ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL FIVE

INSTRUCTIONAL GUIDE

EO C590.01 – ANALYZE AN AIRCREW SURVIVAL CASE STUDY

Total Time: 90 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-805/PG-001, *Proficiency Level Five Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the self-study package within the section for which they are required.

Self-study packages are intended to be completed by the cadet independently. More information about self-study packages can be found in the foreword and preface.

Review the lesson content and become familiar with the material prior to facilitating this lesson.

Photocopy the self-study package located at Attachment A for the cadet.

Photocopy the answer key located at Attachment B but **do not** provide it to the cadet.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

A self study was chosen for this lesson as it allows the cadet to analyze an aircrew survival case study at their own learning pace. This encourages the cadet to become more self-reliant and independent by focusing on their own learning instead of learning directed by the instructor.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

By the end of this lesson the cadet shall have analyzed an aircrew survival case study.

IMPORTANCE

It is important for cadets to analyze a case study as it allows the cadet to learn from the actions of others.

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SELF-STUDY PACKAGE INSTRUCTIONS

OBJECTIVE

The objective of this self-study package is to have the cadet examine a case study of an actual aircrew survival incident.

RESOURCES

- Self-study package, and
- Pen / pencil.

ACTIVITY LAYOUT

Provide the cadet with a classroom or training area suitable to complete the self-study package.

ACTIVITY INSTRUCTIONS

1. Provide the cadet with a copy of the self-study package located at Attachment A and a pen / pencil.
2. Allow the cadet 90 minutes to complete the self-study package.
3. Provide assistance as required to the cadet.
4. Collect the self-study package once the cadet has finished.
5. Correct the self-study package with the self-study package answer key located at Attachment B.
6. Provide feedback to the cadet and indicate whether or not they have completed the Enabling Objective (EO).
7. Return the completed self-study package to the cadet for their future reference.
8. Record the result in the cadet's logbook and Cadet Training Record.

SAFETY

Nil.

END OF LESSON CONFIRMATION

The cadet's participation in completing the case study will serve as the confirmation of this lesson.

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

Nil.

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CLOSING STATEMENT

A case study helps you to understand the principles involved in reaching a solution or analyzing an issue. This case study allows you to gain experience through the actions of others without experiencing the hardships / dangers yourself.

INSTRUCTOR NOTES / REMARKS

Nil.

REFERENCES

A3-016 B-GG-302-022/PT-001 Director Air Operations and Training. (1978). *Down but not out*. Ottawa, ON: Department of National Defence.

C3-002 ISBN 0-00-653140-7 Wiseman, P. (1999). *The SAS survival handbook*. Hammersmith, London: HarperCollins Publishers.

C3-003 ISBN 1-8967-00-9 Tawrell, P. (1996). *Camping and wilderness survival: The ultimate outdoors book*. Green Valley, ON: Author.

C3-352 1932nd Communication Squadron. (2009). *Crash in the wilderness circa 1942*. Retrieved October 9, 2009, from http://www.lswilson.ca/page8.htm

C3-353 British Columbia Outdoor Wilderness Guide. (2009). *Wilderness survival guide: Basic wilderness survival skills*. Retrieved October 9, 2009, from http://www.bdadventure.com/adventure/wilderness/survival/basic.htm

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Analyze an Aircrew Survival Case Study



CLOCKWISE FROM TOP LEFT
1ST LT GC HODGE, PILOT
2ND LT FW JANSSEN CO-PILOT
CPL FJ GALM, RADIO OPERATOR
BAILEY, ENGINEER

TAKING DELIVERY OF A
BRAND NEW B-26B AT
BAER FIELD, INDIANAPOLIS
INDIANA, OCTOBER 1942

"TIMES A WASTIN" PAINTED
IN BRIGHT YELLOW

PHOTO COURTESY OF
JOHN & ALMA ROSE

SECTION 1: CASE STUDY

SECTION 2: BACKGROUND KNOWLEDGE

SECTION 3: AIRCREW SURVIVAL

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SECTION 1

CASE STUDY

A TRAGEDY VINTAGE 1942

PRESENTED BY

THE 1932nd COMMUNICATIONS SQUADRON (AFCS)

GOOSE BAY AIR BASE, LABRADOR, CANADA

On the coast of Labrador, the icy waters of snow-fed streams flow to meet the sea through the steep, rocky walls of Saglek Fjord. Between June and October they flow, but for the remainder of the year all exposed water is frozen, often to the depth of several feet. Archaeologists have uncovered residue of ancient residents who hunted and fished the waters of the fjord as early as 2580 BC. Their stone hearth, with charcoal still intact, has been uncovered on Rose Island in the mouth of the bay.

Today, a small United States (US) Airforce converted radar site houses a tropospheric communications link to the northernmost outposts of the hemispheric defence system. From the steep heights, US contractor maintenance personnel overlook the vast stretches of frozen tundra and infrequently visible blue-green of the Atlantic. On a flat stretch of this barren land, at the base of the steep bluff, now crowned by a radome and the concave, billboard antennas of the site, our story finds a setting. No more than 46 m (50 yards) from the present site runway, lie the weathered remains of a B-26 medium bomber of World War II vintage.



Note. From 1932nd Communication Squadron. (2009). Crash in the Wilderness Circa 1942. Retrieved October 9, 2009, from http://www.lswilson.ca/page8.htm

Figure A-1 Remains of the B-26 Marauder "Times A Wastin"

The story begins at BW-1, Narsarsuaq, Greenland, as the long arctic winter has shortened the days and is closing in as the seven man crew of a Martin B–26 Marauder medium bomber of the 440 Squadron, 319 Bomb Group, the "Times A Wastin" awaits clearance for the flight home—first stop Goose Bay, Labrador.

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Note. From 1932nd Communication Squadron. (2009). Crash in the wilderness circa 1942. Retrieved October 9, 2009, from http://www.lswilson.ca/page8.htm

Figure A-2 B-26 Marauder Similar to "Times A Wastin"

Data from Quest for Performance *and* Jane's Fighting Aircraft of World War II	
General Characteristics	
Crew	7 (2 pilots, bombardier/navigator, radio operator, 3 gunners)
Length	58 ft 3 in (17.8 m)
Wingspan	71 ft 0 in (21.65 m)
Height	21 ft 6 in (6.55 m)
Wing Area	658 pi^2 (61.1 m^2)
Empty Weight	24 000 lb (11 000 kg)
Loaded Weight	37 000 lb (17 000 kg)
Powerplant	2× Pratt & Whitney R-2800-43 radial engines, 1 900 hp (1 400 kW) each
Performance	
Maximum Speed	287 mph (250 knots, 460 km/h) at 5 000 feet (1 500 m)
Cruise Speed	216 mph (188 knots, 358 km/h)
Landing Speed	114 mph (90 knots, 167 km/h)
Combat Radius	1 150 mi (999 NM, 1 850 km)
Ferry Range	2 850 mi (2,480 NM, 4 590 km)
Service Ceiling	21 000 ft (6 400 m)
Wing Loading	46.4 lb/ft^2 (228 kg/m^2)
Power/Mass	0.10 hp/lb (170 W/kg)
Armament	
Guns	12 × .50 in (12.7 mm) Browning machine guns
Bombs	4 000 lb (1 800 kg)

Note. From "Wikipedia", 2010, B-26 Marauder. Retrieved February 2, 2010, from http://en.wikipedia.org/wiki/B-26_Marauder

Figure A-3 B-26 Marauder Data

Crew of the "Times A Wastin"

Pilot: First Lieutenant GC Hodge

Co-Pilot: Second Lieutenant P Janssen

Navigator / Bombardier: Second Lieutenant EJ Josephson

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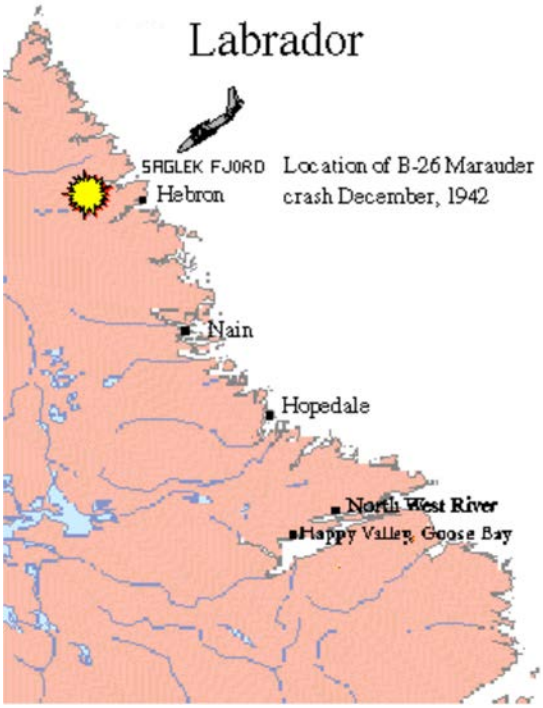
Radio Operator: Technical Sergeant CF Nolan

Gunner: Sergeant R Weyrauch

Gunner: Corporal JJ Mangins

Gunner: Corporal FJ Galm

The weather turned sour and the pilot was forced to crash land at the head of the Saglek Fjord in Labrador. The aircraft sustained minimal damage and the crew survived the impact unscathed. What follows is their efforts to survive in one of the most unfriendly and hostile landscapes on Earth at the worst possible time of year. The diary of the pilot has been retained intact; the last entry added was in February 1943. Except for names and places, spelling and punctuation have been retained as they appeared.



Note. From 1932nd Communication Squadron. (2009). Crash in the Wilderness Circa 1942. Retrieved October 9, 2009, from http://www.lswilson.ca/page8.htm

Figure A-4 Crash Site

Distances and Headings:

Narsarsuaq, Greenland to Goose Bay, Labrador: 1250 km at 232°

Crash Site (Saglek) to Goose Bay: 590 km at 167°

Crash Site to Hebron: 30 km at 177°

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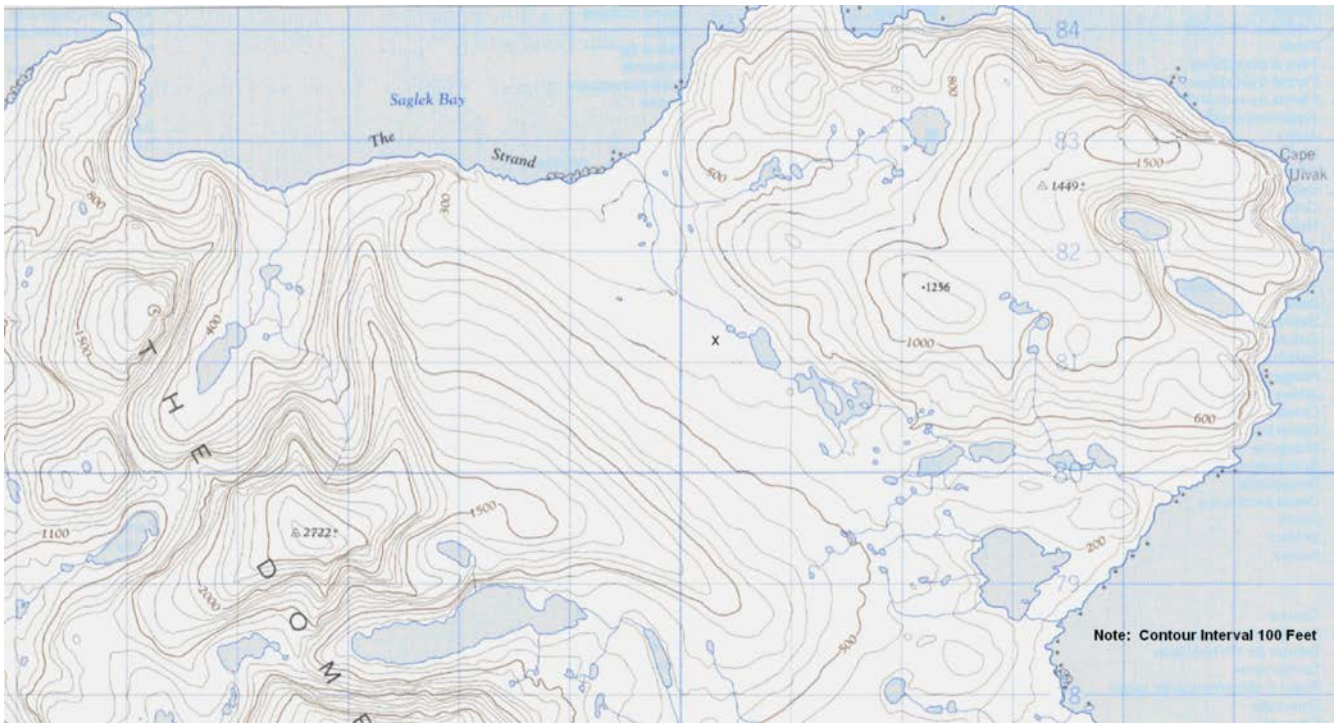

Note. Created by Director Cadets 3, 2010, Ottawa, ON: Department of Defence.

Figure A-5 Crash Site Marked With an "X"

Glossary

500 Rummy. A card game.

A-10. The Strike, an attack (light) bomber.

A-20. The Havoc, an attack (light) bomber.

B-25. The Mitchell, a medium bomber.

Dingy radio. Small emergency radio.

Goose beam. The radio directional beacon from Goose Bay, Labrador.

Liaison receiver / set. Radio used to communicate (liaise) with other aircraft, ground stations, etc.

Minutes. A unit of time and of angular measure (1/60 of a degree).

P-40. The Warhawk, a fighter aircraft.

Putput. On-board auxiliary power unit (generator) used to start the engines and for ground operation of on-board electrical equipment.

Star shot. Determining one's location using the positions of stars.

Stations. Establishments equipped to transmit and receive radio signals (eg, ham radio operations).

The Diary Begins

Note. From 1932nd Communication Squadron. (2009). *Crash in the Wilderness Circa 1942.* Retrieved October 9, 2009, from http://www.lswilson.ca/page8.htm The diary has been modified to only include the pilot's entries.

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The first three diary entries describe the crew's actions in Narsarsuaq, Greenland during their wait for good flying weather.

NOVEMBER 12, 1942

We're still sitting here with 16 minutes (less) of daylight each day. We've less than six hours of daylight between sunrise and sunset now. Had about two inches of snow last night and everything was really pretty. Spent most of the morning sweeping it off the plane. They said that there's a chance of leaving tomorrow but this place seems so much like home that it doesn't seem like we should leave.

NOVEMBER 16, 1942

This place is full of changes. Yesterday afternoon Janssen and I walked down to the river. There was a solid sheet of ice resting on the rocks, and it was covered with almost two inches of snow. Every once in a while, we would break through up to our knees, but there was nothing under the ice. Last night we had rain with a warm wind with gusts up to 60 miles per hour. So this morning there was only isolated patches of ice left. Today was the first time in two weeks that we have been able to walk on bare ground. We've had all kinds of weather, most of the days were fairly warm. But one day it was six degrees. We've seen days when not a breath of air stirred.

NOVEMBER 26, 1942

I still say this is screwy weather. We were alerted this morning at 0330. There was a solid overcast. We killed time until 0600 when we got briefed. It was still overcast and seemed to be getting worse. The A-10s and B-25s started kicking off, but about then it started to rain and the ceiling looked like it was very low. About 10 minutes later it stopped raining and an A-20 came over at 600 feet with room to spare. By 0830, the sun was shining and everything looked as nice as we could ask for, but it was too late to take off.



The December 10 diary entry describes the day of the crash.

DECEMBER 10, 1942

Took off at last for Goose Bay. About one hr 15mins out, we ran into some clouds and I turned around and called for the formation to turn around also. One plane dropped out. I think I saw the P-40s later. I lost the others while letting down below the clouds. We saw an opening to the south at about 2000 feet and after flying in that direction we broke out. We finally had to go back up to 13000 feet, but it was clear sailing, so we kept on. Lt Josephson gave me a new heading to get back on course, but we know now it was too much of a correction. About halfway I picked up Goose beam, but the set went dead after a few minutes. It was too late to turn back then, so we tried to get it on the compass, but couldn't. We finally hit the coast. We decided we were south of Goose Bay, so we turned north until we finally realized we were north. We were almost out of gas, so I started looking for a place to land. I wanted to get back to where there were trees, but the engine started missing, so we came back down. The crew never batted an eye when they were told that we were going to have to make a crash landing. Even if I do say so myself, it was a good landing and Lt Josephson did a good job cutting the switch. We hit a rock that tore the bombay open and one prop tip went through the fuselage behind me. Outside of that, the ship was intact. It swung around almost 90 degrees without stopping, but made a good wind break that way; it was almost dark so after eating a cold ration we went to bed inside the ship; we had 17 blankets, a comforter and a bedroll, but we slept very well. Lt Josephson took a star shot and decided we were 300 minutes from Goose.

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The aircraft landed **above** the treeline.

DECEMBER 11, 1942

Lt Josephson walked to the fjord to the west and Galm the one to the east. We spent most of the day clearing up the ship and pooling rations in the afternoon. I climbed the mountain in front of us, but didn't learn much. Nolan worked on the putput all day without results. We cranked the dingy radio. It was pretty windy so we spent the night in the ship.

DECEMBER 12, 1942

Made three big improvements in our situation. Lt Janssen and Galm discovered a lake close to our ship and saw a fox. Weyrauch and I saw 50 seals; so we know that there is food here. We made a lean-to out of tarp under the wing and slept there. It was much better.

DECEMBER 13, 1942

When the star shots were figured out it showed us to be close to the town of Hebron. Worked on the putput all day without success, so we tried to work the liaison set on the batteries but they were too weak. We pooled our covers and slept together.

DECEMBER 14, 1942

Wind blew all day with increasing velocity and snow. Our lake went dry so we were back to melting snow. Went to bed early.

DECEMBER 15, 1942

Had to eat a cold breakfast because the wind blew too much snow in our fire. Nolan changed the voltage regulators and got 25 volts, long enough for me to get a couple of stations on the liaison receiver. The putput stopped, but we hope we know what is wrong with it. So we hope to get a message out soon.

DECEMBER 17, 1942

The putput went out, but we did try the batteries. They too, were dead.

DECEMBER 19, 1942

More snow last night. Nolan and Mangins tried to work on the putput but it was too cold. We built a fire in the lean-to and thawed out.

DECEMBER 20, 1942

It was so windy we stayed in bed all day.

DECEMBER 21, 1942

Everything was really snowed in so we spent the day eating and thawing out blankets and planning a trip south. Lt Josephson Lt Janssen and Sgt Nolan plan to head south in the boat the first clear day.



The December 21 diary entry introduces the crew's plan to split up. Three of the seven crewmembers plan to use the aircraft's emergency raft, referred to as "boat", to travel south to get help. These three crewmembers are the "boatmen" described in the December 22 diary entry and are referred to as "boys" in several later entries.

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DECEMBER 22, 1942

Had a perfect day, the first clear day in over a week. We worked on the boat and cleared snow away from the lean-to all day. We ate a pretty big meal with the three boatmen eating a little extra.

DECEMBER 23, 1942

Got up at 0715, got the boat ready and started carrying it. The wind was pretty strong and the boat was heavy, so we had a pretty hard time of it. We didn't get to the water until noon and then it took quite a while to find a place to put it in the water. We intended to put them off shore, but they appeared to be making slow headway to the south. That was the last time we saw them. We had a hard time coming back across the snow. We had some peanuts and caramels and went to bed.



The three boatmen are never heard from again and no evidence has been found to explain what happened to them. It can be assumed that they succumbed to hypothermia on the freezing cold waters of the Labrador Strait and drifted south on the Labrador Current into the Atlantic Ocean.

DECEMBER 24, 1942

Christmas Eve and we've been here two weeks today. It was lonesome with just the four of us, but we got up pretty early and dug out the gas strainer so we could make a fire. It was so windy we couldn't work outside so we dried out blankets. Galm got blisters pretty bad and swollen hands which have to be doctored. We stretched out our eating to cover most of the day. We had a sardine sized can of herring with crackers, a spoonful of peanuts a piece, a black cough drop, and a caramel, a cup of grape drink, and plenty of coffee, using the same grounds over and over. It's really a surprise how much one can get from a small thing like a caramel, but we look forward to it with anticipation each day.

DECEMBER 25, 1942

What a Christmas. Mangins' feet pained him so much we had to get up at 0330. He was in agony before that, but was better after, although his arches pain him pretty bad. Got up again at 0900. Galm went exploring, I massaged Mangins' feet and Weyrauch started fixing up the floor, which was in pretty bad condition from the fire. Later we had to dig out the rear entrance to the ship to fix the window up. After that, we had a first aid lesson. The only one who doesn't have anything wrong is me. We are about to eat our Christmas dinner and go to bed.



Galm's and Mangin's injuries described in the previous two diary entries are consistent with frostbite.

DECEMBER 26, 1942

Had another swell day. The weather was perfect. Weyrauch cleaned up the back of the ship, while Galm dug around in the rear of the bombay, uncovering a can of fruit cocktail and a can of chicken a la king. I worked on Mangins' feet and did some odd jobs. Everyone is feeling better, and I hope that Mangins will be up in a few days. We aren't starving by any means, but the conversations are mainly about food. One surely can remember some tasty food.

DECEMBER 27, 1942

Started today as usual by treating the casualties. Mangins' feet are better, but we found a big blister on each foot. Galm and Mangins spent the day drying blankets. Weyrauch finished cleaning out the back of the ship,

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and I climbed the mountain to see if I could see anything out to sea. I also took a roll of film. The enforced diet is beginning to tell on us, but we'll eat a little more tomorrow.

DECEMBER 28, 1942

This has been a terrible day. The wind started up early in the morning and has kept us inside all day. We had two fires which took the rest of the day to repair. Mangins' feet are quite a bit better and he will start working on the putput soon. We may get the liaison set going yet. In the meantime, we can feel the effects of the short rations more every day. We pray almost every minute that the boys in the boat will get through soon and get some help.

DECEMBER 29, 1942

Today has been just average. The wind started up early again, but not too hard. Mangins' feet are almost back to normal.

DECEMBER 30, 1942

Today was overcast with snow showers. Spent most of the day working on the inside. Galm lost a fingernail, and may lose another. I'm just thankful that his hand doesn't pain him. Worked a little on the putput and made some progress, but it was too dark to work much. Got up a game of 500 Rummy which everyone seemed to enjoy. The boys have been gone a week today, God grant they are still going.

JANUARY 1, 1943

Happy New Year. It snowed and blew all night long and kept it up all day. So since we had no fire we stayed in bed all day.

JANUARY 2, 1943

More wind and snow today. It slackened up a little around noon, so we got up with the aid of a fire in a peanut can. Weyrauch got the prop and receiver tank out with a gallon of alcohol and glycerine, and I dug out the oil drain. After that, we had a couple of hot fires and plenty of hot coffee and had a lemon powder and a cup of bouillon. Our main dish was the last can of datenut roll with jelly and it was very good. We didn't finish with the eating and drinking until almost noon. Then I worked on Mangins' feet and went to bed. There was quite a bit of loose snow outside but the very shape of our ship keeps it fairly clean. It actually rained today and I don't know what effect that is going to have on our situation. The boys have been gone ten days today, which is the time we figured it would take them to make the trip. We hope they made it and can bring help soon.

JANUARY 3, 1943

There wasn't much wind last night so we thought we would have a good day, but the wind picked up and it snowed all day. The ship had a sheet of ice on it and is covered with snow. Besides that, the drifts are higher and closer than they have ever been before. We hooked up the fuel transfer pump and I'm positive we pumped some gas over to this side but we couldn't get it to drain out so we had to use the alcohol to cook with. I got into a big hurry once and caused a fire in which I got burned but not badly. Now we are all wearing bandages. I found two bouillon cubes in the radio operator's desk. Spent a lot of time putting snow under our bed. There was quite a hole there, so we should be able to sleep better tonight. It must be raining outside now. It couldn't be melting ice on the wing. We keep praying for clear weather and hope that the boys get through. Also to try out a new theory to where Hebron is.

JANUARY 4, 1943

Had a blue sky when we got up, but it stayed overcast all day. There wasn't much wind, however, so we got up and went to work. Weyrauch and I got quite a bit of gas out of the other wing, so we are pretty well fixed on that. Mangins has the putput almost ready to try again. We are just praying for good weather both in hopes of a rescue plane (if the boys got through). I am cutting down still on the rations.

JANUARY 5, 1943

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It started off like a beautiful day, but turned to a light low overcast. Weyrauch and I cleaned the plane of snow and Mangins finished the putput, which seems to be in pretty good shape. It started clearing late this afternoon.

JANUARY 6, 1943

This is the eighth day of bad weather. The entrance is blocked, and it doesn't do any good to dig it out. It has been two weeks since the boys left and spirits are still high in spite of the bad weather.

JANUARY 7, 1943

We've been here four weeks today. The entrance was blocked up this morning. As I was going into the ship, I saw a little bird. We caught him and boiled him for a couple of hours. Then made a stew by adding a bouillon powder. It was really delicious. Galm started to go looking for Hebron, but the snow was too soft. Mangins got out for the first time in 13 days. If we can't find a town or get the putput going in three days, we are going to have to sit and wait until the weather clears and pray that the boys got through because we are too low on food to do anything else. God help us to get out of here safely.

JANUARY 8, 1943

Today was the most strenuous for me since we got here. I tried to get to Hebron, and I still think I know where it is, but there are two mountains in the way. I can feel myself growing weaker and we have less to eat every day. I don't know what we would do if we didn't have that three pounds of coffee. We sit around and drink that and talk about all kinds of food, but I think we all crave chocolate candy more than anything else. The boys have dug out the back of the ship so if tomorrow is clear, we still have one last try with the putput radio.

JANUARY 9, 1943

Well, we put the putput back in its place and it jammed again, so that leaves us with one possibility, that the boys get through.

JANUARY 10, 1943

We have been here one month today, 31 days. Spent most of the day which was perfect as far as the weather was concerned looking for the plane and fixing up bandages. The boys spirits were much higher today after our little church service. Our only food today was a slice of pineapple and two spoons full of juice.

JANUARY 11, 1943

Our third day of perfect weather, also the coldest day since right after we got here. Spent the day watching for the plane which didn't come. The oil gave out on this side, which brings about another problem. The short rations are beginning to tell on us, but we are still in high spirits. If we don't live to eat some of the food we talked about, we've mentally eaten one of the best meals in the world.

JANUARY 12, 1943

Today was the boys' 20th day and our 33rd, and was overcast, but was calm. We got the oil almost dug out but are all so weak that we can hardly work. The boys spirits are still high though, and we had a couple of lively bull sessions on our one topic, food. Our ration today was a slice of pineapple.

JANUARY 13, 1943

Another calm overcast day. We dug up the oil, dried out blankets, made a new bed on snow and ate our last food, a slice of spam and a soda cracker a piece. All we have left is a half pound of chocolates and three drink powders, but we talk like rescue was certainly tomorrow. It cleared off late this afternoon, so maybe there is hope for tomorrow.

JANUARY 14, 1943

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Clear day but with wind. We cleaned off the plane and waited, but nothing happened. Late this afternoon we were playing cards when Mangins oiled the gas to fast and caused an explosion which burned both his and my face, hair, and hands. Our rations were four chocolates, but we are still working out pretty well. After a devotional, we went to bed.

JANUARY 15, 1943

A perfect day as to weather, but the coldest since we got here. Spent most of the day trying to keep warm and listening for a plane. Also made big plans for a couple of days in New York when we get our furloughs. Rations were two chocolates and a bouillon powder. No one is particularly hungry yet, but we are getting weaker and colder because our bodies aren't putting out enough heat.

JANUARY 16, 1943

Another calm clear day, but the coldest we have had yet. The oil froze up, so we had to end up burning nothing but gas. The only thing we have left is one bouillon powder and two sticks of gum. The strain is beginning to tell, but we still have good bull sessions about food and the furlough in New York.

JANUARY 17, 1943

Couldn't have asked for a better day except that it is so cold that the oil is frozen and won't burn. So our gas is going pretty fast. Had our last food, bouillon powder, so unless rescue comes in a few days -------. The boys have been gone 25 days which is a long time, but they are our only hope; our families will really miss some swell dishes and menus.

JANUARY 18, 1943

Cold and clear. My watch stopped, so we didn't get up until noon. Must be a little warmer because we got a little oil. Today was our first complete day without any food, but spirits are still pretty high. It's surprising how much punishment the body and mind can take when necessary. We are still in pretty good condition but rather weak. Not much hope left.

JANUARY 20, 1943

It snowed and blew all night, but we slept pretty well, and we were much more cheerful today. We stayed up longer than we should have though and are pretty tired. That snow has been blowing pretty hard all day and is piling up in front of the door, so I don't know what we will do if it doesn't stop pretty soon.

JANUARY 21, 1943

Six weeks today and rough night with snow and rain, so everything was soaked when we got up. Only Weyrauch and I got up and then only long enough to melt snow for water. Things could be worse.

JANUARY 22, 1943

Got up around noon, and was up until about 6. I cleared up the entrance and made the bed. We could stand some good weather.

JANUARY 23, 1943

Spent a miserable night. Everyone got crowded and nobody could get comfortable. Had a good day, but everybody is pretty discouraged, although the conversation was pretty good. We haven't really felt famished but we are really weak. It really gets me to see these boys start to do something and have to stop from the lack of power to go on. Weyrauch has developed a case of piles and is really suffering.

JANUARY 24, 1943

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Overcast but fairly calm. Each day we don't know how we can last another day, but each time we manage to go on. We all smoked a pipe of tobacco this morning and Galm got really sick, and I felt pretty bad. But we came out pretty well.

FEBRUARY 3, 1943

Slept a solid week in bed. Today Weyrauch died after being mentally ill for several days. We are all pretty weak, but should be able to last several more days at least.

NOTE: This is the last entry in the diary. The remains of the crew were found April 9, 1943 by Inuit from the settlement of Hebron, located about 30 km south.

List of food when landed:

- 7 cans of Spam,
- 3 cans of peanuts,
- 8 cans of chicken,
- 2 cans of pineapple,
- 3 cans of fruit cocktail,
- 2 cans of date nut roll,
- 1 can of brown bread,
- 3 boxes of chocolates,
- 28 Hershey Bars,
- 4 packages of dates,
- 1 pound of crackers,
- 4 boxes of fig newtons,
- 1 pound of cheese crackers,
- 1 case of Coke,
- 2 cans of salmon,
- 3 pounds of coffee, and
- 20 packages of caramels.

The original transcript of the pilot's diary was included in the formal report filed by the USAAF team that recovered the remains of the crew on April 18, 1943. Major Vaughan, Lieutenant Holmes and Lieutenant Norton accomplished the recovery by landing at the Inuit settlement of Hebron and walking overland to the crash site. The bodies were returned to Crystal-1 (Fort Chimo, now called Kuujjuaq) on April 22, 1943 where a funeral service and interment took place in the US Army cemetery plot the following day.

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SECTION 2

BACKGROUND KNOWLEDGE

The following background knowledge was covered during EO M190.04 (Discuss Survival Psychology).

SURVIVAL PSYCHOLOGY

Understanding survival psychology is very important. It is a person's will to survive that helps them the most. Having survival skills is not as important as the will to survive.

The Role of Fear in a Survival Situation

Fear is a normal reaction when in a survival situation. Fear can aid or hinder individuals depending on their reaction to it. It can lead to hopelessness and decreased self-confidence as well as reducing the will to survive. Fear, however, can release adrenaline, giving greater strength and stamina, reducing pain sensation, giving the ability to think clearly and helping one to act purposively. Accepting fear as a natural reaction to a threatening situation leads to productive behaviour. Because of this, fear can greatly increase chances for survival.

The factors most commonly reported to help decrease or control fear are:

- having confidence in a leader if in a group or in one’s self if alone;
- having confidence in one’s equipment; and
- concentrating on the job to be done.



Have you ever been in a real survival situation? If so, how did fear play a role?

Action to Take When Lost (Employing "STOP")

Taking immediate action when lost in the wilderness is critical to dealing with fear. In such a situation, the STOP acronym should be employed.

Stop. When one becomes lost, stopping prevents the person from possibly moving further away from the area a search crew may cover. It is also important to stop so one can think effectively. By stopping to think, one may avoid making errors due to hasty decisions.

Think. It is critical to think about what actions should be taken once a person realizes they are lost. One should think of the danger and consequences of either staying put or moving on. One should think about the possible dangers that could occur. Analyzing the weather, terrain and available resources should also be taken into account when deciding on the actions to be taken.

Observe. Conduct a self-analysis to identify possible symptoms of physical ailments such as fatigue, increased heart rate, or shivering. Also, look for psychological ailments such as extreme stress or fear. Observe surroundings for resources, weather potential, terrain, and possible landmarks that can provide information on one’s current location.

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Plan. After thinking of and observing all aspects of the situation, plan a course of action that best uses the available resources.



Do you remember using STOP during your survival training? If so, did it help?

The Survival Pattern

The survival pattern is a procedure used in a survival situation. It is a way of prioritizing tasks.

First aid. The most important thing to address in a survival situation is any injury that may have been sustained. Treating injuries can prevent worsening conditions, and reduce pain. Treating injuries allows for more involvement in survival activities.

Fire. Fire serves many purposes in a survival situation. It can provide warmth, boost morale, and provide a sense of security. It is a method for creating signals and can help purify water and cook food.

Shelter. Shelter allows a person to be warm and dry by providing protection from the elements. Even if the current weather conditions are favourable, it is not always possible to know when and how the weather conditions may change. Therefore, building a shelter early is very important. It also provides the psychological comfort of having a home base.

Signals. Signals should be constructed to attract search teams. Signals can take many different forms. Signal fires with heavy amount of dark smoke are visible from a long distance during the day or night. Other ground to air signals should be large and stand out from the surroundings, or be placed in nearby open areas. A mirror or other reflecting object is an excellent tool for signalling.

Food and water. Survival without water will only last a few days. Lack of water can lead to mild dehydration, which can reduce the ability to concentrate. This in turn can be dangerous as clear thinking is essential in a survival situation. Water from any ground source should be purified before drinking. A person can live for weeks without food. Excessive hunger can cause confusion and lack of judgement. Prolonged starvation results in loss of energy, loss of mental clarity, increased susceptibility to disease, difficulty maintaining body temperature, and eventually death. A balanced and varied diet can improve morale in a survival situation.



The survival pattern is a way to prioritize tasks. Can you think of a situation where the order would be different than what is listed?

The Seven Enemies of Survival

Pain, cold, thirst, hunger, fatigue, boredom, and loneliness are enemies of survival. In a survival situation, these feelings are more severe and more dangerous than in normal situations. Having knowledge of these feelings and their effects can assist in overcoming and controlling them.

Pain. Pain is nature’s way of identifying problems. However, pain can subside if one is pre-occupied. Pain may go unnoticed if one's mind is occupied with plans of survival. Once a person gives into pain, it weakens the drive to survive. A special effort should be made to keep one's hopes up and keep working.

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Cold. Cold lowers the ability to think and the will to complete necessary tasks for survival. Focusing on being cold can interfere with the goal of survival. Cold can numb both the mind and body. It can also lead to serious medical problems. Find ways to get and stay warm, like building a fire, getting dry, layering clothes, and keeping busy.

Thirst. Water is vital for survival. Dehydration can lead to serious medical problems, and can eventually be fatal. Even when thirst is not extreme, it can dull the mind. Drink regularly, and try to find sources of water.

Hunger. Hunger is dangerous because it can lessen the ability for rational thought. Both thirst and hunger increase a person's susceptibility to the weakening effects of cold, pain and fear. Prolonged hunger can lead to serious medical problems and can eventually be fatal. Manage food supplies, set snares, fish, and collect edible plants.



Did you know?

You can survive about three minutes without air, about three days without water and about three weeks without food.

Fatigue. Even a moderate amount of fatigue can reduce mental ability. Fatigue can make people careless as it becomes increasingly easy to adopt the feeling of just not caring. This is one of the biggest dangers in survival. While fatigue can be caused by over-exertion, it may also be caused by hopelessness, losing sight of goals, dissatisfaction, frustration or boredom. Fatigue may represent an escape from a situation that has become too difficult. Recognizing the dangers of a situation can provide the strength to go on. Watch exertion levels, set goals, and stay busy.



***Activate Your Brain #1*:**

What signs of fatigue did the crew of the "Times A Wastin" exhibit?

Even though the crew was suffering from fatigue, why did they spend so much energy to keep the plane cleared of snow?

_____ _____

_____ _____

Boredom and loneliness. Boredom and loneliness represent the final two enemies of survival. They are perhaps two of the toughest enemies of survival, mainly because they are unexpected. When nothing happens, when something is expected and does not happen, or when one must stay still, quiet, and alone, these feelings develop. They can cause discouragement and a lack of will to go on. Invent games, stay active, and create projects.



How did you deal with boredom and loneliness during your survival training? Did it help?

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SECTION 3

AIRCREW SURVIVAL

During EO M409.01 (Identify Methods of Instruction) you were shown that a case study requires four lists to be created: **facts**, **assumptions**, **problems**, and **solutions**.



A **fact** is something that is known to have occurred.

An **assumption** is something that a person takes or accepts to be true, without proof, for the purpose of an argument or action.

A **problem** is a doubtful or difficult matter requiring a solution.

A **solution** is an act or means of solving a problem or difficulty.



***Activate Your Brain #2*:**

Based on the case study, create a list of facts, a list of assumptions, a list of problems, and a list of solutions.

The list of problems should be based on the survival pattern and the seven enemies of survival.

The list of solutions should be the ones the aircrew came up with, not what you think they should have done.

Facts

Assumptions

Problems

Solutions

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Analyzing the Cause of the Accident

Based on your analysis of the case study, what was the main cause of the accident? Explain your reasoning.

Examining the Survival Situation

Based on your analysis of the case study, what were the main survival concerns? Explain your reasoning.

Investigating the Actions of the Survivor(s)

Based on your analysis of the case study, were the actions of the aircrew appropriate? Explain your reasoning.

Reflecting on the Outcome

Based on your analysis of the case study, what would you have done differently? Explain your reasoning.

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Congratulations, you have completed your self-study package on EO C590.01 (Analyze an Aircrew Survival Case Study). Hand the completed package to the Training Officer / Proficiency Level Officer who will record your completion in your Proficiency Level Five logbook.

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ACTIVATE YOUR BRAIN ANSWER KEY



***Activate Your Brain #1*:**

What signs of fatigue did the crew of the "Times A Wastin" exhibit?

Even though the crew was suffering from fatigue, why did they spend so much energy to keep the plane cleared of snow?

So that the plane could seen from the air and not blend into the landscape.

accidents (through carelessness)	poor decisions
lack of energy	lack of motivation



***Activate Your Brain #2*:**

Based on the case study, create a list of facts, a list of assumptions, a list of problems, and a list of solutions.

The list of problems should be based on the survival pattern and the seven enemies of survival.

The list of solutions should be the ones the aircrew came up with, not what you think they should have done.

Facts	**Assumptions**
winter	navigation error
poor weather	location of Hebron
above treeline	lots of food available
no injuries due to crash landing	could fix putput
did inventory of food and supplies	safe to use boat
scouted immediate area	boat trip would take 10 days
found lake (water source)	
found seals (food source)	

Problems	**Solutions**
cold / wind	built lean-to with a tarp over wing
limited supply of fuel for fire	used fire only as needed
thirst	found water, melted ice / snow
hunger	pooled food, caught bird
pain	applied first aid as required
signals	tried to fix radio
fatigue	reduced physical activity
boredom	played cards, did chores
loneliness	talked to each other

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For the following questions the most likely answers are listed. The cadet's explanation of their answer should be well reasoned. Their reasoning may be based on the case study, their training and their personal experiences.

Note: The cadet may think of answers that are not listed. Such answers are acceptable if they are both plausible and well reasoned.

Analyzing the Cause of the Accident

Based on your analysis of the case study, what was the main cause of the accident? Explain your reasoning.

Poor Weather

Navigation Error

Equipment Failure

Examining the Survival Situation

Based on your analysis of the case study, what were the main survival concerns? Explain your reasoning.

Cold

Food

Fatigue

Landing Above the Treeline

Investigating the Actions of the Survivor(s)

Based on your analysis of the case study, were the actions of the aircrew appropriate? Explain your reasoning.

Yes

No

Reflecting on the Outcome

Based on your analysis of the case study, what would you have done differently? Explain your reasoning.

Stayed Together

Walked to Hebron

Searched for More Liquid Water Sources

Hunted / Fished for Food

Created Ground-to-Air Signals

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