Annex I: Operational Risk Management (ORM)

Summary:

Specific to the case of T-45, Training Wings One and Two have an Operational Risk Management (ORM) instruction that empowers wing and squadron executive leadership as well as each individual in the squadron to decide when the reward of flying did not outweigh the risk of loss of life or aircraft. Missing, however, were sufficient processes in place to clearly communicate to NAE leadership the risk as perceived by a cadre of instructor pilots (IPs) – in other words, an in-depth ORM review, or reassessment of risk, was not completed when the risk perceived by the operators changed. This ultimately led to a breakdown of trust and confidence that effective protective measures were in place to address safety and hazard concerns.

Background:

The review of the Naval Aviation Enterprise (NAE), specifically events surrounding T-45, found many inconsistencies with command and control, implementation and ORM processes across the enterprise.

Navy units use ORM world-wide in "dealing with the risk associated with military operations." Specifically, it shall be used in the planning and execution of all military training. Resultantly, this systematic process used to identify and manage hazards that endanger naval aviation resources is a responsibility of Naval Air Systems Command (NAVAIR), Commander, Naval Air Forces (CNAF), Naval Safety Center (NAVSAFECEN), and Chief of Naval Air Training (CNATRA). Furthermore, instruction directs subordinate commands to implement ORM at all levels of command from senior to the most junior Sailor.[1, 2, 3]

Considering both Defense Department and OPNAV instructions, active involvement of leadership to properly and fully use the ORM processes was not in place. Lack of effective ORM leadership was apparent at critical levels: Aviation Safety Officers, ORM Program Managers, and Executive Leadership. Those resources, which contribute to NAE Readiness, are time, fuel, and aircraft – with the number one resource being our people.

Regarding the events of the IPs for the T-45 across multiple training wings, a tactical risk decision was made by each pilot, which is their inherent discretion as aircraft commanders, not to accept the aircraft to conduct flight training. In an isolated instance, where this was an unknown issue, it seems appropriate that these decisions were made; however, the awareness of an issue with the T-45 was documented to be known by the Squadron and Wing Executive Leadership as well as CNATRA. Though awareness existed, processes in place to increase real understanding of the risk each pilot was being asked to assume was not known – no in-depth ORM review was conducted.

ORM Program

Responsibilities: CNO Special Assistant for Safety Matters (OPNAV N09F) issues policy guidance for the Navy's ORM program. NAVSAFECEN is the ORM Model Manger and serves as the subject matter expert for the Navy's ORM program. In that capacity, NAVSAFECEN is to "make recommendations to the Vice Chief of Naval Operations (VCNO) on…application of ORM".[2] Commanders – CNAP, NAVAIR, CNATRA, Wing Commodores, and Commanding Officers – are to establish command policy and expectations for the application of on-duty ORM, with the Executive Officer (XO), or equivalent, as the ORM Program Manager. And specifically, ensure ORM risk decisions are being made at the appropriate level in the command.

Process Cycle: ORM is a continuous process used to identify and manage risk, and in this case the risk to Naval Aviation resources. The process allows the appropriate decision maker, the one who can make decisions to eliminate or minimize the hazard, implement controls to reduce or accept the risk. This captures the product of the ORM Process Cycle – which does not end, seen below in Figure 1.
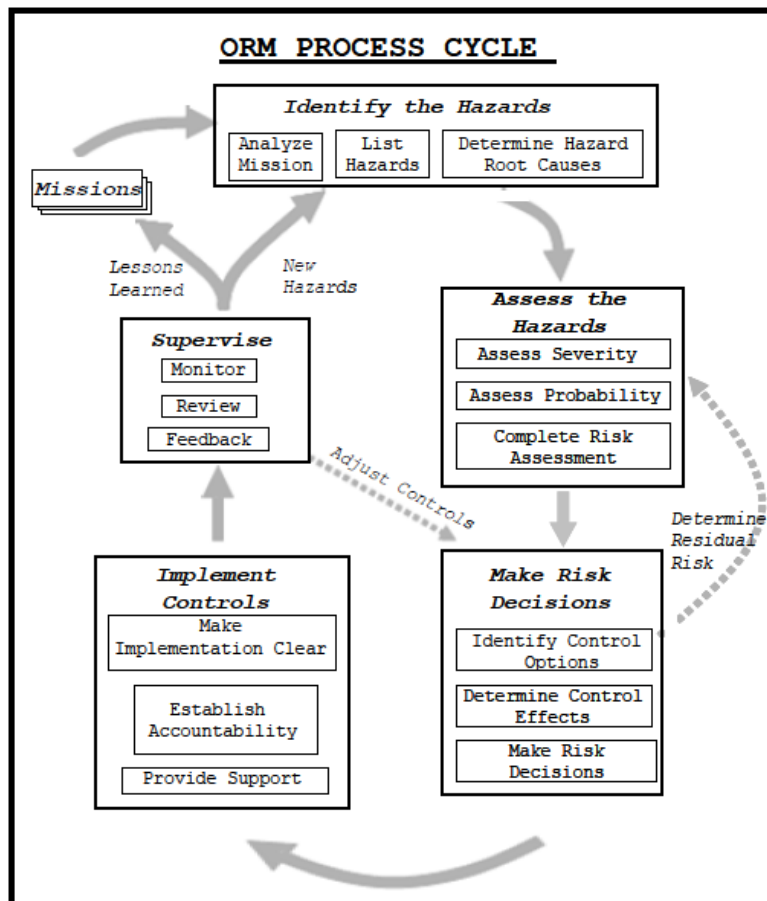

Figure 1: The Five Step ORM Process

Additionally, described previously is the level at which these risk decisions are made. NAVAIR Program Executive Office (Tactical) (PEO(T)) owned the risk, with concurrence from CNATRA. Once the risk was observed to have changed, at the tactical (or strategic) level (Figure 2), a reassessment needs to occur.
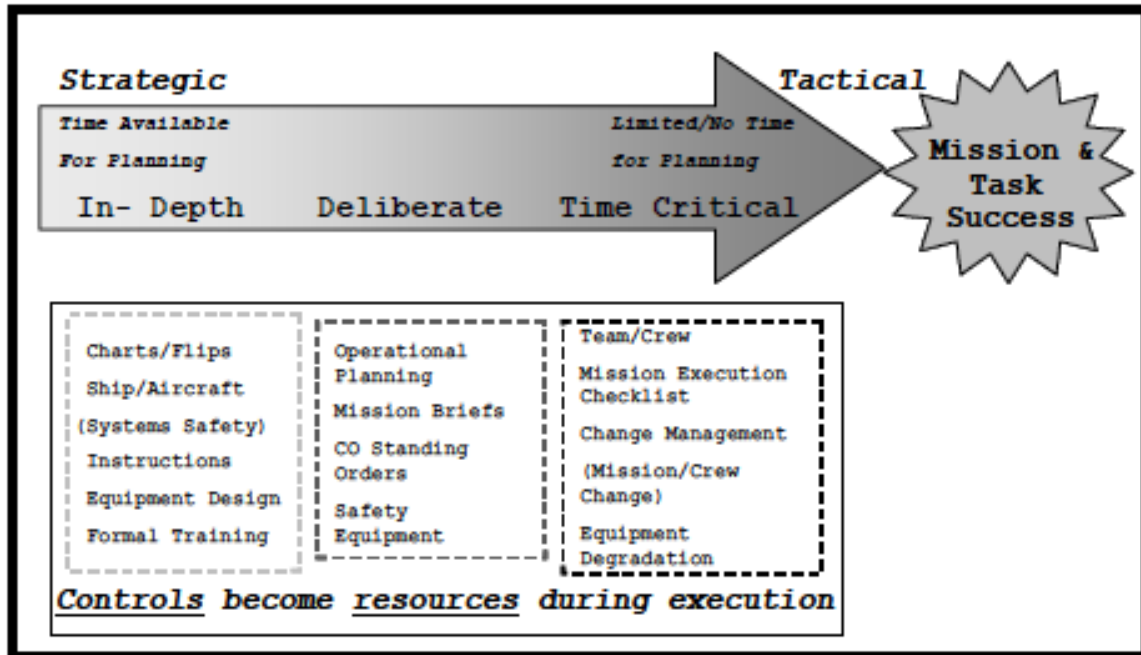

Figure 2: Relationship between the ORM Levels

Conclusions:

The culture of safety within training squadrons and wings is not in question; there is however a lack of procedural compliance to document and administer their internal ORM culture within the squadrons and wings. TW-1 and 2 have ORM Instructions wherein the squadron and wing had opportunities to insert back into the ORM Lifecycle. Risk Assessment Teams (RAT) should be used during the…in-depth ORM process.[5, 6] When established, the Aviation Safety Officer (ASO) shall act as team leader for the RAT.

Interviews with both TW-1 and 2 did not disclose a RAT regarding the T-45 physiological episode (PE) risk. TW-1, however, did create a well-constructed PE Summary/Risk Reassessment presentation after meetings with NAVAIR revealed they did not fully comprehend the risk as perceived by the training squadrons (TRARONs – VT), captured in the summary slide seen in Figure 3 below.[9] Nevertheless, lack of procedural compliance via a formal process established through instructions existed across the T-45 TRARONs, as well as forceful back-up from both TRARONs.

Figure 3: TW-1 ORM Reassessment Slide

Interviews confirmed VT-7, 9, 21, 22 and 86 consistently used time-critical ORM in addition to clearly communicating their concerns to their respective commanding officers. With no clear answers from the teams both in Meridian and Kingsville, other than comments of "that instruction isn't really alive," there is no reason why a RAT was not established. Furthermore, TW-2 included in their ORM instruction an ORM Worksheet with space to identify the Hazard and the RAT (Figure 4). TW-6 has a (stand-alone) ORM Worksheet as well (Figure 4a).

TRAINING AIR WING TWO
ORM WORKSHEET

Mission: _____   Date: _____

Hazard Identified:
_____
_____
_____
_____

How Identified:
_____
_____
_____
_____

Risk Assessment Team (RAT):
_____
_____
_____
_____
_____
_____

Event which may occur if Hazard is not Eliminated, Reduced, or Minimized.	Probability of Event (A,B,C,D,E)	Severity of Event (I,II,III,IV)	Risk Assessment (H,M,L)

Figure 4: TW 2 ORM Worksheet

SABREHAWK AVIATION ORM WORKSHEET

STUDENT   INSTRUCTOR   EVENT: _____

STEP 1 - Are You Safe to Fly?*

IMSAFE CHECKLIST: L / M / H   L / M / H
- ILLNESS (DO YOU HAVE ANY SYMPTOMS?)
- MEDICATION (ARE YOU TAKING MEDICATIONS?)
- STRESS (DO YOU HAVE EXCESSIVE LIFE STRESSORS?)
- ALCOHOL (ARE YOU UNDER THE EFFECTS OF ALCOHOL/DRUGS?)
- FATIGUE (HOW MUCH SLEEP DID YOU GET?)
- EATING/DRINKING (ARE YOU WELL NOURISHED/HYDRATED?)

ATTENTION:
CONSIDER CANCELLING FLIGHT FOR ANY I.M.S.A.F.E. CHECKLIST RISK.

STEP 2 - Identify / Assess Hazards*

STEP 3 - List Controls for Each Hazard

HUMAN FACTORS: L / M / H   L / M / H
Items to Consider:
- STUDENT OUT OF AIRCRAFT > 1 WEEK
- INSTRUCTOR OUT OF AIRCRAFT > 2 WEEKS
- CREW DAY > 10 HOURS
- SHOW TIME EARLIER THAN 0630
- STUDENT'S PRIOR PERFORMANCE (SMS, IPC, FPC)
- INSTRUCTOR / STUDENT WARMUP
- PERSONAL FACTORS
- PREVIOUS DAY DEPARTURE FROM SQUADRON SPACES ____.
- ARRIVAL IN SQUADRON SPACES TODAY____.

MISSION PROFILE: L / M / H
Items to Consider:
- NIGHT (TAKEOFF OR LAND AFTER SUNSET)
- CROSS COUNTRY / CLASS B / UNFAMILIAR AIRSPACE OR MOA
- SECTION or DIV MANEUVERING
- BFM / MERGE POSSIBLE?
- AIR-GROUND MISSION (<5K AGL)
- AIRWAY NAVIGATION MISSION (MULTIPLE APPROACHES)

WEATHER: (APPLY TO T/O, DEST, SUA/MOA, VR/IR ROUTE)   L / M / H
Items to Consider:
- RUNWAY CROSSWINDS > 15 KTS
- WET RUNWAY?
- CLOUD CEILINGS < 1500 FT AGL
- VISIBILITY < 3 MILES
- MODERATE OR GREATER TURBULENCE (AIRMETS)
- THUNDERSTORMS NEAR ROUTE OF FLIGHT (SIGMETS)
- ICING NEAR ROUTE OF FLIGHT (AIRMETS)
- BIRD RISK MODERATE OR GREATER (AHAS BASH)

STEP 4 - Make Risk Decisions

HFACS   MISSION   WX

1. Overall Sum of Each Crewmember's Column
   (if one block Med/High, overall is Med/High)

2. Overall Sum of Event
   (if one block Med/High, overall is Med/High)
   * Assign Mission Risk based on HIGHEST column sum:

3. Mitigation of Overall Event
   (if one block Med/High, overall is Med/High)

Four Principles of ORM:
1. Accept risk when benefits outweigh the cost.
2. Accept no unnecessary risks.
3. Anticipate and manage risk by planning.
4. Make risk decisions at the right level.

L = LOW RISK   (Control/Mitigation May Be Req'd)

M = MEDIUM RISK   (Control/Mitigation Req'd)

H = HIGH RISK   (Consider CNX Mission)

VT-86 Safety Department, Feb 2015

Figure 4a: TW 6 ORM Worksheet

Resultantly, the process has not worked as prescribed which has led to a breakdown in communication between the Echelon 1/2 leadership and Echelon 4/5 leadership. The lack of properly advised communication through an established ORM program has diminished the awareness of the current issues thus eroding the confidence and trust that effective protective measures were in place and that each IP and student felt their concerns were being recognized. Considering each TW had several PEs that were uncharacteristic of the baseline risk assessment, it was asked what consequential event would need to happen before the risk decision to fly was taken from the IPs. The idea being, at what point will either wing or squadron executive leadership intervene in the risk decision making process to ensure decisions are made at the appropriate levels.