THE DRAGON LADY

MEETS THE CHALLENGE:

THE U-2 IN DESERT STORM

by

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Chapter 6

Desert Storm

The buildup of coalition forces reached 243,000 by 1 November 1990. This was enough to safeguard Saudi Arabia from attack, but not to oust Iraq from Kuwait. On 8 November President Bush ordered another 200,000 U.S. troops to the region. When the U.N. Security Council met on 29 November it passed resolution 678 giving Iraq until 15 January 1991 to comply with all previous resolutions, including resolution 660 passed on 3 August 1990 demanding an immediate and unconditional withdrawal from Kuwait. If Iraq did not conform, coalition forces could use "all necessary means" to force compliance.[1]

Because of other worldwide commitments, the 1704RS(P) did not begin building-up immediately. Most additional people arrived on 15 and 16 January. At the end of December the unit still had only five aircraft (two SYERS U-2s, one SPAN U-2, and two ASARS TR-1s) and 153 people (13 fewer than on 31 August). By 16 January 1991, however, the squadron had nine aircraft and 231 people, including 24 pilots. Eventually the 1704RS would amass six U-2s, six TR-1s, 253 people, including 30 pilots, making Desert Storm the largest U-2 operation in history. The buildup also included the MIPE, additional reconnaissance staff to CENTCOM at Riyadh, and another SENIOR BLADE van with a U-2 pilot assigned to monitor missions.[2]

Although the additional aircraft and people had not yet arrived, during the last week of December the 1704th stepped up preparation for the air war. Exercises gave a preview of the U-2's changing role. An ASARS-equipped aircraft relayed near-real-time target-of-opportunity information to the theater air control

center, which passed it on to an airborne battlefield command, control, and communication aircraft, which, in turn, fed that data to airborne F-111s from the 48FTW. The F-111s then struck the simulated target. The ASARS performed so well the squadron flew a similar test with SYERS a few days later. Within ten minutes of target acquisition by the SYERS, the theater air control center had approximate coordinates ready for the strike aircraft. This was a harbinger of tactical-oriented commanders' expectations for the U-2's role when the air war began.[3]

Meanwhile, on 15 January, Lieutenant Colonel Peterson moved squadron personnel on base to protect them from possible terrorist attacks. Pilots had rooms in hardened aircraft shelters. This provided them a dark, quiet place to sleep. Unfortunately, shelter space was so limited four people had to share a room. Major David Wright, the squadron operations officer, tried to schedule everyone in a room to fly either day sorties or night sorties, but this was not always possible. Pilots often had to rely on Restoril, a prescribed sleeping medication, for crew rest. The only available accommodations for everyone else, including civilian contractors, were tents next to the flight line. Although spacious and air conditioned, the tents had no sound protection from nearby jets. Since most F-111 sorties were at night, day shift workers seldom got more than one or two hours of uninterrupted sleep.[4]

Also, as the 15 January deadline approached, General Schwarzkopf and most of the USCENTCOM headquarters staff moved from MacDill AFB, Florida to Riyadh. Since General Schwarzkopf took no one with airborne reconnaissance experience with him, Lieutenant Colonel Mark S. Spencer deployed from the Pentagon's Joint Reconnaissance Center to the CENTCOM/J-2 (Director of Intelligence) on 2 January. Lieutenant Colonel Spencer became part of a five-person Joint Reconnaissance Cell, which included overhead reconnaissance. He spent the first two weeks educating operations'

taskers on the U-2's capabilities and limitations. Unfortunately, Lieutenant Colonel Spencer had no access to the "Black Hole," which planned the initial phase of the air war. When General Schwarzkopf released the plan about 12 hours before the allied attack began, there were no provisions for airborne reconnaissance. U.S. Navy Captain Agnew, who headed the Joint Reconnaissance Cell, alerted the Director of Intelligence and airborne reconnaissance was added at the last minute.[5]

On 16 January 1991*, President Bush announced the beginning of the allied air offensive against Iraq two hours earlier. Cable News Network (CNN) reporters in Baghdad, against a backdrop of antiaircraft artillery and exploding bombs, had already alerted the world that Desert Storm had begun. The screen went blank moments later as an F-117 struck Iraq's communications center. CNN inadvertently proved to the world the effectiveness of stealth technology.

With the start of the air war, rules governing U-2 operations switched from PARPRO to emergency reconnaissance operations (ERO). Operational control switched from SAC to CENTAF. Lieutenant Colonel Lafferty had already talked with the Strategic Reconnaissance Center and had confirmed that he, as the theater commander's representative, had the authority to approve missions. He kept SRC informed of the reconnaissance operations, but approval authority rested in the theater. Lieutenant Colonel Spencer, working closely with Lafferty, made sure the U-2 taskings were in the air tasking order (ATO). Lafferty alerted the 1704RS of impending taskings to allow the mission planners enough time to prepare routes and flight plans. In anticipation of the coming war, mission planners had already drawn tracks for most target areas in Iraq.[6]

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*It was the morning of 17 January in the Middle East.

Switching from PARPRO to emergency reconnaissance operations with the onset of the air war also gave the U-2 authority to cross the border into Iraq. Coalition fighters flew MIGCAPs nearby to protect against Iraqi fighters. Also, the ATO alerted coalition pilots that the U-2 would be in the area and U-2 pilots stayed in contact with the airborne AWACS to avoid a "friendly fire" incident.[7]

Captain Mark C. McDonald was flying an ASARS mission when the Desert Storm began. He was scheduled for a 0140L** hours takeoff on 17 January. But when the squadron received notice that the air war would begin at 0300 hours*** on 17 January, his takeoff was delayed to 0245 hours. His track, still south of the Iraqi border, included airfields in western Iraq. McDonald recalled seeing fighter activity and bombs exploding.**** His defensive systems showed two SA-2 activations and one detonated slightly above his altitude, approximately ten miles away. The mission planner had designed the track well keeping the aircraft ten miles outside the SA-2 range. Flying aircraft 1076 with a SYERS sensor onboard, Major B. L. Bachus took off at 0519 hours on 17 January. His was the first U-2 "border-crossing" mission into Iraq. Bachus described the experience as feeling "like a burglar who broke into a policeman's house without a gun and the policeman is expected home at any minute."[8]

When the war began the operations tempo immediately jumped to five sorties a day. Although additional pilots had arrived, there was insufficient time to train them on local procedures, so the pilots who had been at Taif longest flew the initial missions.

**All times are local.

***Official start time is listed as 0239L.

****Coalition weapons hit the first Iraqi targets at 170239L Jan 91.

Lieutenant Colonel Peterson, himself, flew on 18 January. On the third day the newer pilots began flying operational sorties.[9]

During Desert Shield the U-2 looked for indications the Iraqi troops were moving, especially toward Saudi Arabia, and sought likely targets for future bombing operations. When the air war began the U-2 initially flew bomb damage assessment sorties, but almost immediately switched to searching for SCUD missile launching sites. Using primarily the ASARS on-tether, the U-2 patrolled suspected launch areas in Iraq passing near-real-time data to the TRAC van in Riyadh. When the interpreter in the TRAC van spotted a likely SCUD missile launcher, he called in an air strike on the position. Major Bachus, for example, while enroute to his planned target area, received a new tasking to examine a suspected fixed SCUD site in Qasr Amij E area of western Iraq. He found the launch site and fighters destroyed it later that day. Observers credited this technique with destroying 15 or 16 missile launchers during the first week of the war.[*] A B-52 bombardier joined the crew in the TRAC van and helped assess targets. On one mission he used the ASARS information to redirect a flight of B-52s, within two-and-a-half hours of the original target, to a suspected ammunition storage area. Bomber crews reported seeing secondary explosions up to six thousand feet after the strike.[10]

In February when a second Senior Blade van (dubbed son-of-Blade) became available, it deployed to King Khalid Military City about 40 miles south of the Saudi-Iraqi border. Although the 1704RS had flown a few SCUD-hunting missions with the SYERS on-tether before, the deployment of son-of-Blade allowed the SYERS to cover all of southern Iraq while remaining on-tether. Major Wright, scheduled to return home, deployed to King Khalid Military City with the son-of-Blade instead. By this time U-2 tasking

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[*] Many SCUD and launcher "kills" were revised downward after the war.

procedures allowed the airplane to be dynamically retasked during flight. Wright, as an experienced U-2 pilot, evaluated the danger to the aircraft to prevent unnecessary risks during these dynamic retaskings. If attacking aircraft spotted a suspicious target, the U-2 could leave its planned track, examine the target, relaying the data via the tether back to the son-of-Blade. Photo interpreters and an Army intelligence officer in the van would decide if the target warranted an immediate attack. If so, strike aircraft would hit the target. Later the U-2 would assess the damage. Major Wright related that a U-2, using this technique, detected a suspected chemical weapons' storage site. General Schwarzkopf, himself, received the information and ordered an air strike against the target. The U-2 returned the next day to confirm the target had been destroyed. Also, when General Schwarzkopf wanted the Persian Gulf surveyed to assess damage from the Iraqis dumping oil into the Gulf, a SYERS-equipped U-2 diverted from its scheduled track to overfly the damaged area.[11]

On 27 February, during the ground war, Captain Dan Sanders flew a mission to pinpoint Iraqi troop movements west of Basra, Iraq. Informed that coalition and Iraqi forces were waging a fierce tank battle, Sanders deviated from his preplanned track, visually located the battle site, and positioned his airplane so the sensors could acquire the targets. Data from the sensors allowed friendly forces to withdraw and Apache and Cobra helicopters to strike the Iraqi tanks. Captain Sanders then noticed Iraqi reinforcements moving toward the area. He relayed that information to coalition forces and repositioned his aircraft so the sensors could acquire the new targets. With Sanders help, the coalition forces destroyed 350 Iraqi vehicles, including 23 T-72 tanks.[12]

Despite the invaluable near-real-time information ASARS and SYERS were providing, in-theater commanders, especially Army

commanders, wanted hard copy products. Although the systems could provide hard copy, the process required about 20 minutes and interfered with near-real-time collection. The U-2 began flying camera sorties to satisfy this need, but until the MIPE arrived in theater film processing took several days. Before the aircraft had border-crossing authority, U-2s carried the H-camera and furnished spot imagery of targets inside Iraq. With border-crossing authority, the U-2 flew IRIS-III missions that covered half the AOR in one sortie, but with less clarity. Field commanders appreciated the additional coverage, but wanted greater resolution. Lieutenant Colonels Lafferty and Spencer, working with the 1704RS, decided to revise the H-camera's procedures. Instead of shooting photographs at an angle, as it was designed to do, the camera would shoot straight down from nadir. Technicians at Taif had to remount and adjust the cameras. Mission planners had to develop tracks, similar to the IRIS-III tracks, but with the lines less than three miles apart since the H-camera at nadir only covers a two-mile swath on each pass. The result was pictures beyond expectations. Again field commanders loved it, but wanted it to cover a larger area. Lieutenant Colonel Spencer recalled, "We turned around a system and made it do something it wasn't designed to do. In reality, because of the professionalism of our people, we were giving far more than what we should have been able to, but we were criticized for not living up to the expectations of people who knew little about the system."[13]

The daily taskings also reflected the dynamic nature of tactical reconnaissance. Targets changed constantly, Lieutenant Colonel Lafferty recounted that although he worked 16 hours a day, sometimes CENTAF or CENTCOM taskers would change the planned route after he had gone to bed. They would call Taif directly, perhaps at 2200 hours, and change a route that Lafferty had coordinated earlier. The mission planner would have to construct a new track to replace the one he had drawn earlier. Pilots could no longer do

conventional mission planning a day in advance, since they often did not know where they were going until just before takeoff. Lieutenant Colonel Spencer, from the perspective of CENTCOM headquarters, explained that conditions and circumstances changed so quickly that what was true at 1000 hours might not be true at 2200 hours. Ground unit commanders, in planning for the ground war that began on 24 February, needed to know the exact position of the enemy before planning an attack. Major James C. Hundley, a U-2 mission planners, noted that despite the short notices and the frustration of redoing just-completed tracks, the mission planners completed the tracks for every tasking enabling the pilots to meet the mission requirements.[14]

The increased demand for U-2 imagery caused the operations tempo to nearly double over night. From 1 through 16 January 1991, the 1704RS scheduled 44 sorties and flew 38. In the last 15 days of January, the squadron scheduled 85 sorties and flew 73. Total flying hours for January was 872.6. February's flying schedule set all-time records for deployed U-2 operations: 182 sorties flown, with 1386.7 total flying hours.[15]

The recording breaking operations tempo put considerable pressure on the maintenance people, both military and civilian, to furnish mission-ready aircraft for so many flights. Fortunately, the U-2 flies better at higher ops tempos. Still, the environment with the dust and heat, the lack of hangar space that forced maintainers to leave airplanes on the ramp exposed to the elements, and round-the-clock operations in a wartime setting made the work especially difficult. Dust accumulated inside the fuselages and engines, but caused no problems. Except the tire problems, mentioned previously, and inertial navigational system overheating, the temperatures had little affect on the airplane. Occasionally, if a fully-fueled aircraft sat on the ramp in the sun too long, the fuel expanded and ran out through the overflow port. This was more

a bother than a problem, a bucket to catch the overflow prevented fuel from running onto the ramp. On the other hand, heat could cause problems for pilots in their pressure suits. But physiological support division technicians developed procedures to provide extra cooling into the cockpit until the pilot was ready for takeoff. So the people and equipment performed well, despite the extreme conditions.[16]

But, like other squadron members, the last minute changes and additions to the flying schedule affected the maintenance people. Since not all U-2s could carry all sensors, the aircraft were not completely interchangeable. Lockheed technical representatives were especially helpful in keeping the maintainers aware of which sensors each aircraft could carry. If a late night change in the ATO called for a change in sensors, maintainers often had to scramble to prepare another airplane or spend hours moving a sensor from one airplane to another. Despite the heat, dust, lack of hangar space, and last minute changes, the 1704RS(P) maintainers had a fully-mission-capable rate of 92 percent for February 1991. This compared with a 72.5 percent rate at Beale for the same month.[17]

Another constant concern for Major Steve Lundell, the squadron's logistics officer, was JPTS. When Desert Storm began, the squadron had almost 450 thousand gallons of JPTS on hand, an estimated four-week supply, based on a sortie rate of five per day. When the operations tempo increased to seven sorties per day, the monthly JPTS requirement grew to approximately 600 thousand gallons. Although ships and C-130 "bladder birds" kept bringing in more fuel, by the middle of February the squadron had approximately a two-week supply. Major Lundell acknowledged that between resupply ships the total once dropped to less that 100 thousand gallons. Logistic staffs at Headquarters SAC and at the San Antonio Logistics Center worked to increase the supply. Extra fuel

and decreased flying activity after the end of the war eased the shortage.[18]

Squadron activity peaked in the week before 24 February 1991, the scheduled onset of the ground war. The 1704RS(P) had 12 airframes and regularly flew seven sorties a day. Dynamic battlefield conditions made short-notice track and schedule changes almost routine. The 100-hour ground war, beginning at 240400L and ending at 280800L February, was quick and decisive. The U.S. Air Force and the 1704RS(P) had done their job well.[19]

The U-2's performance and contributions during Desert Shield and Desert Storm were impressive. During the five months of Desert Shield, the U-2 flew 284 sorties and 2726.2 hours, averaging nearly 57 sorties and over 545 hours per month: an impressive performance. In the six weeks of Desert Storm, the U-2 flew 260 sorties and 2022.5 hours, averaging over 43 sorties and 337 hours **per week**: a phenomenal achievement. Authorities estimated that the U-2 provided approximately 50 percent of all imagery intelligence and 30 percent of the total intelligence for the war: quite an accomplishment for the platform's first venture into tactical reconnaissance.[20]

Chapter 6 Notes

1. Article (U), *Washington Post*, "Resolution Sets Jan. 15 Deadline For Withdrawal," 30 Nov 90; msg (U), AFNEWS/IIB to AIG 9333/PA, et al, "United Nations Resolutions," 152215Z Feb 91.

2. Hist (S/NF/LD/WIN/SAR/SY/OADR), SAC, "History of 9th Strategic Reconnaissance Wing, Jan-Jun 91 (U)," vol 5, 1 Nov 91, Exhibits II-65 & II-66, info used (S/NF/LD/OADR); intvw (S/NF), Cross with Lt Col Peterson; intvw (S/NF), Cross with Lt Col Spencer; intvw (S/NF), Cross with Lt Col Wright, info used (U), per SAF/PAS security review 95-1070.

3. Intvw (S/NF), Cross with Lt Col Peterson; msg (S/NF/OADR), USCINCCENT/CCJ2 to HQ SAC/DOR, et al, "U-2/TR-1 Wartime Requirements for SWA (U)," 200900Z Dec 90; msg (S/OADR), 1704PRS/CC to 9SRW/CC, et al, "Manning and Equipment Issues (U)," 260000Z Dec 90; msg (S/NF/LD/OADR), 1704PRS/CC to 9SRW/CC, et al, "Manning and Equipment Issues (U)," 281100Z Dec 90; msg (S/NF/LD/OADR), 1704PRS/DO to 99SRS/CC, et al, "Pilot Rotations (U)," 310000Z Dec 90; msg (S/OADR), 1704PRS/CC to 9SRW/CC, et al, "SITREP 90-16 (U)," 011145Z Jan 91; msg (S/OADR), 1704PRS/CC to 9SRW/CC, et al, "SITREP 90-17 (U)," 062215Z Jan 91, info used (U), per SAF/PAS security review 95-1070.

4. Intvw (S/NF), Cross with Lt Col Peterson; intvw (S/NF), Cross with Maj Lundell, info used (U), per SAF/PAS security review 95-1070.

5. Intvw (S/NF), Cross with Lt Col Spencer, info used (U), per SAF/PAS security review 95-1070.

6. Intvw (S/NF), Cross with Col Lafferty; intvw (S/NF), Cross with Lt Col Spencer; intvw (S/NF), Cross with Maj Mathews; msg (S/OADR), HQ SAC/DOR to USCINCCENT/CCJ2, et al, "SAC SWA Reconnaissance Tasking and Execution Procedures (U)," 142225Z Jan 91; msg (S/NF/OADR), 17ADP/DOR to 9SRW/CC, "Trip Report (U)," 141200Z Feb 91, info used (U), per SAF/PAS security review 95-1070.

7. Intvw (S/NF), Cross with Lt Col Peterson; intvw (S/NF), Cross with Lt Col Wright, info used (U), per SAF/PAS security review 95-1070.

8. Intvw (S/OADR), SSg E.D. Wallwork, 1704RS/HO, with Maj B.L. Bachus, 1704RS, ca 19 Jan 91; intvw (S/OADR), SSg E.D. Wallwork, 1704RS/HO, with Capt M.C. McDonald, 1704RS, ca 19 Jan 91, info used (U), per SAF/PAS security review 95-1070.

9.Intvw (S/NF/OADR), SSg E.D. Wallwork, 1704RS/HO, with Lt Col
S.M. Peterson, 1704RS/CC, <u>ca</u> 19 Jan 91, info used (U), per
SAF/PAS security review 95-1070.

10.Intvw (S/OADR), SSg Wallwork with Lt Col Peterson; intvw
(S/NF), Cross with Col Lafferty; msg (S/NF/LD/OADR), 1704PRS/CC
to 9SRW/CC, "Commander's Mission Summary Olympic Flare (U),"
191645Z Jan 91; memo (S), Col C.W. Hinkle, "Recommendation for
the Award of the Distinguished Flying Cross," info used (U), per
SAF/PAS security review 95-1070.

11.Intvw (S/NF), Cross with Lt Col Wright; intvw (S/NF), Cross
with Col Lafferty; msg (S/OADR), Det 8, 2762LS/ME to
USCINCENT/CCJ2, <u>et al</u>, "Airlift Support for Additional U-2
SYERS/SENIOR BLADE (U)," 241900Z Jan 91, info used (U), per
SAF/PAS security review 95-1070.

12.Memo (S), Col C.W. Hinkle, "Recommendation for the Award of
the Distinguished Flying Cross," info used (U), per SAF/PAS
security review 95-1070

13.Intvw (S/NF), Cross with Lt Col Spencer; intvw (S/NF), Cross
with Col Lafferty; msg (S/OADR), 1704PRS/CC to 9SRW/CC, <u>et al</u>,
"SITREP 91-19 (sic) (U)," 102145Z Feb 91, info used (U), per
SAF/PAS security review 95-1070.

14.Intvw (S/NF), Cross with Col Lafferty; intvw (S/NF), Cross
with Lt Col Spencer; (S/OADR), SSg E.L. Wallwork, 1704RS/HO, with
Maj J.C. Hundley, 1704RS, <u>ca</u> 19 Jan 91; msg (S/OADR), 1704PRS/CC
to 9SRW/CC, <u>et al</u>, "SITREP 91-19 (U)," 272345Z Jan 91; msg
(S/NF/OADR), 17ADP/DOR to 9SRW/CC, "Update (U)," 191100Z Feb 91,
info used (U), per SAF/PAS security review 95-1070.

15.Hist (S/LD/WIN/SAR/OADR), CENTCOM, "History of the 1704
Reconnaissance Squadron, Provisional, 27 January-28 February 1991
(U)," info used (U), per SAF/PAS security review 95-1070.

16.Intvw (S/NF), Cross with Carmody; intvw (S/NF), Cross with Lt
Col Peterson; intvw (S/NF), Cross with Lt Col Wright; intvw (S/NF),
Cross with Maj Lundell; msg (S/OADR), 1704PRS/CC to 9SRW/CC, <u>et al</u>,
"SITREP 91-20 (U)," 031731Z Feb 91; msg (S/OADR), 1704PRS/LG to
17RW/CC, <u>et al</u>, "Material Deficiency Report (U)," 030935Z Feb 91,
info used (U), per SAF/PAS security review 95-1070.

17.Hist (S/NF/WIN/LD/SAR), "History of 1704RS(P), 27 Jan-28 Feb
91 (U)," vol 1, 5, info used (S); hist (S/NF/WIN/LD/SAR/SY), SAC,
"History of 9th Strategic Reconnaissance Wing, January-June 1991
(U)," vol 1, 158, info used (U); msg (S/OADR), HQ SAC/DOR to
17RW/CC, <u>et al</u>, "U-2 Aircraft Swapout (U)," 042110Z Jan 91; msg
(S/OADR), 1704PRS/CC to 9SRW/CC, <u>et al</u>, "Aircraft Configuration
Changes (U)," 050055Z Feb 91; msg (S/OADR), HQ SAC/DOR/LGX to
USCINCCENT/CCJ2, <u>et al</u>, "Aircraft Configuration Changes (U),"

122200Z Feb 91; msg (S/OADR), JCS/J36/JRC to USCINCEUR/ECJ3, <u>et al</u>, "Additional Akrotiri Aircraft (U)," 142015Z Feb 91; msg (S/OADR), USCINCCENT/CCJ2/JRC to HQ SAC/DOR, <u>et al</u>, "Additional Aircraft for Desert Storm (U)," 152201Z Feb 91; msg (S/OADR), HQ SAC/DOR/LGX to 8AF/DO, <u>et al</u>, "Busy Relay (U)," 161600Z Feb 91; msg (S/OADR), CJCS to CINCSAC, <u>et al</u>, "Deployment Order for Additional U-2/TR-1 Aircraft (U)," 161718Z Feb 91, info used (U), per SAF/PAS security review 95-1070.

18.Hist (S/NF/WIN/LD/SAR), "History of 1704RS(P), 19-21 Jan 91 (U)," vol 1, 4, info used (S); intvw (S/NF), Cross with Maj Lundell; msg (S/OADR), 48FTW/RM to SA-ALC/SF, "Additional Requirement for JPTS (U)," 130500Z Feb 91; msg (S/OADR), HQ SAC/LGSF to SA ALC/SF, <u>et al</u>, "Additional JPTS Requirement (U)," 151503Z Feb 91; msg (S/OADR), 1704PRS/CC to 9SRW/CC, <u>et al</u>, "SITREP 91-22 (U)," 172100Z Feb 91; msg (S/OADR), 1704PRS/CC to 9SRW/CC, <u>et al</u>, "SITREP 91-23 (U)," 241723Z Feb 94; msg (S/OADR), USCENTAF/LG to USTRANSCOM/CAT, <u>et al</u>, "Airlift of JPTS (U)," 020517Z Mar 91, info used (U), per SAF/PAS security review 95-1070.

19.Msg (S/OADR), 1704PRS/CC to 9SRW/CC, <u>et al</u>, "SITREP 91-23 (U)," 241723Z Feb 91; hist (S/NF/LD/WIN/SAR/OADR), CENTCOM, "History of the 1704 Reconnaissance Squadron, Provisional, 27 January-28 February 1991 (U)," 1; (U) *Gulf War Air Power Survey*, vol v, "A Statistical Compendium and Chronology," 231, 240, info used (U), per SAF/PAS security review 95-1070.

20.Hist (S/NF/LD/WIN/SAR/OADR), CENTCOM, "History of the 1704 Reconnaissance Squadron, Provisional, 27 January-28 February 1991 (U)," 1-2, info used (U), per SAF/PAS security review 95-1070.

Chapter 7

Assessing the U-2's Performance

No combat commander has ever had as full and complete a
view of his adversary as did our field commander.
Intelligence support to Operations Desert Shield and
Desert Storm was a success story.[1]
General Colin Powell

The great military victory we achieved in Desert Storm
and the minimal losses sustained by US and Coalition
forces can be directly attributed to the excellent
intelligence picture we had on the Iraqis.[2]
General H. Norman Schwarzkopf

At the strategic level, [intelligence] was fine. But we
did not get enough tactical intelligence---front-line
battle intelligence.
Lieutenant General William M. Keys, USMC

In assessing the U-2s performance in Desert Shield/Storm, one
should ask three questions: was the system responsive to the
theater commander's desires? did it gather the information he
wanted? and, did the system furnish the information quickly enough
to be of value? General Schwarzkopf and his unit commanders gave
the intelligence function mixed reviews. The House Armed Services
Oversight and Investigations Subcommittee studying intelligence
successes and failures in Desert Shield/Storm concluded
intelligence collection was "generally very good and deserving of
praise, although there were some major problems." They considered
CENTCOM's failure to "mature an intelligence capability" and
tactical imagery systems' inability to provide field commanders the
quantity and type of products they needed two major problems. The
committee, however, cited three outstanding collection platforms,
including the ASARS-equipped U-2.[3]

CENTCOM's failure to "mature an intelligence capability" affected the U-2's ability to respond. When Desert Shield began CENTCOM had one person on the J-2 staff with U-2 experience. CENTAF had no one. Without knowledgeable staff people, there was little likelihood of making the U-2 respond quickly or cover the desired targets. Lieutenant Colonel "Ash" Lafferty, with experience in strategic reconnaissance operations, deployed to CENTAF as a U-2 operations officer. Lafferty and Lieutenant Colonels Spencer and Bonsi used their "connections" at the SRC, the Joint Reconnaissance Center in Washington, and at the 1704RS at Taif to overcome the hurdles and make the system work. They simplified the tasking and approval procedures and made the U-2 responsive to General Schwarzkopf's desires. Lieutenant Colonel Spencer recalled, "We worked hard . . . so Schwarzkopf could maneuver airplanes to meet his needs and still keep the command authority aware of how many airplanes there were, what they were doing, and what their ops tempo was."[4]

Despite these efforts some in-theater commanders grumbled the U-2 was not responsive to their needs. Lacking experience in high altitude flying, few commanders appreciated the difference between the U-2 and fighter aircraft. First, because the U-2 lacked armament to defend itself, mission planners had to develop flight plans that avoided known threats. The Defense Intelligence Agency, SAC, and CENTCOM each had a threat database, and the three seldom agreed. Conflicting opinions over where the U-2 could safely fly caused frustration. Second, since ground stations controlled the sensors, intelligence personnel and mission planners had to coordinate closely to ensure optimum data gathering. Third, physiological restrictions required pilots to "prebreathe" 100% oxygen before flying and to have longer crew rest between flights. Fourth, the small number of platforms and sensors limited system availability. Fifth, other theaters continued to have reconnaissance needs that prevented the national command

authorities from sending all the reconnaissance assets to the Persian Gulf.[5]

Even with these limitations, the U-2 responded well to taskings. Lieutenant Colonels Bonsi, Lafferty, and Spencer ensured that all approved CENTCOM taskings were in the ATO. The 1704RS at Taif mission planners often worked through the night to plan add-on taskings, and the pilots sometimes flew missions without knowing where they were going until just before flight time. The pilots even responded to dynamic retaskings while in flight, something U-2 pilots had never done before the Gulf War. The criticism of the U-2 for lack of responsiveness seems unjustified.[6]

Ninth Reconnaissance Wing leaders determined the U-2 provided 30% of *total* intelligence, over 50% of *imagery* intelligence and 90% of all Army targeting intelligence for the entire theater. Still, some commanders complained they did not get the type or the quantity of imagery they wanted. The House Armed Services Committee acknowledged the U-2's "continuous coverage all-weather, day and night for targeting during the ground war." But the committee criticized national authorities because the investment in tactical collection assets had not kept pace with national assets. Specifically, there was no system to provide wide-area imagery with sufficient resolution: to make maps and provide terrain data for the F-117, the Tomahawk land attack missile, and the F-15E; to locate and count enemy weapons systems and provide adequate BDA; or to locate and target key enemy forces, including mobile missile launchers. The committee found that the retirement of both the SR-71 and a wide-area satellite imagery system simultaneously without follow-on systems was short-sighted.[7]

Although the committee's assessment that the U-2 could not provide broad-area coverage with high NIIRS (national imagery interpretation rating scale) resolution was valid, there was no

operational system available with that capability. The U-2 staff who deployed to Saudi Arabia, however, worked hard to provide the best imagery possible to the field commanders. The Strategic Air Command always considered the U-2 as a "strategic" asset for gathering intelligence data against the Soviet Union. Designers never intended the sensors as battlefield assets for gathering "tactical" intelligence. Before the Gulf War the intelligence community preferred the near-real-time electronic and radar imagery generated by the SYERS and ASARS and neglected photo imagery. Specialists in the ground stations analyzed the images and within a very short time issued an IPIR (initial photographic interpretation report) pinpointing suspected targets by coordinates. Reliance on SYERS and ASARS became almost exclusive after the SR-71 retired and funding was eliminated for the MIPE.[8]

Pilots and commanders, however, did not like the IPIRs. They wanted photographic quality imagery. After the war, General Schwarzkopf told the House Armed Services Committee, "General Chuck Horner said to me . . . in every other war when our pilots were to go out and hit a target, they generally have an aerial photograph in their laps that was no more than 24 hours old of exactly what it was they were going to hit. . . . We didn't have that capability."[9]

While both the Blade and TRAC vans could produce hard copy images, the process took about twenty minutes for one hard-copy print and interfered with the near-real-time collection. To compensate for the slow hard-copy processing, during the Gulf War Air Force bombardiers and Army staff officers joined the ground stations and reported what they saw directly to their commanders or to flight crews. This allowed dynamic retasking, even while the attacking aircraft was in-flight. In one instance, the bombardier in the TRAC van saw a likely target and redirected a B-52 in-flight. The B-52 struck the new target and reported secondary explosions up to six thousand feet, indicating an apparent bomb

dump. When the ground war started the Army representative relayed battlefield conditions and enemy positions and movement to his commander. This gave the ground commanders near-real-time information from one of their own observers. The TRAC (which supports the ASARS) and Blade (which supports the SYERS) vans performed extremely well, especially for unproven systems. Neither the TRAC nor the Blade van had completed operational testing and evaluation before they deployed to the theater.[10]

To satisfy the demand for "hard-copy" imagery before the war began, the 1704RS flew IRIS-III and H-camera missions that provided broad-area coverage of Iraqi positions within 50 miles of the Saudi Arabia-Iraq and Saudi Arabia-Kuwait borders. The "customers" liked the broad-area coverage, but wanted higher resolution. After the air war started and coalition forces established air supremacy over Iraq, the squadron flew sorties with the H-camera taking bomb damage photos from the nadir position. This never-before-tried technique produced results that exceeded the camera's advertised capability. The customers liked the resolution, but wanted broader coverage. There was no sensor available to provide both high NIIRS and broad area coverage, so increasing customers' expectations surpassed the U-2's capability.[11]

To provide more photographs in less time, the 9th SRW brought a refurbished MIPE to Riyadh in late December 1990. Before that, film had to be flown to Germany for processing. Processing film in the MIPE is a time-consuming, labor-intensive operation, requiring about 12 hours for one roll of film. Equipment limitations and chemical processing dictate the time needed. Also, field commanders wanted many targets covered on each roll. Pinpointing each target and making individual prints slowed the process even more. In response to the ever-increasing demand for photographs, the U-2 flew more camera missions. The U-2 output quickly overwhelmed the MIPE's processing capability. The bottleneck was

in dissemination of the intelligence products, not in the gathering.[12] General Horner's criterion of pilots having "an aerial photograph in their laps that was no more than 24 hours old of exactly what it was they were going to hit" was beyond the capability of the available systems. With a larger and more U-2 educated staff, General Horner and the field commanders could have realized they had unrealistic expectations for the sensors and the processing element.

Targeting, or taking pictures of the sites commanders wanted covered, also got mixed reactions in the Gulf War. Order of battle reconnaissance covering the Iraqi Army served the coalition forces well and got good reviews.[13] The House committee, however, considered battle damage assessment, the ability to determine if the air campaign had made Iraqi heavy equipment inoperative, the "greatest challenge and greatest failure of the intelligence community in Operation Desert Storm."[14] The committee also labeled the "Great Scud Chase" a "double loser." Hunting the mobile launchers diverted resources needed elsewhere and "there is no hard evidence that the Great Scud Chase destroyed even a single Scud missile or mobile launcher."[15]

The Gulf War Air Power Survey (GWAPS) stated, "Coalition intelligence provided remarkably complete tactical intelligence on the locations and dispositions" of Iraqi ground forces in Kuwait. The Coalition ground forces "encountered no major surprises" during the one-hundred-hour campaign. U.S. Army Brigadier General John F. Stewart, Jr., noted, "The enemy was exactly where intelligence said he was, disposed as intelligence described." The Coalition forces' rout of a large, well-equipped, dug-in Iraqi Army in one hundred hours with few allied casualties proves the quality of the intelligence. As mentioned earlier, the U-2 provided 90% of the U.S. Army's target intelligence.[16]

Although almost everybody agreed that bomb damage assessment (BDA) was inadequate in the Gulf War, causes for the problem were nearly as many as the people giving opinions. General Schwarzkopf told Congress, BDA "led to some disagreements. As a matter of fact, it led to some distancing on the part of some agencies from the position of CENTCOM at the time, as to what the bomb damage assessment really was."[17] When Colonel John Warner presented the basic concept that became the Desert Storm strategic air campaign, he envisioned "centers of gravity" that were necessary for Iraq to continue functioning and supporting the Iraqi Army. His plan's objective was to stop these centers' functioning long enough to cause war support to collapse and the Army to surrender. Measuring a system's ability to function is far different from evaluating physical damage to a structure.[18]

Even assessing physical damage was difficult because Desert Storm, unlike previous air campaigns, relied heavily on "smart bombs" to destroy important functions with minimum collateral damage or injury. These weapons could destroy a building's interior while leaving the exterior intact. The only visible sign might be a six-inch diameter hole. Gathering BDA on heavy equipment was also confusing as the Iraqis placed burning oil cans on tanks and artillery pieces to simulate bomb damage. Only the U-2's H-camera, flown at the nadir position, could differentiate between a real tank fire and a simulation. The H-camera at nadir, however, covers very little area. Unfortunately, the Air Force only had two H-cameras in its entire inventory, which were not enough to cover the entire area of battle with this pinpoint photography.[19]

Battle damage assessment suffered, too, especially after the Great Scud Chase began, because it lacked the priority of other missions. With only twelve U-2s available, authorities had to choose which requests to support. According to the GWAPS, "once

the war began . . . Horner and Glosson made a conscious decision 'not to waste aircraft to shoot pictures of targets we knew had already been struck.'"[20] Iraqis Scuds presented little military threat. But their psychological effect on Israel and the diplomatic implications of possible Israeli retaliation made the Scuds an important political target. Scud hunting became more important than BDA.[21]

The short-range Scuds posed little danger to Coalition forces. Saddam knew, however, how to use them for maximum effect. By aiming Scuds at Israeli cities and leaving open to speculation whether they carried poisonous gases or deadly viruses, Saddam hoped to draw a retaliation from Israel and split the Western-Arab coalition. Locating and destroying Scuds and their transporter erector launchers (TEL), therefore, gained high priority for the national command authorities in Washington. The U-2 had little trouble finding fixed launchers and coalition aircraft destroyed several.[22]

The TELs, however, proved much more difficult. There were several reasons for this. First, intelligence analysts believed the Iraqis would employ the Scuds the same way the Soviets had during Warsaw Pact exercises. The Soviets took hours to carefully erect, calibrate and aim the missiles before firing. The Iraqis arrived at a launch site, erected the missile, fired, and moved on within ten minutes. Also, the Iraqis almost exclusively launched the Scuds at night. This procedure made the Scuds ineffective militarily, but effective psychologically. It also made them very hard to locate. To further complicate the task, the Iraqis created decoys that were difficult to distinguish from the TELs.[23]

Since American forces had never hunted mobile missiles before, planners had to create new tactics. They devised the continuous combat air patrol, primarily with an ASARS-equipped U-2 and an F-

15E. When the ASARS located a suspected TEL, the F-15E destroyed it. In the air campaign's first ten days, aircrews claimed several mobile launcher "kills" using this technique. A slowdown in Scud launches seemed to confirm the claims. Subsequent investigation revealed, however, that the kills were of decoys, other short range missiles, or trucks. As previously stated, the House committee found there was no "hard evidence" of any Scud or TEL kills. The committee also admitted that even when the fighters knew the exact location of a Scud launcher, pilots had trouble finding and destroying them. The committee concluded, however, that the allied effort probably "retarded the Iraqi Scud effort" and made the firings much more inaccurate by forcing the Iraqis to act so quickly. If the Scud hunt's purpose was to prevent Israel from retaliating and entering the war, which it apparently was, then the hunt succeeded even though it was ineffective militarily.[24]

Returning to the three original questions to assess the U-2s performance in Desert Shield/Storm: was the system responsive to the theater commander's needs? "Yes," despite the lack of U-2 educated people on the CENTCOM staff. Knowledgeable people in key positions used their contacts to make the system respond, even to dynamic, in-flight retaskings, something the U-2 had never done before. Did it gather the information he wanted? "Yes and no." The U-2 provided a clear picture of Iraqi Army field positions and insured there "were no surprises" during the ground war. Imagery for battle damage assessment and finding Scuds was much less successful. Did the system furnish the information quickly enough to be of value? Electro-optical and radar imagery was near-real-time. With Air Force and Army observers in the ground stations, aircrews and ground commanders received near-real-time intelligence. Many commanders, however, wanted photographs. The U-2 had no camera that could provide broad-area, high resolution photographs. Also, the demand for photographic imagery overwhelmed the processing and dissemination system. So it was virtually

impossible to provide the quantity of photographs within time to be useful.

Some criticisms of the U-2, therefore, were valid and others were not. Even the valid ones, however, should not reflect negatively upon the men and women of the 9th Reconnaissance Wing. They showed great flexibility, ingenuity, and dedication in adapting the U-2 to its new "tactical" wartime role. Any shortcomings reflected policy and planning failures "at a much higher pay grade."
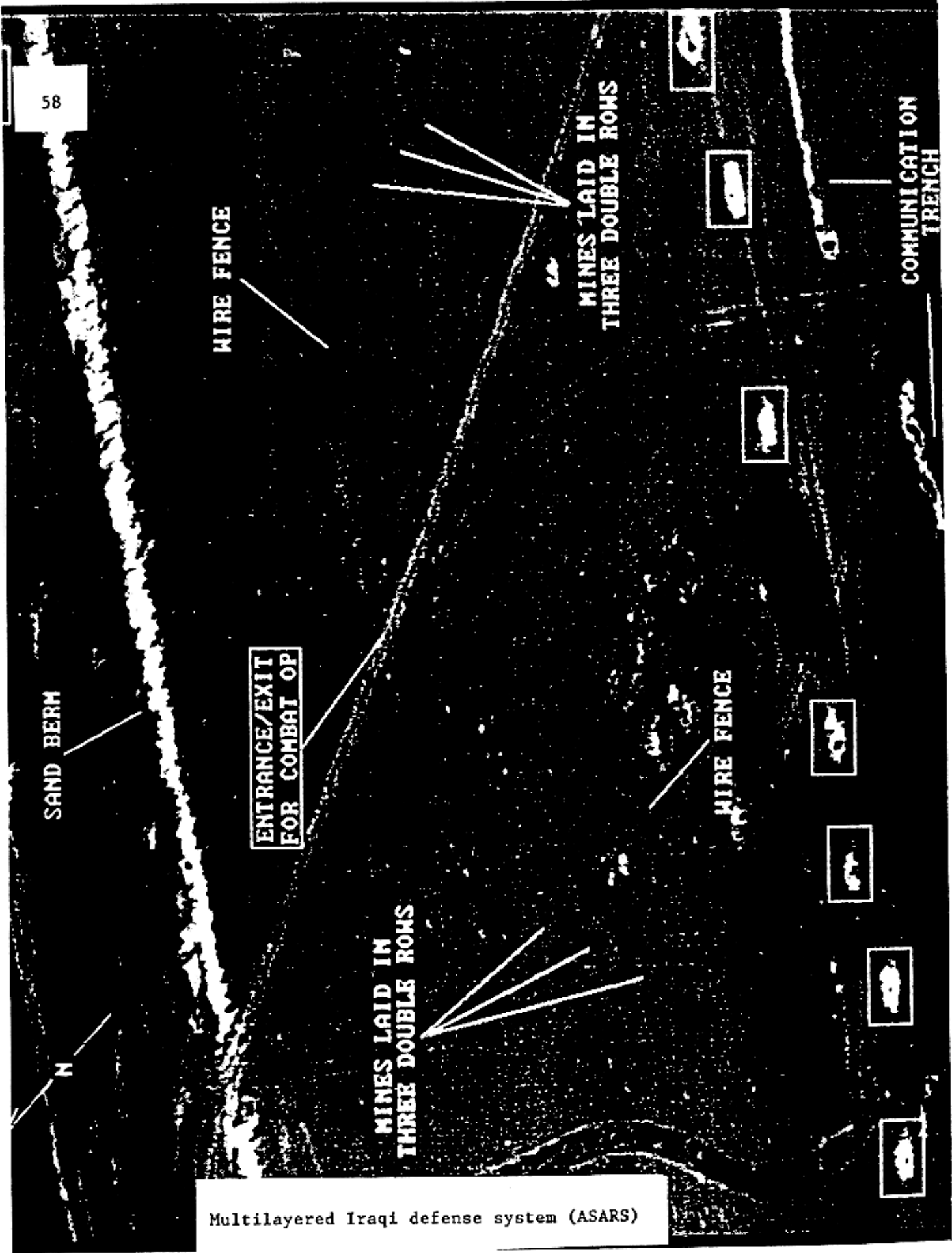
Multilayered Iraqi defense system (ASARS)
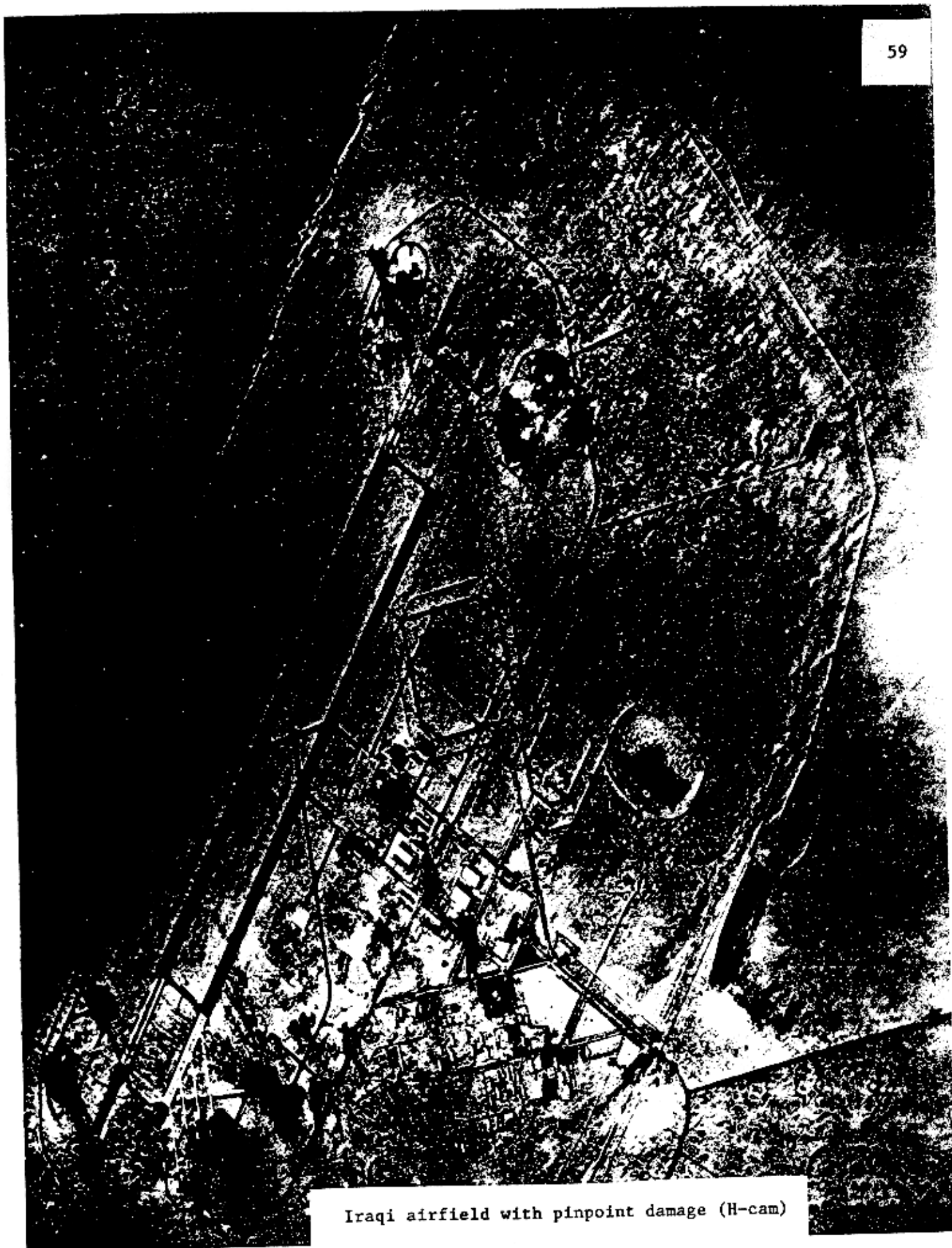
Iraqi airfield with pinpoint damage (H-cam)

60

Burning oilfield in Kuwait (SYERS)

Notes for Chapter 7

1. Rpt (U), DOD, "Conduct of the Persian Gulf War: Final Report to Congress," Apr 92, C-1.

2. Ibid.

3. Rpt (U), HR, "Intelligence Successes and Failures in Operations Desert Shield/Storm," 16 Aug 93, 1-7.

4. Intvw (S/NF), Cross with Lt Col Spencer; intvw (S/NF), Cross with Col Lafferty; intvw (S/NF), Dr C.F. Cross, 9RW/HO, with Lt Col D. Bonsi, 10 Feb 95; msg (S/OADR), HQ SAC/DOR to USCINCCENT/CCJ2, et al, "SAC SWA Reconnaissance Tasking and Execution Procedures (U)," 142225Z Jan 91, info used (U), per SAF/PAS security review 95-1070.

5. Ibid.

6. Intvws (S/NF), Cross with Lt Col Bonsi, Col Lafferty, and Lt Col Spencer; citations (S), 9RW, "Citations to accompany the award of DFCs," Appendix 2, info used (U), per SAF/PAS security review 95-1070.

7. Rpt (U), HR, "Intel Successess and Failures," 7-10; memo (S/NF/LD), 9RW, "Justification for Outstanding Unit Award," ca Jul 91, info used (U), per SAF/PAS security review 95-1070.

8. Intvws (S/NF), Cross with Lt Col Bonsi, Col Lafferty, and Lt Col Spencer, info used (U), per SAF/PAS security review 95-1070.

9. Rpt (U), HR, "Intel Successes and Failures," 30.

10. Intvws (S/NF), Cross with Lt Col Bonsi, Col Lafferty, and Lt Col Spencer, info used (U), per SAF/PAS security review 95-1070.

11. Ibid.

12. Ibid.

13. Rpt (U), HR, "Intel Successes and Failures," 13.

14. Ibid., 18.

15. Ibid., 11-12.

16. Rpt (U), "Gulf War Air Power Survey Summary Report," 1993, 138.

17. GWAPS, 139.

18.See Richard T. Reynolds, *The Heart of the Storm: Genesis of the Air Campaign Against Iraq* (Maxwell AFB: Air University Press, 1995) for a discussion of Colonel Warden's role and the planning of the air campaign.

19.Intvw (S/NF), Cross with Lt Col Spencer and Lt Col Bonsi, info used (U), per SAF/PAS security review 95-1070.

20.GWAPS, 131.

21.Intvw (S/NF), Cross with Col Lafferty, info used (U), per SAF/PAS security review 95-1070.

22.GWAPS, 123-24; rpt (U), HR, "Intel Successes and Failures," 11-12; intvws (S/NF), Cross with Lt Col Spencer and Col Lafferty, info used (U), per SAF/PAS security review 95-1070.

23.GWAPS, 123-24; intvws (S/NF), Cross with Lt Col Spencer, Col Lafferty, and Lt Col Bonsi, info used (U), per SAF/PAS security review 95-1070.

24.GWAPS, 123-24; rpt (U), HR, "Intel Successes and Failures," 11-12; intvws (S/NF), Cross with Lt Col Spencer, Col Lafferty, and Lt Col Bonsi, info used (U), per SAF/PAS security review 95-1070.