setbacks—particularly an Iranian capture of substantially more Iraqi territory—would stimulate moves against him.

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