

Environmental Monitoring Report

2018 2nd Semestral Report
January 2019

ARM: Power Transmission Rehabilitation Project

Prepared by the Closed Joint Stock Company Electro Power Systems Operator (EPSO) for the Republic of Armenia and the Asian Development Bank (ADB).

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1 Part I - Introduction

The present Environmental Monitoring (EM) Report summarizes/cover the Environmental, Health & Safety status of project supervision 6 months (July - December 2018) by EPSO CJSC.

The report contains the following sections:

Part II. Status of construction work programme

Part III. Environmental, Health and Safety Management and document review, {including

- *EHS staff situation for July-December 2018 period*
- *Public hearings, awareness raising and staff trainings*
- *EHS safeguard program*

Part IV. EHS Monitoring

- *SEMP implementation monitoring*
- *Site visits and inspections*
- *Complaints received*
- *Safety situation and accident report*
- *Other relevant EHS issues*

Part V. Action plan for the next period (quarter)

The main accomplishments of assignment for the July – December 2018 period were:

- The Initial Environmental Evaluation (IEE (prepared by the former Consultant “Fichtner”) in accordance to the new task assignments of the Project (Back up Dispatch Center design and construction) finalized and reviewed by ADB in July 2018.
- Site Specific Environmental Management Plan (developed by Contractor Redinet/Siemens) in accordance to the project specific EH&S requirements/forms and as integral part in line with ADB Guidelines was finalized and approved by Consultant (Lahmeyer International GmbH/CESI S.P.A. /Ameria CJSC) and reviewed by ADB in July 2018.
- Public hearing, awareness raising and Contractor staff EHS trainings are carried out.
- Monitoring of SEMP implementation throughout the site visits, site inspection and document review was conducted.
- Regular meetings (monthly Technical Coordination Meetings/TCM) organized by Consultant with Client and Contractor staff.
- Review of Contractor’s Monthly EHS monitoring reports was carried out by Consultant (see example of MEHSMR annex 14).

Site Specific Environmental Management Plan implementation details, fact findings and project further EHS execution was been discussed and agreed during the monthly Technical Coordination Meetings/TCMs and working meetings and site visits with Consultant and ADB representatives.

2 Part II - Status of Construction Work Programme

In the frame of the Project, the following construction activities were implemented during the reporting period:

Started from 21st of June, 2018 Redinet CJSC and Siemens Aktiengesellschaft, Österreich Consortium (hereby Contractor) started mobilisation for Extension and Upgrade of the SCADA/EMS Project implementation.

Construction works on OPGW 220 kV "Sipan" transmission line (from Shahumyan-2 substation to Arm NPS, see map 2.1.) under the Extension and Upgrade of the SCADA/EMS (hereby Project) within the framework of "Power Transmission Rehabilitation Project" was commenced on July 19, 2018 and finalized on September 15, 2018 (see monthly status details of construction works for 19th of July – 15th September, 2018 in annex 1 and 2).

In the beginning of September Contractor started mobilisation, preparation works in the Back-Up Dispatch Centre (Back-Up DC, see map 2.2.).

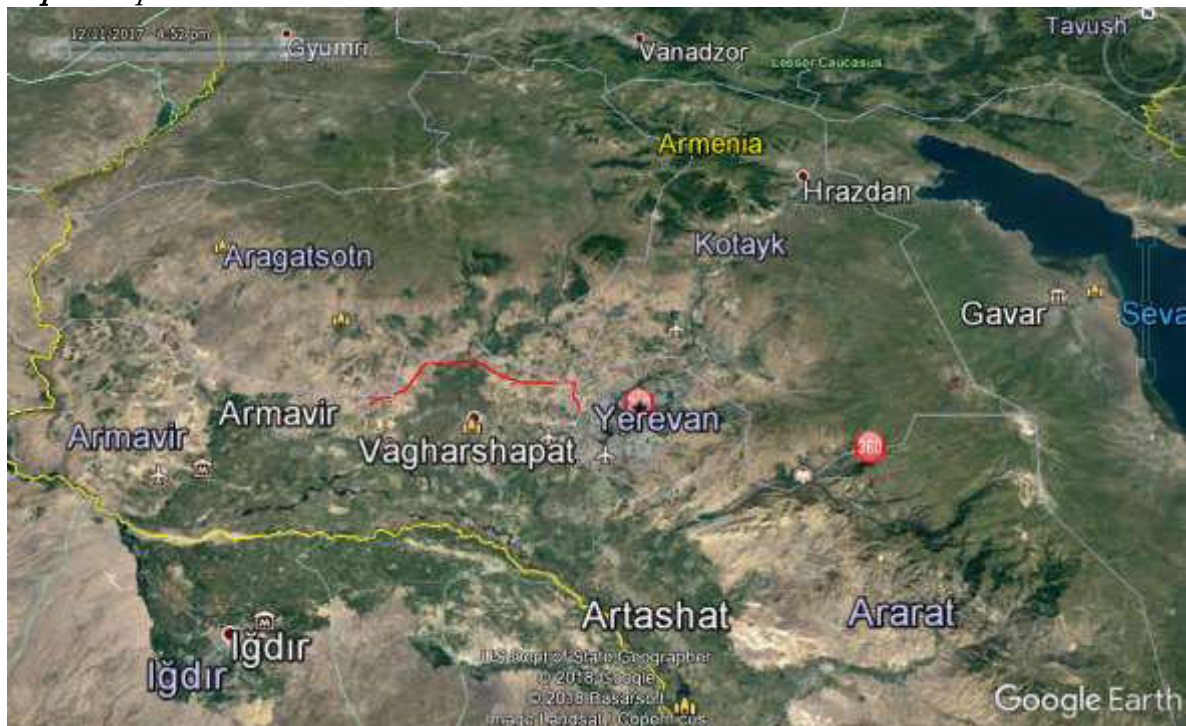
Back-Up Dispatch Centre construction works commenced by Contractor on 20th of September, 2018, based on Client request letter approval to the Yerevan Municipality, dated 17.09.2018 (see annexes 3 to 7)

Started from 19th of September till end of October, 2018, Contractor started Preparation and OPGW uprolling works on Agarak - Megri section of "Megri-2" line (see map 2.3.).

From November 1st to December 30th, 2018 Contractor started and finalized OPGW stringing and fixing works on Agarak – Megri sections of "Megri-2" line (see annexes 4 to 7).

Details of by-monthly status of construction works (OPGW and Back-Up DC) for the 19th September – 31st December 2018 period is presented in annexes 1 to 7.

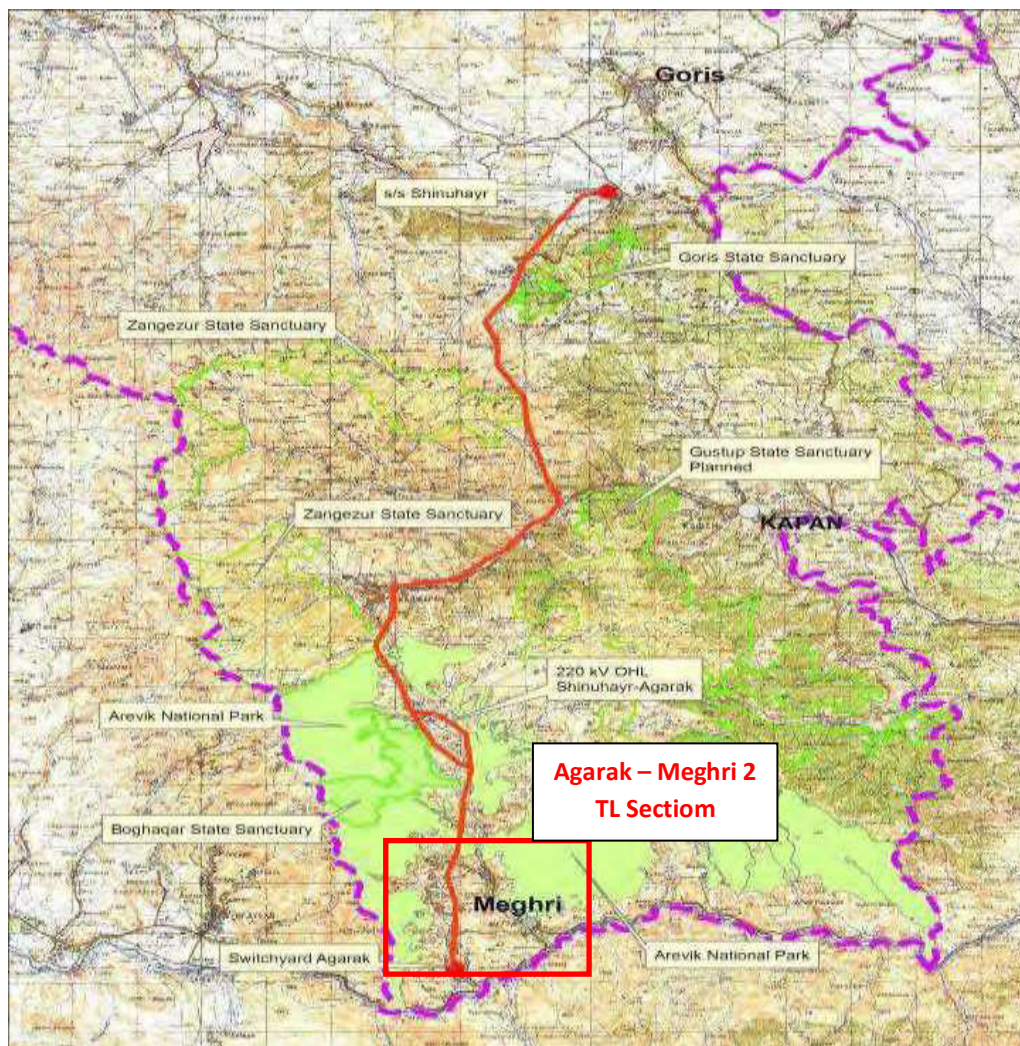
Map 2.1. Sipan Transmission line location



Map 2.2. Back-up Dispatch Centre location



Map 2. Agarak – Meghri 2 Transmission line location



3 Part III - Environmental Management and Document Review

During the reporting period (July - December 2018) Initial Environmental Evaluation (IEE upgraded by Consultant) report and Site Specific Environmental Management Plan (SEMP developed by Contractor) according to the new task assignment (Back up Dispatch Centre design and construction), Safety & Environmental, Health & Safety (EHS) requirements (based on ADB EHS Safeguards, have been submitted to and reviewed by ADB end of July.

Based on the IEE and SEMP Consultant and Contractor EHS responsible conducted regular and randomly inspections, site visits to the construction areas and documented EHS Compliance and none conformities (EHS Checklist and photos (see annex 8, weekly, examples of monthly EHS checklists of Consultant and Contractor).

Summary of EHS compliance/ non-conformities, relevant corrective action plan and EHS status documented on monthly bases and reported to the Client (see details Part IV – Environmental Monitoring).

3.1 Part III – a. EHS staff situation for July-December 2018 period

The following Consultant and Contractor staff was involved to conduct EHS management/supervision and Monitoring requirements of the Project:

Program Implementation Unit EHS staff

Mr. Eduard Fatyan, Leading Engineer, Responsible of Project EHS Management

Consultant/ Lahmeyer International GmbH/CESI S.P.A. /Ameria CJSC EHS staff

Mr. Armen Bodoyan, Environmental, Health and Safety Expert

Contractor/ Redinet/Siemens HSE staff

Mr. Tigran Oganezov, Environmental Specialist

Mr. Mesrop Mesropyan, Health and Safety Specialist

3.2 Part III – b. EHS safeguard program

During the reporting period Contractor and Consultant EHS team implemented the following activities:

- b.1. Organized and conduct the pre-construction meetings, public hearing with EHS information disclosure.
- b.2. EHS trainings, work specific instructions and toolbox meetings conducted for Contractor staff.
- b.3. Waste management/supervision and monitoring
- b.4. Topsoil management/supervision and monitoring
- b.5. Traffic management/supervision and monitoring
- b.6. EHS inspection and monitoring

Detailed description of EHS activates are presented below

3.2.1 b.1. Meetings, public hearings, awareness raising

Before start of construction of OPGW installation works (Sipan and Meghri 2 lines), pre-construction meeting with AEN CJSC, HVEN SCJC representatives was conducted in 22nd and 29th of June respectively, to introduce Project details, to disclose Project related EHS risks and mitigation measures to be implemented. Since Construction works were implemented far from existing roads and inhabitation places there were no nearby community representatives involved. Representatives from ArmAtom CJSC, RA Road Policy, Arevik National park and Mazpetarans (from Aragatsotn, Armavir, Syunik local self governmental bodies).

To fully comply with the ADB's policy and contractual requirements on Public Consultation and Information Disclosure the public hearing with participation of affected people (ArmAtom CJSC representatives and residents of the buildings and houses situated nearby the Back Up DC Construction site) has been organized on 26 of October 2018 in ArmAtom CJSC conference room (Admiral Isakov 50/2). Relevant awareness measures have been carried out in order to ensure the sensitive receptor's participation. The posters announcing the date, place and purpose of Public hearing were attached on the visible places on 20 of October. Information of upcoming public hearing was also distributed among affected persons.

The aim of public hearing was to provide timely disclosure of relevant and adequate information that is understandable and accessible to affected people, to present to the affected people and other stakeholder the project implementation issues, risks and mitigation measures, as well as to respond to the needs of disadvantaged and vulnerable groups.

During the meeting the upcoming Back Up DC construction works, environmental concerns and proposed mitigation measures was made available to the public, the relevant authorities and other interested parties. It was noted that surveys showed that the potential negative/adverse impacts of the Project would be temporary and would be mitigated and minimized through measures specified by the environmental management plan. Around 15 residents of the buildings and houses situated nearby the Back Up DC Construction site and ArmAtom CJSC workers was participated in this Public hearings (detailed information, meeting minutes and list of participants presented in the Annex 9).

3.2.2 b.2. Trainings, Inductions, Toolbox meetings

Contractor organized and implemented EHS training for the engineering staff, foremen and workers of Redinet LLC before commencement of works on 20th and 22nd of July 2018. (Trainings agenda and attendance list attached in the Annex 10)

As a result of the planned environmental and H&S course construction workers was informed on the IEE/EMP/SEMP, particularly on the possible environmental and H&S negative impacts as well as their mitigation measures during the Project implementation. Particularly Contractor's workers were passed the following trainings and inductions/instructions:

- ✓ Emergency preparedness and plan (25 minutes)
- ✓ Risk of work, work safety standards (working on-height, fall protection, working near HV power lines, electrical safety, safety of drivers and machinery operators), and proper use of PPE's (45 minutes)
- ✓ Environmental impacts of the construction works (20 minutes)
- ✓ Mitigation and preventive measures of environmental impacts (biodiversity, soil and air pollution, waste management, 45 minutes)

- ✓ Protection from the poison snakes and scorpions bits (20 minutes)
- ✓ Fire Protection (25 minutes)

All involved staff of Redinet LLC was certified on electrical safety (el. safety Group 3 to 5) and had valid Certificates for their assignment. In total, 6 certified specialist were involved to implement OPGW installation works in Sipan and Meghri- 2 transmission lines, within total 138 working days (1104 hours) and in average 15 construction specialist were involved at Back-up DC construction works within total 84 working days (672 hours) till end of December 2018.

Next EHS training session was organized and implemented by Contractor for the engineering staff, foremen and workers of Redinet LLC involved on Back-Up Dispatch Centre construction on 26th and 27th of September 2018. (Trainings agenda and attendance list attached in the Annex 10)

As a result of the planned EHS training session, construction workers was informed on the IEE/EMP/SEMP, particularly on the likely environmental and H&S negative impacts as well as their mitigation measures during the Project implementation. Particularly Contractor's workers were passed the following trainings and instructions:

- ✓ Emergency plan, which should be done in case of emergency (25 minutes)
- ✓ Risk of work, work safety standards (working on-height, fall protection, working near HV power lines, electrical safety, safety of drivers and machinery operators), and proper use of PPE's, (45 minutes)
- ✓ Environmental impacts of the construction works (soil and air pollution, waste management, 20 minutes)
- ✓ Mitigation and preventive measures of environmental impacts, (45 minutes)
- ✓ Protection from the poison snakes and scorpions bits. (20 minutes)
- ✓ Fire protection (25 minutes)

Also, the Contractor organized and implemented EHS toolbox meetings and work specific instructions on daily bases at all construction sites. Register of trainings, tool box meetings and work specific instructions kept at all construction sites (see annex 11).

Summary of training and toolbox meeting/instruction hours are presented below in table 1.

Table 1. training and toolbox meeting/instruction summary matrix

N	Construction site	Date	Training/TBM/Instructions	Staff number	Duration (m)	Total hours (H)
	OPGW 220 kV "Sipan" and "Megri-2" transmission line	20, 22 July, 2018	<ul style="list-style-type: none"> ✓ Emergency preparedness and plan, ✓ Risk of work, work safety standards (working on-height, fall protection, working near HV power lines, electrical safety, safety of drivers and machinery operators), and proper use of PPE's, ✓ Environmental impacts of the construction works (Biodiversity, soil and air pollution, waste management ✓ Mitigation and preventive measures of environmental impacts ✓ Protection from the poison snakes and scorpions bits ✓ Fire protection 	6	25 45 20 45 20 25	18

2	Back-Up Despatch Centre	26, 27 September, 2018	<ul style="list-style-type: none"> ✓ Emergency preparedness and plan, ✓ Risk of work, work safety standards (working on-height, fall protection, working near HV power lines, electrical safety, safety of drivers and machinery operators), and proper use of PPE's, ✓ Environmental impacts of the construction works (soil and air pollution, waste management ✓ Mitigation and preventive measures of environmental impacts ✓ Protection from the poison snakes and scorpions bites ✓ Fire protection 	15	25 45 20 45 20 25	45
3	All sites	138 working days	Tool box meeting and work specific instructions	21	15	724.5
Total		242		42		787,5

3.2.3 b.3. Waste volumes, types and disposal

The following waste was generated and handled during the reporting period:

OPGW installation sites (Sipan and Megri 2 transmission lines): Construction waste generated as a result of removal of old grounding wires is temporary collected in the Redinet CJSC base in Yerevan before handed over to HVEN. All used/empty coils of Fiber Optic Cables and dismantled/changed old equipment temporary collected in the Redinet CJSC base in Yerevan and handed over to EPSO. During reporting period Contractor were dismantled, transported to the storage area of HVEN CJSC and handled over to HVEN CJSC South branch 19450 kg of grounding wire, 103 pieces of insulators, 18 pieces of luminescent and LED lamps, 174 pieces of damper (Act on handling attached in the Annex 12).

Solid and household waste generated in OPGW installation sites was collected in bins specially installed at construction site near mobile house, than was transported to the Redinet CJSC base in Yerevan and transported to the Nubarashen dump site by Sanitek LLC (according to the contract between Redinet CJSC and Sanitek LLC).

No hazardous wastes were generated during the reporting period.

Back-up Despatch Centre: Construction wastes (concrete waste, bricks, plastic and metallic containers, wooden waste etc.) generated during the Back-up DC construction works were segregated and reused/recycled. Containers from chemicals, like plastic containers of antifreeze, insulation product, are collected and sent back to supplier for reuse. Bricks and wooden wastes are provided to workers to be reused for their own needs.

Solid and household waste generated at Back-up Despatch Centre construction site was collected in place in special metallic containers and removed regularly form site by Sanitek LLC (authorized operator of household and solid waste removal by Yerevan Municipality) as per request of Contractor (Redinet CJSC, see payment act for waste removal annex 13).

No hazardous wastes were generated during the reporting period.

3.2.4 b.4. Topsoil management/supervision and monitoring

During the reporting period the topsoil was not generated.

3.2.5 b.5. Traffic management/supervision and monitoring

All construction works during reporting period were implemented far from existing roads and inhabitation places. Construction traffic was organized not to interfere with public traffic, not to block the public and pedestrian roads, as well as the entrance into properties, small businesses.

All construction works were commenced at 09.00 am and complete at 6.00pm.

Traffic of machinery was organized within RoW. New alternative/temporary roads for machinery and trucks traffic were not constructed during reporting period.

Driving and technical inspection licenses of trucks/machinery were checked by Contractor's Environmental, Health and Safety specialist before they were employed.

Flagmans were stayed on public road to coordinate the traffic when working on

Ashtarak-Ejmiatsin road:

- (i) near Dasht community (between towers N39 and N49) during 30-31 of July,
- (ii) near Amberd community (between towers N39 and N25) on August 7,
- (iii) on the Old Silikyan road near Shahumyan-2 S/S on 21 of August (between towers N72 and N56),
- (iv) near Spandaryan cemetery (between towers N72 and N56) on 29 of August

Megri-Yerevan highway and Megri Community public roads

- (v) near Karchevan (between towers N6 and N7)
- (vi) Levhaz (between towers N24-N26) communities.
- (vii) near Lichk communities. (between towers N51-N52, N54-N55, N56-N57 and N59-N60).

3.2.6 b.6. EHS inspection and monitoring

EHS inspection and monitoring visits to construction sites (OPGW installation sites and Back –up DC construction site) were done on bi-weekly bases. EHS Monitoring details are presented below in Part IV.

4 Part IV – Environmental, Health and Safety Monitoring

The EHS monitoring program was developed with the construction contractor (Redinet/Siemens) as a part of contractor's SEMP.

SEMP including Monitoring plan was approved (after second review) by PIU and Supervision consultant (Lahmeyer International GmbH/CESI S.P.A. /Ameria CJSC) in July 2018.

There were no need of amendments and updates of approved SEMP and Monitoring Plan during the reporting period, due to the fact that there were no changes of the design and planned construction works of the Project.

The following EHS monitoring activities were conducted since start of the construction works on 19th July till 31st December, 2018:

4.1 Part IV – a. Instrumental Monitoring

Instrumental monitoring was not carried out during reporting period, since the works causing noise, vibration and dust were not implemented, as well as based on the fact that all construction works during reporting month were implemented far from existing roads and inhabitation places, all construction works were commenced at 09.00 am and complete at 6.00pm.

Technical inspection (noise level, vibration, air emission authorized level) of trucks/machinery were checked and certified by specialized organization and visually monitored by Contractor's Environmental, Health and Safety specialist before they were employed.

Traffic of machinery was organized within existing roads.

4.2 Part IV – b. Monitoring Visits and Inspections

In order to review the existing EHS situation on construction sites, related EHS documentations existence, compliance with SEMP requirements and discuss the possible EHS issues which could occur or exist during the construction works, regular and randomly monitoring and inspection site visits (see examples of fulfilled checklists for reporting period in annex 8) were done by Consultant and Contractor EHS staff. Conducted site inspection visits details are provided in table 4.2.1.

N	Inspection/ monitoring N	Date	Site	Section	Conducted by	Number of Identified non-conformance*
1	i1	20 July 18	Sipan TL	P.H-72	Consultant EHS Expert – Armen Bodoyan	None
2	mi1	21 July 18	Sipan TL	P.H-72	Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	None
3	i2	22 July 18	Sipan TL	towers 49-39	Consultant EHS Expert – Armen Bodoyan	4
4	mi2	30 July 18	Sipan TL	towers 49-39	Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	None
5	i3	13 Aug 18	Sipan TL	towers 49-39	Consultant EHS Expert – Armen Bodoyan Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	None
6	i4	17 Aug 18	Sipan TL	towers 49-39	Consultant EHS Expert	None

					– Armen Bodoyan 7Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	
7	mi4	29 Aug 18	Sipan TL	Towers 39-25	Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	None
8	mi5	20 Sep 18	Meghri-2	Towers N7-, N9 and N10	Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	None
9	i4	22 Sep 18	Back-Up DC		Consultant EHS Expert – Armen Bodoyan Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	1
10	i5	24-25 Sep 18	Meghri-2	Towers N11-N15	Consultant EHS Expert – Armen Bodoyan Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	None
11	mi6	26 Sep 18	Back-Up DC		Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	None
12	i6	25 Oct 18	Back-Up DC		Consultant EHS Expert – Armen Bodoyan Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	6
13	i7	30 Oct 18	Meghri-2	N70	Consultant EHS Expert – Armen Bodoyan Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	1
14	i8	31 Oct 18	Meghri-2	N26-33 (in Arevik Natioanl Park)	Consultant EHS Expert – Armen Bodoyan Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	None
15	i9	15 Nov 18	Back-Up DC		Consultant EHS Expert – Armen Bodoyan Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	11
16	i10	23 Nov 18	Back-Up DC		Consultant EHS Expert – Armen Bodoyan Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	5
17	i11	27 Nov 18	Meghri-2	Towers N51-61	Consultant EHS Expert – Armen Bodoyan Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	1
18	i12	28 Nov 18	Meghri-2	Towers N51-61	Consultant EHS Expert – Armen Bodoyan Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	None
19	i13	30 Nov 18	Back-Up DC		Consultant EHS Expert – Armen Bodoyan	2

					Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	
20	i14	13 Dec 18	Meghri-2	Towers N1-6	Consultant EHS Expert – Armen Bodoyan Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	1
21	i15	14 Dec 18	Meghri-2	Towers N1-6	Consultant EHS Expert – Armen Bodoyan Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	None
22	i16	16 Dec 18	Back-Up DC		Consultant EHS Expert – Armen Bodoyan Contractor E&S and H&S specialists – Tigran Oganezov, Mesrop Mesropyan	3

* Identified non-conformance and relevant corrective action are presented in table 4.3.1. in chapter 4.3 below

In total 17 construction site inspection visits by Consultant EHS Expert and 22 monitoring and inspection visits by Contractor E&S and H&S specialist were done during the period of July – December 2018.

During the inspection and monitoring site visits of construction sites there were recorded number of non-conformities, which were corrected in-situ or corrected during the reporting period on recommended timeframe by Consultant EHS Expert.

Corrective actions taken for each non-conformance are presented below in chapter 4.3.

4.3 Part IV – c. Non-Conformance and Corrective Actions

EHS non-conformities identified during the inspection and monitoring site visits, required corrective actions and completion status of EHS non-conformances for the second quarter of 2018 are presented on monthly bases in the table 4.3 - 1 to 4.3 – 6 below.

Table 4.3 -1 : Non-Conformance and Corrective action matrix, July, 2018

N	Non-conformance and Corrective action request	Date of corrective action	Corrective action status
	Copy of Official Appointment Notice/Order on HSE and ERP site responsible must be provided in site	30.07.2018	Corrected partly / The site responsible chief in charge on EHS and emergency issues from Contractor respectively is site manager Karen Aghababyan Copy of Official Appointment Notice/Order on HSE and ERP site responsible will be provided during the first day of August
	Provide appropriate safety boots for two employees	30.07.2018	Corrected / Workers are provided with and are using the appropriate safety boots
	Medical check-up must be done before start of works, copies of check-up certifications must be in site	30.07.2018	Corrected partly / Medical worker/Doctor was already hired by Contractor

			Medical check-up will be done and copies of check-up certifications will be in site during the first day of August
	Provide first aid kit	30.07.2018	Corrected / First aid kit available on-site
	Provide Fire extinguisher type ABCE (universal)	30.07.2018	Corrected / Fire extinguisher type ABCE (universal) available on-site
	Post in a visible place ERP and emergency contact list	30.07.2018	Corrected / Copy of ERP and emergency contact list available on-site
	Provide Accident report form in sites	30.07.2018	Corrected / Accident report form available on-site
	Copy of El. Switch over applications, official Authorizations/Notice from HVEN with responsible Person for LOTO system (if applicable), Public Announcement on El. Switch overs must be kept in site.	30.07.2018	Corrected partly / Electrical supply switches over under the responsibility of EPSO and HVEN according to the Contractor's request. Copy of El. Switch over applications, official Authorizations/Notice from HVEN with responsible Person for LOTO system (if applicable), Public Announcement on El. Switch overs will be available in site during the first day of August
	HSE induction/instruction/Tool box meetings register must be kept in site	22.07.2018	Corrected / Workers briefed on CEMP/ SEMP on 20 and 22 of July, 2018
	ERP induction/instruction/Tool box meetings register must be kept in site	22.07.2018	Corrected / Workers briefed on 20 and 22 of July, 2018
	HSE Training register/evidences must be kept	22.07.2018	Corrected / Job-specific environmental and safety training for workers provided on 20 and 22 of July, 2018
	Provide Register of complaints in site, conduct GRM trainings for affected communities	30.07.2018	Corrected / Register of complaints available on-site

Table 4.3 – 2. Corrective action matrix, August, 2018

N	Corrective action request	Date of corrective action	Corrective action status
	Medical check-up must be done before start of works, copies of check-up certifications must be in site	31.08.2018	Corrected partly / Medical worker/Doctor was already hired by Contractor. Medical check-up was done. Copies of check-up certifications will be in site during the first day of September

Table 4.3 – 3. Corrective action matrix, September, 2018

N	Corrective action request	Date of corrective action	Corrective action status
	Exclusion barriers and appropriate fencing should be erected around excavated pits in Back-Up Center construction site.	26.09.2018	Corrected All excavated pits was properly fenced

Table 4.3 – 4. Corrective action matrix, October, 2018

N	Corrective action request	Date of corrective action	Corrective action status
Back-Up DC			
	Exclusion barriers and appropriate fencing should be erected around excavated pits in Back-Up Center construction site.	25.10.2018	Corrected All excavated pits was properly fenced
	Improve housekeeping in all construction site are	25.10.2018	Corrected
	Organize proper storage of the chemicals	25.10.2018	Not Corrected. Will be corrected till the first days of November
	LOTO system installation and cable connection insulation	25.10.2018	Not Corrected. Will be corrected till the first days of November
	Install proper safety signs	25.10.2018	Not Corrected. Will be install till the first days of November
	Provide proper safety boots for the all workers	25.10.2018	Not Corrected. Will be provided till the first days of November
Meghri-2			
	HS induction journal were not kept on site	30.10.2018	Not Corrected. Journal will be kept on site from the first days of November

Table 4.3 – 5. Corrective action matrix, November, 2018

N	Deadline for request	Corrective action request	Date of corrective action	Corrective action status
Back-Up DC				
	26.11.2018	Install safety signs and safety fencing around the construction site, safety barricades of pits and structure first level.	23.11.2018	Corrected. Construction site was already fenced by safety tape. Previously observed deep pits were already filled. Safety signs were already erected.
	29.11.2018	Provide safety boots to all employees	23.11.2018	Corrected. All workers were provided with proper safety boots
	29.11.2018	Traces of the burned wood, garbage and chemicals containers and unprotected fire lighting to heating chemicals (insulation product) was observed in construction site. These practices are strongly prohibited in construction sites.	23.11.2018	Corrected All workers were informed that these practices are strongly prohibited in construction sites. To heating chemicals (insulation product) stove was installed.
	29.11.2018	At least 4 inspected fire extinguishers (1 for trailer, 1 for chemicals storage and two for general construction site) must	23.11.2018	Corrected partly. The fire extinguisher with the pressure measurement device was present in trailer.

		be provided	30.11.2018	Corrected partly. Second fire extinguisher with the pressure measurement device was provided for chemicals storage.
	29.11.2018	Appropriate ladders and stairs must be supplied and used	23.11.2018	Corrected. Proper ladders were present
	29.11.2018	There was observed multiple cases unplugged electrical tools during the lunch time and when they are not use. Training on electrical tools and equipment safe usage must be provided to all employees	23.11.2018	Corrected. All workers were informed on safety use of electrical equipment
	29.11.2018	Ensure slope stability and remove suspended concrete blocks	23.11.2018 30.11.2018	Corrected partly. Dangerous slope was isolated. Suspended concrete blocks will be removed during upcoming days
	29.11.2018	Proper Insulation of el. wires connections, LOTO system with appropriate signs must be installed	23.11.2018 30.11.2018	Corrected partly. Insulation of el. wires connections were improved. Proper signs were installed. LOTO system will be installed during upcoming days
	29.11.2018	Provide appropriate storage area and MSDSs for chemicals	23.11.2018 30.11.2018	Not corrected. Will be corrected during upcoming days Corrected partly. Different storage area exists for chemicals and construction materials. MSDSs will be provided during upcoming days
	29.11.2018	Protection of armature reinforcement edges was missing, Wooden or plastic protection caps of armature edges must be provided	23.11.2018 30.11.2018	Not corrected. Dangerous armature reinforcement edges will be closed during upcoming days N/A. Dangerous armature reinforcement edges were not observed during site visit
	29.11.2018	Housekeeping is poor in all construction site. Cigarette buttes, household and construction wastes are everywhere. Daily housekeeping must be done, Training of Safety hazard related to the housekeeping must be provided to the employees	23.11.2018 30.11.2018	Corrected. Housekeeping in the construction site was improved. Proper smoking areas were presented. The training will be organized during upcoming days.
	29.11.2018	Hygienic condition for lunch	23.11.2018	Corrected. An appropriate

		breaks was not provided. Separate area with appropriate hygiene conditions must be provided to the employees for lunch breaks		hygiene condition for lunch break was provided
	29.11.2018	Medical check-up docs were not presented yet they must be kept in construction site permanently	23.11.2018 30.11.2018	Corrected partly. Medical check-up docs will be kept on site during upcoming days
	29.11.2018	Accident report must be permanently in construction site	23.11.2018 30.11.2018	Not Corrected. Will be provided till the first days of December
	29.11.2018	Register of complaints must be permanently in construction site	23.11.2018 30.11.2018	Not Corrected. Will be provided till the first days of December
	29.11.2018	HS induction journal must be kept on site	23.11.2018	Corrected. HS induction journal kept on site
Meghri-2				
	30.11.2018	HS induction journal were not kept on site	27.11.2018	Not Corrected. Journal will be kept on site during upcoming days

Table 4.3 – 6. Corrective action matrix, December, 2018

N	Deadline for request	Corrective action request	Date of corrective action	Corrective action status
Back-Up DC				
	29.12.2018	Provide appropriate storage area and MSDSs for chemicals	20.12.2018	Corrected partly. Different storage area exists for chemicals and construction materials. MSDSs will be provided during upcoming days
	29.12.2018	Protection of armature reinforcement edges was missing, Wooden or plastic protection caps of armature edges must be provided	20.12.2018	Corrected partly. Not all dangerous armature reinforcement edges were protected. Will be protected during upcoming days
	29.12.2018	The back rails on scaffolding are missing. The proper scaffolding with back rails will be must be provided and used by 29th of December	20.12.2018	Not Corrected. The observed scaffoldings without proper back rails will be corrected during upcoming days
Meghri-2				
	30.11.2018	HS induction journal were not kept on site	13.12.2018	Corrected. Journal was kept on site.

4.4 Part IV – d. EHS Non-Compliance

In the reporting period no EHS non-compliance notices were issued by the Consultant.

4.5 Part IV –e. Social program including GRM implementation and complaints received

A grievance redress mechanism has been developed to communicate with affected people to receive and facilitate the resolution of affected peoples' concerns, complaints, and grievances about the project's environmental performance which shall be maintained for the duration of the Project. Public are informed about the GRM during the public consultations. Also information on the existence of GRM and the steps the AP could undertake to raise the suggestions or complains are disclosed on the IA website, as well as on the Project informational board is installed by the Contractor on construction sites.

Posters or project informational boards with relevant information for the Public are installed in the entrance of the construction site: field office location, operating hours, names of responsible contact persons, "hot line" phone numbers, postal address and email addresses, etc. Grievance register log-books are kept available at the field office. An application form for public complains and suggestions and template of signboard is available in construction sites.

Contractor's representative (construction foreman, engineer, social or environmental specialist) on-site is charged with responsibility to address the complains/suggestions rose by impacted people and let the suggestion/complain be registered in to the grievance register book kept by Contractor at the field office. If the Contractor cannot resolve the issue the complaint is directed to the Consultant. If the Consultant cannot resolve the complaint it is directed to the IA.

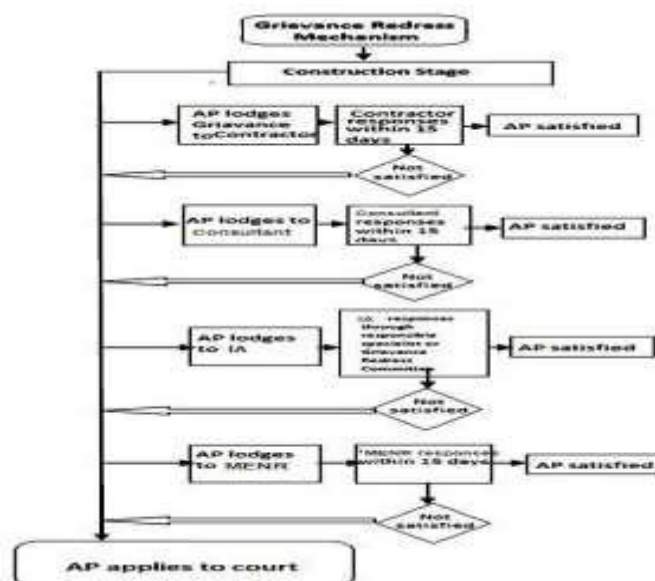
A register of complaints received (name, issue, date, response, date of response, further follow-up action, date closed out) will be maintained, id any. The contractor will record in the book all complains (verbal and written) and how the complaint has been resolved and the mitigation measure applied. If the contractor cannot resolve the issue a note is made together with the date when the complaint has been forwarded to the Consultant.

The GRM will intend to assist aggrieved persons in lodging their complaints and to describe the mechanism designed to redress their grievances in a timely and effective manner. The parties potentially involved are: the complainants, Contractor, Consultant, IA, EA, and the courts.

Public is informed about the GRM during the public consultations. Also information on the existence of GRM and the steps the AP could undertake to raise the suggestions or complains shall be disclosed on the IA website, as well as on the Project informational board installed by the Contractor on construction sites.

The procedural steps of the Grievance Redress Mechanism for the Project provided below.

4.5.1. Grievance Redress Mechanism Flow-Chart



The following are the procedural steps to file a complaint, pose an inquiry on matters relating to project implementation, environmental concerns and other issues regarding the Construction stage of the Project.

Step 1. The person affected by the Project could raise their suggestions/concerns/complaints first of all to the Contractor's dedicated grievance staff that is an attempt will be made to resolve complaints at the local level. In order to maintain transparency and accountability to affected communities and to make information, assistance and grievance resolution services accessible to the Affected Persons, the Contractor will establish the following GRM as a part of the Project's integral GRM:

- (i) AP's could approach Contractor's representative (construction foreman, engineer, social or environmental specialist) on-site and/ or register their suggestion /complain into the grievance register book kept by Contractor at the field office established in the construction camp located nearby the Row. The template for recording grievance, content and format of the application shall be specified in the Contractor's SEMP and agreed with Consultant.
- (ii) Contractor ensures the provision of contact information (field office location, operating hours, names of responsible contact persons, phone numbers, regular mail and email addresses, etc.) via posters and Project informational boards.

Contractor should immediately inform the Consultant and IA if AP lodged the grievance and should send the copy of written complaint to them. Contractor should implement appropriate mitigation measures to solve the issue and send the written response/reply to the AP with cc Consultant and IA.

Step 2. Should the AP be not satisfied with the Contractors' solution of his/her complain, the further opportunities are available. AP could next apply to the Consultant via lodging the complaint within one month after receiving/not receiving the response from the Contractor. The incoming suggestions/ complains shall be considered and classified into environmental and social/resettlement items. The social/resettlement safeguard related complains shall be handled in the scope of Consultant and IA LARP specialists.

The environmental specialists of the Consultant in collaboration with the Contractor(s) shall establish an office at the Project site where environmental complaints of Projects' AP regarding EMP and project operations' impacts can be lodged. This Project site office will be used for: supervision of construction, including monitoring of the Contractor's compliance to the EMP to ensure the mitigation measures are timely and properly implemented; disclosing all safeguard documents; and receiving and responding to the comments/feedbacks from the community. If the complaint is directed to the Consultant the complainer will be informed about that. The Consultant shall respond to the complaint within 15 days.

Step3. Should the Consultant fail to satisfy the complaint, AP could apply to IA. The complaint in the Construction stage at the IA level will be preceded with the same scheme as in the pre-construction stage. All the contact information shall be provided by Contractor on posters and on the Project informational board. Contractor shall serve as an entry point in this stage and provide the necessary explanations and assistance in application to the mentioned entities, if needed through the personal contact with AP. Finally the AP can always seek attention and interference of the court. However all the efforts will be made to settle the issues at the Contractor's, the Consultant and IA.

All complaints regardless of the outcome and solutions will be properly documented and made available for review, monitoring and evaluation purposes

Posters with project information contacts and how the community inhabitants may apply in case of the complaints, suggestions or questions arise during the construction process, will be posted at Contractor's mobile house and at Back-Up DC construction site. Complaints register - books are available in mobile houses in the construction sites.

No complaints were received during the reporting period.

4.6 Part IV –f. Health & Safety conditions and Accident/ Incident Report

Contractor workers and managerial staff were provided with and using appropriate job-specific PPEs. All mechanisms and tools (set of hand tools, hand winch, counterweights, vibration dampener etc.) which were used by workers during reporting month were inspected and safe.

The workers were provided by sanitary-hygienic necessities within camp area; mealtime and winter rest facilities, washing and drinking water.

Electrical supplies switch over made during reporting period in OPGW 220 kV "Sipan" and Meghri 2 transmission lines was ensured under the responsibility of EPSO and HVEN according to the Contract's requirement.

During the up-rolling/streaming works on Sipan and Meghri 2 transmission lines the traffic was regulated by trained flagman on public roads, to ensure security and safety of nearby population and transports. Required amount of road signs to ensure safe traffic of all sections under the transmission lines were available and used/installed during the OPGW installation works.

Contractor was hired the doctor and organize proper medical check-up for workers in August.

No Accident/Incident – including LTI (Lost time Incident), Near Miss, First Aid, environmental accident etc. was happened at all construction sites.

EHS Target Zero (Zero accident, Zero incident, Zero injures) was achieved during the reporting period (July – December, 2018).

4.7 Part IV – g. Other relevant environmental issues

During the reporting period, no other relevant environmental issues have been observed.

4.8 Part IV – h. Submitted EHS Documents

During the reporting period the following documents have been finalized and submitted:

- Update IEE was submitted to ADB on 29th of July and reviewed on 31st July, 2018.
- The final version of SEMP for the Extension and Upgrade of the SCADA/EMS project was submitted on 12 of July, 2018. Submitted SEMP was approved by Client and reviewed by ADB on 17 of July, 2018.
- Weekly EHS monitoring/inspection checklists carried out and included in monthly reports.
- Monthly Environmental, Health and Safety reports – 5th of every month

5 Part V - Action Plan for the Next Period

In accordance with the task assignments of first half year (January – June, 2018) period it is planned to:

- Supervise and report the progress of implementation of the SEMP to ADB, including Project compliance with (a) all applicable laws and regulations of Armenia relating to environment, health and safety; (b) the Environmental Safeguards; (c) all measures, and requirements set forth in the IEE, the SEMP, and any corrective or preventive actions set forth in a safeguard monitoring report,
- Assist Contractor with capacity building on environmental safeguard, Based on the updated IEE;
- Assist Contractor that any adverse environmental impacts are minimized by implementation of the mitigating measures and monitoring program as detailed in the site specific environmental management plan (SEMP);
- Conduct regular and randomly Site EHS Inspections;
- Report any violation of environmental standards and the measures taken to restore compliance to ADB;
- Review and approve EHS action plan(s) of the Contractor established for next 6 months project implementation (construction phase).
- Develop and submit in the exiting quarterly Project progress report the Quarterly Safeguards Status Report (QSSR).
- Develop and submit to ADB review the Semi-Annual Environmental Monitoring Report (SAEMR)

6 Annexes

6.1 Annex 1

Construction works implemented during the June 19th -31 July, 2018 period

Type of works	Section	Status of works
Mobilisation	Sipan line	Finished
Preparation	Section P.H-72	Finished
	Section 56-49	Finished
	Section 49-39	To be continued in August
	Section 39-25	To be continued in August
	Section 13-P.AT	To be continued in August
OPGW Uprolling	Section 56-49	Finished
	Section 49-39	To be continued in August
OPGW Fixing	Section 56-49	Finished

No other construction works have been carried out.

6.2 Annex 2

Construction works implemented during the 1st – 31st August, 2018

Type of works	Section	Status of works
Preparation	Section 49-39	Finished
	Section 39-25	Finished
	Section 39-13	Finished
	Section 13-P.AT	Finished
OPGW Uprolling	Section 82-72	Finished
	Section 72-56	Finished
	Section 39-25	Finished
	Section 25-13	Finished
	Section 13-P.AT	Finished
OPGW Fixing	Section 82-72	To be continued in September
	Section 72-56	Finished
	Section 49-39	Finished

	Section 39-25	Finished
	Section 25-13	Finished
	Section 13-P.AT	Finished

No other construction works have been carried out.

6.3 Annex 3

Client request letter on commencement works in Back-Up Center

Ձև N 2.3

**ԵՐԵՎԱՆԻ ԶԱՂԱԶԱՊԵՏԻ ԱՌԱՋԻՆ ՏԵՂԱԿԱՆ,
ԵՐԵՎԱՆԻ ԶԱՂԱԶԱՊԵՏԻ ՊԱՇՏՈՆԱԿԱՏԱՐ
ՊԱՐՈՆ ԿԱՐԵՅԱՆԻՆ**

Կառուցապատող՝

(Ֆիզիկական անձի անունը, ազգանունը, հասցեն, հեռախոսահամարը)

epso.projects@energyoperator.am « Էներգոսնճիթի-ՋԷ
(Էլեկտրոնային հասցեն, իրավաբանական անձի անվանումը)

համեմարքի օգտագույն « ԳԲԸ 273.120.03 639
(Անունը, գրանցման վկայականի համարը)

ՏԵՂԱԿԱՆ

1. Հայտնում եմ, որ Պահպանվել կապահովման հնչյունը Տառնաշենի, Երևանի
(Կառուցվող օբյեկտի անվանումը, շինարարության քույր/սուղիական համարը,
և ԿՈՄԱՆԴԱՆԻ ԲԱՅԿԱՐԱՐՈՒՄ Ե. ՄՏ 05/18-63090-952, սկսելու համար՝
20.09.2018 շինարարություն սկսելու ժամկետը)

1) շինարարության իրականացվելու է « Դեյվելոպմենտ ԳԲԸ
(Շինարարական աշխատանքների կառավարողի անվանումը,
Լիմիտիվ ՄՏ 94 02
(Որոշման համարը)

կողմից՝ 23 հոկտեմբեր 2018 թ. N 440-20 պայմանագրի համաձայն,

2) տեխնիկական հսկողություն իրականացվելու է Պրոֆ. Բաղդասար Գրիգորյան ՊԸԸ
(Հաշմանդակության անվանումը, մասնագետի սպառնումը,
« ԿՈՄԱՆԴԱՆԻ » 093-66-75-82
(Անունը, ազգանունը, հեռախոսահամարը)

կողմից՝ 28 օգոստոս 2018 թ. N 280218 պայմանագրի համաձայն,
(Որպեսզի 1 օբյեկտից մինչև 10 օբյեկտի մինչև 10 շինարարության օբյեկտի տեխնիկական հսկողությունը՝ շինարարական աշխատանքների
կատարման համար կառավարողի նախնական հաշմանդակության օգտագույնը/օգտագույնի ընթացքում)


20 թ. N 440-20 շինարարական աշխատանքների պատասխանատվություն կապահովողի գործողության ընթացքում
(Եթե շինարարական աշխատանքների պատասխանատվություն կապահովողի նախնական հաշմանդակության օգտագույնը)

3) հեղինակազին հսկողությունը (օրենքով կամ պայմանագրով սահմանված դեպքերում) իրականացվելու է
« Դեյվելոպմենտ ԳԲԸ (կողմից
(Հաշմանդակության անվանումը, մասնագետի սպառնումը, անունը, ազգանունը, հեռախոսահամարը)

« 23 » 10 2018 թ. N 440-20 պայմանագրի համաձայն:

2. «Պատասխանում եմ» կառուցապատվող օբյեկտի շինարարության քույր/սուղիական և (կամ) սույն տեղեկանքի տվյալների (այդ թվում
կառուցապատվող անշարժ գույքի նկարագրի իրավունքների տիրապետումը) (փոփոխման մասին 5-օրյա ժամկետում տեղեկացնել, երևանի
քաղաքապետին:

Կառուցապատող՝ Գրիգորյան Գրիգոր Գրիգորի Զառնաթյան ԷՄ Երևանի
(Կառուցվող օբյեկտի անունը, անունը, ազգանունը)



17 հոկտեմբեր 2018 թ.

6.4 Annex 4

Construction works implemented during the 1st – 30th September, 2018 period

Construction works implemented during the 1 st - 30 th September, 2016 period		
Type of works	Section	Status of works
Meghri-2 OPGW		
Preparation	Section from 7 to 32	Finished
The line earthing	To be continued in October	
Back-Up Center		
Preparation	Finished	
Earth work	To be continued in October	

No other construction works have been carried out.

6.5 Annex 5

Construction works implemented during the 1st – 31st October, 2018 period

Type of works	Section	Status of works
Meghri-2 OPGW		
Preparation	Section from 6-16	Finished
	Section from 24-33	Finished
	Section from 33-45	Finished
	Section from 61-69	Finished
	Section from 69-74	To be continued in November
Back-Up Center		
Earth work	To be continued in November	
Construction of a drainage system	To be continued in November	
Foundation works of Back Up DC Building	Finished	
Basement	To be continued in November	
Water supply and sanitation	To be continued in November	
Substation's Foundation work	Finished	
Substation's R/C Constructions	To be continued in November	

No other construction works have been carried out.

6.6 Annex 6

Construction works implemented during the 1st -30th November, 2018 period

Type of works	Section	Status of works
Meghri-2 OPGW		
OPGW Stringing	Section from 16-24	Finished
	Section from 45-61	Finished
	Section from 69-79	Finished
OPGW Fixing	Section from 16-24	Finished
	Section from 69-79	To be continued in December
Back-Up Center		
Earth work	To be continued in December	
Basement's Walls	To be continued in December	
Basement	Finished	
Water supply and sanitation	To be continued in December	
Substation's R/C Constructions	To be continued in December	

No other construction works have been carried out.

6.7 Annex 7

Construction works implemented during the month

Type of works	Section	Status of works
Meghri-2 OPGW		
OPGW Stringing	Section from AG.P -5	Finished
	Section from AG.P -5	Finished
	Section from AG.P -5	Finished
Back-Up Center		
Earth work	To be continued in January	
Basement's Walls	To be continued in January	
Water supply and sanitation	To be continued in January	
Substation's R/C Constructions	To be continued in January	

Basement's R/C Constructions	Finished
Basement's R/C Slabs	Finished
First floor's walls	To be continued in January
Substation's external walls	To be continued in January

No other construction works have been carried out.

6.8 Annexes 8 to 14

Annexes 7 to 14 are attached separately due to the large volume of the documents.