

	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک							
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	SIL REPORT FOR COMPRESSOR STATION							شماره صفحه : ۱ از ۳۰
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	
	BK	GCS	PEDCO	120	GE	RT	0005	D01

طرح نگهداشت و افزایش تولید ۲۷ مخزن

SIL REPORT FOR COMPRESSOR STATION

نگهداشت و افزایش تولید میدان نفتی بینک

D01	NOV. 2022	FI	A.Baghaei	M.Fakharian	M.Mehrshad	
D00	JUL. 2022	IFI	A.Baghaei	M.Fakharian	M.Mehrshad	
Rev.	Date	Purpose of Issue/Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval

Class: 3 CLIENT Doc. Number: F0Z-708726

Status:

IDC: Inter-Discipline Check
 IFC: Issued For Comment
 IFA: Issued For Approval
 AFD: Approved For Design
 AFC: Approved For Construction
 AFP: Approved For Purchase
 AFQ: Approved For Quotation
 IFI: Issued For Information
 AB-R: As-Built for CLIENT Review
 AB-A: As-Built –Approved
 FI: Final Issue

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک																	
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REVISION RECORD SHEET

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	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک								
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	BK	GCS	PEDCO	120	GE	RT	0005	D01	

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1.0 INTRODUCTION

Binak oilfield in Bushehr province is a part of the southern oilfields of Iran, is located 20 km northwest of Genaveh city.

With the aim of increasing production of oil from Binak oilfield, an EPC/EPD Project has been defined by NIOC/NISOC and awarded to Petro Iran Development Company (PEDCO). Also PEDCO (as General Contractor) has assigned the EPC-packages of the Project to "Hirgan Energy - Design and Inspection" JV.

As a part of the Project, a New Gas Compressor Station (adjacent to existing Binak GCS) shall be constructed to gather of 15 MMSCFD (approx.) associated gases and compress & transfer them to Siahmakan GIS.

GENERAL DEFINITION

The following terms shall be used in this document.

CLIENT:	National Iranian South Oilfields Company (NISOC)
PROJECT:	Binak Oilfield Development – Surface Facilities; New Gas Compressor Station
EPD/EPC CONTRACTOR (GC):	Petro Iran Development Company (PEDCO)
EPC CONTRACTOR:	Joint Venture of : Hirgan Energy – Design & Inspection (D&I) Companies
VENDOR:	The firm or person who will fabricate the equipment or material.
EXECUTOR:	Executor is the party which carries out all or part of construction and/or commissioning for the project.
THIRD PARTY INSPECTOR (TPI):	The firm appointed by EPD/EPC CONTRACTOR (GC) and approved by CLIENT (in writing) for the inspection of goods.
SHALL:	Is used where a provision is mandatory.
SHOULD:	Is used where a provision is advisory only.
WILL:	Is normally used in connection with the action by CLIENT rather than by an EPC/EPD CONTRACTOR, supplier or VENDOR.
MAY:	Is used where a provision is completely discretionary.

	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک								
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2.0 SCOPE

The scope of SIL study covers all P&IDs for New Gas Compressor Station. The list of P&IDs is presented in appendix B.

3.1 NORMATIVE REFERENCES

3.2 INTERNATIONAL CODES AND STANDARDS

- IEC 61511:2016 Functional Safety – Safety Instrumented Systems for the Process Industry Sector

3.3 THE PROJECT DOCUMENTS

- BK-GNRAL-HD-000-PR-DB-0001-D05 Process Basis of Design
- BK-GCS-PEDCO-120-PR-BD-0001 ESD Block Diagram
- BK-GCS-PEDCO-120-PR-CE-0001 Cause & Effect Diagram

4.0 PURPOSE

The purpose of this document is to provide the results of “SIL Study” for **Binak Oilfield Development – Surface Facilities; New Gas Compressor Station**.

The objective of SIL study is to identify the target Safety Integrity Levels (SIL) of all the typical instrumented safety-related loops defined as trip interlocks, i.e. safety instrumented functions (SIF) leading to a safe status for people and to a safe state of the process and assets. The results obtained for target SIL of SIF's then can be used for the design and procurement of the safety instrumented systems and planning of proof test intervals of safety instrumented systems.

5.0 SIL STUDY OVERVIEW

SIL study was performed along with HAZOP Study meetings which were conducted in 4 sessions from June 27 to 30, 2022 held in Neyshekar Hotel main meeting hall, Ahvaz.

A team comprising of experts from different disciplines of National Iranian South Oilfields Company (NISOC), Petro Iran Development Company (PEDCO) and Horgan Energy Company conducted the study with a third-party HAZOP/SIL Chairman and Scribe. The list of team members is presented in appendix A.

Piping and Instrumentation Diagrams (P&ID's) for GCS are listed in appendix B. Each P&ID is used in one or more nodes that is mentioned in the drawing report.

The node list generated during HAZOP Study was also used for SIL Study. Total 31 SIFs were identified and studied. The list of nodes and SIFs in each node is presented in appendix C.

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک																									
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Appendix D describes SIFs in each node and the Target SIL results, and appendix E consists of detailed SIL Worksheets of the study.

6.0 PROCEDURE

The SIL Study was performed according to the Risk Graph methodology defined by the SIL Procedure Document “BK-GNRAL-PEDCO-000-GE-PR-0003”.

7.0 SIL STUDY OUTCOMES

A total of 32 SIF's were identified as safety critical systems and assessed. The resulting SIL study worksheets and SIL targets are shown in appendix E. Where multiple scenarios were analyzed, the highest value of SIL is selected for the regarding SIF. Following table shows the distribution of Target SIL's.

SIL Target	No. of SIF's
Not Safety Related	0
SIL A	10
SIL 1	8
SIL 2	14
SIL 3	0
SIL 4	0
Total	32

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BK	GCS	PEDCO	120	GE	RT	0005	D01																			

8.0 ATTACHMENTS

8.1 Attachment A – Team Members

First Name	Last Name	Company	Expertise
S.Mehdi	Ashrafian	NISOC	Project Manager
Shamsolah	Bahadori	NISOC	Construction Manager
Fatemeh	Ghods	NISOC	Head of I&C
Mohammad	Torfi	NISOC	Process
Sahar	Saba	NISOC	Process
Niloofer	Rezaei Baba ahmadi	NISOC	Process
Mohammad Reza	Cheraghchi	NISOC	Process
Fazel	Moafi	NISOC	Instrument
Behzad	Zandian	NISOC	Instrument
Peyman	Sarvarian	NISOC	Mechanic
Hojjat	Jafarpour	NISOC	Mechanical
Faride	Parvin	NISOC	Mechanical
Mohammad	Khamisi	NISOC	HSE
Mohammad	Shirali	NISOC	Commissioning
Ali	Hamidan	NISOC	Commissioning
Naji	Hamid	NISOC	Commissioning
Khodadad	Kavosi	NISOC	Commissioning
Reza	Gholgheysari	NISOC	Process Engineer
Mobin	Saeedi	NISOC	Instrument
Mohammad	Bakhshi Mohammadi	Gachsaran NISOC	Production Engineer
Shahram	Valizadeh	Gachsaran NISOC	Production Engineer
Vahid	Mussavi	Gachsaran NISOC	Production Engineer
Mohammad	Fakoor	PEDCO	Process Engineer
Farshid	Amiri	PEDCO	Piping Lead Engineer
Hadi	Mozaffari	PEDCO	Electrical Engineer
Mahdi	Karimi	PEDCO	Head of Electrical Department
Pouria	Bavarsad	PEDCO	Piping Engineering
Sadegh	Gharacheh	PEDCO	Process
Morteza	Taherkhani	PEDCO	Head of I&C
Sepideh	Akbari	PEDCO	I&C Engineer
Sasan	Faramarzpour	PEDCO	Head of Process and Safety Department
Pouya	Maleki	PEDCO	Process Engineer
Mehdi	Sadeghian	PEDCO	Surface Manager
Vahid	Abdeshadi	PEDCO	Project Engineer Manager
Masoud	Asgharnejad	Hirgan Energy	Engineering Manager

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BK	GCS	PEDCO	120	GE	RT	0005	D01																			

First Name	Last Name	Company	Expertise
Mohsen	Aryafar	Hirgan Energy	Process
Saeed	Ghanbari	Hirgan Energy	Process
Parisa	Hajisadeghi	Hirgan Energy	Head of I&C
Mohammad	Fakharian	Hirgan Energy	Project Manager
Ali	Baghaei	HAZOP Consultant	Process Safety
Firoozeh	Khosravi	HAZOP Consultant	Process Safety

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BK	GCS	PEDCO	120	GE	RT	0005	D01																			

8.2 Attachment B – List of Drawings

Drawing No.	Drawing Title	Place(s) Used
BK-GCS-PEDCO-120-PR-PI-0002_D03	Gas Compression Inlet Gas Pipeline (Binak)	Nodes: 1
BK-GCS-PEDCO-120-PR-PI-0003_D03	Gas Compression Inlet Gas Pipeline (Golkhari)	Nodes: 2
BK-GCS-PEDCO-120-PR-PI-0004_D03	Slug Catcher System (2 sheets)	Nodes: 3
BK-GCS-PEDCO-120-PR-PI-0005_D03	Gas Compression Inlet Knock Out Drum	Nodes: 4
BK-GCS-PEDCO-120-PR-PI-0006_D03	1st Stage Gas Compression Suction Drums (3 sheets)	Nodes: 5
BK-GCS-PEDCO-120-PR-PI-0007_D03	1st Stage Gas Compression Compressors (3 sheets)	Nodes: 5
BK-GCS-PEDCO-120-PR-PI-0008_D03	1st Stage Gas Compression Air Coolers (3 sheets)	Nodes: 5
BK-GCS-PEDCO-120-PR-PI-0009_D03	2nd Stage Gas Compression Suction Drums (3 sheets)	Nodes: 6
BK-GCS-PEDCO-120-PR-PI-0010_D03	2nd Stage Gas Compression Compressors (3 sheets)	Nodes: 6
BK-GCS-PEDCO-120-PR-PI-0011_D03	2nd Stage Gas Compression Air Coolers (3 sheets)	Nodes: 6
BK-GCS-PEDCO-120-PR-PI-0012_D03	2nd Stage Gas Compression Discharge Drum	Nodes: 7
BK-GCS-PEDCO-120-PR-PI-0013_D03	Gas Compression Dehydration Package (3 sheets)	Nodes: 8
BK-GCS-PEDCO-120-PR-PI-0014_D03	Lean Glycol Storage Tank	Nodes: 9
BK-GCS-PEDCO-120-PR-PI-0015_D03	Instrument & Plant Air System	Nodes: 10
BK-GCS-PEDCO-120-PR-PI-0016_D03	Nitrogen Generation System	Nodes: 11
BK-GCS-PEDCO-120-PR-PI-0017_D03	Closed Drain System (2 sheets)	Nodes: 12
BK-GCS-PEDCO-120-PR-PI-0018_D03	Corrosion Inhibitor Package	Nodes: 13
BK-GCS-PEDCO-120-PR-PI-0019_D03	Methanol Injection Package	Nodes: 14
BK-GCS-PEDCO-120-PR-PI-0020_D03	LP Flare System (3 sheets)	Nodes: 15
BK-GCS-PEDCO-120-PR-PI-0021_D03	Oily Water Sewer	Nodes: 16
BK-GCS-PEDCO-120-PR-PI-0022_D03	Fuel Gas System	Nodes: 17
BK-GCS-PEDCO-120-PR-PI-0023_D03	Diesel Oil System (2 sheets)	Nodes: 18
BK-GCS-PEDCO-120-PR-PI-0024_D03	Potable Water System	Nodes: 19
BK-GCS-PEDCO-120-PR-PI-0025_D03	Glycol Sump Drum	Nodes: 20
BK-PPL-PEDCO-320-PR-PI-0001_D03	Gas Pipeline (to Siahmakan G.I. Station) (3 sheets)	Nodes: 21
BK-PPL-PEDCO-320-PR-PI-0002_D03	Condensate Pipeline (to Binak PU)	Nodes: 22

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BK	GCS	PEDCO	120	GE	RT	0005	D01																			

8.3 Attachment C – Node List

Nodes	Color	Drawings	SIF Initiator	Target SIL
1. Gas Compression Inlet Gas Pipeline (Binak)	Red	BK-GCS-PEDCO-120-PR-PI-0002_D03		
2. Gas Compression Inlet Gas Pipeline (Golkhari)	Violet	BK-GCS-PEDCO-120-PR-PI-0003_D03		
3. Slug Catcher System	L Blue	BK-GCS-PEDCO-120-PR-PI-0004_D03	1. PALL-2114A/B	SIL 1
			2. PAHH-2116A/B	SIL 1
			3. PAHH-2111	SIL 2
			4. LAHH-2112	SIL 1
			5. LALL-2112	SIL a
4. Gas Compression Inlet Knock Out Drum	Yellow	BK-GCS-PEDCO-120-PR-PI-0005_D03	1. PAHH-2116	SIL 2
			2. LAHH-2117	SIL 1
			3. LALL-2118	SIL a
5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers	Blue	BK-GCS-PEDCO-120-PR-PI-0006_D03	1. PALL-2122A	SIL 2
			2. PAHH-2122A	SIL 2
		BK-GCS-PEDCO-120-PR-PI-0007_D03	3. TAHH-2124A	SIL 2
			4. TAHH-2125A	SIL 2
			5. LAHH-2122A	SIL 2
			6. LALL-2122A	SIL a
6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers	Green	BK-GCS-PEDCO-120-PR-PI-0009_D03	1. PALL-2131A	SIL 2
		BK-GCS-PEDCO-120-PR-PI-0010_D03	2. TAHH-2134A	SIL 2
		BK-GCS-PEDCO-120-PR-PI-0011_D03	3. TAHH-2136A	SIL 2
			4. PAHH-2134A	SIL 2
			5. LAHH-2132A	SIL 2 (with recommendation)
			6. LALL-2132A	SIL a
7. 2nd Stage Gas Compression Discharge Drum	Violet	BK-GCS-PEDCO-120-PR-PI-0012_D03	1. LAHH-2142	SIL 1
			2. LALL-2142	SIL a
8. Gas Compression Dehydration Package	Yellow	BK-GCS-PEDCO-120-PR-PI-0013_D03		
9. Lean Glycol Storage Tank	Blue	BK-GCS-PEDCO-120-PR-PI-0014_D03	1. LALL-2161	SIL a
10. Instrument & Plant Air System	Red	BK-GCS-PEDCO-120-PR-PI-0015_D03	1. PALL-2201A/B/C	SIL 1

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">SIL REPORT FOR COMPRESSOR STATION</th></tr><tr><th>پروژه</th><th>بسته کاری</th><th>صادر کننده</th><th>تسهیلات</th><th>رشته</th><th>نوع مدرک</th><th>سریال</th><th>نسخه</th></tr><tr><td>BK</td><td>GCS</td><td>PEDCO</td><td>120</td><td>GE</td><td>RT</td><td>0005</td><td>D01</td></tr></table>	SIL REPORT FOR COMPRESSOR STATION								پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	BK	GCS	PEDCO	120	GE	RT	0005	D01	30 از 11 :شماره صفحه
SIL REPORT FOR COMPRESSOR STATION																										
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0005	D01																			

Nodes	Color	Drawings	SIF Initiator	Target SIL
			2. PALL-2202	SIL 1
11.Nitrogen Generation System	Green	BK-GCS-PEDCO-120-PR-PI-0016_D03	1. PALL-2211	SIL 2
12.Closed Drain System	Pink	BK-GCS-PEDCO-120-PR-PI-0017_D03		
13.Corrosion Inhibitor Package	Orange	BK-GCS-PEDCO-120-PR-PI-0018_D03		
14.Methanol Injection Package	L Blue	BK-GCS-PEDCO-120-PR-PI-0019_D03		
15.LP Flare System	Violet	BK-GCS-PEDCO-120-PR-PI-0020_D03	1. LAHH-2252A/B/C	SIL 1
			2. LALL-2253	SIL a
			3. PALL-2251A/B	SIL a
16.Oily Water Sewer	Yellow	BK-GCS-PEDCO-120-PR-PI-0021_D03		
17.Fuel Gas System	Blue	BK-GCS-PEDCO-120-PR-PI-0022_D03	1. LAHH-2272	SIL a
			2. LALL-2272	SIL a
18.Diesel Oil System	Green	BK-GCS-PEDCO-120-PR-PI-0023_D03		
19.Potable Water System	L Blue	BK-GCS-PEDCO-120-PR-PI-0024_D03		
20.Glycol Sump Drum	Violet	BK-GCS-PEDCO-120-PR-PI-0025_D03		
21.Gas Pipeline (to Siahmakan G.I. Station)	L Blue	BK-PPL-PEDCO-320-PR-PI-0001_D03	1. PALL-3201	SIL 2
22.Condensate Pipeline (to Binak PU)	Violet	BK-PPL-PEDCO-320-PR-PI-0002_D03	It is deleted from scope of work	

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SIL REPORT FOR COMPRESSOR STATION																										
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0005	D01																			

8.4 Attachment D – SIF Description

Node: 3. Slug Catcher System

SIF Initiator	Description	Target SIL
1. PALL-2114A/B	will activate ESD-3 and stop pump P-2101A/B	SIL 1
2. PAHH-2116A/B	will activate ESD-3	SIL 1
3. PAHH-2111	will activate ESD-1	SIL 2
4. LAHH-2112	will activate ESD-1	SIL 1
5. LALL-2112	will activate ESD-3 and stop pumps	SIL a

Node: 4. Gas Compression Inlet Knock Out Drum

SIF Initiator	Description	Target SIL
1. PAHH-2116	will activate ESD-1	SIL 2
2. LAHH-2117	will activate ESD-3	SIL 1
3. LALL-2118	will activate ESD-3 and close ESDV-2113	SIL a

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

SIF Initiator	Description	Target SIL
1. PALL-2122A	will activate ESD-2	SIL 2
2. PAHH-2122A	will activate ESD-2	SIL 2
3. TAHH-2124A	will activate ESD-2	SIL 2
4. TAHH-2125A	will activate ESD-2	SIL 2
5. LAHH-2122A	will activate ESD-2 and trip compressor	SIL 2
6. LALL-2122A	will activate ESD-3 and close XV-2122A	SIL a

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

SIF Initiator	Description	Target SIL
1. PALL-2131A	will activate ESD-2	SIL 2
2. TAHH-2134A	will activate ESD-2	SIL 2
3. TAHH-2136A	will activate ESD-2	SIL 2
4. PAHH-2134A	will activate ESD-2	SIL 2
5. LAHH-2132A	will activate ESD-2 and trip compressor	SIL 2 (with recommendation)
6. LALL-2132A	will activate ESD-3 and close XV-2131A	SIL a

Node: 7. 2nd Stage Gas Compression Discharge Drum

SIF Initiator	Description	Target SIL
1. LAHH-2142	will activate ESD-1	SIL 1

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SIL REPORT FOR COMPRESSOR STATION																										
پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه																			
BK	GCS	PEDCO	120	GE	RT	0005	D01																			

Node: 7. 2nd Stage Gas Compression Discharge Drum

SIF Initiator	Description	Target SIL
2. LALL-2142	will activate ESD-3 and close XV-2144	SIL a

Node: 9. Lean Glycol Storage Tank

SIF Initiator	Description	Target SIL
1. LALL-2161	will activate ESD-3 and stop P-2103A/B	SIL a

Node: 10. Instrument & Plant Air System

SIF Initiator	Description	Target SIL
1. PALL-2201A/B/C	will activate ESD-1A with 2oo3 voting	SIL 1
2. PALL-2202	will activate ESD-3 and closed ESDV-2231	SIL 1

Node: 11. Nitrogen Generation System

SIF Initiator	Description	Target SIL
1. PALL-2211	will activate ESD-1	SIL 2

Node: 15. LP Flare System

SIF Initiator	Description	Target SIL
1. LAHH-2252A/B/C	will activate ESD-1 on 2oo3 voting	SIL 1
2. LALL-2253	will activate ESD-3 and stop pumps	SIL a
3. PALL-2251A/B	will activate ESD-3 and stop pumps	SIL a

Node: 17. Fuel Gas System

SIF Initiator	Description	Target SIL
1. LAHH-2272	will activate ESD-3 and close ESDV-2272	SIL a
2. LALL-2272	will activate ESD-3 and close XV-2271	SIL a

Node: 21. Gas Pipeline (to Siahmakan G.I. Station)

SIF Initiator	Description	Target SIL
1. PALL-3201	will activate ESD-1 and close ESDV-3201	SIL 2

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شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	SIL REPORT FOR COMPRESSOR STATION								30 از 14 : شماره صفحه			
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه				
	BK	GCS	PEDCO	120	GE	RT	0005	D01				

8.5 Attachment E – SIL Worksheets

Node: 3. Slug Catcher System

SIF Initiator: 1. PALL-2114A/B

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. Plugging of pump strainer	1. Possibility of damage to pump	1. Local PDG-2114A/B	Non-IPL						A _A	P _B	W ₂	SIL 1					

Node: 3. Slug Catcher System

SIF Initiator: 2. PAHH-2116A/B

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. FCV-2111 closed more by a failure in any elements of its control loop	1. Possibility of damage to pump due to high pressure								A _A	P _B	W ₂	SIL 1					
2. ESDV-2112 closed by failure or error	1. Possibility of damage to pump due to high pressure	1. Limit switch on valve	Non-IPL						A _A	P _B	W ₂	SIL 1					

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SIL REPORT FOR COMPRESSOR STATION																										
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه																			
D01	0005	RT	GE	120	PEDCO	GCS	BK																			

Node: 3. Slug Catcher System

SIF Initiator: 3. PAHH-2111

[illegible]

Node: 3. Slug Catcher System

SIF Initiator: 4. LAHH-2112

[illegible]

Node: 3. Slug Catcher System

SIF Initiator: 5. LALL-2112

[illegible]

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک																									
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SIL REPORT FOR COMPRESSOR STATION																										
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه																			
D01	0005	RT	GE	120	PEDCO	GCS	BK																			

Node: 3. Slug Catcher System

SIF Initiator: 5. LALL-2112

[illegible]

Node: 4. Gas Compression Inlet Knock Out Drum

SIF Initiator: 1. PAHH-2116

[illegible]

Node: 4. Gas Compression Inlet Knock Out Drum

SIF Initiator: 2. LAHH-2117

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. LCV-2114 remained closed for long time	1. Accumulation of liquid in inlet KO drum and carry over to compressors suction drums and fuel gas KO drum	1. LAH-2119 (dependent)	Non-IPL						A _C	P _A	W ₁	SIL 1					
		2. High level alarm protection on compressor suction drum and fuel gas KO drum	IPL														
2. ESDV-2113 remained closed by failure or error for long time	1. Accumulation of liquid in inlet KO drum and carry over to compressors suction drums and fuel gas KO drum	1. LAH-2119 (dependent)	Non-IPL						A _C	P _A	W ₁	SIL 1					
		2. High level alarm protection on compressor suction drum and fuel gas KO drum	IPL														

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک																									
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SIL REPORT FOR COMPRESSOR STATION																										
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه																			
D01	0005	RT	GE	120	PEDCO	GCS	BK																			

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

SIF Initiator: 1. PALL-2122A

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
		by PIC-2121A															
		5. Internal high temperature protection in compressor package	IPL														
3. XV-2121A closed by failure or error (any failure inside UCP)	1. Loss of suction pressure for one compressor with possibility of damage to compressor due to over heating	1. PAL-2121A	Non-IPL						A _C	P _B	W ₀	SIL 1					
4. PCV-2123A closed more when required to be open	1. Low suction pressure in compressor with possibility of vacuum formation	1. V-2101A is designed for full vacuum	IPL						A _C	P _A	W ₂	SIL 2					
		2. PAL-2121A (dependent)	Non-IPL														
		3. PAL-2123A/PAL-2124A/PAL-2132A/FAL-2121A/FAL-2131A inside compressor package	Non-IPL														

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

SIF Initiator: 2. PAHH-2122A

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. Compressor failure or trip	1. Increased pressure upstream of compressor with possibility of damage due to over pressure, leakage and	1. PSVs on V-2104 and V-2105 are designed for blocked outlet	IPL	S _C	F _B	P _A	W ₂	SIL 2	A _C	P _A	W ₂	SIL 2					

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SIL REPORT FOR COMPRESSOR STATION																										
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه																			
D01	0005	RT	GE	120	PEDCO	GCS	BK																			

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

SIF Initiator: 2. PAHH-2122A

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
	fire																
2. PCV-2123A open more when required to be closed	1. High suction pressure with possibility of damage to suction, leakage and fire	1. PAH-2124A/PAH-2123A/PAH-2132A inside compressor package	Non-IPL	S _C	F _B	P _B	W ₁	SIL 2	A _A	P _B	W ₁	SIL a					

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

SIF Initiator: 3. TAHH-2124A

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. PCV-2123A open more when required to be closed	1. High suction temperature with possibility of damage to compressor	1. TAH-2121A	Non-IPL						A _C	P _A	W ₂	SIL 2					
		2. TAH-2122A inside compressor package	Non-IPL														
		3. High temperature protection inside compressor package	IPL														
2. Mechanical failure in compressor package	1. Damage to compressor or discharge piping	1. TAH-2123A inside compressor package	Non-IPL						A _C	P _A	W ₂	SIL 2					
3. Decreased flow through compressor	1. Damage to compressor or discharge piping	1. FAL-2121A	Non-IPL						A _C	P _A	W ₂	SIL 2					
		2. TAH-2123A inside compressor package	Non-IPL														

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

SIF Initiator: 4. TAHH-2125A

Causes	Consequences	Safeguards	Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
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 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک																									
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">SIL REPORT FOR COMPRESSOR STATION</th></tr><tr><th>نسخه</th><th>سریال</th><th>نوع مدرک</th><th>رشته</th><th>تسهیلات</th><th>صادرکننده</th><th>بسته کاری</th><th>پروژه</th></tr><tr><td>D01</td><td>0005</td><td>RT</td><td>GE</td><td>120</td><td>PEDCO</td><td>GCS</td><td>BK</td></tr></table>	SIL REPORT FOR COMPRESSOR STATION								نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه	D01	0005	RT	GE	120	PEDCO	GCS	BK	30 از 20 : شماره صفحه
SIL REPORT FOR COMPRESSOR STATION																										
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه																			
D01	0005	RT	GE	120	PEDCO	GCS	BK																			

		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. Air cooler fan failure or trip	1. High temperature of 2nd stage with possibility of damage to it	1. TAH-2126A	Non-IPL						A _C	P _A	W ₂	SIL 2					
		2. Two pairs of air coolers are considered	IPL														

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک							
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	SIL REPORT FOR COMPRESSOR STATION							30 از 21 : شماره صفحه
	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	
	BK	GCS	PEDCO	120	GE	RT	0005	D01

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

SIF Initiator: 5. LAHH-2122A

OP - Initiator: S. LAHH-2122A																		
Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations	
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL		
1. XV-2122A remained closed when required to be open	1. Accumulation of liquid in V-2101A and carry over to compressor with possibility of damage	1. LAH-2121A (dependent)	Non-IPL						A _C	P _A	W ₂	SIL 2						
		2. LAHH-2117 that will activate ESD-3 on inlet KO drum	IPL															

Node: 5. 1st Stage Gas Compression Suction Drums, Compressors and Air Coolers

SIF Initiator: 6. LALL-2122A

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. XV-2122A remained open	1. Gas blowby via closed drain header to flare and waste of gas	1. LAL-2121A (dependent)							A _A	P _A	W ₂	SIL a	E _A	P _A	W ₂	SIL a	

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

SIF Initiator: 1. PALL-2131A

[illegible]

	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک											
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	SIL REPORT FOR COMPRESSOR STATION								30 از 22 : شماره صفحه			
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه				
	BK	GCS	PEDCO	120	GE	RT	0005	D01				

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

SIF Initiator: 1. PALL-2131A

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
2. BDV-2134A open by failure or error	1. Low suction pressure for 2nd stage and possibility of damage to compressor due to over heating	package	IPL						Ac	PA	W ₂	SIL 2					
		1. Internal high temperature protection in compressor package															

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

SIF Initiator: 2. TAHH-2134A

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. Mechanical failure in compressor package	1. Damage to compressor or discharge piping	1. TAH-2133A inside compressor package	Non-IPL						Ac	PA	W ₂	SIL 2					
		2. High temperature protection inside compressor package	IPL														
2. Decreased flow through compressor	1. Same as above	1. FAL-2131A	Non-IPL						Ac	PA	W ₂	SIL 2					
		2. TAH-2133A inside compressor package	Non-IPL														
		3. High temperature protection inside compressor package	IPL														

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

SIF Initiator: 3. TAHH-2136A

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک																									
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">SIL REPORT FOR COMPRESSOR STATION</th></tr><tr><th>نسخه</th><th>سریال</th><th>نوع مدرک</th><th>رشته</th><th>تسهیلات</th><th>صادرکننده</th><th>بسته کاری</th><th>پروژه</th></tr><tr><td>D01</td><td>0005</td><td>RT</td><td>GE</td><td>120</td><td>PEDCO</td><td>GCS</td><td>BK</td></tr></table>	SIL REPORT FOR COMPRESSOR STATION								نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه	D01	0005	RT	GE	120	PEDCO	GCS	BK	30 از 23 : شماره صفحه
SIL REPORT FOR COMPRESSOR STATION																										
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه																			
D01	0005	RT	GE	120	PEDCO	GCS	BK																			

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. Air cooler fan failure or trip	1. High temperature of 2nd stage discharge with possibility of damage to downstream piping	1. TAH-2135A	Non-IPL						A _C	P _A	W ₂	SIL 2					
		2. Two pairs of air coolers are considered	IPL														

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

SIF Initiator: 4. PAHH-2134A

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. Blocked outlet for compressor 2nd stage discharge	1. Damage to equipment, leakage and fire	1. PSV-2132A/2133A	IPL	Sc	F _B	P _A	W ₂	SIL 2	A _C	P _A	W ₂	SIL 2					

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

SIF Initiator: 5. LAHH-2132A

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. XV-2131A remained closed when required to be open	1. Accumulation of liquid in V-2102A and carry over to compressor with possibility of damage	1. LAH-2131A (dependent)	Non-IPL						A _C	P _A	W ₂	SIL 2					1. Define high level alarm on LT-2132 also define discrepancy alarm between LT-2131 and LT-2132 in
		2. Operator will be alerted by high level alarm (recommendation)	IPL														

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک									
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	SIL REPORT FOR COMPRESSOR STATION								30 از 24 : شماره صفحه	
	پروژه	بسته کاری	صادر کننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه		
	BK	GCS	PEDCO	120	GE	RT	0005	D01		

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

SIF Initiator: 5. LAHH-2132A

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
																	DCS.

Node: 6. 2nd Stage Gas Compression Suction Drums, Compressors and Air Coolers

SIF Initiator: 6. LALL-2132A

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. XV-2131A remained open	1. Gas blowby via closed drain header to flare and waste of gas	1. LAL-2131A (dependent)	Non-IPL						A _A	P _B	W ₁	SIL a	E _A	P _B	W ₁	SIL a	

Node: 7. 2nd Stage Gas Compression Discharge Drum

SIF Initiator: 1. LAHH-2142

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. XV-2144 closed by failure or error	1. High level in V-2103 and carry over to dehydration package and degradation of glycol	1. LAH-2141 (dependent)	Non-IPL						A _A	P _B	W ₂	SIL 1					

Node: 7. 2nd Stage Gas Compression Discharge Drum

SIF Initiator: 2. LALL-2142

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	

	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک																									
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SIL REPORT FOR COMPRESSOR STATION																										
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه																			
D01	0005	RT	GE	120	PEDCO	GCS	BK																			

Node: 7. 2nd Stage Gas Compression Discharge Drum

SIF Initiator: 2. LALL-2142

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. XV-2144 remained open by failure or error	1. Gas blowby via closed drain header to flare and waste of gas	1. LAL-2141 (dependent)	Non-IPL						A _A	P _B	W ₁	SIL a	E _A	P _B	W ₁	SIL a	

Node: 9. Lean Glycol Storage Tank

SIF Initiator: 1. LALL-2161

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. TK-2102 not refilled at proper time due to error	1. Possibility of damage to P-2103A/B	1. LAL-2162	Non-IPL						A _A	P _A	W ₂	SIL a					

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک																									
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SIL REPORT FOR COMPRESSOR STATION																										
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه																			
D01	0005	RT	GE	120	PEDCO	GCS	BK																			

Node: 10. Instrument & Plant Air System

SIF Initiator: 1. PALL-2201A/B/C

[illegible]

Node: 10. Instrument & Plant Air System

SIF Initiator: 2. PALL-2202

[illegible]

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک																									
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">SIL REPORT FOR COMPRESSOR STATION</th></tr><tr><th>نسخه</th><th>سریال</th><th>نوع مدرک</th><th>رشته</th><th>تسهیلات</th><th>صادرکننده</th><th>بسته کاری</th><th>پروژه</th></tr><tr><td>D01</td><td>0005</td><td>RT</td><td>GE</td><td>120</td><td>PEDCO</td><td>GCS</td><td>BK</td></tr></table>	SIL REPORT FOR COMPRESSOR STATION								نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه	D01	0005	RT	GE	120	PEDCO	GCS	BK	30 از 27 : شماره صفحه
SIL REPORT FOR COMPRESSOR STATION																										
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه																			
D01	0005	RT	GE	120	PEDCO	GCS	BK																			

Node: 10. Instrument & Plant Air System

SIF Initiator: 2. PALL-2202

OP: WinStation: EN: FAL: ELEC																	
Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
		4. PAL-2203	Non-IPL														
		5. PIC-2201 will control PCV-2201	IPL														

Node: 11. Nitrogen Generation System

SIF Initiator: 1. PALL-2211

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. Any failure inside Nitrogen package and compressors	1. Low pressure of nitrogen and loss of seal gas for compressor and also leakage of gas to ATM with possible personnel injury	1. Nitrogen receiver V-2204 with 15 min holdup	Non-IPL	S _C	F _B	P _A	W ₂	SIL 2	A _B	P _A	W ₂	SIL 1					
		2. Fault alarm on package	Non-IPL														
		3. PAL-2213	Non-IPL														
		4. PAL-2211 inside package	Non-IPL														
		5. Low seal pressure protection inside compressor package	IPL														

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک																									
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	<table><tr><th colspan="8">SIL REPORT FOR COMPRESSOR STATION</th></tr><tr><th>نسخه</th><th>سریال</th><th>نوع مدرک</th><th>رشته</th><th>تسهیلات</th><th>صادرکننده</th><th>بسته کاری</th><th>پروژه</th></tr><tr><td>D01</td><td>0005</td><td>RT</td><td>GE</td><td>120</td><td>PEDCO</td><td>GCS</td><td>BK</td></tr></table>	SIL REPORT FOR COMPRESSOR STATION								نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه	D01	0005	RT	GE	120	PEDCO	GCS	BK	30 از 28 :شماره صفحه
SIL REPORT FOR COMPRESSOR STATION																										
نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادرکننده	بسته کاری	پروژه																			
D01	0005	RT	GE	120	PEDCO	GCS	BK																			

Node: 15. LP Flare System

SIF Initiator: 1. LAHH-2252A/B/C

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. Accumulation of liquids in flare KO drum due to process upset	1. Carry over of liquid to stack and damage to it and also possibility of personnel injury	1. LIC-2251 will start 1st pump on H1 setpoint and 2nd pump on H2	IPL	S _B	F _A	P _A	W ₁	No safety requirements	A _C	P _A	W ₁	SIL 1					

Node: 15. LP Flare System

SIF Initiator: 2. LALL-2253

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. P-2201A/B remain in service when not required	1. Damage to pump	1. LAL-2251 will stop pump (dependent)	Non-IPL						A _A	P _A	W ₂	SIL a					
		2. PALL-2251A/B that will activate ESD-3 and stop pumps	IPL														

Node: 15. LP Flare System

SIF Initiator: 3. PALL-2251A/B

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. P-2201A/B remain in service when not required	1. Damage to pump	1. LAL-2251 will stop pump	Non-IPL						A _A	P _A	W ₂	SIL a					
		2. LALL-2253 that will activate ESD-3 and stop pumps	IPL														

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	SIL REPORT FOR COMPRESSOR STATION							30 از 29 شماره صفحه	
	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	GE	RT	0005		D01

Node: 17. Fuel Gas System

SIF Initiator: 1. LAHH-2272

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. Accumulation of liquid in V-2205 due to carry over from inlet KO drum	1. Carry over of liquid to fuel gas header and disturbance for users	1. LAH-2271	Non-IPL						A _A	P _A	W ₂	SIL a					
		2. LIC-2271 will open XV-2271	IPL														

Node: 17. Fuel Gas System

SIF Initiator: 2. LALL-2272

[illegible]

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	SIL REPORT FOR COMPRESSOR STATION							30 از 30 : شماره صفحه	
	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال		نسخه
	BK	GCS	PEDCO	120	GE	RT	0005		D01

Node: 21. Gas Pipeline (to Siahmakan G.I. Station)

SIF Initiator: 1. PALL-3201

Causes	Consequences	Safeguards		Risk Graph-Safety					Risk Graph-Asset				Risk Graph-Environment				Recommendations
		Protection Layer	Category	C	F	P	W	SIL	C	P	W	SIL	C	P	W	SIL	
1. Rupture in pipeline due to corrosion, TPD, landslide, etc	1. Severe environmental impact	1. LBV-3201	IPL					Blue				Blue	EC	PA	W2	SIL 2	
		2. LBV-3202	IPL														