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Aeromedical Analysis Sample

The structure and content of the Aeromedical Analysis (AA) is presented in the Aeromedical Analysis section of this guide. A sample AA is included here to represent how a good AA should be written. For those Flight Surgeons that are unfamiliar with or need review of the DoD Human Factors Analysis and Classification system (HFACS), an introduction to DoD HFACS can be found in the Aeromedical CD or in the electronic version of The Naval Flight Surgeons' Pocket Reference to Aircraft Mishap Investigation.

Finally, the Naval Safety Center cannot stress enough the inclusion of all the enclosures and the proper completion of all of the forms. This information is placed in a database from which important conclusions are derived about saving lives and aircraft. Flight Surgeons are encouraged to elicit the help of AMSO's, PR's, NATOPS personnel, squadron safety personnel, and the Naval Safety Center, so that the forms may be finished in a timely and complete manner. **NOTE**: The **AA and 72 hour history contain privileged information** and must be labeled accordingly and submitted with all AA enclosures on Side B of SIR. Along with a hard copy of your AA, make sure an electronic copy of your AA is included in your submission of your package to Code 14, Aeromedical devision, Naval Safety Center.

SAMPLE AEROMEDICAL ANALYSIS

FLT SRGN: Doe, Jane **Rank/Grade:** LT, MC, USN (FS)
Mailing Address: UNIT 009, BOX 636, FPO AE 12345-6789
Phone Numbers: DSN 999-1234, Commercial (123) 321-1234
FLT SRGN Email: doe.jane@navysquad.navy.mil
Date AA submitted: 1/1/2007
Hours spent in investigation: 90
AMSO or others who assisted: LT Hypoxia Jones, MSC, USN
AMSO Email: hjones@astc@navy.mil

ENCLOSURES TO AEROMEDICAL ANALYSIS
01 72-Hour Histories for Mishap Aircrew (FORM SIR 3750/15)
02 AFIP Reports
03 Post Mishap Physical Examinations and pertinent medical record extracts
04 Copies of past two Physical exams with waivers for all personnel
05 Electronic version of AA to Safety Center (CODE14 only) **REQUIRED**
06 Sensitive reports and pertinent photographs (PASS DIRECTLY TO THE AEROMEDICAL DIVISION CODE14 NAVAL SAFETY CENTER)
07 Privileged supporting documentation.

ABBREVIATIONS USED
AA = Aeromedical Analysis
AC = Aircraft
AFIP = Armed Forces Institute of Pathology

Reporting Custodian: **NSC** Mishap Severity: **A**
Date of Mishap: **7 Jan 2008** Mishap Category: **FM**
Aircraft Model: **X15** BUNO: **123456**

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AMB = Aircraft Mishap Board
ASO = Aviation Safety Officer
AMO = Aviation Maintenance Officer
AOM = All Officers Meeting
ASO = Aviation Safety Officer
AMB = Aviation Mishap Board
CDI = Collateral Duty Inspector
CO = Commanding Officer
CTW = Commander Training Wing
FAC(A) = Forward Air Control (Airborne)
FNAEB = Field Naval Aviator Evaluation Board
FRS = Fleet Replacement Squadron
FS = Flight Surgeon
IMC = Instrument Meteorological Condition
MP = Mishap Pilot
LSO = Landing Signal Officer
MA = Mishap Aircraft
MFL = Mishap Flight Leader
MSQD = Mishap Squadron
NATOPS = Naval Aviation Training and Operating Procedures Standardization
OPSO = Operation Officer
ORM = Operation Risk Management
SA = Situational Awareness
SIR = Safety Investigation report
SOP = Standard Operating Procedures
VFR = Visual Flight Rules
VMC = Visual Meteorological condition
WNL = Within Normal Limits
XO = Executive Officer

1. REVIEW OF EVENTS

INTRODUCTION:

The MP was a fast-track fighter pilot. His CO, said of him, "…outstanding stick-and-rudder man, …able to hit all the numbers, the altitude, on speed, on time, on target, he was better than anyone in the squadron, as good as I've ever seen it." The MP was an outgoing, upbeat, and a good athlete. He was a likeable guy; and a community leader where he lived. He had been a top fighter instructor for 2 years. He was groomed by the CO who hand-picked him to come to joint him as the OPSO. Together, they built a squadron of unmatched air-to-air capability within the fighter community. His mother and friends told how he loved being a fighter pilot.

After listening to testimony from squadron members, MP met all the key characteristics for the "Best Pilot" aviator risk category. The XO commented: he was great to fly with on the most aggressive air-to-air missions, tactically he was superb in teaching and in briefing, he gave a "big boy's" brief (glossed though the admin with other senior aviators). The MP prided himself in teaching the young aviators tactical flying, the squadrons nuggets looked up to him; but through experience, the more experienced pilots became wary of the MP; the MP was better than the jet; he was invincible and above the rules. He was also a repeat violator of SOP/NATOPS and showed declining attention

to detail. The MSQD had two class A mishaps in 24 months; three jets destroyed, two pilots killed; and a common thread. The MP was linked to the previous mishap (a midair collision) after he provided an inadequate brief that failed to take into account a less experienced, very junior wingman. When the new CO took over the squadron he had begun to identify the MP as an at risk aviator and attempted to implement corrective actions, short of grounding him.

In the current mishap, the AMB goes into detail regarding causal factors. These causal factors are centered on the MP's failure to ensure adequate air crew coordination for the administrative portion of the hop, inadequate preflight briefing, and inadequate ORM to know his environment. The AMB recognized MP's dangerous habit patterns and the previous command climate that nurtured those behaviors.

REVIEW OF EVENTS:

PERSONAL HISTORY: The MP graduated from the WhatsTheMatterU, class of '63, and earned his Wings of Gold July '65. After 18 months with Fleet Replacement Squadron, he took orders to MSQD, where he worked for and developed a close friendship with the P-CO for four years. His tour included 15 months in Korea and 9 months on WESTPAC to the Philippines. For two years the MP was a "Top" instructor at the Naval Fighter School. He returned from the Philippines to work for the old CO as OPSO when he took command of the MSQD two years prior to the MF.

CHANGE OF COMMAND TO MIDAIR MISHAP: The new CO had studied the MSQD in great detail and had extensive changes he wanted to effect when he took the command. It was natural for MP to take this as personal criticism; he felt the new CO didn't care for him or trust him; he felt a bit singled out. With the change of command, the MP moved into the AMO job, in charge of over 90% of the squadron personnel (the most complex department head job in the squadron). He would go all out for this job, and predictably he would make mistakes and the CO would ride him pretty hard on this. The other department heads asserted the MP was not singled out by any means: the new CO was making huge demands on all the department heads. In fact, the new CO was careful not to criticize the MP publicly; in private they would discuss their thoughts and plans; the CO adapted his plans with input from his department heads.

AFTER THE MIDAIR MISHAP: 3 months prior to his fatal mishap, the MP was flight lead in a Class A midair; his jet was struck by his wingman's jet during the administrative portion of a tanking hop. His wingman ejected over water and was rescued unharmed. When the MP landed his damaged jet safely at base, he wondered if he would be given an air medal. He felt slighted when the CO failed to congratulate him for his bravery and skill. He was insulted further when the CO mentioned he wanted him to have a FNAEB out of fairness to both pilots. The CO intentionally did not discuss the mishap further until the investigation was done.

The SIR came out the week the MSQD started its TRANSLANT to South Africa and thirty days before the MF. One of the causal factors in the SIR was the MP's inadequate mission brief. The CO was upset with the MP and OPSO when he read the SIR; he explained to our board that his specific instructions to his OPSO were for this first tanker mission for the two new pilots to focus only on tanking. He had approved a sight-seeing hop so the guys could check-off other minor training requirements instead of just burning fuel. The MP however, briefed for the return trip to include air-to-ground simulated low-altitude-low-angle-ordinance-delivery maneuvers carrying three full external fuel tanks (CO saw this as cavalier and an inappropriate hop for new pilots).

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The CO was preparing his SIR endorsement during the TRANSLANT, when the MP came to him to clear up the items sited in the SIR. The MP felt his mission briefs were exemplary and was proud of his ability to train young pilots to fly; the SIR had listed him as a causal factor for an inadequate administrative brief in that mishap. The CO chose this conversation to mention the MP's SOP violation from a few days prior. The MP came into the overhead for the break with a degraded flight control system and a wingman in parade. In this circumstance with possible flight control malfunction, by SOP you make a straight in landing. The MP at first said he had forgotten the SOP but went on to say with a grin "but you and I know nothing would have happened anyway". To get his attention, the CO told him he would have grounded him if he didn't need him to fly the TRANSLANT. Instead of grounding the MP, the CO directed him to discuss his SOP violation at an informal AOM.

After this conversation, the CO began to see the MP differently. Also in the mishap flight, the CO noted the MP flew the damaged jet home, while losing fuel very quickly, and while passing up two adequate runways to land with arresting gear. He landed with 900 lbs of fuel. The CO and other squadron pilots admitted it would have been hard to explain if he had run out of fuel and had to ditch the jet. The CO formally debriefed the MP on his endorsement of the midair SIR.

Next day a human factors council was held with the ASO/OPSO/XO/FS, the MP was not present. They determined from their interactions with the MP that he was dealing with it well, was back to normal, and was part of the team. They couldn't find any reason they shouldn't fly him (CO,XO, FS, ASO). That night as a form of discipline, the MP ran the hotwash, an informal officers' gathering to discuss lessons learned in the TRANSPAC. He spoke to the squadron about his SOP violation as well as other squadron issues. The CO was pleased and felt it had been a worth while exercise for the squadron and for the MP who had been very professional. JOs spoke highly of the MP's hotwash. Of historical interest, two other HFC's were held after the midair mishap and before this night in which the MP was discussed and found fit to fly as well.

SUMMARY OF THE 72-HOUR HISTORY: the weekend prior to the mishap, the MP enjoyed the company of his squadron mates. While bike riding with his best friend, he indicated that all was well regarding his squadron job and his flying, and that he felt strong, 100% and "good-to-go". Three days prior to the mishap, the CO's endorsement was officially released, no mood changes were witnessed in the MP. In the 72 hours before the mishap, the MP was observed to be in a good mood, working hard, and joking appropriately with all (including the CO). In conversation he commented on how he was proud of the guys in maintenance and that he was looking forward to an upcoming visit with his family. Everything was business as usual. Also to note, MP had had adequate rest cycles, work-day lengths, and was seen at the gym, was eating regularly, and not drinking excessively.

THE MISHAP FLIGHT BRIEF: The mishap flight was an air-to-ground sortie with a junior MFL and the MP as a wingman. Both pilots were current and qualified for the flight. The 50 minute brief focused on the tactical portion of the hop. The flight was to head south from Dambro to the Z354, holding at 15000' in a right hand pattern of 15 NM legs heading (HDG) 095 and 310. AK-3 FAC(A) pilot who was responsible for aircraft deconfliction would then give them coordinates and identification of their targets and the flight would drop their bombs. The errain in the target area (which included elevations averaging 2100') was covered extensively but the holding area terrain was not briefed at all. The holding area extended over parts of the mountain range with elevations as high as 14,000'. The Air Force exercise rules required flight to remain in visual meteorological conditions (VMC). In route and holding procedures were given minimal attention at the brief. Sun and moon data were not reviewed, but mean nautical twilight would be nearly complete, there would be no moon, and ambient starlight would be the only light source and it would be filtered though an overcast ceiling. Operational Risk Management factors were briefed to

include lookout for bad weather, target fixation, and increased instrument scan. The MFL remarked the MP was in a good mood and appeared enthusiastic, and professionally satisfied.

THE MISHAP FLIGHT: The flight launched on time. After turning the strobes on, they rejoined. During their climb to15000' enroute to the holding area they encountered a haze layer and requested lower altitude recommendations from the FAC(A) to remain in VMC. "Try 11000" was the reply from the FAC(A). MFL took it (he later states he believed that was a controller altitude assignment). As they descended the MP asked the MFL if he knew the terrain elevation. The MFL replied he couldn't recall but he could see they were well clear. The squadron training officer had prepared an exercise chart for cockpit use, but neither pilot had one during the MF. Had either pilot carried this chart, they could have looked and realized that the FAC(A) recommendation placed them dangerously below the highest terrain in the pattern.

The MFL then asked the MP for his position and the MP admitted he had gone into (an un-briefed) radar trail formation. The MFL turned his strobes and position lights on to assist the MP in keeping sight of him. On reaching the Z354, the MFL called for and initiated a left hand turn (vice the briefed right hand turn) to avoid spilling out of the area, to avoid high terrain to the right as depicted on his moving map, and to avoid weather to the south and west. The MP in a 1.5 NM trail overrode this call with a calm "not to get in you cockpit but aren't we supposed to be making a right hand turn?" and the flight turned back to the right to comply with the briefed holding pattern.

As the MFL continued turning though HDG 156, he momentarily entered IMC and called to keep turning to 060 to avoid the weather. On the flight path analysis when the MFL was HDG 220 alt 10360', the MP was at HDG 120 alt 9728'. It was speculated the MP could have had a spurious radar lock on a mountain-top, this would have been brief; he would not have mistaken it for the MFL for long due to his extensive radar experience. At this point though, it was physically impossible to have a radar lock or sight of the MFL, and the MP was violating SOP by not executing lost sight/drop lock procedures. The MFL was not aware they were flying as two separate flights and could do nothing to help now. The MP continued to descend below the cloud deck to remain in VMC, relying only on his NVG's for terrain clearance. Ambient starlight filtered by the overcast sky, absence of cultural lighting, unfamiliar snow covered mountains and ridgelines, and possible complicating snow fall restricted the usefulness of the MP's NVG's in navigating the high terrain. The MP, a seasoned veteran with over 2000 hrs, had only 25 hours flying goggles, he was making a serious beginner's mistake: he was "hacking it."

As the MFL rolled out to HDG 080, the MP was HDG 290 at 9350'. The MP adjusted to the briefed HDG 210 and continued his descent to 8988' staying under the weather. Two seconds prior to impact the MP commanded full stick aft generating 37 degrees alpha resulting in a climb from 8988' to 9135'. He impacted the mountainside at 9135' about 110' from the top, and was killed on impact. The MFL heard the ELT beacon but his situation awareness was so low that he continued four turns in holding attempting to contact his wingman; he copied target coordinates and when given clearance to the target he called "trouble shooting" to stall for time for the MP rejoin. Finally assuming the MP had returned to base and remembering there was another section coming in behind him, he called to proceed to the target as a flight of one. FAC(A) called the knock-it-off and initiated the SAR effort once the MFL confirmed he heard a beacon.

AEROMEDICAL FACTORS

FLIGHT PHYSICAL EXAMINATION/ PHYSICAL QUALLIFICATONS/ WAIVERS: MP was physically qualified and aeronautically adapted for Class 1 duties involving actual command of the aircraft. He was issued

aeromedical clearance after a long form post mishap PE and one week follow-up exam. He did not require or use corrective lenses. He had no waivers.

MEDICAL HISTORY ACUTE AND CHRONICAL MEDICAL CONDITIONS: The MP had no chronic medical conditions. He was grounded for one week, post mishap because of neck strain which was completely resolved.

MEDICATIONS: none

LIFE STRESSORS/ RELATIONSHIPS: These are discussed above in the review of events. The MP had a stable and happy home life. On TRANSLANT he was keeping close contact with his family and girl friend and was looking forward to going home for leave in late October. He was working long hours on his new job as AMO, he was proud of the people working for him, and his job was satisfying (OPSO, AMO, MP).

POSTMISHAP BIOSAMPLES: The Report of Toxicological Examination, AFIP for brain, vitreous fluid, gastric contents, liver, epidural blood, and skeletal muscle specimens was as follows: Carbon Monoxide and Cyanide testing could not be performed due to unsuitable specimens. Alcohol and drugs were not detected from brain and liver specimens.

AUTOPSY RESULTS: The autopsy preformed by AFIP Pathologist indicated the cause of death was multiple blunt forces injuries. The manner of death was accident/Jerry.Larson@med.navy.milaircraft mishap. A positive identification was made with dentition and DNA matching. Injury patterns to the upper extremities were consistent with control-type injuries. Absence of soot in the trachea and larynx were consistent with a postmortem post crash fire.

ESCAPE AND EGRESS: Though the parachute canopy was found partially deployed near the MP's remains, there was no evidence of a command ejection attempt. Seat experts determined that the seat/man mass was ejected from the aircraft structure as a result of aircraft impact and subsequent sympathetic detonation of the ejection seat cartridge devices. In support of this, there was no evidence the drogue gun had fired, the canopy had not been jettisoned, and autopsy findings were consistent with control type injuries.

COMMAND CLIMATE WITH THE PREVIOUS CO: 3 TO 25 MONTHS PRIOR TO THE MISHAP

"HACK IT OR PACK IT, A-TEAM/ B-TEAM" After reviewing hours of taped and written testimony by the pilots of the MSQD, it became apparent that under the P-CO the wardroom and squadron officers' interactions were governed insidiously by a "hack it or pack it" attitude. Coincidentally, an A-team and B-team emerged; the "have's" and "have not's." The A-team enjoyed special audience with the P-CO, flight schedule priority, and privilege to bend rules without punishment. B-team players were ignored and impugned. "Hackers" were willing to fly as per schedule and did not raise questions regarding safety (including concerns over flight qualifications, intensity of training, weather, crew rest, etc…). Raising such questions could categorize you as a whiner. You could loose credibility. You could be relegated to the "B-team."

The XO who served the old CO for 3 months, observed that officers were hesitant to bring safety concerns to the old CO because of his promoted a "hack it or pack it" mentality. Pilots were flying hops they felt were unsafe or that they were uncomfortable with without questioning, "because you supposedly have the experience to do what you are listed for on the schedule". The squadron was "always pushing to do varsity hops and not practicing the stuff in

the simulators" "There was never time for a guy to get hours as a section lead, they were always pressing for the next qualification. Seems like we pushed pretty hard". The removal of the squadron training and scheduling officer a few days before his ACT (I) certification (an exam and three flights) served as a "hack it or pack it" warning. SchedsO had expressed concerns with the training schedules' pace and was now gone. Peers thought he was doing real well and liked working with him. They were never given a debrief or an explanation.

WILLINGNESS TO BEND THE RULES AND TAKE RISKS: A casual attitude towards SOP, NATOPS, and safety was in place; if the old CO and the MP were willing to break the rules, you should be too, or you were not a "hacker." The old CO wanted the briefs shortened so the squadron began to brief admin portions of hops as "that's SOP". The XO said the "big boy" attitude in the squadron was why the guys weren't bothering with SOP, were hesitant to discuss safety, and hid their violations. The XO recalls the brief the old CO gave: he spoke of going into the overhead with bee-bees in the nose. The XO remarked "I thought you needed triple x's in the HUD (before you could land)." The old CO seemed irritated and replied "no ya don't." The XO looked it up and the old CO was wrong. One officer was scheduled to fly at the end of a 48 hour watch duty, he canceled his flight and the MP called him a "non-hacker". The old CO and three other squadron pilots landed with live ordnance in a foreign country , a violation of that country rules. A squadron pilot had warned them of these rules in the ready room prior to leaving and the reply by MP was "those rules don't apply to us."

Scheduling air-to-ground hops was costly and unreliable so most of this training was deferred to the deployments. Consequently, the old CO's programs focused on the more demanding and rewarding air-to-air training. In preparation for Southern Watch' 74, the OPSO and ASO were concerned the squadron was rusty and needed to slow tasking air-to-ground hops early in the det to warm up (they were 9 ½ months out from the last air-to-ground training). The ASO presented this to the MP who answered there wasn't time to "baby-sit" guys in circle-the-wagon bombing hops. At the pre-det AOM, the old CO announced the det would begin with Mission Commander hops, the most complex air-to-ground missions. One week into the det, a group of junior officers met and discussed how they still felt rusty and were not meeting delivery parameters. They were concerned the program was too aggressive and someone could get killed. The AOPSO presented this to the MP, who said things were going as planned and that jumping right into the hardest missions was the best way to prepare for combat. AOPSO died in a CFIT mishap during an air-to-ground mission about one week later. In his interview for that AMB, the MP accused squadron pilots on the board of disloyalty for asking questions.

ALLIENATION OF THE SAFETY DEPARTMENT BACK-UP: Our investigation revealed significant undermining of the squadron's safety program. The old CO didn't like department head meetings; the AMO and MP dealt directly with him. The XO became administrative supervisor to the enlisted, and was out of the loop in regards to flying and operations, which were handled by the MP. One year prior to the mishap, MP confronted the ASO in front of the old CO and an AOM for presenting a discussion on crew-rest periods, "if you're gonna complain about crew rest, don't expect to get put on the flight schedule…" "be a team player." Later ASO recommendations regarding weather, qualifications, etc., were discredited and the ASO - MP relationship became adversarial. The current ASO became ASO six months prior to the MH; he was of the "B-team" from the start. XO admitted the old CO had dual standards of conduct for "have's" and "have not's". As early as a month before joining the squadron, their FS was categorized as a "B-teamer" after a conversation with the old CO over a beer. The old CO rarely spoke with the FS and excluded her from most squadron issues. The required periodic human factor council seldom met.

COMMAND CLIMATE, WITH THE NEW CO FROM PRESENT TO THREE MONTHS PRIOR TO THE MISHAP

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CHANGES EFFECTED BY THE NEW CO: At the first AOM, the CO presented his commander's intent, in which he gave his assessment and plan for the command. He addressed poor communication by re-instituting department head meetings, and increasing the frequency of AOMs. He actively sought feedback from his department heads. He had noted wide variances in interpretation of "that's SOP…" which was used to abbreviate briefs. He was having the SOP re-written to address squadron level issues. He made it clear he would not neglect violations of the SOP and held guys accountable to it by having aircrew training and less formal hotwashes and kangaroo courts. He wanted the collective body to learn from the mistakes of others rather than stopping at counseling individuals; everyone including himself would be required to get up and tell of their mistakes. To bring equity and safety to the flight schedule, the OPS department started a tracking sheet showing who was flying, checking currency, watch duties, leave, and other parameters. For safety, he reinstituted ORM and Human Factors Council meetings.. He found the air-to-air training excellent but air-to-ground training was neglected and the guys were getting behind in their night qualifications and barely flying their mins on the goggles. He actively sought opportunities to resolve these deficits. The CO re-instituted AOMs and Department Head Meetings his first week after taking command, and empowered the XO to do his job.

RE-ESTABLISHING A FUNCTIONING SAFETY DEPARTMENT: With the start up of a department head meeting and AOMs the FS finally became included in the command activity. The FS now had easy access to the CO and for the first time was free to address aeromedical concerns with the CO. The ASO was getting support from the new CO, and safety programs were brought back on line. The command climate was still difficult; people were still trying to figure out the new CO, but now able to bring concerns up without the fear of being blasted publicly. Things were definitely changing……

AEROMEDICAL ANALYSIS FINDINGS

Causal Factor 1

ACTs

Violations:

- Widespread/routine violation, (AV002) e.g., habitual deviation from the rules that is tolerated by management.

CO and MP were willing to bend the rules and take risks. A casual attitude toward SOP, NATOPS, and safety was in place in the squadron. CO wanted the briefs shortened so the squadron began to brief admin portion of the flight as "that's SOP". CO and MP landed with live ordnance at a host country air base, a violation of host country rules. A squadron pilot warned them of these rules, and the reply was "those rules don't apply to us".

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PRECONDITIONS

Psycho-Behavior Factors:

- Personality Style, (PC205)

CO's authoritarian style lead to willingness to bend the rules and take risks. With support of MP, CO promoted a "hack it or pack it' mentality. A team or a B team emerged, "haves and have nots" The A team enjoyed special audience with the CO, flight schedule priority, and privilege to bend the rules without punishment. The B team players were ignored and impugned.

SUPERVISION

Inadequate Supervision:

- Leadership/supervision/oversight inadequate (SI001)

Failure to correct known problem:

- Failed to identify/correct risky behavior (SF001)
- Failed to correct unsafe practices (SF002)

CO personally groomed MP and recruited him to serve in his squadron. CO failed to recognize or act on MP's complacency and dangerous behaviors. CO did not like department head meetings and preferred to have individual department heads deal with him directly. All Hands, All Officer and Human Factors Council meetings seldom met. With the "hack it or pack it mentality", pilots were flying hops they felt were unsafe or they were uncomfortable with, without questioning it.

ORGANIZATIONAL

None noted

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Causal Factor 2

ACTs

Skill-Based errors

- Procedure not followed correctly (AE103)

MP and MFL failed to do a proper preflight briefing. The brief focused on the tactical portion of the hop. Although both the target and holding areas contained mountainous terrain, the brief only addressed terrain elevation in the target area.

Although the planning and training officer had prepared charts for the exercise, neither the MP nor the MFL had the charts with them during the mishap flight. If they had taken the charts and used them, they might have realized that the FAC(A)'s recommendation placed them dangerously below the highest terrain in the holding area.

PRECONDITIONS

Coordination/communication/planning factors:

- Mission briefing inadequate (PP110)

MP and MFL accepted a dangerous low altitude recommendation from the FAC(A) without knowing the terrain elevation. Because MP and MFL failed to brief altitude in their holding area during their mission brief, they were unable to recognize that the FAC(A)'s alititude recommendation put them at risk. The exercise rules indicated the FAC(A) was responsible for the aircraft deconfliction and target identification only. Both pilots continued to navigate on NVGs as a means of terrain clearance in questionable weather condition.

Psycho-behavioral factors:

- Personality style (PC205)

MP falls into the "best pilot" aviator risk category. MP was better than the jet, he was invincible and above the rules. In one of his flights, he ignored an indicator of possible flight control malfunction, and came into the overhead for the break with a wingman in parade. SOP mandated he should have made a straight in landing. MP violated NATOPS and showed declining attention to detail.

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SUPERVISION

Inadequate Supervision:

- Failed to ensure proper role-modeling (SI002)

CO wanted the briefs shortened, admin portions of the hops were less focused and not as emphasized. The admin portion of the flight was briefed as "that's SOP". A casual attitude toward SOP, NATOPS, and safety developed.

Supervisory violation

- Allowing unwritten policy to become standard. (SV002)

Command has developed an unwritten policy to keep flight briefs short, and to give less emphasis to the importance of the admin portions of flights. Flight brief needed to complete and thorough. Abbreviated briefings, particularly for the admin portion of the mission, had become a standard in the squadron. This lead to complacency, not following procedure, and side-stepping safety issues.

ORGANIZATION

None noted

Causal Factor 3

ACTS

Judgement and decision-making errors

- Wrong choice of action during an operation (AE206)

Squadron training officer had prepared an exercise chart for cockpit use. Neither pilot carried this chart; they could have looked at it and realized that the FAC(A) recommendation placed them dangerously below the highest terrain in the pattern.

PRECONDITIONS

Coordination/communication/planning factors:

- Mission planning inadequate (PC109)
- Briefing inadequate (PC110)
- Complacency (PC208)

MP and MFL failed to provide an adequate brief, and neglected essential information regarding terrain elevation in the holding pattern. If they had given a proper brief, they would have realized the need for the exercise chart map and would have known the elevation of the terrain.

SUPERVISION

Inadequate Supervision:

- Command oversight inadequate (SI001)

Command culture had deteriorated to the point pilots were flying hops they felt were unsafe or they were uncomfortable with, without questioning them. It is all about the "hack it or pack it mentality that the CO had developed. One of the squadron pilots was removed from his assigned duty after he expressed concern over the training schedule pace. His peers thought he was doing well and liked working with him. They were not provided a debrief or explanation for his unexpected departure.

ORGANIZATION

None noted

Causal Factor 4

ACTs

Judgment and decision-making errors:

- Inadequate real time risk assessment (AE201)

MP failed to: adequately consider his environment, to recognize or admit that he was lost, to recognize that he should go off goggles, and to cancel the operation as the situation deteriorated.

PRECONDITIONS

Physical environment:

- Weather conditions restrict vision (PE102)

MP had only 20 hours on NVGs, and MFL had even less experience. They were flying in an overcast layer with possible snow flurries. There was no horizon, just clouds up to snow-covered mountains. The conditions were not appropriate for use of NVDs as the primary means of terrain clearance.

Awareness (cognitive) factors:

- Geographically lost (PC107)

MP had lost his lead and failed to communicate with MFL, thus failing two basic wingman responsibilities. If MP had communicated that he was lost, instead of continuing in the racetrack pattern assigned, the MFL might have been able to assist the MP in rejoining the flight safely. The MFL had altered his holding pattern to prevent from going out of bounds, avoid weather, and to avoid high terrain.

Coordination/communication/planning factors:

- Failure to re-assess risk and adjust to changing environments (PP111)

MP and MFL persisted in using NVGs as their only means of terrain clearance in conditions that were not appropriate for NVG use, and accepted an altitude recommendation from FAC(A) without knowing the terrain elevation.

Psycho-Behavioral factors:

- Personality style (PC205)

MP showed all the signs of the "best pilot" aviator-at-risk category who lacks judgment and accurate perception of mission risks, and violates NATOPS/SOP. More experienced pilots in the squadron became more wary of the MP and started to question his judgment.

SUPERVISION

Inadequate Supervision:

- Failed to ensure proper role-modeling (SI002)

CO developed a "hack it or pack it" squadron climate, resulted in a "A team/B team". "Hackers" were willing to fly as per schedule and did not raise questions regarding safety including concern regarding flight qualifications, intensity of training or lack of training, weather, and crew rest. Raising such questions could categorize one as a whiner, and would relegate the complainer to the "B team". MP supported this policy with the CO. This policy discouraged junior pilot like MFL from raising questions about safety and the use of time critical risk assessment. Pilots were flying hops they felt were unsafe, or were uncomfortable with, without questioning.

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ORGANIZATION

None noted

MISHAP SEQUENCE OF EVENTS

	Causal Factor	DoD HFACS Category
1.	CO and MP were willing to bend the rules and take risks.	Widespread/routine violation, (AV002)
2.	MP and MFL failed to do a proper preflight briefing.	Procedure not followed correctly (AE103)
3.	Neither pilot carried exercise chart, they could have looked at it and realized that the FAC(A) recommendation placed them in dangerously below the highest terrain in the pattern.	Wrong choice of action during an operation (AE206)
4.	MP failed to know his environment, to admit when he is lost, to admit it is time to get off his goggles, and to cancel the operation.	Inadequate real time risk assessment (AE201)

3. Aeromedical Recommendations

a. For VX 99: Recommend that this mishap is to be used in PCO course as case study for what not to do as a leader or commanding officer. A case study in failure leadership, and misguided motivation.

b. For VX 99: Conduct pilot training on the hazards associated with poorly done preflight briefing, review squadron ORM process, and ensure this process is done properly. Recommend aircrew training that reviews the importance of conducting thorough pre- and post-flight briefs.

c. For VX 99: Recommend training for all aircrew to include

Reporting Custodian: **NSC** Mishap Severity: **A**
Date of Mishap: **7 Jan 2008** Mishap Category: **FM**
Aircraft Model: **X15** BUNO: **123456**

comprehensive review of aircrew coordination and human factors processes. Training should include review of operational risk management principles and individual obligations to identify and report hazards.