

BEFORE THE INTERNATIONAL COURT OF JUSTICE

ISLAMIC REPUBLIC OF IRAN

V.

UNITED STATES OF AMERICA

OIL PLATFORMS CASE

COMMENTS OF

MOHAMMAD YOUSSEFI

17 JANUARY 2003

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1. The undersigned, Mohammad Youssefi, has been requested by the Government of the Islamic Republic of Iran to review and comment on the Report dated 18 November 2002 of Ms. Deborah Martin (the "DM Report"), filed by the United States of America as Exhibit No. 262 in the Oil Platforms Case before the International Court of Justice.
2. I am familiar with the subject matter of the DM Report and have already submitted a Statement filed on 10 March 1999 in this case (see the Islamic Republic of Iran's Reply and Defence to the Counterclaim, Annex VI, "Youssefi Statement"). I further confirm that I am familiar with aerial and satellite imagery analysis and have regularly analysed aerial and satellite imageries since 1986, including those relating to areas shown in the attachments to the DM Report.
3. Below are my comments on the DM Report and its attachments. I will follow the same order as the DM Report.
4. Attachment A is an image showing the intersection of the Kuwaiti, Iraqi and Iranian terrestrial and maritime borders in the extreme north-west of the Persian Gulf. In the left side of the image one may see the Kuwaiti islands of Warbah and Bubiyan, and the vicinity of the Iraqi port of Umm-ol-Qasr. Khur Abdullah and the Faw peninsula in the southern part of Iraq as well as the Arvand River (Shatt-Al-Arab) may be seen in the middle part of the image. The extreme south-west of Iran's territory, south of

Abadan city and the vicinity of the city of Arvand-Kenar, can be seen in the right side of the image.

5. Attachment B is an enlargement of the central part of Attachment A. The Faw peninsula may be seen on the left side, the Arvand River (Shatt Al-Arab) in the middle and the extreme south-west of Iranian territory, south of Abadan and Arvand-Kenar, is visible on the right side.
6. Attachment C is an enlargement of part of Attachment B marked as "map inset 2".
7. I have no specific comment on the above Attachments.
8. Attachment D is said to be an enlargement of part of the area shown in "inset 2" on 16 October 1987. However,
  - i. considering the quality of Attachment C, it is not possible to confirm that Attachment D shows an area in Iran or the same area as the one marked as "Graphic 1" on Attachment C;
  - ii. it is not possible, based on that image, to confirm whether that image has been actually taken on 16 October 1987 or on any other date.
9. Furthermore, there are insufficient elements to support the affirmation that Attachment D represents "HY-2 Cruise Missile Vehicles" as indicated on the top of the image. Of course, a number of vehicles may be distinguished on the image. However, the quality and resolution of the image does not allow me to determine their exact type. It can, however, be confirmed with certainty that, in any event, the said vehicles do not constitute components of an HY-2 missile system. My specific comments in these respects are as follows:

- (i) In paragraph 9 of the DM Report it is affirmed that: "the IDP in Attachment D shows equipment used in launching HY-2 cruise missiles: a transporter with a canvas-covering of the kind typically used to protect a missile; a transporter without a missile; two trucks towing two HY-2 missile launchers; and other support trucks."

However, the image submitted as Attachment D does not support the affirmation made as to the existence of "a transporter without a missile" on the right side of the upper part of the small road visible in the center of the image. Indeed, there is nothing on the image to allow us to distinguish the shape of a vehicle in the location marked with an arrow to that effect. Moreover, even assuming that one is able to detect a "transporter" of the kind described in the DM Report in connection with this Attachment, i.e. 15 meters long (see the DM Report at §10), at the place indicated by the arrow on that image, it would be presumptuous to affirm that such a transporter was used with respect to HY-2 missiles. Indeed, the transporter of the type described in the DM Report is not a vehicle exclusively used for transporting missiles, but rather a multipurpose transporter commonly used for various military tasks including transport of different types of heavy equipment and material, and sometimes even for transport of troops. Hundreds of such transporters were used on the southern front.

As to the shadows described as "a transporter with a canvas-covering of the kind typically used to protect a missile", the best one can confirm is that these shadows would represent one or several vehicles. It is however not possible, based on the quality of the image provided, to state which type of vehicle. However, as mentioned above, even assuming that one would interpret those shadows as a "transporter" of

the kind described in the DM Report in connection with this Attachment, i.e. 15 meters long (see the DM Report at §10), it would again be entirely speculative to affirm that such a transporter was used with respect to HY-2 missiles. As I have already mentioned above, the transporter of the type described in the DM Report is not a vehicle exclusively used for transporting missiles, but rather a multipurpose transporter commonly used for various military tasks. Moreover, the use of a canvas cover is in no way exceptional. Canvas covers were commonly used by all kinds of transporters, in particular to protect items from the harsh sunshine. Indeed, one may note that the trucks stationed on the opposite side of the road are also covered by canvas. However, it is not suggested in the DM Report that these latter trucks transport missiles. Neither could the presence of "four rib frameworks" be an indication that a particular transporter is used for HY-2 missiles. Indeed, these frameworks are necessarily used every time that the transporters are covered by a canvas, irrespective of what is transported. Finally, I did not find any support in the image for affirming that a vehicle, which is said to be covered with a canvas, is indeed transporting a missile. The only basis for that affirmation seems to be the presence of a canvas cover. If this is the case, then the affirmation made in the DM Report is unfounded.

As to the vehicles visible on the left side of the small road in the central part of the image, labeled as "two trucks towing two HY-2 missile launchers", I would agree that indeed two trucks are visible on the image. It can also be said that each of these trucks is towing one or two trailers. If there are two trailers then the trailer directly attached to the first truck would have a length equal to half of that of the first truck, i.e., approximately 3.5 meters. Thus, in such a case the trailer is certainly not an HY-2 launcher, which should be substantially longer than a truck. In the second event, i.e., the space between the first and the second truck is occupied by only one trailer, despite the presence of

a dark area on the image between the two trucks, then it would be sufficient to note that the trailer attached to the truck stationed upfront has a size substantially different from the trailer which is towed by the second truck. The second trailer seems to be around one meter longer than the first trailer.

- ii. Attachment D is said to show an area close to the front (around 2 km from Arvand River), south-west of the cities of Abadan and Arvand-Kenar. The said area had an extremely high military importance, particularly once the Iranian Armed Forces crossed Arvand River and entered into the Faw Peninsula. Indeed, that area was the unique possible way for providing logistical support to Iranian forces in Faw. Thus, the area was under uninterrupted bombing by Iraqi forces. Bombing was carried out using three different means: heavy ground artillery located on the western bank of Arvand River, ground-to-ground missiles and air raids. The area was thus particularly insecure, especially at the time the image is said to have been taken. For this reason, Iranian forces were using concrete-made shelters to lodge both troops as well as valuable and sophisticated equipment. The shelters for the troops were generally made of three or four, and sometimes more, reinforced semi-circular concrete blocks lined up to form a tunnel. For the heavy equipment, square concrete blocks with a greater height and width were used. Similarly, and depending on the need, they were also lined up to form tunnels 10 to 30 meters long. These shelters were big enough to lodge heavy military trucks, and indeed, were commonly used - especially in the southern part of Abadan in the marshlands area - for the storage of all operational and valuable equipment and material.

Furthermore, no anti-aircraft defence system can be seen in the image. It would have been very dangerous and unusual to park sophisticated military equipment such as missiles without an air defence system or at least one or two 20 mm machine guns.

Even more curiously, one may also note the absence of the single most rudimentary passive defence, i.e. a camouflage net to protect valuable equipment.

Given the above, it is completely unrealistic to assume that sensitive equipment such as missiles, launchers or auxiliary devices would have been set up, unprotected, in the manner described in the DM Report, in the south of Abadan at such a short distance from the front.

Thus, assuming that the given location and date of the image are accurate, the vehicles shown are in fact more likely to be heavy trucks commonly used in the area for various purposes including transport of troops or military equipment such as artillery pieces, heavy cranes or concrete blocks used for construction of shelters.

iii. In any event, there is no doubt that the vehicles shown on the image do not constitute an HY-2 missile system. Indeed, as listed in Annex C to my earlier Statement (see Youssefi Statement 10 March 1999, Annex C, pp. 4-8), an HY-2 missile system comprises the following equipment:

1. Antenna truck of tracking radar;
2. Display truck of tracking radar;
3. Fire control truck;
4. Pre-launching check truck;
5. Launcher tractor truck;
6. Transporter-loader;
7. Cable transporting truck 1;
8. Cable transporting truck 2;
9. Movable power station (for pre-launch check);
10. Movable power station (for fire control);

11. Movable power station (for tracking radar);
12. Movable power station (for integrated testing truck);
13. Integrated testing truck;
14. Air source truck;
15. Air charging truck;
16. Oxidant charging truck;
17. Oxidant transporting truck;
18. Fuel charging truck;
19. Fuel transporting truck;
20. Neutralizing and blow washing truck;
21. Neutralizing and washing truck;
22. Lift truck;
23. Missile transporting truck;
24. Oil charging truck;
25. Accessories truck.

An HY-2 system missile site capable of launching one missile is, therefore, constituted of 25 trucks. Thus, even considering that most of the equipment listed above may be used in common by two or more launching systems, the two HY-2 launching systems which the DM Report alleges at §§ 9-12 to be visible, must comprise at least 28 trucks.

However, at best one can detect 5 trucks on the image annexed as Attachment D. The conclusion is that Attachment D can in no way be interpreted as representing an HY-2 missile system arrangement.

10. Attachment E, is said to depict "HY-2 Missile Crates". The image is stated to have been taken on 16 October 1987. There is, however, nothing to confirm the alleged date of the image. The image seems to show a warehouse and four tents or containers along a river. The location of the tents/containers clearly indicates that they are either empty or used for general storage purposes only, not the storage of any sensitive equipment

such as missiles. As stated above, sensitive equipment is usually protected both through passive and active defence systems. Here, no passive defence (such as a camouflage net), nor active defence (such as anti-aircraft guns) can be seen. Indeed, it would have been completely unbelievable that four missiles be left unprotected in the way suggested in the DM Report in an area which is said to be only a few kilometers away from the front and subject to daily bombings.

In any event it is certain that:

- i. no missile can be seen in this image;
  - ii. no other component of an HY-2 missile system can be seen in the image;
  - iii. the four objects positioned along the river are probably tents or containers;
  - iv. the four tents or containers are used only for general storage purposes and are not designed to contain sensitive or valuable military equipment;
  - v. no passive or active defence system can be seen in the image.
11. Attachment F is said to show "HY-2 Cruise Missile Vehicles". The image is stated to have been taken on 9 September 1987. There is, however, no indication in the image that would allow one to confirm the date of the image. On the image one may distinguish a truck attached to a trailer. It is affirmed that the trailer is an HY-2 missile launcher. However, an overhead image of an HY-2 launcher should show the two parallel rails along which the missile is propelled. No such rails can be seen on the image. Finally, considering the quality and the resolution of the image, it would be purely speculative to affirm that the launcher is covered by a "flat canvas" or that the gray area along the trailer is a "stabilizing jack housing".

I may conclude that in any event it is certain that:

- i. no missile can be seen in this image;
- ii. there is no sufficient indication to show that the trailer towed is an HY-2 launcher;
- iii. no other vehicle used in a standard HY-2 missile system can be seen on this image;
- iv. the absence of any passive or active defence system in the image means that the vehicles shown are either damaged, non sensitive or non-valuable equipment.

12. Attachment G is said to be an enlargement of part of the area shown in Attachment C marked as "map inset 2", taken on 9 September 1987. It seems that the image shows the same area as that appearing on Attachment D. I repeat the reservations made in § 8 above as to the alleged location of the area shown and the alleged date of the image. I also refer generally to comments and reservations made with respect to Attachment D in § 9(i) to 9(iii) above. I have to add that it seems that the two vehicles described as "transporters" do not have the same length. Moreover, the length of the vehicles described as "launchers" is less than half of that of the "transporters". Considering that the length of the "transporter" is 15 meters (see the DM Report at §10), the vehicles described as launchers would have an approximate length of 7 meters. But, the length of an HY-2 launcher is substantially more, i.e. about 8.5 meters. My conclusion is that there is not sufficient support for the affirmation made in the DM Report that Attachment G depicts HY-2 cruise missile vehicles. In any event, there is no doubt that Attachment G cannot be interpreted as representing an operational HY-2 missile system.

13. Attachment H is said to show "HY-2 Missile Crates". The image is stated to have been taken on 9 September 1987. There is, however, no indication in the image that would allow confirmation of this. The area shown is the same as the one shown in Attachment E. I therefore refer to my comments in § 10 above. I would only add that,

considering the quality and the resolution of the image, the so-called "protrusion" referred to in para. 19 may well be in fact an air-conditioner or simply a box.

My conclusion on this image, similarly to Attachment E, is as follows:

- i. no missile can be seen in this image;
  - ii. no component of an HY-2 missile system can be seen in the image;
  - iii. the two objects positioned along the river are most probably tents or possibly containers;
  - iv. the two tents or containers are used only for general storage purposes and are not designed to contain sensitive or valuable military equipment;
  - v. no passive or active defence system can be seen in the image.
14. Attachment I is, similar to Attachment A, an image showing the intersection of the Kuwaiti, Iraqi and Iranian terrestrial and maritime borders in the extreme north-west of the Persian Gulf. On the left side of the image, one may see the Kuwaiti islands of Warbah and Bubiyan, and the vicinity of the Iraqi port of Umm-ol-Qasr. Khur Abdullah and the Faw peninsula in the southern part of Iraq and Arvand River (Shatt-Al-Arab) may be seen in the middle part of the image, and the extreme south-west of the Iranian territory, south of Abadan city, is visible on the right side. This image is stated to have been taken in 1989 by SPOT. I have no particular comments on this image, save to state that it is misleading to label the area shown as the "Al-Faw Area". The area shown covers a much larger area of the extreme north-western coast of the Persian Gulf.
15. Attachment J similar to Attachment B, is an enlargement of the central part of Attachment I. The Faw Peninsula may be seen on the left side, the Arvand River (Shatt Al-Arab) in the middle, and the extreme south-west of Iranian territory, south of Abadan city, is visible on the right side. This image is also stated to have been taken in 1989 by SPOT. I have no particular comment on this image, save to repeat that it is misleading to label the area shown as the "Al Faw Area". The area shown covers a

much larger area, including both the Iraqi side of the Arvand River (Al-Faw) and the Iranian side of that river (Aravand-Kenar). As to the annotations "HY-2 Staging Area" and "Nahr-e Owyeh", I respectively refer to other comments made above and also below.

- ii. Attachment K is an image showing the Iraqi HY-2 missile site No. 3. It is stated to have been taken on 5 September 1987. There is no indication in the image that would allow confirmation of this.
17. Attachment L is an enlargement of the upper part of the right side of Attachment K, marked as "Graphic 2". One may see on that image the launch positions used by Iraqi forces and the shape of a standard HY-2 missile site.
18. Attachment M is an enlargement of the upper part of the right side of Attachment K, marked as "Graphic 8". The image is stated to have been taken on 16 October 1987. I would have the same comment as above regarding the asserted date of the image. I would also mention that the description of the vehicles highlighted with arrows in the images marked "Inset A" and "Inset B" as "support trucks" may be misleading. I would underline that the vehicles shown are not all trucks. Indeed, it seems that one of the vehicles is a command car (fourth arrow from the left side of the image marked "Inset A"), and that two others are light transporters such as Toyota Land Cruisers (first and second arrows from the left side of the image marked "Inset A"). Two dump trucks may also be seen on the image marked as "Inset A" (third and fifth arrows from the left side of the image). These trucks were generally used for the construction of embankments on the front line. The truck shown in the image marked as "Inset B" is probably a water transport tanker. Thus, none of the vehicles highlighted with arrows are of the type specifically designed to support missile systems. The east-west coastal communication road in the Al-Faw peninsula was indeed used every day by a great number of vehicles to provide logistical support to the forces stationed along the contact line on the western side of the Salt Factory. In any event no deployment of any missile or of any missile system can be seen on that image.

19. Attachment N is an image showing Nahr-e-Owveh area in the extreme south-west of Iran. It is stated to have been taken on 16 October 1987. However, there is no indication in the image that would allow confirmation of this.
20. Attachment O is an enlargement of the area shown in Attachment N. It is affirmed that this image has been taken on 16 October 1987. It is further affirmed that this image would represent a "Launch Site". However, there is not the slightest indication on this image to support that affirmation. In fact, there is neither any missile equipment nor any missile related construction that would suggest that the area was a missile launching site. Moreover, no active defence system can be seen on the image. It is inconceivable that a missile launch site, even a temporary one, would be without anti-aircraft defence protection.
21. The area was in fact a small fishing point before and also during the major part of the war, although with reduced activity. Indeed, a number of local inhabitants had remained in the area despite the war and were continuing to fish for their own consumption. The reversed "T" jetty which was used by fishermen is visible at the extremity of the road on the right side of the image. The jetty was also sometimes used during the war by small patrol boats.
22. This point also had a military significance and was used as an observation station controlling the estuary of the Arvand River. Indeed, to enter the Arvand River, Iraqi boats would have had to pass in front of that point. The shadows highlighted by arrows and marked "Support Tents" are therefore probably nothing more than 9 to 12 person tents used by the observation battalion present at that location during the war. The suggestion that the tents would in fact house support equipment for HY-2 missiles seems to me totally unfounded. Indeed, as mentioned above, the necessary equipment for launching HY-2 missiles is mounted on trucks. The length of some of these trucks, which may vary from 6 to 15 meters, is referred to in the DM Report. These dimensions are inconsistent with the dimension of a standard tent. None of the tents shown have a length exceeding 6 meters. Moreover, the trucks have a height of around 4.50 meters which cannot be housed under a tent of the dimensions which can be seen

on the image. Indeed, the shadows cast by the tents clearly indicate that they have a standard height of around 2 meters.

23. Moreover, as to the alleged "run-up aprons", and "Launch Position 1" and "2" it has to be mentioned that contrary to fixed missile sites such as the Iraqi sites (see Attachments M, R and S of the DM Report), mobile missile launchers may fire in virtually any direction. Indeed, a mobile launcher may be positioned at the desired location and oriented in any direction. And even once stabilized on its jack, a launcher may still wheel round 85 degrees to the right and 85 degrees to the left. Therefore, the indications "HY-2 Launch Position 1, 243° Launch Azimuth" and indications "HY-2 Launch Position 2, 200° Launch Azimuth" are misleading and totally unsupported.
24. Furthermore, due to the rather limited width of the track which can be seen on that image, the fact that it is not tarred but is a simple dirt track and also because it would be difficult to stabilize the soil in the marshlands, the area shown in the image is inappropriate for being used as a missile launching site.
25. Finally, given that that point is at sea level, even if a missile antenna were placed at 5 meters above that level, based on the capabilities of the HY-2 system, and as explained in the manufacturer's booklet and in my previous statement (see Youssefi Statement, 10 March 1999, Annex C pp. 4-19), a missile launched from that point would have a maximum radar range of only 38 kilometers for a target 50 meters high (such as a big vessel). A missile launched from that point, therefore, could not have targeted the Sea Isle City, which was both far outside its maximum radar range, and also outside its maximum effective and maximum powered range.
  - i. Attachment P is an enlarged image of the same area as the one shown in Attachment O. It is said that that image has been taken on 14 December 1987. I have the same comments on this image as those mentioned above with respect to Attachment O. I would also add that:

- ii. Considering the resolution of the image it cannot be confirmed that the object described as "HY-2 Missile at Launch Position 1" is in fact a missile. The best one can see there is a vehicle;
  - iii. The fact that no other vehicles can be seen on the image supports the above. Indeed, as already indicated above, an actual HY-2 launch site needs the support of at least 25 trucks.
  - iii. Compared to the size of the tents and the width of the road, the alleged "launcher" would have a length of approximately 6 meters which is substantially less than the length of an HY-2 launcher, i.e. 8.50 meters;
  - iv. Finally, it is said in the DM Report at §26 that "the high vertical stabilizer or tail of the missile can be seen in the shadow of the missile on the ground". I do not agree with that interpretation of the image. Indeed, even assuming that the described object is a missile, given the direction of the sunshine and the fact that the nose of a missile loaded on a launcher is higher by 11 degrees than its tail, the shadow cast on the ground should be larger to the front. But, on the image, the shadow of the front part is smaller than the shadow of the rear part of the "launcher". Thus, if the object is a launcher, then one should conclude that the "missile" is actually pointing inland!
27. Attachment Q is an image showing part of Al-Faw and, in particular, the Iraqi HY-2 missile sites No. 1 and No. 2, as well as a salt factory and the line of contact between Iranian and Iraqi forces in 1987. The image is stated to have been taken on 13 November 1987. However, there is no indication in the image that would allow confirmation of this. Consequently, the assertion that no 4th Iraqi HY-2 site existed in October 1987 at the location alleged by Iran, is not demonstrated.

28. Attachment R is an enlargement of part of Attachment Q. It shows, in particular, the Iraqi HY-2 missile site No. 1. The image is stated to have been taken on 13 November 1987. Once again, there is no indication in the image that would allow confirmation of this.
29. Attachment S is an enlargement of a different part of Attachment Q. It shows, in particular, the Iraqi HY-2 missile site No. 2. The image is stated to have been taken on 13 November 1987. However, there is no indication in the image that would allow us to confirm this.
30. Attachment T is an enlargement of part of Attachment Q. It shows in particular an area in Al-Faw, west of the line of contact between Iranian and Iraqi forces in 1987. The image is stated to have been taken on 13 November 1987. However, there is no indication in the image that would allow us to confirm the date of the image. Consequently, the assertion that no 4th Iraqi HY-2 site existed in October 1987 at the location alleged by Iran, is not demonstrated.
31. Attachment U is an image showing part of Al-Faw peninsula and in particular the Iraqi HY-2 Site No. 2 and a new HY-2 Site allegedly built in 1989. The image is stated to have been taken on 15 October 1994. However, there is no indication in the image that would allow one to confirm the date of the image. Since the dates of Attachments Q, R and U are not proven, it is impossible to ascertain when this new Iraqi HY-2 site was built.

Mohammad Youssefi

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