NASHPA COMPRESSION FACILITY PROJECT

Tender Enquiry No.: PROC/FC/CB/PROJ/NASHPA-3268/2018 **PRE-BID CLARIFICATION # 12**

One of the bidder has asked following queries, OGDCL/ENAR responses are as follows:

S.No.	Clarification By Bidder	
Process	s Queries	
1	Refer Section 2.0 SOW, please share raw gas (along with hydrocarbon and free water) composition at compression facility inlet. Client is requested to also specify that composition to be considered as Dry or wet basis. Client is also requested to share hydrocarbon liquid and water composition and flowrate so that hydraulic and sizing calcuation can be performed.	Reply of this query shal
2	Refer Slug Catcher P&ID (Dwg No. NGP-001-PCS-15.09-0002-01 SH 2 OF 3), NOTE-09 stated that utilization of PCV- 2002B shall be checked for future case by EPC Contractor during detailed engineering. Client is requested to elaborate the statement which case is referred and if PCV-2002B fails on respective case in detailed engineering, would it be supplied with cost adder ?	Please be noted that the PCV-2002B shall not be any requirement of PCV EPCC will have to cons new PCV. No price add
3	Refer FEC Slug Catcher P&ID (Dwg No. 0193-PB-2101), Only Instrument air supply is part of scope whereas any plant air or utility water supply from existing header up to compression facitlity is not part of scope.	The requirement of offis furthermore, Plant air ar
4	Refer FEC Slug Catcher P&ID (Dwg No. 0193-PB-2101), in order to calculate preliminary overall compression facility flare header size, please share max allowable back pressure on flare tie-in location.	Refer Sec-III (Scope of
5	Bidder understand that all process engineering calculations/studies shall be limited from the tie-in battery limits till compressor packages and vice versa for all process and utilities connections related to Compression facility SoW. The adequacy check and further remedial action related to existing equipment i.e. Slug Catcher, HP/MP/LP Separators, Condensate Flash Separator, Produced Water Degasser based on revised operating conditions are not part of bidder scope. Please confirm bidder understanding.	Bidder to note that adec Separators, Condensate Enginering Phase on giv Bidder to refer Sec-III (S
6	Bidder understand that existing fire water tanks, pumps and associated piping headers are adequate for the compression facility fire fighting however bidder to take respective tie-ins from existing fire water header and further to design, construct and installed proper fire fighting system for compression facility based on international codes and standards as specified in project ITB. Please confirm bidder understanding.	Refer Sec-III (Scope of
7	Refer to proposed PFD of project highlighted total compressor facility manual by-pass arrangement however any such arrangement not found in ITB P&IDs. Please clarify whether overall compression facility manual by-pass (from slug catcher to Evaporative cooler EA-2101) shall be required or not ?	Overall compression fac required and is already Nashpa H.P Production
8	Refer Section 2.0 SOW, Section 2.1, it is stated that PCV shall be installed for early high suction pressure scenario to laid down suction pressure from 1050 psig to 600 psig at compressor inlet. Client further clarified in earlier PBC response that this PCV shall further be by-passed once such high suction pressure scenario is over. Please note that for recip compressor, it is usual pactice to install suction PCV in order to automatic suction control of compressor for any process mal-functioning scenario to avoid compressor trips and such suction PCV are usually sized for 10-15 psi dP for max flow condition. If above stated PCV will be by-passed then which PCV to be used during normal operating scenario. Should two parallel PCVs (one for 1050 to 600 psig dP condition and one for 15 psi dP normal operating condition) shall be provided (with bypass arrangement). Please clarify.	Minimum requirement a free operation of the cor relevant codes & standa
9	Bidder understand that if suction PCV (for 1050 to 600 psig pressure laid down case) is installed at compressor inlet then higher pressure scenario could occur during PCV stuck open/failure case and accordingly over-pressure protections (for 100% PCV open flowrate basis on max inlet pressure i.e. 1050 psig) shall be required before each compressor suction scrubber which is currently missing in ITB P&IDs. Client is requested to clarify if this should include at this stage in bidding else can be taken in cost adder during detailed engineering.	Bidder to note that over refer P&ID # 0193-PB-2 adder shall be entertain
10	Bidder understand that all utilities sources (i.e. Fire Water, Fuel Gas, inert gas) are already enough capable to supply required utilities for compression facility. The adequacy check and their mitigation are not part of this project. Bidder to take tie-ins from existing respective utilities headers and further to design up to compression facility as per international standards and design practices. Please confirm bidder understanding.	Refer Sec-III (Scope of



OGDCL / ENAR Response

be provided soon.

e purpose of referred note is to make EPCC understand that the said PCV i.e. used in future and shall be dismentled from its current location, therefore, if is arisen during detailed engineering any where in the compression project, ider the same dismantled PCV-2002B for the requirement prior to considering ler shall be entertained after award of contract.

sites and utilities is mentioned in Sec-III (Scope of Work)-clause 2.3, nd utility water connections to compression facility shall also be required.

Work)-sub-clause 2.3.4

quacy check of all related equipments (i.e. Slug Catcher, HP/MP/LP e Flash Separator, Produced Water Degasser) has already been done in Basic ven operating conditions in tender document.

Scope of Work) clause 2.0 for Processing Engineering Scope of work.

Work)-sub-clause 2.3.3

cility manual by-pass (from slug catcher to Evaporative cooler EA-2101) is shown in P&ID# NGP-001-PCS-15.09-0003-02-0 Sheet 1 of 4 (P&ID For Separator).

are mentioned in the Tender Documents. For the safe, continuous and trouble mpressors, if bidder understands that this requirement is neccesary as per the ard then consider this requirement.

pressure protection at inlet of scrubber is already mention in ITB P&ID. Please 2102-0 SHEET 1 OF 2 (Typical P&ID For Front End Compressors). No price ed after award of contract.

Work)-clause 2.3

11	Bidder understand that any existing flare system modification due to compunderstand that scope is only related to design proper relief system w.r.t. flare header. Please confirm bidder understanding.		•		Refer Sec-III (Scope of Wo
12	Client is requested to share SIL level for the instrumentations of Compres project scope.	sor Skid as	s well as fo	or Balance of Plant under	All skid instrumentation sha IMA-6000-0 (Specification
	Droplet Removal Size (Light Phase in Vapor)	D _{p, LLP} in Vapor	700 0.0007	µm m	
	Droplet Removal Size (Heavy Phase in Light Phase)	D _{p, HLP in LLP}	1200 0.0012	μm	
	Droplet Removal Size (Light Phase in Heavy Phase)	D _{p, LLP in HLP}	200 0.0002	µm	
	Slug Volume	V _{slug}	51.000	 m ³	Minimum requirement are
13	As per the sizing/rating of existing slug catcher shared in ITB, the liquid in directly routing to Compressor Inlet. Bidder understand that this will arise the requirement of Inlet Separator du production increases which will further make problem for compression op worked for scrubbing the liquid usually from 150 microns (not 700 microns where pressure will be laid down from 1050 psig to 600 psig, then flashed considerations further arise the requirement of inlet separator before the considerations further arise the requirement of scrubbing the inlet s such requirement arises during detailed engineering then shall be considerations.	ue to the fac eration. In a s). Furthern I liquid will a compressor eparator ar	ct that dur addition, C nore, in hi also need ⁻ skid beca re not part	ing low pressure, water Compressor Scrubber are only gh pressure gas scenario to be separated. All such ause such a high liquid drople	t
14	Please provide Missing P&IDs: PCS-15.09-0025-16(CLOSE DRAIN) PCS-15.09-0003-02 P&ID for LP, MP and HP separators for review the scope related to modif	Mentioned P&IDs are alrea are being provided again.			
15	It is recommended that Compressor scrubbers Process drain and manual which further routed to existing Flash Separator/Close Drain Vessel (Proc water system. Please confirm bidder understanding so that piping and rest	Bidder's understanding is of Furthermore, in this regard			
16	As per Note-F P&ID # NGP-001-PCS-15.09-0026-17 Please provide the or and model details of existing insrtument air compressor.	Refer document # 0193-D			
17	Refer Slug Catcher P&ID (Dwg No. NGP-001-PCS-15.09-0002-01 SH 2 C and TT-2001 along shall be relocated at downstream of compressor disch whether such instrument can work with 2-phase flow since gas after comp Separator via Evaporative cooler (EA-2101), Since there is no scrubber a Compressor P&IDs then there is tendency of 2-phase at compressor com FIT shall be relocated at compressor discharge header, then it should cat	harge head pressor sha t downstrea tmon discha	er. Client i all directly am of afte arge head	is requested to confirm be routed to existing HP r cooler as per ITB ler. Since ITB SoW stated tha	The process conditions for installed in the existing loca FE-2001 prior to bid submi t
18	Bidder understand that all As-Built existing drawings in Native format shal before commencement of work.	•		•	Bidder understanding is co
lecha	nical / Piping Queries				
1	With reference to reciprocating compressors specifications, The minimum However as per SEC-III(SOW), Refer Para 1.1.2, The EPCC Contractor s and equipment. Please confirm.	•			The bidder understanding i
2	Please confirm that new instrument air compressor space is available on	Bidder shall install new Air			
3	Bidder considered that the new piping which will be routed on existing pip Piping Layouts provided in ITB, It is considered that enough space is avai	Confirmed. Further propos bidder understanding.			
4	Existing pipe racks adequacy check is not in Bidder SOW and it is consid future provision.	ered that th	iese racks	s have been designed with	Bidder understanding is co
5	With reference to SEC-III(SOW), PARA 3.6, point#6, Please note that the considered. Please confirm.	Specificati	ons provi	ded for piping have been	Please note that all the spe Contractor during detail en review and approval.
6	Static stress Analysis will be performed for new lines only in line with ITB supports of existing line after tie-in.	Bidder to consider virtual a			

Nork)-sub-clause 2.3.4

shall be provided as per requirement mentioned in ITB document No. 0193on for General & Packaged Instrumentation).

re mentioned in the Tender Documents. Bidder to design the compression hat the safe, continuous and trouble free operation shall be carried out for all nentioned in the tender documents. No price adder shall be entertained after

ready provided in Volume-II of tender document. However, the required P&IDs

s correct, however, same philosophy is already mentioned in tender P&IDs. rrd, also refer clarification # 2, point-8.

DS-1702-0 (DATA SHEET AIR COMPRESSOR K-3401C).

for FIT-2001, PT-2004 and TT-2001 at proposed location is about same as ocations. However, for FE-2001, Bidder shall further confirm the suitability of mission.

correct.

g is correct. Bidder shall consider 25 years design life of the equipment.

Air Compressor on new civil foundation.

osed pipe routing on pipe rack has also been done on the piping layouts for

correct.

specifications mentioned in the referred para have to be prepared by EPC engineering phase and shall submit to OGDCL/Engineering Consultant for our

I anchoring for existing lines inclusion for Tie-ins to perform stress analysis.

		-
7	All connections on skid edge will be considered as rigid and anchor for new piping system, Compressor packager will make sure that the actual piping loads on skid edge are able to cater piping loads as per stress analysis.	Bidder shall consider the nozzle of the Compresso
8	All new piping for this bid is with in scope of B31.3.	Noted. Further, all new p Tender document.
9	Plot plan and equipment location will be reviewed and updated during detailed engineering as per finalized compressor package details and spacing criteria of OGRA.	Bidder understanding is a
10	All packing vents will be routed above shed of compressor.	Bidder understanding is o
11	Please provide HP, MP & LP separataor piping layouts for piping routing as per P&ID`s.	The modification in piping which is attached in Volu
12	Please note that all Class 600 Piping shall have RF Flanges instead of RTJ. Kindly confirm.	Confirmed.
13	As per Compressor Package Datasheet (0193-DS-1701-0), kindly specify whether package dimensions i.e. 12m x 4m x 4m (L x W x H) are fixed or can be changed during Detail Engineering.	We have proposed the a be finalized by EPC Cont
14	Bidder understand that all As-Built existing drawings in Native format shall be shared to successful contractor from client before commencement of work.	Bidder understanding is a
Instrum	ent & Control Queries	
1	Refer to document Architecture diagram Note 3 we understand that the signals referred in these notes are individual hardwired shut down signals for each compressor from Critical control panel to ESD System , Please confirm.	The signals refered in note CONSOLE placed in CCR. Pi
2	Refer to document Architecture diagram Note 3 Please clarify if the cables between MOS/ESD panel and ESD Martialling cabinet have any spares to accommodate new compressor shutdown signals , in case of no spares kindly provide the distance between them.	Contractor shall supply sep to existing MOS panel insta ESD Push Buttons, indicatio Switch and any other acces panel shall be finalized dur
3	Refer to document Architecture diagram Note 4 Please clarify if these two signals are indicative signals, one of them indicating Fire and gas detection on compressor and other one indicating compressor trip due to any internal cause.	The signals refered in Note PLC and Plant existing Safe different level Trips on effe the plant Cause & Effect di Furthermore EPCC shall up consultation with Client/Er
4	Refer to document Architecture diagram Ethernet cable for compressors at CCR end seem to be routed directly to EWS and OWS from F/O to Ether convertor switch, is there any existing network in between? If yes please share existing Architecture.	Contractor shall be respon both end for protocol conv
5	Please share existing control systems details such as make , model etc.	Details of Existing Control S DCS: Honeywell Experion P ESD: Honeywell Safety Mar

e displacements and allowable stress values (provided by Packager) on the or Package and stress analysis shall be performed accordingly.

piping shall be in accordance with the piping specification attached with the

correct.

correct.

g for HP, MP & LP Separator area has already been made in the isometric ume-IIB (Mechanical).

approximate dimension of the Compressor Packager but these dimension will stractor after getting drawings from their Packager.

correct.

es are individual shut down signals for each compressor from ESD/MOS OPERATOR icture of existing ESD/MOS Panel is attached for overview.



parate MOS Panel to be placed in existing Control Room. MOS panel shall be similar alled in CCR. This shall include supply of cables between MOS panel to ESD system, on of F&G Alarm, indication for Gas compressor trip and shutdown MOS and Reset ssories required. List of Indications, alarm and signals to be connected with MOS ring detailed engineering stage.

e-4 of Architecture Diagram, are hardwired Shutdown signals between Compressor ety System. All logic modification in Plant existing System including initiation of ect of Compressor Hardwired signals shall be done by the EPCC in accordance with iagram.

odate & develop Cause & effect diagram during detail engineering stage with ngineering consultant.

sible for supply and installation of required FO/Ethernet conversion switches at version.

Systems are as follow: PKS C300 nager

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6	Is there any other communication protocol option available in Plant network architecture other than Modbus TCP , for e.g. Modbus RTU?	Soft communication betwee Hardwired Interfaces are rec
7	How many existing engineering and operators work stations are currently there in control room for rest of the facility?	Details regarding exisitng eq required) after award of cor
8	Refer to document Fire & Gas detectors Layout We consider that the provided quantity , positions and types of detectors are tentative only and shall be finalized as per F&G mapping study. Please confirm.	Bidder understanding is corr may increase after Mapping Compressor Skid are not sho F&G layout during detail eng
9	Refer to document Scope of work Instrumentation and control Engineering Bullet 5.13 Please elaborate what control signals needs to be considered from operator/Engineering work station in case selector switch sets on remote operation.	The following needs to be co -Compressor Start/Stop -Compressor Shutdown -Provision to enter Inlet PCV This shall further be discusso Client/Engineering Consulta
10	Bidder understand that proper 2D F&G mapping study shall be carried out to finalize F&G detectors in Compression facility. Please confirm bidder understanding.	Contractor shall carry out M same.
11	Bidder understand that all As-Built existing drawings in Native format shall be shared to successful contractor from client before commencement of work.	Native file of available draw availaibilty of Native file con
Civil &	Structural Queries	
1	In Volume I Section-III (Scope pf Work) Point number 12.3.12, it is mentioned that FGL of NCF shall be compaitable to FGL of existing plant. Also, In volume IIE (Civil) drawing no. NGP-000-GEN-15.01-0001-00-02-General Plot Plan, FGL of proposed location of FEC compressors is mentioned as +567.30 along with FGL of adjacent existing features (LPG Bullets(+562.7) Electrical & Power Generator Building (+571.60), CCR (+570.0) etc.). Therefore it is required from Client to confirm the Existing Ground Level of Proposed FEC compressor area (STEP-2), along with topography of area and required Final Ground Level in order to finalize the requriment of cut and fill.	Ground elevations are alre
2	As mentioned in Volume I Section-III (Scope pf Work) Point number 12.3.12.5, Fireproofing specification shall be provided by client for steel structure.	As per referred clause "Th approved Specification for
3	In Volume IIE (Civil) drawing # NGP-000-GEN-15.01-0002-00 shows existing RAW water pond in proposed locaion of FEC compressors, Bidder understands demolition/relocation & backfilling along with any other related piping (above & undergroun) is NOT in project scope.	
4	In Volume IIE (Civil) Soil Investigation Report Appendix-A, there is NO borehole located in proposed FEC compressor area. It is essential to know geotechnical parameters along with bearing capacity & dynamic parameters beneath compressors. Client to confirm requirement of New Geotechnical Investigaton.	
5	Volume IIE (Civil) drawing # NGP-000-SCW-15.01-0001-00-00-General Notes for Reinforced Concrete Works indicates a table showing Min. Cylinder Crushing Strength at 28 days as 32 Mpa with type of structure missing. Bidder understands there is NO need for 32 MPa concrete.	It is EPCC Contractor's re drawings. Therefore corre
6	Volume IIE (Civil) Specification # NGP-000-SCW-15.03-0003-00-00-Specification for Brick Works provided by Client, Bidder understand there is NO scope of brick works in project scope.	The existing specifications It is EPCC Contractor's re specifications etc.
7	Volume IIE (Civil) Specification # NGP-000-SCW-15.03-0005-00-00-Specification for Block Masonry provided by Client, Bidder understand there is NO scope of block works in project scope.	Please refer response aga

een Compressor and existing plant control system network is not required. Only required between Compressor Panel and Exisitng Plant Control & ESD system.

equipments placed in Control room will be provided to successful bidder (if ontract.

prrect. The F&G detecors quantities shown in F&G Layout are least quantity which ng study during detail engineering stage. Furthermore F&G detetcors inside the hown due to insufficient information at FEED stage. Bidder shall develop the detail engineering stage showing F&G Detetcors within and outside compressor package.

considered for individual Compressor with remote operation from Workstations;

CVs Setpoints

ssed and finalized during dtail Engineering Stage with the Consultation with tant.

Mapping Study based on 3D layouts. Location of F&G detectors shall be shown on

wing related to this project shall be shared with successful bidder. In case on nonontrato may have to develop the same for updation/modification as required.

Iready provided. Refer "Site Grading and Leveling Plan". Bidder is required to NCF shall not contradict with the overall profile / Scheme of the Plant. For atibility requirement was mentioned.

The fire proofing shall be carried out in strict accordance with OGDCL's for Fire Proofing".

be cleared by OGDCL for any other installation.

4 wherein it is mentioned that "The EPCC Contractor shall also undertake any ne considers necessary to verify the Soil, Survey and other data provided by

responsibility to perform detailed calculations and accordingly prepare detailed rect selection of concrete strength is EPCC Contractor's responsibility.

ns, being followed for the civil construction works of plant have been provided, responsibility to prepare and submit basic and detailed calculations and

gainst 6 above.

8	Point no. 6.1.1 (Concrete grade) Volume IIE (Civil) Specification # NGP-000-SCW-15.05-0001-00-00-Design Basis for Civil and Steel Structures Works provided by Client, shows concrete grade of 28 Mpa for superstructure and 21 Mpa substructure. Please note that All Civil work except compressor foundation shall be 21 MPa concrete.	
9	In Volume I Section-III (Scope pf Work) Point number 6.1, it is mentioned regarding architectural & external works. However, Bidder understand there is NO architectural and external works in project scope.	Requirement, have been r design & Construction.
10	In Volume I Section-III (Scope pf Work) Point number 6.1, it is mentioned regarding design and construction of roads, however Bidder understands existing roads are present in facility and there NO new or addition of road works (concrete or/and ashpalt).	
11	In Volume I Section-III (Scope pf Work) Point number 6.6, it is mentioned regarding sunshade, however bidder understands there is NO sunshade in project scope.	Such requirement would b
12	In Volume I Section-III (Scope pf Work) Point number 12.9, it is mentioned regarding design and construction of Culverts. However, Bidder understands there is NO need of cuvlerts in project scope.	Please refer response aga
13	In Volume I Section-III (Scope pf Work) Point number 12.3.12.8, it is mentioned regarding Oily water drainage and tie-in with existing networks. Client to provide existing network drawing and specification for Oily Water system. Bidder understands adequcy check of existing system is NOT in project scope.	
14	In Volume I Section-III (Scope pf Work) Point number 12.3.12.8, it is mentioned regarding Storm water drainge and tie-in with existing networks. Bidder understands adequcy check of existing system is NOT in project scope.	The EPCC Contractor wou drainage.
15	In Volume I Section-IIC (Electrical) point number 1.7-I, it is mentioned regarding paved area type of cable trench. Client to confirm should it be brick wall or concrete wall trench?	General requirement of cabl with cover shall be consider
16	understands Sleeve no 3 and 12 are already installed on site and same shall be utilized for cable laying. If not, bidder to	New power cables shall run sleeves 3 & 12 will not be us EPC Contractor during the d
17	Bidder understand that all As-Built existing drawings in Native format shall be shared to successful contractor from client before commencement of work.	Bidder understanding is corr
Electric	al Queries	
1	i iantnina Protection Svetem will only ne denended on Liantning Rick Accessment Study, Kingly contirm	YES. The compiled study submitted to OGDCL / Co
2	If Lightning Protection System will be required then it will connected with New Earthing system of new Compressor Facility.	YES. Separate earthing pi Consequently, the new ea achieve the equivalent net
3	Lighting System will be provided as per Lighting Level Calculation (LUX Study Report). Kindly confirm	YES. Subject calculation r
4	All Emergency lights shall not be Essential Lumiaries. Essential Lumiaries will only be provided at escape routes and emergency exits which shall have 1 hour battery backup. Kindly confirm.	YES.
5	New Lighting Distribution Board will be connected with Main Distribution Board. Kindly confirm	YES.
6	New Lighting Distribution Board will be placed in safe area.	Location of LDB placemer
7		YES. Further, EPC Contra as per load requirement du
8	All New Load related to New Compressor Facility will be connected to Existing Distribution System. Hence, no new MCC Panel has been considered.	YES. Only instrument air c

gainst 5 above.

mentioned to indicate overall responsibility for EPCC Contractor w.r.t NCF

or better understanding.

be reviewed upon submission of detail design by EPCC Contractor.

gainst 11 above.

correct.

rould be required to study the existing network philosophy and ensure proper

able installation in paved area is mentioned in referred document. Brick wall trench ered in paved area.

n in existing concrete trench and on cable tray as marked in referred layout, existing used for road crossing. Further, cable route layout will be finalzied and updated by detail engineering as per site actual site conditions.

orrect.

y report based on IEC 62305-2 & Pakistan Metrology's information shall be Consultant for review and approval by EPC Contractor as per ITB SOW.

pits/electrodes will be considered for subject lightning protection. earthing system shall be interconnected with the existing earthing network to network earth resistance.

report shall be submitted to OGDCL / Consultant for review & approval.

ent shall be finalized during the detail engineering by EPC Contractor.

tractor to check and verify all the selected feeder/ sub-feeder breaker selection during the detail engineering as per ITB SOW.

compressor package MCC shall be provided by EPC Contractor.

9	Cathodic Protection will only be provided for oily water sewerage & Fire water network underground pipeline only in New Compressor Area.Kindly confirm.	YES.
10	Electrical Heat Tracing will only be provided only on Compressor Skid only for Level Instruments & Bridles. Kindly confirm.	YES.
11	Only one Industrial Welding Socket Outlet (32A, 5pin, 3phase+N+E) has been considered and also only one General Purpose Convenience Outlet (16A, 3pin, 1phase+N+E) has been considered for new Compressor facility. Kindly confirm.	YES.
12	Referring Doc # NGP-000-ELE-15.01-0002-24 Cable Routing Layout for General Area. Client to confirm Sleeve # 3 & 12 are already present or not. If not then cable trays will be used for road crossing using existing pipe rack. Duct bank will only be used if present.	New power cables shall ru existing sleeves 3 & 12 wi and updated by EPC Con
13	As per Bidders understanding Referring Electrical PBC clause # 12, there is no requirement of Duct Bank as mentioned in Doc # 0193-ELA-6500 Electrical Design Basis, Clause # 1.7, Sub-clause # I. "Duct Bank System". Client to confirm.	General requirement of D finalize the requirement of
14	Referring Volume-IIE (Civil) Doc # 05-Hydrology Report. Average Value of Soil resistivity will be considered for Earthing Calculations. Client to confirm.	YES.
15	New Earthing system for New Compressor Facility will be connected with existing earthing system.	YES. This shall also inclue
16	Instrument Air Compressor will be earthed with existing earthing system present near Instrument Air Compressor. No new Pits have been considered for Instrument Air Compressor Area. Kindly confirm.	Earthing calculation report approval. However, minimarea.
17	Considering Compressor Facility, standard Stranded Cu/XLPE/PVC/SWA/PVC, 0.6kV/1kV power & control cables will be sufficient as this type of cables are self flame retardant. Bidder understands that specifically there is no such requirement of Fire retardant cables. Kindly confirm.	YES.
18	Kindly provide Doc # NGP-010-ELE-15 01-0002-13 "Single Line Diagram for Main Distribution Board"	Attached.
19	Kindly provide Doc # "Single Line Diagram for Emergency Distribution Board"	Main distribution board is attached SLD.
20	Kindly provide Existing Earthing Layout & Details.	Attached for reference on
21	Kindly provide Load List of Existing System	Attached for reference on
22	Bidder understand that all As-Built existing drawings in Native format shall be shared to successful contractor from client before commencement of work.	Native format with final re

run in existing concrete trench and on cable tray as marked in referred layout,
vill not be used for road crossing. Further, cable route layout will be finalzied
ntractor during the detail engineering as per site actual site conditions.

f Duct Bank System is mentioned in referred document. EPC Contractor shall t of duct bank, if necessary during the detail engineering.

ude the earthing system of new air compressor & air dryer package.

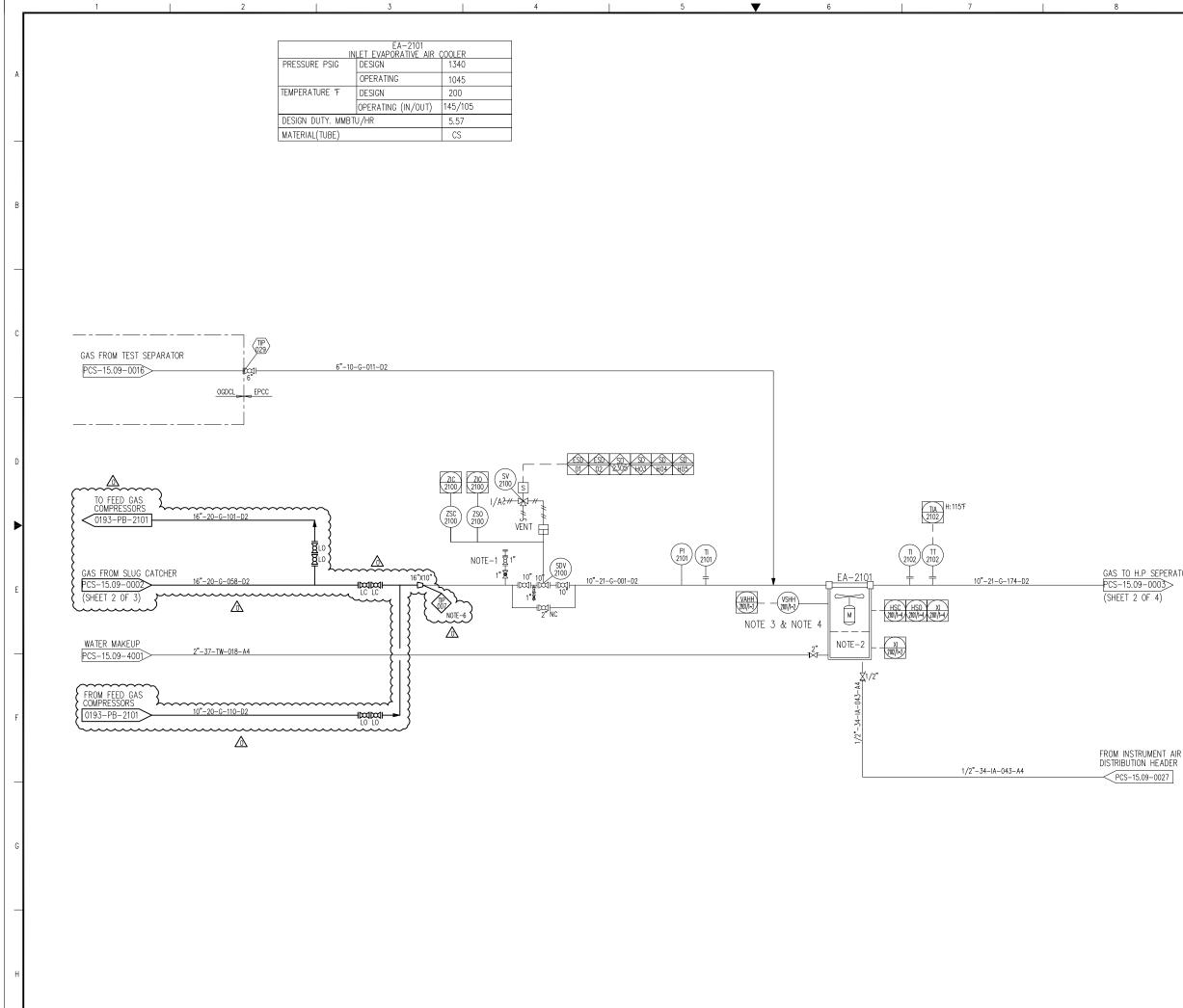
ort to be provided by EPC Contractor to OGDCL /Consultant for review and imum 01 no of earth pit to be considered for new instrument/air dryer package

is comprised of normal bus-bar as well as the emergency bus-bar. Refer above

nly.

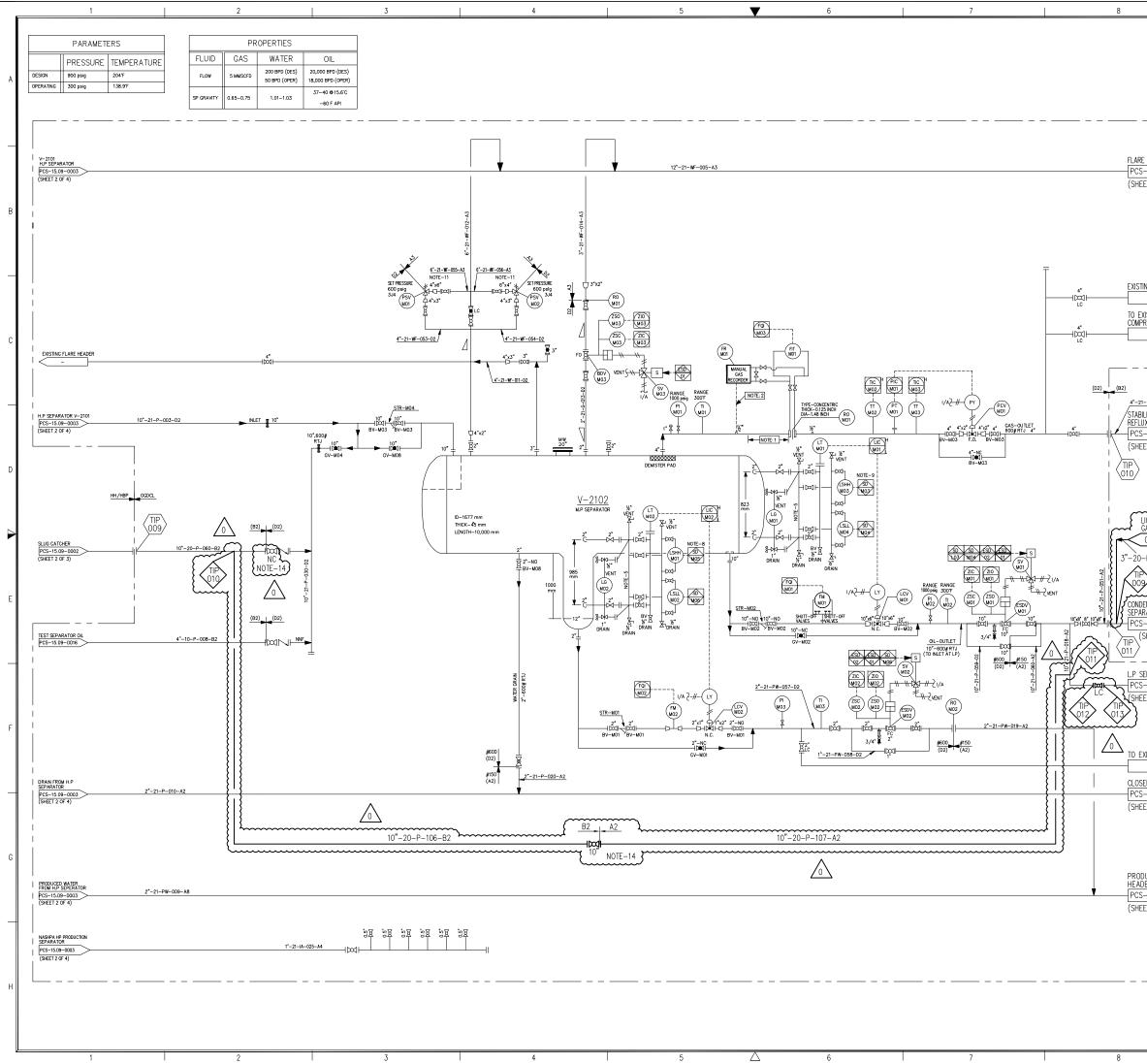
nly.

revision will be shared.

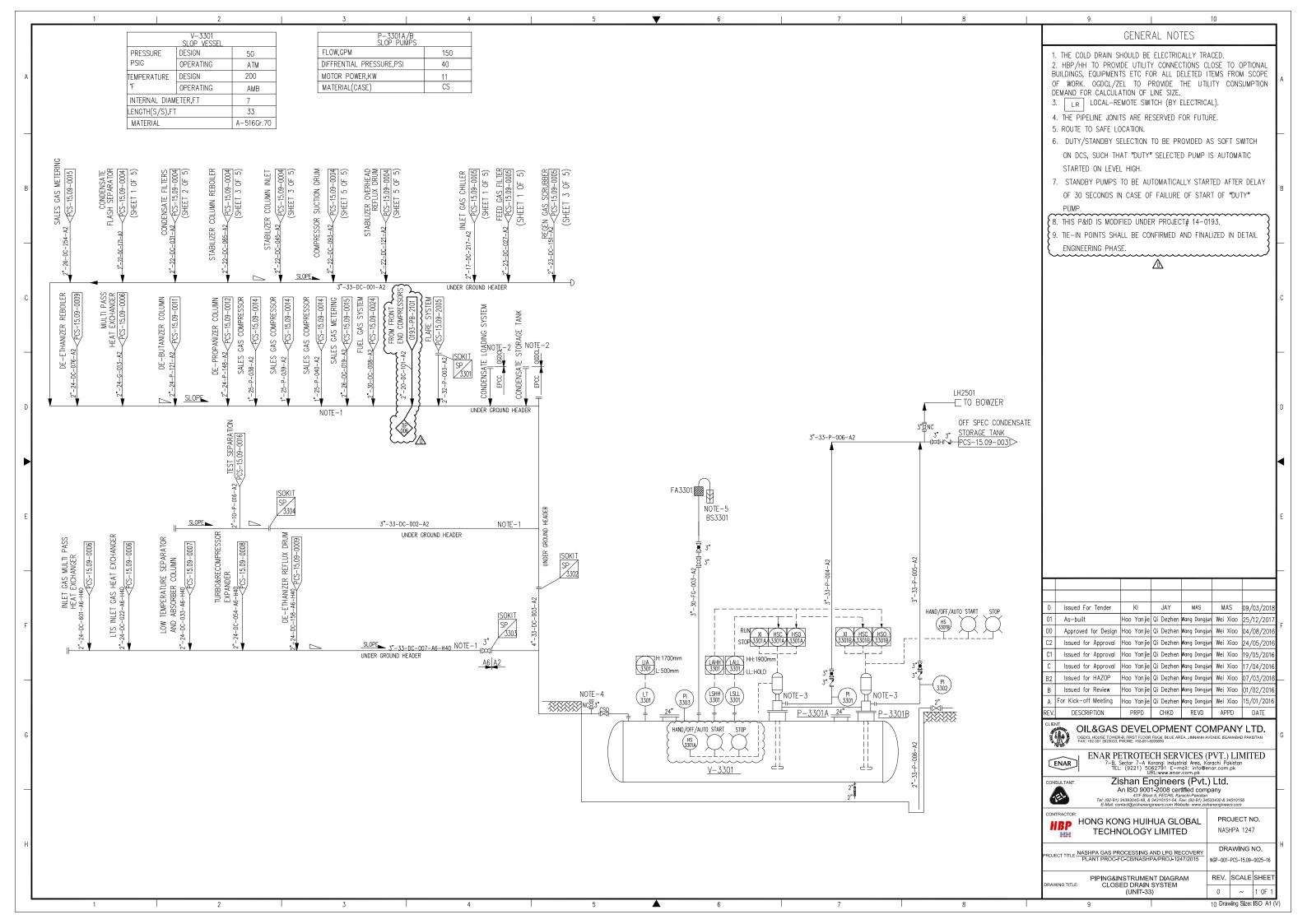


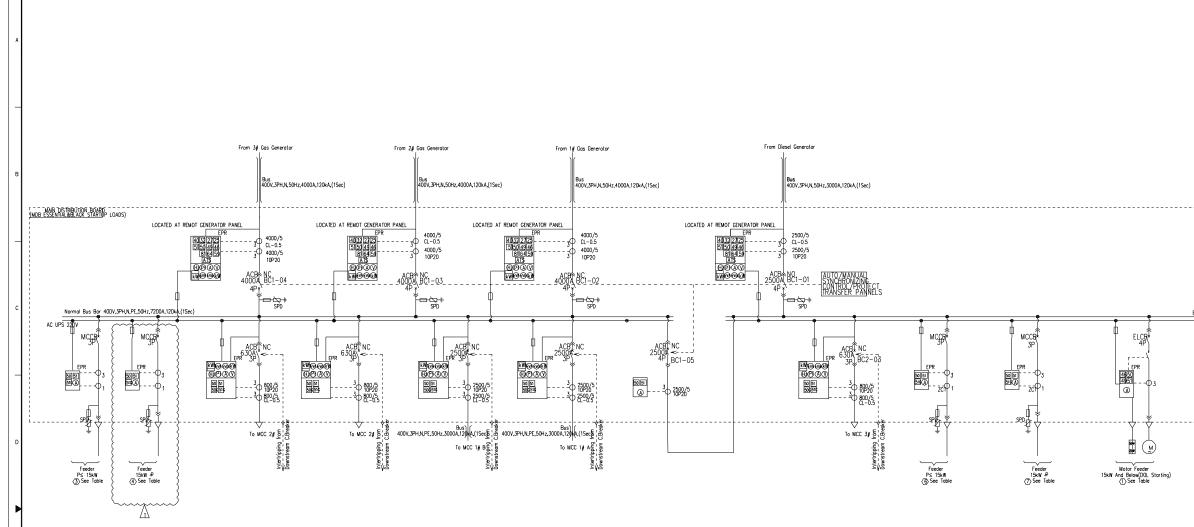
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10 NOTES 1. DE EMULSIFIER INJECTION CONNECTION SHALL BE PROVIDED. 2. FOR DETAILS, SEE VENDOR DRAWINGS. 3. THE NO. OF VIBRATION SWITCH DEPENDS ON THE NO. OF FANS. 4. THE NO. OF REMOTE RUN AND STOP SIGNALS DEPENDS ON THE NO. OF FANS. THIS P&ID IS MODIFIED UNDER PROJECT# 14-0193. 6. TIE-IN POINTS SHALL BE CONFIRMED AND FINALIZED BY EPC CONTRACTOR IN DETAIL ENGINEERING PHASE. ····· ⚠ GAS TO H.P SEPERATOR Issued For Tender KI JAY MAS MAS 09/03/201 JAY MAS KI AHB 05/01/201 Issued For Approval as built Mei Chunlin Qi Dezhen Wang Dongjun Wei Xiao 25/12/201 Approved for Construction Mei Chunlin Qi Dezhen Wang Dongjun Wei Xiao 04/08/201 Issued for Approval Mei Chunlin Qi Dezhen Wang Dongjun Wei Xiao 24/05/201 Issued for Approval Mei Chunlin Qi Dezhen Wang Dongjun Wei Xiao 19/05/201 Issued for Approval Mei Chunlin Qi Dezhen Wang Dongjun Wei Xiao 17/04/201 Issued for HAZOP Mei Chunlin Qi Dezhen Wang Dongjun Wei Xiao 07/03/2016 Issued for Review Mei Chunlin Qi Dezhen Wang Dongjun Wei Xiao 31/01/2016 Internal Discipline Check Mei Chunlin Qi Dezhen Wang Dongjun Wei Xiao 15/01/2014 V. DESCRIPTION PRPD CHKD REVD APPD DATE OIL&GAS DEVELOPMENT COMPANY LTD. **(1)** OGDCL HOUSE TOWER-B, FIRST FLOOR F6/G6, BLUE AREA, JI FAX: +92 051 2623033, PHONE: +92-051-9209859 ENAR PETROTECH SERVICES (PVT.) LIMITED 7-B, Sector 7-A Korangi Industrial Area, Karachi Pakistan TEL: (9221) 5062791 E-mail: info@enar.com.pk URL:www.enar.com.pk ENAR Zishan Engineers (Pvt.) Ltd. ONSULTANT. An ISO 9001-2008 certified company 47/F Block 6, PECHS, Karachi-Pakistan Tel: (92-91) 34393045-48, & 34310151-54, Fax: (92-91) 34533430 & 34 TEL HONG KONG HUIHUA GLOBAL PROJECT NO. NASHPA 1247 TECHNOLOGY LIMITED FIFI DRAWING NO. PROJECT TITLE: NASHPA GAS PROCESSING AND LPG RECOVER NGP-001-PCS-15.09-0003-PIPING&INSTRUMENT DIAGRAM REV. SCALE SHEET (UNIT-21) 0 \sim 1 OF -10 Drawing Size: ISO A1 (V)



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	NOTES:						-
	1. DISTANCE NOT LES	SS THAN	1400mm.				
	2. TEMPERATURE SEM						
	3. ALL CABLES SHAL					B-01.	A
	 ALL FACILITIES WIT COMPLETED PROVI 						
	PROVIDED BY OGD					Y AND	
	PERFORMANCE OF	M.P SEP	ARATOR S	SKID.			
	5. FOR OIL/WATER LE					WITCH	
HEADER	HAVE BEEN PROPO ACCOMMODATE THI)	
-15.09-0003	FABRICATE & INST						
ET 4 OF 4)	INSTRUMENT ACCO						
	 BRIDLE ARRANGEM CONTRACTOR. 	ENT IS TO) BE FAB	RICATED	BY THE		В
I	7. FOLLOWING INSTRU	JMENTS &	CONTRO	LS VALVE	S ARE NE	WLY	
	PROPOSED IN THE	RESULT	OF HAZO	P RECON	IMENDATIO	N AND	
	DESIGN REVIEW OF	F M.P SE	PARATION	SYSTEM.			
I.	 PSV-M01 DDV_M01 						
NG FLARE	 BDV-M01 R0-M01 						
-	 R0-M01 PT-M01 						
ISTING MP	 ESDV-M01, 	ESDV-N	102				
-	 LSHH-M01, 			Н-МОЗ,	LSLL-M	04	
	8. ON ACTIVATION OF	LSHH-M	01, ESDV	-2201, I	ESDV-H02	&	С
	ESDV-1002 SHALL			000		, I	
_	 ON ACTIVATION OF ESDV-1002 SHALL 			-2001, I	-SUV-H02	čć.	
a 111 PC	10. BDV & PSV AND I			E ON HO)LD.		
<u>-g-144-в2</u> LIZER OVERHEAD	11. PSV SIZE AND IT'S					L BE	F
<u>X DRUM (V-2202)</u>	FURTHER CONFIRM	IED BY TH	HE VENDO	R. ANT S	SIZES SHAL	L BE	
-15.09-0004 > ET 5 OF 5)	UPDATED ONCE VE	$\sim\sim\sim$	$\sim\sim\sim$	$\sim\sim\sim$	$\sim\sim\sim\sim$	/ED.	
1 3 01 3)	12. THIS P&ID IS MOL					. {	
	13. TIE-IN POINTS SH			J AND FI	NALIZED II	` {	D
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IQUID FROM FEED	CONDENSATE FLAS	H SEPAR	ATOR (V-	2201)/LF	P SEPARAT	or {	
0193-PB-2101	(V-2103).	·····		····		~~~)	
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-P-105-A2		Z	<u> </u>				
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-15.09-0004 > GHEET 1 OF 5)							
SHEET I OF SY							
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PARATOR (V-2103)							
-15.09-0003							
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	D ISSUED FOR APPROVAL	KI	JAY	MAS	AHB	05/01/2018	
KISTING CPI		Mei Chunlin		Wang Dongju	n Wei Xiao	25/12/2017	
	01 APPROVED FOR DESIGN			Wang Dongju		09/10/2016	
ED DRAIN HEADER	0 ISSUED FOR DESIGN	UHS	AR	RA	MM	28/08/2016	
ET 4 OF 4)	C3 ISSUED FOR REVIEW	UHS	AR	RA RA	MM	24/08/2016	
· · · · ·	REV. DESCRIPTION	PRPD	CHKD	REVD	APPD	25/01/2016 DATE	
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ET 4 OF 4)	CONBULTANT. Zis	shan Ei	ngineer	s (Pvt.)	Ltd.		
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	E-Mail: con	teol@ziehaneng	heers.com Web	ille: www.zieher	nengineens.com		
	HONG KON						
	TECHN	IOLOGY	LIMITE	D	NASHPA	1247	
-	PROJECT TITLE: NASHPA GAS PR	OCESSING		COVERY	DRAWI	NG NO.	Н
	PROJECT TITLE: NASHINA GAS FA	C-CB/NASH	PA/PROJ-12	247/2015	NGP-001-PCS-	15.09-0003-02	
	DARWING TITTLE:				REV. SC/	LE SHEET	
	PIPING & INSTRUM NASPHA M.P PRODUC				0 N	rs 3 OF 4	
	9				10 Drawing S	Size: ISO A1 (\	v)





		③ 0.4kV Feed	er				
ZEL Tog	FEEDER	CAPACITY(kW)	CB(A)	CONTACTOR (A)	CT	REMARKS	SHEDDING LOADING
	Spare		32		30/5		
	Spare		32		30/5		
	Spare		16		20/5		
	Spare		16		20/5		

ZEL Tog	FEEDER	CAPACITY(kW)	CB(A)	CONTACTOR	CT	REMARKS	SHEDDING LOADING
010-MCC-K2501A	Sale Gas Compressor A	108.6	250		250/5	C	
010-MCC-K2501B	Sale Gas Compressor B	108.6	250		250/5	C	
D10-MCC-K2501C	Sale Gas Compressor C	108.6	250		250/5	S	
D10-MCC-K2201	Condensate Stabilizer Overhead Compressor	61.87	200		200/5	C	
MCC-K-2301A	Regen Gas Compressor Electrical Control Panel	55	160	HOLD	200/5	C	
MCC-K-23018	Regen Gas Compressor Electrical Control Panel	55	160		200/5	S	
011-SDB-A	Existing Crude oil loading Pumps 011-SDB-A	100	250		250/5	C	
011-SDB-B	Weighing Bridge Area 011-SDB-B	35	125		150/5	C	
011-SDB-C	New condensate loading gentry 011-SDB-C	140	400		400/5	C	
011-SDB-D	Existing Process Plant Office Building/Control Room 011-SDB-D	35	200		200/5	С	
011-SDB-E	Existing Process Plant (Dehydration Unit 1&2) 011-SDB-E	90	315		300/5	C	
	Spare		160		200/5		
	Spare		250		250/5		
~~~~~	Spore		315~	-	300/5	$\sim$	$\sim$
K-3401C	Instrument Air Compressor	75	400		400/5		

ZEL Tog	FEEDER	CAPACITY(kW)	CB(A)	CONTACTOR	CT	REMARK	SHEDDING
MCC-PU-3502	Foam Injection Skid Electrical Control Panel	2	20	HOLD	20/5	1	20.0.10
007-EDB-001	Fire Fighting Shed Lighting EDB	7.5	40		40/5	C	
010-EDB-002	Electrical Building Power 010-EDB-002	6.3	40		40/5	C	
D10-EDB-003	Electrical Building Power 010-EDB-003	1.2	40		40/5	C	
010-EDB-005	Electrical Building Power 010-EDB-005	6	40		40/5	C	
010-EDB-006	Generator Sets Power 010-EDB-006	6	40		40/5	C	
DIO-EDB-007	Generator Sets Power 010-EDB-007	6	40		40/5	C	
001-EDB-004	Process Area Power 001-EDB-004	4.5	40		40/5	С	
001-EDB-802	Emergency Lighting Distribution Board	2.52	25		30/5	С	
001-EDB-005	Compressor Local Control Room	4	40		40/5	C	
001-EDB-402	Dehydration (Mal.Sieve) Unit 001-EDB-402	1.5	32		32/5	1	
001-EDB-501	Emergency Lighting Distribution Board	1	40		40/5	1	
010-GCP1	1# Gas Generator Parallel Cantrol Panelsony	15	63		75/5	C	
010-GCP2	2# Gas Generator Parallel Control Panel 200	15	63		75/5	C	
010-GCP3	3# Gas Generator Parallel Control Panelanov	15	63		75/5	С	
010-DCP	Diesel Engine Generator Auxiliary Electricity Panel 270V	15	80		75/5	C	
010-DG-ECP	Diesel Engine Generator Distribution Panel in Sound Attenuation Container	15	80		75/5	C	
001-EDB-101	condensate stabilization & off compressor unit lighting	5	40		40/5	1	
001-EDB-301	Instrument & Utility Air System lighting	2	40		40/5	1	
	Spare		40		40/5		
	Spare		40		40/5		
	Spare		80		75/5		
	Spare		80		75/5		
	Spare		25		30/5		
	Spare		25		30/5		

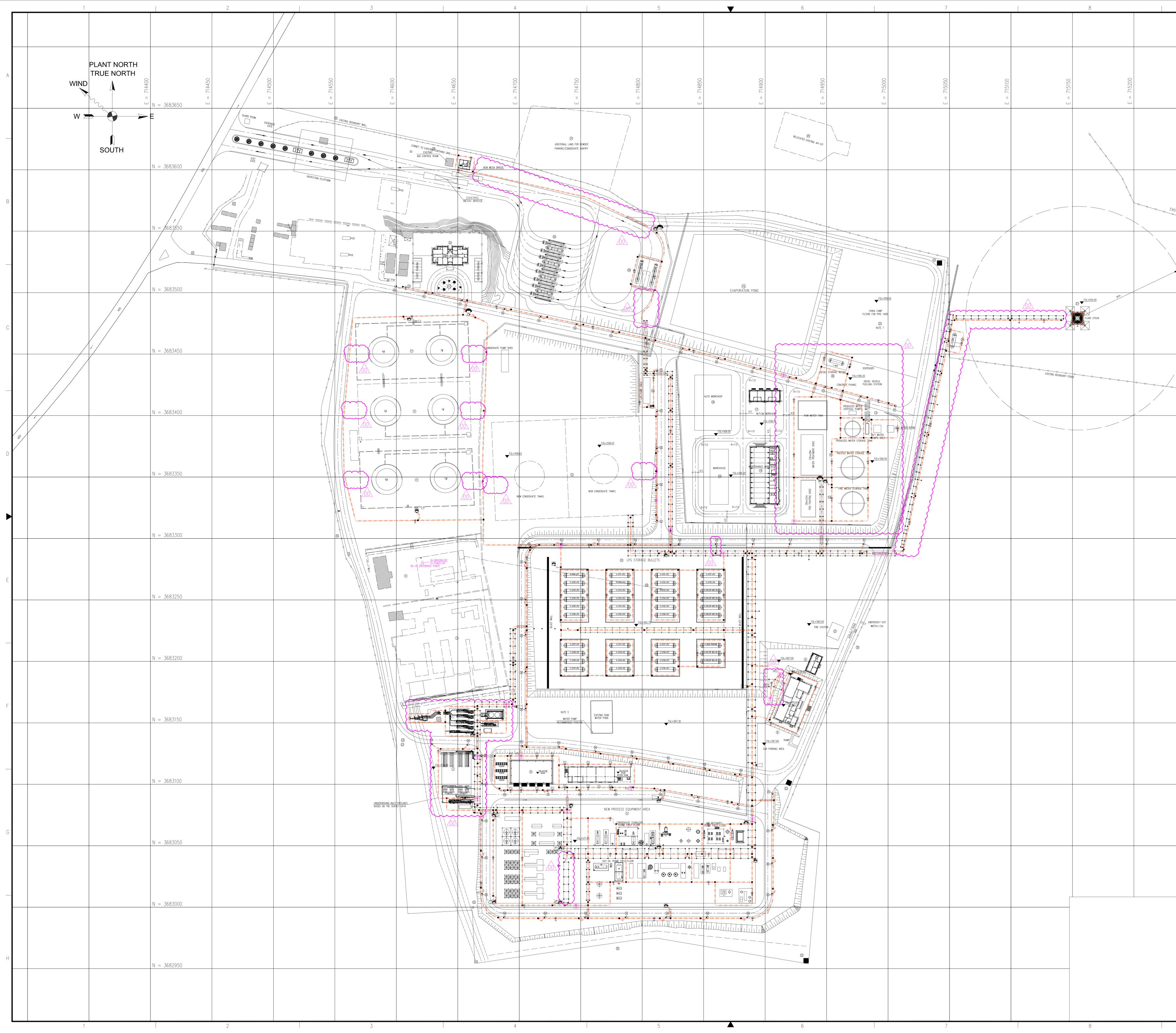
(7) 0.4kV	FEEDER

	(2	0.4kV FEEDE	R				
ZEL Tog	FEEDER	CAPACITY(kW)	CB(A)	CONTACTOR (A)	CT	REMARK	SHEDDING PLOADING
MCC-P-3501A	Main Fire Water Pumps(Motor Driven) Electrical Cantrol Panel	100	250	HOLD	250/5	S	
MCC-P-35018	Main Fire Water Pumps(Motor Driven) Electrical Cantrol Panel	100	250		250/5	S	
MCC-PU-3501	Jockey Pump Skid	18.5	50		50/5	1	
010-UPS-001-1	Load of UPS1#	96	200		200/5	C	
010-UPS-002-1	Load of UPS2#	96	200		200/5	S	
MCC-K-3401A/8	Instrument & Utility Air System MCCB Control Unit	150	360		400/5	1	
010-GG1-ECP	1# Distribution Panel in Sound Attenuation Container	18	50		50/5	С	
010-GG1-RFP	1∦ Radiator Fan Panel	27	80		75/5	С	
D10-GG2-ECP	2# Distribution Panel in Sound Attenuation Container	18	50		50/5	С	
010-GG2-RFP	2# Radiator Fan Panel	27	80		75/5	С	
010-GG3-ECP	3∰ Distribution Panel in Sound Attenuation Container	18	50		50/5	С	
010-GG3-RFP	3# Radiator Fan Panel	27	80		75/5	С	
SPAC-001A	Control Box of The Package Air Condition Units	90	200	HOLD	200/5	C	
SPAC-001B	Control Box of The Package Air Condition Units	90	200		200/5	5	
009-EDB-001	Flare System Power 009-EDB-001	45	160		150/5	С	
010-EDB-001	CCR 010-EDB-01	24.65	63		75/5	C	
010-EDB-004	Electrical Building Power 010-EDB-004	30	80		75/5	С	
	Spare		80		75/5		
	Spare		80		75/5		
	Spore		100		100/5		
	Spare		160		150/5		
	Spare		200		200/5		
	Spore		250		250/5		

		① 0.4kV Motor			
ZEL Top	FEEDER	CAPACITY(	K WE (A	CONTACT	TDF
Sp	are		32	40	3
Sp	ore		32	40	3

		② 0.4kV Motor	Feed	ler
ZEL Top	FEEDER	CAPACITY(	<b>(A)(90</b>	CONTACT
	Spare		50	50
	Spare		80	80

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		AC UPS 230V	2 DE S S S 3.1H 2.0A 2.0A 3.1H 2.0A 3.1H 2.0A 3.1H 2.0A 3.1H 2.0A 3.1H 2.0A 3.1H 2.0A 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H 3.1H	SE, DANGE PAVIS SHALL SEE DEVIS SHALL SEE DE DER IN LA LASD EL ESES DE RE INF L'EXERCIVE DES L'EXERCIVE DES L'EXERCIVES L'EXERCIVE DES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES L'EXERCIVES	AQUIESS SHA MARK SHA	LL BEF MAD REF	E THROUCH 2 No. TAND-BY. TAND-BY. TRO THE CSSIR I. TO THE CSSIR I. TO THE CSSIR I. TO THE CSSIR I. TO THE CSSIR BETRETA TO THE CSSIR IN TAUSTON TO THE CSSIR IN THE CSSI	INCLUE ALL CAS GREEN AN ANTAL - DE VERSION CAS GREEN AN ANTAL - DE VERSION CAS GREEN AN ANTAL - DE VERSION CAS CAS DE VERSION	FACURES AND           GR IN AUTO           RATOR.           RATOR.           E STARTED           NUAL / AUTO           NUAL / AUTO           DUE STARTED           WINAL / AUTO           DIE STARTED           WIEMER THE           CAS GEREATO           LOAD SHERATOL           WIEMER THE           CAS GEREATO           LOAD SHERATOL           MUPUER IS           CUMASTACTURE           MUL ( 4/1724)           LU PARATERER           S ( CONTRACTOR           E BULT - N           IRACTOR           OF
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NO       Strong Gam       59       A.C. Devoltage Hary       E         20       Strong Gam       64       Sound Steetce Hery       E         21       Strong Gam       77       Otherwise Hery       E         23       Strong Gam       77       Otherwise Hery       E       E         23       Strong Gam       77       Otherwise Hery       E       E         24       Hard Hery       77       Otherwise Hery       E       E         23       Strong Gam       77       Otherwise Hery       E       E         24       Hard Hery       77       Otherwise Hery       E       E         24       Hard Hery       77       Otherwise Hery       E       E         25       Strong Control       F       E       E       E       E         25       Strong Control       F       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E       E	NO         Nome Gam         59         A.C. Derwartoger Heavy           21         Under Gam         69         A.C. Derwartoger Heavy         1           21         Under Gam         64         Grand Daretter Heavy         1           22         Under Gam         87         Differential Protection Reavy         87           23         Directing Reavy         87         Differential Protection Reavy         40           23         Directing Reavy         87         Differential Protection Reavy         40           24         Direct Reavy         87         Differential Protection Reavy         40           25         Direct Reavy         87         Differential Protection Reavy         40           40         Representation Reavy         40         Direct Reavy         40         Direct Reavy           41         Direct Reavy         10         Direct Reavy         100         No         100           322         Direct Reavy         10         Direct Reavy         100         No         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100		-	n	Relay	51 510			y
23       3-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0	Part         RELARD         PECONING Treated participants           320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320         320		-						rrent Relay
PT       RELARD PECONIC         32/2       Description Revy       81       Intervent Prevention Revy         40       The Binloy       ACI       ACCOLD Broads         40       Market Line Binloy       ACI       ACCOLD Broads         11       Data Sett To State Acid Broads       NOP-000-ELE-1502-0001-00         12       Data Sett To State Acid Broads       NOP-000-ELE-1502-0001-01         13       Back Line Data Acid To North Coll Noit Accoll Broads       NOP-000-ELE-1502-0001-01         14       Market Net Data Acid To North Coll Noit Accoll Broads       NOP-000-ELE-1502-0001-01         15       Market Net Data Acid To North Coll Noit Accoll Broads       NOP-000-ELE-1501-0001-13         16       Market Net Data Acid Report       MA       JAB       AB         10       Market Net Northolin North Net Northolin North Net North Net N	Phil         RLAND SHEDDING 30/2         Production         Product Product         Product Product Product         Product Product Product         Product Product Product         Product Product Product         Product Product Product         Product Product Product Product         Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Product Produ				hronism				
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46         Prover draw or Phone-Indiana         VCC         Muddet Case Chuid Pheade           49         Notice or Phone-Indiana         LCC         Each Lease of Chuid Pheade           91         Notice of Phone-Indiana         NOP-ODO-ELE-1502-0001-00         NOP-000-ELE-1502-0001-00           10         NOP-000-ELE-1502-0001-00         NOP-000-ELE-1502-0001-00         NOP-000-ELE-1502-0001-00           10         NOP-000-ELE-1502-0001-00         NOP-000-ELE-1502-0001-00         NOP-000-ELE-1502-0001-00           10         NOP-000-ELE-1502-0001-00         NOP-000-ELE-1502-0001-00         NOP-000-ELE-1502-0001-00           10         NARE LINE MARKAN FOR KORE CHIRL DREAM FOR WORE DIBBRIDION SOFWE         NOP-000-ELE-1502-0001-00         NOP-000-ELE-1502-0001-00           11         DATA SECT FOR IV SWIDCKEN'S / LCC         NOP-000-ELE-1502-0000-100         NOP-000-ELE-1502-000-100           12         DATA SECT FOR IV SWIDCKEN'S / LCC         NOP-000-ELE-1502-000-13         ELECTRIC LIGUIDIST           11         DAGE IN INSTANT / LCC         NOP-000-ELE-1502-000-13         ELECTRIC LIGUIDIST         NOP-000-ELE-1502-000-13           12         ELECTRIC LIGUIDIST         NOP-000-ELE-1502-000-13         ELECTRIC LIGUIDIST         NOP-000-ELE-1502-000-13           13         MARKAN INF NON CONE NOR NON CONE         NOP-000-ELE-1502-000-13         ELECTRIC LIGUIDIST		30/5	-		у				
Protein remains BHOORG       REFERENCE DOCUMENTS         111E       DOC No.         121F2/2       DOC NO.     <		30/3	-	Reverse-phase or Ph Current Relay	ose-balance				r.
ITLE       DOC No.         52/2       ITLE       DOC No.         52/2       ITTLE       DOC No.         125/2       ITT	TILE         DC No.           32/2         Image: State in the image: State in		49	Machine or Transform Relay	er Thermol	ELCB	Earth Leakage	Circuit Break	er
BOLT         Carteria         Carteria         Carteria           1         LECTRIC LOAD UST         NOP-000-ELE-15.02-0001-00         F           SINCE LINE DAGRAM FOR MCC         NOP-000-ELE-15.02-0001-00         F           SINCE LINE DAGRAM FOR MCC         NOP-000-ELE-15.02-0001-01         F           SINCE LINE DAGRAM FOR MCC         NOP-000-ELE-15.01-0000-13         F           SINCE LINE DAGRAM FOR MCC         NOP-000-ELE-15.01-0000-13         F           DATA STEET FOR LV SINCHEARS / MCC         NOP-000-ELE-15.01-0000-13         F           SINCE LINE DAGRAM FOR MCC         NOP-000-ELE-15.01-0000-13         S           SINCE LINE DAGRAM FOR MCC<	100/14 125/14         Lt.         Lt. <thl.< th=""> <th< th=""><th></th><th></th><th>RE</th><th>FERENC</th><th>E DO</th><th>CUMENTS</th><th></th><th></th></th<></thl.<>			RE	FERENC	E DO	CUMENTS		
Littering Control         Note-Double Control	LEXING LOW D37         INVERTOR LIFE 13.02 - 000-F00           THE CONSTRUCT ON MORE CONTINUE OR MORE CONTINUE CONTINUE TO MORE ON MORE CONTINUE CONTINUE TO MORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE           SINGLE LIVE DARAM FOR MORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE           SINGLE LIVE DARAM FOR MORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE           SINGLE LIVE DARAM FOR MORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE           SINGLE LIVE DARAM FOR MORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE           SINGLE LIVE DARAM FOR MORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE           SINGLE LIVE DARAM FOR MORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE           SINGLE LIVE DARAM FOR MORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE           SINGLE LIVE DARAM FOR MORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE           SINGLE LIVE DARAM FOR MORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE         INVERTOR VORE DISTRIBUTION SCIENCE           SINGLE LIVE DARAM FOR MOR	50/5		TITLE				DOC No.	
Interference         Interference<	Indication         Indication         Indication           Indication         Indication         Indication         Indication           SNALE LINE DARRAW FOR NCC         NGP -000-ELE -15.05 - 0001-13           SNALE LINE DARRAW FOR NCC         NGP -000-ELE -15.01 - 0003-13           SNALE LINE DARRAW FOR NCC         NGP -000-ELE -15.01 - 0005-13           SNALE LINE DARRAW FOR NCC         NGP -000-ELE -15.01 - 0005-13           SPECTORING IN UNDERNAS / WCC         NGP -000-ELE -15.01 - 0005-13           SPECTORING IN UNDERNAS / WCC         NGP -000-ELE -15.01 - 0005-13           SPECTORING IN UNDERNAS / WCC         NGP -000-ELE -15.01 - 0005-13           SPECTORING IN UNDERNAS / WCC         NGP -000-ELE -15.01 - 0005-13           SPECTORING IN UNDERNAS / WCC         NGP -000-ELE -15.01 - 0005-13           SPECTORING IN UNDERNAS / WCC         NGP -000-ELE -15.01 - 0005-13           SPECTORING IN UNDERNAS / WCC         NGP -000-ELE -15.01 - 0005-13           SPECTORING IN UNDERNAS / WCC         NGP -000-ELE -15.01 - 0005-13           SPECTORING IN UNDERNAS / WCC         NGP -000-ELE -15.01 - 0005-13           SPECTORING IN UNDERNAS / WCC         NGP -000-ELE -15.01 - 0005-13           SPECTORING IN UNDERNAS / WCC         NGP -000-ELE -15.01 - 0005-13           SPECTORING IN UNDERNAS / WCC         NGP -000-ELE -15.01 - 0005-10           SPECTORIN	75/5							
SINCE LINE DARAW YOR WC       NOP-000-ELE-15.01-0000-13         SINCE LINE DARAW YOR WC       NOP-000-ELE-15.01-000-13         SINCE LINE DARAW YOR WC       NOP-000-ELE-15.01-000-13         SINCE LINE DARAW YOR WC       NOP-000-ELE-15.01-000-13         SINCE LINE DARAW YOR WC       NAA         A LINE WC WC WC WC WC       NOP         SINCE LINE DARAW YOR WC       NAA         SINCE LINE DARAW YOR WC WC WC WC WC WC         WC WC WC WC WC WC WC WC WC WC WC	SIRVEL EVE DUGAMA TOR MCC       NOP-010-ELE-15.01-0003-13         SIRVEL EVE DUGAMA TOR DORRED DISTRIBUTION SCHEW       NOP-010-ELE-15.01-0005-13         DIATA SEET FOR LY SINTOREARS / MCC       NOP-000-ELE-15.01-0005-13         SIRVEL EVE DUGAMA TOR NORRED SCHEWING MARK / MCC       NOP-000-ELE-15.01-0005-13         I       DIATA SEET FOR LY SINTOREARS / MCC       NOP-000-ELE-15.01-0005-13         I       DIATA SEET FOR LY SINTOREARS / MCC       NOP-000-ELE-15.03-0005-13         I       DIATA SEET FOR LY SINTOREARS / MCC       NOP-000-ELE-15.03-0005-13         I       DIATA SEET FOR LY SINTOREARS / MCC       NOP-000-ELE-15.03-0005-13         I       DIATA SEET FOR LY SINTOREARS / MCC       NOP-000-ELE-15.03-0005-13         I       DIATA SEET FOR LY SINTOREARS / MCC       NOP-000-ELE-15.03-0005-13         I       DIATE SEET FOR LY SINTOREARS / MCC       NOP-000-ELE-15.03-0005-13         I       DIATE SEET FOR LY SINTOREARS / MCC       NOP-000-ELE-15.03-0005-13         I       DIATE SEET FOR LY SINTOREARS / MCC       NOP-00-ELE-15.03-0005-13         I       DIATE SEET FOR LY SINTOREARS / MCC       NAA       JAB         I       DIATE SEET FOR LY SINTOREARS / MCC       NAA       JAB         I       Interd for foreir       Diate Seet Foreir       PARE AND ELE SEET FOR LY SINTOREARS         I       <				LONINGE LINE	uns			
DATA SHEET FOR LV SWITCHEARS / MCC         NCP-000-LE-15.17-0005-13           SPECFACIUM FOR IV SWITCHEARS / MCC         NCP-000-LE-15.17-0005-13           SPECFACIUM FOR IV SWITCHEARS / MCC         NCP-000-LE-15.03-0005-13           LECENCAL LOAD UST         0132-ELA-5501           1         Lossed for Bealer Loose with more hope on Loose with 22,04/2016         All           1         Lossed for Bealer Loose with more hope on Loose with 22,04/2016         All         All           0         Average to form a tope with more hope on Loose with 22,04/2016         All         All         All           0         Average to form a tope with one with 22,04/2016         Dones based for know hope on the dones with 22,04/2016         All         All         All           0         Average to form a tope with comparison on the dones with 22,04/2016         All         MAL         JAB         All         I/02/2018           0         Average to form a tope with comparison on the dones with 22,04/2016         Tope based to know hope on the dones with 22,04/2016         Tope based to know hope on the dones with 22,04/2016         Tope on the dones with 22,04/2016           1         Howe to form a tope with the dones with tope on the dones with the dones with 22,04/2016         Tope on the dones with 22,04/2016         Tope on tope on the dones with 22,04/2016	DATA SHEET FOR LV SMICHERARS / MCC         NCP-000-ELE-15.17-0005-13           SPECKRATOR FOR IV SMICHERARS / MCC         NCP-000-ELE-15.17-0005-13           SPECKRATOR FOR IV SMICHERARS / MCC         NCP-000-ELE-15.03-0005-13           I         USSED FOR THERE         0193-ELA-650           I         USSED FOR THERE         0193-ELA-650           I         USSED FOR THERE         MAA           I         USSED FOR THERE         Date for foreign           I         USSED FOR THERE         Date forefore           I         USSED		SIN	GLE LINE DIAGRAM FOR MCC			NGP-010-	-ELE-15.01-	-0003-13
SPECFCATION TOR ILV SMITCHEARS / NCC         NOP-000-ELE-15.03-0005-13           ILEEDROL LOQUUST         0937-ELA-6501         0937-ELA-6501           ILEEDROL LOQUUST         0937-ELA-6501         0137-ELA-6501           ILEEDROL LOQUUST         0937-ELA-6501         0137-ELA-6501           ILEEDROL LOQUUST         0937-ELA-6501         0137-ELA-6501           ILEEDROL LOQUUST         0037-ELA-6501         0137-ELA-6501           ILEEDROL LOQUUST         04A         JAB         AB         MAS         09/03/2018           ILEEDROL LOQUUST         004         JAB         AB         AH         1/02/2018         01           ILEERROL TORUST         ILEERROL TORUST         Anal JAB         AB         AH         1/02/2018         01           ILEERROL TORUST         ILEER	SPECFLATION 101 UN SITURDELMS / MCC         NCP-D00-ELE-15.03-0025-13           I         SS26 FOR INDER Oblighted Upper NSEPA Oppression Flyger, Front-10         193-ELA-6507           1         SS26 FOR INDER Oblighted Upper NSEPA Oppression Flyger, Front-10         MAA         JAB         AUB         MAS         09/03/2018           1         SS26 FOR INDER Oppression Flyger, Front-10         MAA         JAB         AUB         AHB         I/02/2018           1         Madding Upper Network         MAA         JAB         AUB         AHB         I/02/2018           0A         Marching Torger, Forger JI Madding Upper Network         MAA         JAB         AUB         AHB         1/02/2018           0A         Marching Torger, Forger JI Madding Upper Network         MAA         JAB         AUB         AHB         1/02/2018           0A         Marching Torger, Forger JI Madding Upper Network         Devel Start		-			SCHEME			
I         SSED FOR TABLE         MA         JAB         AIB         MAS         09/03/2018           1         Understand Properties Angenet Description Propertis Angenet Description Properties Ange	I         USED FOR THUSE Underging upwn USPA (Underging upwn USPA) (DA         MAA         JAB         AB         MAS         08/03/2018           1         Underging upwn USPA (Underging upwn USPA) (DA         MAA         JAB         AB         MAS         08/03/2018           0A         Underging upwn USPA (Underging upwn USPA)         MAA         JAB         AB         AHB         1/02/2018           0A         Underging upwn USPA (Underging upwn USPA)         MAA         JAB         AB         AHB         1/02/2018           0A         Meeroed for Delog         Zong Mageneg         Zong My         Lu to         Deng Soi         20/11/2016           0A         Heard for Apool         Three for Apool <th></th> <th></th> <th></th> <th></th> <th></th> <th>-</th> <th></th> <th></th>						-		
I         SSLED FOR ENDER (Modify Upper Normality Normation Normality Normation Normality Normali Normality Normality Normality Normal	I         SS20 FOR INUSE Under Expension Provide A reported DA         MAA         JAB         AUB         MAS         09/03/2018           1         Under Expension Provide A reported DA         MAA         JAB         AUB         MAS         09/03/2018           0A         Word of Provide A reported DA         MAA         JAB         AUB         AUB         JAD         JAB         AUB         AUB         JAD         JAD         JAD         JAB         AUB         AUB         JAD         JAD <t< th=""><th></th><th>ELEC</th><th>TRICAL LOAD LIST</th><th><u> </u></th><th>$\sim$</th><th>0193-ELA</th><th>-6501</th><th></th></t<>		ELEC	TRICAL LOAD LIST	<u> </u>	$\sim$	0193-ELA	-6501	
1         Ubdgie Upper NPPER         MA         JAB         AIB         MAS         19/703/2018           1         Ubdgie Upper NPPER         MAA         JAB         AIB         MAS         19/703/2018         1           0         Named for None-10         MAA         JAB         AIB         AIB         AIB         AIB         AIB         AIB         AIB         AIB         AIB         JAB         AIB         JAB         AIB         JAB         AIB         JAB         JAB         AIB         JAB         JAB         AIB         JAB         JA	1         Outorised Registion         MAA         JAB         AB         MAS         USA         USA         JAB         AB         MAS         USA         USA         JAB         AB         MAS         USA         USA         USA         JAB         AB         MAS         USA         USA         USA         JAB         AB         MAS         USA         USA <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th><u>/1</u>\</th><th></th></t<>							<u>/1</u> \	
1       Ubdge Up NUPE_ (0)       MA       JAB       AB       AA       JAB       JAB       AB       JAB	1       Outoring User Note-1       MAA       JAB       AB       MAS       USAB				1	-		1	
00.       Hond of home & Angend Comparison (hope 1 Hone + 0)       UAA       UAB       AB       AHB       1/02/2018       C         01.       Comparison (hope 1 Hone + 0)       Hone & Dong II       Hone & Dong II       Hone & Dong II       Liu Ho       Done & Dong II       Liu Ho       Done & Dong II       Done & Dong II       Liu Ho       Done & Dong II       Done & Dong III       Done & Dong III       Done & Dong III       Done & Dong III       Done & Dong IIII       Done & Dong IIIII       Done & Dong IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Note: In these is Approval. Compression Project Project Project         MAA         J.B.B         A.B.B         A.B.B         I/02/2018           00         Approved for Design         Amage Basering         Zong My         Liu tis         Dewny Mr         2019         MA         J.B.B         A.B.B         A.B.B         I/02/2018           01         Approved for Design         Drang Basering         Zong My         Liu tis         Dewny Mr         Liu tis         Dewny Mr         Liu tis         Dewny Mr         Zong My         Liu tis         Dewny Mr         Z		1	ISSUED FOR TENDER (Modified Under NASHPA Compression Project Phase-II)	маа	JA	B AIB	MAS	09/03/2018
Comparation Project Read-31         Conservation Project Read-31 <thc< th=""><th>Compression Project Project         Compression Project         Project         Compression Project         Project         Project         Project         Project         Project         Project         Project         Pr</th><th></th><th>0.0</th><th>Issued for Review &amp; Approval</th><th>маа</th><th>AL.</th><th>B AIB</th><th>AHR</th><th>1/02/2018</th></thc<>	Compression Project Project         Compression Project         Project         Compression Project         Project         Project         Project         Project         Project         Project         Project         Pr		0.0	Issued for Review & Approval	маа	AL.	B AIB	AHR	1/02/2018
C         Issued for Approximation         Zong Budgets	C         Buend for Sprowi         Jones Bargersis         Zong Kyl         Liu No         Chang Sn         T/2/17/2016           8         Hissed Decker         Dees Bargersis         Zong Kyl         Liu No         Deen Sin         Z/2/2/2016           REV         DESCRIPTION         PRPD         OHAD         DESCRIPTION         PRPD         OHAD         DATE           CLIENT         OLL SGAS         DESCRIPTION         PRPD         OHAD         DESCRIPTION         PRPD         DATE           CLIENT         OLL SGAS         DESCRIPTION         PRPD         DATE         DATE         DATE           CLIENT         OLL SGAS         DESCRIPTION         PREV         COMPANY LTD.         DATE           CLIENT         OLL SGAS         DESCRIPTION         PREV         DATE         DATE           CLIENT         OLL SGAS         DESCRIPTION         PREV         DATE         DATE           CLIENT         CLIENT         SCAST COMPANY LTD.         DATE         DATE         DATE           CLIENT         Extended Total Scale Sca								
A         Internal Descrite Ore         Densy Busgers         Zang Styl         Lis No         Cheng Sta         2.2/12/201           REV         DESCRPTION         PRD         OHL& GASS DE VEL OPMENT COMPANY LTD.         DATE           CLIENT         OLL&SGASS DE VEL OPMENT COMPANY LTD.         DATE         DESCRPTION         PRD         OHL& GASS DE VEL OPMENT COMPANY LTD.           DESCRPTION         ORL&SGASS DE VEL OPMENT COMPANY LTD.         DESCRPTION         DESCRPTION         PROJECT No.           DESCRPTION         PRD         OHL& GASS DE VEL OPMENT COMPANY LTD.         DESCRPTION         PROJECT NO.           DESCRPTION         PROJECT AND DESCRPTION DESCRPTION         PROJECT NO.         DESCRPTION         PROJECT NO.           DESCRPTION         PROJECT NO.         NAISO 9001-2008 conflide company         NAISO 9001-2008 conflide company         NAISO 9001-2008 conflide company           CONTRACTOR         HONG KONG HUIHUA GLOBAL         PROJECT NO.         NAISO 9001-2008 conflide company         NAISO 9001-2008 conflide company <td< th=""><th>A         Internet Discative Ches         Arres Bisgeris         Zerg fr/s         Lit. Its         Cheg fr/s         Z/07/206           REV         DESCRIPTION         PRPD         OHL&amp;GASS         DEVELOPMENT         ONPO         DATE           CLERT         OLL&amp;GASS         DEVELOPMENT         ONLAGASS         DEVELOPMENT         ONPO         DATE           CLERT         OLL&amp;GASS         DEVELOPMENT         ONLAGASS         DEVELOPMENT         ONDPACTOR         PROVENT         DEVELOPMENT         DATE           CLERT         OLL&amp;GASS         DEVELOPMENT         DEVELOPMENT         DATE         DATE         DEVELOPMENT         DATE         DATE</th><th></th><th>$\vdash$</th><th></th><th>-</th><th></th><th>Xiyî Liu Na</th><th></th><th></th></td<>	A         Internet Discative Ches         Arres Bisgeris         Zerg fr/s         Lit. Its         Cheg fr/s         Z/07/206           REV         DESCRIPTION         PRPD         OHL&GASS         DEVELOPMENT         ONPO         DATE           CLERT         OLL&GASS         DEVELOPMENT         ONLAGASS         DEVELOPMENT         ONPO         DATE           CLERT         OLL&GASS         DEVELOPMENT         ONLAGASS         DEVELOPMENT         ONDPACTOR         PROVENT         DEVELOPMENT         DATE           CLERT         OLL&GASS         DEVELOPMENT         DEVELOPMENT         DATE         DATE         DEVELOPMENT         DATE		$\vdash$		-		Xiyî Liu Na		
REV     DESCRIPTION     PRD     CHKD     REV     APPD     DATE       CUINT     OIL&GAS DEVELOPMENT COMPANY LTD.     OUL&GAS DEVELOPMENT COMPANY LTD.     OULWAY     DOULD TO BE COMPANY DEVELOPMENT COMPANY LTD.       Sector To BE COMPANY DEVELOPMENT COMPANY LTD.     OUL&GAS DEVELOPMENT COMPANY LTD.     OULWAY     DOULD TO BE COMPANY LTD.       ENAR PETROTECH SERVICES (PRIVATE) LIMITED     ENAR PETROTECH SERVICES (PRIVATE) LIMITED     PROJECT NO.       Enable Company     An ISO 9010-12008 confile doubleman     Int-0183       CONDUCTART     Zishan Engineers (PVI.) Ltd.     An ISO 9010-12008 confile doubleman       AN ISO 9010-12008 confile doubleman     Int-0183     Int-0183       CONDUCTART     Zishan Engineers (PVI.) Ltd.     NAISEPA 12008 confile doubleman       MODIFIED UNDER NASEPA COMPRESSION     FECH ADDITION MARKED AND LARCING AND LEASTING AND LARCING A	REV       DESCRIPTION       PRPD       CHKO       REV       APPD       DATE         CULIENT       OIL&GGAS DEVELOPMENT COMPANY LTD.       DUAL BLACK INTERNATIONAL AND		$ \rightarrow $				·		
MODIFIED       UNDER MASSIDA COMPRESSION         PROJECT THE       NASHPA GAS PROCESSING AND LPG RECOVERY PLANT PROCECCESING AND LPG RECOVERY PLANT PROCECCEMANSHPARED.12472015         MODIFIED       UNDER MASSIDA COMPRESSION         PROJECT THE MASHPA GAS PROCESSING AND LPG RECOVERY PLANT PROCECCESING AND LPG RECOVERY PLANT PROCECCEMANSHPARED.12472015         MODIFIED       MASHPA GAS PROCESSING AND LPG RECOVERY PLANT PROCECCEMANSHPARED.12472015         MODIFIED       MASHPA GAS PROCESSING AND LPG RECOVERY PLANT PROCECCEMANSHPARED.12472015	MODIFIED UNDER NASEIPA COMPRESSION PROJECT TITLE         MODIFIED UNDER NASEIPA COMPRESSION PROJECT								
MODIFIED UNDER NASEEPA COMPRESSION     MODIFIED     MODIFIED UNDER NASEEPA COMPRESSION     MODIFIED	ENAR PETROTECH SERVICES (PRIVATE) LIMITED PROJECT NO. PROJECT N		CLIEN	OIL&GAS	DEVE	LOPN	IENT CO	MPAN	Y LTD.
MODIFIED UNDER NASEIPA COMPRESSION PROJECT TILE         MASEIPA COMPRESSION PROJECT TILE         PROJECT TILE <t< th=""><th>Image: Sector -7A         Keorogi nutarital Area         14-0193           CONNUTANT:         Zishan Engineers (PV), 1/Ld.         14-0193           An ISO 9001/2008 centred company        </th><th></th><th>Ľ,</th><th>848 °</th><th></th><th></th><th></th><th></th><th></th></t<>	Image: Sector -7A         Keorogi nutarital Area         14-0193           CONNUTANT:         Zishan Engineers (PV), 1/Ld.         14-0193           An ISO 9001/2008 centred company		Ľ,	848 °					
CONSULTANT. Zishan Engineers (Pvt.) Lid. An ISO 9001-2008 certified company The BOARD State St	CONSULTATE ZISHAN Engineers (PVt.) Ltd. ISO 9001-2000 certified company The gray ison 256 of 2500 certified company The gray ison 2500 certified company CONTRACTOR NODIFIED UNDER NASEPA COMPRESSION PROJECT INLE NASEPA COMPRESSION ISSUED FOR TENDER DRAWING TITLE SINGLE LINE DIAGRAM FOR NAN DISTRIBUTION BOARD 1 ~ 1 of 1				ECH SER	VICES ( A Koron	PRIVATE) LIM	Areo PF	
An ISO 9901-2008 control company The Control of State Co	ALISO 9001-2008 Certification company The point state of a compan		CON						14-0193
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MODIFIED UNDER NASEPA COMPRESSION PROJECT (PHASE-D) # 14-0183         MODIFIED UNDER NASEPA COMPRESSION PROJECT (PHASE-D) # 14-0183         PROJECT ITELE NASHPA GAS PROCESSING AND LPG RECOVERY PROJECT ITELE NASHPA GAS PROCESSING AND LPG RECOVERY PROJECT ITELE NASHPA GAS PROCESSING AND LPG RECOVERY Rep-ort-tit-ted-rec2-13         PROJECT ITELE NASHPA GAS PROCESSING AND LPG RECOVERY         P	NODIFIED INDER NASIBA COMPRESSION PROJECT IDLE         IBP IEEE         HONG KONG HUIHUA GLOBAL TECHNOLOGY LIMITED         PROJECT NO. NASIPA 1247           ISSUED FOR TENDER         PROJECT ITILE NASIPA GAS PROCESSING AND LPG RECOVERY PROJECT ITILE NASIPARED 1247/2015         DRAWING NO.           ISSUED FOR TENDER         DRAWING TITLE         SINGLE LINE DIAGRAM FOR MAIN DISTRIBUTION BOARD         REV. SCALE SHEET 1			RACTOR.					
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ISSUED FOR TENDER  DRAWING TITLE  SINCLE LINE DAGRAW FOR  REV. SCALE SHEET	ISSUED FOR TENDER         DRAWING TITLE         SINGLE LINE DIAGRAM FOR MAIN DISTRIBUTION BOARD         REV.         SCALE [SHEET 1	MODIFIED UNDER NASHPA COMPRESSION	PROJ	NASHPA GAS P	ROCESSING	AND LP	G RECOVERY		
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		ISSUED FOR TENDER	DRAW						



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	2. THE	IETERS, UNLESS OTH DRAWING IS GENER			, THE DE	TAILS C	AN BE SEEN IN				
	3. THE	h unit. Earth bar for pi					THE MAIN GRID				
715250	)⊞₩	CH WILL BE INDICATE			NG LAYOU	T.					
н	11		LE	GEND			2				
					2						
	} —e4	<ul> <li>BARE STRAND</li> <li>GREEN/YELLC</li> </ul>			VC INSUL	ATED,1C	2x70mm²				
							ROUND CONDUCT				
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		EARTHING RC	D, COPPER (	CLAD STEEL	., 16mm I	DIAMETE	R, 2.5m LENGTH				
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		EARTHING WE									
XISTING BOUNDARY FENCE		EX-PROOF LOUE	ISPEAKER								
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		LIGHTING POLE		~~~~~		~~~~					
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	E	3S-01 N	(m)	E (m)	ELEVATIO	N(m)	REFERENCE				
	SURVEY	COORDINATE 36832	280.201 71	4621.147	565.44	17	UTM WGS1984				
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CHISTING BOUN		TITLE				DOC N	lo.				
		CAL DESIGN BASIS					05-0001-00				
		_ PLOT PLAN YPICAL INSTALLATION FOR EARTH	IING AND LIGHTNING F				.01-0001-00 08-0002-00				
	LIGHTING	; SYSTEM DESIGN &	DETAILS	N	GP-000-1	ELE–15.	01-0003-00				
	CALCUL	ATION FOR EARTHING	; system	N	GP-000-1	ELE-00.	21-0005-00				
		EQUI	PMENT A	ND BUI	LDING	LIST					
	NO.	DESCRIPT	ION AND CAP	PACITY	UNIT	QTY.	REMARK				
	1	PIG RECEIVER &	GATHERING M	MANIFOLD	SET	1	BY HBP				
	2	SLUG CATCHER	Д		SET	1	BY HBP EXISTING				
	4	PROCESS EQUIPM					EXISTING				
	5	NEW PROCESS E					BY HBP				
	6	CCR (CENTRAL C		M)	SET SET	1	BY HBP BY HBP				
	8	POWER GENERAT			SET	1	BY HBP				
	9	LABORATORY			SET	1	BY OGDCL				
	10	LPG STORAGE BU EXISTING CONDEN			SET SET	39 6	BY HBP EXISTING				
	12	NEW CONDENSAT			SET	2	BY OGDCL				
	13	PRODUCED WATE		r system			BY HBP				
	14	FIRE WATER SYS		FM			BY HBP BY HBP				
	15	RAW WATER TREA		L IVI	SET	1	BA HBb RA HRb				
	17	M.P.E. & I WORK	SHOP		SET	1	BY OGDCL				
	18	AUTO WORK SHO			SET SET	1	BY OGDCL				
	19 20	MAINTENANCE WO	лкк SHUP		SET SET	1	BY OGDCL BY OGDCL				
	21	FIRE STATION			SET	1	BY OGDCL				
	22	SECURITY WATCH			Nos.		BY OGDCL				
	23	PIPE YARD (100r NEW FLARE K.O.	,		SET SET	1	BY OGDCL BY HBP				
	25	RELOCATED EXIS			SET	1	BY OGDCL				
	26	EXISTING FLARE			SET	1	BY OGDCL				
	27	NEW FLARE STAC			SET SET	1	BY HBP BY OGDCL				
	29	LPG LOADING AR			SET	1	BY HBP				
	30	NEW CONDENSAT			SET	1	BY OGDCL				
	31	ADDITIONAL LANE	) FOR BOWSE	R PARKING	SET	1	BY OGDCL				
	33	CLINIC			SET	1	BY OGDCL				
	34	LPG PUMP SHED			SET	1	BY HBP				
	35	BOUNDARY WALL DIESEL STORAGE	VFSSFI		SET SET	1	EXISTING BY HBP				
		JUSEL STUNAUE									
	00 Appr	oved for Construction	Zhang Barpong Zhang BP	zhangxi'ii Zhang XY	<i>Liuwa</i> Liu Na	Chen					
	C Issu	ed for Approval	Zhang BP	Zhang XY	Liu Na	Chen	g Xi 14/06/2016				
		ed for Review mal Discipline Check		Zhang XY Zhang XY	Liu Na Liu Na	Chen Chen	g Xi 01/06/2016 g Xi 15/03/2016				
	REV.	DESCRIPTION	PRPD	CHKD	REVD	AP					
	CLIENT.	OIL&GAS									
	CONSULT	ant. Zi	shan En	gineers	s (Pvt.	) Ltd					
	751	F Tel: (92-91)	An ISO 9001 47/F Block 34393045-48, & 34	-2008 cert 6, PECHS, Kard 4310151-54, Fa	ified com achi-Pakistan x: (92-91) 34	pany 533430 & 3	34510156				
	CONTRAC	TOR.	ntact@zishanengir	neers.com Web	site: www.zisi	hanenginee	ers.com				
	HB		IOLOGY				ASHPA 1247				
	PROJECT 1	ITLE: NASHPA GAS PF			COVERY		<b>AWING NO.</b> -ELE-15.01-0004-00				
			ING AND LI		, <u>2</u> 010		SCALE SHEE				
	DRAWING 1		TECTION LA			00	1:1000 1 OF 1				
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NASHPA Gas Processing and LPG Recovery Plant

PROC-FC-CB/NASHPA/PROJ-1247 /2015



PROJECT NO.: NASHPA 1247

DOCUMENT NO.: NGP-000-ELE-15.02-0001-00

ELECTRICAL LOAD LIST

PAGE 1 OF 10

# ELECTRICAL LOAD LIST

		RE	VISION DETAI	LS		
			LiuNa	zhangxili	Bai Hai jun	cheng in
00	05/12/2016	Approved for Design	Liu Na	Zhang Xlyi	Bai Haijun	Cheng Xin
C1	02/06/2016	Issued for Information	Liu Na	Zhang Xlyi	Bai Haijun	Cheng Xin
С	01/04/2016	Issued for Review	Liu Na	Zhang Xlyi	Bai Haijun	Cheng Xin
В	25/01/2016	Issued for Review	Liu Na	Zhang Xlyi	Bai Haijun	Cheng Xin
А	15/01/2016	Internal Discipline Check	Liu Na	Zhang Xlyi	Bai Haijun	Cheng Xin
REV	DATE	DESCRIPTION	PRPD	СНКД	REVD	APPD

		cessing and LPG Recovery Plant SHPA/PROJ-1247 /2015
HRP	DOC. NO.	NGP-000-ELE-15.02-0001-00
	DESCRIPTION	electrical load list
	REVISION	00
	PAGE	2 OF 10

### **REVISION HISTORY**

REV.	DATE	REVISION DESCRIPTION
А	15/01/2016	Internal Discipline Check
В	25/01/2016	Issued for Review
С	01/04/2016	Issued for Review
C1	02/06/2016	Issued for Information
00	05/12/2016	Approved for Design

### Attachment - 1 Normal and Essential load list

	Equipment				Absorbed Load (A)		Load Factor (C)=A/B	Efficiency (D)	Power Factor	Load Consumption Type	kW=		Consur	ned Load	kVAr=k		sheo Io
ZEL Tag	Description	Voltage	Essential	Normal		1000 (8)					Conti (E		intermi	ittent (E)	Stan (G		
		_			kW	kW	In Decimals	%	COSΦ	C/VS	kW	kVAr	kW	kVAr	kW	kVAr	
	MDB-NORMAL BUS-BAR Condensate Stabilizer Overhead CompressorK-2201 A/B MH6	64 Panel							0.8		736.00 62.0	503.53 46.5	0.00	0.00	165.00	114.98	
	Including:																
	Cooler Fans Motor M2301 Cooler Fans Motor M2302	0.4kV 0.4kV		×	14.99 14.99	18.5 18.5	0.81	0.86	0.83	C C							-
	Pre-lube Pump , Motor M3102	0.4kV		x	1.13	1.5	0.75	0.82	0.82	1							
	Compressor Crankcase heater HTR3101	0.4kV		×	0.75	1	0.75	0.82	1	1							
	Compressor oil cooler fan M3101	0.4kV		×	0.28	0.37	0.75	0.82	0.82	С							
	Oil tank electrical heater 1# HTR3001 Oil tank electrical heater 2# HTR3002	0.4kV 0.4kV		X	1.50 1.50	2	0.75 0.75	0.82	1	C							
	Electric tracer heating system 1#	0.4kV 0.23kV		×	1.50	2	0.75	0.82	1	C C							
	Electric tracer heating system 2#	0.23kV		×	1.50	2	0.75	0.82	1	С							
	Engine water heater HTR4201	0.4kV		×	8.80	11	0.8	0.83	1	1							
	Compressor room fans and lights	0.4kV		×	14.19	16.5	0.86	0.89	0.85	1							<u> </u>
	CO2 Extinguishing system power UCP cabinet power-UPS	0.4kV 0.23kV	×	×	1.20	1.6 1	0.75	0.82	0.75	S C							<u> </u>
	Engine cabinet power-UPS	0.23kV	× ×			1			0.8	c							
	Engine oil pump motor-UPS	0.23kV	×			0.75			0.8	С							
K-2501A	Sale Gas Compressor. WG74								0.82		100.00	72.05					
R-2501A	Panel Including:								0.83		109.00	73.25					
	Cooler Fans Motor 1#	0.4kV		×	14.99	18.5	0.81	0.86	0.83	С							Λ
	Cooler Fans Motor 2#	0.4kV		×	14.99	18.5	0.81	0.86	0.83	С							
	Cooler Fans Motor 3#	0.4kV		×	14.99	18.5	0.81	0.86	0.83	С							10
	Cooler Fans Motor 4#	0.4kV		×	18.04	22	0.82	0.86	0.83	c							
	Cooler Fans Motor 5# Pre-lube Pump M3102	0.4kV 0.4kV		×	18.04 1.13	22 1.5	0.82 0.75	0.86	0.83	C I							-
	Compressor Crankcase heater HTR3101	0.4kV		x	0.75	1.5	0.75	0.82	0.82	1							
	Compressor oil cooler fan HT3101	0.23kV		×	0.83	1.1	0.75	0.82	0.82	С							
	Oil tank electrical heater 1# HTR3001	0.4kV		×	1.50	2	0.75	0.82	1	С							
	Oil tank electrical heater 2# HTR3002	0.4kV		×	1.50	2	0.75	0.82	1	С							
	Electric tracer heating system 1# Electric tracer heating system 2#	0.23kV 0.23kV		×	1.50 1.50	2	0.75 0.75	0.82	1	C C							
	Engine water heater HTR4201	0.25KV		×	21.32	26	0.75	0.86	1	1							
	Compressor room fans and lights	0.4kV		×	14.19	16.5	0.86	0.89	0.85	1							
	UCP cabinet power-UPS	0.23kV	×			1			0.75	С							
	Engine cabinet power-UPS	0.23kV	×			1			0.75	С							
K-2501B	Panel								0.8		109.00	81.75					
	Including:																
	Cooler Fans Motor 1#	0.4kV		×	14.99	18.5	0.81	0.86	0.83	С							
	Cooler Fans Motor 2#	0.4kV		×	14.99	18.5	0.81	0.86	0.83	С							
	Cooler Fans Motor 3# Cooler Fans Motor 4#	0.4kV 0.4kV		×	14.99 18.04	18.5 22	0.81	0.86	0.83	C C							
	Cooler Fans Motor 5#	0.4kV		×	18.04	22	0.82	0.86	0.83	c							-
	Pre-lube Pump M3102	0.4kV		×	1.13	1.5	0.75	0.82	0.82	1							
	Compressor Crankcase heater HTR3101	0.4kV		×	0.75	1	0.75	0.82	0.82	1							
	Compressor oil cooler fan HT3101	0.4kV		×	0.83	1.1	0.75	0.82	0.82	С							<u> </u>
<u></u>	Oil tank electrical heater 1# HTR3001 Oil tank electrical heater 2# HTR3002	0.4kV 0.4kV		×	1.50 1.50	2	0.75 0.75	0.82	1	C C							
	Electric tracer heating system 1#	0.23kV		×	1.50	2	0.75	0.82	1	c							-
	Electric tracer heating system 2#	0.23kV		×	1.50	2	0.75	0.82	1	c							
	Engine water heater HTR4201	0.4kV		×	21.32	26	0.82	0.86	1	1							
	Compressor room fans and lights	0.4kV		×	14.19	16.5	0.86	0.89	0.85	1							
	UCP cabinet power-UPS	0.23kV	×			1			0.75	С							
	Engine cabinet power-UPS	0.23kV	×			1			0.75	С							
K-2501C	Panel								0.8						109.00	81.75	
	including:																
	Cooler Fans Motor 1#	0.4kV		×	14.99	18.5	0.81	0.86	0.83	S							
	Cooler Fans Motor 2#	0.4kV 0.4kV		×	14.99 14.99	18.5 18.5	0.81	0.86	0.83	s s							
		0.4KV		×	14.99	18.5	0.81	0.86	0.83	s							
	Cooler Fans Motor 3# Cooler Fans Motor 4#	0.4kV		x	18.04	22	0.82	0.86	0.83	S							
		0.4kV 0.4kV					0.75	0.82	0.82	S							
	Cooler Fans Motor 4# Cooler Fans Motor 5# Pre-lube Pump M3102	0.4kV 0.4kV		×	1.13	1.5			0.82	S							
	Cooler Fans Motor 4# Cooler Fans Motor 5# Pre-lube Pump M3102 Compressor Crankcase heater HTR3101	0.4kV 0.4kV 0.4kV		× ×	0.75	1	0.75	0.82	_								
	Cooler Fans Motor 4# Cooler Fans Motor 5# Pre-lube Pump M3102 Compressor Crankcase heater HTR3101 Compressor oil cooler fan HT3101	0.4kV 0.4kV 0.4kV 0.4kV		× × ×	0.75 0.83	1 1.1	0.75	0.82	0.82	S							
	Cooler Fans Motor 4# Cooler Fans Motor 5# Pre-lube Pump M3102 Compressor Crankcase heater HTR3101 Compressor oil cooler fan HT3101 Oil tank electrical heater 1# HTR3001	0.4kV 0.4kV 0.4kV 0.4kV 0.4kV		× × × ×	0.75 0.83 1.50	1 1.1 2	0.75 0.75	0.82 0.82	0.82 1	S S							
	Cooler Fans Motor 4# Cooler Fans Motor 5# Pre-lube Pump M3102 Compressor Crankcase heater HTR3101 Compressor oil cooler fan HT3101	0.4kV 0.4kV 0.4kV 0.4kV		× × ×	0.75 0.83	1 1.1	0.75	0.82	0.82	S							
	Cooler Fans Motor 4# Cooler Fans Motor 5# Pre-lube Pump M3102 Compressor Crankcase heater HTR3101 Compressor oil cooler fan HT3101 Oil tank electrical heater 1# HTR3001 Oil tank electrical heater 2# HTR3002	0.4kV 0.4kV 0.4kV 0.4kV 0.4kV 0.4kV		× × × × ×	0.75 0.83 1.50 1.50	1 1.1 2 2	0.75 0.75 0.75	0.82 0.82 0.82	0.82 1 1	S S S							
	Cooler Fans Motor 4# Cooler Fans Motor 5# Pre-tube Pump M3102 Compressor Crankcase heater HTR3101 Compressor oil cooler fan HT3101 Oil tank electrical heater 1# HTR3001 Oil tank electrical heater 1# HTR3002 Electric tracer heating system 1# Electric tracer heating system 2# Engine water heater HTR4201	0.4kV 0.4kV 0.4kV 0.4kV 0.4kV 0.4kV 0.23kV 0.23kV 0.23kV 0.4kV		× × × × × × × × ×	0.75 0.83 1.50 1.50 1.50 1.50 21.32	1 1.1 2 2 2 2 2 26	0.75 0.75 0.75 0.75 0.75 0.82	0.82 0.82 0.82 0.82 0.82 0.82 0.86	0.82 1 1 1 1 1 1	\$ \$ \$ \$ \$ \$ \$							
	Cooler Fans Motor 4# Cooler Fans Motor 5# Pre-lube Pump M3102 Compressor Crankcase heater HTR3101 Compressor of cooler fan HT3101 Oil tank electrical heater 1# HTR3001 Oil tank electrical heater 2# HTR3002 Electric tracer heating system 1# Electric tracer heating system 2# Engine water heater HTR4201 Compressor room fans and lights	0.4kV 0.4kV 0.4kV 0.4kV 0.4kV 0.23kV 0.23kV 0.23kV 0.23kV 0.4kV		× × × × × × ×	0.75 0.83 1.50 1.50 1.50 1.50	1 1.1 2 2 2 2 2 2 6 16.5	0.75 0.75 0.75 0.75 0.75	0.82 0.82 0.82 0.82 0.82 0.82	0.82 1 1 1 1 1 1 0.85	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$							
	Cooler Fans Motor 4# Cooler Fans Motor 5# Pre-tube Pump M3102 Compressor Crankcase heater HTR3101 Compressor oil cooler fan HT3101 Oil tank electrical heater 1# HTR3001 Oil tank electrical heater 1# HTR3002 Electric tracer heating system 1# Electric tracer heating system 2# Engine water heater HTR4201	0.4kV 0.4kV 0.4kV 0.4kV 0.4kV 0.4kV 0.23kV 0.23kV 0.23kV 0.4kV		× × × × × × × × ×	0.75 0.83 1.50 1.50 1.50 1.50 21.32	1 1.1 2 2 2 2 2 26	0.75 0.75 0.75 0.75 0.75 0.82	0.82 0.82 0.82 0.82 0.82 0.82 0.86	0.82 1 1 1 1 1 1	\$ \$ \$ \$ \$ \$ \$							

	Equipment				Absorbed Load (A)	Motor Ratings/O perating load (B)	Load Factor (C)=A/B	Efficiency (D)	Power Factor	Load Consumption Type			Consum	ned Load	kVAr=k		sheddin Ioad
ZEL Tag	Description	Voltage	Essential	Normal			In				Contii (E		intermi	ttent (E)	Stan (G	d-by )	
	Molecular Sieve Dehydration and Regen Units				kW	kW	IN Decimals	%	COSΦ	C/VS	kW	kVAr	kW	kVAr	kW	kVAr	
K-2301A	Regen Gas Compressor Panel	0.4kV		×					0.86		56.00	33.23					
	including: Regen Gas Compressor	0.4kV		×	50.05	55	0.91	0.9	0.86	С							
	oil mist heater	0.23kV		×	0.19	0.25	0.75	0.82	1	c							
K-2301B	Regen Gas Compressor Panel including:								0.86						56.00	33.23	
	Regen Gas Compressor	0.4kV		×	50.05	55	0.91	0.9	0.86	S							
	oil mist heater	0.23kV		×	0.19	0.25	0.75	0.82	1	S							
	EXISTING LOAD (011-EDB-A-E)	0.4kV		×	400.00	400			0.85	С	400.00	268.80					
	MDB-ESSENTIAL BUS BAR										596.6	428.9	266.5	174.5	338.6	201.1	
	1# Distribution panel in sound attenuation container     1# gas generator Parallel control panel	0.4kV 0.23kV	×						0.8 0.8	C I	18.00	13.50	15.00	11.3			
	including:																
	Jacket Water Heater Alternator Space Heater	0.23kV 0.23kV	×		7.20	9 2	0.8 0.75	0.86 0.82	1	1							
	Pre-Lube Pump Fire Extinguishing System	0.23kV 0.23kV	×		1.50 1.50	2	0.75 0.75	0.82	0.82 0.82	1							
	Fire Extinguishing System	0.23kV	×		1.50	2	0.75	0.82	0.82	l							
	1# Radiator fan panel including:	0.4kV	×														
	Radiator Fan(power:2.2kW set:12	0.4kV	×		1.65	2.2	0.75	0.82	0.82	С	26.40	18.4					
	2# Distribution panel in sound attenuation container 2# gas generator Parallel control panel	0.4kV 0.4kV	×						0.8 0.8	C I	18.00	13.50	15.00	11.3			
	including: Jacket Water Heater	0.23kV	×		7.20	9	0.8	0.86	1								
	2# Radiator fan panel	0.4kV	×			, j	0.0	0.00									
	including: Radiator Fan(power:2.2kW set:12)	0.4kV	×		1.65	2.2	0.75	0.82	0.82	С	26.40	18.4					
	3# Distribution panel in sound attenuation container	0.4kV 0.4kV	×						0.8 0.8	S S					18.00	13.50	
	3# gas generator Parallel control panel including:	U.4KV	×						0.0	3					15.00	11.3	
	Jacket Water Heater Alternator Space Heater	0.23kV 0.23kV	× ×		7.20 1.50	9 2	0.8 0.75	0.86 0.82	1	S S							
	Pre-Lube Pump	0.23kV	×		1.50	2	0.75	0.82	0.82	S							
<u></u>	Fire Extinguishing System Fire Extinguishing System	0.23kV 0.23kV	×		1.50 1.50	2	0.75 0.75	0.82	0.82 0.82	s s							
	3# Radiator fan panel	0.4kV	×														
	including: Radiator Fan(power:12kW set:12)	0.4kV	×		1.65	2.2	0.75	0.82	0.82	С					26.40	18.4	
	Discal opaing generator Auvilian electricity pagel	0.4kV							0.8	С	15.0	11.3					
	Diesel engine generator Auxiliary electricity panel including:	U.4KV	×						0.0		15.0	11.5					
	Jacket water heater Alternator space heater	0.23kV 0.23kV	×		6.75 0.75	9	0.75 0.75	0.86 0.82	1	C C							
	fire extinguishing system	0.23kV	×		1.50	2	0.75	0.82	0.82	C							
	fire extinguishing system	0.23kV	×		1.50	2	0.75	0.82	0.82	С							
	Watch towers(5 NOS.)	0.4kV	×						0.85	С	10.00	6.2					
	Optional building load (011-SDB-001~006) Load of UPS	0.4kV 0.4kV	×	×					0.85 0.8	C C	250.00 96.00	168.00 72.00					
	Electrical Building 010-EDB-002 (Lighting and Ventilator) Electrical Building 010-EDB-003(Lighting and Ventilator)	0.4kV 0.4kV	×						0.85 0.85	l I			6.3 1.2	3.90 0.74			
	Electrical Building 010-EDB-004 (HVAC)	0.4kV	×						0.85	C	30	18.59	1.2	0.14			
	Electrical Building 010-EDB-005 (HVAC)	0.4kV 0.4kV	×						0.85	1	6	3.72		0.70			
	Electrical Building 010-EDB-006(Lighting and Ventilator) Electrical Building 010-EDB-007(Lighting and Ventilator)	0.4kV 0.4kV	×						0.85 0.85	1			6 6	3.72 3.72			
SPAC-001A SPAC-001B	CCR-Control Box of the Package Air Condition Units CCR-Control Box of the Package Air Condition Units	0.4kV 0.4kV	×						0.85 0.85	l S	90.00	55.78			90.00	55.78	
010-EDB-01	Sub Distribution panel-CCR (Lighting fixture,axial fan)	0.4kV	×						0.85	- I			25.00	15.49			
001-EDB-004	Sub Distribution panel-process area lighting Sub Distribution panel-lighting	0.4kV 0.4kV	×						0.85 0.85				4.50 3.00	2.79 1.86			
01-EDB-005	compressor room	0.4kV	×						0.85	I			4.00	2.48			
01-EDB-501	Sub Distribution panel-hot oil system(lighting)	0.4kV	×						0.85	I			1.00	0.62			
K-3401A/B	MCC-K-3401A/B Instrument Air Compressor panel	0.4kV	×														
	including: Air compressor A	0.4kV	×		65.25	75.00	0.87	0.92	0.87	I			70.92	40.19			
	Air compressor B Space heater A	0.4kV 0.23	×		65.25 2.25	75.00 3.00	0.87 0.75	0.92	0.87 1	1			70.92 2.74	40.19 0.00			
	Space heater B	0.23	×		2.25	3.00	0.75	0.82	1	1			2.74	1.92			
	Air cooler A Air cooler B	0.23	×		0.29	0.38	0.75 0.75	0.82	0.82 0.82	l I			0.35 0.35	0.24			
	Dryer	0.23	×		0.30	0.40	0.75	0.82	0.82	- I			0.37	0.26			
	Nitrogen generator spare	0.23	×		0.30 2.25	0.40 3.00	0.75 0.75	0.82 0.82	0.82 0.82	l I			0.37 2.74	0.26			
		0.23			0.38	0.50	0.75	0.82	0.82	1			0.46	0.32			

	Equipment				Absorbed Load (A)	Motor Ratings/O perating load (B)	Load Factor (C)=A/B	Efficiency (D)	Power Factor	Load Consumption Type	kW=	A/D	Consum	ned Load	kVAr=k	W•tanΦ	shedding Ioad
ZEL Tag	Description	Voltage	Essential	Normal							Conti (E		intermi	ttent (E)	Stan (G	d-by )	
					kW	kW	In Decimals	%	COSΦ	C/VS	kW	kVAr	kW	kVAr	kW	kVAr	
	Flare System Sub Distribution panel-Flare System Powe		×						0.85		45.00	27.89					
including		0.4144			04.00		0.00										
	Flare electrical heater Flare Knockout drum pumps	0.4kV 0.4kV	×		24.60 8.80	30 11	0.82	0.9 0.86	1 0.83	C C							
P-3201 B F	Flare Knockout drum pumps	0.4kV	×		8.80	11	0.8	0.86	0.83	S							
FS-3201 F	Flare Ignition Panel (Power suppled by UPS)	0.4kV	×		0.00	2											
MCC-P-3501A	Main Fire Water Pumps(Motor Driven) Electrical Control Panel	0.4kV	×		88.00	100	0.88	0.93	0.88	S					94.62	51.07	
MCC-P-3501B	Main Fire Water Pumps(Motor Driven) Electrical Control Panel	0.4kV	×		88.00	100	0.88	0.93	0.88	S					94.62	51.07	
	Main fire water pumps(deisel engine driver) Jockey Pump Skid (PU-3501)	0.4kV	×		1.50	2	0.75	0.82	0.75 0.83	С	1.83	1.61	18.50	12.43			
	Including:	0.4144			44.00	10.5		0.00	0.00								
	Jockey pumps Jockey pumps	0.4kV 0.4kV	× ×		14.99 14.99	18.5 18.5	0.81 0.81	0.86 0.86	0.83	S							
MCC PU 2502	Foam Injection Skid Electrical Control Panel	0.4kV	×		16.40	20	0.82	0.86	0.83	1			19.07	12.81			
MCC-P0-3302		0.487			10.40	20	0.02	0.80	0.65				19.07	12.01			
007-EDB-001 \$	Sub Distribution panel-Fire Fighting Shed Lighting EDB	0.4kV	×						0.85	I.			4.00	2.48			
	Sub Distribution panel-04A (Lighting fixture)	0.4kV	×						0.85	I			4.00	2.48			
004-EDB-002 \$	Sub Distribution panel-Dehydration (Mol.Sieve) Unit	0.4kV	×						0.85	I			1.50	0.93			
	MCC1# PROCESS EQUIPMENT LOADS De Emulsifier Injection Skid(D1-01)										993.76	607.38	145.54	93.54	303.53	180.49	
	De Emulsifier Injection Pump Panel	0.4kV		×	0.19	0.25	0.75	0.82	0.82	С	0.23	0.16			0.00	0.40	×××
P-2001B	De Emulsifier Injection Pump Panel	0.4kV		×	0.19	0.25	0.75	0.82	0.82	S					0.23	0.16	×××
	Inlet Evaporative Air Cooler Inlet Evaporative Air Cooler	0.4kV 0.4kV		×	24.60 24.60	30 30	0.82	0.9 0.9	0.83	C C	27.33 27.33	18.37 18.37					
	spray pump skid	0.4kV		×	3.00	4	0.75	0.82	0.82	С	3.66	2.55					
	spray pump skid spray pump skid	0.4kV 0.4kV		×	3.00 3.00	4	0.75	0.82	0.82	C C	3.66 3.66	2.55 2.55					
P-2101/4 s	spray pump skid	0.4kV		×	3.00	4	0.75	0.82	0.82	С	3.66	2.55					
	Condensate Stabilizer unit Condensate Stabilizer Around Pump	0.4kV		×	24.60	30	0.82	0.9	0.83	С	27.33	18.37					
	Condensate Stabilizer Around Pump Condensate Air Cooler	0.4kV		×	24.60 24.60	30	0.82	0.9	0.83	S	07.00	40.07			27.33	18.37	
	Condensate Air Cooler Condensate Air Cooler	0.4kV 0.4kV		×	24.60	30 30	0.82 0.82	0.9 0.9	0.83 0.83	C C	27.33 27.33	18.37 18.37					
	Condensate Air Cooler Condensate Air Cooler	0.4kV 0.4kV		×	24.60 24.60	30 30	0.82	0.9 0.9	0.83	C C	27.33 27.33	18.37 18.37					
	Condensate Air Cooler (EA2204/2701/2403/2404)	0.4kV		×	12.15	15	0.81	0.88	0.83	1	21.55	10.07	13.8	9.3			
	Condenser Evaporative Air Cooler (EA2204/2701/2403/2404) EA2204/2701/2403/2404 spray pump skid	0.4kV 0.4kV		×	12.15 3.00	15 4	0.81	0.88	0.83	l C	3.66	2.55	13.8	9.3			
P-2431/B	EA2204/2701/2403/2404 spray pump skid	0.4kV		×	3.00	4	0.75	0.82	0.82	С	3.66	2.55					
P-2431/C	EA2204/2701/2403/2404 spray pump skid	0.4kV		×	3.00	4	0.75	0.82	0.82	С	3.66	2.55					
	Molecular Sieve Dehydration Units (03A)																
	Regen Gas Cooler Regen Gas Cooler	0.4kV 0.4kV		× ×	12.15 12.15	15 15	0.81 0.81	0.88 0.88	0.83 0.83	C C	13.81 13.8	9.28 9.28					
DB-SK24	Distribution board for Skid24(Lighting,electrical tracing)	0.4kV			2.04	5.4	0.72	0.82	0.82		4.9	3.36					
	Feed Gas Filter Distribution Box(Lighting,electrical tracing)	0.4kV 0.4kV		×	3.94 10.53	5.4 13	0.73 0.81	0.82	0.82	C C	4.8 12.0	8.04					
DB-SKE2301 I	Inlet Gas Chiller Distribution Box(Lighting)	0.4kV		×	4.38	6	0.73	0.82	0.82	С	5.3	3.73					
	Turbo Expander Units TE-2401 seal gas heater	0.4kV		×	32.80	40	0.82	0.9	1	С	36.4	0.0					
1	lube oil pump motor A	0.4kV		×	3.00	4	0.75	0.82	0.82	С	3.7	2.6					
	Space Heater lube oil pump motor A	0.4kV 0.4kV		×	0.08	0.1 4	0.75 0.75	0.82 0.82	1 0.82	S C	3.7	2.6			0.1	0.0	
	Space Heater lube oil cooler fan motors	0.4kV 0.4kV		×	0.08	0.1 4	0.75	0.82	1 0.82	S C	3.7	2.6			0.1	0.0	
S	Space Heater	0.4kV		×	0.08	0.1	0.75	0.82	1	S					0.1	0.0	
	lube oil cooler fan motors Space Heater	0.4kV 0.4kV		× ×	3.00 0.08	4 0.1	0.75 0.75	0.82 0.82	0.82 1	C S	3.7	2.6	0.1	0.0	0.1	0.0	
]	lube oil reservoir heater	0.4kV		×	2.25	3	0.75	0.82	1	С	2.7	0.0					
	local control panel	0.23kV	×			0	0.8		0.8	С	0.0	0.0					
	Absorber Bottom Pump	0.4kV		×	8.80	11	0.8	0.86	0.83	C	10.2	6.9				~ ~	
	Absorber Bottom Pump De-Ethnaizer Reflux Pump	0.4kV 0.4kV		×	8.80 12.15	11 15	0.8 0.81	0.86 0.88	0.83 0.83	S C	13.8	9.3			10.2	6.9	
P-2402B	De-Ethnaizer Reflux Pump	0.4kV 0.4kV		×	12.15 30.34	15 37	0.81 0.82	0.88 0.9	0.83 0.84	S C	33.7	21.8			13.8	9.3	
P.24024		0.467		×	30.34	37	0.02	0.9	0.04	0	33.7	21.0					
P-2403B	De-Butanizer Reflux Pump De-Butanizer Reflux Pump De-Propanizer Reflux Pump	0.4kV		×	30.34	37	0.82	0.9	0.84	S					33.7	21.8	

	Equipment	1	r	r	Absorbed Load (A)	Motor Ratings/O perating load (B)	Load Factor (C)=A/B	Efficiency (D)	Power Factor	Load Consumption Type	kW=		Consum	ed Load	kVAr=k		sheddi Ioad
ZEL Tag	Description	Voltage	Essential	Normal							Contii (E		intermit	tent (E)	Stan (G		
					kW	kW	In Decimals	%	COSΦ	C/VS	kW	kVAr	kW	kVAr	kW	kVAr	
EA-2401A	De-Butanizer OVHD Condenser Air Cooler	0.4kV			14.99	18.5	0.81	0.86	0.83		17.4	11.7					
EA-2401A EA-2401B	De-Butanizer OVHD Condenser Air Cooler	0.4KV		×	14.99	18.5	0.81	0.86	0.83	C C	17.4	11.7					
EA-2401C	De-Butanizer OVHD Condenser Air Cooler	0.4kV		×	14.99	18.5	0.81	0.86	0.83	С	17.4	11.7					
EA-2401D	De-Butanizer OVHD Condenser Air Cooler	0.4kV		×	14.99	18.5	0.81	0.86	0.83	С	17.4	11.7					
	Propane Refrigeration Units																
	Skid A oil pump A motor	0.4kV		×	4.02	5.50	0.73	0.82	0.82	С	4.9	3.4					××
	Skid A oil pump B motor Skid A separetor oil heater	0.4kV 0.4kV		×	4.02 2.25	5.50 3.00	0.73 0.75	0.82	0.82	C C	4.9 2.7	3.4 1.9					×× ××
	Field PLC-A	0.23kV	×	~	2.20	5.00	0.10	0.02	0.8	C	0.0						XX
	Skid B oil pump A motor	0.4kV		×	4.40	5.50	0.8	0.86	0.83	S					5.12	3.44	××
	Skid Boil pump B motor Skid B separetor oil heater	0.4kV 0.4kV		×	4.40 2.25	5.50 3.00	0.8 0.75	0.86	0.83	S S					5.12 2.74	3.44 1.92	×× ××
	Field PLC-B	0.23kV	×			5.00			0.8	S					5.0	5.0	
=																	
EA-2405/1 EA-2405/2	Common skid condenser cooling fan VF motor 1 Common skid condenser cooling fan VF motor 2	0.4kV 0.4kV		×	8.80 8.80	11.00 11.00	0.8 0.8	0.86 0.86	0.83	C C	10.2 10.2	6.9 6.9					×× ××
EA-2405/3	Common skid condenser cooling fan motor 1	0.4kV		×	8.80	11.00	0.8	0.86	0.83	c	10.2	6.9					xx
EA-2405/4	Common skid condenser cooling fan motor 2	0.4kV		×	8.80	11.00	0.8	0.86	0.83	С	10.2	6.9					××
	Common skid condenser VF motor 1 auxiliary cooling fan Common skid condenser VF motor 2 auxiliary cooling fan	0.4kV 0.4kV		×	0.17	0.23	0.75 0.75	0.82 0.82	0.82	C C	0.2	0.1 0.1					×× ××
P-2405/1	Common skid condenser ver motor 2 abiliary couling fan Common skid condenser water pump motor 1	0.4kV 0.4kV		×	12.15	15.00	0.75	0.88	0.83	c	13.8	9.3					xx
P-2405/2	Common skid condenser water pump motor 2	0.4kV		×	12.15	15.00	0.81	0.88	0.83	С	13.8	9.3					××
	Common skid evaporator oil collector electrical heater tracing Sale Gas Compressor unit	0.23kV		×	1.50	2.00	0.75	0.82	1	С	1.8	0.0					××
EA-2502A	Sale Gas Compressor unit Sale Gas Compressor evaporative Air Cooler	0.4kV		×	12.15	15	0.81	0.88	0.83	С	13.8	12.8					
EA-2502B	Sale Gas Compressor evaporative Air Cooler	0.4kV		×	12.15	15	0.81	0.88	0.83	С	13.8	12.8					
P-2510/1	spray pump skid	0.4kV		×	2.25	3	0.75	0.82	0.82	C C	2.74	1.92					
P-2510/2 P-2510/3	spray pump skid spray pump skid	0.4kV 0.4kV		×	2.25	3	0.75 0.75	0.82	0.82	c c	2.74	1.92 1.92					
	Storage And Loading Units panel																
6-DB-002	Sub Distribution panel-LPG Pump Shed	0.4kV		×					0.85	l.			82.5	51.1			××
P-2702A	including: OFF SPEC LPG Transfer Pump	0.4kV		×	8.80	11	0.8	0.86	0.83								
P-2702B	OFF SPEC LPG Transfer Pump	0.4kV		×	8.80	11	0.8	0.86	0.83	S							
P-2701A	LPG Loading Pump	0.4kV		×	24.60	30	0.82	0.9	0.83	I.							
P-2701B P-2701C	LPG Loading Pump LPG Loading Pump	0.4kV 0.4kV		×	24.60 24.60	30 30	0.82	0.9 0.9	0.83	I S							
P-2801A	Propane Loading Pump	0.4kV		×	6.00	7.5	0.8	0.86	0.83	1							
P-2801B	Propane Loading Pump	0.4kV		×	6.00	7.5	0.8	0.86	0.83	S							
	Assist Production Unit																
P-4101A	Methanol Injection Pump A	0.4kV		×	3.00	4	0.75	0.82	0.82	1			3.66	2.55			××
P-4101B	Methanol Injection Pump B	0.4kV		×	3.00	4	0.75	0.82	0.82	S					3.66	2.55	××
P-3301A	Slop Pump	0.4kV		×	8.80	11	0.8	0.86	0.83	1			10.23	6.88			×>
P-3301B	Slop Pump	0.4kV		×	8.80	11	0.8	0.86	0.83	S			10.20	0.00	10.23	6.88	xx
	LPG odorizer unit panel	0.4kV	×		0.54	0.72	0.75	0.82	0.82	l.			0.66	0.46			
	Hot Oil System																
	Hot Oil Electrical Control Panel UCP-3100-E/A																
	including:																
B-3101A P-3102	including: Hot Oil Fired Heater Blower	0.4kV 0.4kV		×	12.15 12.15	15 15	0.81	0.88	0.83	C	13.81	9.28	13.81	9.28			
B-3101A P-3102	including: Hot Oil Fired Heater Blower Hot oil fill pumps Hot Oil Electrical Control Panel UCP-3100-E/B		×	×××	12.15 12.15	15 15 0	0.81 0.81 1	0.88			13.81 0.00	9.28 0.00	13.81	9.28			
P-3102	including: Hot Oil Fired Heater Blower Hot oil fill pumps Hot Oil Electrical Control Panel UCP-3100-E/B including:	0.4kV 0.23V	×	×	12.15	15 0	0.81 1	0.88	0.83 0.8	l C	0.00	0.00	13.81	9.28			
	including: Hot Oil Fired Heater Blower Hot oil fill pumps Hot Oil Electrical Control Panel UCP-3100-E/B	0.4kV	×	×	12.15 140.80	15	0.81		0.83	- I			13.81	9.28			
P-3102 P-3101A	including: Hot Oil Fired Heater Blower Hot oil fill pumps Hot Oil Electrical Control Panel UCP-3100-E/B including: Hot Oil Circulation Pump Hot Oil Fired Heater Blower Hot Oil Electrical Control Panel UCP-3100-E/C	0.4kV 0.23V 0.4kV	×	×	12.15	15 0 160	0.81 1 0.88	0.88	0.83 0.8 0.89	I C C	0.00	0.00	13.81	9.28			
P-3102 P-3101A B-3101B	including: Hot Oil Fired Heater Blower Hot oil fill pumps Hot Oil Electrical Control Panel UCP-3100-E/B including: Hot Oil Fired Heater Blower Hot Oil Fired Heater Blower Hot Oil Electrical Control Panel UCP-3100-E/C including:	0.4kV 0.23V 0.4kV 0.4kV		× × ×	12.15 140.80 12.15	15 0 160 15 0	0.81 1 0.88 0.81 1	0.88	0.83 0.8 0.89 0.83 0.83	I C C C C	0.00 151.40 13.81	0.00 77.56 9.28	13.81	9.28			
P-3102 P-3101A B-3101B P-3101B	including: Hot Oil Fired Heater Blower Hot Oil Electrical Control Panel UCP-3100-E/B including: Hot Oil Circulation Pump Hot Oil Fired Heater Blower Hot Oil Electrical Control Panel UCP-3100-E/C including: Hot Oil Circulation Pump	0.4kV 0.23V 0.4kV 0.4kV 0.4kV		× × × ×	12.15 140.80 12.15 140.80	15 0 160 15 0 160	0.81 1 0.88 0.81 1 0.88	0.88	0.83 0.8 0.89 0.83 0.83 0.8 0.8	I C C C C C	0.00	0.00	13.81	9.28	12.81	9.28	
P-3102 P-3101A B-3101B	including: Hot Oil Fired Heater Blower Hot oil fill pumps Hot Oil Electrical Control Panel UCP-3100-E/B including: Hot Oil Fired Heater Blower Hot Oil Fired Heater Blower Hot Oil Electrical Control Panel UCP-3100-E/C including:	0.4kV 0.23V 0.4kV 0.4kV		× × ×	12.15 140.80 12.15	15 0 160 15 0	0.81 1 0.88 0.81 1	0.88	0.83 0.8 0.89 0.83 0.83	I C C C C	0.00 151.40 13.81	0.00 77.56 9.28	13.81	9.28	13.81	9.28	
P-3102 P-3101A B-3101B P-3101B B-3101C	Including: Hot Oil Find Heater Blower Hot oil Find Heater Blower Hot Oil Electrical Control Panel UCP-3100-E/B Including: Hot Oil Circulation Pump Hot Oil Find Heater Blower Hot Oil Electrical Control Panel UCP-3100-E/C Including: Hot Oil Circulation Pump Hot Oil Circulation Pump Hot Oil Fired Heater Blower	0.4kV 0.23V 0.4kV 0.4kV 0.4kV 0.4kV	×	× × × ×	12.15 140.80 12.15 140.80 12.15	15 0 160 15 0 160 15	0.81 1 0.88 0.81 1 0.88 0.81	0.88	0.83 0.8 0.89 0.83 0.83 0.8 0.89 0.83	I C C C C C S C	0.00 151.40 13.81 151.40	0.00 77.56 9.28 77.56	13.81	9.28	13.81		
P-3102 P-3101A B-3101B P-3101B B-3101C P-3101C	including: Hot Oil Fired Heater Blower Hot oil FiledHeater Blower Hot Oil Electrical Control Panel UCP-3100-E/B including: Hot Oil Fired Heater Blower Hot Oil Fired Heater Blower Hot Oil Electrical Control Panel UCP-3100-E/C including: Hot Oil Circulation Pump Hot Oil Fired Heater Blower Hot Oil Fired Heater Blower Hot Oil Electrical Control Panel UCP-3100-E/D including: Hot Oil Circulation Pump	0.4kV 0.23V 0.4kV 0.4kV 0.4kV 0.4kV 0.4kV	×	× × × × ×	12.15 140.80 12.15 140.80 12.15 140.80	15 0 160 15 0 160 15 0 160	0.81 1 0.88 0.81 1 0.88 0.81 1 1 0.88	0.88 0.93 0.88 0.93 0.93 0.88 0.93	0.83 0.8 0.89 0.83 0.8 0.8 0.89 0.83 0.8 0.8	I C C C C C S C S S	0.00 151.40 13.81 151.40	0.00 77.56 9.28 77.56	13.81	9.28	151.40	77.56	
P-3102 P-3101A B-3101B P-3101B B-3101C	including: Hot Oil Find Heater Blower Hot Oil Electrical Control Panel UCP-3100-E/B including: Hot Oil Circulation Pump Hot Oil Fined Heater Blower Hot Oil Electrical Control Panel UCP-3100-E/C including: Hot Oil Circulation Pump Hot Oil Fined Heater Blower Hot Oil Fined Heater Blower Hot Oil Electrical Control Panel UCP-3100-E/D including:	0.4kV 0.23V 0.4kV 0.4kV 0.4kV 0.4kV	×	x x x x x	12.15 140.80 12.15 140.80 12.15	15 0 160 15 0 160 15 0	0.81 1 0.88 0.81 1 0.88 0.81 1	0.88	0.83 0.8 0.89 0.83 0.83 0.89 0.83 0.83	I C C C C C S C	0.00 151.40 13.81 151.40	0.00 77.56 9.28 77.56	13.81	9.28			

				Absorbed Load (A)	Motor Ratings/O perating load (B)	Load Factor (C)=A/B	Efficiency (D)	Power Factor	Load Consumption Type			Consumed Load		kVAr=kW•tanΦ		shedding Ioad	
ZEL Tag	Description	Voltage	Essential	Normal	kW	kW	In		COSΦ	C/VS	Continous (E) kW kVAr		intermittent (E) kW kVAr		Stand-by (G) kW kVAr		
					NV	NVV	Decimals	%	0034	Chi3							
	MCC-2# UTILITIES&OFFSITES Fire Water and water Treatment System										158.00	99.36	154.23	95.58	40.00	24.79	
	Raw Water Treatment Shed Distribution Board	0.4kV		×					0.85		10.00	6.20					××
	including:																
P-3701A	Raw water pumps	0.4kV		×	2.25	3	0.75	0.82	0.82	С							
	Raw water pumps	0.4kV		×	2.25	3	0.75	0.82	0.82	С							
P-3701C	Raw water pumps	0.4kV		×	2.25	3	0.75	0.82	0.82	S							
	Raw Water Tank Pump	0.4kV		×	2.25	3	0.75	0.82	0.82	1							
	Raw Water Tank Pump	0.4kV		×	2.25	3	0.75	0.82	0.82	S							
TK-3501-TR	TR/TC	0.4kV		×	2.25	3	0.75	0.82	0.82	С							
TK-3702-TR	TR/TC	0.4kV		×	2.25	3	0.75	0.82	0.82	С							
	Produced Water Treatment Pump Shed Distribution Board including:								0.85		50.00	30.99					××
	Oily water pumps	0.4kV		×	4.02	5.5	0.73	0.82	0.82	I							
	Oily water pumps	0.4kV		×	4.02	5.5	0.73	0.82	0.82	S							
P-4001A	Diesel Transfer Pump	0.4kV		×	4.02	5.5	0.73	0.82	0.82	I.							
P-4001B	Diesel Transfer Pump	0.4kV		×	4.02	5.5	0.73	0.82	0.82	S							
	Produced water disposal pumps	0.4kV		×	6.00	7.5	0.8	0.86	0.83	С							
	Produced water disposal pumps	0.4kV		×	6.00	7.5	0.8	0.86	0.83	S							
	DB for Produce water Treatment Package	0.4kV		×	15.80	19.5	0.81	0.86	0.83	1							
TK-3501-TR	TR/TC	0.4kV		×	0.68	0.9	0.75	0.82	0.82	С							
MCC-TR-3701	Raw Water Treatment Shed Distribution Board	0.4kV		×		<b></b>			0.85	с	56.00	34.71					××
	Raw Water Treatment Shed Distribution Board	0.4kV		×					0.85	1	50.00	54.71	54.00	33.47			××
MCC-TR-3702	Raw Water Treatment Shed Distribution Board			×					0.825	С	22.00	15.07					××
000-SDB-001	Sub Distribution panel-Road lighting	0.4kV		×					0.85	1			7.50	4.65			×
	Sub Distribution panel-Road lighting	0.4kV		×					0.85	- I			4.00	2.48			×
	Sub Distribution panel-Road lighting	0.4kV		×		<b></b>			0.85	1			5.00	3.10			×
	Sub Distribution panel-process area lighting Sub Distribution panel-process area lighting	0.4kV 0.4kV		×					0.85	1			3.00 7.20	1.86 4.46			×
	Sub Distribution panel-process area lighting	0.4kV		×					0.85				5.00	3.10			×
	Sub Distribution panel-process area(linght.electrical tracing)	0.4kV		×					0.85	1			26.00	16.11			×
004-SDB-001	Sub Distribution panel-Molecular Sieve Dehydration Units	0.4kV		×					0.85	I			0.5	0.33			×
	(Lighting) Sub Distribution panel-LPG and Propane Storage Area (lighting)	0.4kV		×					0.85	1			1.0	0.6			
	Sub Distribution panel-04A (Electric Tracing)	0.4kV		×					0.85	C	10.0	6.2					
	Sub Distribution panel-04A (Lighting fixture)	0.4kV		×					0.85	l.			10.0	6.2			
001-SDB-103	Sub Distribution panel -04B(Electric Tracing)	0.4kV		×					0.85	С	10.0	6.2					
	010-DB-01-CCR(Lighting,Convenience receptacle)	0.4kV		×					0.85	1			31.00	19.21			×
	001-WSO-001, 001-WSO-002	0.4kV		×					0.85	S					10.00	6.20	
-	001-WSO-003, 001-WSO-00 002-WSO-001	0.4kV 0.4kV		×					0.85 0.85	s s					10.00 10.00	6.20 6.20	
~	010-WSO-001	0.4kV 0.4kV		×					0.85	S					10.00	6.20	
	MCC3# ESSENTIAL BUT CAN BE SHED		-			<u> </u>			$\left  - \right $								
	Optional building load (011-SDB-001~006)	0.4kV		×	250.00	250			0.85	С	250.00	168.00					×
							NOP	I MALAND E	SSENT		1020.00	1200.05	566.20	363.62	847.18	521.35	
										TOTAL WITH	<b>1988.39</b> 1988.39	1298.35 1298.35	283.15	181.81	847.18	521.35	
									.5 / 0.1								
							SHEDDING LOAD 100kW EXISTING LOAD DON'T BE SHED				471.56	<b>246.60 154.01</b>					
							THE TOT		WITHO	UT BE SHED	193	37					
Notes:																	
	Multiplication Factor for Continuous Load = 100%																
1 2	Multiplication Factor for Intermittent Load = 50%																
1 2 3	Multiplication Factor for Intermittent Load = 50% Multiplication Factor for Stand by Load = 10%(Normal)																
1 2 3 4	Multiplication Factor for Intermittent Load = 50%			Standbul													

### Attachment - 2 Essential load list

Equipment					Absorbed Load (A)	Motor Ratings/Ope rating load (B)	Load Factor (C)=A/B	Efficiency (D)	Power Factor	Load Consumption Type	kW=A/D		Consumed Load		kVAr=kW-tanΦ Stand-by		shedding Ioad
ZEL Tag	Description	Voltage	Essential	Normal			In				(E	Ì	intermittent (E)		(G)		
					kW	kW	Decimals	%	COSΦ	C/I/S	kW	kVAr	kW	kVAr	kW	kVAr	
	1# Distribution panel in sound attenuation container	0.4kV	×						0.8	С	18.00	13.50					
	1# gas generator Parallel control panel	0.23kV	×						0.8	1			15.00	11.3			
	including:																
	Jacket Water Heater	0.23kV	×		7.20	9	0.8	0.86	1	I.							
	Alternator Space Heater	0.23kV	×		1.50	2	0.75	0.82	1	1							
	Pre-Lube Pump	0.23kV	×		1.50	2	0.75	0.82	0.82								
	Fire Extinguishing System	0.23kV	×		1.50	2	0.75	0.82	0.82	1							
	Fire Extinguishing System	0.23kV	×		1.50	2	0.75	0.82	0.82	1							
	1# Radiator fan panel	0.4kV	×														
	including:																
	Radiator Fan(power:2.2kW set:12	0.4kV	×		1.65	2.2	0.75	0.82	0.82	С	26.40	18.4					
	2# Distribution panel in sound attenuation container	0.4kV	×						0.8	С	18.00	13.50					
	2# gas generator Parallel control panel	0.4kV	×						0.8	l I			15.00	11.3			
	including:																A
	Jacket Water Heater	0.23kV	×		7.20	9	0.8	0.86	1	l I							$_$ $\land$
	Alternator Space Heater	0.23kV			1.50	2	0.75	0.82	1	1.00							1
	Pre-Lube Pump	0.23kV			1.50	2	0.75	0.82	0.82	1.00							101
	Fire Extinguishing System	0.23kV			1.50	2	0.75	0.82	0.82	I.							
	Fire Extinguishing System	0.23kV			1.50	2	0.75	0.82	0.82	1							
	2# Radiator fan panel	0.4kV	×														
	including:																
	Radiator Fan(power:2.2kW set:12)	0.4kV	×		1.65	2.2	0.75	0.82	0.82	С	26.40	18.4					
	3# Distribution panel in sound attenuation container	0.4kV	×						0.8	S					18.00	13.50	
	3# gas generator Parallel control panel	0.4kV	×						0.8	S					15.00	11.3	
	including:																
	Jacket Water Heater	0.23kV	×		7.20	9	0.8	0.86	1	S							
	Alternator Space Heater	0.23kV	×		1.50	2	0.75	0.82	1	S							
	Pre-Lube Pump	0.23kV	×		1.50	2	0.75	0.82	0.82	S							
	Fire Extinguishing System	0.23kV	×		1.50	2	0.75	0.82	0.82	S							
	Fire Extinguishing System	0.23kV	×		1.50	2	0.75	0.82	0.82	S							
	3# Radiator fan panel	0.4kV	×														
	including:																
	Radiator Fan(power:12kW set:12)	0.4kV	×		1.65	2.2	0.75	0.82	0.82	С					26.4	18.4	
	Diesel engine generator Auxiliary electricity panel	0.4kV	×						0.8	С	15.0	11.3					
	including:	0. 11.							0.0								
	Jacket water heater	0.23kV	×		6.75	9	0.75	0.86	1	С							
	Alternator space heater	0.23kV	×		0.75	1	0.75	0.82	1	C							
	Alternator space neater fire extinguishing system	0.23kV 0.23kV	×		1.50	2	0.75	0.82		<u>с</u>							
		0.23kV 0.23kV	×		1.50	2	0.75	0.82	0.82	<u>с</u>							
	fire extinguishing system	0.2387	^		1.50	2	0.75	0.02	0.02								
	Watch towers(5 NOS.)	0.434							0.05	С	10.00	6.0					
		0.4kV	×						0.85		10.00	6.2					
	Load of UPS	0.4kV	×						0.8	С	96.00	72.00					
	Electrical Building 010-EDB-002 (Lighting and Ventilator)	0.4kV	×						0.85	<u> </u>			6.3	3.90			
	Electrical Building 010-EDB-003(Lighting and Ventilator)	0.4kV	×						0.85	1		10	1.2	0.74			
	Electrical Building 010-EDB-004 (HVAC)	0.4kV	×						0.85	С	30	18.59					
	Electrical Building 010-EDB-005 (HVAC)	0.4kV	×						0.85	С	6	3.72					

	Equipment	Absorbed Load (A)	Motor Ratings/Ope rating load (B)	Load Factor (C)=A/B	actor (D)		Load Consumption Type					kVAr=kW•tanΦ		shedding Ioad			
ZEL Tag	Description	Voltage	Essential	Normal							Conti (E		intermi	tent (E)	Stand-by (G)		
					kW	kW	In Decimals	%	COSΦ	C/I/S	kW	kVAr	kW	kVAr	kW	kVAr	
	Electrical Building 010-EDB-006(Lighting and Ventilator)	0.4kV	×						0.85	l I			6	3.72			
	Electrical Building 010-EDB-007(Lighting and Ventilator)	0.4kV	×						0.85	1.00			6	3.72			
SPAC-001A	CCR-Control Box of the Package Air Condition Units	0.4kV	×						0.85	С	90.00	55.78					
SPAC-001B	CCR-Control Box of the Package Air Condition Units	0.4kV	×						0.85	S					90.00	55.78	
010-EDB-01	Sub Distribution panel-CCR (Lighting fixture,axial fan)	0.4kV	×						0.85	l I			25.00	15.49			
001-EDB-004	Sub Distribution panel-process area lighting	0.4kV	×						0.85	1.00			4.50	2.79			
001-EDB-802	Sub Distribution panel-lighting	0.4kV	×						0.85	l I			3.00	1.86			
001-EDB-005	compressor room	0.4kV	×						0.85	I.			4.00	2.48			
001-EDB-501	Sub Distribution panel-hot oil system(lighting)	0.4kV	×						0.85	l I			1.00	0.62			
K-3401A/B	MCC-K-3401A/B Instrument Air Compressor panel	0.4kV	×														
	including:																
	Air compressor A	0.4kV	×		65.25	75.00	0.87	0.92	0.87	I			70.92	40.19			
	Air compressor B	0.4kV	×		65.25	75.00	0.87	0.92	0.87	I			70.92	40.19			
	Space heater A	0.23	×		2.25	3.00	0.75	0.82	1	I			2.74	0.00			
	Space heater B	0.23	×		2.25	3.00	0.75	0.82	1	I			2.74	1.92			
	Air cooler A	0.23	×		0.29	0.38	0.75	0.82	0.82	I			0.35	0.24			
	Air cooler B	0.23	×		0.29	0.38	0.75 0.75	0.82	0.82	1			0.35	0.24			
	Dryer	0.23	×		0.30	0.40		0.82	0.82		<u></u>		0.37	0.26			
	Nitrogen generator spare	0.23	×		2.25	3.00	0.75 0.75	0.82	0.82				2.74	1.92			
	Inlet power	0.23	×		0.38	0.50	0.75	0.82	0.82				0.46	0.32			
		0.20	<u>^</u>		0.00	0.00	0.70	0.02	0.02				0.10	0.02			
	Flare System																
009-EDB-001	Sub Distribution panel-Flare System Powe		×						0.85		45.00	27.89					
including																	
E-3201	Flare electrical heater	0.4kV	×		24.60	30	0.82	0.9	1	С							
P-3201 A	Flare Knockout drum pumps	0.4kV	×		8.80	11	0.8	0.86	0.83	С							
P-3201 B	Flare Knockout drum pumps	0.4kV	×		8.80	11	0.8	0.86	0.83	S							
FS-3201	Flare Ignition Panel (Power suppied by UPS)	0.4kV	×		0.00	2											
	Main Fire Water Pumps(Motor Driven) Electrical Control Panel	0.4kV	×		88.00	100	0.88	0.93	0.88	С	94.62	51.07					
	Main Fire Water Pumps(Motor Driven) Electrical Control Panel	0.4kV	×		88.00	100	0.88	0.93	0.88	С	94.62	51.07					
	Main fire water pumps(deisel engine driver)	0.4kV	×		1.50	2	0.75	0.82	0.75	С	1.83	1.61	10-55	10.10			
MCC-PU-3501	Jockey Pump Skid (PU-3501)								0.83				18.50	12.43			
P-3503A	Including:	0.4kV			14.99	18.5	0.81	0.86	0.83	1							
P-3503A P-3503B	Jockey pumps Jockey pumps	0.4kV	×		14.99	18.5 18.5	0.81	0.86	0.83	I S							

	Absorbed Load (A)	Motor Ratings/Ope rating load (B)		Efficiency (D)	Power Factor		kW=A/D		Consumed Load		kVAr=kW•tanΦ		shedding Ioad				
ZEL Tag	Description	Voltage	Essential	Normal							Continous (E)		intermittent (E)		Stand-by (G)		
ZEE Tag	Description	voltage	Losential	Norman	kW	kW	In Decimals	%	COSΦ	C/I/S	kW	kVAr	kW	kVAr	kW	kVAr	
MCC-PU-3502	Foam Injection Skid Electrical Control Panel	0.4kV	×		16.40	20	0.82	0.86	0.83	С	19.07	12.81					
007-EDB-001	Sub Distribution panel-Fire Fighting Shed Lighting EDB	0.4kV	×						0.85	I.			4.00	2.48			
	Sub Distribution panel-04A (Lighting fixture)	0.4kV	×						0.85	l I			4.00	2.48			
004-EDB-002	Sub Distribution panel-Dehydration (Mol.Sieve) Unit	0.4kV	×						0.85	1			1.50	0.93			
	Optional building load (011-SDB-001~006)	0.4kV		×					0.85	С	250.00	168.00					
							NORMAL AND ESSENTIALTOTAL NORMAL AND ESSENTIAL TOTAL WITH DIVERSITY FACTOR OF 0.5 / 0.1				554.95	375.85	247.46	161.68	149.40	98.95	
											554.95	375.85	123.73	80.84	14.94	9.90	
Neter								1	1	1							
Notes:	Multiplication Factor for Continuous Load = 100%		+														
2	Multiplication Factor for Continuous Load = 100% Multiplication Factor for Intermittent Load = 50%		+			-							-				
3	Multiplication Factor for Stand by Load = 10%(Normal)		+														
4	Normal Operation Load(Maximum) =100% of Continuous Lo	ad + 50% of Inter	mittent Loa	1			+										
5	Normal Operation Load(Naximun) = 100% of Continuous Load				ndby Load												
6	The optional building loads should be blackout when the two				,	the essential	L continous	loads don't	inlude th	e ontional built	ling loads						