9

Función Digital
INTEGRATED TECHNOLOGY

Asunción, 26 de abril de 2023

Señores
DIRECCIÓN NACIONAL DE ADUANAS
Coordinación Operativa de Control No Intrusivo
Lic. Humberto López.
Presente

INFORME DE FINALIZACIÓN DE TRABAJOS

Contrato N° 17/2022: "Servicios de Re – Potenciación y Actualización total de Escáners Rayos X Smiths Detection"

Por medio de la presente informamos que se ha culminado al 100%, el proceso de Aceptación Final de la Fase 2 Acelerador de doble energía 6/4 MeV (Nuevo rendimiento y discriminación de alta energía) HCVMV2 851505, correspondiente al ítem 5 del Pliego de Bases y Condiciones.

Por lo tanto, se solicita el pago del 30 % correspondiente a la Aceptación final del **ítem 5**, conforme a lo establecido en el **Contrato, Cláusula 6, página 1, PRECIO UNITARIO Y EL IMPORTE TOTAL A PAGAR POR LOS BIENES Y/O SERVICIOS:**

ÍTEM	CÓDIGO CATÁLOGO	DESCRIPCIÓN DEL BIEN	Porcentaje de facturación	IMPORTE
1	73152101-990	Fase 1 Infraestructura TI CCTVOCR Actualización de PLC - Adecuaciones estéticas HCVMe35	-	-
2	73152101-990	Fase 1 Infraestructura TI CCTVOCR Actualización de PLC - Adecuaciones estéticas HCVMV2 850558	-	-
3	73152101-990	Fase 2 Acelerador de doble energía 6/4 MeV (Nuevo rendimiento y discriminación de alta energía) HCVMV2 850558	-	-
4	73152101-990	Fase 1 Infraestructura TI CCTVOCR Actualización de PLC - Adecuaciones estéticas HCVMV2 851505	-	-
5	73152101-990	Fase 2 Acelerador de doble energía 6/4 MeV (Nuevo rendimiento y discriminación de alta energía) HCVMV2 851505	30%	3.764.329.200
6	73152101-990	Fase 3 Icmore Portafolio DMS sala de monitoreo 3/4 equipos	-	-
7	73152101-990	Fase 4 DMS Herramienta de supervisión Dashboard Multicanal, ciberseguridad Iso 27001 SSA, SLA	-	-
		TOTAL		**3.764.329.200**

Lic. Humberto López
Coordinador Control No Intrusivo
Dirección Nacional de Aduanas

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INTEGRATED TECHNOLOGY

Memoria descriptiva del PBC

Alcances

Fase 2. Solución Para Equipos HCVMV2.
Incluye un nuevo acelerador de doble energía (4MeV – 6MeV), que permitirá discriminación de materiales automática en las imágenes que capture, podrá alcanzar 320mm de penetración de acero (de acuerdo a la norma ANSI 42,46-2008) y permitirá la visualización de cargas orgánicas e inorgánicas de manera automática, sirviendo como apoyo fundamental para los funcionarios de la Aduana encargados del análisis. La discriminación de materiales de 4 clases en HCVM V2 agrega color a la imagen radioscópica detallada de los automóviles, camiones y contenedores, lo que permite obtener resultados rápidos y confiables en un solo escaneo, con ayudas visuales más robustas, mejorando así la eficiencia del diagnóstico. El analista podrá identificar material oculto entre otras cargas en automóviles, camiones y contenedores.

Anexos

Forman parte integrante del presente informe, los siguientes documentos:

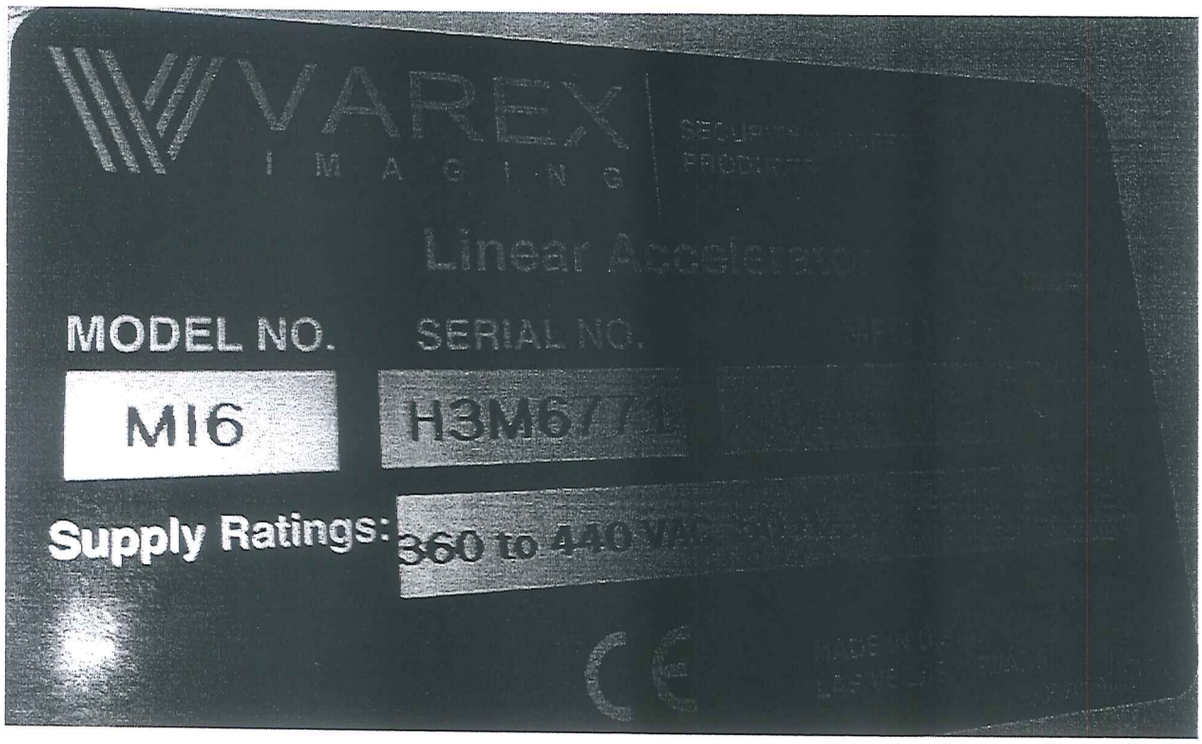
- Procedimiento de Aceptación de Cliente (Customer Acceptance Procedure) – 12 (doce) hojas.
- Manual de Seguridad de Equipo HCVM – 45 (cuarenta y cinco) hojas
- Foto ilustrativa del Número de serie del acelerador – 1 (una) hoja
- Contrato N° 17/2022 "Servicios de Re-potenciación y actualización total de escáners Rayo X Smiths Detection" – 3 (tres) hojas.

ADUANA COORDINACION OPERATIVA CONTROL NO INTRUSIVO PARAGUAY

Javier Ferreira

Javier Ferreira
Gerente General
Apoderado
FUNCION DIGITAL PARAGUAY S.A.

Lic. Humberto López
Coordinador Operativo Control No Intrusivo
Dirección Nacional de Aduanas


VAREX
IMAGING
Linear Accelerator
MODEL NO.
SERIAL NO.
MI6
H3M67
Supply Ratings:
380 to 440

VAREX IMAGING	Customer Acceptance Procedure		
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Revision History: *(Please refer to Archive Versions for previous Change History)*

Rev	Reason for Change	Description of Change	Date	Author
A	No change, initial release of new document type	No change, initial release of new document type	3.8.2018	DMSwanson
	Change Type: Process improvement. **Implementation Plan/Justification for No Training** None			

Rev	Description of Change	Date	Author
B	Added Varex graphic identity, and added "Contact your local FOA for a bar-coded Acceptance Certificate text.	7.16.2018	PSE
C	Added information (critical Exam) for Radiation Safety to be compliant in the UK as well. Also adjusted the Lettertype and layout for more consistence	14/06/2019	Levon Scheijbeler

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1.0 Purpose

The purpose of the CAP (customer acceptance procedure) is to demonstrate that the delivered Linatron performs per customer-ordered specifications. Additional SVP (system verification procedure) tests will be completed and those results documented in the SVS (system verification summary). The customer may have a copy of the completed testing results upon request.

2.0 Scope

The document is used for all Varex system installations.

3.0 Responsibilities

Varex assigned installers shall successfully complete the installation of the delivered system at the customer designated location. With the installed system meeting all of the customer requirements, the customer shall accept the installed system by signing off on this document (see page 12).

4.0 Radiation Safety

The customer-site RSO (radiation safety officer) must be present the first time the Linatron generates x-rays as well as during all consequent x-ray generations, being available as and when requested by the FSEs (Field Service Engineers) or PSEs (Product Support Engineers) for radiation safety purposes. In addition, the RSO must complete a radiation survey or critical exam (see upcoming pages 5 and 6) with suitable and calibrated instruments as well as confirm radiation levels comply with all national and local rules and regulations. As the installer of the Linatron, Varex will undertake a critical exam in accordance with regulations by way of completing the SVS and CAP, and in conjunction with the Customer RSO radiation survey.

Notice **VAREX FSEs AND PSEs WILL AT ALL TIMES ONLY GENERATE X-RAYS UNDER THE SUPERVISION AND ULTIMATE RESPONSIBILITY OF THE CUSTOMER-SITE RSO OR A DESIGNATED REPRESENTATIVE OF APPROPRIATE AUTHORITY.**

5.0 Rules regarding x-ray generation during installations

- FSEs/PSEs will comply with all local and national radiation laws, rules and regulations.
- X-rays will only be generated with the authority and under the supervision of the customer-site RSO or a designated representative of appropriate authority.
- FSEs/PSEs will verify the Initial Radiation Survey (see pages 5 and 6) is completed for first beam-on by the customer-site RSO or a designated representative of appropriate authority.

6.0 Best Safety Practices

Local RSO may grant beam-on exceptions, but before beaming-on FSEs/PSEs will:

- Verify the Initial Radiation Survey (see pages 5 and 6) has been completed for first beam-on.
- Verify appropriate physical radiation shielding or an exclusion zone is in place.
- Verify (If necessary) that manned temporary gates are in place at the entrance and exit to the radiation area to prevent unauthorized entrance.

- Verify radio communication (if allowed), or similar means of communication, has been establish between the control room and the entrance as well as exit personnel.
- Verify there are no non-radiation workers in radiation areas.
- Verify the exclusion zone is cleared (cargo screening).
- Verify the bunker has been searched prior to closing the door (nondestructive testing).
- Verify that there is no possibility that anybody will be exposed to an excessive radiation dose.
- Verify personal dose monitoring devices (dosimeter badge, electronic dosimeter) are in place and functional. An alarm threshold of 10 µSv/h (1 mrem/h) is recommended.
- Verify all building contractors have been excluded from site from first to final beam-on.
- Verify and clear the Linatron beam-on procedure with the customer-site RSO.
- Verify the control room area, exposure room or scan area, lights and warning sounds (siren) are fully functional.
- Verify emergency-off switches are fully functional.
- Verify accident/emergency procedures, including contact phone numbers, has been provided by the customer.

FAI

The Varex annual limit is 2 mSv (200 mrem) but is considered excessive if the instantaneous dose rate exceeds 25 µSv/h (2.5 mrem/h) at occupied spaces, or if the daily equivalent dose is higher than 100 µSv (10 mrem).

Following best radiation safety practices and the ALARA[1] principle the measured instantaneous dose rate during the initial radiation survey also known as the Critical Examination which should not exceed 25 µSv/h (2.5 mrem/h), the daily equivalent whole body dose is limited to 100 µSv (10 mrem) during installation and service. The 25 µSv/h threshold is only applicable for those countries, where no IDR threshold is specified in the local regulations and/or the applicable code of practice. In countries where the maximum admissible instantaneous dose rate is lower than 25 µSv/h (2.5 mrem/h), the local threshold is the authoritative value. Measurement results exceeding the relevant limits are considered excessive and beam operations must be ceased immediately. If required, contact the Varex Radiation Safety Officer to further assistance and discuss any issues: USA: Stacey Sedano,702. 938.4796; International: Levon Scheijbeler, +31 639 897734.

[1] As defined in Title 10, Section 20.1003, of the Code of Federal Regulations (10 CFR 20.1003; ALARA is an acronym for "as low as (is) reasonably achievable").

7.0 Work Instruction

Radiation safety to personnel in occupied areas is provided by the identification of radiation safety areas (exclusion zones) for mobile units or structural shielding surrounding the radiation source (fixed units, NDT sites). The material and the required dimension for the structural shielding are specified in the shielding calculation based on the legal dose limits, the Linatron workload, occupancy, and use factors.

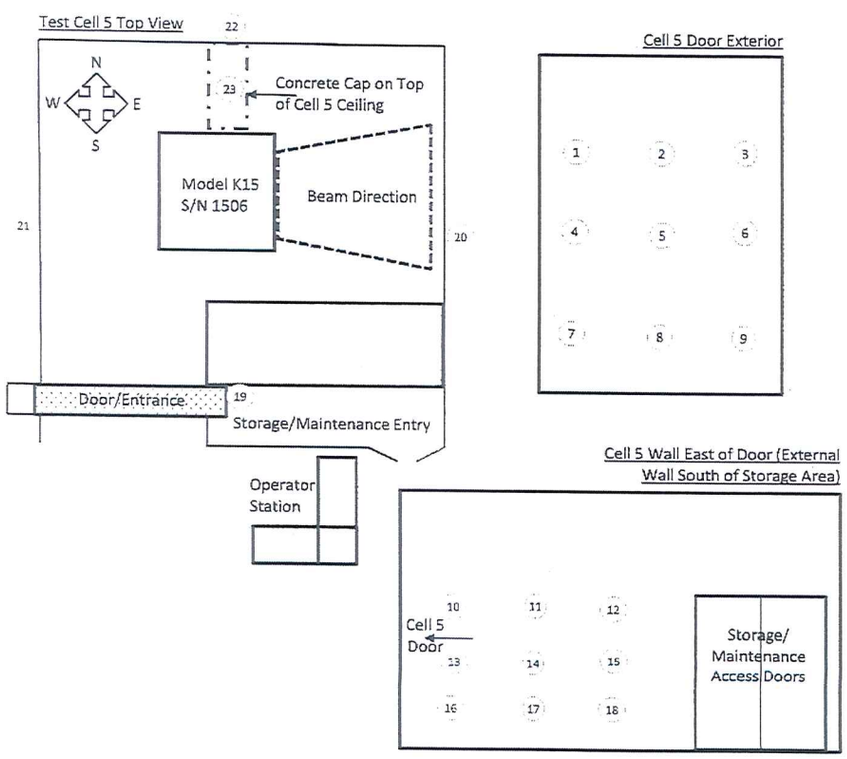
The only way to assess the effectiveness and the conformance of the radiation safety measures is to perform a measurement with suitable radiation survey instruments at the time when the radiation generating device is capable of producing ionizing radiation.

The radiation survey is intended to guarantee and document the safety of Varex employees, staff of the customer, and general public present in accessible areas adjacent to the radiation source during the operation of the radiation-generating device.

7.1 Required Site Sketch.

As part of the initial radiation survey you will need to make a sketch of the site and number the locations on the sketch, and, in the tables that follows on pages 8 and 9, identify where and what readings were taken.

Example Site Sketch



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Paste Site Sketch on this Page

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8.0 Survey

The survey is a preliminary check to ensure a safe installation and commissioning environment. Be sure to enter the exact type of readout per hour, for instance: "0.09 mrem/h.," or "0.11 µSv/h."

Site: Hidraulica Brasil - Luque - Paraguai

Linatron Model: Mi

Serial Number: H3M6771

Survey Date: 18-Mar-2023

Survey Completed by: Nicolas Huyard

Survey Equipment (Gamma)

Detector: (ex. ion chamber, Geiger-Mueller) Radiometer

Make/Model: Thermo ESM FH 40G-L10

Serial Number: 19347

Calibration Date: 11-FEB-2023

Background Radiation Level (please enter units, mrem/h, µSv/h): uSv/h

Survey Equipment (Neutrons if E > 10 MeV)

Detector: (ex. neutron meter) _____

Make/Model: _____

Serial Number: _____

Calibration Date: _____

Background Radiation Level (please enter units, mrem/h, µSv/h): _____

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Radiation – Gamma				
Your Sketch Location Numbers	Mode	Low	High	Interlaced
	Units of Measurement (mrem/h, µSv/h)	usV/h	uSv/h	uSv/h
	PRF: Use PRF (PSS) shown in the STS Section 1.2	100	100	200
	Console Reading	0.07gy/min	0.12gy/min	0.19gy/min
19	Max Dose in Control Room	0.38	0.37	0.76
21	Max Dose at the Border of the Exclusion Zone (non-building)	4.6	5.7	10.1
22	Max Dose in Front of the Entrance Door (building installs)	1.39	1.64	0.36
23	Max Dose at any Accessible Point (building installs)	2.8	1.84	0.34
	Safe Operation for Installation and Commissioning is Granted (Yes/No)	Yes	Yes	Yes

If "N/A" is entered in the table above explain the reason(s) why here, add sketch location number:

_____

_____

_____

_____

_____

_____

...Continued

Radiation - Neutrons if E > 10 MeV (Mark N/A If Not Applicable)				
Your Sketch Location Numbers	Mode	Low	High	Interlaced
	Units of Measurement (mrem/h, µSv/h)			
	PRF. Use PRF (PPS) Shown in the STS Section 1.2			
	Console Reading			
	Max Dose in Control Room			
	Max Dose at Border of Exclusion Zone (non-building installs)			
	Max Dose in Front of the Entrance Door (building installs)			
	Max Dose at any Accessible Point (building installs)			
	Safe Operation for Installation and Commissioning is Granted (Yes/No)			

If "N/A" is entered in the table above explain the reason(s) why here, add sketch location number:

_____

_____

_____

_____

_____

_____

_____

...Continued

Instantaneous dose rate below 25 µSv/h (2.5 mrem/h; Yes/No): Yes

Radiation survey completed by: Nicolas Huyard

I am the site RSO (Yes/No): No

I am the site RSO nominated representative and appropriately qualified (Yes/No): No

Signed: _____

The radiation survey is performed as part of this customer acceptance procedure. Completing the radiation survey shall not release the customer from the sole responsibility for radiation safety of the customer installation and accurately anticipating Linatron use.

9.0 Extended Heat Run.

Upon documentation completion, the Varex FSEs or PSEs will generate x-rays continuously for one hour at each energy and dose specified on the customer order. This performance testing is referred to as an *extended heat run*. A number of parameters will be recorded during the extended heat run to confirm that the system performs per the customer order.

In addition to the onsite testing described above, SVP and STS testing will have also been completed. SVP and SVS testing includes factory-based special equipment that will be unavailable to installers, while other factory testing required the system to be disassembled all of which is not possible at a customer site.

Upon completion of the extended heat run, the customer will be asked to sign the Acceptance Certificate. Signing the Acceptance Certificate means that the customer accepts the system is fully operational and meets the customer-ordered specifications. Signing the Acceptance Certificate passes all responsibility for operation and subsequent x-ray generation to the customer. Contact your local FOA for a bar-coded Acceptance Certificate.

The extended heat run includes:

- Generating x-rays for one hour continuously at each energy and at the PRF (pulse repetition frequency) or PPS (pulses per second) shown at Section 1.2 of the STS is recorded in table below.
- The dose rate 90 seconds after initial beam-on at all energies is recorded in table below. Compare the values recorded in the table against the dose rates recorded in the STS. Any variance outside the customer-ordered specification should be investigated. Additionally, more than one event preventing continuous beam-on for one hour should also be investigated.
- Also magnetron current (Mag I) and klystron current (if applicable; Kly I), as well as beam current (Beam I) and vacuum measurements are recorded in table below, along with any faults that are tripped.

Energy	PRF (PPS)	Dose Rate (Gy/min/m)	Mag I / Kly I (amps)	Beam I (volts)	Vacuum (µ amps)	Faults
LOW	100	0.07	8.2	560 mV	0	0
HIGH	100	0.12	10.5	240Mv	0	0
INTERLACED	200	0.19	10.5	240 mV	0	0

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10.0 Spares

A spares inventory should be completed against the appropriate Varex system drawing listing spares. In addition, any spares not shown on the appropriate BML (backordered material list) sheet should be added to the BML sheet, as well as being added to the Field Service Report.

- Spares inventory completed (Yes /No, N/A?) N/A
- Varex System Drawing Number: _____
- All missing items are shown on the BML (Yes /No, N/A?) N/A
- All missing items have been added to the Field Service Report (Yes/ No, N/A?) Yes

Name (on behalf of the customer): Nicolas Huyard

Position/Title: Manager Project

Signature: _____ **Date:** 11/02/2023

MEMORANDUM

PARA: Lic. Luis Humberto López Zulck – Coordinador COCNI - DNA

DE: Ing. Luis Torres – Asesor Técnico - FAALEN CONSULTING GROUP

REFERENCIA: Dictamen Técnico sobre Solicitud de Pago de la firma FUNCION DIGITAL PARAGUAY S.A.

FECHA: 28/04/2023

De acuerdo a lo solicitado en fecha 27/04/2023, en las Oficinas de la DNA, Paraguayo Independiente N° 938 c/ Montevideo, me hago presente para acceder a las documentaciones presentadas por la firma FUNCION DIGITAL PARAGUAY S.A., la que solicita el pago y cancelación del Ítem 5, Código Catálogo 73152101-990, Fase 2 : Acelerador de doble energía 6/4 MeV (Nuevo rendimiento y discriminación de alta energía) HCVMV2 851505, correspondiente al 30% restante del precio e importe establecido en el CONTRATO N° 17/2022 suscrito entre la firma solicitante y la DNA.

De acuerdo a lo verificado en visitas y acompañamientos al trabajo de Repotenciación de la Unidad HCVMV2 851505 (ver Memorándums de fecha 18 y 28/04/2023) y a lo establecido en el Pliego de Bases y Condiciones (PBC):
VIA DE LA EXCEPCION N° 02/2022
Servicios de Re – Potenciación y Actualización total de Escáners Rayos X Smiths Detection
AD- REFERENDUM
"ADQUISICIÓN DE BIENES Y/O SERVICIOS"

Fase 2.
Solución Para Equipos HCVMV2
Incluye un nuevo acelerador Siemens de doble energía (4MeV – 6MeV), que permitirá discriminación de materiales automática en las imágenes que capture, podrá de alcanzar 320mm de penetración de acero (de acuerdo a la norma ANSI 42,46-2008) y permitirá la visualización de cargas orgánicas e inorgánicas de manera automática, sirviendo como apoyo fundamental para los funcionarios de la Aduana encargados del análisis.

La discriminación de materiales de 4 clases en HCVM V2 agrega color a la imagen radioscópica detallada de los automóviles, camiones y contenedores, lo que permite obtener resultados rápidos y confiables en un solo escaneo, con ayudas visuales más robustas, mejorando así la eficiencia del diagnóstico. El analista podrá identificar material oculto entre otras cargas en automóviles, camiones y contenedores.

El software utilizado para tal efecto es Daysi-Vizual, sobre el cual el personal de Aduana será entrenado y certificado por el fabricante.

Proveido con la FASE 2.
Para lograr la capacidad de discriminación de materiales, se proporcionarán varios componentes:
- Un acelerador Dual Energy 6/4MeV para discriminación de materiales para cada HCVMV2
- Un enfriador nuevo de 3 TON
- Un filtro estático o uno rotativo con cableado

- Un conjunto de herramientas de test de materiales (calibración, matriz y pasos) para verificar el correcto funcionamiento de las prestaciones del acelerador durante la operación de los equipos

DICTAMEN TÉCNICO: *Corresponde el pago de lo solicitado por la firma FUNCION DIGITAL PARAGUAY S.A.*

En mi informe, cordialmente.

Ing. Luis Torres

EXP.	DAF N° 44204S/2023
REF.	s/ref. a pago por servicios prestados a la empresa Función Digital.
D.S.G. N°	6/2023

Asunción, 28 de abril de 2023

En referencia al Contrato N° 17/2022 "Servicios de Re-potenciación y actualización total de escáneres rayos X smiths detection", se remite a la Coordinación No Intrusiva a fin de informar si corresponde el pago de factura N° 2716, de fecha 26 de abril de 2023 en la cual solicita el pago por servicios prestados según informe técnico de la empresa y cabe acotar que dicho informe no está firmado por el Coordinador de No Intrusiva. Cumplido, vuelva al Departamento de Servicios Generales.

Lic. Angel Daniel Monreale
Jefe
Departamento de Servicios Generales
Dirección Nacional de Aduanas