



[Transportadora de Gas Internacional S.A. ESP]

Energy Management System Audit Report

Bureau Veritas **[Colombia]** on behalf of
Bureau Veritas Certification Holding SAS UK Branch,
5th Floor, 66 Prescott Street, London E18HG, United Kingdom

Lead Auditor: *[Liliana Paola Pinilla Velandia - LPP]*

Date of report: 18/08/2023

Revision N^o: 1



Section 1. Executive summary

Company Name:	Transportadora de Gas Internacional S.A. ESP						
Contact Person:	Mrs. Carolina Bonilla						
Address:	Carrera 9 No 93-44, Bogotá - Colombia.						
Phone /Fax/E-mail:	(57) 1 3138400						
Type of audit performed:	<input type="checkbox"/> Stage 2 (Main Audit)		<input type="checkbox"/> Re-certification		<input type="checkbox"/> Surveillance audit 2		
	<input checked="" type="checkbox"/> Surveillance audit 1		<input type="checkbox"/> Follow-up				
	<input type="checkbox"/> Site addition						
	<input type="checkbox"/> Other						
Summary of Audit Findings:							
Audit Date(s):	From: 08-08-2023			To: 17-08-2023			
Number of Non conformities raised:	---	Major		---	Minor	---	
Is a follow up visit required (tick X as applicable):	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>	Date(s) of follow up visit	From	----
						To	----
Follow-up visit remarks:							
N.A.							
Team Leader Recommendation (tick X as applicable):							
Corrective Action Plan (s) Accepted	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Date:	----	
All NCR's Cleared	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Date:	---	
Recommend to proceed to Certification or continue process	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Date:	----	
Audit conducted against the following standard (<i>check applicable box below</i>):							
2)	ISO 50001:2018	<input checked="" type="checkbox"/>		The audit was conducted as a standalone for v2018		<input checked="" type="checkbox"/>	
Audit team details (check box as applicable)							
Names of the audit team personnel	Name initials	Responsibility performed in the audit team					
		Team Leader	Team Member	Trainee Auditor	Specialist	Witness auditor	
1. Liliana Paola Pinilla Velandia	LPP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Javier Mauricio Reyes	JMR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Scope of Certification: (scope statement must be validated and appear in the space below)

GAS TRANSPORTATION, DESIGN, CONSTRUCTION, OPERATION AND MAINTENANCE OF GAS PIPELINES AND COMPRESSION STATIONS OF NATURAL GAS TRANSPORTATION SYSTEM. LIMITED TO:

1. The Administrative headquarters at Bogotá
2. Gas Compression Station La Sabana
3. Gas Compression Station Mariquita
4. Gas Compression Station Padua
5. Gas Compression Station Miraflores
6. Gas Compression Station Puente Guillermo
7. Gas Compression Station Paratebuena
8. Gas Compression Station Villavicencio
9. Gas Compression Station Vasconia
10. Cogua Operational Center
11. Gas Compression Station Jagua del Pilar
12. Gas Compression Station San Alberto

ISO 50003 TA for the EnMS	<input type="checkbox"/> ENM 01	<input type="checkbox"/> ENM 02	<input type="checkbox"/> ENM 03	<input type="checkbox"/> ENM 04	<input type="checkbox"/> ENM 05	<input checked="" type="checkbox"/> ENM 06	<input type="checkbox"/> ENM 07	<input type="checkbox"/> ENM 08
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Accreditation related to the scope of the audit

- UKAS accreditation¹
- Local accreditation body in the country delivering the certificate (Name of the AB):

Proposed Date for Next Audit Event (s):	From: 03-07-2024	To: 07-07-2024
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Audit Report Distribution

1. Client
2. Bureau Veritas Certification

¹ The audits for UKAS accredited certification are conducted by the BV country office under the direction and control of BVCH-SAS UK which is the accredited office under the UKAS global accreditation

Section 2. Summary of audit performed

a) Audit planning

Site	Process / Department / Responsibilities	Date	From (a)	To (b)	Hours spent	Auditor name initials
Head Office/Bogotá	Opening meeting	08/08/2023	08:00	08:30	0,5	LPP - JMR
	Organization Context / Scope / ENMs / Evaluation of compliance with legal requirements and other requirements / Actions to address risks and opportunities / Energy policy /	08/08/2023	8:30	12:00	3,5	LPP - JMR
	LUNCH	08/08/2023	12:00	13:00	--	
	Objectives, energy goals and planning to achieve them / Energy Review / LOGO / Documented Information / Improvement / Resources / Internal audit of the EnMS	08/08/2023	13:00	17:00	4,0	LPP - JMR
	Total time spent				8,0	
Gas Compression Station (GCS) Vasconia	Operations: Energy review / Energy performance indicators / Energy baseline / Planning for collection of energy data / Operational planning and control	09/08/2023	8:00	12:00	4,0	LPP - JMR
	LUNCH	09/08/2023	12:00	13:00	--	
	Maintenance: Operational planning and control	09/08/2023	13:00	17:00	4,0	LPP - JMR
	Total time spent				8,0	
Gas Compression Station (GCS) San Alberto	Operations: Energy review / Energy performance indicators / Energy baseline / Planning for collection of energy data / Operational planning and control	10/08/2023	8:00	12:00	4,0	LPP - JMR
	LUNCH	10/08/2023	12:00	13:00	--	
	Maintenance: Operational planning and control	10/08/2023	13:00	17:00	4,0	LPP - JMR
	Total time spent				8,0	
Gas Compression Station (GCS) Jagua del Pilar	Operations: Energy review / Energy performance indicators / Energy baseline / Planning for collection of energy data / Operational planning and control	11/08/2023	8:00	12:00	4,0	LPP-JMR
	LUNCH	11/08/2023	12:00	13:00	--	

	Maintenance: Operational planning and control	11/08/2023	13:00	17:00	4,0	LPP-JMR
	Total time spent				8,0	
Head office/site	Awareness Communications	15/08/2023	8:00	9:00	1,0	LPP-JMR
	Management review / Leadership	15/08/2023	9:00	10:00	1,0	LPP-JMR
	Design	15/08/2023	10:00	11:00	1,0	LPP-JMR
	Roles, responsibilities and authorities / Awareness / Competence	15/08/2023	11:00	12:00	1,0	LPP-JMR
	LUNCH	15/08/2023	12:00	13:00	--	
	Head Office: Energy review / Energy performance indicators / Energy baseline / Planning for collection of energy data /	15/08/2023	13:00	15:00	1,0	LPP-JMR
	Head Office: Operational planning and control	15/08/2023	15:00	16:00	1,0	LPP-JMR
	Procurement	15/08/2023	16:00	17:00	1,0	LPP-JMR
		Total time spent				8,0
Gas Compression Station (GCS) Villavicencio	Operations: Energy review / Energy performance indicators / Energy baseline / Planning for collection of energy data / Operational planning and control	16/08/2023	8:00	12:00	4,0	LPP-JMR
	LUNCH	16/08/2023	12:00	13:00	--	
	Maintenance: Operational planning and control	16/08/2023	13:00	17:00	4,0	LPP-JMR
		Total time spent	16/08/2023			8,0
Gas Compression Station (GCS) Mariquita	Operations: Energy review / Energy performance indicators / Energy baseline / Planning for collection of energy data / Operational planning and control	17/08/2023	8:00	12:00	4,0	LPP-JMR
	LUNCH	17/08/2023	12:00	13:00	--	
	Maintenance: Operational planning and control	17/08/2023	13:00	17:00	4,0	LPP-JMR
	Closing meeting		16:30	17:00	0,5	LPP - JMR
		Total time spent				8,0
	Total audit time delivered				56,0	LPP-JMR

b) List of Processes/Departments/Areas audited

Sr. No.	Name of the process/department
1	Sustainable Development Management – SDM
2	Projects
3	Human Talent
4	Communications
5	Operations
6	Maintenance
7	Procurement

c) Summary of auditor time allocation

Audit days allocation		Process / Department / Responsibilities									
		1	2	3	4	5	6	7	8	9	10
Head Office - Bogotá											
Team Leader :	Liliana Paola Pinilla	x	x	x	x	x	x	x			
Specialist :	Javier Mauricio Reyes	x	x	x	x	x	x	x			
Site 1 - Paratebueno											
Team Leader :	Liliana Paola Pinilla					x	x				
Specialist :	Javier Mauricio Reyes					x	x				
Site 2 - Sabana											
Team Leader :	Liliana Paola Pinilla					x	x				
Specialist :	Javier Mauricio Reyes					x	x				
Site 3 - Padua											
Team Leader :	Liliana Paola Pinilla					x	x				
Specialist :	Javier Mauricio Reyes					x	x				
Site 4 - Cogua											
Team Leader :	Liliana Paola Pinilla					x	x				
Specialist :	Javier Mauricio Reyes					x	x				
Site 5 – San Alberto											
Team Leader :	Liliana Paola Pinilla					x	x				
Specialist :	Javier Mauricio Reyes					x	x				
Site 6 – Jagua del Pilar											
Team Leader :	Liliana Paola Pinilla					x	x				
Specialist :	Javier Mauricio Reyes					x	x				

d) Summary of clauses audited

AUDIT SUMMARY REPORT FOR ISO 50001:2018												
Company / Site:			Process / Department / Responsibilities									
Transportadora de Gas Internacional S.A. ESP – Head Office			1	2	3	4	5	6	7	8	9	TOTAL
Auditor:			Sustainable Development Management	Projects	Human Talent	Communications	Operations	Maintenance	Procurement			
Liliana Paola Pinilla												
Exclusions / Justifications:												
n.a.												
Shifts Audited: All applicable shifts Covered in this Audit												
First	Second	Third										
x												
ISO 50001:2018 - Clauses :												
4.1	Understanding the organization and its context		X									0
4.2	Understanding the needs and expectations of interested parties		X									0
4.3	Determining the scope of the energy management system		X									0
4.4	Energy management system		X									0
5.1	Leadership and commitment		X									0
5.2	Energy policy		X									0
5.3	Organization roles, responsibilities and authorities				X							0
6.1	Actions to address risks and opportunities		X									0
6.2	Objectives, energy targets and planning to achieve them		X									0
6.3	Energy review		X									0
6.4	Energy performance indicators		X									0
6.5	Energy baseline		X									0
6.6	Planning for collection of energy data		X									0
7.1	Resources			X								0
7.2	Competence				X							0
7.3	Awareness				X							0
7.4	Communication					X						0
7.5.1	Documented information: General		X									0
7.5.2	Creating and updating		X									0
7.5.3	Control of documented information		X									0
8.1	Operational planning and control		X									0
8.2	Design			X								0
8.3	Procurement								X			0
9.1	Monitoring, measurement, analysis and evaluation of energy performance and the EnMS		X									0
9.1.1	General		X									0
9.1.2	Evaluation of compliance with legal requirements and other requirement		X									0
9.2	Internal audit		X									0
9.3	Management review		X									0
10.1	Nonconformity and corrective action		X									0
10.2	Continual improvement		X									0
TOTALS			0									0

AUDIT SUMMARY REPORT FOR ISO 50001:2018

Company / Site:		Process / Department / Responsibilities									
Transportadora de Gas Internacional S.A. ESP – Vasconia		1	2	3	4	5	6	7	8	9	T O T A L
Auditor:		Sustainable Development Management	Projects	Human Talent	Communications	Operations	Maintenance	Procurement			
Liliana Paola Pinilla											
Exclusions / Justifications:											
n.a.											
Shifts Audited: All applicable shifts Covered in this Audit											
First	Second	Third									
x											
ISO 50001:2018 - Clauses :											
4.1	Understanding the organization and its context										0
4.2	Understanding the needs and expectations of interested parties										0
4.3	Determining the scope of the energy management system										0
4.4	Energy management system										0
5.1	Leadership and commitment										0
5.2	Energy policy										0
5.3	Organization roles, responsibilities and authorities										0
6.1	Actions to address risks and opportunities										0
6.2	Objectives, energy targets and planning to achieve them										0
6.3	Energy review					X					0
6.4	Energy performance indicators					X					0
6.5	Energy baseline					X					0
6.6	Planning for collection of energy data					X					0
7.1	Resources										0
7.2	Competence										0
7.3	Awareness										0
7.4	Communication					X					0
7.5.1	Documented information: General										0
7.5.2	Creating and updating										0
7.5.3	Control of documented information										0
8.1	Operational planning and control					X	X				0
8.2	Design										0
8.3	Procurement										0
9.1	Monitoring, measurement, analysis and evaluation of energy performance and the EnMS										0
9.1.1	General					X					0
9.1.2	Evaluation of compliance with legal requirements and other requirement										0
9.2	Internal audit										0
9.3	Management review										0
10.1	Nonconformity and corrective action										0
10.2	Continual improvement					X					0
TOTALS											0

AUDIT SUMMARY REPORT FOR ISO 50001:2018

Company / Site:		Process / Department / Responsibilities									
Transportadora de Gas Internacional S.A. ESP – San Alberto		1	2	3	4	5	6	7	8	9	T O T A L
Auditor:		Sustainable Development Management	Projects	Human Talent	Communications	Operations	Maintenance	Procurement			
Liliana Paola Pinilla											
Exclusions / Justifications:											
n.a.											
Shifts Audited: All applicable shifts Covered in this Audit											
First	Second	Third									
x											
ISO 50001:2018 - Clauses :											
4.1	Understanding the organization and its context										0
4.2	Understanding the needs and expectations of interested parties										0
4.3	Determining the scope of the energy management system										0
4.4	Energy management system										0
5.1	Leadership and commitment										0
5.2	Energy policy										0
5.3	Organization roles, responsibilities and authorities										0
6.1	Actions to address risks and opportunities										0
6.2	Objectives, energy targets and planning to achieve them										0
6.3	Energy review										0
6.4	Energy performance indicators										0
6.5	Energy baseline										0
6.6	Planning for collection of energy data										0
7.1	Resources										0
7.2	Competence										0
7.3	Awareness										0
7.4	Communication										0
7.5.1	Documented information: General										0
7.5.2	Creating and updating										0
7.5.3	Control of documented information										0
8.1	Operational planning and control										0
8.2	Design										0
8.3	Procurement										0
9.1	Monitoring, measurement, analysis and evaluation of energy performance and the EnMS										0
9.1.1	General										0
9.1.2	Evaluation of compliance with legal requirements and other requirement										0
9.2	Internal audit										0
9.3	Management review										0
10.1	Nonconformity and corrective action										0
10.2	Continual improvement										0
TOTALS											0

AUDIT SUMMARY REPORT FOR ISO 50001:2018

Company / Site:		Process / Department / Responsibilities									
Transportadora de Gas Internacional S.A. ESP – La Jagua del Pilar		1	2	3	4	5	6	7	8	9	T O T A L
Auditor:		Sustainable Development Management	Projects	Human Talent	Communications	Operations	Maintenance	Procurement			
Liliana Paola Pinilla											
Exclusions / Justifications:											
n.a.											
Shifts Audited: All applicable shifts Covered in this Audit											
First	Second	Third									
x											
ISO 50001:2018 - Clauses :											
4.1	Understanding the organization and its context										0
4.2	Understanding the needs and expectations of interested parties										0
4.3	Determining the scope of the energy management system										0
4.4	Energy management system										0
5.1	Leadership and commitment										0
5.2	Energy policy										0
5.3	Organization roles, responsibilities and authorities										0
6.1	Actions to address risks and opportunities										0
6.2	Objectives, energy targets and planning to achieve them										0
6.3	Energy review										0
6.4	Energy performance indicators										0
6.5	Energy baseline										0
6.6	Planning for collection of energy data										0
7.1	Resources										0
7.2	Competence										0
7.3	Awareness										0
7.4	Communication										0
7.5.1	Documented information: General										0
7.5.2	Creating and updating										0
7.5.3	Control of documented information										0
8.1	Operational planning and control										0
8.2	Design										0
8.3	Procurement										0
9.1	Monitoring, measurement, analysis and evaluation of energy performance and the EnMS										0
9.1.1	General										0
9.1.2	Evaluation of compliance with legal requirements and other requirement										0
9.2	Internal audit										0
9.3	Management review										0
10.1	Nonconformity and corrective action										0
10.2	Continual improvement										0
TOTALS											0

AUDIT SUMMARY REPORT FOR ISO 50001:2018

Company / Site:			Process / Department / Responsibilities									
Transportadora de Gas Internacional S.A. ESP – Villavicencio			1	2	3	4	5	6	7	8	9	T O T A L
Auditor:			Sustainable Development Management	Projects	Human Talent	Communications	Operations	Maintenance	Procurement			
Liliana Paola Pinilla												
Exclusions / Justifications:												
n.a.												
Shifts Audited: All applicable shifts Covered in this Audit												
First	Second	Third										
x												
ISO 50001:2018 - Clauses :												
4.1	Understanding the organization and its context											0
4.2	Understanding the needs and expectations of interested parties											0
4.3	Determining the scope of the energy management system											0
4.4	Energy management system											0
5.1	Leadership and commitment											0
5.2	Energy policy											0
5.3	Organization roles, responsibilities and authorities											0
6.1	Actions to address risks and opportunities											0
6.2	Objectives, energy targets and planning to achieve them											0
6.3	Energy review						X					0
6.4	Energy performance indicators						X					0
6.5	Energy baseline						X					0
6.6	Planning for collection of energy data						X					0
7.1	Resources											0
7.2	Competence											0
7.3	Awareness											0
7.4	Communication						X					0
7.5.1	Documented information: General											0
7.5.2	Creating and updating											0
7.5.3	Control of documented information											0
8.1	Operational planning and control						X	X				0
8.2	Design											0
8.3	Procurement											0
9.1	Monitoring, measurement, analysis and evaluation of energy performance and the EnMS											0
9.1.1	General						X					0
9.1.2	Evaluation of compliance with legal requirements and other requirement											0
9.2	Internal audit											0
9.3	Management review											0
10.1	Nonconformity and corrective action											0
10.2	Continual improvement						X					0
TOTALS												0

AUDIT SUMMARY REPORT FOR ISO 50001:2018

Company / Site:		Process / Department / Responsibilities									
Transportadora de Gas Internacional S.A. ESP – Mariquita		1	2	3	4	5	6	7	8	9	T O T A L
Auditor:		Sustainable Development Management	Projects	Human Talent	Communications	Operations	Maintenance	Procurement			
Liliana Paola Pinilla											
Exclusions / Justifications:											
n.a.											
Shifts Audited: All applicable shifts Covered in this Audit											
First	Second	Third									
x											
ISO 50001:2018 - Clauses :											
4.1	Understanding the organization and its context										0
4.2	Understanding the needs and expectations of interested parties										0
4.3	Determining the scope of the energy management system										0
4.4	Energy management system										0
5.1	Leadership and commitment										0
5.2	Energy policy										0
5.3	Organization roles, responsibilities and authorities										0
6.1	Actions to address risks and opportunities										0
6.2	Objectives, energy targets and planning to achieve them										0
6.3	Energy review										0
6.4	Energy performance indicators										0
6.5	Energy baseline										0
6.6	Planning for collection of energy data										0
7.1	Resources										0
7.2	Competence										0
7.3	Awareness										0
7.4	Communication										0
7.5.1	Documented information: General										0
7.5.2	Creating and updating										0
7.5.3	Control of documented information										0
8.1	Operational planning and control										0
8.2	Design										0
8.3	Procurement										0
9.1	Monitoring, measurement, analysis and evaluation of energy performance and the EnMS										0
9.1.1	General										0
9.1.2	Evaluation of compliance with legal requirements and other requirement										0
9.2	Internal audit										0
9.3	Management review										0
10.1	Nonconformity and corrective action										0
10.2	Continual improvement										0
TOTALS											0

Section 3. Audit findings

Stage 2 Audit Report

1/ Introduction: type of audit, standard, sites, dates

A re-certification main audit was conducted against ISO 50001:2018 requirements. The total audit duration was 7 MDs on-site and 0 MDs off-site. The audit was conducted from 08 August 2023 to 17-08-2023

2/ Validation of information provided by the organization during the application

The information provided by the client in their application for certification was validated and is re-confirmed in this report as follows.

1. The annual energy consumption of the organisation was verified to be 7.004 TJ and matches the value of annual energy consumption declared in the client application.
2. The energy sources were verified and found to be the same as in the client application. The organisation uses the following energy sources
 Coal Grid Electricity Natural Gas Furnace oil Diesel Petrol Biomass
 Renewables Other ()
3. The number of significant energy uses (S.E.U.s) of the organisation was verified and is the same as in the client application. The number of S.E.U.s is (2)
4. The effective EnMs manpower of the organisation was verified and found to be the same as in the client application.

The audit team confirms that the basic energy related inputs match the client application form. No further action is required

The audit team has observed a discrepancy in the basic energy related inputs that will impact the audit time. A revision in the contract review is recommended to recalculate the audit time.

The audit team has observed a discrepancy in the basic energy related inputs but the discrepancy has no impact on the audit time. A revision in the contract review is recommended, but only to record the correct data observed by the team.

3/ Description of the company activities, processes, organization

Transportadora de Gas Internacional - TGI S.A. ESP., A subsidiary of Grupo Energía Bogotá, is a company mixed (public and private) of the public services sector, established in Bucaramanga in 2007 as a joint stock company. It is subject to the Colombian legal regime and enjoys administrative, patrimonial and budgetary autonomy. Currently, TGI is a company of the Capital District and its administrative headquarters is located in Bogotá City.

Grupo Energía Bogotá (GEB) is the main shareholder of TGI S.A. ESP., Which provides the company an ideal combination of operating experience and financial strength.

➤ 99.996% EMPRESA ENERGÍA BOGOTÁ S.A.

➤ 0.004% OTHER SHAREHOLDERS

The main activity of the company is the transportation of natural gas from a producer to the senders or customers, through high pressure gas pipelines. Since the beginning of its activities, TGI has maintained continuity in the provision of the service, within quality and reliability standards.

TGI is a public limited company and public service provider and is subject to the regulation, surveillance and control of competent authorities such as the Energy Regulation Commission and Gas (CREG), the Mining and Energy Planning Unit (UPME) and the Superintendence of Services Domiciliary Public (SSPD).

The gas transport system of TGI S.A. ESP covers a pipeline network of approximately 4,025 km providing the natural gas transport service through a gas pipeline network extending from the Guajira to Valle del Cauca and from t Llanos Orientales to Huila and Tolima, crossing several departments from Andean Region. The transport system consists of the following gas pipelines:

- Ballena – Barrancabermeja.
- Centro Oriente.
- Mariquita – Cali.
- Cusiana – Apiay – Usme.
- Cusiana – La Belleza.
- Boyacá y Santander (GBS).
- Del Sur de Bolívar – (Gasoductos Aislados).
- Morichal – Yopal – (Gasoducto Aislado).
- La Sabana.

GAS AND COMPRESSION OPERATIONAL CENTERS:

- Hato Nuevo Gas Compression Station
- La Jagua del Pilar Gas Compression Station
- Casacará Gas Compression Station
- Curumani Gas Compression Station
- Norean Gas Compression Station
- San Alberto Gas Compression Station
- Barrancabermeja Gas Compression Station
- Vasconia Gas Compression Station
- Puente Guillermo Gas Compression Station
- Villavicencio Gas Compression Station
- Paratebueno Gas Compression Station
- Miraflores Gas Compression Station
- Padua Gas Compression Station
- Mariquita Gas Compression Station
- La Sabana Gas Compression Station

4/ Coverage of Energy management system

The planning of the Management System has been formulated and integrated to the management of an existing system based on ISO 9001: 2015; ISO 14001: 2015 and ISO 45001:2018.

The defined and validated scope is:

Gas transportation, design, construction, operation and maintenance of gas pipelines and compression stations of de natural gas transportation system limited to:

1. The Administrative headquarters - Bogotá
2. La Sabana Gas Compression Station
3. Mariquita Gas Compression Station
4. Padua Gas Compression Station
5. Miraflores Gas Compression Station
6. Puente Guillermo Gas Compression Station
7. Paratebueno Gas Compression Station
8. Villavicencio Gas Compression Station
9. Vasconia Gas Compression Station
10. Cogua Gas Compression Station
11. Jagua del Pilar Gas Compression Station
12. San Alberto Gas Compression Station

5/ Date of implementation of the Energy Management system and use of consultant, in any

The audit team has verified and confirms that the client EnMS is seen to be implemented over a period of 8 years at the organization. The team further reports that the organization uses the services of a consultant

6/ Validation of the scope of certification

During the audit it was verified that the scope of the management system has been implemented for the uses and consumptions of:

HEAD OFFICE. CARRERA 9 STREET # 73-44, BOGOTÁ - COLOMBIA.	ADMINISTRATIVE ACTIVITIES FOR THE COMMERCIALIZATION OF THE GAS TRANSPORTATION SERVICE, DESIGN, CONSTRUCTION, OPERATION (MAIN CONTROL CENTER) AND MAINTENANCE OF GAS PIPELINES AND COMPRESSION STATIONS.
SITE 1: GAS COMPRESSION STATION LA SABANA - COLOMBIA.	GAS TRANSPORTATION, OPERATION AND MAINTENANCE OF THE COMPRESSION STATION
SITE 2: GAS COMPRESSION STATION PADUA - COLOMBIA.	GAS TRANSPORTATION, OPERATION AND MAINTENANCE OF THE COMPRESSION STATION
SITE 3: GAS COMPRESSION STATION MARIQUITA – COLOMBIA	GAS TRANSPORTATION, OPERATION AND MAINTENANCE OF THE COMPRESSION STATION
SITE 4: GAS COMPRESSION STATION MIRAFLORES – COLOMBIA	GAS TRANSPORTATION, OPERATION AND MAINTENANCE OF THE COMPRESSION STATION
SITE 5: GAS COMPRESSION STATION PUENTE GUILLERMO - COLOMBIA	GAS TRANSPORTATION, OPERATION AND MAINTENANCE OF THE COMPRESSION STATION
SITE 6: GAS COMPRESSION STATION PARATEBUENO - COLOMBIA	GAS TRANSPORTATION, OPERATION AND MAINTENANCE OF THE COMPRESSION STATION
SITE 7: GAS COMPRESSION STATION VILLAVICENCIO- COLOMBIA	GAS TRANSPORTATION, OPERATION AND MAINTENANCE OF THE COMPRESSION STATION
SITE 8: GAS COMPRESSION STATION VASCONIA- COLOMBIA	GAS TRANSPORTATION, OPERATION AND MAINTENANCE OF THE COMPRESSION STATION
SITE 9: COGUA OPERATIONAL CENTER - COLOMBIA	GAS TRANSPORTATION AND MAINTENANCE OF GAS PIPELINES
SITE 10: GAS COMPRESSION STATION SAN ALBERTO - COLOMBIA	GAS TRANSPORTATION, OPERATION AND MAINTENANCE OF THE COMPRESSION STATION

SITE 11: GAS COMPRESSION STATION JAGUA DEL PILAR- COLOMBIA	GAS TRANSPORTATION, OPERATION AND MAINTENANCE OF THE COMPRESSION STATION
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*** According to the contract, SV#1 does not include auditing Sabana, Paratebueno, Puente Guillermo, Miraflores and Padua locations.

Energetic uses:

- Natural gas: compression process, vehicles and generators
- ACPM: backup generator and vehicles
- Gasoline: Vehicles
- Electric power: compression process, facilities, electric vehicle

Significative Energy Uses: Natural gas (for total consumption) and electric power (for saving potentials).

7/ Adequacy of documentation

The audit team has reviewed the EnMS documentation and finds that the same is adequately maintained.

Regarding the Energy Management System, the documentation used in addition to that established in the Integrated Management System is the following:

- The scope and limits of the EnMS;
- The Integrated Management Policy (includes energy efficiency);
- Energy objectives, energy goals, and action plans;
- The documented information, including the records, required by ISO 50001: 2018 Standard.
- Other documents determined by the organization as necessary.

The audit team has reviewed the EnMS documentation and finds that the same is adequately maintained.

There is a Document Control procedure, which defines the controls required for approval, revision, change control, documents of external origin and related aspects to ensure effective control of documents. Likewise, the procedure established for Record Control establishes aspects of Storage, Protection, Recovery, Retention Time and Final Disposition.

8/ Achievement of Policy commitment

When verifying if the Policy complies with the requirements of ISO 50001: 2018, it is observed that it is related to include a commitment to ensure the availability of information and necessary resources to achieve objectives and energy targets; includes a commitment to satisfy applicable legal requirements and other requirements related to energy efficiency, energy use and energy consumption; includes a commitment to continual improvement of

energy performance and the EnMS; supports the procurement of energy efficient products and services that impact energy performance; and supports design activities that consider energy performance improvement. It was evidenced records of dissemination of the Policy.

Conclusion: It is seen from the audit conducted that the organisation has been fully successful in meeting its EnMS policy commitments

9/ Description of level of system conformance

The organisation's EnMS was found conforming in respect of the following:

- 1. The management system documentation demonstrated conformity with the requirements of the audit standard ISO 50001:2018 and provided enough structure to support implementation and maintenance of the management system,*
- 2. The organization has demonstrated implementation and maintenance / improvement of its management system.*
- 3. The internal audit programmed has been fully implemented and demonstrates effectiveness as a tool for maintaining and improving the management system,*
- 4. Throughout the audit process, the management system demonstrated overall conformance with all the requirements of the audit standard.*

10/ System strengths

The EnMS was found to be particularly strong in respect of the following:

- 1. Leadership and commitment of the staff with the implementation of the EnMS.*
- 2. Integration of common elements with other standards: ISO 9001:2015, ISO 14001:2015.*
- 3. Technical knowledge of the operation and application of established procedures.*
- 4. Compliance with predictive and preventive maintenance programs to maintain the operation of Gas Compression Stations.*
- 5. Implementation of improvement projects for energy efficiency.*

11/ Names of processes audited (for each main process)

1. Sustainable Development Management – SDM
2. Projects
3. Human Talent
4. Communications
5. Operations
6. Maintenance
7. Procurement

12/ Effectiveness of EnMS implementation during out of normal working hours

In line with the requirement in clause 9.1.3.5 of ISO 17021-1:2015, the audit team hereby states that the organization works in the first, second and third shifts. The team is of the opinion, however, that it was not necessary to plan the audit of shift activities separately and hence confirmed the effectiveness of EnMS implementation through only a review of the records maintained for shifts.

An audit of the silent hours/night shift working was conducted on dd/mm/yyyy in the _____ area from HH:MM to HH:MM and implementation of the EnMS was found to be effective/satisfactory/ineffective. *The audit timings are reflected in the audit plan*

There is no necessity of a separate audit of the silent hours/night shift because of the following reasons:

1. The same operations are carried out within scope, 24 hours a day.
2. The entire audit can be done in the general shift.

13/ Improvement observed over the certification cycle

Conclusion: The audit team hereby confirms that the organization has improved its energy performance during the period of implementation of its EnMS and therefore, the audit team recommends continued certification to the standard.

*The audit team can confirm the following in **evidence** of the observed energy performance improvement:*

Performance data for	<input type="checkbox"/> Entire organization as a whole <input checked="" type="checkbox"/> Process area/Deptt. <u>Head Office - Bogotá</u>	
Energy baseline (B)	Energy baseline period considered by the organization is <u>2021</u>	Value of the EnPI for the baseline period was <u>0,1159 GJ/Person</u>
Energy Performance Indicator (R)	The EnPI of the organization is $\Sigma \text{Energetic(GJ)} / \# \text{ people}$	Value of the EnPI for the current year is: <u>0,0275 GJ/Person</u>
Energy performance improvement compared to the baseline (R) – (B)	ENPI has remained in the goal <0,11159 GJ/Person, comparing current year results with 2021 baseline.	
EnPI value for the current year (2023)	0,0275 GJ/persona	
EnPI value for the year (2022)	0,1742 GJ/Person. Return to normality after the covid-19 pandemic.	
EnPI value for the year (2021)	0,1159 GJ/Person	
EnPI value for the year (2020)	0,9118 GJ/Person. Atypical year, due to the covid-19 pandemic.	
EnPI value for the year (2019)	0,1394 GJ/Person	

Performance data for	<input type="checkbox"/> Entire organization as a whole <input checked="" type="checkbox"/> Process area/Deptt. <u>(Vasconia)</u>	
Energy baseline (B)	Energy baseline period considered by the organization is <u>2021</u>	Value of the EnPI for the baseline period was: <u>0,0061 GJ/KPC</u>

Energy Performance Indicator (R)	The EnPI of the organization is: $\Sigma \text{Energetic(GJ)} / \text{gas delivered (KPC)}$	Value of the EnPI for the current year is: 0,0059 GJ/KPC
Energy performance improvement compared to the baseline (R) – (B)	ENPI has remained in the goal <0,0061GJ / KPC, comparing current year results with 2021 baseline.	
EnPI value for the current year (2023)	0,0059 GJ/KPC	
EnPI value for the current year (2022)	0,0060 GJ/KPC	
EnPI value for the year (2021)	0,0061 GJ / KPC	

Performance data for	<input type="checkbox"/> Entire organization as a whole <input checked="" type="checkbox"/> Process area/Deptt. <u>(San Alberto)</u>	
Energy baseline (B)	Energy baseline period considered by the organization is 2021	Value of the EnPI for the baseline period was: 0,0167 GJ/KPC
Energy Performance Indicator (R)	The EnPI of the organization is: $\Sigma \text{Energetic(GJ)} / \text{gas delivered (KPC)}$	Value of the EnPI for the current year is: 0,00106GJ/KPC
Energy performance improvement compared to the baseline (R) – (B)	ENPI has remained in the goal <0,0167 GJ / KPC, comparing current year results with 2021 baseline.	
EnPI value for the current year (2023)	----- GJ/KPC During 2023, they haven't nomination for gas compression, the Organization has implemented an energy efficiency plan to maintain required operating conditions.	
EnPI value for the current year (2022)	0,0060 GJ/KPC	

Performance data for	<input type="checkbox"/> Entire organization as a whole <input checked="" type="checkbox"/> Process area/Deptt. <u>(Jaqua del Pilar)</u>	
Energy baseline (B)	Energy baseline period considered by the organization is 2021	Value of the EnPI for the baseline period was: 1,6040 GJ/KPC
Energy Performance Indicator (R)	The EnPI of the organization is: $\Sigma \text{Energetic(GJ)} / \text{gas delivered (KPC)}$	Value of the EnPI for the current year is: 0,0298 GJ/KPC

Energy performance improvement compared to the baseline (R) – (B)	ENPI has remained in the goal <1,6040 GJ / KPC, comparing current year results with 2021 baseline.
EnPI value for the current year (2023)	0,0298 GJ/KPC
EnPI value for the current year (2022)	----- GJ/KPC During 2022, they hadn't nomination for gas compression, the Organization has implemented an energy efficiency plan to maintain required operating conditions.
EnPI value for the current year (2021)	1,6040 GJ/KPC

Performance data for	<input type="checkbox"/> Entire organization as a whole <input checked="" type="checkbox"/> Process area/Deptt. <u>(Villavicencio)</u>	
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Energy baseline (B)	Energy baseline period considered by the organization is <u>2021</u>	Value of the EnPI for the baseline period was: 0,0453 GJ/KPC
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Energy Performance Indicator (R)	The EnPI of the organization is: $\Sigma \text{Energetic(GJ)} / \text{gas delivered (KPC)}$	Value of the EnPI for the current year is: 0,11475 GJ/KPC
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Energy performance improvement compared to the baseline (R) – (B)	ENPI has not reached the goal <0,0453 GJ / KPC, comparing current year results with 2021 baseline.
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EnPI value for the current year (2023)	0,11475 GJ/KPC They have an action plan to normalize the indicator, given that a technical condition of the gas pipeline was presented, which did not come into operation during 2022, for which the gas delivered was less than 2021, additionally although that gas is not compressed, consumption in torch and pilot gas is maintained.
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EnPI value for the current year (2022)	0, 0941 GJ/KPC.
EnPI value for the current year (2021)	0,0453 GJ/KPC

Performance data for	<input type="checkbox"/> Entire organization as a whole <input checked="" type="checkbox"/> Process area/Deptt. <u>(Mariquita)</u>	
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Energy baseline (B)	Energy baseline period considered by the organization is average 2019, 2020 and 2021.	Value of the EnPI for the baseline period was: 0,0106 GJ/KPC
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<i>Energy Performance Indicator (R)</i>	<i>The EnPI of the organization is: $\Sigma \text{Energetic(GJ)} / \text{gas delivered (KPC)}$</i>	<i>Value of the EnPI for the current year is: 0,00777 GJ/KPC</i>
<i>Energy performance improvement compared to the baseline (R) – (B)</i>	<i>ENPI has remained in the goal <0,0106 GJ / KPC, comparing current year results with baseline.</i>	
<i>EnPI value for the current year (2023)</i>	<i>0,00777 GJ/KPC</i>	
<i>EnPI value for the current year (2022)</i>	<i>0,0103GJ/KPC</i>	
<i>EnPI value for the year (2021)</i>	<i>0,0105 GJ/KPC</i>	
<i>EnPI value for the year (2020)</i>	<i>0,0104 GJ/KPC</i>	
<i>EnPI value for the year (2019)</i>	<i>0,0109 GJ/KPC</i>	

Audit Team confirms that there is a continual improvement of the EnMS. Evidence to justify the same is described as below.

- Compliance with Enpis goals at the sites and in the case of Villavicencio, the action plan is evident.
- Specific programs to improve energy performance, like elimination of fugitive emissions, injection of compressed gas to start units; lighting torches, as required.
- Maintenance of energy reviews and internal audits to the EnMS, annually.

14/ Review of Internal audits

Internal audit is carried out annually. Last audit was from June 6th to June 9th, 2022.

Seen the SGI audit development procedure, P-GEG-001 revision 8 of 4.Sep.2019.

Seen F-GEG-012 internal audit program F-GEG-019; internal audit plan F-GEG-020, checklist F-GEG-021 report. NC findings were not evidenced.

2 Observations about 9.1 monitoring, measurement, analysis and evaluation of energy performance of ENMs

Conclusion: The audit team concludes that the organization's internal audit process can be regarded as effective

15/ Review of Management review

Management review is performed annually. Seen record of review by management, from June, 2022. It includes all the inputs required by ISO 50001:2018.

Sample:

- Give greater importance to issues of sustainable development. Includes issues of corporate relations, social responsibility, SST, environmental (licensing, decarbonization).
- Changes: Social and Environmental Management Vice Presidency.
- Decarbonization route, reduction of emissions. It has 23 pillars, aligned with the national government 51% 2030, carbon 0, 2050. 0.6% global issue.
- Operational efficiency. The measurement of fugitive emissions (field measurements). 13% 2021, close with 50% at the end of the year.
- Start-up of stations is done with compressed air, it decreases approximately 60% gas burning in torch.
- Predictive consumption at stations (simulator in temperature, pressure, flow operations) which will result in improvement for the organization.
- Innovation: hydrogen issues, microlg, cleaner mobility in the understanding phase (cleaner energy, emits less particulate matter)
- Nature-based solutions: compensation of strategic areas 244,500 trees (2025).

Sample Outputs:

- Status of previous initiatives (photovoltaic solar project, new Cogua infrastructure, sustainable purchasing manual – sustainability criteria (pre-contractual requirements); organizational context; internal audit results, energy review results: Miraflores has the highest gas consumption 813,706 GJ and Puente Guillermo 637,020 (2021)
- Opportunities for improvement: strengthen staff competence for projects related to energy efficiency; train more people in ISO 50001. Implement action plans to address findings in internal and external audits.

Conclusion: The audit team concludes that the organization's management process can be regarded as effective

16/ Verification of each previous non-conformities raised

There were not non-conformities.

Conclusion: The audit team concludes that the organization's management process can be regarded as effective

17/ Useful comparison with previous audit findings

There were not non-conformities.

18/ Opportunities for improvement

N.A.

19/ External communication

The organization will communicate with its external stakeholders. A system of external communication is established and implemented.

- A documented procedure is established for communication of EnMS.
- Top management has decided to make Company's EnMS Performance available on request
- Energy Policy shall be made available to all interested parties on request.

- The Sustainable development Committee is the area for discussion and decision making regarding the energy policy, evaluation of aspects related to the efficient use of energy, as well as consultations on topics of energy interest.
- To the interaction of TGI with its suppliers regarding the environmental aspects and energy efficiency

and issues related to the Integrated Management System, is done through the auditors and supervisors of the contracts and according to the guidelines given by the Internal Manual of Contracting.

- TGI publishes the Sustainability Report annually, at <https://www.tgi.com.co/operaciones/sostenibilidad>, it includes verified data about energy consumption within the organization

20/ Evaluation of compliance to legal and other requirements

Legal & regulatory requirements are applicable to this organisation for each technical area of the EnMS, as defined in ISO 50003:2015, as stated in the table below.

TA of the EnMS	Tick as applicable	Description	Whether legal requirement is applicable		Name the specific legal/regulatory requirement below that is applicable in the host country for the EnMS certification
			Yes	No	
ENM 01	<input type="checkbox"/>	Industry-Light to medium	<input type="checkbox"/>	<input type="checkbox"/>	
ENM 02	<input type="checkbox"/>	Industry-Heavy	<input type="checkbox"/>	<input type="checkbox"/>	
ENM 03	<input type="checkbox"/>	Buildings	<input type="checkbox"/>	<input type="checkbox"/>	
ENM 04	<input type="checkbox"/>	Building complexes	<input type="checkbox"/>	<input type="checkbox"/>	
ENM 05	<input type="checkbox"/>	Transport	<input type="checkbox"/>	<input type="checkbox"/>	
ENM 06	<input checked="" type="checkbox"/>	Mining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> - Resolutions of the energy and gas regulation commission (CREG). - Rules (Circulars of the superintendence of public services domiciliary (SSPD). - Decrees and resolutions of the Ministry of Mines and Energy. - Specific in energy matters: <ul style="list-style-type: none"> * Those established in the environmental licenses of operation and maintenance * Technical regulation of electrical installations – Retie, Retiq, Retilap.
ENM 07	<input type="checkbox"/>	Agriculture ²	<input type="checkbox"/>	<input type="checkbox"/>	
ENM 08	<input type="checkbox"/>	Energy supply	<input type="checkbox"/>	<input type="checkbox"/>	

Conclusion: The audit team confirms that the organisation has in place a system to evaluate legal compliance and is effectively maintained and managed

Samples:

- Law 697 from October, 2001. Rational use of energy program.
- Law 2099 of 2021. Modification of Law 1715 of 2014. The energy transition, the revitalization of the energy market, the economic reactivation of the country and other provisions are issued.
- Decree 1073 of 2015. Only regulatory.
- RETILAP. Resolution 181331 from August, 2009. MME. Technical Regulation of Illumination and Public Lighting. Resolution 40031 from February, 2021. Extend for two years the validity of the Technical Regulation of Lighting and Public Lighting.
- RETIE: Resolution 90708 from August, 2008. Technical Regulation of Electrical Installations. Resolution 40293 from July, 2021. Technical requirements for conformity assessment regarding installations where some provisions of the requirements of the General Annex of the Technical Regulation of Installations are modified and repealed Electrical — RETIE, in relation to the competencies for the personnel who participate in the inspection activities of installation networks electrical and perform the position of technical director, inspectors and substitutes if necessary. NTC 2050, 2020. ICONTEC. Colombian Electrical Code

² Currently this scope is not accredited

- RETIQ: Resolution 41012 from September, 2015. Technical Regulation of Labeling for Rational Use of Energy purposes applicable to some equipment for the final use of electrical energy and fuel gas. Resolution 40099 from March, 2021. Conditions of enforcement of the labeling of some requirements established in the general annex of the technical labeling regulation.

21/ Uncertainty / obstacles that could affect the reliability of audit conclusions

Everything was confirmed with evidence, consequently, no obstacles are detected that could affect the reliability of the conclusions.

22/ Unresolved diverging opinions between the audit team & auditee

Conclusion: *There were no diverging opinions or disagreements during the audit.*

23/ Use of logo

The audit team leader has explained to the organisation during the audit closing meeting, Bureau Veritas policy and guidelines for the use of the BV certification mark, also referred to as the "BV logo". The team checked the organisation's use of the BV logo and reports as follows (check all that apply below).

- The logo is used on visiting cards and/or letterheads of the organisation*
- The logo is used by the organisation on its web site*
- The logo is used on product promotional material*
- The use of the logo as above was observed to be in accordance with the BV guidelines for the same*
- There was no case observed of the use of the logo on primary product packaging material, cartons, etc.*
- The organisation has not used the accreditation body's logo anywhere*
- The audit team did not come across any instance of logo misuse by the organisation*
- Case/s of misuse of the BV logo were found by the audit team and brought to the organisation's notice; also raised as a non-conformity on logo use*

24/ Agreed follow-up action plan

N.A.

25/ Audit conclusion

The audit team hereby recommends the organisation for recertification to **ISO 50001:2018**. Further audit team is able to Confirm that following audit objectives have been achieved:

- The management system is capable to meet all applicable requirements and expected outcomes;*
- The internal audit and management review process is effective*
- Certification scope and audit criteria appropriately conforms client's management system*
- Continual improvement in energy management system and energy performance have been achieved.*

Auditor Notes

HEAD OFFICE BOGOTA

August 8th, 2023

4.1 Understanding the organization and its context

There is a SWOT analysis document, updated on June 29th, 2023. Changes related to organizational restructuring (company areas). EnMS Responsibilities for Environmental Professionals.

Strengths: personnel competence, process standardization, information systems (better data capture); improve the traceability of consumption; decarbonisation route; initiatives and programs regarding carbon footprint; Carbon footprint verification with ICONTEC (5 locations) Including: Mariquita, Paratebueno. Compensation plans.

Weaknesses: operational inefficiencies that may require higher consumption for gas transportation (improved monitoring and follow-up) to identify events that have higher consumption in compression engines; criteria for purchasing equipment that consumes more energy (improvement in the manual for sustainable purchases); circular economy.

Opportunities: use of renewable energies (hydrogen, solar panels), indicators related to % reduction of emissions; emission index (operational emissions vs. transported gas); energy transition (possible higher demand for natural gas).

Threats: increased regulatory demands, lack of incentives to update technological innovation; international requirements and commitments.

Seen action plan: engine start with compressed air (currently applicable in Villavicencio).

4.2 Understanding the needs and expectations of interested parties

There is an interested parties matrix; it includes: partners, contractors, employees, government (Ministries; Environmental Authorities and Corporations); among others. Each one with needs, expectations, evidence of compliance.

Sample:

- Suppliers. Needs: knowledge of different environmental and energy clauses during contract execution. Expectations: strategic alliances, development measurement. Evidence: HSEQ and social manual for suppliers; performance reports. Seen manual M-ASI-002 version 11 from November 8th, 2022.

6.3 The contractor must have or adopt the environmental management and energy efficiency program, given compliance with the development of the contract activities. See with supply.

They have procedure P-AJU-007 revision 8 from December 11th, 2020. Identification, verification, consolidation and updating of legal requirements by processes. It includes how to

access the legal and other requirements: identified by the environmental department. There is a matrix F-AJU-001 for legal requirements, last updated on January 26th, 2022.

Sample:

- Law 1715 of 2014. Updated by Law 2099 of 2021. Energy Efficiency Law.
- Resolution 40122 of 2016. Retilap.
- Resolution 41012 of 2015. Retiq.
- Law 2169 of 2021. Promotion of the development of carbon neutrality 50% in 2030.
- Resolution 319 of August 2022 UPME, regarding requirements and procedure to access the tax benefits of income tax discount, income deduction and VAT exclusion for efficient energy management projects. OK included.

9.1.2 Evaluation of compliance with legal requirements and other requirements

Evaluation of compliance with legal requirements is carried out annually by the environmental sub-directorate. Having seen the review of legal requirements dated January 26th, 2022. 100% Compliance.

Sample:

- Resolution 90708 of 2013. RETIE. Seen inspection opinion by Retie Engineering and Inspection SAS. March 30, 2015. La Sabana Compression Station.

Other requirements:

- Conpes 3943. Policy to improve air quality. Seen decarbonisation route in the 2022 sustainability report. Seen in numeral 3.1.1 Climate strategy and decarbonisation (It includes quantification of emissions, carbon neutrality, emission reduction targets 4% to 7%). Strategies: portable compression system (scheduled maintenance); portable flare system; flare system in compression stations; solar panel systems in compression stations; scheduled maintenance program to reduce the amount of gas released before maintenance; tightening and adjustment plan (measurement of fugitive emissions – Currently 74% measurement).
- 18.4% reduction in scope 1. Compensation 80,941 TCO₂equ – acquisition of carbon credits.

4.3 Determining the scope of the energy management system

The scope and limits are documented in Integrated Management System manual ME-GEG-001 Version 18, from June 30th, 2022

4.4 Energy Management System

The SGE is part of the socio-environmental, occupational health and safety management process – Environmental and Energy Management. C-ASI-002 Revision December 12, 2019.

Responsible: Environmental Sub directorate - Sustainable Development Management

Purpose: To manage the environmental and energy aspects and impacts generated by the activities of TGI., through the development of programs and actions necessary to comply with

the objectives of the corporate environmental policy and the applicable legal requirements.

It includes inputs, outputs, activities and responsibilities with each of the SGEN elements

Sample:

Activity: Carry out the energy review

Inputs:

- Primary information on the use and consumption of energy.
- Information on energy sources used for each area and infrastructure of the work center.
- Diagrams and plans.
- Inventory of technological equipment.
- Matrix of legal requirements.

Outputs:

- Energy measurements
- Complementary energy studies.
- Energy review
- Programs and operational controls.

5.2 Energy policy

Policy is published on the website, intranet, billboards, approved on minute 1282 from December 12th, 2019. It includes the requirements from ISO 50001:2018 standard.

DP-001 climate change policy from 2022.

DP-003 sustainability policy from f 2017.

Seen presidential decision # 11 from March 13th, 2023. It includes climate change and energy transition commitments. Promote efficiency in the use of energy in the opportunities derived from the circular use of the flow of materials.

6.1 Actions to address risks and opportunities

There is a risk and control matrix F-GEG-046, updated in August, 2022. Opportunities are documented in relation to the DOFA matrix.

Sample Risks:

- Failure in the registration of system information and data management. Consumption registration errors. Evaluation: important. Control: data audit, carbon footprint data verification.

Sample opportunities:

- Use of lighting at headquarters: installation of motion sensors.

6.2 Objectives, energy targets and planning to achieve them

Objectives, energy goals and action plans. Seen document PR-ASI-019 Climate change and energy efficiency program review on March 8th, 2023.

Objectives:

- Promote energy environmental programs and projects that contribute to environmental improvement and quality.
- Promote the application and dissemination of best environmental and energy management practices for the operation and maintenance of the infrastructure.

Goals:

- GSC Mariquita ≤ 0.0106 GJ/KPC
- GSC Padua ≤ 0.0090 GJ/KPC
- GSC Miraflores ≤ 0.0064 GJ/KPC
- GSC Puente Guillermo ≤ 0.0051 GJ/KPC
- GSC Vasconia ≤ 0.0064 GJ/KPC
- GSC Villavicencio ≤ 0.0453 GJ/KPC
- GSC Paratebuena ≤ 0.0101 GJ/KPC
- GSC San Alberto ≤ 0.0106 GJ/KPC
- GSC Jagua del Pilar $\leq 1,6040$ GJ/KPC
- GSC Centrifuge Sabana ≤ 0.0010 GJ/KPC
- OC Cogua ≤ 1.6500 GJ/Person
- Administrative Headquarters ≤ 0.1300 GJ/person

Goals will be maintained for 2023, unless the EnBL is updated.

Action plans in each energy review.

6.3 Energy review.

There is an energy review procedure P-ASI-002 Revision 3 from July 3th, 2020

Scope: the procedure applies to the development, review and updating of the energy review carried out in the operational and administrative facilities identified in the scope of the international gas carrier sa esp, according to the guidelines established in the ISO 50001:201 standard.

Identification of equipment, operational analysis of energy uses and consumption, identify in the energy format, machinery and equipment the energy sources used by TGI for each area.

Collection of diagram and plans: flow chart of the operation in which energy is used and consumed, accompanied by electronic plans, which must be updated, digitized and printed.

Maintenance/operations management, updated plans, physical or digital plans, Carry out an inventory of the technological equipment with consumption characteristics of each of them in order to determine the average consumption and possible sources of significant energy savings. Maintenance address.

Analysis of the information: According to the information collected in the previous points they analyzed in relation to the following aspects:

- Analyze energy usage and consumption based on metering and other data.

Based on the analysis, identify the USES.,

- Determine and prioritize opportunities to improve energy performance, estimate future energy uses and consumption.
- Analyze the use of energy consumption based on the measurement and other data: Identify the current types of energy, an inventory must be made of the different types of energy used in the sites defined in the scope of the EnMS regardless of the amount used.
- Competence of the personnel that performs the analysis, energy review.

Identification of the USES: It should be noted that the ISO 50001: 2018 standard allows the organization to determine the criteria to define what is significant in its organization Maintenance/operations management, competence of the personnel performing the analysis, energy review.

Identification of the USES: the evaluation of the measurement of greenhouse gases and potential of improvement.

For each USE, they identify the person working under their control that influences or affects the USES.

Determine and prioritize improvement opportunities for energy performance: Opportunities to improve energy performance are determined and prioritized, which can be advanced through the following activities: ideas from members of the company, through workshops and by establishing communication channels for suggestions, link good practices identified in the energy review with mechanisms and projects focused on the use of alternative energies, and an energy efficient one.

Estimate the use and consumption of energy in the future: an estimate of the uses and consumption of energy in the future are made based on the following aspects: relevant variables, static factors, production projections.

Update of the energy review: The energy review is updated according to the following aspects: Every year and after carrying out the review by the management, when there are important changes in the installation.

Define energy performance indicators: for the determination of ENPIS, the following is considered: they are appropriate for the measurement and monitoring of their energy performance and allow demonstrating the improvement of energy performance.

7.5 Documented information

There is a documented information control procedure. Each of the steps is described: need and update of documents. Request by email, document update sheet, type of action, document changes (version) P-AD-001 Rev 6 from Feb 18th, 2020.

Software: ISOLUTION.

Document conservation: administrative management (document retention tables), final

disposition time.

External: there are 2 platforms for external documents (ICONTEC e-collection, topics of Colombian technical standards, API international technical standards platform, ASME IHS platform).

9.2 Internal audit of the EnMS

Internal audit is carried out annually. Last audit was from June 6th to June 9th, 2022.

Seen the SGI audit development procedure, P-GEG-001 revision 8 of 4.Sep.2019.

Seen F-GEG-012 internal audit program F-GEG-019; internal audit plan F-GEG-020, checklist F-GEG-021 report. NC findings were not evidenced.

2 Observations about 9.1 monitoring, measurement, analysis and evaluation of energy performance of ENMs

Internal auditors: Laura Infante and Claudia Cecilia Gómez.

Laura Infante: Seen the support of the ISO 50001: 2018 lead auditor course, Date: Febr25th, 2021. TUV REHILAND. Chemical Engineer Industrial University of Santander, from Nov 18th, 2003.

Claudia Gómez: Viewed internal auditor support ISO 50001:2018 by AGVCSAS on Mar 12th, 2022. Viewed Business Administrator support National University from June 30th, 2006

Seen FGEG015 Matrix of internal auditors (includes training as a technician or professional, auditor in ISO 50001, for external 3 years of experience in management systems).

Technical expert: Luis Eduardo Cano. Electrical Engineer National University.

10.1 Nonconformity and corrective action

Seen attention documentation of findings of 1.Mar.2023 FGEG043.

Internal review of the process. Non-compliance in the periodicity of legal requirements updating, according to P-AJU-007

Causes: change of personnel, lack of back up, lack of centralization of the one drives, lack of feedback.

Actions: generate one drive in environmental share point; schedule quarterly meetings; Matrix update of legal requirements for the year 2022. In the process of implementation.

Seen underwriting meeting in April 2023; for progress review of corrective action.

7.1 Resources

Each improvement initiative has an investment, which is approved from the planning process.

LOGO

Audited said that BV logo is not used.

VASCONIA SITE:

August 9th, 2023

6.3 Energy review

Geographically located in the Magdalena Medio trunk (Ruta del Sol) route 45 section 10, PR110+20 Puerto Boyacá – Puerto Serviez. Path Morro Caliente - Puerto Boyacá. It is in operation since 1989.

It receives gas from the Vasconia HUB - Cusiana.

It increases nominal transportation capacity from 190 to 298.5 MMSCFD. 5 compression units. Operations 2, 3 and 4. Unit 1 and 5 are in maintenance.

- 626 PSI in suction
- 1020 PSI in unloaded

Ariel Compressors and Caterpillar Engine

Environmental conditions:

- Height 145M
- Maximum temperature 32°C
- Minimum temperature 15°C

Operation conditions:

- Type of compressors: reciprocating.
- Maximum operating pressure in the discharge 1050 to 1200 PSI
- Suction operating pressure 500 to 900 PSI
- Max Suction Temp: 86F
- Maximum discharge temperature: 120F

Equipments:

- Receipt – slug catcher
- Filtration system: suction separator filter, discharge filter
- Compression system: compression and cooling units
- Relief system: knock out drum (K.O. Drum), Bomba K.O. Drum; blowdown
- Auxiliary services: condensate accumulator drum, condensate transfer pump, motor start gas drum, compressed air system.

Natural gas:

- Uses:

- * Fuel and starting gas: gas used in GCS reciprocating compressors
- * Torch and pilot gas: gas purified and used in Torch relief system.

- Source and record of information: SCADA system (capture of variables by the operator).

Daily compression report, monthly RMC compression report (F-COT-012) Gas consumption data report in MBTU.

- Annual consumption:

2021: 445.149 GJ

2022: 226.876 GJ

- Monitoring and mMeasurement equipments: flow meters, temperature control and pressure equipments, SCADA system.

- SEU: yes, because of the evaluation and measurement of GHG or consumption in energy units.

- Relevant variables:

* Operating conditions for National Transport System (mainly determined by the entry of gas for the producers to service start points)

* Regulation (CREG – Regulation for the transportation of natural gas)

* Nomination (request made by a sender to the Main Control Center)

* Mayor force events: fortuitous event or strange cause (unforeseen: pipe rupture, landslide). It is taken into account for data normalization. They have not been presented in the last year.

* Extreme weather conditions (El Niño phenomenon)

* Engine technology.

- Static factors: type of activity (gas compression, compression process, compressor units).

- Operational controls:

* Fuel and starting gas: the supply of fuel and starting gas to the compressors is regulated under the required conditions. It consists of two engine fuel gas and engine starting gas subsystems. In the case of fuel gas, pressure regulators are installed to calculate the gas from the suction filters and the outlet gas from the discharge filters, to guarantee the supply pressure required by the compressors. For the protection of the system, a high and low pressure alarm is configured, as well as low flow, through the direct connection to the control system of the pressure and flow transmitter. When the pressure exceeds a predetermined value in the controller, an alarm is generated to alert the operator to initiate a manual procedure. Additionally, a shutdown valve is installed for closure and a relief valve to fire in case of emergency. About starting gas, the supply of engine starting gas to the compressors is regulated under the required conditions. In the same way, it has the same pressure and flow control processes as fuel gas and similar protection systems.

* Flare stack and pilot gas: it is a package unit, whose function is to monitor the torch and make its ignition. The system manages a main compressor and a backup one. They have a local and remote supervision for the main variables. The torch control system has a cabinet where they have alarm signals, control of the spark plug, fire detection and flame of each one of the pilots. The system has pilot monitoring switches. When flame shutdown is detected in the controller, an alarm is generated to alert the operator and he initiates a manual procedure. If the ignition procedure fails after 5 minutes, the general shutdown of the station must be activated.

Electric power:

- Source: 34,5 KV transmission line by Dicel

- Uses: auxiliary equipment, compressors, laptops, computers, monitors, printers and

multifunctionals, air conditioners, televisions, internal lighting, external lighting, refrigerators and microwaves, UPS, switches, among others.

- Information source and record: energy bill (Bimonthly).
- Annual consumption:
2021: 493 GJ
2022: 457 GJ
- Monitoring and measurement equipment: electricity meters.
- SEU: yes, because the areas, equipment or processes with potential savings or efficient use or where improvement opportunities have been implemented and especially those where the potential for performance improvement is greater.
- Relevant variables: number of personnel at the station in the month, activities carried out to use electrical equipment with the highest consumption at the station, technical characteristics of electrical consumption of the equipment at the station.
- Static factors: working hours, technologies.
- Operational controls: inspection of meters. There is an emergency plant.

Diesel and Gasoline

- Source: Local Gas Station
- Uses: operation of backup power plant for electricity generation (diesel); operation of vehicles required for the mobilization of headquarters personnel (diesel and gasoline); scythe operation.
- Information source and record: fuel consumption by station. Variable monitoring of consumption of vehicles and power plants on a monthly report.
- Annual consumption:
2021: 434 GJ
2022: 521 GJ
- Monitoring and measurement equipment: hourmeter
- SEU: not significative.
- Operational control: monitoring of vehicle and power plant consumption variables. Historical measurements of the hour meter linked to the power plant.

Future consumption: the variables of annual compressed gas (KPC) and its average annual growth (2020, 2021 and 2022) are taken into account; it is established that by 2023:

Variable	2020	2021	2022
GJ consumption	110,442	116,343	123,731
Compressed gas KPC	9,588,561	11,641,675	14,086,427

Linear regression analysis

$$Y = 0.0029X + 82883$$

$$R^2 = 1$$

Gas consumption: 114.936 GJ

Compressed gas: 19.294.373 KPC

Improvement opportunities. Maintain operating conditions, since the station is efficient.

6.4 Energy performance indicators

Enpi: Σ energy (GJ) / delivered gas (KPC)

Energy performance: (consumption natural gas + electricity + other fuels), expressed in energy unit GJ.

Delivered Gas: total compressed or delivered gas expressed in KPC volumetric units.

Period	Σ energy (GJ)	Compressed gas (KPC)	Enpi (GJ/KPC)
2021	446.076	73.631.373	0,0061
2022	227.854	37.832.104	0,0060

Target Vasconia \leq 0,0064 GJ/KPC

6.5 Energy baseline

Baseline: 2021 data

Seen for each month consumption of natural gas, electricity, fuel.

6.6 Planning for collection of energy data

There is an instructive monitoring of greenhouse gases I-ASI-052

- * Fuel and starting gas: gas used in GSC reciprocating compressors
- * Flare stack and pilot: gas purified and used in relief system.
- * How: Source of information: Scada; RMC monthly gas compression report – F-COT-13.
- * Frequency: daily
- * Analysis: monthly (reviewed by governing board).

It was evidenced the monthly compression report of the VasconiaGCS for the year 2022. Data sheet shared on onedrive.

8.1 Operational planning and control

Operations:

It was evidenced in the facility tour:

- Receipt – slug catcher
- Filtration system: suction separator filter, discharge filter
- Compression system: compression and cooling units
- Relief system: knock out drum (K.O. Drum), Bomba K.O. Drum; blowdown
- Auxiliary services: condensate accumulator drum, condensate transfer pump, motor start gas drum, compressed air system.
- Change of lighting to led (shelter).

- Identification of points with fugitive emissions.
- Flow meters.
- Perimeter solar lighting.
- In the control room, there was evidenced of monitoring of operating variables, recording every two hours in the data sheet, simulation in SW Ariel.

Maintenance:

Maintenance schedule for July 2023 was evidenced.

Sample:

- OT # 1100027616 Ariel compressor maintenance Unit # 2. Oil sampling record.
- OT# 1100038726 Inspection and cleaning of gas measurement system.
- OT # 1100038799 Mechanical maintenance unit # 2 - Fuel gas filter. Frequency: annual

9.1.1 Monitoring, measurement, analysis and evaluation of energy performance and the EnMS.

Performance in 2023 (traceability in RMC).

MONTH	NATURAL GAS (GJ)	ELECTRICITY (GJ)	FUEL (GJ)	COMPRESSED GAS (KPC)	ENPi (GJ/KPC)
JANUARY	38.545	1.610	40	6.642.624	0,0061
FEBRUARY	34.032	1.115	0	6.517.855	0,0055
MARCH	41.397	848	134	7.150.665	0,0061
APRIL	33.245	1.069	130	5.878.002	0,0060

Average: 0,0059 GJ/KPC

7.4 Communications

Visitor induction: It includes climate change adaptation program and good use of energy resources (turning off light); keep air conditioning at 20-22°C.

10.2 Continual improvement

It was evidenced the progress of the tightening and adjustment plan for fugitive emissions.

SAN ALBERTO SITE:

August 10th, 2023

6.3 Energy review

Offline Station, Bidirectional Station. Currently South-North (natural flow). It is in operation since 2010.

Located at PK-160. Gas coming from Norean Station. Increase nominal transportation capacity of the Ballena - Barrancabermeja pipeline, from 190 to 260 MMSFD.

This year bidirectionality tests. Last compression: November, 2022.

Currently: monthly tests for starting motors, motor tests.

4 Compressors with motor caterpillar G-3612 Compresor Ariel JGC-4 potencia 3.550 HP each one. Total: 14.200 HP.

Operation conditions:

- Type of compressors: reciprocating.
- Maximum operating pressure in the discharge 1050 to 1200 PSI
- Suction operating pressure 550 to 850 PSI
- Max Suction Temp: 89F
- Maximum discharge temperature: 120F
- Volume to compress: 260MMSCFD

Equipments:

- Receipt – slug catcher
- Filtration system: suction separator filter, discharge filter
- Compression system: compression and cooling units
- Relief system: knock out drum (K.O. Drum), Bomba K.O. Drum; blowdown
- Auxiliary services: condensate accumulator drum, condensate transfer pump, motor start gas drum, compressed air system.

Natural gas:

- Uses:

- * Fuel and starting gas: gas used in GCS reciprocating compressors
- * Torch and pilot gas: gas purified and used in Torch relief system.

- Source and record of information: SCADA system (capture of variables by the operator).

Daily compression report, monthly RMC compression report (F-COT-012) Gas consumption data report in MBTU.

- Annual consumption:

2022: 16.197 GJ

- Monitoring and mMeasurement equipments: flow meters, temperature control and pressure equipments, SCADA system.

- SEU: yes, because of the evaluation and measurement of GHG or consumption in energy units.

- Relevant variables:

* Operating conditions for National Transport System (mainly determined by the entry of gas for the producers to service start points)

* Regulation (CREG – Regulation for the transportation of natural gas)

* Nomination (request made by a sender to the Main Control Center)

* Mayor force events: fortuitous event or strange cause (unforeseen: pipe rupture, landslide). It is taken into account for data normalization. They have not been presented in the last year.

* Extreme weather conditions (El Niño phenomenon)

* Engine technology.

- Static factors: type of activity (gas compression, compression process, compressor units).

- Operational controls:

* Fuel and starting gas: the supply of fuel and starting gas to the compressors is regulated under the required conditions. It consists of two engine fuel gas and engine starting gas subsystems. In the case of fuel gas, pressure regulators are installed to calculate the gas from the suction filters and the outlet gas from the discharge filters, to guarantee the supply pressure required by the compressors. For the protection of the system, a high and low pressure alarm is configured, as well as low flow, through the direct connection to the control system of the pressure and flow transmitter. When the pressure exceeds a predetermined value in the controller, an alarm is generated to alert the operator to initiate a manual procedure. Additionally, a shutdown valve is installed for closure and a relief valve to fire in case of emergency. About starting gas, the supply of engine starting gas to the compressors is regulated under the required conditions. In the same way, it has the same pressure and flow control processes as fuel gas and similar protection systems.

* Flare stack and pilot gas: it is a package unit, whose function is to monitor the torch and make its ignition. The system manages a main compressor and a backup one. They have a local and remote supervision for the main variables. The torch control system has a cabinet where they have alarm signals, control of the spark plug, fire detection and flame of each one of the pilots. The system has pilot monitoring switches. When flame shutdown is detected in the controller, an alarm is generated to alert the operator and he initiates a manual procedure. If the ignition procedure fails after 5 minutes, the general shutdown of the station must be activated.

Electric power:

- Source: 13,4 KV transmission line by ESSA

- Uses: auxiliary equipment, compressors, laptops, computers, monitors, printers and multifunctionals, air conditioners, televisions, internal lighting, external lighting, refrigerators and microwaves, UPS, switches, among others.

- Information source and record: energy bill (Bimonthly).
- Annual consumption:
2022: 345 GJ
- Monitoring and measurement equipment: electricity meters.
- SEU: yes, because the areas, equipment or processes with potential savings or efficient use or where improvement opportunities have been implemented and especially those where the potential for performance improvement is greater.
- Relevant variables: number of personnel at the station in the month, activities carried out to use electrical equipment with the highest consumption at the station, technical characteristics of electrical consumption of the equipment at the station.
- Static factors: working hours, technologies.
- Operational controls: inspection of meters. There is an emergency plant.

Diesel and Gasoline

- Source: Local Gas Station
- Uses: operation of backup power plant for electricity generation (diesel); operation of vehicles required for the mobilization of headquarters personnel (diesel and gasoline); scythe operation.
- Information source and record: fuel consumption by station. Variable monitoring of consumption of vehicles and power plants on a monthly report.
- Annual consumption:
2022: 332 GJ
- Monitoring and measurement equipment: hourmeter
- SEU: not significant.
- Operational control: monitoring of vehicle and power plant consumption variables. Historical measurements of the hour meter linked to the power plant.

Future consumption: the variables of annual compressed gas (KPC) and its average annual growth (2022) are taken into account and the growth forecast 2023 (59%):

Variable	2022
GJ consumption	16.874
Compressed gas KPC	1.595.245

Linear regression analysis

$$Y = 0,0003x + 16.407$$

$$R^2 = 1$$

Gas consumption: 17.178 GJ

Compressed gas: 2.536.440 KPC

Improvement opportunities. Maintain operating conditions, since the station is efficient.

6.4 Energy performance indicators

Enpi: Σ energy (GJ) / delivered gas (KPC)

Energy performance: (consumption natural gas + electricity + other fuels), expressed in energy unit GJ.

Delivered Gas: total compressed or delivered gas expressed in KPC volumetric units.

Period	Σ energy (GJ)	Compressed gas (KPC)	Enpi (GJ/KPC)
2021	16.700	1.001.102	0,0167
2022	16.874	1.595.245	0,0106

Target San Alberto \leq 0,0106 GJ/KPC

6.5 Energy baseline

Baseline: 2022 data

Seen for each month consumption of natural gas, electricity, fuel.

6.6 Planning for collection of energy data

There is an instructive monitoring of greenhouse gases I-ASI-052

- * Fuel and starting gas: gas used in GSC reciprocating compressors
- * Flare stack and pilot: gas purified and used in relief system.
- * How: Source of information: Scada; RMC monthly gas compression report – F-COT-13.
- * Frequency: daily
- * Analysis: monthly (reviewed by governing board).

It was evidenced the monthly compression report of the San Alberto GCS for the year 2022. Data sheet shared on onedrive.

8.1 Operational planning and control

Operations:

It was evidenced in the facility tour:

- Receipt – slug catcher
- Filtration system: suction separator filter, discharge filter
- Compression system: compression and cooling units
- Relief system: knock out drum (K.O. Drum), Bomba K.O. Drum; blowdown
- Auxiliary services: condensate accumulator drum, condensate transfer pump, motor start gas drum, compressed air system.
- Change of lighting to led (shelter).
- Identification of points with fugitive emissions.
- Flow meters.
- Perimeter solar lighting.
- In the control room, there was evidenced of monitoring of operating variables, recording

every two hours in the data sheet, simulation in SW Ariel.

Maintenance:

Maintenance schedule for July 2023 was evidenced.

Sample:

- OT#1100019125 Preventive maintenance for caterpillar 6-3612 engine; It includes: cleaning of valves, pilots and starting system; lubrication of bearings, actuators.
- OT#1100029243 Maintenance Measurement System SA-FIT-100 and SA-PIT-307.

9.1.1 Monitoring, measurement, analysis and evaluation of energy performance and the EnMS.

Performance in 2023 (traceability in RMC).

MONTH	NATURAL GAS (GJ)	ELECTRICITY (GJ)	FUEL (GJ)	COMPRESSED GAS (KPC)	ENPi (GJ/KPC)
JANUARY	616	28,8	28,43	0	---
FEBRUARY	624	25,1	28,71	0	---
MARCH	987	28,3	44,42	0	---
APRIL	1.266	4,6	17,4	0	---

7.4 Communications

Publication of the sustainability policy was evidenced, knowledge of the workers of operational controls in the register of variables in RMC.

10.2 Continual improvement

It was evidenced changes of lights to new technologies to led lights in the compression and perimeter shelter.

Actions in 2022: installation of a photovoltaic lamp; compressor load operating strategies, start-up tests.

JAGUA DEL PILAR SITE:

August 11th, 2023

6.3 Energy review

Offline Station, Bidirectional Station. It is in operation since 2010.

It receives gas from Hatonuevo and Ballenas.

This year bidirectionality tests.

Currently: monthly tests for starting motors, motor tests.

4 Compresors with motor caterpillar G-3612 Compresor Ariel JGC-4 potencia 3.550 HP each one. Total: 14.200 HP.

Operation conditions:

- Type of compressors: reciprocating.
- Maximum operating pressure in the discharge 1050 to 1200 PSI
- Suction operating pressure 550 to 850 PSI
- Max Suction Temp: 89F
- Maximum discharge temperature: 120F
- Volume to compress: 260MMSCFD

Equipments:

- Receipt – slug catcher
- Filtration system: suction separator filter, discharge filter
- Compression system: compression and cooling units
- Relief system: knock out drum (K.O. Drum), Bomba K.O. Drum; blowdown
- Auxiliary services: condensate accumulator drum, condensate transfer pump, motor start gas drum, compressed air system.

Natural gas:

- Uses:

* Fuel and starting gas: gas used in GCS reciprocating compressors

* Torch and pilot gas: gas purified and used in Torch relief system.

- Source and record of information: SCADA system (capture of variables by the operator).

Daily compression report, monthly RMC compression report (F-COT-012) Gas consumption data report in MBTU.

- Annual consumption:

2022: 4.147 GJ

- Monitoring and mMeasurement equipments: flow meters, temperature control and pressure equipments, SCADA system.

- SEU: yes, because of the evaluation and measurement of GHG or consumption in energy

units.

- Relevant variables:

- * Operating conditions for National Transport System (mainly determined by the entry of gas for the producers to service start points)
- * Regulation (CREG – Regulation for the transportation of natural gas)
- * Nomination (request made by a sender to the Main Control Center)
- * Mayor force events: fortuitous event or strange cause (unforeseen: pipe rupture, landslide). It is taken into account for data normalization. They have not been presented in the last year.
- * Extreme weather conditions (El Niño phenomenon)
- * Engine technology.

- Static factors: type of activity (gas compression, compression process, compressor units).

- Operational controls:

* Fuel and starting gas: the supply of fuel and starting gas to the compressors is regulated under the required conditions. It consists of two engine fuel gas and engine starting gas subsystems. In the case of fuel gas, pressure regulators are installed to calculate the gas from the suction filters and the outlet gas from the discharge filters, to guarantee the supply pressure required by the compressors. For the protection of the system, a high and low pressure alarm is configured, as well as low flow, through the direct connection to the control system of the pressure and flow transmitter. When the pressure exceeds a predetermined value in the controller, an alarm is generated to alert the operator to initiate a manual procedure. Additionally, a shutdown valve is installed for closure and a relief valve to fire in case of emergency. About starting gas, the supply of engine starting gas to the compressors is regulated under the required conditions. In the same way, it has the same pressure and flow control processes as fuel gas and similar protection systems.

* Flare stack and pilot gas: it is a package unit , whose function is to monitor the torch and make its ignition. The system manages a main compressor and a backup one. They have a local and remote supervision for the main variables. The torch control system has a cabinet where they have alarm signals, control of the spark plug, fire detection and flame of each one of the pilots. The system has pilot monitoring switches. When flame shutdown is detected in the controller, an alarm is generated to alert the operator and he initiates a manual procedure. If the ignition procedure fails after 5 minutes, the general shutdown of the station must be activated.

Electric power:

- Source: 13,4 KV transmission line by Air-e SAS ES´-
- Uses: auxiliary equipment, compressors, laptops, computers, monitors, printers and multifunctionals, air conditioners, televisions, internal lighting, external lighting, refrigerators and microwaves, UPS, switches, among others.
- Information source and record: energy bill (Bimonthly).
- Annual consumption:

2022: 297 GJ

- Monitoring and measurement equipment: electricity meters.
- SEU: yes, because the areas, equipment or processes with potential savings or efficient use or where improvement opportunities have been implemented and especially those where the potential for performance improvement is greater.
- Relevant variables: number of personnel at the station in the month, activities carried out to use electrical equipment with the highest consumption at the station, technical characteristics of electrical consumption of the equipment at the station.
- Static factors: working hours, technologies.
- Operational controls: inspection of meters. There is an emergency plant.

Diesel and Gasoline

- Source: Local Gas Station
- Uses: operation of backup power plant for electricity generation (diesel); operation of vehicles required for the mobilization of headquarters personnel (diesel and gasoline); scythe operation.
- Information source and record: fuel consumption by station. Variable monitoring of consumption of vehicles and power plants on a monthly report.

- Annual consumption:

2022: 446 GJ

- Monitoring and measurement equipment: hourmeter
- SEU: not significative.
- Operational control: monitoring of vehicle and power plant consumption variables. Historical measurements of the hour meter linked to the power plant.

Future consumption: the variables of annual compressed gas (KPC) and its average annual growth (2022):

Linear regression analysis

$$Y = -0,1685 + 4.901$$

$$R^2 = 1$$

Gas consumption: 4.435GJ

Compressed gas: 2.765 KPC

Improvement opportunities. Maintain operating conditions, since the station is efficient.

6.4 Energy performance indicators

Enpi: \sum energy (GJ) / delivered gas (KPC)

Energy performance: (consumption natural gas + electricity + other fuels), expressed in energy unit GJ.

Delivered Gas: total compressed or delivered gas expressed in KPC volumetric units.

Period	Σenergy (GJ)	Compressed gas (KPC)	Enpi (GJ/KPC)
2021	4.435	2.765	1,6040
2022	4.900	0	---

Target Jagua del Pilar <= 1,6040 GJ/KPC

6.5 Energy baseline

Baseline: 2022 data

Seen for each month consumption of natural gas, electricity, fuel.

6.6 Planning for collection of energy data

There is an instructive monitoring of greenhouse gases I-ASI-052

- * Fuel and starting gas: gas used in GSC reciprocating compressors
- * Flare stack and pilot: gas purified and used in relief system.
- * How: Source of information: Scada; RMC monthly gas compression report – F-COT-13.
- * Frequency: daily
- * Analysis: monthly (reviewed by governing board).

It was evidenced the monthly compression report of the Jagua del Pilar GCS for the year 2022. Data sheet shared on onedrive.

8.1 Operational planning and control

Operations:

It was evidenced in the facility tour:

- Receipt – slug catcher
- Filtration system: suction separator filter, discharge filter
- Compression system: compression and cooling units
- Relief system: knock out drum (K.O. Drum), Bomba K.O. Drum; blowdown
- Auxiliary services: condensate accumulator drum, condensate transfer pump, motor start gas drum, compressed air system.
- Change of lighting to led (shelter).
- Identification of points with fugitive emissions.
- Flow meters.
- Perimeter solar lighting.
- In the control room, there was evidenced of monitoring of operating variables, recording every two hours in the data sheet, simulation in SW Ariel.

Maintenance:

Maintenance schedule for July 2023 was evidenced.

Sample:

- OT # 1100029500. CBM. Predictive maintenance. Report includes alignment verification, compressor motor coupling - power shaft.
- OT# 1400004308. Corrective maintenance. Solenoid valve failure in unit #1. Seen solution log.

9.1.1 Monitoring, measurement, analysis and evaluation of energy performance and the EnMS.

Performance in 2023 (traceability in RMC).

MONTH	NATURAL GAS (GJ)	ELECTRICITY (GJ)	FUEL (GJ)	COMPRESSED GAS (KPC)	ENPi (GJ/KPC)
JANUARY	336	26,4	49	0	
FEBRUARY	682**	23,7	24,21	0	
MARCH	375	24,9	35,43	10287	0,0423
APRIL	610	11,1	43,74	38355	0,0173

Average: 0,0298 GJ/KPC

** On February, there was shutdwon + blowdown for low pressure because of low air pressure; tests units 4 and 2; recirculation for CBM

7.4 Communications

Publication of the sustainability policy was evidenced, knowledge of the workers of operational controls in the register of variables in RMC.

10.2 Continual improvement

It was evidenced :

- Implementation of led type lighting , 7 have been changed with solar panel.
- Operator routines (load verification); failed starts; weekly empty starts (avoid line vents).
- Installation of translucent covers in the operating shelters of the compressor stations, taking advantage of natural light.
- Vehicle route optimization.
- Fugitive emissions detection report. 8 in Jagua del Pilar, seen service schedule for August, 2023.

BOGOTÁ:

August 15th, 2023

7.3 Awareness

It is evident during the interviews with the personnel and tour of the facilities: application of operational controls in the use of electrical energy; Knowledge of policy and objectives related to energy efficiency.

7.4 Communication

It is evident during the tour of the facilities: publication of policies, objectives and operational controls on screens. Communication of energy efficiency requirements to visitors.

9.3 Management Review

Management review is performed annually. Seen record of review by management, from June, 2022.

It includes all the inputs required by ISO 50001:2018.

Sample:

- Give greater importance to issues of sustainable development. Includes issues of corporate relations, social responsibility, SST, environmental (licensing, decarbonization).
- Changes: Social and Environmental Management Vice Presidency.
- Decarbonization route, reduction of emissions. It has 23 pillars, aligned with the national government 51% 2030, carbon 0, 2050. 0.6% global issue.
- Operational efficiency. The measurement of fugitive emissions (field measurements). 13% 2021, close with 50% at the end of the year.
- Start-up of stations is done with compressed air, it decreases approximately 60% gas burning in torch.
- Predictive consumption at stations (simulator in temperature, pressure, flow operations) which will result in improvement for the organization.
- Innovation: hydrogen issues, microlg, cleaner mobility in the understanding phase (cleaner energy, emits less particulate matter)
- Nature-based solutions: compensation of strategic areas 244,500 trees (2025).

Sample Outputs:

- Status of previous initiatives (photovoltaic solar project, new Cogua infrastructure, sustainable purchasing manual – sustainability criteria (pre-contractual requirements); organizational context; internal audit results, energy review results: Miraflores has the highest gas consumption 813,706 GJ and Puente Guillermo 637,020 (2021)
- Opportunities for improvement: strengthen staff competence for projects related to energy efficiency; train more people in ISO 50001. Implement action plans to address findings in internal and external audits.

They have frequent meetings, where management reviews environmental topics: Energy indicators.

- It was evidenced register of sustainability indicators from August, 2023. There is a procedure for the standardization committee (who are responsible for sending this information).

- Emissions by scope.
- Review of indicators (how to be more efficient, transporting more gas).
- At a strategic level, an indicator of Operational Emissions (Fuel – torch – pilot – gas pipeline maintenance) TonCO₂e/natural gas transported in KPC is taken

Sustainability route 2023:

- 7% reduction in GHG emissions. Actually: 7,35%. Causes: Cusiana Stop.
- 100% inventory of fugitive emissions. Actually: 21%.
- 100% scheduled progress in projects.
- 11 facilities certified in energy efficiency.
- 100% employees trained in risk management culture
- Application of the sustainable purchasing manual in at least 2 contracting processes carried out by the Company.

Key points in decarbonization:

- Mapping of engine technology updates and cost-benefit feasibility.

5.1 Leadership

Top management demonstrates leadership and commitment with respect to continual improvement of its energy performance and the effectiveness of the EnMS, by:

- Strategies according to government goal to reduce 50% emissions in 2030 and Carbon neutrality in 2050.
- Technical criteria what should be done each year to achieve this goal. A decarbonization path was defined.
- 2021 certified baseline in carbon footprint verification. They have a plan that considers: what should be done each year, what kind of solutions are cost-effective. Pareto: compressors (fuel gas to operate). Monthly monitoring (CO₂/Ton).
- Operational efficiency. Inventory of 100% fugitive emissions. 78% measured infrastructure (partial reports to the technical vice-presidency) in the process of adjustment plan. Grade 1 and grade 2 leaks, closed in 2023.
- Villavicencio and Paratebuena: Compressed hot air starting system.
- Innovation, development and strategic alliances. Projects in biogas, micro LNG and hydrogen. Usme Local Mayor Project: 900 families with bioreactor, to cook with biogas.
- Review of hydrogen regulations (% of projected infrastructure); micro LNG (take it into infrastructure not connected to the national transport system).
- Nature-based solutions. At 2050 244,500 trees; approx. 266 soccer fields.
- During 2022 carbon credits. Currently, reforestation of 1% environmental licenses. Land to capture carbon credits. (Medium and long term).

Energy Management Team Responsibilities: It was evidenced SGI manual M-GEG-001 version 17 from June 30th, 2022, for the sustainable development committee.

It was evidenced guideline # 005 from April 11th, 2022:

- Government Issues and Sustainable Development Vice President
- Human Talent and Administrative Management Vice President
- Government Issues and Corporate Social Responsibility Manager

- Sustainable Development Manager
 - Accounting Director
 - Legal Manager
 - Project Manager
 - Communications Director
- Meeting frequency every 2 months

8.2 Design

In the last year: offices remodelling. TGI did a work system for co-collaborators. Achievements: reduction of workspaces. Virtual meetings. Design chosen by presidency committee. Sustainability level: seek energy efficiency. Integrated control system for the facilities energy efficiency of the.

Use of lamps: savings through linear designs. Seen analysis for third floor. Name, typology, area, permitted capacity, designed power, Designed LPD.

Sample:

Local 2. Office. Area: 7.1 m², LPD allowed 1.1 W/F² Savings of 56%. Motion sensors were used (everywhere that there is no closed room). Linear luminaire infinity figure in U 3535 1,5 X 1,5

It was evidenced dossier with technical sheet led luminaire useful life 50,000 hours Preventive maintenance: every 6 months exterior cleaning. Every 5 years, measure lighting levels.

It was evidenced Retilap Report from July 10th, .2023. By RIG – Retie Engineering and Management. Opinion # RIG-IE41541 Commercial lighting, urban installation, installed capacity of 6.3 KVA; 208V voltage. For floors 2 and 3, area of 1,500 m².

Air conditioning system: the same equipment was left (no adjustments were made, central system).

Seen RETIE report by Eince SAS from June 20th, 2023. Opinion # EIN-497593. TGI scope for floors 2 and 3.

5.3 Organization roles, responsibilities and authorities

There is an Isolucion repository of the Management System. The responsibilities are included in Manual of responsibilities and competence M-GTH-001 revision 39. Date: March 28th, 2023.

Samples:

Mechanical Operator. O&M and Field Direction. Mission of the position: guarantee the availability of the gas transportation service through the elaboration of an optimal maintenance plan for the gas compression stations, complying with the SGI, legal and regulatory requirements. Functions include: maintenance, equipment inspection, operation reports,

information on operating conditions that put the daily transportation of gas at risk; failure analysis in scada system; perform gas balances, monitor suction and discharge quality, perform daily report, choose units to comply with the flow according to the online schedule, perform monthly compression report. Transversally: comply with provisions or activities related to energy management programming; suggest measures that are appropriate for energy improvement; comply with policies and provisions for the administration, improvement and accountability of energy efficiency.

Technician Instrumentalist Compressor Operator. Mission of the position: carry out the maintenance of the control and instrumentation equipment, ensuring traceability in the measurement and control of the compression stations, to ensure the availability, reliability and operability of the gas transportation network.

Responsibilities: execution of maintenance and calibration of instruments, analysis of existing failures in associated systems, preparation of reports, implementation of corrective actions, among others.

CBM Technician. Mission of the position: support the strategy and program of the maintenance methodology based on CBM condition, It includes the monitoring of mechanical and electrical equipment, through the implementation of modern maintenance techniques, ensuring traceability in the measurement of variables in CBM methodology.

Responsibilities: develop CBM activities, equipment maintenance, and monitoring and control activities.

Junior Environmental Professional. Mission of the position: lead the implementation of environmental programs. Responsibilities: ensure regulatory compliance, execute annual and monthly work plan for climate change management, promote culture and environmental awareness, energy saving awareness activities, energy efficiency training, replicate monthly information, sustainable management reports, monitoring and closing Management System NC.

7.2 Competence

Competence requirements are included in Manual of responsibilities and competence M-GTH-001 revision 39. Date: March 28th, 2023.

Samples:

Junior Environmental Professional.

Education: Professional in environmental engineering or related. Knowledge of internal audits ISO 50001

Experience: 2 years.

Daniel Montero.

- Seen employment contract for an indefinite term from March 2nd, 2015.

- Seen Environmental Engineering certificate from UPB, February 2015.

CBM Technician

Education: CAP Technician or Technologist

Training: natural gas management, operation and maintenance of caterpillar, waukesha, ariel, engines, blueprint interpretation.

Experience: 5 years. Internal: 3 years.

Victor Roa.

- Seen indefinite term employment contract from November, 2019.
- Seen support as Technologist in industrial electromechanical maintenance, Sena 2016. Digital electronics design of combinatorial systems Sena, 2019; Basic metrology Sena 2013.
- Passed red category infrared technology support by Sielecom, 2021. Passed vibration analysis support category I of 2021, Sielecom.

Technician Instrumentalist Compressor Operator.

Education: Electromechanical or electronic technologist, or instrumentalist or similar, or CAP SENA technician in instrumentation and control. count card

Training: Knowledge of pneumatics, telemetry, SCADA system, instrument calibration and adjustment, physical principles of gases, basic technical English; among others.

Specific experience: 5 years. Experience if internal promotion: 3 years.

-Edgar Bedoya.

Seen employment contract from July 28th, 2012. Seen Sena Industrial Instrumentist certificate, basic electronics, applied chemistry, analog circuits from 1999. Seen certification for industrial electronics, industrial instrumentation, from 2001 Sena.

- Training: optimization of the operation and maintenance of reciprocating compressors PYA Automotacion 2012; coriolis gas flow from Instruments and Controls 2008; natural gas measurement by Elite Training, 2009; measurement of liquid hydrocarbons by PYA Automation from 2008; ultrasonic flow meters brand Daniel by Instrumentos y Controles, 2012; Assurance and Metrological Management SGS 2011.

6.3 Energy review

Viewed administrative headquarters energy review document F-ASI-219 from July, 2023.

Carrera 9# 73-44 Floors 2, 3 and 7.

It also includes a UPS room located on the first floor and the computer center where the servers are located.

Offices in leasing, administration to the building. Owner of facilities: Grupo de Energía de Bogotá.

Electric power.

- Source. Provider: Codensa.

- Uses: laptops, computers, monitors, printers, multifunctionals, air conditioners, televisions, internal and external lighting, refrigerators and microwaves, UPS, switches, servers, among others.

- Source of information: global invoice and administration subdivides and makes the respective charge, according to the energy meters. Registration arrives via e-mail (consumption, meter, value).

- Consumption:

2022: 210 GJ

2021: 230 GJ
 2020: 300 GJ
 2019: 461 GJ
 2018: 392 GJ
 2017: 332 GJ
 2016: 304 GJ

- Related equipment: computer equipment, printers, screens. Estimated: 3703 Kwh/month. Internal lighting: panel light 60x60 LED, Bala LED 6W Silvania; Indoor luminaire YDLED-01/12 w / 65 s, flexible led strip luminaires. Estimated: 4,158 kWh/month. Consumer equipment: televisions, video projectors, cisco video, among others. Total: 2,142 kWh/month. Communication equipment: cisco catalyst swithc, cisco routers. Total: 403 kWh/month. 8,383 Kwh/month (They belong to the Bogotá Energy group). Servers: 576 Kwh/month. 2376 kWh/month.

Seen characterization of quantities, consumption:

Area	Total Power (Kwh-mes)	%
Work teams	2.517	43%
Internal lighting	1238	21%
Consumer equipment	1182	20%
Communication and telephony	493	7%
Servers	576	10%

Total: 5.916 Kwh-mes

- Equipment: electricity meters (Codensa).
- USE: Significant use of energy (saving potential).
- Relevant variables: effective personnel of the Organization; entry of visitors and contractors.
- Static factors: working hours, technologies.
- Operational controls: control and measurement of use, UPS systems with backup power plant, use of LED lighting, use of natural light, independence of electrical circuits. Computer equipment energy star certifications,
- Responsible parties: Sustainable Development Committee, IT Professional, Junior Civil Professional, Environmental Professional.
- Future consumption 2023 (272 GJ); people: 1329

$Y = 0,0401X + 218,64$
 $R^2 = 0,1095$

Opportunities for improvement: verification of daily energy readings (morning and afternoon), measurement of consumption of electrical appliances. It was discovered that there were some

additional consumptions due to failures in the automatic lighting system, which were adjusted. Receptionists turn off lighting by sectors.

6.4 Energy performance indicators

Year	Consumption	People	Enpi GJ/people
2016	304	2235	0,1358
2017	332	2564	0,1295
2018	392	3042	0,1289
2019	461	3229	0,1394
2020	300	329	0,9118
2021	230	1984	0,1159
2022	210	1208	0,1742

6.5 Energy baseline

Baseline: changed to 2021. New baseline: 0.1159 GJ/people

6.6 Planning for collection of energy data

Energy: Codensa Bill Energy

Month	Consumption	People	Enpi GJ/people
January	20	339	0,0584
February	16	478	0,0331
March	13	1011	0,0131
April	17	567	0,0298
May	15	1403	0,109
June	17	1347	0,0124
July	17	1778	0,0096
August	20	2215	0,0090
September	21	1666	0,0125
October	19	1310	0,0142
November	19	1471	0,0132
Decembero	17	922	0,0184
Total	210	1.208 (Average	

9.1.1 Monitoring, measurement, analysis and evaluation of energy performance and the EnMS

Month	Consumption	People	Enpi
-------	-------------	--------	------

			GJ/people
January	16	1239	0,0133
February	15	1710	0,0088
March	11	2135	0,0050
April	4	1584	0,0024
Total	46	Average: 1667	0,0275

8.1 Operational planning and control

Computer maintenance strategy: Visits to different offices and stations (one visit per month) to do preventive maintenance – external cleaning, delete temporary cookies (maintenance record performed). Programming of the month (shared with TGI) – Schedule for corresponding visits (impact a greater number of users). Limiting: availability of field technicians, work at home.

There is an inventory of equipment, user is related.

Seen technical sheet. Includes Energy Star certified, Gold.

Seen communication pieces. 10 recommendations for the proper use of your computer equipment – It includes shutting down the equipment at the end of the workday.

Sample:

- Vasconia Station. Computer HP 8CC83911HY.

- Jagua del Pilar and San Alberto Station.. Computer HP 5CD8S56.

- Bogota. Seen maintenance schedule; It includes host name, serial, user, charge, email, serial, headquarters, maintenance date team. Includes advance schedule. 68 do not attend; 99 pending; 55 made. Total: 222. Seen check list includes physical cleaning (adequate air flow fan; state of useful life of the battery; change of thermal paste, overexertion of equipment in energy consumption).

8.3 Procurement

There is a contracting manual for supplier selection (open competitive process); specific suppliers are invited, rules on technical specification requirements, selection rules (legal, technical, financial, economic). Discussion in operating committee.

Sample:

Contract # 551001013 Supplier: HGC Arquitectos Ltda.

Scope: adaptation to collaborative positions and meeting and innovation spaces of TGI administrative offices - floors 2 and 3.

Started: 6.Oct.2022

Ended: 6.Mar.2023

Objective: improve comfort, possibility of creativity, innovation, organizational climate,

collaborative work.

Seen detailed design technical specifications (architectural, lighting, electrical, civil, hydraulic, sanitary, voice, data, automation, furniture.

- Supply of materials and equipment, construction of adaptations.

Number of jobs: 200; meeting rooms for 100 people, 100 collaborative work.

- Implementation of technology # 4.1.3.2.2.15 connections and communication – automation and technologies.

Regulations: NSR 2010 earthquake resistant; NTC 1500 Colombian plumbing code; RETIE, RETILAP.

- Luminaires with low energy consumption, easy maintenance. Circuit design must optimize consumption. Heavy Duty Specified Switches. Exterior lighting for security and sports areas.

- Sustainability component (includes inverter-type environmental conditioning; non-renewable energy savings, use of high-efficiency equipment)

- Contractor must submit a proposal for the sustainability component of the projects indicating the systems to be used, environmental impact and cost-benefit analysis for the Company.

- Calculation and design of air conditioning systems, mechanical ventilation systems, air extraction and supply networks; specifications plans.

Performance evaluation criteria of contractors and suppliers.

Seen in SAP ARIBA. Technical and administrative compliance, industrial safety, environmental management, CSR, quality.

It was evidenced the evaluation record. Date: January, 2023. Compliance with technical and/or quality specifications; compliance with environmental regulations 100%.

VILLAVICENCIO SITE:

August 16th, 2023

6.3 Energy review

It is in operation since 2018.

It receives gas from Pipeline Apiay Villavicencio Mocoa.

2 engines, encapsulated torch system. Today an unit in work. Wakesha Engine, Ariel Compressor.

Operation conditions:

- Type of compressors: reciprocating.
- Maximum operating pressure in the discharge 1050 to 1200 PSI
- Suction operating pressure 450 to 900 PSI
- Max Suction Temp: 105F
- Maximum discharge temperature: 120F
- Volume to compress: 23 MMSCFD for each machine

Equipments:

- Receipt – slug catcher

- Filtration system: suction separator filter, discharge filter
- Compression system: compression and cooling units
- Relief system: knock out drum (K.O. Drum), Bomba K.O. Drum; blowdown
- Auxiliary services: condensate accumulator drum, condensate transfer pump, motor start gas drum, compressed air system.

Natural gas:

- Uses:

- * Fuel and starting gas: gas used in GCS reciprocating compressors
- * Torch and pilot gas: gas purified and used in Torch relief system.

- Source and record of information: SCADA system (capture of variables by the operator).

Daily compression report, monthly RMC compression report (F-COT-012) Gas consumption data report in MBTU.

- Annual consumption:

2021: 12296 GJ

2022: 11647 GJ

- Monitoring and mMeasurement equipments: flow meters, temperature control and pressure equipments, SCADA system.

- SEU: yes, because of the evaluation and measurement of GHG or consumption in energy units.

- Relevant variables:

- * Operating conditions for National Transport System (mainly determined by the entry of gas for the producers to service start points)
- * Regulation (CREG – Regulation for the transportation of natural gas)
- * Nomination (request made by a sender to the Main Control Center)
- * Mayor force events: fortuitous event or strange cause (unforeseen: pipe rupture, landslide). It is taken into account for data normalization. They have not been presented in the last year.
- * Extreme weather conditions (El Niño phenomenon)
- * Engine technology.

- Static factors: type of activity (gas compression, compression process, compressor units).

- Operational controls:

* Fuel and starting gas: the supply of fuel and starting gas to the compressors is regulated under the required conditions. It consists of two engine fuel gas and engine starting gas subsystems. In the case of fuel gas, pressure regulators are installed to calculate the gas from the suction filters and the outlet gas from the discharge filters, to guarantee the supply pressure required by the compressors. For the protection of the system, a high and low pressure alarm is configured, as well as low flow, through the direct connection to the control system of the pressure and flow transmitter. When the pressure exceeds a predetermined

value in the controller, an alarm is generated to alert the operator to initiate a manual procedure. Additionally, a shutdown valve is installed for closure and a relief valve to fire in case of emergency. About starting gas, the supply of engine starting gas to the compressors is regulated under the required conditions. In the same way, it has the same pressure and flow control processes as fuel gas and similar protection systems.

* Flare stack and pilot gas: it is a package unit, whose function is to monitor the torch and make its ignition. The system manages a main compressor and a backup one. They have a local and remote supervision for the main variables. The torch control system has a cabinet where they have alarm signals, control of the spark plug, fire detection and flame of each one of the pilots. The system has pilot monitoring switches. When flame shutdown is detected in the controller, an alarm is generated to alert the operator and he initiates a manual procedure. If the ignition procedure fails after 5 minutes, the general shutdown of the station must be activated.

Electric power:

- Source: 480 KV transmission line by EMSA
- Uses: auxiliary equipment, compressors, laptops, computers, monitors, printers and multifunctionals, air conditioners, televisions, internal lighting, external lighting, refrigerators and microwaves, UPS, switches, among others.
- Information source and record: energy bill (Bimonthly).
- Annual consumption:
2021: 415 GJ
2022: 409 GJ
- Monitoring and measurement equipment: electricity meters.
- SEU: yes, because the areas, equipment or processes with potential savings or efficient use or where improvement opportunities have been implemented and especially those where the potential for performance improvement is greater.
- Relevant variables: number of personnel at the station in the month, activities carried out to use electrical equipment with the highest consumption at the station, technical characteristics of electrical consumption of the equipment at the station.
- Static factors: working hours, technologies.
- Operational controls: inspection of meters. There is an emergency plant.

Diesel and Gasoline

- Source: Local Gas Station
- Uses: operation of backup power plant for electricity generation (diesel); operation of vehicles required for the mobilization of headquarters personnel (diesel and gasoline); scythe operation.
- Information source and record: fuel consumption by station. Variable monitoring of consumption of vehicles and power plants on a monthly report.
- Annual consumption:
2021: 521 GJ
2022: 434 GJ

- Monitoring and measurement equipment: hourmeter
- SEU: not significant.
- Operational control: monitoring of vehicle and power plant consumption variables. Historical measurements of the hour meter linked to the power plant.

Future consumption: the variables of annual compressed gas (KPC) and its average annual growth (2021 and 2022):

Linear regression analysis

$$Y = 0,0047x + 11873$$

$$R^2 = 1$$

Gas consumption: 12.154 GJ

Compressed gas: 59.752 KPC

Improvement opportunities. Maintain operating conditions, since the station is efficient.

6.4 Energy performance indicators

Enpi: $\sum \text{energy (GJ)} / \text{delivered gas (KPC)}$

Energy performance: (consumption natural gas + electricity + other fuels), expressed in energy unit GJ.

Delivered Gas: total compressed or delivered gas expressed in KPC volumetric units.

Period	$\sum \text{energy (GJ)}$	Compressed gas (KPC)	Enpi (GJ/KPC)
2021	13.251	291.874	0,0453
2022	12.491	132.782	0,0941

Target Villavicencio $\leq 0,0453$ GJ/KPC

Causes:

- Technical condition of the gas pipeline, it did not start operating in 2022, so the gas delivered was less than in 2021.
- Despite the fact that gas is not compressed, a fixed consumption in torch and pilot gas of approx. 8,827 KPCD and 807 KPCD transported gas is maintained. In other words, the fixed consumption is 91%.

6.5 Energy baseline

Baseline: 2021 data

Seen for each month consumption of natural gas, electricity, fuel.

6.6 Planning for collection of energy data

There is an instructive monitoring of greenhouse gases I-ASI-052

* Fuel and starting gas: gas used in GSC reciprocating compressors

* Flare stack and pilot: gas purified and used in relief system.

* How: Source of information: Scada; RMC monthly gas compression report – F-COT-13.

* Frequency: daily

* Analysis: monthly (reviewed by governing board).

It was evidenced the monthly compression report of the Villavicencio GCS for the year 2022.

Data sheet shared on onedrive.

8.1 Operational planning and control

Operations:

It was evidenced in the facility tour:

- Receipt – slug catcher
- Filtration system: suction separator filter, discharge filter
- Compression system: compression and cooling units
- Relief system: knock out drum (K.O. Drum), Bomba K.O. Drum; blowdown
- Auxiliary services: condensate accumulator drum, condensate transfer pump, motor start gas drum, compressed air system.
- Change of lighting to led (shelter).
- Identification of points with fugitive emissions.
- Flow meters.
- Perimeter solar lighting.
- In the control room, there was evidenced of monitoring of operating variables, recording every two hours in the data sheet, simulation in SW Ariel.

Maintenance:

There is a maintenance program that includes for each piece of equipment, WO, description, date, execution time, job position, user status, WO execution priority.

Natural gas measurement system:

Villavicencio FIT-102 flow meter. Maintenance plan #: 10011642. Two routines: semi-annual and annual.

Annual: OT# 1100019321

Date: October 27th, 2022

Operation parameters are verified, general inspection of the instrument, verify the absence of leaks, errors in the indication, verify supply voltage and communication output, standardization of the equipment.

Semester: OT# 1100036196

Date: April 19th, 2023.

Report: no connection failures, internal cleaning and adjustment of connections is carried out.

Verification of operation and download of data, inspect, adjust and general cleaning of the equipment.

Equipment calibration:

- Seen calibration certificate CERT-23-EMP-111-3621 by CDT of the gas. Ametek APM 02G pressure module with indicator. Date: 17.Feb.2023.
- Seen calibration certificate CERT-23-EMP-113-3621 by CDT of the gas. Ametek APM 300 psi gauge pressure module. Date: 17.Feb.2023.
- Seen calibration certificate CERT-23-EMP-112-3621 by CDT of the gas. Ametek APM 3KPSI Gauge Pressure Module. Date: 16.Feb.2023.
- Seen calibration certificate CERT-23-EMT-071-3621 by CDT of the gas. Ametek ITC-155A dry bag temperature module Date: 7.Feb.2023.

Compression Unit #2

OT # 1100036195

Biannual.

Routine: maintenance instrumentation fan cooler unit # 2. Cleaning and adjustment of electrical connections, change silica gel (electronics); online measurement inspection (equipment); supply voltage measurement.

Date: 27.Jun.2023

Report includes verification of vibration sensors, connection harness is verified in good condition, resistance measurement of each sensor in good condition.

9.1.1 Monitoring, measurement, analysis and evaluation of energy performance and the EnMS.

Performance in 2023 (traceability in RMC).

MONTH	NATURAL GAS (GJ)	ELECTRICITY (GJ)	FUEL (GJ)	COMPRESSED GAS (KPC)	ENPi (GJ/KPC)
JANUARY	727	33,3	15,94	0	----
FEBRUARY	738	36,4	37,13	41	0,1017
MARCH	1076	30,1	62,13	47	0,1278
APRIL	990	36,4	49,03	0	----

Average: 0,11475 GJ/KPC

7.4 Communications

Publication of the sustainability policy was evidenced, knowledge of the workers of operational

controls in the register of variables in RMC.

10.2 Continual improvement

It was evidenced :

- Implementation of project not light torch. Comparative. November 2022. Torch gas 718.5 KPCD. Seen for June, 2023, from 8 (consumption of 0) Pilot.
- Currently, process safety analysis.
- Improves availability and reliability emergency generator control.
- Starting system with hot compressed air (from the design of the plant).
- Change from metal halide luminaires of 250 Wats to led reflectors, between 150 Wats and 200 Wats.
- Installation of motion sensors in offices, bathrooms, corridors, cafeteria, garbage collection point.
- Diesel savings in emergency power plant (increase waiting time 4 to 5 min, which is supplied by the UPS).

MARIQUITA SITE:

August 17th, 2023

6.3 Energy review

It operates 24 hours. Unit # 1 is in operation. Ariel compressor, Wakesha engine.

Neighbors: Turgas compression and transportation of gas (client) since 2020.

It receives gas from Vasconia (increase transportation capacity by 20MMPCD per day).

Operation since December 2010

It is part of the gas pipeline – Mariquita Cali / Mariquita Gualanday

Operation conditions:

- Type of compressors: reciprocating.
- Maximum operating pressure in the discharge 1200 PSI
- Suction operating pressure 700 to 1030 PSI
- Max Suction Temp: 86F
- Maximum discharge temperature: 120F
- Volume to compress: 20 MMSCFD Unit1 / 18 MMSCFD Unit 2

Equipments:

- Receipt – slug catcher
- Filtration system: suction separator filter, discharge filter
- Compression system: compression and cooling units
- Relief system: knock out drum (K.O. Drum), Bomba K.O. Drum; blowdown
- Auxiliary services: condensate accumulator drum, condensate transfer pump, motor start gas drum, compressed air system.

Natural gas:

- Uses:

- * Fuel and starting gas: gas used in GCS reciprocating compressors
- * Torch and pilot gas: gas purified and used in Torch relief system.

- Source and record of information: SCADA system (capture of variables by the operator). Daily compression report, monthly RMC compression report (F-COT-012) Gas consumption data report in MBTU.

- Annual consumption:

2016: 43.203 GJ
 2017: 81.882 GJ
 2018: 67.422 GJ
 2019: 60.272 GJ
 2020: 54.311 GJ
 2021: 58.066 GJ
 2022: 57.352 GJ

- Monitoring and measurement equipments: flow meters, temperature control and pressure equipments, SCADA system.

- SEU: yes, because of the evaluation and measurement of GHG or consumption in energy units.

- Relevant variables:

- * Operating conditions for National Transport System (mainly determined by the entry of gas for the producers to service start points)
- * Regulation (CREG – Regulation for the transportation of natural gas)
- * Nomination (request made by a sender to the Main Control Center)
- * Mayor force events: fortuitous event or strange cause (unforeseen: pipe rupture, landslide). It is taken into account for data normalization. They have not been presented in the last year.
- * Extreme weather conditions (El Niño phenomenon)
- * Engine technology.

- Static factors: type of activity (gas compression, compression process, compressor units).

- Operational controls:

* Fuel and starting gas: the supply of fuel and starting gas to the compressors is regulated under the required conditions. It consists of two engine fuel gas and engine starting gas subsystems. In the case of fuel gas, pressure regulators are installed to calculate the gas from the suction filters and the outlet gas from the discharge filters, to guarantee the supply pressure required by the compressors. For the protection of the system, a high and low pressure alarm is configured, as well as low flow, through the direct connection to the control system of the pressure and flow transmitter. When the pressure exceeds a predetermined value in the controller, an alarm is generated to alert the operator to initiate a manual procedure. Additionally, a shutdown valve is installed for closure and a relief valve to fire in

case of emergency. About starting gas, the supply of engine starting gas to the compressors is regulated under the required conditions. In the same way, it has the same pressure and flow control processes as fuel gas and similar protection systems.

* Flare stack and pilot gas: it is a package unit, whose function is to monitor the torch and make its ignition. The system manages a main compressor and a backup one. They have a local and remote supervision for the main variables. The torch control system has a cabinet where they have alarm signals, control of the spark plug, fire detection and flame of each one of the pilots. The system has pilot monitoring switches. When flame shutdown is detected in the controller, an alarm is generated to alert the operator and he initiates a manual procedure. If the ignition procedure fails after 5 minutes, the general shutdown of the station must be activated.

Electric power:

- Source: 13 KV transmission line by : CELSIA – DICEL
- Uses: auxiliary equipment, compressors, laptops, computers, monitors, printers and multifunctionals, air conditioners, televisions, internal lighting, external lighting, refrigerators and microwaves, UPS, switches, among others.
- Information source and record: energy bill (Bimonthly).
- Annual consumption:
 - 2016: 461 GJ
 - 2017: 449 GJ
 - 2018: 440 GJ
 - 2019: 509 GJ
 - 2020: 408 GJ
 - 2021: 417 GJ
 - 2022: 445 GJ
- Monitoring and measurement equipment: electricity meters.
- SEU: yes, because the areas, equipment or processes with potential savings or efficient use or where improvement opportunities have been implemented and especially those where the potential for performance improvement is greater.
- Relevant variables: number of personnel at the station in the month, activities carried out to use electrical equipment with the highest consumption at the station, technical characteristics of electrical consumption of the equipment at the station.
- Static factors: working hours, technologies.
- Operational controls: inspection of meters. There is an emergency plant.

Diesel and Gasoline

- Source: Local Gas Station
- Uses: operation of backup power plant for electricity generation (diesel); operation of vehicles required for the mobilization of headquarters personnel (diesel and gasoline); scythe operation.
- Information source and record: fuel consumption by station. Variable monitoring of consumption of vehicles and power plants on a monthly report.

- Annual consumption:

2018: 330 GJ
 2019: 401 GJ
 2020: 354 GJ
 2021: 310 GJ
 2022: 361 GJ

- Monitoring and measurement equipment: hourmeter

- SEU: not significative.

- Operational control: monitoring of vehicle and power plant consumption variables. Historical measurements of the hour meter linked to the power plant.

Future consumption: the variables of annual compressed gas (KPC) and its average annual growth (2021 and 2022):

Linear regression analysis

$$Y = 0,0047x + 11873$$

$$R^2 = 1$$

Gas consumption: 12.154 GJ

Compressed gas: 59.752 KPC

Improvement opportunities. Maintain operating conditions, since the station is efficient.

6.4 Energy performance indicators

Enpi: $\sum \text{energy (GJ)} / \text{delivered gas (KPC)}$

Energy performance: (consumption natural gas + electricity + other fuels), expressed in energy unit GJ.

Delivered Gas: total compressed or delivered gas expressed in KPC volumetric units.

Period	$\sum \text{energy (GJ)}$	Compressed gas (KPC)	Enpi (GJ/KPC)
2016	43664	4.985.351	0,0088
2017	82395	4.542.724	0,0181
2018	68192	5.388.087	0,0127
2019	61182	5.612.498	0,0109
2020	55073	5.306.263	0,0104
2021	58793	5.612.800	0,0105
2022	58156	5.625.837	0,0103

Target Mariquita $\leq 0,0106$ GJ/KPC

Causes:

- 2 units compressing with low rpms achieved less consumption of natural gas and more compressed gas.
- Maintenance at CPF Cusiana

6.5 Energy baseline

Baseline: average 2019, 2020 and 2021.

Seen for each month consumption of natural gas, electricity, fuel.

6.6 Planning for collection of energy data

There is an instructive monitoring of greenhouse gases I-ASI-052

- * Fuel and starting gas: gas used in GSC reciprocating compressors
- * Flare stack and pilot: gas purified and used in relief system.
- * How: Source of information: Scada; RMC monthly gas compression report – F-COT-13.
- * Frequency: daily
- * Analysis: monthly (reviewed by governing board).

It was evidenced the monthly compression report of the Mariquita GCS for the year 2022. Data sheet shared on onedrive.

8.1 Operational planning and control

Operations:

It was evidenced in the facility tour:

- Receipt – slug catcher
- Filtration system: suction separator filter, discharge filter
- Compression system: compression and cooling units
- Relief system: knock out drum (K.O. Drum), Bomba K.O. Drum; blowdown
- Auxiliary services: condensate accumulator drum, condensate transfer pump, motor start gas drum, compressed air system.
- Change of lighting to led (shelter).
- Identification of points with fugitive emissions.
- Flow meters.
- Perimeter solar lighting.
- In the control room, there was evidenced of monitoring of operating variables, recording every two hours in the data sheet, simulation in SW Ariel.

Maintenance:

Samples:

Natural gas measurement system:

Seen the fuel gas measurement system maintenance record August, 2023. Quarterly routine OT # 1100045930 Torch gas flow meter FIT-400. Transmitter review, parameter review, adjustment to connections; registration in F-MIN-42.

FIT-300 gas coriolis flow meter. Display in fault but transmission in SCADA ok.

Ultra discharge flow meter FIT-200, through air flow in the discharge, the value can be determined.

Ultra suction flow meter FIT-100. Chromatography is updated and mediator clocks are synchronized with HMI.

Seen diagnostic record of primary measurement elements.

Compression Unit #1

2,000 hour maintenance

OT# 1100034637

Seen check list for OT documentation. Preventive maintenance is performed on the Waukesha L36GSII engine. Includes carburetor adjustment; cylinder head valve calibration; cylinder compression intake, verification of free rotation of the starter motor, change of the crankcase gas filter element, cleaning of the pre-filter and air filter; spark plug gap calibration

Seen maintenance record by Technician – Alexánder Martínez (main belt tension, starter motor lubrication. Format F-MIN-79. Seen compression test compliance within parameters.

Date: 28.July.2023

9.1.1 Monitoring, measurement, analysis and evaluation of energy performance and the EnMS.

Performance in 2023 (traceability in RMC).

MONTH	NATURAL GAS (GJ)	ELECTRICITY (GJ)	FUEL (GJ)	COMPRESSED GAS (KPC)	ENPi (GJ/KPC)
JANUARY	3201	32,3	30,95	434140	0,0075
FEBRUARY	3255	28,5	33,59	430506	0,0077
MARCH	3685	30,5	36,48	470726	0,0080
APRIL	3679	28,3	70,43	476497	0,0079

Average: 0,00777 GJ/KPC

7.4 Communications

Publication of the sustainability policy was evidenced, knowledge of the workers of operational controls in the register of variables in RMC.

10.2 Continual improvement


It was evidenced :

- Automate perimeter ignition and shelter shutdown (currently manual). Impact: Higher energy costs are reflected in lighting.

- In July, they received a visit from CDT del Gas, to do an inventory of fugitive emissions.

Non-conformities & opportunities for improvement					
Opportunities for improvement	---	Major non conformity	---	Minor non conformity	---
Audit Conclusion :					
The audit team hereby recommends the organisation for continuation of certification to ISO 50001:2018.					
Team Leader	LILIANA PINILLA	PAOLA	Company management representative	CAROLINA BONILLA	
Client's Acknowledgement	Have all non-conformities been acknowledged by the management representative?			Choose an item.	
Is a Follow-up visit required :	---	Date(s) of Follow-up visit :		----	
Follow-up visit remarks : N.A.					

ANNEXURE - 1

		NONCONFORMITY REPORT									
Company Name and Site							NC#				
N.A.							N.A.				
Contract #		Department / Process			Team Leader						
N.A.		N.A.			N.A.						
Date		Standard and Clause #			Team Member						
N.A.		N.A.			N.A.						
Major	Minor	Other Documents (if applicable)			Company Representative:						
N.A.	N.A.	N.A.			N.A.						
REQUIREMENT OF AUDITED STANDARD											
N.A.											
OBSERVED NONCONFORMITY											
N.A.											
ROOT CAUSE ANALYSIS AND CORRECTIVE ACTION PLAN (To be completed by the Company. Plan to be submitted in 30 days)											
Corrective Action Plan Date:		N.A.			Company Representative:		N.A.				
Root Cause Analysis and Corrective Action											
Root Cause: N.A.											
Corrective Action Plan: N.A.											
ROOT CAUSE AND CORRECTIVE ACTION PLAN ACCEPTANCE REPORT (To be completed by Bureau Veritas Certification – Verify effective identification of Root Cause and acceptance of Corrective Action Plan)											
Root Cause: N.A.											
Corrective Action Plan: N.A.											
Plan Accepted:		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Comments		N.A.			
Auditor:		N.A.				Date:		N.A.			
CORRECTIVE ACTION IMPLEMENTATION (To be completed by Company – Provide objective evidence. Must be completed within 90 days from the last day of the audit)											
Corrective Action Completion Date:			N.A.		Company Representative:		N.A.				
Corrective Action Implementation: N.A.											
Method used to verify effectiveness of action taken: N.A.											
CORRECTIVE ACTION IMPLEMENTATION ACCEPTANCE REPORT (To be completed by Bureau Veritas Certification – Acceptance of Corrective Action taken)											
Accepted		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	Nonconformance Downgraded		Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Follow Up Comments		N.A.									
Auditor		N.A.				Date		N.A.			

ANNEXURE – 2

AUDIT PROGRAMME ISO 50001:2018

Sites	Audits			
	Initial	Main	Suv 1	Suv 2
Central Location / HO		4,0	2,0	2,0
La Sabana		1,0		
Mariquita			1,0	
Padua		1,0		1,0
Miraflores			1,0	1,0
Puente Guillermo				1,0
Paratebueno		1,0		
Villavicencio				1,0
Vasconia			1,0	
Cogua		1,0		
Jagua del Pilar			1,0	1,0
San Alberto			1,0	1,0
Pln&Report		2,0		
Man Days		10,0	7,0	7,0
Tentative number of days for recertification			10,0	
Date	18/07/2024	Prepared/ revised by		LILIANA PAOLA PINILLA
Comment	n.a.			

ANNEXURE – 3

SURVEILLANCE PLAN

Site Name	Processes ³	SURVEILLANCE	
		1	2
Bogotá	Sustainable Development Management (Organization Context / Actions to address risks and opportunities / Leadership / Energy policy / Objectives, Energy goals and planning to achieve them / Energy review / Energy performance indicators Energy baseline / Planning for collection of energy data / Performance evaluation / Evaluation of compliance with legal requirements and other requirements / Internal audit of the EnMS / Management review)/Communications Human Talent (Responsibilities, Competence) Procurement Projects (Design)	X	X
La Sabana	Operations / Maintenance (Operational Control / Energy review / Energy performance indicators / Energy baseline / Planning for collection of energy data)		
Mariquita	Operations / Maintenance (Operational Control / Energy review / Energy performance indicators / Energy baseline / Planning for collection of energy data)	X	
Padua	Operations / Maintenance (Operational Control / Energy review / Energy performance indicators / Energy baseline / Planning for collection of energy data)		X
Miraflores	Operations / Maintenance (Operational Control / Energy review / Energy performance indicators / Energy baseline / Planning for collection of energy data)	X	
Puente Guillermo	Operations / Maintenance (Operational Control / Energy review / Energy performance indicators / Energy baseline / Planning for collection of energy data)		X
Paratebueno	Operations / Maintenance (Operational Control / Energy review / Energy performance indicators / Energy baseline / Planning for collection of energy data)		
Villavicencio	Operations / Maintenance (Operational Control / Energy review / Energy performance indicators / Energy baseline / Planning for collection of energy data)		X
Vasconia	Operations / Maintenance (Operational Control / Energy review / Energy performance indicators / Energy baseline / Planning for collection of energy data)	X	
Cogua	Operations / Maintenance (Operational Control / Energy review / Energy performance indicators / Energy baseline / Planning for collection of energy data)	X	X
San Alberto	Operations / Maintenance (Operational Control / Energy review / Energy performance indicators / Energy baseline / Planning for collection of energy data)	X	X
Jagua del Pilar	Operations / Maintenance (Operational Control / Energy review / Energy performance indicators / Energy baseline / Planning for collection of energy data)	X	X
Audit Time (Mandays) >>>>>>		7,0	7,0
Surv. plan prepared / modified by	Liliana Paola Pinilla	DATE	18/08/2023
Night Shift	n.a.		

³ Energy related processes are expected to be mentioned here and not just generic processes

Comment	n.a.
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ANNEXURE – 4**ATTENDANCE LIST**

Sr. No.	Name of Auditee interviewed	Deptt / Process	Designation of the Auditee
1.	Felipe Valencia	Government Issues and Environment Manager	Sustainable Development Management
2.	Martha Lucía Ramírez	Environmental Manager	Sustainable Development Management
3.	Daniel Montero	Sustainable Development Professional	Sustainable Development Management
4.	Daniel Alvarez	Sustainable Development Professional	Sustainable Development Management
5.	Pablo Montes	HS Professional	Villavicencio / Mariquita
6.	Silvia Higuera	IMS Professional Planning and Performance Management	Sustainable Development Management
7.	Sandra Velandia	IMS Professional Planning and Performance Management	Sustainable Development Management
8.	Fernando Badillo	HS Professional	Vasconia
9.	Alfredo Sabaleta	Operator	San Alberto
10.	Luis Fernando Hinestroza	HS Supervisor	San Alberto / Jagua del Pilar
11.	Edgar Bedoya	Technical instrumentalist	San Alberto
12.	Alex Baños	Operator	Jagua del Pilar
13.	Edwin Roa	Compressor Specialist Professional	Jagua del Pilar
14.	Jorge Neira	Indra Contrac Supervisor	IT
15.	Fredy Carvajal	Indra Contrac Analyst	IT
16.	Ana Judith López	HR Professional	Human Resources
17.	Diana Santos	HR Professional	Human Resources
18.	David Mosquera	HR Professional	Human Resources
19.	Jenny Vega	HR Manager	Human Resources
20.	Linda Martínez	HS Professional	Mariquita
21.	David Ramírez	GCS Supervisor	Mariquita
22.	Antonio Delgado	Electrical Technician	Mariquita
23.	John Fredy Márquez	Instrumental Technician	Mariquita
24.	Juan Pablo Fuentes	SAP Assistant	Mariquita
25.	Leonardo	Operator	Mariquita

	Ardila		
26.	Hernán Palomo	GCS Auxiliary	Mariquita
27.	Víctor Avila	Mechanical Technician	Mariquita
28.	Alexander Saavedra	GCS Supervisor	Villavicencio
29.	Jenifer Fontecha	SAP Assistant	Villavicencio
30.	Ricardo Sanchez	Maintenance Professional	Villavicencio
31.	Leidy Romero	HS Professional	Villavicencio
32.	Wilson Romero	Operator	Villavicencio
33.	German Navarro	Professional Administrative Services	Bogotá (Administrative Services)
34.	Nicolás González	Professional Administrative Services	Bogotá (Administrative Services)
35.	Fernando Redondo	Assessor	Sustainable Development Management
36.	Oscar Casas	Procurement Manager	Procurement
37.	Claudia Castillo	Professional Specialist	Procurement