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Analysis of the effect of the procedures and methods used to translate the documents *"Un Angel de Paso en Esta Tierra"* from Spanish into English for Asociacion Pro-Niños con Enfermedades Progresivas and *"Manual Aircraft Rescue and Firefighting 6th Edition, Chapter 12"* from English into Spanish for Estacion de Salvamento y Extincion de Incendios (S.E.I) Aeropuerto Internacional Juan Santamaria

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Extent this appreciation to my family and professors that guide me and supported me through this learning process, as they have shape me into who I am. Those who were by my side and helped me in difficult times.

DEDICATION

I would like to dedicate this work to several people who helped me at different stages during these years of study. First of all, I thank my mother, Orietta Sancho Garcia for all the sacrifice she has made for me so that I can study at the university and also for all the support and patience that she has given me during this time. To my father Jorge Rafael Solano Rodriguez for motivating me every day to move forward and for helping me grow day by day. To my sister Valeria Maria Solano Sancho for having me a lot of patience during this study period and for motivating me to be a more dedicated student just as she is. I am deeply grateful to all my teachers who during these years at the university made me grow not only as a student, but also as a person. Finally, I thank God infinitely for having guided me along this path from day one. Without his help, I would not have been able to move forward through the most difficult times throughout this process.

ABSTRACT

The purpose of this study is to investigate the effect of the procedures and methods used to translate the documents *"Un Angel de Paso en Esta Tierra"* from Spanish into English for Asociacion Pro-Niños con Enfermedades Progresivas and *"Manual Aircraft Rescue and Firefighting 6th Edition, Chapter 12"* from English into Spanish for Estacion de Salvamento y Extincion de Incendios (S.E.I) Aeropuerto Internacional Juan Santamaria. To gather the information used to create this document, a series of internet searches were performed. The researcher had to conduct an extensive research in the field of translation. It was particularly important to know the procedures and methods of translation since these were applied to be able to conduct the work adequately. The material collected from these searches is going to be used as the main base for this project.

RESUMEN

El propósito de este estudio es investigar el efecto de los procedimientos y métodos utilizados para traducir los documentos «Un Ángel de Paso en Esta Tierra» del español al inglés para la Asociación Pro-Niños con Enfermedades Progresivas y «Manual Aircraft Rescue and Firefighting 6th Edition, Chapter 12» del inglés al español para la Estación de Salvamento y Extinción de Incendios (S.E.I) Aeropuerto Internacional Juan Santamaría. Para recopilar la información utilizada para crear este documento, se realizaron una serie de búsquedas en Internet. El investigador tuvo que realizar una amplia investigación en el campo de la traducción. Fue especialmente importante conocer los procedimientos y métodos de traducción, ya que se aplicaron para poder realizar el trabajo adecuadamente. El material recopilado a partir de estas búsquedas se va a utilizar como base principal de este proyecto.

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CHAPTER I

INTRODUCTORY FRAMEWORK

The English language is undoubtedly one of the most fascinating and globally used languages in different areas of work. From an early age, many people have already shown interest in learning this language. Many people had the opportunity to learn this language and succeeded in mastering it. However, many people do not have this same opportunity and fall behind in learning this language. This is just one of the reasons why the work of translators is particularly important and necessary.

This research paper aims to exemplify the necessity and importance of a translator's work, as well as to show the entire process that must be conducted to reach the result. This result would be the complete translations with their respective analysis. However, before getting there, it is important to develop the introductory framework. Therefore, to conduct this thesis work, different technical aspects related to the field of translation, its procedures, and methods need to be analized and carried out.

All research requires an introductory framework. It is particularly important as it oversees presenting the basis of the whole research. In this introductory framework, an important part of what is required to conduct this work will be presented, as well as a general objective that the researcher will take as a basis for his research. In addition, 4 specific objectives that complement the general one are shown. The problem statement, the justification of the study, the antecedents, and the scope will also be presented in this chapter.

1.1.Problem Statement

The main objective of this work is to investigate the effect of the procedures and methods used to translate two documents. The first one is a manual of emergency procedures for the firefighters of the Juan Santamaria International Airport. In this case, this translation is required because a large part of the station's population is not familiar with the English language. As mentioned above, English is used globally in many fields, evidently shown, in the aeronautical field, English is the universal language. For this reason, station personnel must have access to the information in this manual in the Spanish language.

The second document would be a children's story for a non-profit association. This entity is dedicated to serving the needs of children suffering from progressive diseases. Their work has been so impressive that they have even gained international scope. English language is considered to be a neutral language. Therefore, it is used by many institutions around the world. For this reason, they need to have didactic material in English. So that people who have this language as their native language, can have easy access to information. It is important to clarify that this document will be translated from spanish to english.

In order to conduct the task mentioned, the researcher will have to conduct extensive research in the field of translation. It is particularly important to know the procedures and methods of translation since these will be applied to be able to conduct the work adequately. In addition, the researcher needs to be familiar with the technical vocabulary used in both documents. On the other hand, he should be very clear about the audience for whom he will be translating and the context of the translations.

What is the effect of the procedures and methods used to translate the documents *"Un Angel de Paso en Esta Tierra"* from Spanish into English for Asociacion Pro-Niños con Enfermedades Progresivas and *"Manual Aircraft Rescue and Firefighting 6th Edition, Chapter 12"* from English into Spanish for Estacion de Salvamento y Extincion de Incendios (S.E.I) Aeropuerto Internacional Juan Santamaria?

1.2.Objectives

The objectives of the investigation are proposed to inform future researchers about the expectations of this investigation and why it is important to talk about the impact of procedures and methods that will be used to translate some documents.

1.2.1 General objective

To investigate the effect of the procedures and methods used to translate the documents *"Un Angel de Paso en Esta Tierra"* from Spanish into English for Asociacion Pro-Niños con Enfermedades Progresivas and *"Manual Aircraft Rescue and Firefighting 6th Edition, Chapter 12"* from English into Spanish for Estacion de Salvamento y Extincion de Incendios (S.E.I) Aeropuerto Internacional Juan Santamaria

1.2.2 Specific objectives

- To translate the documents "Un Angel de Paso en Esta Tierra" from Spanish into English for Asociacion Pro-Niños con Enfermedades Progresivas and "Manual Aircraft Rescue and Firefighting 6th Edition, Chapter 12" from English to Spanish for Estacion de Salvamento y Extincion de Incendios (S.E.I) Aeropuerto Internacional Juan Santamaria.

- To apply various translation procedures to the documents to achieve accurate and natural translations.
- To evaluate the effect of the translation procedures applied on the documents.
- To create a glossary with the most relevant terminology found in both texts.

1.3.Justification of the Study

One of the main goals of this work is to put into practice the knowledge obtained throughout the career and apply it when translating documents for a non-profit organization and airport firefighters that require it. By doing this, not only the institutions are helped, but the researcher also benefits by acquiring new knowledge through the process of the investigation. Due to the format of the documents, the researcher will be able to delve into two distinct areas of translation (literary and semantic) in which he will be able to acquire more knowledge in the literary and technical informative fields.

This work was conducted to translate some documents from Spanish to English and vice versa. The documents were provided by two different institutions. The first one was a non-profit foundation dedicated to taking care of children with progressive illnesses. The organization required the translation of a children's story from Spanish to English. The foundation needed this translation to make the story accessible and understandable to children who are native English speakers.

The second institution that provided documents was the fire station at the Juan Santamaria International Airport. In this case, they provided a chapter of one of their emergency manuals, which needed to be translated from English to Spanish. They required this work as several firefighters at the station do not speak English as a second language. Others had zero knowledge of the language because they never had the opportunity to study

it. Due to the format of their work, it is particularly important that they can access and understand the information found in the above-mentioned chapter of the manual.

This research is relevant as it presents a great benefit to the institutions and the researcher. In the case of the Children's foundation, they strive to address all the needs of their patients. This includes recreational activities such as reading. The association has had a positive outreach, nationally and internationally. This provokes the need to learn new languages to facilitate communication and to be able to have a proper understanding. In this case, the language they are incorporating is English. By receiving children who speak English as their first language, they require informative and recreational material in this language. As a non-profit foundation, they do not have a large budget. For this reason, the donated translation work will be of immense value and benefit to them.

On the other hand, the fire station at Juan Santamaria International Airport will also benefit from this work. The firefighters at the station need to learn different procedures and protocols to deal with an eventual emergency or incident. Although English is the universal language in the aeronautical field, some firefighters do not master it. Whether for reasons of educational gap, lack of opportunities, time, or economic resources, among others. For this reason, they require a translation to understand the manual’s information. Without a doubt, this work will be of immense value and benefit to them. It will help them understand quickly what is written in the manual, and they will be able to be more efficient when it comes to their evaluations and putting what they have learned into practice in the field.

In order to conduct these tasks, the researcher will have to put into practice what he has learned during the translation courses received when studying this career. In order to conduct these translations, the researcher will have to apply translation methods that are necessary to be able to do a proper job. In addition, the researcher will have to investigate

the vocabulary and context of each document. Another important aspect to consider is the target audience of both documents. One will have to use simple language and the other will have to use technical language. If the researcher does all this correctly, it will be easier to implement the translation process.

1.4.Antecedents

If a student is going to do research work with translation as the main topic, it is important to have as a reference one of the most famous translations. The translation of the Bible. This has been the most translated document globally. Since its first adaptation in the third century B.C., it has reached 450 languages translated in full and more than two thousand partially. Among these languages are Greek, Latin, German, Spanish and English.

The translation of the Bible set a particularly important precedent in translation worldwide. Since it made known the need to have different documents or works in different languages, which would be translated based on the original text, respecting the message conveyed by the author. It is mentioned that the translation of the Bible was the beginning of translation as it is known today. Over the centuries, different translation methods and techniques have been developed to make this task easier than it was at the beginning of time when this document was translated. There is no doubt that the work done with the Bible marked a before and after in the field of translation. Therefore, it is worthwhile to consider its history as a background for this work.

For this research, two international researchers are taken as references for the realization of the work. The first one is a thesis conducted by the student Francisco Javier Vargas Gomez from the University of Alicante, Spain. With a sociological approach, the thesis deals with the translation of peripheral works of literature from the case of the

translation of Costa Rican poetry. Like this research, the author of the thesis had to do previous research before translating the documents he selected. Socio-cultural aspects were considered for the proper understanding of the documents and their translation. In this way, errors of naturalness and context were avoided. The researcher needs to take this work as an example to avoid this type of possible errors when translating.

The second international paper is a research article by Li Zhizhuo, Zhu Min, and Zhou Yali for the International Journal of Applied Linguistics and Translation of the Civil Aviation Flight University of China. The title of the paper is *Translator's Subjectivity in Aviation English Translation*. The interesting thing about this paper is that it talks about the importance of being subjective when translating aviation documents. Like many technical fields, aviation has its own language. You cannot translate everything literally or naturally without taking this technical language into account. In this research, a translation will be done for the firefighters working at the Juan Santamaria airport. For this part of the work, it is important to be subjective and to conduct research on the technical language necessary to translate the documents. This article can be used as a reference when conducting the corresponding translation.

On the other hand, two national studies were found as antecedents of this research. The first one corresponds to a thesis work of the UNA, written and researched by Alvaro Abelino Zamora Arias. The title of his research is Apollo's Song by Osamu Tezuka: use of Costa Ricanisms in the Spanish adaptation of a Japanese comic book in English. This graduation project of the Master in English-Spanish Translation studies the adaptation of a segment of Apollo's Song1 by Osamu Tezuka, a Japanese comic book (previously translated into English) to the Costa Rican variant of Spanish through the use of Costa

Rican Costa Ricanisms, taking as a theoretical basis the manipulation of the manipulation of literature through the theory of poly systems and on the other hand, the theory of scope.

This work exemplifies very well how a translation from English to Spanish should be done. It considers important cultural aspects of three languages, English, Spanish, and Japanese. The researcher had to do in-depth research to become familiar with the vocabulary required to be able to present the work naturally and fluently. In addition, he chose Costa Ricans as the target audience, which is why he used Costa Rican expressions when translating. To connect with the target audience naturally and understandably for everyone.

The second national work is a UNA thesis by student Muriel Vargas Gross. It is titled Translation Process and Strategies for a Self-Help Book: The Case of Upside Down in High Heels: The Impossible Art of Being Female, by Tania Kindersley and Sarah Vine. This work was made up of the translation of four chapters of the book Backwards in High Heels: The Impossible Art of Being Female and its research report on the process conducted. This work aimed to determine if it was possible to find an ideal translation strategy for self-help books that have a strong cultural load outside the target culture. To achieve this, the author of the research used six cultural translation strategies to determine which ones or which ones were appropriate to conduct the work. In translation, the most important thing is to transmit the message in the target language. However, appropriate translation procedures must be chosen that fit the cultural context of the text and the target audience. Otherwise, the message could be wrong or misinterpreted.

1.5.Scope

It is important to mention that this investigation focuses on the effect of procedures and methods used to translate the selected documents. This scope aims to obtain data that will determine the importance of translating these documents by applying the correct translation methods and procedures. The ultimate achievement is to make an excellent translation that remains available for those who need it. Some other achievements are presented below:

- Investigate translation methods and procedures: In order to be able to apply these methods and procedures to translations, the researcher must be familiar with them. Extensive research will be done to determine these methods and procedures and how they are used. This will enable the researcher to acquire knowledge about them and subsequently put them into practice.
- Create a glossary with the required vocabulary: The researcher will likely encounter unfamiliar words. For this reason, it is particularly important to design a glossary with the technical vocabulary required for the proper performance of each translation. A poor use of the vocabulary could lead to errors in naturalness and context. The intention is to avoid these problems.
- Bring help to those in need of non-profit translation: The researcher needs to make available his time and knowledge to donate these translations required by two non-profit institutions. In this way, he can gain experience in the field of translation, put into practice what he has learned, and contribute to these institutions in a meaningful way.
- Set a precedent for future researchers: Another goal of the researcher is that this work will set a precedent and serve as a guide or inspiration for future researchers.

Sometimes it is a little difficult to obtain references for similar works. Information like this must exist for future generations of students, researchers, and translators.

CHAPTER II

THEORETICAL FRAMEWORK

This chapter will discuss in detail the many factors that must be taken into consideration when translating a text. Translators cannot conduct their tasks without first knowing the texts they are going to work with. One of the main objectives of this theoretical framework will be to present the distinct types of text relevant to the investigation, as well as their styles and functions. It is essential for a translator and the researcher to know these concepts to identify the type of text the translator will be working with. Performing a translation without this knowledge can cause context and language problems in the final translation product. Each text has its essence and characteristics. It is important to know and identify them in order to performed a great translation.

On the other hand, this chapter also aims to present the different translation methods and procedures. The translator uses translation methods and procedures to conduct their work more simply. In this work and any other translation work, the researcher will have to use one or more of these methods and procedures. For this reason, it is necessary to present them with their respective definitions and examples of how they should be applied. In this way, they can be implemented correctly when conducting the translations proposed for this research work.

2.1. Text Analysis

Before presenting text analysis, it is important to know what a text is, to create a base of information. In academic terms, a text is anything that conveys a set of meanings to the person who examines it (Burnell, 2023). In simple words, a text is any written expression that conveys a message. There are many types of texts, and each has its own style. Some tend to be more formal than others, but they all have the same objective. Convey a message to a target audience. Texts can also be analyzed in diverse ways and this is where textual analysis comes into play.

Textual analysis is a broad term for various research methods used to describe, interpret, and understand texts. Some authors mentioned that all kinds of information can be gleaned from a text ranging from its literal meaning to the subtext, symbolism, assumptions, and values it reveals (Caulfield, 2019). In other words, text analysis helps readers or translators to understand the true nature of a text through different techniques. These types of analysis techniques may vary according to the type of text. Each text has its way of being analyzed. It is different from analyzing a scientific article and a children's story. In general, the two main elements of textual analysis are text styles and text functions. Both elements will be explained below.

2.1.1 Text Styles.

"The style in writing can be defined as the way a writer writes" (Summit Learning, 2023). As mentioned, tesxt style is the technique that an individual author uses in his writing. It varies from author to author and depends upon one's syntax, word choice, and tone. It can also be described as a "voice" that readers listen to when they read the work of a writer. In other words, text styles are the set of aesthetic and formal

characteristics through which the author of a literary piece conveys his purpose and personality. The use of the different tools and rules of language for the creation of a discourse or narrative is unique to each author, thus constituting a personal and non-transferable literary style.

There are diverse types of literary texts, which fulfill a specific function, according to how the author of a work uses them. Style is a key element that defines the way the author communicates through a text. Through language, people can convey their ideas and emotions uniquely and personally. Style can be formal, informal, poetic, and technical, among others. Each author has their distinctive stamp, a particular way of using words and structuring sentences. Style not only reflects the author's personality but also influences how the reader perceives and understands the message they want to convey. To know a little more about these text styles, it is important to keep in mind their definition, which will be presented below.

- Formal: This style deals with a specific and selected subject matter and a specialized vocabulary. The formal literary style is widely used in pieces for the academic, scientific, or legal world, for example.
- Informal: In contrast to the previous predetermined literary style, in the informal style, an everyday communicative structure is used, with commonly used, plain, and direct terms.
- Elegant: Another literary style that you should know is the elegant style. It is characterized by giving "color" to the work, using poetic figures, harmony, and literary ornaments, but all in the right balance. Many classical authors used to use this style.

- Sober: This style rejects the use of any literary resource that is only for ornamentation. Therefore, it seeks to expose facts and concepts clearly and directly. We usually find this style, for example, in the academic area or some fiction or non-fiction books.
- Poetic: Contrary to the previous one, the poetic or flowery style seeks to give an air full of metaphors, images, and other poetic resources that give vivacity and pomposity to the work. With this style, we also achieve to give the text a strong intonation.
- Descriptive: The descriptive style is the one that uses all kinds of images, adjectives, comparisons, and other literary resources to give the reader the maximum imaginative power. This style is widely used in fiction literature since the authors achieve in this way that the reader can perfectly imagine what he wants: landscapes, scenes, or very specific characters.
- Scientific: Perhaps one of the most recognizable literary styles is the scientific or demonstrative style. In these articles, resources, and support are used to validate the arguments or facts that are being presented. In this sense, few verbs and adjectives are used, and priority is given to direct, exact, and precise language.
- Subjective: This is one of the last literary styles we will see in this predetermined list, and we could obtain an endless list of styles. The subjective is that style that is linked solely and exclusively to the author's personal experience. The narrator in this case tells us indirectly what another character says and what he managed to interpret.

- Humorous: Written in a humorous key, these texts use literary resources that make the reader laugh or have an enjoyable time. To create pieces of this style, it is necessary to use certain communicative "codes" in which irony, absurdity, or dark humor can be distinguished.

All these styles are made up of a series of literary elements that provide their own characteristics. These elements are the same for each style. The difference lies in the style the author chooses for their work. Some of these elements are syntax, punctuation, lexis, personality, narrative rhythm, and themes of interest, among others. All of them help the author to develop their literary style accurately. Without these elements, text styles would not develop properly, and the desired message would not be conveyed.

2.1.2 Stylistic Scales.

Stylistics is a branch of applied linguistics concerned with the study of style in texts, especially, but not exclusively, in literary works. Also called literary linguistics, stylistics focuses on the figures, tropes, and other rhetorical devices used to provide variety and a distinctness to someone's writing (Nordquist, 2019).

This discipline deals with the description and analysis of the variability of linguistic forms in the use of language. In other words, stylistics is the study of style. However, just as style can be viewed in several ways, there are different stylistic approaches. This variety is due to the influence of different branches of linguistics and literary criticism. In many ways, stylistics is an interdisciplinary study of textual interpretations, using an understanding of language and an understanding of social dynamics. On the other hand, the most common type of material studied is literary, and the focus is, especially on the text. Most stylistic studies aim to show how a text "works". However, the aim is not only to

describe its formal characteristics but to show its functional significance for the interpretation of the text or to relate literary effects or themes to linguistic mechanisms.

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This area of linguistics is extremely important in literature as it examines the creativity in the use of language. It enhances the way we think about language and its uses. Thus, the stylistic process, examining the creativity of language use, develops our understanding of literature. The purpose of stylistics is to connect linguistic analysis with literary criticism. This can be done by expanding the literary intuitiveness of linguists and by expanding the linguistic observation and knowledge of critics. The efforts of stylisticians to make such connections help develop our understanding of literature and the underlying significance of texts.

2.1.2.1 Scale of Formality.

"The level of formality you write should be determined by the expectations of your audience and your purpose. Formality exists on a scale "(*Levels of Formality - Purdue OWL® - Purdue University*, 2018). Formality in writing refers to how well you follow standard English conventions, how often you use slang or idioms, how objective you are about your topic, and how familiar or intimate you assume you are with readers. According to the writer Rebekah Weaver (2017), writing falls into the following four levels of formality. The first one is the familiar level. When writers use a familiar tone, to make assumptions about their audience because they know the audience well on a personal level, so writers feel free to share personal information. Writers, when using this style, do not worry about following standard English conventions as their audience will understand what they mean and will not judge them.

There is also a similar level named the casual level. Normally it is used when the author speaks with or write to people who are not as close to them, but are still your equals, they likely use a casual tone. Writers and audiences may have some shared experiences, but not enough to feel like they know each other. This audience category can include acquaintances and coworkers. When writers strike a casual tone, they do not share as much personal information or assume as much about their audience.

Then, the semi-formal level is presented. When writers are speaking or writing to someone they do not know or someone who is their superior, they are more likely to use a semi-formal tone. When writers use a semi-formal tone, they do not know the members of their audience. To apply the semi-formal tone in writing, it is particularly important to follow the rules of standard English. This level of formality is one of the most used in

literature and one of the most important. Generally, writers create their works with a target audience in mind but not with a particular person in mind. Therefore, maintaining a semi-formal scale when writing is quite adequate.

Finally, there is the formal level. Generally, academic, technical, and business writing use this tone. Writers using a formal tone do not share much at all about their nature, and they do not make assumptions about or refer to their audience members. Formal writing is precise and impersonal. Writers follow the rules of standard English with exactness, and they do not use idioms, contractions, or sentence fragments.

It is especially important to pick a level of formality in writing carefully. It will depend on what the author is going to write about and for what audience. For example, if an author is writing a fairy tale for children and sounds too formal, readers may not get the message they are trying to convey. However, if the author is too casual, readers may not take their work seriously or feel annoyed by the assumptions about them. That is why is necessary to study your audience and the topic they are going to write about, to choose a correct scale of formality.

On the other hand, different authors have developed their scales of formality. Martin Joos, an American linguist, identified five degrees of formality in language: intimate, casual, consultative, formal, and frozen. In addition, Peter Newmark in his textbook of translation proposed eight scales of formality. They go from Officialese to Taboo. In other to understand more the scale created by Newmark, here are some examples of writing using these scales of formality.

- Officialese: The consumption of any nutriments whatsoever is categorically prohibited in this establishment.
- Official: The consumption of nutriments is prohibited.

- Formal: You are requested not to consume food in this establishment.
- Neutral: Eating is not allowed here. Informal Please do not eat here.
- Colloquial: You cannot feed your face here.
- Slang: 'Lay off the nosh.
- Taboo: 'Lay off the fucking nosh.

2.1.2.2 Scale of Generality or Difficulty.

According to the Cambridge Dictionary (2024), generality is a statement without details and sometimes without much meaning. It can also refer to the degree of generality or specificity of a text. For example, a text that uses indefinite pronouns or generic nouns is more general than a text that uses specific names or numbers. These scales are intended to help authors write with some difficulty or in a more general form without so much complexity. Peter Newmark proposes in his book six scales of difficulty or generality in texts. They go from Simple to Technical. Some examples are presented below.

- Simple: The floor of the sea is covered with rows of big mountains and deep pits.
- Popular: The floor of the oceans is covered with great mountain chains and deep trenches.
- Neutral (using basic vocabulary only): A graveyard of animal and plant remains lies buried in the earth's crust.
- Educated: The latest step in vertebrate evolution was the tool-making man
- Technical: Critical path analysis is an operational research technique used in management. Opaquely technical (comprehensible only to an expert): Neuraminic acid in the form of its alkali-stable methoxy derivative was first isolated by Klenk from gangliosides (Letter to Nature November 1955, quoted in Quirk, 1984.

2.1.2.3 Scale of Emotional Tone.

"The tone in writing refers to both the writer's feelings and attitude towards the subject and the audience and how those feelings are expressed" (Bunting & Bunting, 2024) The tone is one of the elements of writing that aids writers when conveying their tone through word choice and syntax. Like tone of voice, it helps set the mood of the writing piece and influences the reader's interpretation. There are diverse types of tones that a writer may choose for their works. However, in this section of the investigation, ten of them will be presented. These are the most common ones. First, the formal tone. A formal writing tone is common in academic or professional contexts.

This tone focuses on being thorough and direct, yet respectful. It uses full words, rather than contractions, and emphasizes facts and grammatical correctness. On the other hand, we have an informal tone. An informal tone is the opposite of a formal tone. Informal tone in writing is conversational and expressive, like how you speak or write to a friend. It uses contractions, colloquial phrases, and more emotion. Its sentence structure can be shorter with a choppy rhythm, or it can be long and chatty.

Then, the optimistic tone. When writing in an optimistic tone, you are conveying a sense of hope and a positive outlook for the future. Even when acknowledging daily live challenges, the uplifting language gives readers aspiration. The opposite of this tone is called worried tone. A worried tone can make your reader apprehensive and afraid. It communicates feelings of anxiousness about something that is unknown. In addition, we have a friendly and curious tone. The friendly one is non-threatening and elicits trust. This tone can also have a mix of formal or informal tones, depending on what you are writing. Generally, it is lighthearted and kind. Exclamation points can convey warmth and

enthusiasm. However, a curious tone in the writing tells the reader that there are compelling details that the author still wants to uncover. This tone can be used creatively to keep the reader intrigued about learning more. The last four tones are assertive, encouraging, surprised, and cooperative.

An assertive tone exudes confidence and authority. It can also be insistent and straightforward. This tone can be used to help you persuade your audience about a topic. Then, an encouraging tone is supportive and understanding. It gives readers reassurance to overcome their fears and act. On the other hand, when writing with a surprised tone, you are capturing how something is unexpected. The tone could elicit diverse types of astonishment, such as joy or shock. Finally, A cooperative tone is common in the workplace. Your word choice often evokes positivity and collaboration and the use of the pronoun “we” work together to invite mutual participation toward a shared goal. In addition, Peter Newmark proposed four scales of emotional tone in his book. The scales go from Intense to Understatement. Some examples are presented below.

- Intense (profuse use of intensifers): ('hot') 'Absolutely wonderful. . . ideally dark bass . . . enormously successful. . . superbly controlled.
- Warm: Gentle, soft, heart-warming melodies.
- Factual ('cool'): 'Significant, exceptionally well judged, personable, presentable, considerable.
- Understatement ('cokT): 'Not. . . undignified.

2.1.3 Text Function.

According to the website Encyclopedia Function (2024), “The most important function of a text is to convey a message, in addition to informing, making known, through

precise and concise language, the real, possible, or imaginary world to which it refers." It is also possible to recognize in texts distinct functions of language, that is, different intentions of the sender: to inform, to convince, to seduce, to entertain, to change moods, etc. The function of a text varies according to the theme or focus that the author is going to give it. If a story is to be written, the function of that text will be literary. On the other hand, if an investigative report is to be written, its function would be informative. These are just two examples of the functions that a text can have.

There is also the possibility of mixing distinct functions in a single work. However, you should carefully analyze whether it is acceptable to use more than one function. Otherwise, the result would not be as expected, and you would make a mistake. If the text does not fulfill the function established by the author, it will not be able to convey the desired message. As it is known, there are different text functions, each with its specific purpose. For this research, the informative, expressive, and vocative functions will be analyzed.

2.1.3.1 Informative.

"An informative text provides knowledge about an event, subject, or topic. It is usually found in newspapers, magazines, encyclopedias, or manuals" (Delgado, 2012). In other words, the informative text has the goal of giving information. An author may choose this function if the main idea of the work is to give specific information to the readers. The main function of an informative text is, as its name indicates, to inform, to make something known. To perform this, it presents a real fact in the most objective way possible and contains organized, clear, and well-explained ideas that allow the reader a better understanding of the reality shown. Informative texts are characterized by describing real

situations, with simple and concise language, and an appropriate vocabulary related to the main topic of the text. They are generally structured in three parts, an introduction, development, and conclusion.

There are two large categories of informative texts, divulgative and specialized texts. Although informative texts are usually associated with the journalistic field, they are also applied in many other fields. The divulgative texts are a type of text in which a topic of general interest is presented. It is characterized by using an accessible vocabulary for all types of audiences. In this way, the information reaches as many people as possible. Some examples of these texts are newspapers, textbooks, encyclopedias, biographies, etc. On the other hand, the specialized texts are a little different, as they are characterized by dealing with a topic presented for a specific audience. These audiences have a certain level of knowledge and share a technical or academic vocabulary.

2.1.3.2 Expressive.

"An **expressive text** is one whose main intention is to communicate the feelings, wishes, and thoughts of the speaker. Its function is oriented to the sender of the message" (Encyclopedia of Examples, 2017). In other words, an expressive text is one whose main intention is to communicate the feelings, desires, and thoughts of the writer or speaker. Its function is oriented to the sender of the message. Furthermore, this expressive function is not only in written language but also in oral language.

The main characteristic of expressive texts is that they are subjective. For this reason, it cannot be said that a statement is true or false, as it refers to an opinion or a feeling that is strongly associated with the author. Another important aspect of expressive texts is the use of the first person, which is normalized. Also, the use of exclamatory

expressions that attempt to express emotions, feelings, and moods is common. Authors often used expression marks to emphasize this aspect. Then, qualifying adjectives are used to describe, determine, and make value judgments about things or situations. In addition, the use of emphatic expressions that highlight certain elements is common. For this reason, superlatives or diminutives are usually used and metaphorical language is also quite common in expressive texts. This aspect allows two things to be compared through a personal perspective or experience. Finally, expressive texts can use exaggerated expressions that stand out from what is natural or common.

2.1.3.3 Vocative.

"Vocative texts are expressive poetic texts that strive to show rather than tell, that communicate felt knowledge, and that appeal to the senses. Researchers increasingly use them to present qualitative findings, but little has been written about how to create such texts" (Nicol, 2008). In other words, vocative texts go beyond transmitting information. They appeal to the emotions of their readers. According to Peter Newmark, "The first factor in all vocative texts is the relationship between the writer and the readership, which is realized in various types of socially or personally determined grammatical relations or forms of address." This means that authors must have some kind of knowledge and relationship with their audience to connect with them deeply. Another important fact about vocative texts is that they must be written in a language that is immediately comprehensible to the readership.

2.1.4 Translation Methods

"Translation methods are mechanisms that specialists have at their disposal to be able to conduct their work with solvency when translating a text from one language to

another in the transfer phase. In general, these methods are used throughout the document" (UNIR, 2023). In other words, translation methods refer to activities on an entire document. On the other hand, translation procedures apply to smaller units such as sentences. Choosing the appropriate method facilitates the translation process so that content conveys the right meaning in the target culture appropriately. It is very important that translation methods and procedures are studied by a translator before starting to translate. Otherwise, an undesired result may be obtained.

2.1.4.1 Semantic translation.

"Semantic translation attempts to render, as closely as the semantic and syntactic structures of the second language allow the exact contextual meaning of the original" (Newmark, 2001, p. 39). It can be stated that semantic translation focuses on providing the meaning of the original text, with some paraphrasing, so that the resulting text has a more natural flow than with literal translation. It is biased towards the source language in terms of delivery. As it is already known, the term semantics refers to those aspects of the meaning of linguistic expressions. Thus, semantic translation is a translation that is conducted considering the exact contextual meaning. A notable characteristic of this translation method is that it considers the aesthetic value of the target text. There are numerous classifications, as well as translation methods. A translation is of quality when it reproduces the same message as the original. This is where the important work of the translator comes into play, as they must know how to apply the methods and procedures in the best feasible way. Likewise, the translator must find the balance between these methods to be as faithful as possible to the original.

2.1.4.2 Communicative translation.

"Communicative translation attempts to produce in its readers an effect as close as possible to that obtained from the readers of the original" (Newmark, 2001, p. 39). The main goal of communicative translation is to provide the precise contextual meaning of the original text in the target language. The objective is to ensure that both content and language are easily understandable by the target audience. In summary, communicative translation is author-centered and follows the author's thought process. This means that it is concerned with the author as an individual. It is also semantically and syntactically oriented. It is more literal and informative, but generally less elegant, more detailed, and complex, but shorter. Another definition of this method states that communicative translation emphasizes the "force" rather than the content of the message, which attempts to render the exact contextual meaning of the original (Cai, 2019).

2.2. Translation Procedures.

According to the UNIR (2019) "Translation procedures could be defined as the mechanisms that specialists have at their disposal to be able to carry out their work successfully when transferring a text from one language to another in the transfer phase". The techniques are focused on specific parts, such as certain words, sentences, or paragraphs. There have been various names, definitions, and classifications since Vinay and Darbelnet first proposed seven methods or procedures, loan, calque, literal translation, transposition, modulation, equivalence, and adaptation in 1958. Molina and Hurtado define translation techniques as "procedures to analyze and classify how translation equivalence works" and propose a categorization based on how they affect the result of the translation (2002, p. 509). Translators apply translation procedures when they formulate an

equivalence to transfer elements of meaning from the Source Text (ST) to the Target Text (TT) (Delisle) in micro-textual units (sentences and smaller units of language). On the other hand, Molina and Hurtado (507-509) distinguish translation techniques from categories such as:

- Translation methods: the translators' global approach or plan of action on a given text, according to their intention
- Translation strategies: "procedures (conscious or unconscious, verbal or non-verbal) used by the translator to solve problems that emerge when carrying out the translation process with a particular objective in mind".

More than one technique or procedure can be seen in one translation, and some translations may result from a cluster of procedures that is difficult to discern.

2.2.1 Transposition.

Transposition is the very first step or technique of oblique translation. However, oblique translation is the term used for free translation in which the translators have complete freedom of exercising to attain the equivalence. It operates on the grammatical level consisting of the replacement of the word by another word without changing the meaning of that word. It has been elaborated from a stylistic point of view, that the transposed expression, although have the same meaning but the value is not the same. In other words, Transposition is a translation technique that consists of moving a phrase or sentence from one grammatical category to another in such a way that the meaning of the original text is not altered. However, with transposition the grammatical structure is modified, although the meaning is not altered.

2.2.2 Modulation

As a technique, modulation in translation helps to illustrate the difference between literal translation and coherent meaning translation. “The idea or meaning is the same, but the phrases that are used in the source and target languages are different – the source language is not translated word-for-word into the target language” (The Translation Company Group, 2024). It can also be said that modulation is understood as the translation process that takes place when there is a change in the conceptual basis of a term, which is to say, in the point of view, in the perspective, but without altering its meaning. It is therefore a more abstract level that consists of adopting a modified point of view or a different metaphorical basis.

It basically means using a phrase that is different in the source and target languages to convey the same idea. Modulation operates a change of perspective from one language to another or a semantic change. Among translation techniques, it gives the translator a great deal of freedom, allowing the same impact to be made in both the source and target languages. Through modulation, the translator generates a change in the point of view of the message without altering meaning and without generating a sense of awkwardness in the reader of the target text. It is often used within the same language.

2.2.3 Omission

According to Benjamin Aguilar (2015), “Omission is a translation procedure that is related to the natural economy of a language. Sometimes it is essential to omit words or combinations of words, which can be translated by a single Word”. This procedure allows the translator to eliminate words and other types of sentence fragments that are left over from the translation. When one of these elements is redundant and does not negatively alter

the translation in the target language, it is most appropriate to omit it. The omission is related to the linguistic principle of "economy" and the requirement of "naturalness" of the equivalence that will be found in the receiving language. In this notion of equivalence taught by Prague (Prochazka), later followed by Nida and other translators, they believe that there is an aspect that, although easy to understand, is so difficult to put into practice: naturalness. Thus, the style will not be natural if it is expanded more than necessary, becoming extravagant. Considering the redundancy, it is seen that there are characteristic elements of the Spanish language.

2.2.4 Amplification.

According to Vazquez-Ayora (2012), "the concept of amplification is opposed to that of economy or contraction of the utterance, which is produced by the reduction of the signs that compose it" (2012). It is about introducing precisions that do not appear formulated in the original text as explanations, clarification, information added, or even notes or footnotes written by the translator. In Addition, the opposite technique is elision. It can also be said that amplification in translation means adding some necessary words or phrases to make the meaning clear and correct. According to Tina O (2011), "Generally speaking, there are two kinds of condition of amplification". One is to add a word that is "omitted" in source sentences, while its meaning is expressed clearly through the context.

2.2.5 Explicitation.

"Explicitation consists of a semantic expansion: more words are needed in the target language than in the source language to express the same thing" (Benjamin Aguilar, 2015). In simpler terms, explicitation consists of adding information that is not found in the original text. This procedure allows the translator to complete the sentence or sentences that

he/she considers to be incomplete and that would not be understood in the target language. In general, explicitation is used to add words that are necessary for the naturalness of the translation but did not exist in the original text. The translator must be careful not to confuse this procedure with the adaptation procedure, as they are somewhat similar.

2.2.6 Literal Translation.

According to the website Traducción 365 (2023) "Literal translation, also known as direct translation, is the one that translates from one language to another "word for word" all the text or audio that is found instead of conveying the meaning of the original." Of all the types of translation, it is considered one of the least recommended since word-for-word translation can lose more meaning and sense than the other way around. It can also affect the choice of the most appropriate text translation techniques. Literal translations are sometimes employed by writers who translate a work written in a language they do not know. Once translated in that way, they try to give it meaning by changing its syntax so that it is understood much better. The same thing happens with poetry, whether in verse or prose, since its literal meaning would often not be understood and, of course, it would not rhyme as it should. It can be said that literal translation is full of errors since it does not take any trouble to give meaning to what it translates. What literal translation is extremely useful for is to use it as a pre-translation and to be able to see the problems that a text may present when translating it, as well as evaluate which translation method is the most appropriate for each case and what is desired. However, sometimes it is necessary to perform a literal translation. Nevertheless, the translator needs to be incredibly careful to do an accurate job.

2.2.7 Punctuation changes.

“Punctuation marks have a significant role in forming a logical sentence to communicate accurate meaning” (Dana Awad, 2021). Whenever there are punctuation errors, they should be corrected by applying the corresponding changes according to the language of the target text. Writing formally in English is more than simply choosing the right words in the right order. Using punctuation in your writing helps the reader clearly understand the message being conveyed. Punctuation primarily helps to indicate pauses and emphasis on certain ideas or thoughts discussed in the text. Particularly in academic writing, it is essential to use punctuation accurately, as it helps to strengthen the arguments made in the text. For translators, it is especially important to know the correct use of the different punctuation marks to be able to make the necessary corrections to them.

2.2.8 Compensation.

Compensation is a translation technique used when an element of information, a stylistic, sonorous, pragmatic, etc. effect cannot be introduced into the TL in the same place where it appears in the SL, therefore, this loss is compensated for. Translation often must face a series of losses and gains, economies, or amplifications, which can only be solved by employing compensation, "since the same conceptual components can appear in the two languages under different perspectives" (Vazquez-Ayora, 2003). In general terms, compensation can be used when something cannot be translated. This procedure helps the translator to find the meaning that is lost and that may be expressed somewhere else in the translated text.

2.2.9 Equivalence.

According to Vinay and Darbelnet, equivalence is a procedure that makes it possible to transfer the same situation using entirely different stylistic and structural means. In addition, Lopez and Minett suggest that equivalence is a "type of fixed modulation" that corresponds to the semantic level and not to the lexical level (2006, p. 271). In other words, equivalence aims to correctly express a phrase or sentence in the translated text using specific words that can convey the correct meaning. Usually, synonyms of the words in the source text are used in order to translate the correct meaning in the target text. In addition, this translation procedure implies using a completely different expression to reformulate and transmit the same reality. Through this procedure, names of institutions, interjections, idioms or proverbs can be translated.

2.2.10 Adaptation.

Adaptation is the procedure by which the translator seeks to express the same message between two different situations. It can be applied when the situation expressed in the message does not exist in the TL. According to Lopez and Minett (2006) “The new expression has to be created in relation to another situation, considered equivalent”. Adaptation occurs when something specific to one language culture is expressed in a totally different way that is familiar or appropriate to another language culture. It is a shift in cultural environment. In addition, It involves changing the cultural reference when a situation in the source culture does not exist in the target culture.

2.2.11 Borrowing.

Both Vinay and Darbelnet (López and Minett, 2006, p. 236) and Hurtado Albir (2007, p. 258) define a loanword as a word that is incorporated into another language without translating it. It is basically used when there is a lexical gap in the target language. In other words, it is the use of a word or expression from the text originally reproduced in the same way and it is usually indicated in italics. There are two types of borrowing procedures. The pure ones are those that do not experience any change, and the neutralized ones, in which there is a transliteration of the foreign language.

2.2.12 Calque.

Calque can be defined as a word that is taken from the source language (LO) and translated literally into the target language (LT). According to Vinay and Darbelnet (1Library 2024), calque is a type of borrowing in which "the syntagma is borrowed from the foreign language, but its constituent elements are translated literally". In linguistics, a calque or loan translation can be defined as a word-for-word translation from one language into another. For example, when you take a phrase in French and then literally translate root-for-root or word-for-word into English, which is a calque. Calque is a loanword from a French noun, and it is derived from the verb calquer, meaning to copy, to trace. Loan translation is just another term for calque. When used as a verb, to calque means to borrow a phrase or word from another language whilst translating its components to create a new lexeme in the target language. It is a class of loans in which words or phrases are borrowed from another language, with each of the elements of the phrase being translated. It respects the syntactical structures of the target language. Calque contributes to the richness of a target language by avoiding the direct use of foreign words. Calque is a construction, unlike

a loan which is a phonetic and morphologic adaptation. Another definition for calque is given by the website Ubiqus (2023), hey affirmed that “The calque consists of literally translating the elements that make up a syntagma to avoid falling into foreign words or semantic borrowings”.

2.2.13 Sentence inversion.

According to Candance Osmond (2024), Inversion is a term used in English sentences to describe a situation where a word or phrase is placed at the beginning of a normal sentence rather than in its usual position at the end. It means you are changing the natural order of the words in a sentence.

This can be used for stylistic purposes, to create a more complex or emphatic sentence structure, or simply for variety. In many cases, inverting words and phrases also involves changing their order from normal. Translators can apply this procedure in order to correct the meaning of a poorly worded sentence or to create a new one that expresses the meaning of the original. It is important to mention that before performing a sentence inversion, all parts of the sentence must be analyzed and ordered correctly when inverted.

CHAPTER III

METHODOLOGICAL FRAMEWORK

It is important to mention that the main objective of this chapter is to provide a better understanding of how the results were obtained and how accurately the information and the objectives of the investigation were linked. In addition, the main aspects of how the investigation was summarized and the instruments which were going to be used to obtain the data necessary to contrast with the research; are present in this chapter. Besides, it is essential to know what data-collecting tools are. According to Formplus Blog, "Data collection tools refer to the devices/instruments used to collect data, such as a paper questionnaire or computer-assisted interviewing system" (2019). In other words, Data Collection Tools are methods that help the researcher to obtain different information on a specific topic through different techniques. Moreover, this chapter is made up of 6 fundamental elements. In this section, the method which is used to conduct this investigation is described. Therefore, the better the reader understands how these six elements are linked; the better new researches could be conducted in the future.

In translation, it is more adequate to use a qualitative method due to the nature of the investigation. For that reason, multiple aspects of the qualitative approach are mentioned in this section. The next element would be to describe the research design. In this part, the plan or strategy used to obtain the needed information for the research is also broken down. Another essential element in this chapter is the information sources which explains where the source of information comes from. However, the quantitative method will be also presented.

Furthermore, in this research paper, the analysis of the categories is also added. The last elements are the data collection instruments, in which each item is presented and why they were selected to collect the information, and the other one is the collection data process and data analysis. In this chapter, it is explained how the data is collected and how it will be analyzed. By categorizing and sorting out the results, the reader might also have an idea of how perceptions and ideas change throughout the entire process. Therefore, accuracy when gathering information is required.

3.1.Research Approach

It is especially important to keep in mind that this research was developed with a qualitative approach. According to Sage Publish, Research Approaches "are plans and the procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation." (n.d) In other words, the type of research is the path on which each investigator decides to give his/her work a purpose. This purpose defines where the analysis is going; therefore, each element to be considered for the investigation can now be defined. Therefore, a qualitative research approach or research analyses are the strategies or processes used by the researcher to get data that is not related to numbers or statistics.

The qualitative research approach focuses on obtaining information from opinions, experiences, and concepts. On the other hand, we have the quantitative method consists of collecting and analyzing numerical data. This method is ideal for identifying trends and averages, making predictions, testing relationships, and obtaining general results from large populations. It can also be said that quantitative research is a structured method of collecting and analyzing information obtained through various sources. This process is

conducted with the use of statistical and mathematical tools to quantify the research problem. In translation research, a mixture of the two methods is often used. However, more emphasis is given to the qualitative one.

As in many investigations, a different scale of internet sources was considered to gather data. For some time now, the internet has become one of the best sources to search for information to conduct research works. In this specific case, this tool was used to search for many definitions in virtual dictionaries, since qualitative research requires having different meanings of different words to acquire more information. It was also used to search for academic articles related to the subject, and literary reviews of the book, among others.

3.2.3.2 Research Design

For this investigation, a descriptive research design is used. Descriptive research design is responsible for specifying the characteristics of the documents that are going to be translated. According to the website Scribbr.com, "descriptive research design aims to accurately and systematically describe a population, situation or phenomenon." (McCombes, 2019). Its main objective is to let know characteristics about the nature of the documents and the process of translating them. The methodology of this research design makes it particularly useful to get genuine answers about these aspects. As being a highly effective method, it is good to consider some advantages and disadvantages when using it. According to the website QuestionPro, at least five advantages and four disadvantages of the descriptive research design may be considered. First, these are the advantages:

- Data collection: Descriptive research can be conducted using specific data collection methods such as the observational method, case studies, and surveys. In

simpler words, in terms of data collection, the descriptive research design allows us to collect the information through different instruments, so there are different possibilities and options to acquire the information.

- Mixed data: Since the data collected is both qualitative and quantitative. You have a holistic understanding of a research topic. This means the data that was not planned to be collected may be varied, diverse, and comprehensive.
- Natural environment: Descriptive research allows research to take place in the respondent's natural environment, ensuring the collection of high-quality and honest data.
- Quick to conduct and cheap: As in descriptive research, the sample size is generally large, and data collection is quick and cheap.
- Forms the basis for decision-making: As the data collected in descriptive research represents a larger population and is robust, it is easy to make decisions based on the design.
- Then, we have some disadvantages of using this design:
- Confidentiality: Respondents do not always answer truthfully if the questions are too personal or if they feel they are being "watched." This can negate the validity of the data. For this reason, it is better to create neutral but useful questions.
- Possible bias: If the observer has a potential bias towards the research topic or some respondents, they can be considered invalid or false.
- The sample is not representative: Due to the randomness of the sample, it is very difficult to validate that it is an exact representation of the entire population.

- The cause is not known: Since descriptive research only focuses on the "what" of an objective or phenomenon, it does not delve into the "why or how," and that is a limitation in the learning of specific causes.

On the other hand, to understand the concept of research design a little more, we can take at least two definitions that come from academic documents. In a document written for the Pacific Rim International Journal of Nursing Research, it is mentioned that “descriptive research design is a good method for a qualitative investigation. It is mentioned that the goal of qualitative descriptive research design is a comprehensive summarization, in everyday terms, of specific events experienced by individuals or groups of individuals” (Vickie A. Lambert, 2013). Moreover, there is an article written by Helen R. Dulock for the Journal of Pediatric Oncology Nursing which mentions that research design is a blueprint or plan specifically created to answer the research question and to control variance. The article also gives us some definitions for descriptive research design. One of those definitions mentioned was that the descriptive research design is used to describe systematically and accurately the facts and characteristics of a given population or area of interest.

3.3.Information Sources

In research work, it is particularly important to obtain information from diverse sources. To obtain the necessary information, three types of information sources must be considered. Primary, secondary, and tertiary. This division helps us to not be redundant when looking for information and to be able to find it from various sources. It is important to mention that primary sources, secondary sources, and tertiary sources of information were used to collect data during the investigation.

3.3.1 Primary Sources

> The virtual library of the UNSW University in Sydney, Australia, states that.
>
> Primary sources provide a first-hand account of an event or period and are considered to be authoritative. They represent original thinking, reports on discoveries or events, or they can share new information. Often these sources are created at the time the events occurred, but they can also include sources that are created later. They are usually the first formal appearance of original research (n.d., 2021).

In other words, it can be interpreted that primary sources are the more trustworthy sources of information and highly dependable since they present original ideas proposed by the authors of that source of information and usually have years of support, which makes them even more credible. Some examples of primary sources are diaries, correspondence, original documents, biographies, autobiographies, and government documents, among others.

3.3.2 Secondary Sources

> The virtual library of Northcentral University mentions that.
>
> Secondary sources describe, summarize, or discuss information or details originally presented in another source, meaning the author, in most cases, did not participate in the event. This type of source is written for a broad audience and will include definitions of discipline-specific terms, history relating to the topic, significant theories and principles, and summaries of major studies/events as related to the topic (n.d., 2021).

In other words, secondary sources are responsible for giving a description or interpretation of the information provided by the primary sources. We can also say that they are responsible for evaluating and analyzing this information. As the researcher uses these sources as a second-hand illustration (point of view, analysis), these data provide commentary and valuable interpretation; however, they are not used as evidence. Some examples of secondary sources are books, articles, documentaries, synopses, encyclopedias, textbooks, reviews, and essays.

3.3.3 Tertiary Sources

> According to the virtual library of the University of Minnesota Crookston, Tertiary sources are sources that index, abstract, organize, compile, or digest other sources. Some reference materials and textbooks are considered tertiary sources when their chief purpose is to list, summarize, or simply repackage ideas or other information. Tertiary sources are usually not credited to a particular author (n.d.)

In other words, the tertiary sources oversee gathering and organizing the information provided by the primary and secondary sources. Some examples of tertiary sources are dictionaries, encyclopedias, almanacs, fact books, directories, guidebooks, and manuals, among others. In this research, these tertiary sources of information were used above all to have the definition of different words and concepts, so the dictionary, whether virtual or physical, has been one of the most widely used sources. Databases and abstracts were also used for the same purpose of finding definitions for different words and concepts. However, it is important to clarify that they were not used as evidence.

3.4.Analysis Categories

The core of this investigation is the documents. Therefore, it is crucially necessary to state each factor that constitutes this research project. Moreover, to illustrate a deeper analysis of this investigation, various categories were created to provide different perspectives. The results are illustrated, creating the link between the data obtained from research tools and data collection instruments.

3.4.1 Translation

Translation is the action and effect of translating. In other words, expressing in one language something that has been previously expressed or written in a different language. The term can refer both to the interpretation given to a text or discourse and to the material work of the translator. There are several types of translation. Direct translation is done from a foreign language into the native language of the translator. Reverse translation, on the other hand, takes place from the native language of the translator into a foreign language. On the other hand, we can speak of literal translation when the original text is followed word for word or free or literary translation.

In this case, the meaning of the original text is respected, but without following the choice of expressions chosen by the author. There is also simultaneous translation. It takes place at the same time as a conference or speech is being delivered. It is commonly used in the field of politics or in the media to translate what is being said at a foreign language event. In the same way, this type of translation is also used, for example, when a foreign actor arrives in a country other than his own to give a press conference to present his new film. It should be noted that although the only accurate translation is the one performed by a human being with vast knowledge of the language to be translated, there are computer

tools that perform literal translations quite successfully, such as Chat GPT. However, their translations may not be 100% accurate or correct. For this reason, it is important to have a translator that can verify the quality of the work.

3.4.2 Translation Techniques

The different translation techniques are translation mechanisms to achieve the best result in the target language. As mentioned before, translation consists of transmitting the same message from one language to another, considering the culture, space, and time of the source language and the target language. There is a clear difference between translation techniques and translation methods. Translation methods are applied to the text, while translation techniques are applied differently within the same text, depending on what is most convenient. A good translator must have sufficient knowledge to know how to use the different translation techniques appropriate for each content. The most common techniques used by translators are modulation, transposition, literal translation, calque, borrowing, equivalence, and adaptation.

3.4.3 Text Analysis

As mentioned in Chapter II, textual analysis is a broad term for various research methods used to describe, interpret, and understand texts. “All kinds of information can be gleaned from a text from its literal meaning to the subtext, symbolism, assumptions, and values it reveals” (Caulfield, 2019). In other words, text analysis helps readers or translators to understand the true nature of a text through different procedures. These types of analysis procedures may vary according to the type of text and the researcher. Each text has its way of being analyzed. It is different from analyzing a scientific article and a children's story. In general, the two main elements of textual analysis are text styles and text functions.

3.4.4 Glossary

A glossary or vocabulary is a set or catalog of definitions, explanations, or clarifications of words, arranged alphabetically and that have to do with the same topic, area, or matter of interest. It is common to find them at the end of specialized texts, encyclopedias, or other types of documents. Its goal is to provide the reader with clarification on terms they may be unfamiliar with, especially if they have particular or specialized uses that require some explanation and minimal context. Glossaries consist of organic, organized sets of words, intended for quick reading and reference. It is not usual to read glossaries, but rather to look for something specific in them. Furthermore, the words chosen to make up a glossary are those that may confuse, that are difficult or infrequent, or that respond to creative uses of language since they are usually chosen and clarified by the author himself. A glossary will be used in this research to provide a greater understanding of unknown or uncommon words found in the translations. This can be extremely helpful to both readers and the researcher.

3.5.Data Collection Instruments

For this research, different instruments were used for data collection. The most important were surveys, internet searches**,** and comparative charts. It was decided to look up various sources on the internet because it is easier and more accessible to search for information on the internet than in any other fount. In addition, translation books were also one of the most important tools used to gather information. A lot of information about translation methods and their application is found in books and on the Internet. A broad search was conducted to obtain useful information from these sources. In addition, the

glossary is another instrument that was used to acquire the meaning of different important words to be able to conduct the translations.

3.5.1 Text Analysis Chart

One of the instruments to be used is the text analysis chart. Its purpose is to analyze translated texts. This chart follows the analysis principles established by Peter Newmark. The process of reading both texts should be conducted several times as indicated by Newmark. This chart will be used to analyze the two translations made by the researcher. In the first column of the table will be the categories of analysis established by Newmark, in the second column will be the original text, and in the last column the translated text.

Table 1. Text Analysis

Text Analysis	Translation from English into Spanish	Translation from Spanish into English
Text Style		
Scale of Formality		
Scale of Generality		
The Scale of Emotional Tone		
Text Function		
Type of Translation		

Table 1 illustrates the format of the text analysis that would be carry out. Researcher's own creation.

3.5.2 Color Coding

The color-coding process consists of providing a specific color to differentiate and identify each translation procedure used in the translations performed by the researcher. For

this work, 15 paragraphs of the English text and 15 paragraphs of the Spanish text will be selected. Each of these paragraphs will contain between 120 and 150 words.

Table 2. Color Coding

Transposition
Modulation
Literal Translation (Red Font)
Equivalence
Explicitation
Amplification (Pink Font)
~~Omission~~ (Crossed Red Font)
Adaptation
Compensation

Table 2 demonstrates the colors that are going to be consider in the color coding. Researcher's own creation.

3.5.3 Glossaries

A Glossary is a set or catalog of definitions, explanations, or clarifications of words, arranged alphabetically and related to the same topic, field, or subject of interest. For this work, two glossaries will be created. One in Spanish and the other in English. The main objective of these glossaries is to define unknown words for the researcher to increase his vocabulary. The format of the glossary is a table with four columns. In the first column, the word will be placed in the source text, the second column with the target text, then the third column with the grammatical category, and the last column with the definition. It is

important to mention that all the definitions of the words will be obtained from the same dictionary.

Table 3. Glossaries

Source Text	Target Text	Grammatical Category	Definition

Table 3 illustrates the format of the glossaries that would be carry out. Researcher's own creation.

3.6.Collection data process and data analysis

For this work, the researcher approached two non-profit institutions to select two documents that needed to be translated. The first was obtained from an association dedicated to the treatment and care of children with progressive degenerative diseases. The second was from the Fire Station of the Juan Santamaria International Airport. To analyze the data from the documents, the processes established by Peter Newmark were followed. In addition, a series of instruments such as the analysis table chart, color coding, and glossaries were used.

CHAPTER IV

TRANSLATIONS

4.1.From English to Spanish

CAPÍTULO 12: OPERACIONES TÁCTICAS Y ESTRATÉGICAS.

Contenidos

Términos Clave

Requisitos de la NFPA para el desempeño del trabajo

Este capítulo provee información que da acceso a los siguientes requisitos de la NFPA 1003 para el desempeño del trabajo, según la norma estándar de cualificación profesional de los bomberos de aeropuerto (2015/2019).

4.1.1.3	4.3.4	4.3.9
4.2.2	4.3.5	4.3.10
4.2.4	4.3.6	4.4.1
4.3.1	4.3.7	4.4.2
4.3.2	4.3.8	4.4.3
4.3.3		

Objetivos de aprendizaje

Luego de leer este capítulo, los estudiantes serán capaces de:

1. Identificar los componentes y la formación para el Sistema Nacional de Gestión de Incidentes (NIMS-ICS). (NFPA 1003, 4.2.2).
2. Describir tácticas y estrategias para distintas emergencias en vuelo. (NFPA 1003, 4.2.4, 4.3.6).
3. Describir tácticas y estrategias para distintas emergencias en tierra. (NFPA 1003, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.7).
4. Identificar las características y los tipos de choques de bajo impacto. (NFPA 1003, 4.2.4, 4.4.1, 4.4.2).
5. Identificar las características y los tipos de choques de alto impacto. (NFPA 1003, 4.2.4, 4.4.1, 4.4.2).
6. Explicar los procedimientos de respuesta para una emergencia de una aeronave. (NFPA 1003, 4.1.1.3, 4.2.2, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, 4.3.7, 4.3.8, 4.3.9. 4.3.10, 4.4.1, 4.4.3).
7. Explicar factores de consideración y acciones que se deben tomar a la hora de responder en accidentes que involucren una aeronave militar. (NFPA 1003, 4.1.1.3, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 4.3.3, 4.4.1).
8. Explicar las consideraciones que se deben tomar a la hora de responder a un incidente/accidente de una aeronave que involucre sustancias peligrosas. (NFPA 1003, 4.2.4).
9. Actividad de aprendizaje 12-1: Utilizar un mapa cuadriculado para responder al lugar de un accidente/incidente aéreo. (NFPA 1003, 4.2.1).
10. Actividad de aprendizaje 12-2: Obtener la autorización del control de superficie utilizando terminología aeronáutica y el alfabeto fonético. (NFPA 1003, 4.2.3).

11. Actividad de aprendizaje 12-3: Comunicar de manera correcta un reporte de situación sobre un accidente/incidente de una aeronave al comandante del incidente utilizando el protocolo del sistema de manejo de incidentes (IMS). (NFPA 1003 4.2.2).
12. Actividad de aprendizaje 12-4: Reconocer condiciones adversas en un accidente/incidente aéreo e iniciar una acción correctiva. (NFPA 1003, 4.2.4).
13. Actividad de aprendizaje 12-5: Iniciar la clasificación inicial de las víctimas de un accidente/incidente aéreo. (NFPA 1003, 4.4.3).

Historia del Caso

Los bomberos de Tinker Fire and Emergency Services respondieron a una emergencia en vuelo de un F-15 con poco combustible. Todos los vehículos de reserva estaban en posición aproximadamente diez minutos antes de la llegada de la aeronave. La aeronave realizó una aproximación rápida y baja, inclinando sus alas hacia delante y hacia atrás para compensar el viento cruzado de 35 mph (55 km/h). La aeronave se enganchó en el sistema de barrera de la pista de aproximación; se deslizó hacia la izquierda de la pista hasta el aeródromo y luego se incendió. Los equipos de extinción de incendios acudieron de inmediato y extinguieron rápidamente el incendio bajo la aeronave y la hierba circundante. El fuego se limitó a una pequeña zona bajo la aeronave y los daños se limitaron a pintura quemada. El piloto apagó la aeronave y se eyectó fuera de la misma. Se había alejado unos 100 pies (30 m) de la aeronave. El equipo de rescate alcanzó al piloto, comprobó su estado y lo trasladó hacia el aeródromo. Una vez que el piloto apagó la aeronave, no existía ningún peligro adicional ya que no estaba equipada con municiones ni bengalas, y los equipos ARFF dejaron el asiento eyectable intacto.

Durante la emergencia, el comandante del incidente se preocupó de aislar la energía del avión. El personal de ARFF (Aircraft, Rescue and Firefighting) no estaba familiarizado con la aeronave y no sabía que no tenía batería ni sistema de alimentación de reserva. No sabía que, al apagar los motores, no quedaba energía para abrir la cabina y accionar otros sistemas de seguridad esenciales. El personal tuvo que acceder a la ficha técnica para descubrir esta información. Aunque esta aeronave estaba incluida en el plan de formación anual del departamento, no estaba asignada a la base y se consideraba transitoria. El personal de ARFF se entrenaba normalmente en esta aeronave revisando la orden técnica semestralmente.

Este incidente aéreo reforzó la importancia de la familiarización con las aeronaves para tomar en cuenta lo siguiente:

- Aproximación del vehículo
- Riesgos
- Sistemas operativos
- Extracción de la tripulación

El personal de ARFF debe ser capaz de tomar decisiones en condiciones adversas. La toma de decisiones tácticas comienza con la notificación de una emergencia y continúa a lo largo de las operaciones de emergencia. El tamaño de la escena y la toma de decisiones tácticas deberán implementarse en segundos. Estas decisiones incluyen la asistencia de agencias externas, asistencia médica de emergencia y una variedad de necesidades lógicas.

El mejor lugar para practicar el proceso de toma de decisiones es la sala de formación antes de un incidente. Se pueden explorar estrategias, establecer planes, elaborar listas de comprobación y reforzar tácticas en un entorno controlado. Los equipos de

respuesta deben llevar a cabo un entrenamiento basado en los escenarios con el objetivo de hacerse una idea de los retos a los que se enfrentan en el lugar de un accidente. Los tipos generales de accidentes y/o incidentes aéreos a los que se enfrenta el personal de ARFF son emergencias en vuelo o en tierra. Cada jurisdicción debe tener SOPs/SOGs (Standard Operating Procedures) que aborden la respuesta del ARFF a cada uno de estos tipos de emergencias. Estos SOPs/SOGs varían desde procedimientos de notificación de emergencias en vuelo hasta una respuesta de emergencia mayor en tierra.

Este apartado contiene los siguientes temas:

- Manejo de incidentes
- Emergencias en vuelo
- Emergencias en tierra
- Choques de bajo impacto
- Choques de alto impacto
- Procedimientos de respuesta
- Respuesta de accidentes que involucren aeronaves militares
- Respuesta de incidentes de aeronaves que involucren materiales peligrosos

Manejo de Incidentes

Los cuerpos de bomberos de los aeropuertos deben adoptar y utilizar un Sistema de Gestión de Incidentes para sus operaciones estratégicas y tácticas. Tras varios incidentes terroristas, el gobierno de Estados Unidos ordenó que todas las organizaciones de servicios de emergencia utilizaran una terminología y unas estructuras de mando comunes para mejorar su interoperabilidad. La Directiva Presidencial de Seguridad Nacional / HSPD-5 estableció además que todos los gobiernos estatales, locales y las entidades tribales deben

adoptar el Sistema Nacional de Gestión de Incidentes (NIMS, por sus siglas en inglés) para poder optar a fondos federales. En consecuencia, las organizaciones de emergencia de los aeropuertos deben asegurarse de que su estructura de mando interactúe con organizaciones «externas» durante una emergencia, ya que estas organizaciones externas adoptarán con toda seguridad el NIMS.

En marzo de 2004, el gobierno estadounidense adoptó oficialmente el Sistema de Comando de Incidentes (SCI) como parte del NIMS. Se puede encontrar información adicional sobre el modelo NIMS-ICS y su aplicación en el propio documento NIMS y en la serie de guías de procedimientos modelo, desarrolladas por el Consorcio Nacional de Gestión de Incidentes del Servicio de Bomberos y publicadas por Publicaciones de Protección Contra Incendios. El NIMS-ICS está diseñado para ser aplicable a incidentes pequeños, de una sola unidad, que pueden durar desde unos pocos minutos hasta incidentes a gran escala, en los que participan varias agencias y muchas unidades de ayuda mutua, que pueden durar días o semanas. Puede encontrar información sobre NIMS-ICS en el sitio web de NIMS.

Componentes del NIMS-ICS

NIMS-ICS combina la estrategia de mando con los procedimientos organizativos. Proporciona una estructura organizativa funcional y sistemática. La estructura organizativa ICS muestra claramente las líneas de comunicación y la cadena de mando. El NIMS-ICS está diseñado para ser utilizado por un solo organismo o por varios, y aumenta la eficacia del mando y la seguridad del personal. El diseño organizativo es aplicable a todo tipo de eventos de emergencia y no emergencia, en todo el entorno aeroportuario. Con el NIMS-ICS, la transición de un incidente a pequeña escala a uno a gran escala y/o una operación de

múltiples organismos requiere un ajuste mínimo, para cualquiera de los organismos implicados. Los siguientes componentes trabajan juntos de forma interactiva para proporcionar la base para una comunicación clara y unas operaciones eficaces:

- Terminología común
- Comunicaciones integradas
- Estructura de comando unificada
- Plan de acción único
- Margen de control manejable
- Instalaciones pre diseñadas para incidentes
- Gestión comprensible de recursos

Para comprender la aplicación de NIMS-ICS en el entorno de la aviación, el personal de ARFF debe conocer las principales descripciones de puestos dentro de la estructura de NIMS-ICS:

- Comando
- Operaciones
- Planeamiento
- Logística
- Administración/Financiamiento

El NIMS-ICS también añade otro puesto, el de inteligencia, que se encarga de recopilar información relativa a un incidente. En algunos casos, esto puede formar parte de la función de planificación. En la respuesta inicial, una persona se encargará de establecer algunas de estas funciones. Si el incidente es grande y complejo, estas funciones pueden delegarse al personal del cuerpo de bomberos que responde o a otro personal cualificado

dentro de la estructura organizativa del aeropuerto o de ayuda mutua/automática. Todo el personal que forme parte de la organización del aeropuerto debe asegurarse de que está familiarizado con las funciones que se le podrían asignar. El comandante del incidente conserva la responsabilidad de estas funciones hasta que sean delegadas.

Entrenamiento NIMS-ICS

Resulta ventajoso que todo el personal de ARFF reciba formación sobre NIMS-ICS como parte de su formación inicial, formación de aptitud recurrente y desarrollo profesional. Los cursos NIMS-ICS se ofrecen a través de los recursos en línea de la Academia Nacional de Bomberos, la Agencia Federal para el Manejo de Emergencias (FEMA) y muchas agencias estatales/tribales y locales. La Tabla 12.1, p. 522, identifica los cursos apropiados para cada nivel de responsabilidad. Dada la filosofía del ICS y el entrenamiento basado en escenarios, un comandante de incidentes (CI si se refiere a las siglas en español) debe ser capaz de aplicar los principios del ICS a una respuesta de aviación. El entrenamiento basado en escenarios permite al CI trabajar a través del proceso de toma de decisiones y revisar el orden en el que estas deben ser tomadas. El entrenamiento basado en escenarios también permitirá a los conductores/operadores, oficiales, bomberos y médicos trabajar a través de su proceso de toma de decisiones, en lo que se refiere a sus funciones delegadas en el lugar de un accidente. El personal de apoyo, como el de operaciones aeroportuarias y el de seguridad del aeropuerto, también debe participar en la formación, para comprender plenamente sus funciones y su nivel de interacción. La formación basada en escenarios permite al personal cometer errores y aprender por ensayo y error, lo que los prepara mejor para incidentes reales. Los

organismos ARFF deberían incorporar un sistema que establezca y delegue los elementos de gestión de un incidente.

Emergencias en vuelo

Las emergencias en vuelo incluyen incendios y otros problemas que pueden provocar un incidente o accidente aéreo. Estas emergencias pueden incluir, entre otras, las siguientes:

- Distintas fallas del sistema
- Problemas hidráulicos
- Falla/fuego en el motor
- Controles de vuelo inoperativos o mal funcionamiento de los mismos
- Falla mecánica o hidráulica del tren de aterrizaje (tren retraído o inseguro para aterrizar)
- Consideraciones militares especiales como descarga de explosivos, asiento eyectable activado y/o separación de la carlinga.
- Pérdida de presión en la cabina
- Fuego a bordo (Figura 12. 1a)
- Choque con aves (Figura 12.1b)
- Falla estructural
- Poco combustible o pérdida total del mismo
- Caída de rayos, turbulencia, cizalladura del viento y congelamiento
- Emergencias médicas
- Pasajeros indisciplinados

- Terrorismo

Algunas de estas situaciones no son emergencias en sí mismas, pero sus efectos pueden provocarlas. En las siguientes secciones se describen estrategias y tácticas para las activaciones de los indicadores de alerta de incendios en aeronaves, incendios en vuelo y fallos hidráulicos o de tren de aterrizaje.

Activaciones del indicador de alerta de incendio de aeronaves

Cuando se activa una luz de advertencia de incendio, la tripulación de la aeronave intenta determinar si hay un incendio mediante comprobaciones instrumentales y observaciones visuales. Si el piloto al mando está convencido de que la aeronave es segura y aeronavegable, después de realizar estas comprobaciones, el vuelo continúa normalmente. Si existe un problema y se declara una emergencia, el control de tráfico aéreo notifica al departamento de bomberos del aeropuerto y el personal ARFF responde a sus ubicaciones de espera pre designadas y aguarda a la aeronave. Al aterrizar, la emergencia en vuelo pasa a ser una emergencia en tierra y, dependiendo de la gravedad, puede requerir una respuesta de emergencia a gran escala.

Una vez que la aeronave de emergencia sale de la pista, debe detenerse para que el personal ARFF pueda inspeccionar el área afectada en busca de evidencia de calor o humo. Si el personal ARFF no encuentra indicios de calor o humo, la aeronave puede reanudar el rodaje hacia la terminal. Si encuentra indicios, el personal ARFF debe acceder a la zona afectada y extinguir el incendio. Esto puede implicar la parada de la aeronave y la evacuación de sus ocupantes. El personal ARFF puede necesitar personal de mantenimiento de la aeronave para abrir los paneles o para operar las unidades de energía en tierra.

Incendios en vuelo

Un incendio en el interior de un avión ocupado es una verdadera emergencia, sobre todo si se produce durante el vuelo. Gracias a los sistemas automáticos de detección de incendios a bordo de los aviones modernos, los incendios en el interior suelen detectarse en su fase incipiente. Si el fuego es accesible en vuelo, los miembros de la tripulación del avión intentarán apagarlo utilizando los extintores de a bordo. Si el fuego no se puede controlar con el equipo de protección contra incendios de a bordo o si su ubicación es inaccesible en vuelo, puede convertirse en un incendio grave y propagarse rápidamente. En este caso, se intentará inmediatamente un aterrizaje de emergencia. Dependiendo de la cantidad de tiempo que lleve realizar un aterrizaje de emergencia, se puede acumular calor, humo y gases tóxicos, creando una amenaza mortal para los ocupantes. Si los gases tóxicos se acumulan a un nivel suficiente, pueden ocurrir descargas repentinas o vuelcos cuando se abren las salidas de emergencia. Con la coordinación adecuada, los rescatistas deberían ventilar la aeronave lo más rápido posible. Los incendios en el interior de las cabinas involucran combustibles como alfombras, paneles, tapizados y otros materiales comunes. El personal de ARFF debe extinguir estos incendios utilizando mangueras y procedimientos de extinción de incendios estructurales. Es posible que sea necesario retirar los paneles del techo, las paredes y el piso para exponer incendios ocultos. Las operaciones de extinción de incendios pueden verse obstaculizadas por la necesidad de evacuar primero a los ocupantes de la aeronave.

Falla hidráulica o de tren de aterrizaje

Una falla hidráulica o un tren de aterrizaje inoperativo pueden poner en grave riesgo la seguridad de la aeronave y sus ocupantes. Dependiendo de la gravedad, la aeronave

puede experimentar una variedad de problemas de control de vuelo, tanto en vuelo como en tierra. Este tipo de emergencia puede afectar la dirección, el frenado y/o la parada de la aeronave. Es posible que los socorristas de ARFF deseen considerar ubicaciones de reserva alternativas cuando se enfrenten a una emergencia de esta naturaleza, para que no se ponga en peligro la seguridad de las cuadrillas de ARFF. Colocar los aparatos ARFF a lo largo de ambos lados de la pista activa y a una distancia segura de ella puede reducir el riesgo para los aparatos y el personal. Otros vehículos del aeropuerto deben mantenerse alejados de la aeronave de emergencia para permitir que los aparatos y el personal ARFF accedan directamente a la aeronave. Las chispas debidas a cortocircuitos eléctricos o fricción pueden encender el fluido hidráulico derramado dentro de la parte inferior del fuselaje, creando la posibilidad de un incendio interior.

Emergencias en tierra

Las emergencias terrestres involucran aeronaves que realizan operaciones en tierra. Este tipo de emergencia podría implicar a una aeronave y un vehículo terrestre, una estructura u otra aeronave. Se deben desarrollar planes operativos que aborden los tipos de emergencias terrestres. Estos planes pueden variar desde una simple inspección de una aeronave hasta una respuesta que involucre distintas jurisdicciones. Las emergencias terrestres que pueden encontrar las tripulaciones ARFF incluyen:

- Problemas de montaje de ruedas
- Fugas y derrames de combustible o materiales inflamables
- Incendios en motores o APU
- Falla de motores
- Incendios de calentadores

- Incendios en interiores de aeronaves (Figura 12.2)
- Colisiones en tierra
- Incendios eléctricos o de baterías

Asistencia de evacuación de emergencia

Una vez que una aeronave ha aterrizado, la tripulación de vuelo puede iniciar una evacuación de emergencia. El personal ARFF que llega debe intentar evitar una evacuación innecesaria, contactando inmediatamente a la tripulación de vuelo con la frecuencia adecuada e informando sobre las condiciones exteriores. En la mayoría de los casos de motor, ensamblaje de ruedas y otras emergencias exteriores menores, el personal de la ARFF puede controlar la situación sin amenazar a los ocupantes de la aeronave o sin necesitar una evacuación, lo que puede poner en peligro y herir a los evacuados, así como complicar e interferir con las operaciones de la ARFF y del aeropuerto.

La responsabilidad de evacuar es, en última instancia, decisión del piloto al mando o de la tripulación de vuelo. El personal ARFF no debería impedir la salida de los ocupantes y la tripulación en un intento de ingresar al fuselaje para rescate y/o extinción de incendios. El personal debe localizar y abrir cualquier otra salida disponible. Además, después de que todos los que puedan hayan salido, el personal de la ARFF debe estar preparado para ayudar a los ocupantes que tal vez no puedan salir por sí mismos. Para ayudar a evacuar a los ocupantes de los toboganes de escape, el personal ARFF debe:

- Colóquese en ambos lados de la parte inferior del tobogán a la altura de la mitad del muslo para estabilizarlo.
- Extienda un brazo y ayude a los pasajeros a ponerse de pie, una vez que estén en la parte inferior del tobogán.

- Permitir que el impulso hacia adelante del pasajero ayude en el procedimiento.
- Dirija a los ocupantes hacia una ubicación segura.

Cuando se trata de un incendio exterior, el personal debe colocar aparatos ARFF en un esfuerzo por extinguir y mantener el fuego alejado de las salidas que se utilizan para la salida. Al realizar un ataque interior, deberán utilizar chorros de manguera, tanto para ventilación como para extinción.

Conjuntos de ruedas

Las ruedas de los aviones modernos suelen estar equipadas con tapones fusibles incorporados en las llantas. Estos tapones están diseñados para derretirse, desinflando automáticamente los neumáticos cuando la llanta alcanza una temperatura predeterminada, generalmente de 300 °F a 400 °F (150 °C a 205 °C) Liberar la presión de los neumáticos reduce la presión sobre la rueda, reduciendo así la posibilidad de colapso y fragmentación de la rueda. Se debe tener precaución, ya que se han producido incidentes en los que los enchufes de los fusibles no funcionaron correctamente. Los bomberos deben abordar incidentes de esta naturaleza desde una posición delantera o trasera en un ángulo de 45 grados. Las secciones siguientes abordan los dos peligros más comunes relacionados con los conjuntos de ruedas: frenos calientes e incendios de ruedas.

PRECAUCIONES

1. Al responder a un incidente con un freno caliente o un incendio en una rueda, acérquese siempre desde adelante o detrás del conjunto de ruedas, en un ángulo de 45 grados y tenga extrema precaución. Nunca se acerque desde los lados en línea con el eje.

2. Utilice siempre equipo de protección completo, incluido el SCBA. Los frenos de algunos aviones contienen berilio, que produce vapores y humos tóxicos.

Frenos calientes

Los frenos y los conjuntos de ruedas se sobrecalientan con frecuencia, lo que preocupa al personal de ARFF durante los aterrizajes normales y de emergencia. Existen varios métodos para determinar la temperatura de las ruedas. Se pueden utilizar cámaras termográficas y otros dispositivos de monitoreo de temperatura para determinar la temperatura de las ruedas desde una distancia segura (Figura 12.3). En algunos aviones de transporte a reacción más nuevos, la temperatura de las ruedas se puede controlar desde la cabina de vuelo.

Cada vez que un avión de transporte grande aterriza cada cierto tiempo, aborta un despegue, realiza un aterrizaje sin flaps o tiene problemas para utilizar la inversión de empuje del motor, el personal de la ARFF debe prepararse para una situación de frenos calientes. Este tipo de emergencia suele reconocerse por el humo de color marrón que sale de los conjuntos de ruedas. Si los conjuntos de ruedas humean cuando el avión se detiene, se debe monitorear la situación, porque es posible que las temperaturas máximas de las ruedas no se alcancen hasta 20 a 30 minutos después de que el avión se haya detenido por completo en la rampa. Los frenos calientes no deben confundirse con un incendio en los frenos, en el que las llamas serán visibles.

NOTA: Cuando la aeronave se haya detenido en el lugar de enfriamiento designado, calce el tren de morro para evitar el movimiento de la aeronave.

Los métodos aceptables para enfriar frenos calientes incluyen los siguientes:

- Enfriamiento normal: el conjunto de ruedas se enfría por sí solo en un área remota del aeropuerto designada por el personal de ARFF. El personal de ARFF debe monitorear esta situación hasta que se determine que es segura.
- Patrón de neblina o niebla de agua: enfría el conjunto de ruedas. Con los avances en los nuevos materiales de frenos, el uso de agua nebulizada o un patrón de niebla en un flujo continuo desde una torreta es una alternativa adecuada y más segura que el uso de ventiladores, en la mayoría de los casos.
- Ventiladores: el aire enfría el conjunto de la rueda más rápido que la refrigeración normal. La mayoría de los departamentos ARFF utilizan ventiladores portátiles, lo que sitúa a los bomberos cerca de la zona de peligro. En las aeronaves de hélice, la hélice situada delante del freno caliente puede utilizarse como ventilador para enfriar el freno.

NOTA: Antes de que los bomberos se acerquen a un avión, deben apagarse los motores.

Incendios en las ruedas

Si la aeronave tiene un incendio en la rueda, la torre o el ARFF IC pueden necesitar informar al piloto(s) porque el piloto(s) puede no tener ninguna indicación a bordo del incendio. La forma más segura de extinguir incendios en las ruedas es aplicar grandes cantidades de agua a distancia utilizando mangueras en torretas. Dicha aplicación mantiene a los bomberos fuera de la zona de peligro y proporciona una rápida extinción y enfriamiento. Los bomberos deben continuar los esfuerzos de enfriamiento, una vez extinguido el incendio, para evitar que se reavive y minimizar los daños a otros componentes. Se pueden utilizar líneas de mano, siempre que los bomberos se aproximen

desde una posición delantera o trasera en un ángulo de 45 grados. Si no se dispone de agua, debe utilizarse cualquier agente disponible para extinguir el incendio de una rueda. Estos otros agentes pueden extinguir un incendio en la rueda, pero carecen de la capacidad de enfriamiento del agua para evitar que se reavive. Los agentes gaseosos pueden ser arrastrados por el viento antes de extinguir por completo un incendio en las ruedas.

NOTA: Si se sospecha la presencia de magnesio o titanio, el uso de grandes cantidades de agua a distancia es una técnica de extinción inicial eficaz; sin embargo, si el fuego no se extingue, deben utilizarse técnicas de extinción de clase D adecuadas.

Incendios de Metales Combustibles

En los aviones modernos se utilizan diversos metales, algunos de ellos combustibles, como el magnesio y el titanio. El magnesio es un metal ligero de color blanco plateado. En general, se considera que su temperatura de ignición está próxima a su punto de fusión de 650 °C (1.202 °F). Está clasificado como metal combustible, aunque como sólido no se inflama fácilmente. La facilidad de ignición depende de su masa (grosor y forma). El magnesio se utiliza en la mayoría de las grandes aeronaves propulsadas por hélice y en los primeros aviones a reacción de transporte, en las siguientes configuraciones:

- Tren de aterrizaje
- Soportes de los motores
- Protectores de ruedas
- Componentes del motor

El titanio, un metal de color gris plateado, es tan resistente como el acero común, pero sólo pesa un 56 % más. Algunas aleaciones de titanio son hasta tres veces más resistentes que las mejores aleaciones de aluminio. En general, se considera que la

temperatura de ignición del titanio es cercana a su punto de fusión, de 1.700 °C (3.140 °F). Se utiliza en las góndolas de los motores por su resistencia al calor y al fuego. También se utiliza en los trenes de aterrizaje de los modernos aviones de transporte. Además, el titanio se utiliza cada vez en mayor cantidad en los nuevos aviones a reacción de gran tamaño.

Cuando se incendia un metal combustible, la aplicación de grandes cantidades de agua mediante torretas es un método aceptado de control inicial del fuego. Al principio, estos chorros pueden intensificar el fuego y hacer que los metales ardientes echen chispas y salpiquen significativamente. Esta posibilidad debe tenerse en cuenta, antes de aplicar agua. Sin embargo, la aplicación de agua es eficaz porque hace que el metal en llamas se desprenda de la aeronave e impide que el metal no quemado alcance la temperatura de ignición. Se puede dejar que se quemen los metales combustibles en llamas alrededor de una escena de choque de alto impacto, o se pueden enterrar con agentes de polvo seco, tierra u otros materiales inertes secos.

En algunos casos excepcionales, se pueden trasladar pequeñas cantidades de metal ardiendo a una zona más segura con una pala y dejar que arda hasta que se consuma todo el combustible. Los bomberos deben llevar siempre un equipo de respiración autónomo para evitar respirar el humo de los metales combustibles en combustión. El humo de los metales combustibles es tóxico y puede contener partículas de metal. Los agentes extintores especializados de clase D, como MET-L-X, Lith-X y el polvo G-1, también pueden ser eficaces para controlar los incendios de magnesio y titanio, deben tenerse en cuenta cuando el agua no esté fácilmente disponible o no haya sido eficaz.

Fugas y derrames de combustible y líquidos inflamables

En algunos casos, el personal de ARFF responde a incidentes en los que se ha derramado o hay una fuga de combustible de aviación u otro líquido inflamable (fluido hidráulico, alcohol o aceite lubricante) que aún no se ha inflamado. En todos estos incidentes, el personal ARFF debe tomar las siguientes precauciones:

- Intente cortar el combustible en la fuente o utilizando válvulas de cierre o transferencia de combustible de emergencia.
- Tapone o engarce los conductos de líquidos inflamables rotos para reducir las fugas.
- Evitar acciones que puedan constituir una fuente de ignición.
- Evacuar la aeronave si el vertido supone una amenaza para los ocupantes.
- Mantenga a todo el personal no esencial con ropa de protección completa, incluido el ERA.
- Si es necesario, cubra todas las superficies de combustible expuestas con espuma, y mantenga la manta de espuma para evitar la liberación de vapores de combustible.
- Confine/contenga el combustible derramado en un área lo más pequeña posible.
- Evite que las fugas o los derrames de combustible entren en escorrentías, desagües pluviales, alcantarillas, edificios o sótanos.
- Mantenga preparados aparatos y equipos para proteger las operaciones de rescate en caso de que se produzca un incendio.
- Coloque el aparato a barlovento y cuesta arriba del vertido de combustible.
- Los depósitos de combustible expuestos al fuego deben enfriarse para evitar su implicación o explosión.

- Tenga cuidado al utilizar herramientas de entrada forzada para evitar dañar los conductos y depósitos de combustible, aceite e hidráulicos.

NOTA: Los procedimientos para el manejo de derrames de combustible descritos en esta sección están sujetos a los reglamentos y procedimientos establecidos por la autoridad competente. En el desarrollo de esta información se incluyó información de NEPA 407, Norma para el servicio de combustible de aeronaves.

Aunque cada incidente de derrame de combustible de aeronaves es diferente, cada derrame de combustible implica variables como las siguientes:

- Magnitud del derrame
- Terreno
- Equipo
- Condiciones meteorológicas
- Tipo de líquido inflamable
- Ocupación de la aeronave
- Personal y equipo de emergencia disponible

Si se produce una fuga de combustible o un derrame de combustible durante el mantenimiento de la aeronave, el personal debe actuar de la siguiente manera:

- El personal debe detener inmediatamente la operación de abastecimiento de combustible.
- El personal no esencial debe abandonar la zona hasta que se neutralice el peligro, se realicen reparaciones y la zona sea segura.
- El personal de seguridad del aeropuerto y de la compañía aérea deben ser notificados de tales incidentes para que se pueda tomar la decisión de permitir que

las operaciones aeroportuarias sigan en curso o interrumpirlas hasta que se haya corregido el problema.

La gravedad del peligro creado por un vertido de combustible depende principalmente de lo volátil que sea el combustible y de la proximidad a fuentes de ignición. A temperaturas y presiones normales, la gasolina de aviación y otros combustibles con puntos de inflamación bajos desprenden vapores capaces de formar mezclas inflamables con el aire, cerca de la superficie del líquido. Este proceso no suele ocurrir con los combustibles a base de queroseno (Jet A o Jet A-1), excepto cuando las temperaturas ambientales se sitúan como mínimo en el intervalo de 100 °F (40 °C) y la temperatura del combustible ha alcanzado el mismo intervalo. Debe tenerse en cuenta que el pavimento caliente puede alcanzar temperaturas superiores a los 140 °F (60 °C); por lo tanto, el combustible derramado debe tratarse como un líquido inflamable en tales circunstancias.

Durante cualquier derrame o fuga, debe extremarse la precaución para evitar acciones que puedan proporcionar fuentes de ignición para los vapores del combustible. Otras medidas que deben tomarse en caso de derrames y fugas de combustible son:

- Cierre inmediatamente la válvula de cierre de emergencia del combustible si hay fugas o derrames de combustible de una manguera o equipo de servicio de combustible.
- Interrumpir inmediatamente el suministro de combustible, si se produce una fuga o derrame del combustible de un avión en la abertura del filtro, el conducto de ventilación o la costura del depósito.
- Desconectar toda la energía eléctrica de la aeronave.
- Evacuar la aeronave.

El personal de mantenimiento debe revisar minuciosamente la aeronave en busca de daños y de vapores inflamables que puedan haber penetrado en compartimentos ocultos del ala o del fuselaje, antes de que la aeronave vuelva a ponerse en servicio. De cada incidente o suceso deben conservarse registros de mantenimiento que describan la causa, las medidas correctivas adoptadas por los distintos miembros del personal y las medidas adoptadas para evitar que se repita. Esta información también debe figurar en el informe de incidentes del cuerpo de bomberos.

Independientemente del tamaño del vertido, el personal de intervención puede tener que evacuar una aeronave para mitigar una emergencia de forma segura. No se debe permitir que nadie que esté evacuando camine sobre combustible líquido. Toda la ropa rociada o empapada debe quitarse de inmediato, teniendo cuidado de evitar fuentes adicionales de ignición. Lave la piel contaminada con combustible con agua y jabón.

Los motores tanto de vehículos como de aeronaves pueden generar chispas que podrían inflamar el combustible que se haya acumulado cerca de un vehículo. Los bomberos del ARFF nunca deben poner en marcha ninguna aeronave, vehículo a motor u otro equipo que genere chispas en una zona antes de que el combustible derramado se haya cubierto o retirado. Asimismo, los vehículos en marcha o los motores de vehículos que no sean de emergencia deben desactivarse o desplazarse, si es seguro hacerlo. Si hay algún motor de avión en funcionamiento en el momento del derrame, la aeronave debe retirarse de la zona de peligro, a menos que aumente el tamaño del derrame o que el lavado de las hélices o la explosión del chorro aumente la extensión del peligro de vapor de combustible.

Si el combustible ha entrado en alcantarillas sanitarias o desagües pluviales, el personal debe bloquear las entradas para evitar que entre más combustible. El supervisor responsable de los servicios públicos y los funcionarios locales de salud ambiental deben

ser notificados inmediatamente. No se debe tomar ninguna otra medida para diluir o dispersar el combustible hasta que estos funcionarios lleguen para evaluar la situación y hacer recomendaciones al CI. La mayoría de las áreas de abastecimiento de combustible o de rampa de los aeropuertos pueden drenar a un separador de agua y aceite o a un sistema de contención secundario. En esta situación, se puede permitir que el combustible derramado se vierta en el sistema de contención. Algunas jurisdicciones pueden permitir el uso de emulsionantes para neutralizar y descomponer el combustible, permitiendo que sea vertido al alcantarillado de aguas pluviales. El personal de ARFF debe estar familiarizado con estos sistemas cuando intente evitar la propagación de contaminantes.

Si la contaminación de alcantarillas o desagües pluviales es extensa, se deben tomar medidas para mantener las fuentes de ignición, como vehículos y aeronaves en funcionamiento, lejos de las bocas de registro o de las entradas o salidas de desagües pluviales, hasta que se puedan tomar muestras de la atmósfera en estos sitios y se determine que se encuentran dentro de límites seguros.

NOTA: Consulte NFPA 415, Norma sobre edificios de terminales de aeropuertos, drenaje de rampas de abastecimiento de combustible y pasarelas de carga, para obtener más información sobre rampas de abastecimiento de combustible para aeronaves diseñadas para reducir el peligro resultante del derrame de combustible mediante el control de su flujo.

Cualquier aeronave sobre la que se haya derramado combustible debe ser inspeccionada minuciosamente para asegurarse de que no se haya acumulado combustible ni sus vapores, en las áreas de los huecos de los flaps o en las secciones internas del ala que no estén diseñadas para almacenar combustible. La carga, el equipaje, el correo o artículos similares que hayan estado en contacto con el combustible deben descontaminarse antes de ser colocados a bordo de cualquier aeronave.

Fuego en Motores/APU

Los incendios de motores y APU pueden representar desafíos únicos para el personal de ARFF. Antes de la llegada del aparato y del personal ARFF, la tripulación de la cabina de vuelo puede intentar:

- Apagar el motor/APU.
- Activar el sistema de extinción de incendios del motor/APU.
- Desconectar el sistema eléctrico.
- Cierre el suministro de combustible e hidráulico.

En incidentes que involucren aeronaves desocupadas, se puede requerir que el personal de ARFF apague un motor de aeronave o APU. Por lo tanto, el personal ARFF debe estar familiarizado con los dispositivos de apagado externo de la aeronave y los procedimientos de apagado interior. Estos sistemas desactivan simultáneamente las conexiones de combustible, hidráulicas, eléctricas y neumáticas de la central eléctrica. Los agentes limpios son más eficaces para extinguir un incendio en un motor o APU que el agua o la espuma. De todos modos, el uso de agentes limpios, agua o espuma puede permitir reparar un motor para su uso posterior. El uso de agentes químicos secos para extinguir el fuego de un motor o de una APU provocará daños. Se podrán utilizar agentes químicos secos a discreción de la autoridad competente.

Los motores a reacción pueden contener piezas hechas de magnesio y titanio. Se puede permitir que estas piezas se quemen si no hay vapores inflamables presentes y se puede mantener la integridad de la góndola del motor y los componentes de la aeronave. Es posible que sea necesario abrir el capó del motor o las puertas del panel de acceso de la APU para extinguir el incendio. Las capotas de las APU deben abrirse desde el punto más bajo hasta el más alto porque el combustible residual tiende a acumularse cerca de las APU.

Los bomberos deben tener precaución al abrir los paneles para evitar liberar fluidos calientes y ardientes o piezas del motor que podrían caer sobre los bomberos. Se pueden utilizar herramientas perforadoras para aplicar agentes extintores antes de abrir capós y paneles (Figura 12.4). Esto sólo debe intentarse después de que se hayan desactivado el motor y la energía eléctrica. El uso de puertos de acceso para extinción de incendios o paneles empotrados puede resultar útil para aplicar el agente directamente en un motor o APU.

Los arranques en caliente y los incendios del tubo de escape suelen ser controlados por la tripulación de cabina de vuelo. En algunos casos, el departamento ARFF puede ser necesario para extinguir estos incendios. Después de un incendio de motor o APU, el personal ARFF debe inspeccionar las áreas circundantes para determinar si el fuego se ha propagado. Cualquier fuego oculto debe ser extinguido.

Fallas de Motores

Las averías contenidas del motor se producen cuando los componentes se separan dentro de este, pero permanecen dentro de la carcasa del motor o salen a través del tubo de escape. Todos los motores están diseñados para este tipo de fallo, que no debería suponer un riesgo inmediato para la aeronave. Un fallo de motor no contenido se produce cuando los componentes del motor se fragmentan y penetran en la góndola del motor circundante. Estos fragmentos pueden perforar la estructura del fuselaje y/o del ala y:

- Causar heridas a los ocupantes.
- Pinchar los depósitos de combustible.
- Cortar los conductos de combustible e hidráulicos.
- Provocar un incendio tridimensional de combustible fluido.

- Dañar el sistema de control de vuelo.

La tripulación de vuelo puede evacuar inmediatamente la aeronave. Puede ser necesario un ataque agresivo contra el fuego interior para apoyar la evacuación. Si el compartimento de pasajeros no se ha visto comprometido, un fallo de motor no contenido debe tratarse como un incendio de motor normal.

Incendios de Calefactores

Los calefactores se encuentran en los fuselajes, las alas y las secciones de cola de los aviones. Estos calentadores están protegidos por sistemas de protección contra incendios instalados. Estos sistemas de protección contra incendios pueden utilizarse para extinguir un incendio de calentador en vuelo. Una vez que la aeronave aterriza, el personal ARFF debe inspeccionar el compartimento del calentador y el área circundante para asegurarse de que el fuego no se ha reavivado o propagado.

Incendios en el Interior de una Aeronave

Los grandes incendios en el interior de las aeronaves se producen por muchas razones:

- Problemas eléctricos.
- Materiales combustibles o reactivos en los compartimentos de carga o equipaje.
- Averías no controladas en los motores.
- Incendios provocados por derrames de combustible tras choques de bajo impacto.

El personal ARFF debe tratar de obtener la mayor cantidad de información del Control de Tráfico Aéreo con respecto a los informes en vuelo de situaciones de incendios interiores. Los departamentos de bomberos de los aeropuertos pueden necesitar recursos

adicionales para hacer frente a un incendio interior en un avión de pasajeros o de carga. La ayuda mutua/automática debe activarse lo antes posible para que la asistencia adicional llegue a tiempo para ser eficaz. Las tripulaciones de vuelo o los pasajeros pueden notificar un fuerte olor a quemado o haber observado humo. Se han iniciado emergencias debido a paquetes humeantes. Los incendios en bodegas de carga pueden debilitar los elementos estructurales que soportan el piso superior y causar un colapso que atrapa a los bomberos en las zonas por debajo del piso. Debe iniciarse la comunicación entre el piloto y los bomberos para identificar las condiciones dentro de la cabina.

Si el personal de ARFF va a entrar en una aeronave durante una emergencia, debe asignarse un equipo de intervención rápida (RIT) que esté preparado. El personal del RIT debe estar completamente vestido con ropa protectora y SCBA y listo para prestar asistencia de inmediato. Mientras algunos miembros del personal de ARFF comprueban el interior de la aeronave, otros miembros del personal de ARFF deben realizar un examen minucioso del exterior, incluidos los huecos de las ruedas, en busca de humo o signos de carbonización y ampollas. Las llamas pueden ser visibles a través de las ventanillas de la aeronave, especialmente en incendios en el interior. Los bomberos también deben considerar el uso de dispositivos de infrarrojos para realizar investigaciones interiores y exteriores.

Si se produce un incendio, lo más probable es que la tripulación de vuelo inicie la evacuación, una vez que el avión se haya detenido. El personal ARFF disponible debe ayudar en la evacuación abriendo todas las salidas disponibles, ayudando a los pasajeros a salir de los toboganes de evacuación y alejarse de la aeronave. Debe tenerse en cuenta la dirección del viento antes de abrir las salidas. Si no se coordina, el fuego podría aumentar de tamaño y propagarse debido a que el viento empujaría el fuego a través de la cabina. Las

fuentes y áreas comunes de humo y el olor de algo quemándose a bordo de las aeronaves son las siguientes:

- Balastos de lámparas fluorescentes sobrealimentados
- Áreas de preparación de alimentos
- Lavatorios
- Área de cabina
- Compartimentos de los equipos electrónicos y aviónica
- Compartimentos de carga
- Componentes eléctricos sobrecalentados
- Incendios de baterías de litio en aparatos electrónicos personales

El sobrecalentamiento de los balastos de las luminarias fluorescentes se produce con tanta frecuencia en los aviones como en los edificios y no suele ser grave. Dado que las consecuencias de ignorar los balastos sobrecalentados podrían ser graves, el personal de la tripulación de vuelo que reconozca este olor no debe suponer que el problema es menor y desestimarlo. Las áreas de preparación de alimentos a bordo de las aeronaves son fuentes frecuentes de humo. El personal ARFF debe revisar minuciosamente esta área, incluyendo todos los cajones, compartimentos de almacenamiento y elementos de calentamiento de placas calientes. Los interruptores de alimentación y los disyuntores de los equipos de la cocina se encuentran en la cabina. Los detectores de humo instalados en los aseos de los aviones pueden ayudar a localizar el humo en este lugar. Estas alarmas sólo emiten una alarma local y no transmiten una alarma a la cabina. La tripulación de cabina puede no ser consciente de que se ha activado una alarma de humo hasta que un miembro de la tripulación de vuelo se lo notifique. Esto puede retrasar el inicio de los procedimientos de

aterrizaje de emergencia. Los sistemas de detección de humo que alertan a la tripulación de vuelo están instalados en las bodegas de carga inferiores de los aviones de pasajeros y de carga. En las bodegas de carga inferiores también hay sistemas de extinción que deben ser activados por los pilotos. Los aviones de carga también pueden tener detectores de humo sobre la cubierta de carga principal, pero no un sistema de extinción.

En la zona de la cabina puede haber uno o varios paneles de disyuntores. Si alguno de los sistemas eléctricos de la aeronave no funciona correctamente, la tripulación debe ser alertada por la activación de un disyuntor. La tripulación de vuelo puede hacer varios intentos para restablecer un disyuntor antes de tomar medidas para corregir el problema. Debido a su familiaridad con la aeronave, los miembros de la tripulación de vuelo pueden ayudar al personal ARFF a localizar incendios ocultos.

NOTA: Las anomalías del sistema de la aeronave y las interferencias de radio también pueden indicar la presencia de un incendio interior.

Los incendios en el interior de un avión pueden originarse en numerosos lugares, además de en la cabina principal de pasajeros. Los incendios en espacios ocultos pueden propagarse:

- Entre el revestimiento del avión y los revestimientos interiores.
- En la zona de acceso aéreo.
- A través de las áreas de carga o vientre.
- La longitud o el ancho de la aeronave.

Puede resultar difícil determinar la fuente de ignición o el alcance de la propagación del incendio. Se pueden utilizar detectores de calor infrarrojos portátiles o cámaras termográficas para localizar "puntos calientes" que indican incendios ocultos. Los

incendios ocultos también se pueden localizar quitando secciones de pisos, paneles de pared y techos. En el exterior de la aeronave, la pintura con ampollas o decoloración puede indicar áreas de incendio. Aplicar una ligera nebulización de agua y observar las áreas donde el agua se convierte en vapor y se evapora rápidamente, esto también puede identificar las áreas del incendio.

Si no se ha iniciado la evacuación, el personal ARFF debe acceder inmediatamente a la aeronave a través de todas las puertas y escotillas disponibles y comenzar a rescatar a los pasajeros mientras se prepara para las operaciones de extinción de incendios. Los bomberos que entren en la aeronave no deben impedir la evacuación de emergencia de los ocupantes. Permitir que los ocupantes salgan de la aeronave no impide que los bomberos abran todas las puertas de salida, escotillas y ventanas disponibles para intentar ventilar la aeronave. En la mayoría de las aeronaves, el tamaño de las salidas por encima y por debajo de las alas puede suponer un reto para el personal ARFF que lleve equipo de protección completo, incluido el SCBA. Una vez dentro, avanzar por pasillos estrechos y restrictivos, quizás congestionados por pasajeros inconscientes o fallecidos y equipaje de mano suelto, puede resultar difícil. Si se puede entrar con seguridad, los incendios interiores de aeronaves deben combatirse de la misma manera que los incendios estructurales, utilizando agua y/o espuma. La escorrentía de agua procedente de las operaciones de extinción de incendios interiores puede diluir la manta de espuma del exterior de la aeronave que está sirviendo como agente supresor de vapores. Los equipos de lucha contra incendios interiores deben asegurarse de que tienen una vía de escape despejada para salir de la aeronave, ya que las condiciones interiores pueden cambiar rápidamente.

A menudo, la mejor ubicación para desplegar la primera línea de manguera de ataque interior es en una escotilla o puerta de sobrevuelo a barlovento, siempre que no haya

fuego bajo el ala. El ala proporciona una plataforma sobre la que apoyarse mientras se realiza la entrada. Dado que la mayoría de los pasajeros que evacuan intentarán utilizar las puertas, las escotillas de las alas suelen ser las primeras por las que se puede entrar, si procede. Las salidas por encima del ala también dividen el avión por la mitad y pueden utilizarse para evitar la propagación del fuego en ambas direcciones. En los aviones de fuselaje estrecho, una corriente recta suele llegar a ambos extremos de la cabina de pasajeros principal. Los bomberos deben tener sumo cuidado al desplazarse por el interior de la aeronave, ya que el suelo puede estar debilitado o quemado. El objetivo final es garantizar la seguridad del personal ARFF y de los ocupantes de la aeronave; por lo tanto, todas las puertas y escotillas deben abrirse tan pronto como sea posible. Todas las vías de rescate viables deben ser establecidas, mantenidas y protegidas tan pronto como sea posible. El fuego puede propagarse en el vientre de una aeronave; por lo tanto, los compartimentos de carga, las bahías de electrónica y otros espacios de maquinaria deben abrirse y comprobarse para detectar indicios de incendio. Puede ser necesario desalojar el equipaje de las bodegas de carga para comprobar la extensión y extinción del fuego. El fuego puede propagarse en otras zonas ocultas de la aeronave, como la zona de acceso superior y las paredes laterales. Habrá que acceder, extinguir y revisar todas las zonas afectadas por el fuego.

NOTA: La integridad estructural de la cola puede fallar en incendios interiores de aeronaves totalmente implicadas. Los bomberos deben estar preparados para esto porque la parte trasera de la aeronave puede caer repentinamente al suelo cuando falla la cola. Los aviones de carga y la ventilación de las aeronaves plantean dos dificultades específicas al personal de ARFF. Estos temas se tratan en las secciones siguientes.

Aviones Acoplados a una Pasarela de Embarque

Las aeronaves suelen quedar acopladas a la pasarela de embarque durante las operaciones de llegada y salida de las aerolíneas o durante las escalas nocturnas. Un incendio en una aeronave ocupada o desocupada podría poner en peligro la seguridad de la terminal y de las operaciones aeroportuarias. Debe prestarse especial atención a la forma en que el personal de ARFF gestiona un incidente que afecte a una pasarela, una estructura o varias estructuras del aeropuerto. En muchos casos, la energía eléctrica se suministra a la aeronave a través de un cable de alimentación externo desde la pista. La alimentación de tierra debe desactivarse antes de desconectar el enchufe de la conexión de alimentación de tierra de la aeronave. El personal ARFF debe desconectar la batería si se puede acceder a ella de forma segura. El personal ARFF debe desarrollar planes de reincidentes para estas estructuras y llevar a cabo una formación para examinar los medios más eficaces para hacer frente a estas estructuras. El comandante del incidente debe considerar la necesidad de alejar la aeronave de la pista de aterrizaje para eliminar la posible propagación del incendio.

Aeronaves Desocupadas

Los incendios en aeronaves desocupadas a menudo se convierten en incidentes graves debido al retraso en su detección. Una aeronave desatendida con todas las puertas cerradas puede mantener un fuego latente durante largos periodos, lo que provoca una acumulación de humo y gases potencialmente explosivos que puede pasar desapercibida hasta que se abra la aeronave. Abrir la puerta de una aeronave en tales condiciones es peligroso debido a la posibilidad de que se produzca una llamarada, un vuelco o, en raras ocasiones, incluso una corriente de retorno. Al igual que en la lucha contra incendios estructurales, esta situación indica la necesidad de coordinar la ventilación vertical con el

ataque al incendio. El personal con mangueras cargadas debe estar en posición de responder inmediatamente al aumento de la intensidad del fuego que puede producirse al ventilar la aeronave. Las boquillas penetrantes pueden utilizarse con buenos resultados en estas condiciones. El comandante del incidente debe evaluar la necesidad de emprender operaciones ofensivas ARFF basándose en el riesgo para la seguridad de la vida.

Aeronaves de Carga

Los incendios interiores en aviones de carga completamente cargados difieren significativamente de los incendios en aviones de pasajeros, debido a las diferencias en el número de ocupantes y en la carga de fuego. Es probable que los aviones de carga transporten mayores cantidades de carga/mercancías peligrosas que los aviones de pasajeros. En caso de incendio a bordo de un avión de carga en tierra, la tripulación de vuelo normalmente puede salir del avión por las puertas de entrada normales o por las salidas de emergencia de la cabina. Una vez que se ha determinado que todos los miembros de la tripulación están fuera y que ya no existe ningún problema de rescate, se puede centrar la atención en el ataque del incendio. Si las puertas de la sección de carga no se pueden abrir, un ataque interior convencional puede resultar difícil.

Antes de realizar un ataque interior, el personal ARFF debe intentar determinar la presencia, tipos y cantidades de mercancías peligrosas en la aeronave. La información sobre mercancías peligrosas se puede encontrar en el manifiesto de carga, que se encuentra en la cabina o en un área alrededor de la puerta de carga principal. Además de los materiales radiactivos, las mercancías peligrosas deben ser accesibles para la tripulación de vuelo y, a menudo, se almacenan cerca de la parte delantera del avión. Independientemente de la cantidad de mercancías peligrosas que se presuma que hay a bordo, se debe solicitar

inmediatamente un equipo de respuesta a materiales peligrosos cuando se produce una emergencia en una aeronave de carga. Si están disponibles, se podrían utilizar dispositivos de imágenes térmicas infrarrojas para ayudar a encontrar el foco del incendio.

NOTA: Los contenedores de materiales peligrosos para aeronaves pueden estar equipados con sistemas de extinción de incendios adjuntos.

Los contenedores de carga o paletas cargadas pueden dificultar el acceso y hacer peligrosas las operaciones de ataque de incendios en el interior. A menudo hay sólo unas pocas pulgadas (mm) de espacio libre entre los contenedores y el fuselaje. Si hay un incendio pequeño, puede ser necesario descargar la carga para acceder al incendio. El uso de boquillas que penetran la piel puede ser la mejor táctica para combatir un incendio en el interior de un avión de carga. El personal de la ARFF debe localizar el punto más caliente del incendio desde el exterior y luego penetrar el fuselaje en ese lugar. Esta técnica aplica adecuadamente el agente extintor sobre el incendio sin exponer al personal de la ARFF a los peligros de un ataque interior. Cuando las boquillas que penetran la piel no pueden penetrar lo suficientemente profundo como para atravesar el casco y entrar en los contenedores, el personal de ARFF tendrá que acceder al área del incendio, extinguir el fuego y realizar una revisión. Si estas boquillas no pueden llegar al incendio, los bomberos deben tomar las siguientes medidas:

- Determinar el área involucrada en el incendio con cámaras termográficas.
- Ventilar abriendo la aeronave por encima del incendio o en el lado de la aeronave a favor del viento, inmediatamente adyacente al área del incendio.

- Si es necesario, mover la aeronave para aprovechar el viento predominante, o a un área que no afecte las operaciones normales o que esté más cerca del suministro de agua de los hidrantes.
- Hacer una abertura en el lado de barlovento de la aeronave para permitir la entrada, completar la extinción, evitar la propagación del fuego y realizar revisión.

Sistemas a bordo de supresión de fuego

Actualmente, se está desarrollando una tecnología que utiliza varios sistemas de extinción de incendios a bordo. La espuma de alta expansión descargada automáticamente desde boquillas penetrantes individuales ha dado resultados prometedores. Es posible que en el futuro se generalicen las conexiones externas de supresión de incendios. Los sensores detectores de calor pueden ayudar a identificar el lugar exacto para colocar las boquillas penetrantes. Las lonas resistentes al fuego diseñadas para cubrir los palés de carga, también pueden ayudar a sofocar los incendios y evitar que ardan libremente. Puede obtenerse más información sobre las tecnologías relacionadas con el ARFF en el sitio web del Centro Técnico de la FAA.

Ventilación de Aeronaves

Los bomberos deben establecer la ventilación tan pronto como sea posible. A continuación, se indican varias formas de lograr la ventilación:

- Ventilación Inicial. Se consigue abriendo puertas y escotillas o golpeando las ventanas laterales.
- Ventilación Natural Horizontal. Se consigue abriendo puertas, escotillas y ventanas en el lado de barlovento de la aeronave.

- Ventilación Hidráulica. Se consigue descargando un chorro de niebla por una puerta, ventana o escotilla abierta.
- Ventilación Vertical. Se realiza cortando aberturas con una sierra de rescate a lo largo de la parte superior del avión. Mientras se establece la ventilación vertical, el personal ARFF debe realizar lo siguiente:
    1. No se ponga nunca encima del avión. En su lugar, trabaje desde una plataforma aérea.
    2. Aplique un spray de agua o espuma durante la operación de corte para lubricarlo, evitar que el aluminio fundido ensucie el filo de la cuchilla y proteger al personal de ARFF.

La ventilación temprana es importante porque aplicar agua a un incendio interior hará que el limitado espacio interior se llene rápidamente de humo y vapor. Esta situación dificulta las labores de búsqueda y rescate, y expone a los ocupantes y al personal de ARFF al riesgo de quemaduras por vapor. Una vez iniciada la ventilación, el personal debe entrar, iniciar una búsqueda inmediata del interior, comenzar el ataque al incendio y el rescate desde el lado no incendiado.

Colisiones en Tierra

Debido al amplio impacto de las colisiones en tierra, el personal de ARFF debe examinar cada incidente en su totalidad y no centrarse únicamente en la aeronave o aeronaves implicadas en el accidente. Las colisiones en tierra pueden involucrar a aeronaves que colisionan con otras aeronaves, vehículos, animales y/o estructuras fijas, mientras se encuentran en una superficie distinta a una pista de aterrizaje. Algunos factores adicionales que el personal ARFF debe tener en cuenta incluyen:

- Personas atrapadas o heridas en un vehículo.
- Personas heridas dentro de un edificio.
- Integridad estructural del edificio afectado.
- Animales heridos que deambulan por la zona de movimiento.
- Fuga de material peligroso del vehículo.

NOTA: Algunos aeropuertos utilizan sistemas de alerta de tráfico y de prevención de colisiones para evitar colisiones en tierra. Estos sistemas siguen los movimientos de determinados vehículos del aeropuerto. Un controlador ATC en tierra supervisa los movimientos de estos vehículos y puede intervenir, si es necesario, para evitar una colisión en tierra.

Incendios Eléctricos o de Baterías

En caso de incendio en el compartimento electrónico y eléctrico (E & E), el personal ARFF debe asegurarse de que la aeronave está apagada antes de acceder al compartimento. Los bomberos pueden realizar esta tarea haciendo que la tripulación de vuelo apague la aeronave antes de salir. Si la tripulación de vuelo ya ha salido de la aeronave, el personal ARFF tendrá que acceder a la cabina de vuelo y realizar las operaciones de apagado. Con la aeronave apagada, el personal ARFF puede acceder a la bahía E & E y mitigar el fuego. Los bomberos deberán abrir la escotilla de acceso y colocar una boquilla de descarga en el interior del compartimento E & E. A continuación, los bomberos deben descargar agente limpio en la bahía E & E durante 20 a 30 segundos, dependiendo del tamaño de la aeronave, y cerrar la escotilla para permitir que el agente suprima el fuego. Después de un minuto, deben volver a abrir la escotilla para evaluar los esfuerzos de supresión. Si el fuego sigue presente, los bomberos deben volver a aplicar

agente y cerrar la escotilla. Si el fuego persiste, puede ser necesario desplegar una línea de cabeza para mitigar el incendio. En todos los casos, los reanimadores de los ARFF deben llevar un EPI completo que incluya un ERA durante los incendios en la bahía de E & E.

NOTA: El objetivo es extinguir el fuego de la forma más rápida y segura posible, causando el menor daño posible.

4.2.From Spanish to English

IN HONOR OF ALL THE FATHERS, MOTHERS AND CHILDREN WITH PROGRESSIVE, rare DISEASES (Niemann-Pick, Batten, Leukodystrophies, Ataxia Telangiectasia, Rett Syndrome, Hypophosphatemic rickets, Huntington's chorea, Menkes, Duchenne Muscular Dystrophy, Wilson Hunter, among others)

A passing Angel through this Earth

My daughter's Adriana life story

Author: Anny González Gairaud

1995

PREFACE

This story tells the true story of a girl who passed through this land for a short period of time: Adriana Vanessa Calvo González. Adriana is the second of four siblings and when she left for the presence of the Lord at the age of 12, her older sister, Anny, was 15 years old, Sergio 11 and Rodolfo 9.

We, her parents, Sergio Calvo Vargas and Anny Gonzalez Gairaud Gonzalez Gairaud, never imagined the blessing that God had bestowed on us by conceiving a child who was going to give her life completely to bear testimony to Him.

To open our hearts to share Adriana's experiences among us, has as a purpose to give encouragement to other parents with similar difficulties and challenges. And especially, to give testimony that even in difficult moments there is always hope: Jesus is with us. He will help us to understand the need of the other, whoever he or she may be, in moments of pain, joy... in every moment of life.

Her mother

An angel is born

I call my daughter Adriana “An Angel,” because in her short existence she has always been of testimony, strength, and joy for those who we were close to her. This book collects the experiences that took place in the life of a girl who was an Angel passing through this Earth.

Adrianita was born on a cold January 4, 1983 at 3:20 p.m., after a 9-month pregnancy, which passed naturally. You can say that it was a very calm pregnancy. The test they did at birth, APGAR, was 9.9. Her weight was 3220 grams, and her height was 52cm. It could be said that she was a chubby little girl and a big eater. She was breastfed for 6 months and then, she started eating a variety of solid foods.

Her first year of life

Exactly one year later, she began to walk on her own, just as babies do, running, stumbling, and getting up again. She had the knees very close together and from time to time she fell. Therefore, the general practitioner referred her to CENARE (National Rehabilitation Center), where we were told at one year and 6 months that she had to wear orthopedic shoes, because she had flat feet. At that time, she was very chubby and she liked to run and talk a lot: She asked everything.

Her second year

In January 1985, Adriana continued to fall and her feet checked again. Her doctor recommended adding a bulge to her shoe to turn them outward. In May, she was taken to the clinic for tonsillitis, but her infection passed quickly. For the rest, that year she was very

healthy, always happy, she loved to always sing in church and everyplace and anytime. She also ran to her grandmother's house and visited the neighboring houses.

Her third year

In 1986, she had another orthopedic check-up appointment, and the doctor prescribed the orthopedic shoes again. With only 3 years of life, she wanted her shoes to have little bows on them and she did not want them to be that kind of "boots." She wanted them like the ones other girls wore. She enjoyed playing dress-up and liked to paint her face. Adriana did not manifest any physical or mental alteration, other than the orthopedic problem with her feet.

Her fourth year

In 1987, her health was very good. She was fascinated by running around the playgrounds and she used to do competitions with her siblings. We were struck by the fact that sometimes she was given objects to carry from one side to the other and she would drop them in halfway. It was as if they slipped, but she fixed everything with a smile.

Her fifth year

In 1988, she joined her little brothers, Sergio and Rodolfo, to the State daycare center, known as CEN-CINAI. Her grooming habits left a lot to be desired, she always arrived with the clothes full of paint and food. It seemed as if all things first had to go through her the clothes and then reach their destination. Her manual work was always finished. Her teachers commented on how joyfully she participated in the activities, how attentively she listened to the biblical stories, and the enthusiasm that she put into the songs she sang.

She also loved to dance and felt very sad when a child was sick. She prayed at night for the children who was suffering. I remember that she was afraid of children with physical problems, and she hugged me when saw them.

We began to notice that, when walking, Adriana hit the objects that were in her path, as if she did not know how to calculate where she was passing. During mid-year, the kindergarten teachers informed us that she frequently dropped the objects that were given to her, but she picked them up and continued working.

One of the important characteristics of this year was her excellent appetite and radiant health. She liked to talk to all the people she met, even with those he did not know very well. She was very affectionate with the other children, and with the rest of the family members. She enjoyed herself very much: she was always laughing.

In November of that year, we took her to Children's Hospital with tonsillitis and very high fever. The doctor who treated her, (Doctor Olga Arguedas Arguedas), asked us if we had observed that Adriana lowered her head and then she would raise it again. We told her that we had noticed it, but we did not give it any importance.

Then, she suggested performing a series of clinical examinations immediately: Computerized Axial Tomography (CT), Electroencephalogram (ECG), Lumbar puncture, blood tests, eye and ear fundus, and that we should admit her into the hospital for these tests.

From this moment, we felt a great anxiety to know what was wrong with Adriana and why she sent so many tests in such a short time. Sergio told me that it must be something serious, I told him that we needed to trust in God and that we should not jump to any conclusion.

Knowing our daughter, who did not like at all going to the hospital because she was afraid, we discussed with the doctor, the possibility to take Adriana and bring her back every day for the tests. She accepted.

The possible disease is determined

After this series of examinations, we were summoned to the Neurology section of the National Children's Hospital, with Dr. Loría, who very coldly told us: "You had to dance with the ugliest." One of the tests performed, the lumbar puncture, detected scarce foam cells in the cerebrospinal fluid. That meant that we were in front of a degenerative-progressive disease, which seemed to have all the symptoms of a Niemann Pick disease.

This was the first time in our lives, we heard this type of disease existed. Our first search for hope and questioning was: Is there a cure? What should we do? The doctor's answers were blunt and cutting: "To this day there is nothing that can stop it... and the outcome is fatal." We left there more bewildered than ever, but the first option that came to our minds was: "trust in God. We knew that His healing power was real and that we would cry out to Him day and night."

From that moment on, the life of our home underwent a radical change. Sergio and I were suffering from within a pain that only God would be there in the days of anguish to tell us: "I am with you and I will not leave you."

My mother and my husband cried all afternoon, they censured my attitude of going to work. However, my determination was radical: I would fight to the end with faith. Crying would not give me the solution. We would have to go on living and live each day that God would lend us thanking Him for this new dawn. We should not let ourselves be defeated. We should not make life an anguish.

Attitude of the day-care center's teachers

At the time when the daycare teachers were informed of the decision we were facing, we found very different reactions. Some of them cried and tended to protect her, and others told us they were afraid to keep her in the day care center. They felt they could not take responsibility for what might happen to her. They suggested that we keep her at home.

Perhaps this was one of the hardest blows for her. How to tell or explain to the child that she should leave a place she loved to be? I couldn't. There was no reason to. I sought medical support to back up my decision to keep her life as normal as possible. I couldn't understand people's selfishness!

I succeeded in keeping Adriana in the institution the following year, doing her preschool like any other child. I remember that on one occasion the director of the day care center called me and told me that how could a girl who had such a motor problem could be able to go to school (because by the end of 1989, the fine motor skills were beginning to show difficulties). My response was curt and perhaps defensive because I needed to protect my daughter's emotional stability: "Don't worry about her academically, there will be time for that in the future. In any case, what I am most interested in is her happiness, not the amount of knowledge for the first grade." I was concerned about her quality of life, her happiness, and her emotional stability.

Sixth Year: The neurologist's attitude

In the months of April and September 1989, we took our child to her neurology appointments. Again, she underwent an encephalogram, and the results were normal. The blood tests were also normal. Adriana's health was stable, and we wanted to believe that her disease had stopped. However, the neurologist's attitude puzzled and angered us. Without

even observing Adriana in the doctor's office, he said: "Well, you already know the diagnosis, bring her back in 6 months, or do you have anything to say?”

Sergio and I left the place determined not to go back there, unless Adriana presented any complications. It was very difficult for us to understand why the doctor did not even check her or examined her. He did not even see her.

In search of other doctors

It was then that we decided to look for another hope and renew our faith. We visited a Naturalist doctor. After examining Adriana, he asked about her diet and suggested eliminating red meat as much as possible. He told us about the importance of her diet, as she had to eat vegetables, fruits, greens. Besides, he told us to apply some mud or clay poultices to her abdomen, to extract from inside her body any type of infection.

One of the doctors had told us about Niemann Pick. It consisted of an accumulation of lipids (fats), which the organism could not degrade due to the for lack of an enzyme. Based on this point, this naturalist doctor informed us that animal fats were harmful to the organism. He asked us to strengthen his diet with soymilk and soy (sausages and bologna). Give her chicken and fish on certain occasions. He recommended a daily juice composed of carrot, cucumber, beet, celery, and dandelion. Everything had to be raw and put through the food processor, so that the child would be nourished with as much fiber as possible.

We prayed together with the doctor, so above all we had faith that "God's will" would be done and that her life was in His hands. And everyone in the house changed their diet. It was important that Adriana did not feel different from her other siblings, so we decided that since the diet suggested by the doctor was nutritious, we would all have this juice for breakfast and thus, pork and beef were almost eliminated from the family’s diet.

This diet prevented Adriana from having anemia problems throughout her illness: her red blood cells were always between 14 and 16. In addition, we started to apply clay poultice on her abdomen every night. We continued to take Adriana for two years, until the doctor, who was 87 years old, decided to retired in the United States.

Use of homeopathy

On the other hand, while we took her to the naturalist, we also started a treatment with homeopathy to prevent Adriana from catching colds, accumulation of phlegm, and to help her maintain balance, which she was losing noticeably. She received homeopathy for two years in a row. At the end of her life, when she was suffering from bronchopneumonia, colds and phlegm, we also resorted to homeopathy.

Seventh year

In 1990, it was time for her to enter school. We knew that Adriana required individual attention, since her gross and fine motor coordination was deteriorating. In addition, Adriana was losing strength. She was admitted at Escuela Virgen de Guadalupe, where we had been informed that the first-grade group would have 9 children and the attention she would be given would be individualized. The institution was close to our home and the hours of attention were from 7:00 a.m. to 1:00 p.m., which was very convenient to bring her to and from the facility. We had to change Anny Maria, the older sister to this school to accompany her little sister. In this school, the students learned English, which favored Anny. In this way, we talked with Anny and both girls traveled together. However, this situation lasted for only three months because at the beginning of the school year, Adriana's group had 25 children, instead of the original 9. The school's

goals changed. Accumulating as much knowledge as possible seemed to be the priority, and there was no longer room for individual differences.

Adriana arrived home completely dirty. The habits of cleanliness that she had acquired with the first kindergarten teacher and at home, were lost. The first-grade teacher could not attend to Adriana's individual differences at school, nor was she able to give her the attention that Adriana required. When we told the teacher about our concern, her justification was: "The child enjoys school very much. She laughs a lot, and the other children laugh with her, but I'm sure Adriana won't make it through the first grade."

Sergio and I knew about Adriana's mental and physical abilities. Although, her fine and gross motor coordination were atrophying, we could perceive that she was mentally lucid and very aware of what it was going on around her. She was very unhappy about feeling dirty. She knew that she could learn, and it was evident that she was suffered if she was not helped to do so. When she returned home, she would write down in her notebooks the syllables she had studied in class and put them together to form words. She would show them to us and read them aloud, so that we could see that she could read.

At the end of May, we changed her to a public school: The Central School of San Sebastian, for a first grade of “slow children." These were children who had learning difficulties in kindergarten or who had not attended kindergarten. This section was staffed by a specialist in learning problems and with a great dedication to individual differences. She dedicated a lot of time to Adriana and worked with her, exploiting her potential (singing, storytelling, drawing) and strengthening her weaknesses. This teacher (Lourdes) achieved very evident changes in Adriana's habits. For example, she made her always have a bag with wet wipes and clean herself when she got dirty. She also reinforced her reading and writing habits. But above all, she raised her self-esteem, so that she would be happy

with her accomplishments and feel proud of herself, like someone who wins a trophy. The girl finished first grade and moved on to second grade having learned to read.

Eighth grade

In second grade, she was assigned a new teacher, who was selected by the previous teacher, as she had to leave the school. Adriana continued with her motor problems, which were progressing to the detriment of her faculties, but very slowly. I think she knew that something different was happening to her body, because when she was 8 years old, sometimes she asked us if she was smart, and I reaffirmed that she was too smart.

In 1990 and 1991, Adriana did not go to the hospital even once. She suffered sporadic but passing colds. Her health was very stable, except for the fact that her gait was slower and when she picked up objects, she dropped them easily. That's why we didn't make her bring objects that we knew she could break. The teacher told us that the following year (1992), Adriana was going to be incorporated into the Integrated Classroom (for students with disabilities) because her limbs were atrophying. We were afraid that she would feel bad, seeing that her classmates were advancing in one way, and she couldn't do it in the same way. We then began to arrange for Adriana to change her schooling, for which we needed a medical referral certifying that she required it.

Ninth year

In March 1992, we returned to the Children's Hospital to request a sick note. Dr. Loría told us that he could not give us the note, since he had not seen her for almost three years. He wondered why we had not returned to the hospital. However, we expressed our feelings. We thought they could do little or nothing for her. And on the other hand, in one of

the last consultations we had with him, he hadn't even looked at Adriana. He apologized and asked us to be her doctor again. Once he saw her, he issued the medical certificate and Adriana was able to enter into the Integrated Classroom at San Sebastian Central School.

At school, the teacher taught her how to walk close to the walls, and she learned how to catch herself when she was about to fall. This year, Adriana suffered many bumps and cuts as a result of her falls. The tension at home began to show every time she fell. The bumps were reflected in her skin, and this made us suffer. Sergio and I began to look for ways to protect her. We removed objects from the house that could hurt her. However, Adriana wanted to do everything the others did. Therefore, at the least expected moment, she would fall or hurt herself. Inside us, it was a constant struggle between what we should or should not allow her to do.

We did not want her to feel pushed aside or belittled. We knew it was necessary to find a balance between what we did allow her to do, even if it was risky and demanded more care, and what she couldn't do at all. We suffered when we saw injuries on her fragile little body, but it hurt us even more to see her sad or crying when we didn't let her to do what she wanted to do. Her siblings and us began to take care of her more, and she also tried to protect herself. However, her hands and feet no longer responded. In spite of everything, she was still very cheerful and restless. She loved it when we took her to Parque de la Paz to run, and although, she was having more and more difficulty to walk, she participated in all our activities.

I remember that, on one occasion, Sergio, Alonso and Rodolfo, her brothers, participated in a speed race with other children from the neighborhood. We took Adriana, as usual, to accompany her little brothers. She wanted to run, so Sergio took her by one hand, and I took her by the other to make her run. Her screams of joy were contagious. She

enjoyed it as if she had done it alone, and when they gave her a medal for her effort, she didn't take it off the whole afternoon, she showed it to everyone. She was very proud of herself!

Praying was a fundamental component of our home, learning to develop the faith of which Hebrews 11:1:1 speaks: **Faith is the certainty of what is hoped for, the conviction of things not seen.** We were always confident that she was healthy, despite the health problems she was going through. When from time to time she had temperature, or had a stroke, we prayed that she would be healed and affirmed that she was not sick, she was healthy.

She shared her room with Anny Maria. They would talk a lot until late at night. They often played and argued.

Adriana loved to swim and was usually taken on Saturdays to enjoy it. We were aware of her deterioration, but we struggled to keep our home as normal as possible, clinging to a God who has never failed us.

Tenth year

In 1993, Adriana turned 10 years old. By this time, she had gradually lost her ability to walk on her own, which she did by leaning against walls or asking for someone's hand. When she had nothing to hold on to, she crawled to reach her goal. She spent a lot of time sitting and watching television or playing house with other with other girls, always sitting. She could still her head, but it would fall off with a thump more often. Sometimes, we would call her attention to make an effort to hold it up, and she would try for a while, but her body would get tired....

At this time, we put knee pads on her pants to protect her from the blows when she fell down. We often lost our patience and scolded her very hard because she would risk walking in places where she would not find support. She could not measure the danger.

I remember once when she fell among some rose bushes and thorned her whole face and arms because she wanted to pick a rose from the neighbor's garden. Those were the moments when we debated between letting her do it or not; between our anguish for what we saw and couldn't stop. We loved her too much, but we knew we had to keep on fighting. There were nights of crying and desperation, crying out to God for strength and help.

A new day was full with new struggles and challenges. God allowed us to grow as a family and unite to cry out and help each other. I think that her siblings, Sergio, Anny, and Rodolfo, grew a lot that year, and intuitively prepared for what the future held for us... which we couldn't even imagine.

Adriana, at that time, spoke little and with difficulty. Some days, she would cry from one moment to another and when we asked why, she would say it was nothing. I deep down knew that it was because of her helplessness to do many things she wanted to do, but could not. What it was clear to me was that she understood everything, even her illness. We never heard her complain. After her crying, she would laugh and try to change her attitude or get us to do something as if nothing was wrong.

In July of that year, Adriana suffered her first bronchopneumonia. One morning when I tried to get her up to go to school, she complained as if something hurt. I asked her if she was in pain, and she answered that she was not. However, when I picked her up again on the same side, she complained again. Her temperature was high, so we decided to take her to the Children's Hospital to be examined. We went in at 9:00 a.m. and she was admitted to the emergency room. At our insistent questions we were only told that they

were going to do tests. This was, without a doubt, the worst experience we had with the doctors at this hospital.

Her hospitalization for bronchopneumonia

The X-rays taken of Adriana showed a pleural effusion. The infection was declared and they had to fight it to reduce the fever. All day long, the hospital staff was running from one place to another for one test and another: blood and lung puncture... At 8:00 in the evening, Adriana had not eaten anything and was hungry. She still had a high fever, but at the hospital, they had not noticed this symptom. I decided to bring her an acetaminophen pill, some juice and some cookies. I asked the doctor on duty to let me see my daughter, but he told me that she was under study.

At that time, it was necessary to do a lumbar puncture. At that moment, as it is common in Costa Rica, the earth shook very hard. The doctors, frightened by the earthquake, ran, as did the nurses, leaving Adriana alone. I ran to her to hold her. After many complaints and a call to the doctor on duty in the emergency room, the order for Adriana's admission was given. At 10:00 p.m. she was given the first dose of antibiotic. The next day more X-rays were taken, and the doctors were alarmed by the pleural effusion. They stated that she had to undergo surgery to drain the pus from her lungs.

I insisted that the doctor of Metabolic Diseases, Dr. Manuel Saborío Rocafort, give his approval before intervening, because the doctors, who one by one had paraded in front of Adriana, still could not agree on whether Niemann Pick was a disease, a syndrome, or a virus. They offered very strange definitions. On more than one occasion, I was angered by their ignorance and their negligence. I discussed with the doctor about the possibility that the pleural effusion might be the result of the foam cells and not from the infection. Dr.

Saborío requested a new puncture before intervening and draining. My hunch was right. They called the pulmonologist, Soto Quiros, to follow up on the case.

Adriana spent 11 days in the hospital. She reacted to the antibiotic, but she was too weak and could hardly walk. In the hospital, she had moved around in a wheelchair. She left the hospital with an exaggerated (wrong) prescription for the antibiotic dosage. On the recommendation of the pharmacist, we questioned the doctor about this dosage and then decided to reduce it by 25%. When we had to go to get the antibiotic for the second time, the pharmacist (another one), again insisted on the incorrectness of the dosage for a child. As Adriana could not swallow it, we took her to the pneumologist who warned us that there was a big mistake in the dosage: instead of 5 tablets of 500 milligrams, the correct dosage would be a 250-milligram pill.

God was watching over my daughter and did not allow her to be intoxicated. We were warned in time and were able to give her the correct dose.

A new X-ray again alarmed the doctors by what Adriana's lungs showed. However, I asked for it to be repeated. I thought there was a mistake. When the X-ray was repeated, that same day, my new hunch was confirmed: there was nothing to worry about, it had been a mistake. A month after her admission to the hospital, Adriana returned home, the infection had subsided. Even with the pain we felt from this separation (for the first time in the hospital), it was a precious time that God gave us to pray for several children and relatives of sick children, whom on many occasions needed a shoulder to cry on or someone to listen to them in their pain.

In the month of October, we took her for a checkup with the Genetics specialist, Dr. Saborío. Adriana had been visiting this specialist for years. She talked and laughed with the doctor who, upon examining her, instructed us to do an ultrasound of the heart, liver, and

others, as he believed that she was very close to menstruating. The ultrasounds came out very well and indeed the ovaries were ready for development.

In front of the wheeled car

It was recommended to us by the teacher at San Sebastian Central School, Estrellita, to take Adriana to the Cerebral Palsy School for an appointment to study the possibility of having Adriana stop walking and use an orthopedic car to relieve the weight on her ankles, which were deformed, as well as her knees. At that center, one of the teachers (Gabriela Chacón), showed Adriana one of the cars and took her for a ride around the school and asked her if she would like to have one at home, to which she replied that she would not. I know she loved to walk, she needed to feel that she could, that she was just like the others, and the others didn't use cars to get from one place to another. The recommendation was to make the purchase as soon as possible. To purchase the car, all the coworkers from the Ministry of Education's Educational Informatics Program and the Omar Dengo Foundation, collaborated to make it possible for us to buy it as soon as possible.

The day I bought the car, I phoned my home to tell my children that it was important for Adriana to use this type of car for her health. However, she didn't want to, as she had to be convinced. Her brothers did it and in front of her they "argued" about the car. Sergio wanted it and Rodolfo wanted it. Rodolfo did too. The performance of Sergio, 9 years old, and Rodolfo, 7 years old, could not have been better. When I arrived and took the car out, they got in it and went around the house, fighting for their turn. From one moment to another, Adriana claimed it as hers, and from then on, there was no adaptation problem, but rather the opposite. Her siblings were now able to take her everywhere without any problem and even played races with her and she laughed out loud.

At school, her classmates enjoyed taking her to one place to another and when she went to the restroom it was easier. Even at this time, she would let them know when she wanted to go to the restroom. Each time it became more and more difficult for Adriana to tell when she wanted to go to the restroom, so several times she peed in her pants and cried about it because she didn't like to be dirty. On the contrary, she was very flirtatious and liked perfumes and creams.

In the last days of November 1993, she had a seizure for the first time. We took her to the hospital, and the doctor's response was that it was normal, and that he didn't know why it hadn't happened before. She was medicated with carbamazepine, half a pill every 12 hours. However, a month later, she had an allergic reaction when she was given an antibiotic (Ospamax), so she was switched to Epamin, 1 every day. In the month of December 1993, Adriana had 7 convulsions, so Dr. Loría recommended us to give her 2 epamin, one in the morning and the other in the afternoon in order to diminish them, but not to completely make disappeared.

Reactions at home to seizures

This month of December seemed endless. When Adriana had a seizure, first her body would jump up and down, then she would foam or spit at her mouth, and her breathing was very agitated. We would sit her up, so she could cough and cough up the phlegm, and then she would fall asleep for an hour or two, as she would be totally exhausted. The maids would run away terrified, and my children would panic and call me because they didn't know what to do or how to control themselves. Thank God the seizures would come while she was in the car or lying down, so she never hit or fell.

I was initially very afraid and had no idea what I should or should not do. I asked my brother-in-law, who is a doctor, about what to expect about it, since the information I had about it was minimal. I had not inquired in depth about what might be coming next, perhaps out of fear or because I didn't want to increase my pain more than it already was. I remember that my husband once had the opportunity to visit the Weizmamn Institute in Israel, and he tried to find out about such disease or possibilities of a cure, but there was never any positive hope. My brothers-in-law took her to several doctors, but they could not do anything either, nor they would say anything.

Dr. Herberth Burgos (Adriana's uncle), who besides being a magnificent doctor and a human being of incalculable feelings, followed very closely the whole disease and warned me: "We should expect more convulsions, illnesses due to bronchitis as a result of the phlegm that it is accumulated, difficulty swallowing food. These children suffer respiratory insufficiency. The rest we will talk about it as it presents itself." I believe and thank him for his wise conversation, since he was telling me how I should prepare myself. However, he never alarmed me. He was always by my side to give me words of encouragement, even at times when I thought I could not bear it anymore.

All of us in the house were learning to care for Adriana's seizures. Anny, the eldest, would call us in the early morning and we already knew what it was happening; Adriana had another convulsion. We prayed, helped her to relax her muscles, and let her rest. We would comfort Anny and we would go to sleep again with our hearts in our hands and with a big doubt: What's next? We asked God, how long this nightmare would be over. What we didn't really know, was that the last year of the greatest suffering was just beginning.

Eleventh year

The year 1994 began. Adriana had spent January and February very well; the seizures did not occur again. She was very tall, but she had lost a lot of weight. When she ate, she coughed too much and threw up her food, so I made the decision to liquefy her food and not to give her very solid things, even though she loved to. When someone gave her something without consulting us, she would quickly put it in her mouth, so we wouldn't take it away from her.

At the Cerebral Palsy School

The month of March was approaching, and we had to make a decision about what would be the best educational option for Adriana. Would Adriana go to school this year and how? The biggest difficulty we saw was how far away the school's restroom was from the classroom. We didn't know how to get there. Moreover, we didn't know how the teachers would take the fact that Adriana was convulsing, how to deal with it, or if they would be prepared.

I called Gabriela Chacon, from the Cerebral Palsy School, who had worked with children with degenerative problems, and I told her about my anxieties, and the need I felt for Adriana to feel happy. She agreed to receive her and opened a place for her in one of the groups at the school. Consequently, she started her lessons in high school clothes and not in school clothes, with a group of 6 teenagers who were suffering from paralysis and who were in a project called "Quality of Life."

In this school, she received, as in the other educational institutions, a lot of love and understanding. She integrated happily, full of encouragement; even though, her body was telling her every day that she was deteriorating more and more. She received physical

therapy every two weeks. When she was in good health, she did all the exercises. However, when she had convulsed the night before or in the early morning, her level and rhythm were very low. Raul, the therapist, taught me how to perform the percussions on her back, front and side to decongest the loosen phlegm. She attended swimming lessons, with warm water, which she enjoyed a lot and laughed. She liked the pool. In class, they did arts and crafts, games, pirouettes, they dressed up and took them shopping to the supermarket, so that they could see all the nice things that were there.

Time to suspend my work

Up to this point, I had continued to work, but as Adriana's health became more serious, in relation with accumulation of phlegm, difficulty in swallowing, fevers and convulsions, it was necessary to be by her side and offer her everything she needed.

In the month of May 1994, Adriana had convulsions every night, and she was bleeding from her nose. Moreover, on May 21, she had a crisis of 5 consecutive convulsions, one every two hours. I thought that I was going to lose her. Her body was exhausted, she was like a jelly, she also had a severe bronchitis. Because of all the above and with the great help of Virginia Leitón and Roberto León, I was given a permission to stop working and to take care of my daughter day and night, for the next seven months. Only God knew what was coming. The crisis in Adriana's health increased abruptly, there was no morning, no afternoon, no night when something would not happen.

She was nebulized in the morning and in the afternoon with 2 cc of saline solution and 1 cc of salbutamol. Then she was given a percussion for 15 minutes in different positions and at the end, we gave her a spoonful of honey with lemon, which caused her to cough a lot. In that way, she threw all the phlegm out and she could spend the day in quiet.

When the secretions were too much, a nebulization was applied in the afternoon. These nebulizations were applied by everyone in the house, from Rodolfo to my father. We all had learned how to use the equipment (nebulizer, mask, syringe, medication).

The convulsions were almost daily in the months of November and December 1994. I remember that her little brothers took them as part of what it was going on in Nana's "regular" life. We tried to bring down the fevers with water, ice, and acetaminophen. Antibiotics to attack respiratory infections varied, according to Harberth's medical recommendations, who kept track of which medicines were losing their effect and which ones to continue with. On some occasions, we had to change the medications because there was no change in the infections.

It is worth noting that, during this period, we preferred not to take Adriana to the hospital because we did not want to take the risk that different doctors start exploring with her. The help of a doctor who followed her trajectory, such as Herberth, facilitated the application of antibiotics, but not the reduction of her respiratory crises.

As for the emotional field, I feel that it was a great blessing from God, to have been able to be with my daughter giving her the security of knowing that I was close to her. It was seven months of preparation for both of us and for the rest of the family members.

One of the special things about our home, in these moments of pain and anguish, was to be able to talk, to support each other, to try to explain to each other what was going on, and how we should behave, so that Adriana would not notice that we were worried.

Perhaps, the most natural way to do this was reading biblical passages that comforted us and gave us encouragement and new strength. Then, each one of us would comment on what we understood God was saying to us, regarding to the moment we were living. We always ended up praying for her and with her, thanking God for those moments

when we still had her with us. Especially, because we didn't know how much time we had, but deep down we could feel that the candle was going out little by little.

I remember that on more than a few occasions, I ended up crying along with her (because when I cried, she preferred to be where she could not see me), and Adriana would run her little hand over my face and tell me: "Mommy don't cry, I'm fine." In those moments of pain, only God's ministration, praise, and Bible reading were our bread and butter for every moment we lived, to sustain us with strength to continue. However, we had one certainty, Jesus was with us and He loved my daughter, as He loves us all. He had given her to me, and she belonged to Him.

My daughter's suffering in silence, always with joy and a smile, were the greatest testimony of the fullness of the Holy Spirit in her life. Adriana was an angel of God on this earth. I received great support from my coworkers in the face of suffering, and although many times I did not know how to express my gratitude, I keep in my heart every word of encouragement, as well as material support when medical expenses required it.

The crisis is worsening

From July to December, there were frequent bronchial infections, the convulsions were already part of every day, and the fever went up and down. Adriana started using disposable diapers because she no longer had sphincter control. However, she was aware of everything. She would tell when she was urinating. She couldn't stand when she had defecated; therefore, she would communicate it to us, so we could clean her up. If she was hungry, she would call "Mommy" or say "more" when she wanted to eat more.

In the last two months, she hardly spoke at all. The only thing she did, was that when she prayed at night, she would say an audible and clear phrase: "Jehovah is the

strength of my life" and "I can do everything in Christ who strengthens me." She hummed the songs of praise to God and her body moved all over with the music. Her eyes reflected an incomprehensible joy and happiness, as if she was enclosed in that body when her soul and spirit wanted to fly and dance for God. In church, her joy was greater, when we told her about going to the temple, it flooded her spirit, and her face reflected an immense desire.

In the midst of this spiritual fullness, her body could not take it anymore. When we bathed her, she did not have strength to hold herself up, so we had to buy a plastic chair with arms to hold her up. While I was drying and dressing her, she was slept. If I said something funny, she made a half laughed and continued to snooze.

When I took her to school, I would sing songs of praise to God in the car and she would smile. She also used to sing some of them, but at the end of the year, in November, she only fell asleep and woke up when she got to school. By the time she got out of school, she was already very tired and would lie down on the couch of the car. Sometimes, if I offered her an ice cream, she would wake up and eat it all and then, we went back home.

Her meals were totally liquefied. The time she took for lunch was now almost two hours, between coughing and swallowing. The doctor suggested that I put her on a sponge to feed her, but I couldn't do that to my daughter who loved to eat and was aware of everything that was going on. I preferred that, even if it took too long, I would do it the way she liked it, and so it was until the last of her days.

The school year ended, and Adriana had lost a lot of weight, she was almost bony. We put foam on her bed, so that her skin wouldn't break. We did the same in the bathroom. Sergio stood her up from time to time, so that she could walk a little and so, her muscles and skin would rest from being in just one position. She enjoyed it when her father played music and danced with her on his arms.

In the month of September, we got in touch with the Association for Children with Progressive Illnesses (APRONEP), and I began to work with them, especially with the desire to find out what mothers with similar problems were doing. Talking with other people who had children alive or already dead, gave me strength and security in the face of crisis. Moreover, it allowed me to understand what it was happening with these children. I was able to see children with tubes to breathe and eat. Some could not see; others were not even aware of what it was happening to them. Then, I learned to give greater thanks to God, because he had had mercy on us. Because in the midst of suffering, Adriana had not had to be subjected to that. She saw, heard, thought, spoke from time to time. She never lost her sense of reality, nor of joy.

The delivery Handing Over

By December "Nana," as we affectionately called her, was fading away. In our prayers and moments of biblical reflection as a family, I had begun to read Bible passages to them about dying with Christ and what life after death would be like, as there is a place with no pain, no sickness, where all would be joy and praise to God.

God had spoken to me through various people that my daughter would be leaving soon. I talked with my husband about what I felt in my heart, as I could see her leaving my hands. We began to pray in a different way: “God, may your will be done, if you wish to heal her, you are powerful, but if you wish to take her to your presence, I give her to you, but please do not make her suffer any more, have mercy on her."

My husband, my children, and I have always been together in good and in bad times, that strengthened us, as well as the prayers of family and friends who were there when needed.

I remember that on Christmas night, we prayed together with her while she was falling asleep, she was too tired. We prayed to God for her, for us, and we gave thanks that He had lent her to us so far. In the last days of December, we went with her to the beach, to Isla de Damas, where my father lived, since that was a warm and isolated place where we could rest and be together as a family, close to nature and God. She was very happy. Moreover, the warm weather was good for her health. We welcomed the New Year in the house. Adriana was very well, she looked cheerful, she did not cough so much, she did not have temperature or convulsions during her stay in the island.

January 1995

Twelfth year

On January 4, Adriana turned 12. This mark seven years of illness. We made her a cake, and though her a little party like every birthday. She enjoyed it very much. On January 11, we left for Liberia to spend a few days at the beach, because Adriana had enjoyed the hot weather. That Wednesday, we arrived at my brother Alberto's house. We stayed there to go to the sea the next day. Before going to sleep, we nebulized her and then we percussed her to extract phlegm, as was the custom before putting her to bed. During the night, Adriana had high temperature as usual in the last months, it went up and down. The doctor said that this uncontrolled temperature was normal in this type of illness, so we attended to her discomfort until the fever went down. Then, she slept peacefully in the middle of Sergio and I.

On January 12, Adriana woke up fine. She only had difficulty defecating. Sergio and Anny Maria were with her in the bathroom trying to get her to defecate, but since they couldn't get her to do so, I went in with her and said: my beautiful girl, I'm going to put my

hand on your stomach, and you are going to push hard. I did all the mimicry and she managed to defecate.

Since she had no fever, we decided to visit Nacascolo Beach, in the Papagayo Gulf, to continue with everyone's vacation. When we arrived, we were impressed of the majesty of the nature. Therefore, we stopped the car to admire the scenery: it was as if God had selected the most beautiful place in the world to say goodbye to Adriana.

The beach was deserted, only one guard was in an old house. A large number of parakeets were climbing up and down a tree. Sergio carried Adriana and took her to the tree, so she could see them. Then, we sat her in front of the sea, while we set up a tent for her to rest after lunch.

Rodolfo, Sergio, and Anny went into the sea, and she smiled as she watched them. The sun was shining, and it was warm.

I invited Adrianita to go into the water. She first said no with her finger and then yes, when she saw her siblings. Sergio picked her up and we took her to the sea. Little fish passed between her legs; her little brothers played with her. Sergio and I held her because she moved a lot playing and laughing. Suddenly, she started shivering from the cold and we took her out to the sand, so the sun could warm her up.

Rodolfo, who was eating, approached her and she stretched out her hand to eat. I asked the time, and it was 12:30, the time she always ate. I brought her a "hot dog" and gave her a piece of bread. Then, she desperately took a big piece. When I saw that she didn't swallow it. I decided to take it out of her mouth, but she didn't spit it out, until we put her on her stomach and spit it out. However, the effort to get it out was too much. She began to breathe with difficulty. We took her out of the beach and a nurse, who arrived at

that moment, told us that she was in respiratory distress and that we should take her to the nearest hospital, so we went to the Liberia Hospital in Guanacaste.

We took her by boat to Playa Hermosa, where an ambulance was supposedly waiting for us. Anny Maria and I gave her mouth-to-mouth resuscitation and prayed to God that she would recover. I carried her in my arms all the way imploring God for her. When we arrived at the beach, there was no ambulance there, and the boat could not reach the shore; so, a motorboat brought us to the shore and some boys took us in a car to the hospital. That car seemed to fly, but the minutes ticked by very slowly. Anny couldn't stop crying.

I saw my daughter slipping from my hands and I prayed: "Lord, my daughter is yours, you gave her to me, if it is your will send your Holy Spirit to heal her, but if you want her to come into your presence God, I give her to you." I clasped her in my arms more fiercely than ever, I kissed her and said good-bye. Then, when I checked her eyes, my daughter was gone. Now she was well, she was in the presence of God, free, running, jumping, singing, as she could not be on earth.

Separating from someone very dear to you is very hard and today, several months after her departure, many tears are still to come. However, there is a great consolation, a great hope: she is better than ever, and we all keep the hope that one day we will be with "Nanita," together with the Lord to worship Him for eternity.

What about their departure?

For us parents, who have seen one of our children depart from this earth, I must tell you that the pain is immense, nothing will be able to restore that child who has departed to the presence of God, because I believe so according to the Bible. Nonetheless, we must

continue to live, it is indispensable. Thus, as we overcame so many crises that we thought we could not, we will overcome this one, because we are more than conquerors in Jesus Christ.

He will give us the strength to continue fighting for others as long as we are on this earth. Maybe those others are your own children, perhaps your spouse, and if they are not, there are still many others who are not yours, who also need you.

From that experience that you have been able to go through with the pain of childbirth and that will give birth to understanding and love for others who are just beginning. Just stretch out your hands, which in many places are being in need (*).

Author: Anny González Gairaud, Adriana's mother and teacher by profession

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Letter written by Rodolfo (her 9-year-old brother), one month after Adriana's departure.

San José, Costa Rica

When I went to the beach

I was on the beach making a hole in the sand. Suddenly, I saw my dad and my mom with Adriana in their arms. I said to my mom: "What's wrong with Nanita? and she told me she was choking on a piece of sausage. Then, they took her away by boat, while we were in the car. When we arrived at Playa Hermosa, the cupbearer told us that they had taken her away in a red car. Then, we went to Liberia's Hospital. That was, for all of us, the most painful moment, because we were told that my dearest sister had died.

When I saw her, I was crying, and it was not of sadness, but of happiness because now I know that now Nanita is watching us from up there and I know that she is now happier than ever singing to Jesus Christ.

Where to seek for support

APRONEP (Association for children with progressive or rare degenerative diseases (Niemann-Pick, Batten, Leukodystrophies, Ataxia Telangiectasia, Rett's Syndrome, Hypophosphatemic Rett Syndrome, Hypophosphatemic Rickets, Huntington's Chorea,

Menkes, Duchenne Muscular Dystrophy, Wilson, Hunter, among others), is one of the places that are waiting for you to offer you a hand, experience and practical knowledge that can support you and your affected children. You can contact APRONEP, through:

Email Address: apronep89@gmail.com

Phone number: (506)8512-7272

Website: www.apronep.com

Facebook: apronep

CHAPTER V

DATA ANALYSIS

This chapter will present the data analysis performed by the researcher. In research like this one, data analysis is vital since it allows the researcher to obtain information that can be useful for future work. In this case, the process of analysis and data collection relies on the instruments selected by the researcher. To select these instruments, the researcher followed the example of Peter Newmark. Since this research focused on translation, the instruments for data collection had to be related to the main topic of the investigation.

5.1.Analysis and interpretation of the results

The researcher used text analysis charts, color coding, and glossaries as instruments for data collection in this research. This section will show how the researcher used these instruments.

Table 4. Text Analysis Chart

Text Analysis	Translation from English into Spanish	Translation from Spanish into English
Text Style	Description	Narrative
Scale of Formality	Formal	Colloquial
Scale of Generality	Technical	Popular
The Scale of Emotional Tone	Factual	Warm
Text Function	Informative	Narrative
Type of Translation	Semantic Translation	Semantic Translation

Table 4 States the text analysis carried out to the documents under study. Researcher's creation

Table 5. Color Coding

Transposition
Modulation
Literal Translation (Red Font)
Equivalence
Explicitation
Amplification (Pink Font)
~~Omission (~~Crossed Red Font)

Table 5 provides the colors used during the color coding to analyze the documents under study.

Researcher's creation

5.1.1 Translation from Spanish to English

Este relato cuenta la historia verdadera de una niña que pasó por esta tierra un corto período de tiempo: Adriana Vanessa Calvo González. Adriana es la segunda de cuatro hermanos y cuando partió a la presencia del Señor a la edad de 12 años, su hermana mayor Anny, tenía 15 años, Sergio 11 y Rodolfo 9. Sus padres Sergio Calvo Vargas y Anny González Gairaud, jamás imaginamos la bendición que Dios nos había conferido al concebir una niña que iba a entregar por completo su vida, para testimonio de Él. Abrir nuestro corazón para compartir las experiencias de Adriana entre nosotros, tiene como propósito~~, el~~ dar aliento a otros padres con dificultades y retos semejantes. Y especialmente, ~~procurar~~ dar testimonio que aún en los momentos difíciles~~,~~ siempre hay esperanza: Jesús está con nosotros. Él nos ayudará a comprender la necesidad del otro, quien quiera que fuese, en ~~los~~ instantes de dolor, de gozo… en cada instante de vida.

This story tells the true story of a girl who passed through this land for a short period of time: Adriana Vanessa Calvo González. Adriana is the second of four siblings and when she left for the presence of the Lord at the age of 12, her older sister, Anny, was 15 years old, Sergio 11 and Rodolfo 9. We, her parents, Sergio Calvo Vargas and Anny Gonzalez Gairaud, never imagined the blessing that God had bestowed on us by conceiving a child who was going to give her life completely to bear testimony to Him. To open our hearts to share Adriana's experiences among us, has as a purpose to give encouragement to other parents with similar difficulties and challenges. And especially, to give testimony that even in difficult moments there is always hope: Jesus is with us. He will help us to understand the need of the other, whoever he or she may be, in moments of pain, joy... in every moment of life.

Le llamo ~~así~~ a mi hija Adriana "Un Ángel", pues en su corta existencia siempre fue de testimonio, fortaleza y alegría para quiénes estuvimos cerca de ella. ~~En~~ este libro ~~se~~ recogen las experiencias que se dieron en la vida de una niña que fue Un Ángel de paso en esta Tierra. Adrianita nació en un frío 4 de enero de 1983 a las 3:20 p.m., después de un embarazo de 9 meses, los cuales transcurrieron ~~de manera~~ natural. Se puede decir que fue un embarazo muy tranquilo. El examen que le hicieron al nacer, APGAR fue ~~de~~ 9.9. Su peso fue ~~de~~ 3220 gramos y su talla de 52 cm. Podría decirse que era una niña gordita y comelona. Se alimentó del pecho durante 6 meses y posteriormente empezó a comer alimentos sólidos variados.

I call my daughter Adriana "An Angel," because in her short existence she has always been of testimony, strength, and joy for those who we were close to her. This book collects the experiences that took place in the life of a girl who was an Angel passing

through this Earth. Adrianita was born on a cold January 4, 1983 at 3:20 p.m., after a 9-month pregnancy, which passed naturally. You can say that it was a very calm pregnancy. The test they did at birth, APGAR, was 9.9. Her weight was 3220 grams, and her height was 52cm. It could be said that she was a chubby little girl and a big eater. She was breastfed for 6 months and then, she started eating a variety of solid foods.

~~Al~~ año exacto empezó a caminar solita, ~~de manera normal~~ como lo hacen los bebés, corriendo, tropezando y volviéndose a levantar. Tenía las rodillas muy juntas y de vez en cuando se caía, por lo que el médico general la refirió al CENARE (Centro Nacional de Rehabilitación), donde se nos indicó al año y 6 meses que debía utilizar zapatos ortopédicos, porque tenía pie plano. Para esta época era muy gordita y le gustaba correr y hablar mucho: Todo lo preguntaba. En enero ~~de~~ 1985, Adriana continuaba cayéndose y le revisaron nuevamente los pies. ~~El~~ doctor ~~le~~ recomendó agregar a su zapato un abultamiento para que se volvieran hacia fuera. En mayo, fue llevada a la clínica por amigdalitis, pero su infección pasó rápido. Por lo demás, ese año transcurrió muy sana, siempre alegre, le encantaba cantar en la iglesia y en todo momento y lugar.

Exactly one year later, she began to walk on her own, just as babies do, running, stumbling, and getting up again. She had the knees very close together and from time to time she fell. Therefore, the general practitioner referred her to CENARE (National Rehabilitation Center), where we were told at one year and 6 months that she had to wear orthopedic shoes, because she had flat feet. At that time, she was very chubby and she liked to run and talk a lot: She asked everything. In January 1985, Adriana continued to fall and her feet checked again. Her doctor recommended adding a bulge to her shoe to turn them outward. In May, she was taken to the clinic for tonsillitis, but her infection passed quickly.

For the rest, that year she was very healthy, always happy, she loved to always sing in church and everyplace and anytime.

En 1986 tuvo otra cita de control de ortopedia y el doctor ~~le~~ recetó de nuevo los zapatos ortopédicos. Con solo 3 años de vida, quería ~~que~~ sus zapatos tuvieran lacitos y no deseaba que fueran de bota, ~~sino~~ como los de las otras niñas. Disfrutaba jugando a vestirse ~~de grande~~, y le gustaba pintarse la cara. Adriana no manifestaba ninguna alteración física, ni mental, que no fuera el problema ortopédico de los pies. En 1987, su salud estuvo muy bien, le fascinaba dar la vuelta a las canchas de juego corriendo y hacía competencias con sus hermanos. Nos llamaba la atención, que en ocasiones se le daban objetos para que los llevara de un lado a otro y se le caían a medio camino. Como si se le resbalasen, pero todo lo arreglaba con una sonrisa.

In 1986, she had another orthopedic check-up appointment, and the doctor prescribed the orthopedic shoes again. With only 3 years of life, she wanted her shoes to have little bows on them and she did not want them to be that kind of "boots." She wanted them like the ones other girls wore. She enjoyed playing dress-up and liked to paint her face. Adriana did not manifest any physical or mental alteration, other than the orthopedic problem with her feet. In 1987, her health was very good. She was fascinated by running around the playgrounds and she used to do competitions with her siblings. We were struck by the fact that sometimes she was given objects to carry from one side to the other and she would drop them in halfway. It was as if they slipped, but she fixed everything with a smile.

En 1988 ingresa con sus hermanitos, Sergio y Rodolfo, a la guardería del Estado, conocidas normalmente como CEN-CINAI. Sus hábitos de aseo dejaban mucho que desear,

siempre llegaba con la ~~gabacha~~ llena de pintura, comida. Parecía como si todas las cosas debían pasar primero por la ropa y posteriormente llegar a su destino. Los trabajos manuales siempre eran terminados. Sus maestras comentaban la alegría con que participaba en las actividades, ~~la~~ atención ~~con que~~ escuchaba las historias bíblicas y el entusiasmo que ponía en las canciones que cantaba. Amaba bailar y se sentía muy triste cuando algún niño estaba enfermo. Oraba en las noches por los niños que sufren. Recuerdo que les tenía temor a los niños con problemas físicos y me abrazaba cuando los veía. Empezamos a notar que, al caminar, Adriana pegaba con los objetos que estuvieran a su paso, como si no supiera calcular por donde pasaba.

In 1988, she joined her little brothers, Sergio and Rodolfo, to the State daycare center, known as CEN-CINAI. Her grooming habits left a lot to be desired, she always arrived with the clothes full of paint and food. It seemed as if all things first had to go through her clothes and then reach their destination. Her manual work was always finished. Her teachers commented on how joyfully she participated in the activities, how attentively she listened to the biblical stories, and the enthusiasm that she put into the songs she sang. She also loved to dance and felt very sad when a child was sick. She prayed at night for the children who were suffering. I remember that she was afraid of children with physical problems, and she hugged me when saw them. We began to notice that, when walking, Adriana hit the objects that were in her path, as if she did not know how to calculate where she was passing.

Las maestras de la guardería, como a mediados del año, nos informaron que con frecuencia se le caían los objetos que se le daban, pero que los recogía y seguía trabajando. Una de las características importantes de este año fue su excelente apetito y radiante salud.

Le gustaba conversar con todas las personas que le rodeaban, aún con los que no conocía muy bien. Era muy cariñosa con los demás niños, ~~al igual que~~ con el resto de los miembros de la familia. Disfrutaba mucho: estaba siempre riendo. En noviembre de ese año la llevamos al Hospital de Niños con ~~una~~ amigdalitis y fiebre muy severa. La doctora que la atendió, (Doctora Olga Arguedas Arguedas), nos preguntó que si habíamos observado que Adriana bajaba la cabeza ~~de un golpe~~ y luego la volvía a levantar. Le comentamos que lo habíamos notado, pero no le dábamos importancia.

During mid-year, the kindergarten teachers informed us that she frequently dropped the objects that were given to her, but she picked them up and continued working. One of the important characteristics of this year was her excellent appetite and radiant health. She liked to talk to all the people she met, even with those she did not know very well. She was very affectionate with the other children, and with the rest of the family members. She enjoyed herself very much: she was always laughing. In November of that year, we took her to Children's Hospital with tonsillitis and very high fever. The doctor who treated her (Doctor Olga Arguedas Arguedas), asked us if we had observed that Adriana lowered her head and then she would raise it again. We told her that we had noticed it, but we did not give it any importance.

Entonces ella sugirió efectuarle una serie de exámenes clínicos inmediatamente: Tomografía Axial Computarizada (TAC), Electroencefalograma (ECG), Punción lumbar, exámenes de sangre, Fondo de ojo y ~~de~~ oído y que debíamos internarla para realizárselos. A partir de este momento sentimos una gran ansiedad por saber qué ~~tenía~~ Adriana y por qué le enviaban tantos exámenes en tan corto tiempo. Sergio me decía que debía ser algo grave, yo le dije que confiáramos en Dios, que no nos adelantáramos a ~~lo que no sabíamos~~.

Conociendo a nuestra hija, que no le gustaba para nada ir al hospital, porque le daba temor, conversamos con la doctora, la posibilidad de llevar y traer a Adriana todos los días, para que le hicieran los exámenes, ~~a lo que~~ ella aceptó.

Then, she suggested performing a series of clinical examinations immediately: Computerized Axial Tomography (CT), Electroencephalogram (ECG), Lumbar puncture, blood tests, eye and ear fundus, and that we should admit her into the hospital for these tests. From this moment, we felt a great anxiety to know what was wrong with Adriana and why they sent to her so many tests in such a short time. Sergio told me that it must be something serious. I told him that we needed to trust in God and that we should not jump to any conclusion. Knowing our daughter, who did not like at all going to the hospital because she was afraid, we discussed with the doctor, the possibility to take Adriana and bring her back every day for the tests. She accepted.

Posterior a esta serie de exámenes se nos citó a la sección de Neurología del Hospital Nacional de Niños, con el doctor Loría, quien muy fríamente nos dijo: “Les tocó bailar con la más fea”. Uno de los exámenes realizados, el de la punción lumbar, detectó escasas células espumosas en el líquido encéfalo raquídeo. Eso significaba que estábamos frente a una enfermedad ~~de depósito o~~ degenerativo-progresiva, la cual parecía tener todos los síntomas de un Niemann Pick. Por primera vez en la vida escuchábamos mi esposo y yo, que existieran este tipo de enfermedades. Nuestra primera búsqueda de esperanza y cuestionamiento fue: ¿Existe cura?, ¿Qué debemos hacer? Las respuestas del médico fueron rotundas y cortantes: “Hasta el día de hoy no hay nada que la pueda detener… y el desenlace es fatal.”

After this series of examinations, we were summoned to the Neurology section of the National Children's Hospital, with Dr. Loría, who very coldly told us: "You had to dance with the ugliest." One of the tests performed, the lumbar puncture, detected scarce foam cells in the cerebrospinal fluid. That meant that we were in front of a degenerative-progressive disease, which seemed to have all the symptoms of a Niemann Pick disease. This was the first time in our lives, we heard this type of disease existed. Our first search for hope and questioning was: Is there a cure? What should we do? The doctor's answers were blunt and cutting: "To this day there is nothing that can stop it... and the outcome is fatal."

A partir de ese momento la vida de nuestro hogar sufrió un cambio radical. Sergio y yo sufríamos por dentro un dolor que solo Dios podía aplacar, sólo Él en los días de angustia estaría para decirnos: Yo estoy con ustedes y no los dejaré." Mi madre y mi esposo lloraron toda la tarde, censuraron mi actitud de ir a trabajar. Pero mi determinación era radical: lucharía hasta el final con fe. Llorar no me daría la solución. Tendríamos que seguir viviendo y vivir cada día que Dios nos la preste dándole gracias por ese nuevo amanecer. No deberíamos dejarnos vencer. No podríamos hacer ~~de la~~ vida una angustia. En el momento en que se les comunicó a las maestras de la Guardería del dictamen ante el que estábamos, encontramos muy distintas reacciones. Algunas de ellas lloraron y tendieron a protegerla y otras nos comunicaron su temor de mantenerla en la Guardería.

From that moment on, the life of our home underwent a radical change. Sergio and I were suffering from within a pain that only God could appease. Only Him could be there in the days of anguish to tell us: "I am with you and I will not leave you." My mother and my husband cried all afternoon, they censured my attitude of going to work. However, my

determination was radical: I would fight to the end with faith. Crying would not give me the solution. We would have to go on living and live each day that God would lend her thanking Him for this new dawn. We should not let ourselves be defeated. We should not make life an anguish. At the time when the daycare teachers were informed of the decision we were facing, we found very different reactions. Some of them cried and tended to protect her, and others told us they were afraid to keep her in the day care center.

Quizá este fue uno de los golpes más duros para ella. ¿Cómo decirle o explicarle a la niña que debería dejar un lugar en el que le encantaba estar? No podía hacerlo. No había razón para ~~hacerlo.~~ Busqué un apoyo médico que respaldara mi decisión de que permaneciera ~~haciendo~~ su vida lo más normal posible. ¡No podía entender el egoísmo de la gente! Conseguí que Adriana ~~estuviera~~ en la institución durante todo el año siguiente, haciendo su preescolar como cualquier otro niño. Recuerdo que en una ocasión la directora de la Guardería me llamó y me dijo que cómo iba a ir a la escuela, ~~con título de Kínder~~, una niña que tenía tal problema motor (porque para finales de 1989 la motora fina empezaba a manifestar dificultades).

Perhaps this was one of the hardest blows for her. How to tell or explain to the child that she should leave a place she loved to be? I couldn't do it. There was no reason to. I sought medical support to back up my decision to keep her life as normal as possible. I couldn't understand people's selfishness! I succeeded in keeping Adriana in the institution the following year, doing her preschool like any other child. I remember that on one occasion the principal of the day care center called me and told me that how could a girl who had such a motor problem could be able to go to school (because by the end of 1989, the fine motor skills were beginning to show difficulties).

Mi respuesta fue cortante y tal vez ~~a la~~ defensiva porque necesitaba proteger la estabilidad emocional de mi hija: “No se preocupe por ella académicamente, que ya habría tiempo para eso en el futuro. En todo caso lo que más me interesa es que ella sea feliz, no la cantidad de conocimiento para el primer grado ~~escolar~~.” Me preocupaba su calidad de vida, su felicidad y su estabilidad emocional. En los meses de abril y setiembre ~~de~~ 1989, llevamos a nuestra niña a sus citas en neurología. Pasó de nuevo por un encefalograma y los resultados fueron normales. También los exámenes de sangre estaban bien. ~~Veíamos como~~ la salud de Adriana estaba estable y queríamos creer que se había detenido su enfermedad. Sin embargo, la actitud del Neurólogo nos desconcertó y enfadó. Sin siquiera observar a Adriana en la consulta médica dijo: “Bueno, ya ustedes saben cuál es el diagnóstico, tráiganla en 6 meses, o, ¿Tienen algo qué decir?

My response was sharp and perhaps defensive because I needed to protect my daughter's emotional stability: "Don't worry about her academically, there will be time for that in the future. In any case, what I am most interested in is her happiness, not the amount of knowledge for the first grade." I was concerned about her quality of life, her happiness, and her emotional stability. In the months of April and September 1989, we took our child to her neurology appointments. Again, she underwent an encephalogram, and the results were normal. The blood tests were also normal. Adriana's health was stable, and we wanted to believe that her disease had stopped. However, the neurologist's attitude puzzled and angered us. Without even observing Adriana in the doctor's office, he said: "Well, you already know the diagnosis, bring her back in 6 months, or do you have anything to say?”

Fue entonces cuando decidimos buscar otra esperanza y renovar nuestra fe. Visitamos a un médico Naturalista. Después de revisar a Adriana preguntó por su alimentación y sugirió eliminar hasta donde fuera posible las carnes rojas. Nos habló de la importancia de ~~fortalecer~~ su dieta con vegetales, frutas, verduras ~~y~~ aplicarle unas cataplasmas de barro o arcilla en el abdomen, para extraer del interior de su cuerpo todo tipo de infección. Uno de los médicos nos había hablado sobre el Niemann Pick. Este consistía en una acumulación de lípidos (grasas), que el organismo no las podía degradar por falta de una encima. Basado en este punto, este médico naturalista nos informó que las grasas animales ~~hacían~~ daño al organismo. Nos pidió fortalecer su dieta con leche de soya y embutidos de soya (salchichas y mortadela).

It was then that we decided to look for another hope and renew our faith. We visited a Naturalist doctor. After examining Adriana, he asked about her diet and suggested eliminating red meat as much as possible. He told us about the importance of her diet, as she had to eat vegetables, fruits, greens. Besides, he told us to apply some mud or clay poultices to her abdomen, to extract from inside her body any type of infection. One of the doctors had told us about Niemann Pick. It consisted of an accumulation of lipids (fats), which the organism could not degrade due to the for lack of an enzyme. Based on this point, this naturalist doctor informed us that animal fats were harmful to the organism. He asked us to strengthen her diet with soymilk and soy (sausages and bologna).

Darle pollo y pescado en ciertas ocasiones. Recomendó un jugo diario compuesto por zanahoria, pepino, remolacha, apio y diente de león. Todo debía estar crudo y pasado por el procesador de alimentos para que la niña se nutriera con toda la fibra posible. Oramos juntos con el médico, para que sobre todo tuviéramos fe, en que se haría ~~primero~~

~~que todo~~ “la voluntad de Dios” y que su vida estaba en sus manos. Y todos en la casa cambiamos de dieta. Era importante que Adriana no se sintiera diferente ante los demás hermanitos, así que decidimos que como la alimentación sugerida por el médico era nutritiva, todos desayunaríamos este jugo y de la dieta familiar casi se eliminó la carne de cerdo y de res.

Give her chicken and fish on certain occasions. He recommended a daily juice composed of carrot, cucumber, beet, celery, and dandelion. Everything had to be raw and put through the food processor, so that the child would be nourished with as much fiber as possible. We prayed together with the doctor, so above all we had faith that "God's will" would be done and that her life was in His hands. And everyone in the house changed their diet. It was important that Adriana did not feel different from her other siblings, so we decided that since the diet suggested by the doctor was nutritious, we would all have this juice for breakfast and thus, pork and beef were almost eliminated from the family’s diet.

Por otro lado, mientras la llevábamos al naturalista, también iniciamos un tratamiento con homeopatía para evitarle a Adriana resfríos, acumulación de flemas y para ayudarle a mantener el equilibrio, el cual iba perdiendo notablemente. ~~La~~ homeopatía ~~le fue suministrada~~ por dos años seguidos. Al final de su vida, ~~cuando se presentaban crisis de constantes~~ bronconeumonías, resfríos y flemas, también recurrimos a la homeopatía. En 1990 era ~~el~~ momento de ingresar a la escuela. Sabíamos que Adriana requería atención individual, pues su coordinación motora gruesa y fina se deterioraba ~~cada vez más.~~ Además, Adriana perdía fuerzas. Ingresó a la Escuela Virgen de Guadalupe, donde se nos había informado que el grupo de primer grado contaría con 9 niños y la atención que se le daría sería individualizada.

On the other hand, while we took her to the naturalist, we also started a treatment with homeopathy to prevent Adriana from catching colds, accumulation of phlegm, and to help her maintain balance, which she was losing noticeably. She received homeopathy for two years in a row. At the end of her life, when she was suffering from bronchopneumonia, colds and phlegm, we also resorted to homeopathy. In 1990, it was time for her to enter school. We knew that Adriana required individual attention, since her gross and fine motor coordination was deteriorating. In addition, Adriana was losing strength. She was admitted at Escuela Virgen de Guadalupe, where we had been informed that the first-grade group would have 9 children and the attention she would be given would be individualized.

La institución estaba cerca de nuestra casa y el horario de atención era de 7:00 a.m. a 1:00 p.m., lo que era muy cómodo para llevarla y traerla. Tuvimos que cambiar a Anny María, la hermana mayor para esta escuela, para que acompañara a su hermanita. En esta escuela los estudiantes aprendían inglés, lo cual favorecía a Anny. De esta forma conversamos con Anny y ambas niñas viajaban juntas. Sin embargo, esta situación ~~se~~ mantuvo solo por tres meses, pues al iniciar las clases el grupo de Adriana tenía 25 niños, en lugar de los 9 ~~que inicialmente había~~. Las metas de la escuela cambiaron. Acumular la mayor cantidad de conocimientos parecía ser la prioridad, y ~~en poco tiempo~~ ya no había espacio para las diferencias individuales.

The institution was close to our home and the hours of attention were from 7:00 a.m. to 1:00 p.m., which was very convenient to bring her to and from the facility. We had to change Anny Maria, the older sister to this school to accompany her little sister. In this school, the students learned English, which favored Anny. In this way, we talked with Anny and both girls traveled together. However, this situation lasted for only three months

because at the beginning of the school year, Adriana's group had 25 children, instead of the original 9. The school's goals changed. Accumulating as much knowledge as possible seemed to be the priority, and there was no longer room for individual differences.

5.1.2. Translation from English to Spanish

Firefighters from Tinker Fire and Emergency Services responded to an in-flight emergency on an F-15 with low fuel. All standby vehicles were in position approximately ten minutes prior to aircraft arrival. The aircraft made a quick and low approach, dipping its wings back and forth to compensate for the 35 mph (55 km/h) crosswind. The aircraft engaged the approach runway barrier system ~~and~~ slid to the left of the runway into the airfield, catching fire. ARFF crews inmmediately responded and quickly extinguished the fire under the aircraft and surrounding Grass. The fire was confined to a small area under the aircraft and ~~fire~~ damage ~~was~~ limited scorched paint. The pilot shut down the aircraft self-eggresed. ~~He~~ had ~~run~~ ~~approximately~~ 100 feet (30 m) ~~away~~ from the aircraft.

Los bomberos de Tinker Fire and Emergency Services respondieron a una emergencia en vuelo de un F-15 con poco combustible. Todos los vehículos de reserva estaban en posición aproximadamente diez minutos antes de la llegada de la aeronave. La aeronave realizó una aproximación rápida y baja, inclinando sus alas hacia delante y hacia atrás para compensar el viento cruzado de 35 mph (55 km/h). La aeronave se enganchó en el sistema de barrera de la pista de aproximación; se deslizó hacia la izquierda de la pista hasta el aeródromo y luego se incendió. Los equipos de extinción de incendios (ARFF por sus siglas en inglés) acudieron de inmediato y extinguieron rápidamente el incendio bajo la aeronave y la hierba circundante. El fuego se limitó a una pequeña zona bajo la aeronave y

los daños se limitaron a pintura quemada. El piloto apagó la aeronave y se eyectó fuera de la misma. Se había alejado unos 100 pies (30 m) de la aeronave.

The rescue crew caught up ~~with~~ the pilot, checked his condition, and transported him to the Airfield ~~Manager.~~ Once the pilot shut down the aircraft, no additional hazards existed. ~~The aircraft~~ was not equipped with munitions or flares, and ARFF crews left the ejection seat undisturbed. During the emergency, the Incident Commander was concerned with isolating the aircraft's power. The ARFF personnel were unfamiliar with the aircraft and were unaware that it did not have a battery or backup power system. ~~They~~ did not know that by shutting down the engines, no power remained to open the canopy and operate other essential safety systems. Personnel has to Access the technical order to discover this information. Although this aircraft was included in the department's annual training plan, it was not aasigned to the base and was considered transient.

El equipo de rescate alcanzó al piloto, comprobó su estado y lo trasladó hacia el aeródromo. Una vez que el piloto apagó la aeronave, no existía ningún peligro adicional ya que no estaba equipada con municiones ni bengalas, y los equipos ARFF dejaron el asiento eyectable intacto. Durante la emergencia, el comandante del incidente se preocupó de aislar la energía del avión. El personal de ARFF (Aircraft, Rescue and Firefighting por sus siglas en inglés) no estaba familiarizado con la aeronave y no sabía que no tenía batería ni sistema de alimentación de reserva. No sabía que, al apagar los motores, no quedaba energía para abrir la cabina y accionar otros sistemas de seguridad esenciales. El personal tuvo que acceder a la ficha técnica para descubrir esta información. Aunque esta aeronave estaba incluida en el plan de formación anual del departamento, no estaba asignada a la base y se consideraba transitoria.

ARFF responders must be capable of making ~~critical~~ decisions under adverse conditions. Tactical decision-making starts ~~upon~~ notification of an emergency and continues throughout the emergency operations. Scene size ~~up~~ and tactical decision-making will need to be implemented in seconds. These decisions include outside agency assistance, emergency medical assistance, and a variety of logistical needs. The best place to practice the decision-making process is in the training room prior to an incident. Strategies can be explored, plans can be set, checklists established, and tactics ~~can be~~ reinforced in a controlled environment. Response crews should conduct scenario-based training in an ~~effort~~ to obtain an idea of the challenges faced at a crash site. The general types of aircraft accidents and/or incidents with which ARFF personnel are confronted are in-flight emergencies or ground ~~emergencies.~~

El personal de ARFF debe ser capaz de tomar decisiones en condiciones adversas. La toma de decisiones tácticas comienza con la notificación de una emergencia y continúa a lo largo de las operaciones de emergencia. El tamaño de la escena y la toma de decisiones tácticas deberán implementarse en segundos. Estas decisiones incluyen la asistencia de agencias externas, asistencia médica de emergencia y una variedad de necesidades lógicas. El mejor lugar para practicar el proceso de toma de decisiones es la sala de formación antes de un incidente. Se pueden explorar estrategias, establecer planes, elaborar listas de comprobación y reforzar tácticas en un entorno controlado. Los equipos de respuesta deben llevar a cabo un entrenamiento basado en los escenarios con el objetivo de hacerse una idea de los retos a los que se enfrentan en el lugar de un accidente. Los tipos generales de accidentes y/o incidentes aéreos a los que se enfrenta el personal de ARFF son emergencias en vuelo o en tierra.

Airport fire departments ~~are required to~~ adopt and utilize an Incident Management System for their strategic and tactical operations. Following several terrorist incidents, the United States government mandated that all emergency services organizations use common terminology and command structures to improve their interoperability. Homeland Security Presidential Directive/HSPD-5 further stated that all state and local governments and tribal entitites must adopt the National Incident Management System (NIMS) in order to be eligible for federal funds. Consequently, airport emergency organizations must ensure that their command structure ~~will~~ interface with "outside" organizations during an emergency, as these outside organizations will most cerntainly adopt NIMS.

Los cuerpos de bomberos de los aeropuertos deben adoptar y utilizar un Sistema de Gestión de Incidentes para sus operaciones estratégicas y tácticas. Tras varios incidentes terroristas, el gobierno de Estados Unidos ordenó que todas las organizaciones de servicios de emergencia utilizaran una terminología y unas estructuras de mando comunes para mejorar su interoperabilidad. La Directiva Presidencial de Seguridad Nacional / HSPD-5 estableció además que todos los gobiernos estatales, locales y las entidades tribales deben adoptar el Sistema Nacional de Gestión de Incidentes (NIMS, por sus siglas en inglés) para poder optar a fondos federales. En consecuencia, las organizaciones de emergencia de los aeropuertos deben asegurarse que su estructura de mando interactúe con organizaciones «externas» durante una emergencia, ya que estas organizaciones externas adoptarán con toda seguridad el NIMS.

In March 2004, the U.S. government officially adopted the Incident Command System (ICS) as part of the NIMS. Additional information on the NIMS-ICS model and its

application may be found in the NIMS document itself and the Model Procedures Guide series developed by the National Fire Service Incident Management Consortium and published by Fire Protection Publications. NIMS-ICS is designed to be applicable to small, single-unit incidents that may last a few minutes to large-scale incidents involving several agencies and many mutual aid units that can last ~~for~~ days or weeks. Information regarding NIMS-ICS can be found on the NIMS website.

En marzo de 2004, el gobierno estadounidense adoptó oficialmente el Sistema de Comando de Incidentes (SCI) como parte del NIMS. Se puede encontrar información adicional sobre el modelo NIMS-ICS y su aplicación en el propio documento NIMS y en la serie de guías de procedimientos modelo, desarrolladas por el Consorcio Nacional de Gestión de Incidentes del Servicio de Bomberos y publicadas por Publicaciones de Protección Contra Incendios. El NIMS-ICS está diseñado para ser aplicable a incidentes pequeños, de una sola unidad, que pueden durar desde unos pocos minutos hasta incidentes a gran escala, en los que participan varias agencias y muchas unidades de ayuda mutua, que pueden durar días o semanas. Puede encontrar información sobre NIMS-ICS en el sitio web de NIMS.

NIMS-ICS combines command strategy with organizational procedures. ~~It~~ provides a functional, systematic organizational structure. The ICS organizational structure clearly shows the lines of communication and chain of command. NIMS-ICS is designed for single-agency or multiagency use, and it increases the effectiveness of command and personnel safety. The organizational design is applicable to all types of emergency and nonemergency events throughout the airport environment. ~~Under~~ NIMS-ICS, the transition from a small-scale to large-scale incident and/or multiagency operation requires minimal

adjustment for any of the agencies involved. The following components work together interactively to provide the basis for clear communication and effective operations:

El NIMS-ICS combina la estrategia de mando con los procedimientos organizativos. Proporciona una estructura organizativa funcional y sistemática. La estructura organizativa ICS muestra claramente las líneas de comunicación y la cadena de mando. El NIMS-ICS está diseñado para ser utilizado por un solo organismo o por varios, y aumenta la eficacia del mando y la seguridad del personal. El diseño organizativo es aplicable a todo tipo de eventos de emergencia y no emergencia, en todo el entorno aeroportuario. Con el NIMS-ICS, la transición de un incidente a pequeña escala a uno a gran escala y/o una operación de múltiples organismos requiere un ajuste mínimo, para cualquiera de los organismos implicados. Los siguientes componentes trabajan juntos de forma interactiva para proporcionar la base para una comunicación clara y unas operaciones eficaces:

~~It is~~ advantageous ~~for~~ all ARFF personnel ~~to~~ receive NIMS-ICS training as part of their entry ~~level~~ training, recurring proficiency training, and professional development. NIMS-ICS courses are offered through the online resources of the National Fire Academy, the Federal Emergency Management Agency (FEMA), and many state/tribal and local agencies. Table 12.1, p. 522, identifies the appropiate courses for each level of responsability. Given the philosophy of ICS and scenario-based training, an Incident Commander (IC) should be able to apply the ICS principles to an aviation response. Scenario-based training allows the IC ~~to~~ work through the decision-making process and ~~to~~ review the order in which decisions need to be made.

Resulta ventajoso que todo el personal de ARFF reciba formación sobre NIMS-ICS como parte de su formación inicial, formación de aptitud recurrente y desarrollo

profesional. Los cursos NIMS-ICS se ofrecen a través de los recursos en línea de la Academia Nacional de Bomberos, la Agencia Federal para el Manejo de Emergencias (FEMA) y muchas agencias estatales/tribales y locales. La Tabla 12.1, p. 522, identifica los cursos apropiados para cada nivel de responsabilidad. Dada la filosofía del ICS y el entrenamiento basado en escenarios, un comandante de incidentes (CI si se refiere a las siglas en español) debe ser capaz de aplicar los principios del ICS a una respuesta de aviación. El entrenamiento basado en escenarios permite al CI trabajar a través del proceso de toma de decisiones y revisar el orden en el que estas deben ser tomadas.

When a fire warning light activates, the aircraft crew tries to determine whether there is a fire ~~by making~~ instrument checks and visual observations. If the pilot-in-command is satisfied that the aircraft is safe and airworthy after these checks have been made, the flight continues normally. If a problem exists and an emergency is declared, air traffic control notifies the airport fire department, and ARFF personnel respond to their pre-designated standby locations and await the aircraft. Upon landing, the in-flight emergency switches to a ground emergency and, depending on the severity, may require a full-scale emergency response. Once the emergency aircraft exits the runway, it should be halted so that ARFF personnel may inspect the affected area for evidence of heat or smoke.

Cuando se activa una luz de advertencia de incendio, la tripulación de la aeronave intenta determinar si hay un incendio mediante comprobaciones instrumentales y observaciones visuales. Si el piloto al mando está convencido de que la aeronave es segura y aeronavegable, después de realizar estas comprobaciones, el vuelo continúa normalmente. Si existe un problema y se declara una emergencia, el control de tráfico aéreo notifica al departamento de bomberos del aeropuerto y el personal ARFF responde a sus ubicaciones

de espera pre designadas y aguarda a la aeronave. Al aterrizar, la emergencia en vuelo pasa a ser una emergencia en tierra y, dependiendo de la gravedad, puede requerir una respuesta de emergencia a gran escala. Una vez que la aeronave de emergencia sale de la pista, debe detenerse para que el personal ARFF pueda inspeccionar el área afectada en busca de evidencia de calor o humo.

An interior fire aboard an ocupied aircraft is a true emergency, particularly if the fire occurs-in-flight. Because of the automatic fire detection systems aboard modern aircraft, interior fires ~~are~~ usually detected in their incipient stage. If the fire is accessible in-flight, the aircraft crew members will attempt to extinguish it using onboard fire extinguishers. If the fire cannot be handled with the onboard fire protection equipment or if its location is inaccessible in-flight, it may develop into a serious fire and spread rapidly. In this case, an emergency landing will be attempted ~~immediately.~~ Depending on the amount of time it takes to make an emergency landing, heat, smoke, and toxic gases may accumulate, creating a deadly threat to ~~aircraft~~ occupants.

Un incendio en el interior de un avión ocupado es una verdadera emergencia, sobre todo si se produce durante el vuelo Gracias a los sistemas automáticos de detección de incendios a bordo de los aviones modernos, los incendios en el interior suelen detectarse en su fase incipiente. Si el fuego es accesible en vuelo, los miembros de la tripulación del avión intentarán apagarlo utilizando los extintores de a bordo. Si el fuego no se puede controlar con el equipo de protección contra incendios de a bordo o si su ubicación es inaccesible en vuelo, puede convertirse en un incendio grave y propagarse rápidamente. En este caso, se intentará inmediatamente un aterrizaje de emergencia. Dependiendo de la

cantidad de tiempo que lleve realizar un aterrizaje de emergencia, se puede acumular calor, humo y gases tóxicos, creando una amenaza mortal para los ocupantes.

Hydraulic failure or inoperative landing gear may seriously jeopardize the safety of the aircraft and its occupants. Depending on the severity, the aircraft may experience a variety of flight control problems ~~both~~ in flight and on the ground. This type of emergency may affect aircraft steering, braking, and/or stopping. ARFF responders may want to consider alternate standby locations when dealing with an emergency of this nature so that the safety of the ARFF crews is not jeopardized. Positioning ARFF apparatus along both sides of and at a safe distance from active runway can reduce the risk to apparatus and personnel.

Una falla hidráulica o un tren de aterrizaje inoperativo pueden poner en grave riesgo la seguridad de la aeronave y sus ocupantes. Dependiendo de la gravedad, la aeronave puede experimentar una variedad de problemas de control de vuelo, tanto en vuelo como en tierra. Este tipo de emergencia puede afectar la dirección, el frenado y/o la parada de la aeronave. Es posible que los socorristas de ARFF deseen considerar ubicaciones de reserva alternativas cuando se enfrenten a una emergencia de esta naturaleza, para que no se ponga en peligro la seguridad de las cuadrillas de ARFF. Colocar los aparatos ARFF a lo largo de ambos lados de la pista activa y a una distancia segura de ella puede reducir el riesgo para los aparatos y el personal.

Once an aircraft has landed, the flight crew may initiate an emergency evacuation. Arriving ARFF personnel should try to prevent an unnecessary evacuation by immediately contacting the flight crew on the appropiate frequency and reporting on exterior conditions.

With most engine, wheel assembly, and other minor exterior emergencies, ARFF personnel can control the situation without threatening the aircraft occupants or needing an evacuation~~. An evacuation~~ can endanger and injure the evacuees, as well as complicate and interfere with ARFF and airport operations. The responsability to evacuate is ultimately ~~the~~ decision of the pilot in command or flight crew. ARFF personnel should not impede the egress of occupants and crew in an attempt to enter the fuselage for rescue and/or fire fighting.

Una vez que una aeronave ha aterrizado, la tripulación de vuelo puede iniciar una evacuación de emergencia. El personal ARFF que llega debe intentar evitar una evacuación innecesaria, contactando inmediatamente a la tripulación de vuelo con la frecuencia adecuada e informando sobre las condiciones exteriores. En la mayoría de los casos de motor, ensamblaje de ruedas y otras emergencias exteriores menores, el personal de la ARFF puede controlar la situación sin amenazar a los ocupantes de la aeronave o al necesitar una evacuación, lo que puede poner en peligro y herir a los evacuados, así como complicar e interferir con las operaciones de la ARFF y del aeropuerto. La responsabilidad de evacuar es, en última instancia, decisión del piloto al mando o de la tripulación de vuelo. El personal ARFF no debería impedir la salida de los ocupantes y la tripulación en un intento de ingresar al fuselaje para rescate y/o extinción de incendios.

Modern aircraft wheels are commonly equipped with fusible plugs incorporated into the rims. These plugs are designed to melt, automatically deflating the tires when the rim reaches a predetermined temperatura, usually from 300 °F to 400 °F (150 °C to 205 °C). Releasing the tire pressure on the wheel, thus reducing the possibility of wheel collapse and fragmentation. Caution must be used ~~as~~ incidents have occurred in which the fusible plugs

~~failed~~ to function properly. Firefighters must approach incidents of this nature from a fore or aft position at a 45-degree angle. The sections ~~that~~ follow address the two most common hazards related to wheel assemblies: hot brakes and wheel fires.

Las ruedas de los aviones modernos suelen estar equipadas con tapones fusibles incorporados en las llantas. Estos tapones están diseñados para derretirse, desinflando automáticamente los neumáticos cuando la llanta alcanza una temperatura predeterminada, generalmente de 300 °F a 400 °F (150 °C a 205 °C). Liberar la presión de los neumáticos reduce la presión sobre la rueda, reduciendo así la posibilidad de colapso y fragmentación de la rueda. Se debe tener precaución, ya que se han producido incidentes en los que los enchufes de los fusibles no funcionaron correctamente. Los bomberos deben abordar incidentes de esta naturaleza desde una posición delantera o trasera en un ángulo de 45 grados. Las secciones siguientes abordan los dos peligros más comunes relacionados con los conjuntos de ruedas: frenos calientes e incendios de ruedas.

Brakes and wheel assemblies frequently overheat causing ARFF personnel concern during ~~both~~ normal and emergency landings. There are several methods to determine wheel temperature. Thermal imagers and other temperature monitoring devices can be used to determine wheel temperatures from a safe distance **(Figure 12.3)**. On some newer jet transport aircraft, wheel temperatures can be monitored from the flight deck. Any time a large transport aircraft lands ~~long~~, rejects a takeoff, makes a no-flap landing, or has problems using engine thrust reversers, ARFF personnel should prepare for a hot brake situation. This type of emergency is usually recognizable by brown-colored smoke coming from wheel assemblies.

Los frenos y los conjuntos de ruedas se sobrecalientan con frecuencia, lo que preocupa al personal de ARFF durante los aterrizajes normales y de emergencia. Existen varios métodos para determinar la temperatura de las ruedas. Se pueden utilizar cámaras termográficas y otros dispositivos de monitoreo de temperatura para determinar la temperatura de las ruedas desde una distancia segura (Figura 12.3). En algunos aviones de transporte a reacción más nuevos, la temperatura de las ruedas se puede controlar desde la cabina de vuelo. Cada vez que un avión de transporte grande aterriza, aborta un despegue, realiza un aterrizaje sin flaps o tiene problemas para utilizar la inversión de empuje del motor, el personal de la ARFF debe prepararse para una situación de frenos calientes. Este tipo de emergencia suele reconocerse por el humo de color marrón que sale de los conjuntos de ruedas.

If the aircraft have a wheel fire, the tower or ARFF IC may need to inform the pilot(s) because the pilot(s) may have no onboard indication of the fire. The safest way to extinguish wheel fires is ~~to~~ apply large quantities of water from a distance using apparatus turrets. Such application keeps the firefighters out of the hazard zone and provides rapid extinguishment and cooling. Firefighters should continue cooling efforts once the fire is extinguished to prevent reignition and ~~to~~ minimize damage to other components. Handlines can be used as long as firefighters approach from a fore or aft position at a 45- degree angle.

Si la aeronave tiene un incendio en la rueda, la torre o el ARFF CI pueden necesitar informar al piloto(s) porque el piloto(s) puede no tener ninguna indicación a bordo del incendio. La forma más segura de extinguir incendios en las ruedas es aplicar grandes cantidades de agua a distancia utilizando mangueras en torretas. Dicha aplicación mantiene

a los bomberos fuera de la zona de peligro y proporciona una rápida extinción y enfriamiento. Los bomberos deben continuar los esfuerzos de enfriamiento, una vez extinguido el incendio, para evitar que se reavive y minimizar los daños a otros componentes. Se pueden utilizar líneas de mano, siempre que los bomberos se aproximen desde una posición delantera o trasera en un ángulo de 45 grados.

Titanium, a silvery-gray metal, is as strong as ordinary steel but is only 56 percent as heavy. Some titanium alloys are up to three times ~~as~~ strong as the best avialable aluminum alloys. Titanium's ignition temperature is generally considered to be near its melting point of 3.140 °F (1.700 °C). It is used in engine ~~parts and~~ nacelles because of its resistance to heat and fire. It is also used in the landing gear assemblies of modern jet transports. Additionally, titanium is being used in greater amounts in new large aircraft. When a combustible metal is on fire, applying copious amounts of water ~~using~~ turrets is an accepted method of initial fire control.

El titanio, un metal de color gris plateado, es tan resistente como el acero común, pero sólo pesa un 56 % más. Algunas aleaciones de titanio son hasta tres veces más resistentes que las mejores aleaciones de aluminio. En general, se considera que la temperatura de ignición del titanio es cercana a su punto de fusión, de 1.700 °C (3.140 °F). Se utiliza en las góndolas de los motores por su resistencia al calor y al fuego. También se utiliza en los trenes de aterrizaje de los modernos aviones de transporte. Además, el titanio se utiliza cada vez en mayor cantidad en los nuevos aviones a reacción de gran tamaño. Cuando se incendia un metal combustible, la aplicación de grandes cantidades de agua mediante torretas es un método aceptado de control inicial del fuego.

5.1.3 Glossaries

5.1.3.1 Glossary #1 Text from English to Spanish

All the definitions were obtained from the website Diccionario de la Lengua Española.

Source Text	Target Text	Grammatical Category	Definition
Aircraft	Aeronave	Adjective	Vehículo capaz de navegar por el aire.
Hazardous	Peligroso	Adjective	Que tiene riesgo o puede ocasionar daño.
Runway	Pista de Aterrizaje	Noun	Espacio destinado al despegue y aterrizaje de aeronaves.
Airfield	Aerodromo	Noun	Terreno llano provisto de pistas y demás instalaciones necesarias para el despegue y aterrizaje de aviones, generalmente de carácter militar y más reducido que el aeropuerto.
Crew	Tripulacion	Noun	Conjunto de personas que, en una embarcación, en un tren o en una aeronave, se dedican a su maniobra y servicio.
Scorched	Quemado	Adjective	Cosa quemada o que se quema.
Flares	Bengalas	Noun	Fuego artificial compuesto de varios ingredientes y que despide claridad muy viva de diversos colores.
Accident	Accidente	Noun	Suceso eventual que altera el orden regular de las cosas.
Incident	Incidente	Noun	Contratiempo, daño, perjuicio imprevistos.

Terminology	Terminologia	Noun	Conjunto de términos o vocablos propios de determinada profesión o disciplina.
Fires	Incendios	Noun	Fuego grande que destruye lo que no debería quemarse.
Engine	Motor	Noun	Máquina destinada a producir movimiento a expensas de otra fuente de energía.
Hydraulic	Hidraulico	Adjective	Que se mueve por medio del agua o de otro fluido.
Turbulence	Turbulencia	Noun	Zona en que se desarrolla un movimiento turbulento.
Landing Gear	Tren de Aterrizaje	Noun	Sistema mecánico dotado de ruedas o esquíes que permite el correcto aterrizaje y despegue de los aviones.
Dislodged	Desalojado	Verb	Sacar o hacer salir de un lugar a alguien o algo.
Wind Shear	Cizalladura (Del Viento)	Noun	Cambio en la velocidad y/o dirección horizontal del viento a lo largo del trayecto horizontal de vuelo.
Carpeting	Alfombrado	Noun	Conjunto de alfombras
Maintenance	Mantenimiento	Noun	Conjunto de operaciones y cuidados necesarios para que instalaciones, edificios, industrias, etc., puedan seguir funcionando adecuadamente.

Spill	Fuga/Derrame	Noun	Salida accidental de gas o de líquido por un orificio o una abertura producidos en su contenedor.
Flush	Enjuagar	Verb	Lavar ligeramente.
Sewer	Alcantarillado	Noun	Conjunto de alcantarillas.
Passengers	Pasajeros	Adjective	Dicho de una persona: Que viaja en un vehículo, especialmente en avión, barco, tren, etc., sin pertenecer a la tripulación.
Cockpit	Cabina	Noun	En aeronaves, camiones y otros vehículos automóviles o de uso industrial, recinto reservado para el piloto, conductor y demás personal técnico.
Concealed	Oculto	Adjective	Escondido, ignorado, que no se da a conocer ni se deja ver ni sentir.

5.1.3.2 Glossary #2 Text from Spanish to English

All the definitions were obtained from Cambridge Dictionary.

Source Text	**Target Text**	**Grammatical Category**	**Definition**
Conferido	Bestowed	Verb	To give something to someone.
Testimonio	Testimony	Noun	(An example of) spoken or written statements that something is true, especially those given in a law court.

Tropezando	Stumbling	Adjective	Walking in a way that is awkward or not controlled.
Ortopedico	Orthopedic	Adjective	Designed to prevent or treat bone injuries.
Gordita	Chubby	Adjective	(Especially of children) fat in a pleasant and attractive way.
Abultamiento	Bulge	Noun	A curved shape sticking out from the surface of something.
Amigdalitis	Tonsillitis	Noun	A painful infection of the tonsils.
Aseo Personal	Grooming	Noun	The things that you do to make your appearance clean and neat, for example brushing your hair, or the things that you do to keep an animal's hair or fur clean and neat.
Apetito	Apettite	Noun	The feeling that you want to eat food.
Guarderia	Day-Care Center	Noun	A place where parents pay to leave their children while the parents work.
Tomografia	Tomography	Noun	The use of X-rays to make three-dimensional images of flat sections of the body.
Electroencefalograma	Electroencephalogram	Noun	A drawing or image made by an electroencephalograh.
Rotunda	Blunt	Adjective	Saying what you think without trying to be polite or considering other people's feelings.
Cortante	Cutting	Adjective	Unkind and intending to upset someone.
Desconcertado	Bewildered	Adjective	Confused and uncertain.
Preescolar	Preschool	Noun	A school for children who are younger than five years old.

Neurologia	Neurology	Noun	The study of the structure and diseases of the brain and all the nerves in the body.
Naturalista	Naturalist	Noun	A person who studies and knows a lot about plants and animals.
Cataplasmas	Poultices	Noun	A piece of cloth covered with a thick, often warm substance, wrapped around an injury to reduce pain or swelling.
Enfermedad Niemann Pick	Niemann Pick Disease	Noun	A rare hereditary degenerative nerve disease caused by a deficiency of the enzyme sphingomyelinase.
Grasas	Fats	Noun	The substance under the skin of humans and animals that stores energy and keeps them warm.
Lipidos	Lipids	Noun	A substance such as a fat, oil, or wax that dissolve in alcohol but not in water and is an important part of living cells.
Soya	Soy	Noun	A type of small bean grown in large amounts as food for people and animals.
Homeopatia	Homeopathy	Noun	A system of treating diseases in which sick people are given lesser amounts of natural substances that, in healthy people, would produce the same effects as the diseases produce.
Esporadico	Sporadic	Adjective	Happening sometimes; not regular or continuous.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

In this chapter, the conclusions obtained through the investigation are going to be provided. Moreover, an analysis of the specific objectives presented at the beginning of this document is also illustrated. In addition, the research question stated in Chapter I will be analyzed to explain how the researcher obtained the answer to it. Finally, the investigator provides the reader with some recommendations that are going to be especially useful for future thesis readers or researchers.

6.1.Purpose of the Conclusion

The purpose of this conclusion is to close the investigation and state what was achieved with it. In addition, it is intended to make known what was learned through the analyses carried out and if the researcher's main objective was achieved, which was To investigate the effect of the procedures and methods used to translate the documents *"Un Angel de Paso en Esta Tierra"* from Spanish into English for Asociacion Pro-Niños con Enfermedades Progresivas and *"Manual Aircraft Rescue and Firefighting 6th Edition, Chapter 12"* from English into Spanish for Estacion de Salvamento y Extincion de Incendios (S.E.I). The researcher was able to perform the translations as planned and the desired result was obtained. On the other hand, one of the great objectives of the researcher was to leave a precedent through this investigation. The author wanted to leave this research as an example for future students who may conduct a translation thesis.

6.2.Conclusions

Several of the main objectives of this investigation were to have a guide for this investigation, so one general objective and four specific objectives were established. These objectives represent the intentions the investigator had when he first started this research. They describe the processes and actions that the investigator intended to accomplish. These objectives found in chapter I will be mentioned again to let the readers know how they were developed through the investigation and if the researcher could accomplish its purpose with them.

6.2.1 To translate the documents *"Un Angel de Paso en Esta Tierra"* from Spanish into English for Asociacion Pro-Niños con Enfermedades Progresivas and *"Manual Aircraft Rescue and Firefighting 6th Edition, Chapter 12"* from English to Spanish for Estacion de Salvamento y Extincion de Incendios (S.E.I) Aeropuerto Internacional Juan Santamaria

The first specific objective of this research was to translate two documents. The first, from Spanish to English, was a literary history and the second, from English to Spanish, was a technical document. The researcher was able to accomplish the objective of performing the translations. In doing so, the researcher followed the general procedures that are used when translating. Above all, the researcher followed Peter Newmark's studies. Both documents were carefully read several times before being translated. In addition, an analysis of the text was conducted to determine the style and function of the text. In other words, the researcher succeeded in meeting this first specific research objective.

6.2.2 To apply various translation procedures to the documents to achieve accurate and natural translations

When it comes to translation, a series of procedures must be applied to achieve a favorable result. The researcher used practically all these procedures to conduct the translations mentioned above. Some were used more than others, such as transposition, literal translation, explicitation, equivalence, and omission. All these procedures were used correctly to obtain an adequate and natural translation. The researcher was able to obtain the desired result and adequate use of the procedures.

6.2.3 To evaluate the effect of the translation procedures applied on the documents

When using translation procedures, it is obvious that they will generate changes in the translated text compared to the original text. However, these changes are necessary to translate as naturally and accurately as possible. According to the researcher, the effect of these procedures on the texts was quite positive. Without them, quality work would not have been possible. In addition, the objective of creating two natural and adequate translations was achieved. Moreover, in both translations' omission, amplification, literal translation, explicitation, transposition, and equivalence were the most useful translation procedures.

6.2.4 To create a glossary with the most relevant terminology found in both texts

Glossaries are an especially useful tool for a translator. There will always be words or terms that will be unfamiliar to the translator. For this research work, two glossaries

were created. One with English-to-Spanish translation definitions and the other with Spanish-to-English translation terms. These glossaries functioned as a useful tool for the translator to become familiar with unfamiliar words. Some of these terms were technical, so it was imperative to acquire their correct definition. On the other hand, the glossaries also helped the researcher to increase his vocabulary.

6.3 Restatement of the Research Question

The main objective of this research was to translate these two previously mentioned documents. To conduct these translations, a text analysis was conducted, translation procedures were applied, which are shown in the color coding and two glossaries were made to become familiar with the terminology. Thus, the research question could be answered appropriately. As stated in Chapter I of this document, the research question that was established since the beginning was "What is the effect of the procedures and methods used to translate the documents *"Un Angel de Paso en Esta Tierra"* from Spanish into English for Asociacion Pro-Niños con Enfermedades Progresivas and *"Manual Aircraft Rescue and Firefighting 6th Edition, Chapter 12"* from English into Spanish for Estacion de Salvamento y Extincion de Incendios (S.E.I) Aeropuerto Internacional Juan Santamaria?".

6.4 Recommendations

After finishing this research work, it is important to provide a series of recommendations that may be useful to future thesis authors. For the researcher of this work, it is especially important that this research may be an example for future students who wish to perform a translation thesis. As usually happens in works of this type, the researcher of this project faced some not-very-favorable circumstances that affected the development of the project at some point, but in the end, this did not cause much damage,

and the desired objective could be achieved. Rough situations provided another perspective for the researcher that allowed him to move on. In the following paragraphs, at least three recommendations for future researchers will be made known.

The first recommendation would be to have effective communication with the thesis mentor. When conducting research, it is always important that someone guides the students in their work processes. This is the purpose of the thesis mentors, to guide the students in the process and make everything turn out in the best way. It is essential to have contact with the tutor from the first day you start working and always follow the instructions and recommendations that they provide about the research. The feedback provided by the mentor will always be especially useful to be able to advance in the project. Moreover, it is important to make the selection of this mentor beforehand, as well as the grammar mentor and the philologist, since they play a particularly significant role in a translation thesis.

The second recommendation would be to search for information on the net useful for researching trustworthy sites. For a research project, there is a lot of information that must be considered, and that can be found on the internet. However, it is vitally important to verify that the information taken from websites is correct and preferably not from sites where anyone can manipulate the information. This thesis was developed only in a virtual way, so most of the information was collected from websites reviewed before using information from them. Moreover, information can also be obtained through tools such as glossaries and analysis charts that can be created and applied virtually.

The last recommendation would be to have good planning when conducting the project. Each week a different chapter will have to be done, and many of these chapters are long. Having good planning and a good order of what must be done is critical for the project to go smoothly. In general, when a chapter is delivered, it must be corrected, and if

these deliveries are delayed or postponed, all the work would be accumulated. Keeping a binnacle like the one kept in this research is a good option to keep track of what is being done and what is pending to be done to finish the work before the assigned delivery date. On the other hand, in a thesis like this, it is especially important to look for the documents to be translated well in advance. In addition, translations should be done well in advance so that they can be proofread and corrected in the best feasible way.

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ANNEXES

CARTAS INSTITUCIONES

San José, 25 de Julio del 2024

Estimados Señores de la Dirección de Carrera de Ingles UIA

Reciban un cordial saludo,

Por este medio mi persona, Cristian Fernández Dávila, Cedula 401660174, Sargento AI de Bomberos S.E.I hace constar que el estudiante Jorge Andrés Solano Sancho, Cedula 117800008, realizo y entrego la traducción al español del Capítulo 12 del Manual Aircraft Rescue and Firefighting 6th Edition. Mi persona y el resto del personal del S.E.I agradece la colaboración de esta labor profesional.

Firma.....

San José, 23 de julio de 2024

APRONEP-83-2024

Señores
Dirección de carrera de inglés
Universidad Internacional de las Américas

Asunto: Constancia de la realización y entrega de la traducción del libro testimonial: Un Ángel de Paso en Tierra.

Estimados señores:

Reciba nuestro cordial saludo.

Sirva la presente para hacer constar que el estudiante Jorge Andrés Solano Sancho, cédula de identidad 117800008, realizó y entregó la traducción del libro testimonial: Un Ángel de paso en Tierra a la Asociación pro niños con enfermedades progresivas, raras o poco frecuentes, APRONEP-er, con cédula jurídica 3-002-115312,

Agradecemos la colaboración de esta labor profesional.

Cordialmente,

YAMILETH CHAVES SOTO (FIRMA)
Firmado digitalmente por YAMILETH CHAVES SOTO (FIRMA)
Fecha: 2024.07.24 23:15:02 -06'00'

MA Yamileth Chaves Soto
Presidente de APRONEP-er
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DOCUMENTOS PARA TRADUCCIR

UN ÁNGEL DE PASO EN ESTA TIERRA.pdf

Manual Aircraft Rescue and Firefighting 6th Edition.pdf