Semi-annual Environmental Monitoring Report

Project Number: 47017-003 G0417

Reporting period: July-December 2019

Republic of Tajikistan: Wholesale Metering and Transmission Reinforcement Project

(Financed by the Asian Development Bank)

Prepared by: AF Mercados EMI -Project Implementation Consultant for Executing Agency Open Stock Holding Company «Barqi Tojik»(BT), Implementing Agency State Establishment «Project Management Unit for Electro-Energy Sector» (SE «PMUES») and the Asian Development Bank

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Endorsed by: Mr. S. Karimov, Head of Environmental and Social Matters Monitoring Department of SE «PMUES» _____16/03/2020

March 2020

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Abbreviations

ADB	Asian Development Bank
BT	Barqi Tojik
CEMMP	Contractor's Environmental, Health and Safety Management and Monitoring Plan
CT	Current Transformer
EHS	Environmental, Health & Safety
EMP	Environmental Management Plan
ESMP	Environmental and Social Management Plan
HPP	Hydropower Plant
FAT	Factory Acceptance Test
IEE	Initial Environmental Examination
kV	Kilovolt
MVA	Megavolt Ampere (unit used to measure apparent power)
NCN	Non-Conformity Note
OHTL	Overhead Transmission Line
PAM	Project Administration Manual
PIC	Project Implementation Consultant
PMU	Project Management Unit
PPE	Personal Protective Equipment
RoW	Right-of-Way
SS	Substation
SEMP	Specific Environmental Management Plan
SAEMR	Semi - Annual Environmental Monitoring Review
SSEMP	Site-specific Environmental Management Plan
TL	Transmission Line
VT	Voltage Transformer

1 INTRODUCTION

1.1 Preamble

1. This report represents the Semi - Annual Environmental Monitoring Review (SAEMR) for the Wholesale Metering and Transmission Reinforcement Project.
2. This report is the 7th EMR for the project.
3. The Project has been extended until March 31, 2020.

1.2 Headline Information

4. In Lot 1 on Wholesale Metering System, the meters Factory Acceptance Test (FAT) was conducted successfully in July 2018 by the Contractor Huawei/ TBEA. The Contractor has selected the subcontractor Cuculus GmbH for the software part. A problem with the firmware of the meters has been detected, so the testing of the firmware will have to be repeated and the firmware at the meters in the substations will have to be updated. Meter deployment in all the substations is undergoing 51% of them have been installed now. The construction of the foundations and erection of the Current and Voltage Transformers inside the substations was completed by September 2019. The works under lot 1 are expected to be completed by July 2020 in all the subject substations (SSs) located along the country.
5. Regarding the Amendment 2 of Lot 2´s work, which is the renovation of 110 kV switchyard at Rudaki Substation, it started in April 2018. Every activity was developed inside the plot of the Substation and on a working installation. TBEA completed most of the works for the variation order on 13 September 2018.
6. Lot 3 on the feasibility study of the interconnection between Tajikistan and Uzbekistan to re-incorporate Tajikistan to the Central Asia Power System was completed. The implementation of the interconnection activities became part of an independent project.

2 PROJECT DESCRIPTION AND CURRENT ACTIVITIES

2.1 Project Description

7. The Republic of Tajikistan has received a grant from the Asian Development Bank (ADB) towards the cost of the Wholesale Metering and Transmission Reinforcement Project. It is expected that the proposed project will improve electricity supply to households and industries in the country by reducing losses through metering entire

high and medium voltage transmission grid and expand transmission capacity in Panjakent region that used to suffer from load shedding.

8. Parts of this financing are being used for payments under the contract for: Lot 1) Installation of 1,682 wholesale meters and settlement system including 846 current transformers and 744 voltage transformers in most of the substations along the country, introduction of an advanced metering infrastructure, and introduction of a settlement system; Lot 2) Rehabilitation of Substation Rudaki, Extension of Substation Ayni and Construction of new 220 kV Over Head Transmission Line (OHTL) between Substation (SS) Ayni 220 kV and SS Rudaki, approximately 95 km of new single circuit single conductor with rated capacity of 320 MVA; and Lot 3) feasibility study of the interconnection between Tajikistan and Uzbekistan to re-incorporate Tajikistan to the Central Asia Power System.

9. The location of the Lot 2 Project component is presented below in Figure 1 in the scale of the Country.

Figure 1. Location of the Project (Lot 2)

2.2 Project Contracts and Management

10. The Executing Agency for the Project is the public Open Stock Holding Company Barqi Tojik. The Executing Agency has set up a Project Management Unit (PMU) to manage daily coordination, implementation, monitoring and administration activities of the Project.

11. The PMU includes the Projects Monitoring Department whose responsibilities include,

among other things, the management of all social and environmental aspects of the project. The Head of the Environment of the Projects Monitoring Department is Mr. Karimov Sirojiddin. The Chief EHS Specialist at the PMU is Mr. Aziz Holov. Both of them take also formally care of the LARP aspects.

12. The Project Implementation Consultant (AF Mercados) is providing technical assistance to the PMU in the management and reporting of the project. The PIC is responsible for supervising and reporting on the Contractor's performance in the implementation of the LARP. The contract with AF Mercados was signed on August 2015 and the current closing date is March 2020.

13. The PIC´s international environmental safeguards specialist was Mr. Pasi Vahanne and the national environmental safeguards specialist was Ms. Muazama Burkhanova until July 2018. From that date, the international safeguards specialist is Mrs. Patricia Ramos Peinado.

14. The EHS management of the project is as shown in Figure 2.

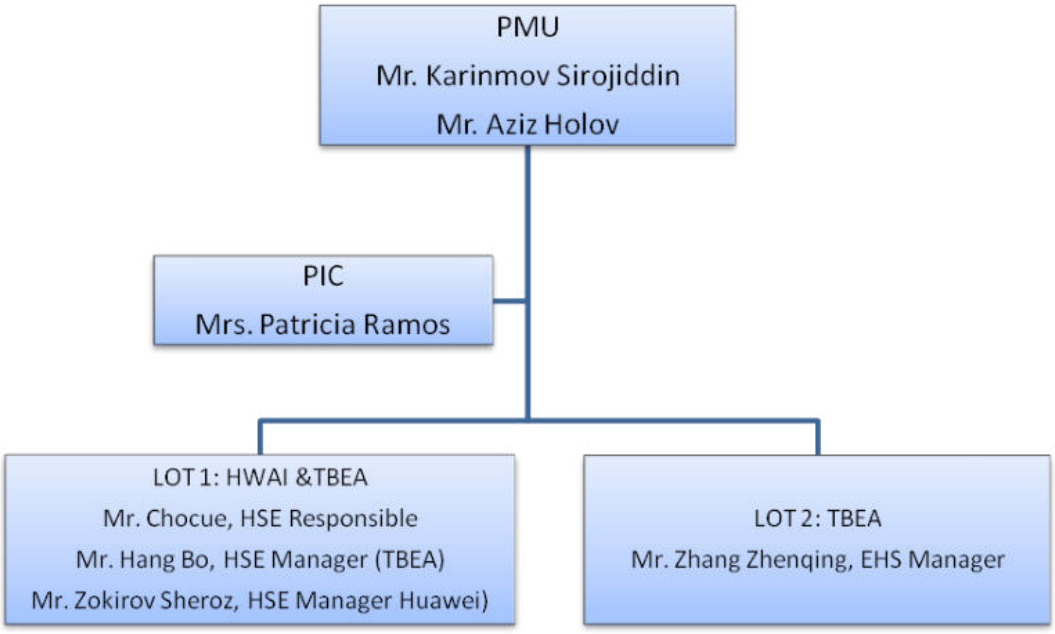

Figure 2. EHS management of the project

15. The contractors for Lot 1 are Huawei & TBEA. The contract was signed on 6 December 2016 and the completion date is July 4, 2019. The contractor for Lot 2 is TBEA and the contract was signed on 28 December 2015 and its end date as stated in the amendment 4 of the contract is 31 December 2019. The contract was extended until 1 March 2020.

16. The names of the main parties and focal points involved in the project can found in Annex I.

17. The contracts are being managed by the Project Management Unit of the power utility Barqi Tojik with the support of the consultancy company AF-Mercados in the role of Project Implementation Consultant.

2.3 Project Activities During Current Reporting Period

18. Construction activities for the reporting period are described in the Table 2 below.

Table 1. Progress on the construction activities on Lot 2, Lot 2 Amendment and Lot 1

N	Month 2019	Construction activities	Percentage of completion
1	July	Lot 1: Construction of the new foundations at the substations for the installation of CTs/VTs. Installation of the CTs/VTs.	85%
		Lot 1: Installation of meters.	0%
2	August	Lot 1: Construction of the new foundations at the substations for the installation of CTs/VTs. Installation of the CTs/VTs.	95%
		Lot 1: Installation of meters.	2,9%
3	September	Lot 1: Construction of the new foundations at the substations for the installation of CTs/VTs. Installation of the CTs/VTs.	100%
		Lot 1: Installation of meters.	14,5%
4	October	Lot 1: Construction of the new foundations at the substations for the installation of CTs/VTs. Installation of the CTs/VTs.	100%
		Lot 1: Installation of meters.	27,8%
5	November	Lot 1: Construction of the new foundations at the substations for the installation of CTs/VTs. Installation of the CTs/VTs.	100%
		Lot 1: Installation of meters.	37,7%
6	December	Lot 1: Construction of the new foundations at the substations for the installation of CTs/VTs. Installation of the CTs/VTs.	100%
		Lot 1: Installation of meters.	50,6%

19. In Lot 1 on Wholesale Metering System, the meters Factory Acceptance Test (FAT) was conducted successfully in July 2018 by the Contractor Huawei/ TBEA. The Contractor has selected the subcontractor Cuculus GmbH for the software part. A problem with the firmware of the meters has been detected, so the testing of the firmware will have to be repeated and the firmware at the meters in the substations will have to be updated. The construction of the foundations and erection of the Current Transformers (for commercial metering points in 110 kV, 35 kV, 10 kV and 6 kV systems) and Voltage Transformers (for commercial metering points in 110 kV, 35 kV, 10kV, 6kV and 0.4 kV) inside the substations has been completed by September 2019. Meter deployment in all the substations located along the country is undergoing and 51% of them have been installed now. The works under lot 1 are expected to be completed by July 2020. The list

of the substations, the network they belong to and the implementation status can be found in Annex II of this document.

Figure 3. Picture taken at “Vostochmaya”SS (lot 1), Dushanbe city. No full reinstatement of the area done. November 2019

20. Four SSs were visited under Lot 1 in Dushanbe. This is the status of the visited substations:

- Vinzavadskaya SS. 8 meters were installed in the cabinet in the protection room.
- Academgorok SS 110/35/10 kV. CTs were installed (3x 110kV). 9 meters were installed in the cabinet in the protection room.
- Shursay SS 110/10kV. 3 CTs were installed in the switchyard. 3 meters were installed in the cabinet in the protection room.
- Vostochnaya SS 110/35 kV. They installed current transformers and 110kV voltage transformers in the switchyard 110 kV and 35kV. 9 meters were installed in the cabinet in the protection room.

Figure 4. Installed CTs in “Academgorok” SS (lot 1), Dushanbe. November 2019.

Figure 5. Installed wholesale meters in “Academgorok” SS (lot 1), Dushanbe. November 2019.

21. The project activities of Lot 2 are the reinforcement of the transmission grid in the Panjakent area, through the construction of a 220 kV Over Head Transmission Line (OHTL) between Ainy and Rudaki Substations, the enhancement and renovation of Rudaki SS, and the construction of a new bay in Ainy SS. The Contractor TBEA completed the works on 25 January 2018 for the original scope.

Figure 6. Picture of the new bay constructed in Ayni SS (lot 2), Sughd Province, November 2019.

22. Regarding the Amendment 2 of Lot 2´s work, which is the renovation of 110 kV switchyard at Rudaki Substation, it started in April 2018. Every activity was developed inside the plot of the Substation and on a working installation. TBEA completed most of the works for the variation order on 13 September 2018.

Figure 7. Picture of installed equipment under the project in Rudaki SS (Lot 2), Panjakent district, November 2019.

Figure 8. Stretch of the built transmission line, Panjakent district. November 2019

23. Lot 3 on the feasibility study of the interconnection between Tajikistan and Uzbekistan to re-incorporate Tajikistan to the Central Asia Power System was completed during the previous reporting period. The implementation of the interconnection activities became part of an independent project.

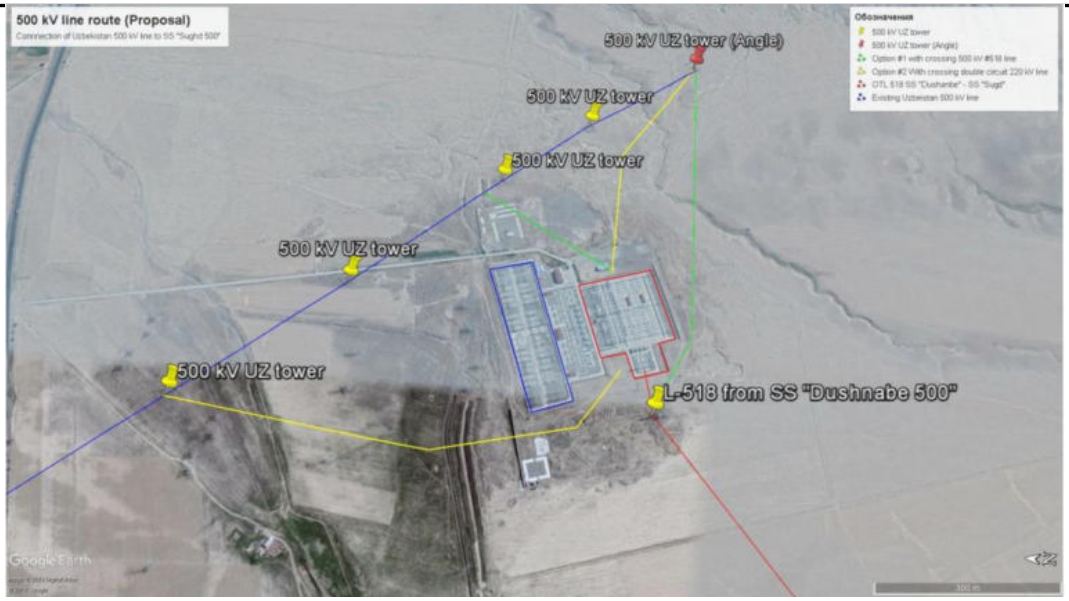

Figure 9. Possible line routes for the new OHTL sections which preliminary technical feasibility study and environmental and social due diligence was performed under Lot 3.

24. In the table below, it can be seen the number of workers employed for each lot during the reporting period.

Table 2. Number of Workers involved in each Lot.

Project lots	**Number of workers**
Lot 1	40
Lot 2	2
Lot 3	N.A.

2.4 Description of Any Changes to Project Design

25. An Amendment number 2 to the contract with the Lot 2 contractor and the Project Implementation Consultant (PIC) were signed in order to include in the project scope the rehabilitation of the 110kV bays at Rudaki SS. The “Due Diligence Report Social and Environmental Issues Barqi Tojik and TBEA Amendment no.2 to contract Lot 2” was prepared in October 2017. The implementation of this variation order started in 16 February 2018 and it got mostly completed by 13 September 2018. The completion certificate was issued on 27 September 2018.

26. The Initial Environmental Examination (IEE) for Wholesale Metering and Transmission Reinforcement Project was updated in December 2016. No changes in the updated IEE were required during the reporting period.

2.5 Description of Any Changes to Agreed Construction Methods

27. No changes.

3 ENVIRONMENTAL SAFEGUARD ACTIVITIES

3.1 General Description of Environmental Safeguard Activities

28. The PIC Environmental and Social Specialist was on mission in Tajikistan from 13 to 23 November 2019, visiting several project sites to perform direct site observations and holding meetings with Barqi Tojik, the ADB and the main contractor. The findings of that mission have been incorporated in this report. No complaints were received, and no accidents happened during the reporting period, as per information from the PMU. The SSEMPs are being generally implemented except some issues that can be found on Table 4.

3.2 Site Inspections

29. These are the details of the combined formal inspections undertaken by environmental safeguard project staff from PMU, PIC and ADB during the current reporting period. The ADB National Environment Specialist Mrs. Malika Babadzhanova prepared a Back to Office Report in November 2019 that was shared with the PMU and the PIC Consultant.

Table 3. Inspections undertaken during the current period.

Organization	Date of Visit	Inspector´s Name	Purpose of Inspection	Significant Findings	Status
PMU	**17/07/2019** Visit of: lot 1 SS «Dargot», SS «Gozien», SS «Gafurov», SS "Ura-Tube",	Aziz Kholov	Review of the environmental aspects of the project activities performed during the last 6 months	Lack of a contract for garbage collection Lack of Personal Protection Equipment	Pending Pending
	25/09/2019 Visit of: lot 2 Ayni SS, Rudaki SS,			No grievance book available at Rudaki SS.	Pending

	11.12.2019 Visit of: lot 1 SS «Vose», SS «Somoni», SS «Tosakala»			Lack of a contract for garbage collection Lack of personal protection equipment	Pending Pending
PIC	18/11/19, visit of: Ayni SS, Rudaki SS and the OHTL (lot 2) together with the PMU EHS Chief Specialist Mr. Aziz Holov. 20/11/19, visit of "Vinzavadskaya" SS, "Academgorok" SS, "Shursay" SS, and "Vostochmaya" SS (lot 1) with the PMU EHS Chief Specialist Mr. Aziz Holov and the ADB National Environment Specialist Mrs. Malika Babadzhanova.	Lot 2: Patricia Ramos, Mr. Aziz Holov	Inspection of the environmental aspects of the project activities performed during the last 6 months	<u>Lot 1</u> (Vinzavadskaya, Akademgorodok, Vostochnaya and Shursay Substations) Reinstatement of the area around the poles of installed CTs and VTs was not done yet, no compacting and gravelling done. <u>Lot 1</u> Lack of a contract with a licensed waste management company. <u>Lot 2</u> Concrete floors still in place in the former Ayni labor camp <u>Lot 2</u> Waste in the workers camp near Ayni SS	Pending Solved. Probe will be requested in the next inspection. On-hold Pending

				Lot 2 -No grievance book available at Rudaki SS by November 2019.	Solved
				Lot 1 -No grievance book available at the substations where works are performed.	Pending
				Lot 1 -Some plastic waste, oily rags and empty cans were observed at Akademgorodok substation.	Pending
				Lot 2 - Soil polluted with refrigeration oil from the uninstalled autotransformers in Rudaki Substation	Pending
				Lot 1 and 2 Contractor Monthly Environmental Monitoring Reports not available.	Pending

30. Soil got polluted with refrigeration oil from the uninstalled autotransformers in Rudaki Substation as shown on figures 10 and 11. The 7 metal tanks in the regional Panjakent Barki Tojik warehouse next to the substitution continue to drip oil. Barki Tojik has to perform/organize the safe pick-up and disposal of the soil polluted with refrigeration oil. Certificate from the hazardous waste dumping site will have to be submitted to the PIC Environmental and Social Specialist. It is also required that the 7 metal tanks get fixed (turners and seals) so the refrigeration oil does not get spilled. The metallic boxes for placing the polluted soil have already been manufactured by Barki Tojik. The remediation actions are pending since the soil is frozen at this time of the year. They will be performed in the next spring season.

Figure 10. Polluted soil with refrigeration oil in the BT´s regional warehouse next door to Rudaki SS (Lot 2), Panjakent district, November 2019.

Figure 11. Polluted soil with refrigeration oil in the BT´s regional warehouse next door to Rudaki SS (Lot 2), Panjakent city, November 2019.

31. Some plastic waste, oily rags and empty paint cans were observed at Akademgorodok substation as shown on Figure 12. Waste has to be collected and disposed safely by the Contractor.

Figure 12. Waste observed in Akademgorodok substation, Dushanbe, November 2019.

32. The PMU sent a letter on the found non-conformities during the 2019 S1 monitoring to the contractor on 17 October 2019. It can be found in Annex III.

33. After performing the site inspections, a wrap-up meeting was called by the PIC Environmental and Social Specialist and it took place on 21 November 2019. 12 people in total attended the meeting in representation of the PMU, the main contractor TBEA, the PIC and the ADB. The attendance list of the wrap-up meeting can be found on Annex IV of this report.

Figure 13. Wrap-up meeting with the relevant parties. Dushanbe. November 2019.

34. This is the summary of the findings of the inspections undertaken in the current period:

Table 4. Summary of the environmental findings in the current period.

Main finding	Corrective actions applied or needed	Status
Lot 1 (Akademgorodok, Vostochnaya and Shursay Substations) Mayor: Reinstatement of the area around the poles of installed CTs and VTs was not done yet, no compacting and gravelling done.	Compacting and gravelling has to be done in the substations in order to reinstate the area around the poles of installed CTs and VTs.	Pending. Scheduled for March-April 2020.
Lot 1 Mayor: Lack of a contract with a licensed waste management company.	A contract with a licensed waste management company shall be signed.	Solved. Waste management is done by the same licensed waste management company that each substation has a contract signed with.

Main finding	Corrective actions applied or needed	Status
Lot 1 Minor: Some plastic waste, oily rags and empty cans were observed at Akademgorodok substation.	Waste to be collected and disposed safely.	Pending. Shall be implemented by 14 February 2020.
Lot 2 Mayor: During a visit in November 2019 to the former Ayni labor camp, the set concrete floors were still in place.	Ayni local council has to take a decision on whether they want the concrete floors to remain or to be broken down and the site being brought back to the previous condition before the installation of the labor camp.	On-hold. A decision will be taken by the Ayni local council by February 2020.
Lot 2 Minor: Waste generated when dismantling the workers camp near Ayni SS was found around.	Waste generated after dismantling the workers camp has to be collected and managed safely.	Pending.
Lot 2 Mayor: No grievance book available at Rudaki SS by November 2019. TBEA brought it with them when finalizing most of the works. A complaints book must be made available until one year after the implementation is completed (around July 2021).	TBEA shall place a new complaints book at Rudaki SS.	Solved by January 2020 The new complaints book is in place at Rudaki SS.
Lot 1 Mayor: No grievance book available at the substations where works are performed.	TBEA workers brigades shall bring a grievance book with them when they move from substation to substation to perform the works.	Pending. Shall be implemented by 14 February 2020.
Lot 2 Mayor: Soil polluted with refrigeration oil from the uninstalled autotransformers in Rudaki Substation. The 7 metal tanks in the regional BT warehouse next to the substitution continue to drip oil.	Barki Tojik has to perform/organize the safe pick-up and disposal of the soil polluted with refrigeration oil. Certificate from the hazardous waste dumping site will have to be submitted to the PIC safeguards Specialist. Fixing the 7 metal tanks (turners and seals) so the refrigeration oil does not get spilled.	Pending since the soil is frozen in this time of the year. It will be performed in the next spring season.
Lot 1 and 2 Mayor: Contractor Monthly Environmental Monitoring Reports not available.	Contractor to submit the Monthly Environmental Monitoring Reports since July 2018.	Pending.

35. Post-construction environmental monitoring audits of completed construction sites under Lot 1 will have to be performed by the PMU and the PIC. Ideally it will be performed at

the time of the final technical inspection and prior to issuing the Acceptance Certificate. The suggested post-construction monitoring form to be used can be found on Annex VI.

3.3 Issues Tracking (Based on Non-Conformance Notices)

36. The status of corrective actions proposed during the previous reporting periods that are still pending is presented in Table 7 below.

Table 5. Environmental issues tracking.

Date of the SAEMR	Non-conformity	Corrective actions applied or needed	Status
2018 S2	Lot 2 Waste generated when dismantling the workers camp near Ayni SS was found around.	Collect and manage safely the waste.	Pending.
2018 S2	Lot 1 and 2 Contractor's Monthly Environmental Monitoring Reports not available	Contractor to submit the Monthly Environmental Monitoring Reports since July 2018.	Pending.

37. Summary of Issues Tracking Activity for current period.

Table 6. Summary of Environmental and H&S Issues Tracking Activity for Current Period

Total Number of Issues for Project	9
Number of Open Issues	7
Number of Closed Issues	2
Percentage Closed	22%
Issues Opened this Reporting Period	4
Issues Closed this Reporting Period	5

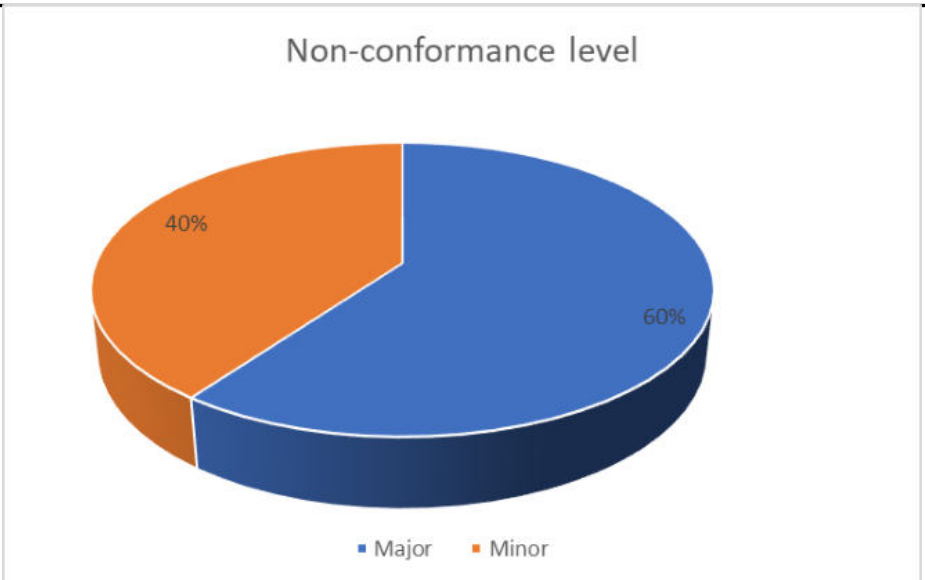

Figure 14. Summary of issues by non-conformance level for Current Period.

3.4 Trends

38. Information from previous period reports and the current period information.

Table 7. Trends on % of closed issues and % of issues closed late.

Semi-Annual Report No.	Total No. of Issues	% Issues Closed	% Issues Closed Late or still open
7	9	22	78
6	8	12	88
5	6	50	50
4	11	100	0
3	10	70	30
2	13	85	15
1	12	92	8

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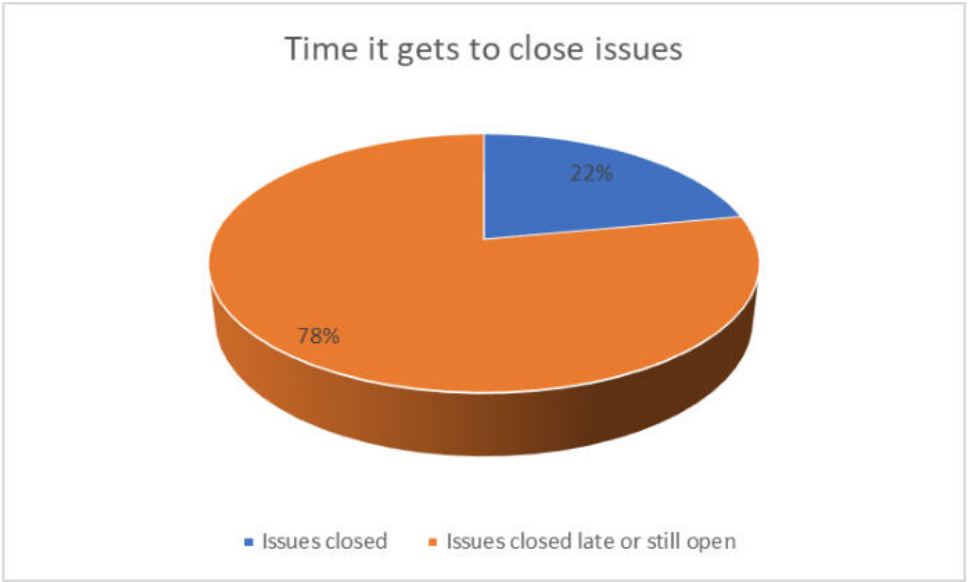


Figure 15. Summary of issues by time it gets to close them in the current semi-annual report

39. The percentage of issues that get closed early is medium-low. There is a recurrent trend for Contractor not submitting the Monthly Safeguards Monitoring Reports. They were received only during the first four months for Lot 2 and they have never been received in relation to Lot 1. Barki Tojik issued several non-conformance notices on it, the last one dated 17 October 2019 can be found on Annex III.

3.5 Unanticipated Environmental Impacts or Risks

40. No unanticipated environmental impacts/risks observed in this reporting period.

4 RESULTS OF ENVIRONMENTAL MONITORING

4.1 Overview of Monitoring Conducted during Current Period

41. Environmental Monitoring typically consists of two kinds of activities; visual inspections and inspections at the construction sites, and measurements to gain numerical data. Environmental Monitoring of both Lot 1 and Lot 2 of the Wholesale Metering and Transmission Reinforcement Project is based on the IEE and EMP attached to it, as well as on Contractor's Environmental Monitoring Plan.

a. Air Quality. In accordance with EMP/SSEMP no instrumental measurement of air quality is foreseen, only visual observations. Vehicles of Contractor were regularly maintained. No other emissions observed/recorded.

b. Water Quality. In accordance with EMP/SSEMP no instrumental measurement of water quality is foreseen, only visual observations.

c. Noise. All works during the reporting period were conducted inside the SS and included mostly assembly and installation. Therefore, there was no need to measure the noise level.

d. Flora and fauna. All works during the reporting period were conducted inside the SS. No illegal pouching or cutting of trees were recorded.

4.2 Trends

42. Non-applicable.

4.3 Summary of Monitoring Outcomes

43. Non-applicable.

4.4 Material Resources Utilization

4.4.1 Current Period

44. The contractors are only aware of the cumulative resource utilization.

4.4.2 Cumulative Resource Utilization

45. The estimated water consumption for the Lot 2 of the project is a s follows: 59,040 liters in Rudaki SS, 167,265 liters in the construction of the OHTL, and 2,438,100 liters in the workers camps. Water consumption in the substations under Lot 1 has been estimated on 8,370 liters for drinking only, the workers stay in dormitories, hotels and houses.

46. The estimated gasoline consumption for both lots has been 17 tons and 121 tons of diesel.

4.4.3 Waste Management

47. The domestic waste under Lot 2 in the volume of 27,2 tons was collected and transferred to a controlled dump site either in the city dump sites of Panjakent or Ayni districts. Un-installed substation equipment was transferred to a BT´s warehouse located near to Rudaki SS at Sughd Province to reuse the components as spare parts and the refrigeration oil of that equipment was poured in tanks to be filtered and re-used in the future.

48. Under Lot 1, 1,5 tons of domestic and hazardous waste have been generated and they have been channelized through the licensed local waste management companies that have frame contracts in place with the BT substations. Un-installed substation equipment will be transferred to several BT´s warehouses to reuse the components as spare parts.

4.4.4. Cumulative Waste Generation

Table 8. Cumulative waste generation in the project

# of Lot	**Non-hazardous waste**	**Hazardous waste**	**Un-installed equipment**
Lot 1	Very limited generation of domestic waste. The wood boxes where the equipment is transported are collected by people to use them. Other non-hazardous waste is managed by the licensed local waste management companies that have frame contracts in place with the BT substations.	The little pieces of cables are given to a cables manufacturing company. Rest of hazardous waste managed by the licensed local waste management companies that have frame contracts in place with the BT substations.	Kept at Barqi Tojik warehouses to be used as spare parts in the future.
Lot 2	Agreement with a certified solid waste management company for all the activities.	Most of them were brought to Dushanbe. During the construction, the gravel polluted with oil was sealed in a box and put on a special dump site near the border with	Kept at Barqi Tojik warehouse in Sughd province to be used as spare parts in the future.

# of Lot	Non-hazardous waste	Hazardous waste	Un-installed equipment
		Uzbekistan.	
Lot 3	Non-applicable.	Non-applicable.	Non-applicable.

4.5 Health and Safety

4.5.1 Community Health and Safety

49. During the current reporting period there have been no accidents.

4.5.2 Workers Health and Safety

50. During the implementation of Lot 2, there was a short health and safety briefing delivered to all the workers every morning. The workers had to follow the H&S considerations and guidelines in order to get every morning the "permission access note".
51. 3 work camps were set in total during the implementation of Lot 2: one on the other side of the road of Ayni SS, another one inside Rudaki SS and a third one half-way of the two SSs, in a rented plot of land that is owned by a construction company and was already being used for similar purposes.
52. Under Lot 2, an agreement was signed with the hospital in Panjakent, so they were aware of the activities going-on and to assure that any injured or sick staff could use their services if needed.
53. 250 workers in total worked in the construction of the OHTL from March 2017 to March 2018. Local workers were hired as drivers and for the digging by hand of the foundations for the towers.
54. 10 workers did all the upgrades in Ayni SS. They were tidying up the site at the end of the working day to avoid trip accidents.
55. 40 workers were working in the rehabilitation of the 110kV switchyard in Rudaki SS.
56. At the SSs, the BT staff fills in a daily journal where the performed activities and incidents if any are written down. The H&S issues and applied mitigation measures are also reported, but there is no reporting on environmental aspects. The technical BT workers count with a H&S passport where it is written down if they passed the periodic exams on H&S aspects, otherwise they cannot continue working for the power utility until they pass them.
57. Anti-climbing systems were installed in every tower in order to avoid risks such as children willing to climb them.
58. In relation to Lot 1, 4 brigades of TBEA workers move to one substation to another to perform the civil works (mainly digging by hand). They are different to the 6

installation brigades of voltage transformers and current transformers that follow them. The Contractor expressed that there was no accident since they started with the works on October 10, 2018. Some Tajik people have been hired for doing the civil works, but most of them are Chinese workers. After the acceptance of the works in relation to the new foundations for the new equipment, the moved soil is compacted, and gravel is put back.

59. The contractor EHS responsible for lot 1 pointed out that a training on H&S is provided to all the workers before they start to work in the project. The first pages of the used training manual can be found in Annex VI (12.6.1). The contents of that training are: First aid for people who got in touch with electrical current and emergency cases; First aid for people who got injured; Conducting artificial reanimation; Reliving a suffering person from electrical current; Other: safe techniques for decommissioning an electrical device. The document indicates the location of the hospitals in the surrounding of the substations. Probe of training on H&S to a group of workers in August 2019 can be found in Annex VI (12.6.2).

60. The contractor EHS responsible for lot 1 pointed out that a remainder on H&S is provided to all the workers daily before they start their tasks. He said that the workers are using the required Personal Protective Equipment (PPE). There were not workers at the visited substations when the site inspections were performed in November 2019.

61. During the last inspection performed by the PIC Environmental and Social specialist in May 2019, they were identified risks to occupational health and safety in Rudaki SS since the lack of compaction of the floor during the construction had made it sink in the areas of the new rooms of the administration building, some of the electrical equipment that were no longer aligned and the grey water tanks. The cracks in the administration building could let the rainwater come in, which could had potentially generated dampness and sinking of that part of the building. The sinking of some areas of the new switchyards were posing trip hazards. The electrical equipment not being aligned, had the potential to generate technical problems. The sinking of the grey water tanks could had meant the lack of alignment with the pipes and potential bad odor and exposure to bacteria. All those compaction problems were solved by the contractor, as identified in the November 2019 inspection. Please see below the pictures that show case the previous problematic situation and the current situation free of health and safety risks.

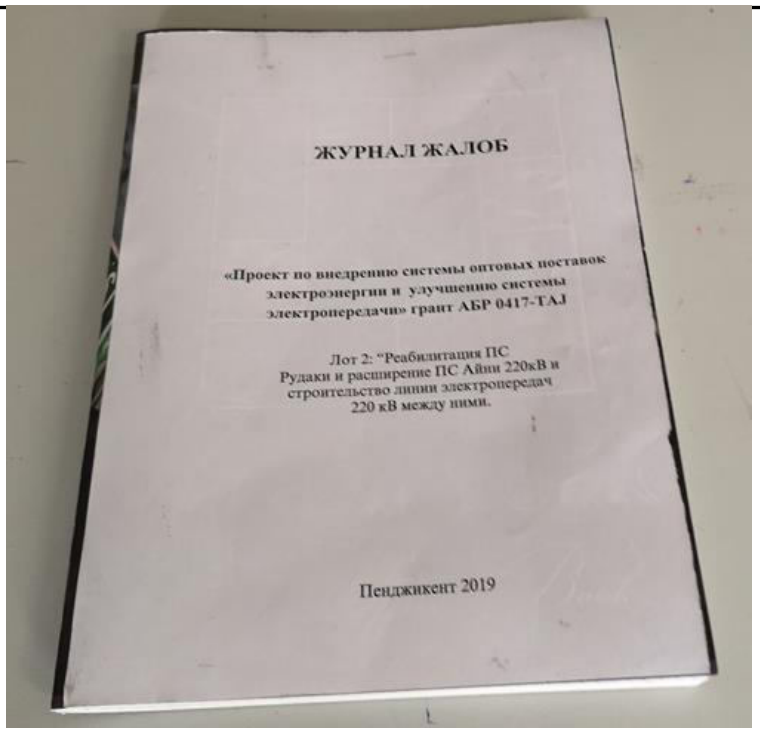
Figure 16. Cracks in the external walls of the new rooms of the administration building. Rudaki SS (lot 2), Panjakent district, May 2019.

Figure 17. External walls of the new rooms of the administration building. Rudaki SS (lot 2), Panjakent district, November 2019.

Figures 18 and 19. Condition of the concrete base of an electrical equipment box. Rudaki SS (lot 2), Panjakent district. May 2019 (Fig. 18) and November 2019 (Fig.19).

4.6 Grievance and Redress Mechanism

62. There were no complaints filled during this reporting period nor the previous reporting periods as per the PMU feedback. No independent inspection was possible to be performed in November 2019 since there was no Complaints Logbook available in Rudaki Substation. A Complaints Logbook was made available in Rudaki Substation some weeks later as shown in Figure 20. Under Lot 1, there is no grievance book available at the substations where works are performed. For Lot 1, TBEA workers brigades shall bring a grievance book with them when they move from substation to substation to perform the works. This action has been included in the Correction Action Plan.



Figures 20. Complaints Logbook available in Rudaki SS (lot 2), Panjakent district. January 2020.

4.7 Training

63. Health and safety briefings for workers under Lot 1 were performed.

5 FUNCTIONING OF THE SEMP

5.1 SEMP Review

64. The status of the environmental management plans is presented in Table 11 below.

Table 9. Status of Environmental Management Plans.

Management Plan	Date of approval	Date of Submission
Contractor´s Environmental Management Plan, including H&S Plan	January 2017	June 2016
Contractor´s Site Specific Environmental Management Plan for Lot 1 and 2	June 2017	June 2017
Original Social and Environmental Management Plan (annex to the IEE)		September 2014
Updated Social and Environmental Management Plan (annex to the revised IEE)		December 2016

65. The Contractor is able in general terms to implement the mitigation and monitoring measures set in the Site-Specific Environmental Management Plans (SSEMPs). The reporting is not being done as frequently as set in the SSEMPs.

66. The mitigation measures set out in the SEMP are still appropriate and they are working as intended.

67. When the SEMP was updated, it was determined that the signaling for birds that is part of the original SEMP was not needed since no birds were crossing across the line using a recurrent route. The funds that were freed up were used to cover other needs.

6 GOOD PRACTICE AND OPPORTUNITY FOR IMPROVEMENT

6.1 Good Practice

68. Regular maintenance of the anti-fire system in the new autotransformers installed in Rudaki SS.

Figure 21. Anti-fire system in one of the new autotransformers in Rudaki SS (Lot 2), Panjakent district. November 2019.

69. Informative posters in the control rooms in the medium and big size substations that act as reminders on how to proceed in case a fire starts and how to prevent a fire event from happening.

Figure 22. Anti-fire educational poster in Academgorodok SS (Lot 1), Dushanbe. November 2019.

6.2 Opportunities for Improvement

70. It is a lesson learnt for future projects that the low-rise light poles (Fig. 21) that were installed in the new switchyard in Rudaki SS are not high and powerful enough for allowing the SS personnel to perform the required control and maintenance in lack of day light. Instead, it is preferable the old model consisting of a very tall pole with several powerful lamps on top (Fig. 22)

Figure 23 and 24. Lighting solution installed by the contractor in the new switchyard (first picture) and previous lighting solution installed back in the day (second picture) in a different area of Rudaki SS. Panjakent district. November 2019

7. SUMMARY AND RECOMMENDATIONS

7.1 Summary

71. The implementation of the Environmental Safeguards during the reporting period and for the overall project construction period to date is being effective overall. Main weaknesses are suggested to be tackled through the Corrective Action Plan below.

7.2 Recommendations

72. It is recommended that a plan is set in place in order to safely dispose the polluted gravel and soil below most of the old auto-transformers and refrigeration oil tanks (outside of the project scope) in the substations along the country since they generally suffer from refrigeration oil dripping. It is recommended to analyze first if those oils contain PCBs.

Figure 25. Polluted gravel and soil due to refrigeration oil dripping from an old auto-transformer. Shursay SS. Dushanbe. November 2019.

Figure 26. Polluted gravel and soil due to refrigeration oil dripping from old refrigeration oil tanks. Vostochmaya SS. Dushanbe. November 2019

73. It is a bad practice to block the way out of the main door of the control room of a substation, in case there is need to escape from any hazard or ask for help due to any risk, even if the door is wide. It is recommended that the fire extinguishers bottles that block the way out in Figure 27 are hung aside.

Figure 27. Fire extinguishers bottles partially blocking the way out of the control room. Academgorodok SS. Dushanbe. November 2019.

74. The condition of the fence walls of most of the small size substations along the country pose health and safety risks due to not being continuous, being broken (Fig. 26) or being too low rise (Fig. 27). The plans of Barki Tojik for bringing the SSs walls up to a minimum of 3 meters high in the near future are very much welcomed.

Figure 28. Walls of the substation. Vostochmaya SS. Dushanbe. November 2019.

Figure 29. Walls of the substation are too low rise. Academgorodok SS. Dushanbe. November 2019.

75. It is recommended to improve the condition of the concrete laps over the cable ducts that act as walkways in the substations. It is common to see many broken concrete laps in the visited substations, which poses health and safety risks.

Figure 30. Broken concrete laps in the walkway. Academgorodok SS. Dushanbe. November 2019

Figures 31 and 32. No compacting and gravelling done. Vostochnaya substation. Dushanbe. November 2019.

76. The following Corrective Action Plan has been prepared to fix the found open non-compliances this period and the previous ones.

Table 10. Corrective Action Plan for January- June 2020.

Issues, actions and responsible party	Criteria	Schedule
1. TBEA to submit the Monthly Environmental Monitoring Reports since July 2018.	Environmental and Social Management Plan.	By February 21, 2020.
2. Reinstatement of the area around the poles of installed CTs and VTs under	Environmental and Social Management Plan.	April 2020.

Issues, actions and responsible party	Criteria	Schedule
Lot 1 in Akademgorodok, Vostochnaya and Shursay Substations was not done yet. Compacting and gravelling must be performed by the Contractor in the substations under Lot 1 in order to reinstate the area around the poles of installed CTs and VTs.		
3. During the visit in November 2019 to the former Ayni labor camp, the set concrete floors were still in place. Ayni local council has to make a decision on whether they want the concrete floors to remain or to be broken down and the site being brought back to the previous condition before the installation of the labor camp.	Environmental and Social Management Plan.	A decision will be taken by the Ayni local council by February 2020. If the local council decides that the concrete floors shall be broken, the Contractor has to implement that decision within the following 4 weeks.
4. Presence of waste in the workers camp near Ayni SS. Waste generated after dismantling the workers camp must be collected and managed safely.	Environmental and Social Management Plan.	By February 21, 2020.
5. Some plastic waste, oily rags and empty cans were observed at Akademgorodok substation. Waste must be collected and disposed safely.	Environmental and Social Management Plan.	By February 14, 2020.
6. Soil polluted with refrigeration oil from the uninstalled autotransformers in Rudaki Substation (Lot 2). The 7 metal tanks in the regional BT warehouse next to the substitution continue to drip oil. Barki Tojik has to perform/organize the safe pick-up and disposal of the soil polluted with refrigeration oil. Certificate from the hazardous waste dumping site will have to be submitted to the PIC Environmental and Social Specialist. Fixing the 7 metal tanks (turners and seals) so the refrigeration oil does not get spilled.	Best practice. Environmental and Social Management Plan.	By April 2020. The soil is frozen during wintertime.
7.No grievance book available at the substations under Lot 1 where works are performed. TBEA workers brigades shall bring a grievance book with them when they move from substation to substation to perform the works.	Environmental and Social Management Plan.	By February 14, 2020.
8. PMU to extend Non-Compliance notices to the Contractors for the open issues above and to attach this Corrective Action Plan to them.	Best practice. The PMU are the ultimate responsible of the implementation of the safeguards.	By February 12, 2020.

8. ANNEXES

8.1 Annex I: Main parties involved and their contact details

Party	Focal point	Contact details of the focal point
Implementing Agency: Barki Tojik	Head of the Project Management Unit, Mr. Nazarzoda Nazar Rajab	pmu_tj@mail.ru
	Head of the Environmental Sector of the PMU, Mr. Karimov Sirojiddin	pmu_tj@mail.ru
	Chief EHS Specialist at the PMU, Mr. Aziz Holov	pmu_tj@mail.ru
Funding institution: ADB	ADB Regional Environmental Safeguards Consultant. Mrs. Malika Babadzhanova	mbabadjanova1.consultant@adb.org
	ADB National Resettlement Specialist. Mr. Faizullo Kudratov	fkudratov.consultant@adb.org
Project Implementation Consultant	AF Mercados EMI Project Director and also directly responsible for lot 1 and 3. Mr. Jose Ignacio Alcon.	joseignacio.alcon@mercadosaries.com
	AF Mercados EMI responsible for Lot 2. Mr. Stefan Rose	stefan.rose@mercadosaries.com
	AF Mercados EMI Environmental and Social Specialist, Mrs. Patricia Ramos	patricia.ramos@mercadosaries.com
Lot 1 Contractor: Huawei & TBEA	Mr. Chocue, EHS Responsible Mr. Hang Bo, EHS Manager (TBEA) Mr. Zokirov Sheroz, EHS Manager Huawei) Mr. Jin Dean, EHS Site Manager (TBEA) Mr. Huseynov Ilhom, EHS Site Manager (Huawei) Mr. Guan Yonggang, EHS Site Manager (TBEA) Mr. Nazarhudoev, EHS Site Manager (Huawei) Mr. Zhurakulov Doshod, EHS Site Manager (Huawei)	
Lot 2 Contractor: TBEA	Mr. Zhang Zhenqing, EHS Manager Mr. Guang Yonggang, EHS Ayni Site Manager Mr. Jin Dean, EHS OHL Site Manager Mr. Che Jinlu, EHS Rudaki Site Manager	
In relation to Lot 2	Specialist of the Environmental Committee of Panjakent District. Mr. Pulodov Murod	+992 927601320
Lot 3	Representative of the Land Committee at Jamoat Lolazor. Mr. Timur Rakhmonov	+992 928470448
	Head of Sughud Substation	+992 929803058

8.2 Annex II: Status of the implementation in Substations Covered by Lot 1

№	Name of Network	Name of Substation	Installation of CT, VT	Installation of meters
1	Baypaza HPP	Power generation	*	
2	Baypaza HPP	Switchyard- 220kV	*	
3	Central (Markazi) EN	SS «Regar-500» - 500/220/35 kV	*	
4	Central (Markazi) EN	SS «Orjonikidzeabad-2» - 220/110/10 kV	*	100%
5	Central (Markazi) EN	SS «Djangal» - 220/110/10 kV	*	100%
6	Central (Markazi) EN	SS «Dushanbe-500» - 500/220/35 kV	*	100%
7	Central (Markazi) EN	SS «Novaya» - 220/110/10 kV	*	100%
8	Central (Markazi) EN	SS «Rogun» - 220/110/35/10 kV	*	100%
9	Central (Markazi) EN	SS «Zhukovo» - 110/35/10 kV	100%	100%
10	Central (Markazi) EN	SS «Severnaya» - 110/35/10 kV	100%	100%
11	Central (Markazi) EN	SS «Gisar» - 110/35/10 kV	100%	
12	Central (Markazi) EN	SS «Chorokoron» - 110/35/10 kV	*	
13	Central (Markazi) EN	SS «Dzherzhinskaya» - 110/35/10 kV	100%	
14	Central (Markazi) EN	SS «Lyar» - 110/35/6 kV	100%	
15	Central (Markazi) EN	SS «Ptitsefabrika» - 110/35/10 kV	100%	
16	Central (Markazi) EN	SS «Pugus» - 110/35/10 kV	*	
17	Central (Markazi) EN	SS «Orjonikidzeabad -1» - 110/35/10 kV	100%	
18	Central (Markazi) EN	SS «Obi-Garm» - 110/35/10 kV	100%	
19	Central (Markazi) EN	SS «Fayzabad» - 110/35/10 kV	100%	
20	Central (Markazi) EN	SS «Mayhura» - 110/10 kV	*	
21	Central (Markazi) EN	SS «DSK» - 110/10 kV	100%	
22	Central (Markazi) EN	SS «Simiganch» - 110/10 kV	100%	
23	Central (Markazi) EN	SS «Prombasa» - 110/10 kV	100%	
24	Central (Markazi) EN	SS «Sultonobod» - 110/6 kV	100%	
25	Central (Markazi) EN	SS «Dashtibeg» - 110/6 kV	100%	
26	Central (Markazi) EN	SS «Navruz» - 110/6 kV	100%	
27	Central (Markazi) EN	SS «Khamza» - 110/10 kV	*	
28	Central (Markazi) EN	SS «Karamgul» - 110/10 kV	*	
29	Central (Markazi) EN	SS «Turgak» - 110/10 kV	*	
30	Central (Markazi) EN	SS «Bobotag» - 110/10 kV	100%	
31	Central (Markazi) EN	SS «H.Bulbulon» - 110/6 kV	100%	
32	Central (Markazi) EN	SS «Lakayon» - 110/6 kV	100%	
33	Central (Markazi) EN	SS «Varzob» - 110/10 kV	100%	
34	Central (Markazi) EN	SS «Shakhrinav-2» - 220/110/35/10 kV	*	100%
35	Central (Markazi) EN	SS «Loihavi» - 110/10 kV	*	100%
36	Central (Markazi) EN	SS «Chormazak» - 220/10 kV	*	
37	Chanubi EN	SS «Kolhozobod» - 220/110/10 kV	*	100%
38	Chanubi EN	SS «Rumi» - 220/110/10 kV	*	100%
39	Chanubi EN	SS «Praydelnaya» - 220/110/10 kV	*	100%
40	Chanubi EN	SS «Promvodhoz» - 110/35/10 kV	100%	100%
41	Chanubi EN	SS «Chapaeva» - 110/35/10 kV	100%	100%
42	Chanubi EN	SS «Kalinina» - 110/35/10 kV	100%	100%

№	Name of Network	Name of Substation	Installation of CT, VT	Installation of meters
43	Chanubi EN	SS «Dusty» - 110/35/10 kV	100%	
44	Chanubi EN	SS «Lomonosova» - 110/35/10 kV	*	100%
45	Chanubi EN	SS «Pogranichnik» - 110/6 kV	100%	
46	Chanubi EN	SS «Karadum» - 110/35/6 kV	100%	
47	Chanubi EN	SS «Iskra» - 110/35/6 kV	100%	
48	Chanubi EN	SS «Kurgan-Tube» - 110/35/6 kV	100%	100%
49	Chanubi EN	SS «Gidrouzel» - 110/35/10 kV	100%	
50	Chanubi EN	SS «Guliston» - 110/35/10 kV	100%	
51	Chanubi EN	SS «Beshkent» - 110/35/10 kV	*	100%
52	Chanubi EN	SS «Orositelnaya» - 110/35/6 kV	100%	
53	Chanubi EN	SS «Garauty» - 110/35/6 kV	100%	
54	Chanubi EN	SS «Oj-Kamar» - 110/35/6 kV	100%	
55	Chanubi EN	SS «Kirovobad» - 110/10 kV	*	
56	Chanubi EN	SS «Toshrabad» - 110/6 kV	100%	
57	Chanubi EN	SS «Beregovaya» - 110/35/6 kV	100%	
58	Chanubi EN	SS «Djilikul» - 110/10 kV	*	
59	Chanubi EN	SS «Sverdlova» - 110/10 kV	100%	
60	Chanubi EN	SS «Istiklol» - 110/35/10 kV	100%	
61	Chanubi EN	SS «Pyandzh» - 110/10 kV	100%	100%
62	Chanubi EN	SS «Geran-2» - 220/110/10 kV	*	
63	Chkalovsk city EN	SS «Ubilejnaya» - 110/35/10 kV	100%	100%
64	Dangara City	SS «Lolazor» - 220/110/10 kV	*	100%
65	Dangara City	SS «Sebiston» - 220/35/6 kV	100%	100%
66	Dangara City	SS «Korgar» - 110/35/10 kV	100%	100%
67	Dushanbe City	SS «Glavnaya» - 110/35/6 kV	100%	
68	Dushanbe City	SS «XBK» - 110/35/10 kV	100%	
69	Dushanbe City	SS «TTM» - 110/10 kV	100%	
70	Dushanbe City	SS «Kafer.vodozabor» - 110/35/6 kV	100%	
71	Dushanbe City	SS «Vostochnaya - 110/35/6 kV	100%	
72	Dushanbe City	SS «Akademgorodok» - 110/35/10 kV	100%	
73	Dushanbe City	SS «Shursay» - 110/10 kV	100%	
74	Dushanbe City	SS «Vakhdat» - 110/6 kV	100%	
75	Dushanbe City	SS «Karamova» - 110/35/10 kV	100%	
76	Dushanbe City	SS «Bahor» - 110/10 kV	100%	
77	Dushanbe City	SS «Bustion» - 110/10 kV	100%	100%
78	Dushanbe City	SS «Botsad» - 110/10 kV	100%	100%
79	Dushanbe City	SS «Zavodskaya» - 110/35/10 kV	100%	100%
80	Dushanbe City	SS «O. Sooruzheniya» - 110/35/6 kV	100%	100%
81	Dushanbe City	SS «Sovetskaya» - 110/10 kV	100%	100%
82	Dushanbe City	SS «Sportivnaya» - 110/35/10 kV	100%	100%
83	Dushanbe City	SS «Sohili» - 110/10 kV	100%	100%
84	Dushanbe City	SS «Promishlenaya» - 110/35/10 kV	100%	100%
85	Dushanbe City	SS «Kasri Milat» - 110/10 kV	*	100%
86	Dushanbe City	SS «Shahri» - 110/10 kV	100%	100%
87	Dushanbe City	SS «Jugo-Zapadniy Vodozabor» - 110/6 kV	100%	
88	Dushanbe City	SS «Firdavsy» - 110/10 kV	100%	

№	Name of Network	Name of Substation	Installation of CT, VT	Installation of meters
89	Dushanbe City	SS «Navbahor» - 110/10 kV	100%	
90	Dushanbe City	SS «Luchob» - 110/10 kV	100%	
91	Dushanbe City	SS «Anzob» - 110/6 kV	100%	
92	Dushanbe City	SS «Kaharova» - 110/10 kV	*	
93	Dushanbe City	SS «Aviator» - 110/6 kV	100%	
94	Dushanbe TPP-2	TPP Power generation	*	
95	Dushanbe TPP-9	Substation own needs	*	
96	Dushanbe TPP-9	Switchyard 6 kV	*	
97	Dushanbe TPP-9	Switchyard- 220kV	*	30%
98	Isfara EN	SS "Isfara" 110/35/10 kV	100%	
99	Isfara EN	SS "Kulkent" 110/35/10 kV	100%	
100	Isfara EN	SS "Shurob" 110/35/6 kV	*	
101	Isfara EN	SS "October" 110/35/10 kV	100%	
102	Isfara EN	SS "Zumrad" 110/10 kV	100%	
103	Isfara EN	SS "Matpary" 110/6 kV	100%	
104	Isfara EN	SS "Shorsu" 110/10 kV	100%	
105	Istarafshan	SS «Uzlovaya» - 220/110/10 kV	100%	100%
106	Istarafshan	SS «Nov» - 110/35/6kV	100%	100%
107	Istarafshan	SS «Sugd-500» - 500/220/35 kV	*	100%
108	Istarafshan	SS «Shahriston» - 220/10 kV	*	100%
109	Istarafshan	SS "KNS-2" 220/110/10 kV	*	
110	Istarafshan	SS "KNS-1" 220/10 kV	*	100%
111	Istarafshan	SS "KNS-3" 110/10 kV	100%	100%
112	Istarafshan	SS "KNS-4" 110/10 kV	*	
113	Istarafshan	SS "Mekhnat" 110/35/10 kV	*	
114	Istarafshan	SS "Digmay" 110/6 kV	100%	
115	Istarafshan	SS "Partsesd" 110/10 kV	*	
116	Istarafshan	SS "Gonji" 110/10 kV	100%	100%
117	Istarafshan	SS "Kaftar" 110/10 kV	100%	100%
118	Istarafshan	SS "Jomi" 110/35/10 kV	*	100%
119	Istarafshan	SS "Fabrichnaya" 110/10 kV	100%	100%
120	Istarafshan	SS "Ura-Tube" 110/35/10 kV	100%	100%
121	Istarafshan	SS "Chorbog" 110/35/10 kV	100%	
122	Istarafshan	SS "Proletarsk" 110/35/10 kV	100%	
123	Istarafshan	SS "Gulakandoz" 110/10 kV	100%	
124	Kayrakkumskaya	Power generation	*	
125	Khujand city EN	SS «Zarechnaya» - 110/10 kV	100%	
126	Khujand city EN	SS «Novaya» - 110/35/10 kV	100%	
127	Khujand city EN	SS «Avichena» - 110/6 kV	100%	
128	Khujand city EN	SS «Nagornaya» - 110/10 kV	*	
129	Kulyab City	SS «Bohtar» - 110/10 kV	*	
130	Kulyab City	SS «Somoni» - 110/6 kV	100%	
131	Kulyab City	SS «Ismailova» - 110/35/6 kV	*	
132	Kulyab City	SS «Amirshoeva» - 110/10 kV	*	
133	Kulyab EN	SS «Hatlon» - 220/110/10 kV	*	100%
134	Kulyab EN	SS «Kulob» - 110/35/10 kV	*	100%

№	Name of Network	Name of Substation	Installation of CT, VT	Installation of meters
135	Kulyab EN	SS «Vose» - 110/35/10 kV	100%	100%
136	Kulyab EN	SS «Kizil-su» - 110/35/6 kV	*	
137	Kulyab EN	SS «Farkhor» - 110/35/6 kV	*	
138	Kulyab EN	SS «Toakala» - 110/10 kV	100%	
139	Kulyab EN	SS «Hovaling» - 110/10 kV	100%	
140	Kulyab EN	SS «Sijarfak» - 110/10 kV	*	
141	Kulyab EN	SS «Kulob-Darje» - 110/35/6 kV	100%	
142	Kulyab EN	SS «Shugnou» - 110/35/6 kV	*	
143	Kulyab EN	SS «Dahana» - 110/35/10 kV	100%	
144	Nurek City EN	SS «Shar-Shar» - 220/35/10 kV	100%	
145	Nurek City EN	SS «Nurek» - 220/35/6 kV	*	
146	Nurek HPP-7	Power generation	*	
147	Nurek HPP-7	Substation own needs	*	
148	Nurek HPP-7	Switchyard 220 kV	*	
149	Penjikent EN	SS "Ajni-220" 220/110/10 kV	*	
150	Penjikent EN	SS "Pudaki-220" 220/110/35/10 kV	100%	
151	Penjikent EN	SS "Sitora" 110/10 kV	100%	
152	Penjikent EN	SS "Istiglol" 110/6 kV	100%	
153	Penjikent EN	SS "Dshishikrut" 110/6 kV	*	
154	Penjikent EN	SS "Sarvoda" 110/6 kV	100%	
155	Penjikent EN	SS "Kolhozchien" 110/10 kV	100%	
156	Penjikent EN	SS "Jery" 110/6 kV	100%	
157	Penjikent EN	SS "Koshona" 110/10 kV	100%	
158	Penjikent EN	SS "Zarafshon" 110/10 kV	100%	
159	Penjikent EN	SS "Ainy" 110/35/10 kV	100%	
160	Rasht EN	SS «Tegermi» - 110/10 kV	100%	
161	Rasht EN	SS «Komsomolobod» - 110/10 kV	100%	
162	Rasht EN	SS «Plemsovkhoz» - 110/10 kV	100%	
163	Rasht EN	SS «Fedina» - 110/10 kV	100%	
164	Rasht EN	SS «Dzhirgital» - 110/10 kV	100%	
165	Rasht EN	SS «Tojikobod» - 110/35/10 kV	100%	
166	Rasht EN	SS «Garm» - 110/35/10 kV	*	
167	Rasht EN	SS «Lyahsh» - 110/35/10 kV	100%	
168	Rasht EN	SS «Hakimi» - 110/10 kV	*	
169	Sugd EN	SS «Hodjend» - 220/110/10 kV	*	100%
170	Sugd EN	SS «Leninabadskaya» - 220/110/10 kV	*	100%
171	Sugd EN	SS «H.Bakirgan» - 110/35/10 kV	*	100%
172	Sugd EN	SS «Kanibadam» - 220/110/35/10 kV	*	100%
173	Sugd EN	SS "Asht" 220/110/10 kV	*	
174	Sugd EN	SS "Buston" 220/110/10 kV	*	
175	Sugd EN	SS «Bulok-2» - 110/35/10 kV	100%	
176	Sugd EN	SS «Zarya» - 110/35/6 kV	*	
177	Sugd EN	SS «Sovetobod» - 110/35/6 kV	100%	
178	Sugd EN	SS «Dzharbulak» - 110/35/10 kV	100%	
179	Sugd EN	SS «Sumchak» - 110/35/6 kV	100%	
180	Sugd EN	SS «ANS-5» - 110/35/6 kV	100%	

№	Name of Network	Name of Substation	Installation of CT, VT	Installation of meters
181	Sugd EN	SS «Vstrecha» - 110/35/10 kV	100%	
182	Sugd EN	SS «Mahram» - 110/35/6 kV	100%	
183	Sugd EN	SS «Hlopzavodskaya» - 110/35/6 kV	*	
184	Sugd EN	SS «Kovrovaya» - 110/35/6 kV	*	100%
185	Sugd EN	SS «Dargot» - 110/35/6 kV	100%	100%
186	Sugd EN	SS «Yantak-1» - 110/35/10/6 kV	*	
187	Sugd EN	SS «DVZ-1» - 110/35/6 kV	*	
188	Sugd EN	SS «Gozien» - 110/6 kV	100%	
189	Sugd EN	SS «Gafurov» - 110/10 kV	100%	
190	Sugd EN	SS «ANS-1» - 110/10 kV	100%	
191	Sugd EN	SS «Collectornaya» - 110/6 kV	*	
192	Sugd EN	SS «Eti-tepa» - 110/6 kV	*	
193	Sugd EN	SS «Navruz» - 110/10 kV	*	
194	Sugd EN	SS «Ak-dzhar» - 110/6 kV	100%	
195	Sugd EN	SS «SFK» - 110/6 kV	100%	
196	Sugd EN	SS «Adrasman» - 110/35/6 kV	100%	
197	Sugd EN	SS «DVZ-2» - 110/6 kV	100%	
198	Sugd EN	SS «DVZ-3» - 110/6 kV	100%	
199	Sugd EN	SS «ANS-3» - 110/6 kV	*	
200	Sugd EN	SS «ANS-4» - 110/6 kV	100%	
201	Tursunzoda EN	SS «Ravshan» - 220/35/10 kV	*	
202	Vaksh HPP	HPP - 5 Power generation	*	
203	Vaksh HPP	Switchyard 220 kV	*	
204	Vaksh HPP	Switchyard 110 kV	*	
205	Vaksh HPP	Switchyard 35 kV	*	
206	Vaksh HPP	Substation own needs	*	
207	Vaksh HPP	HPP - 4 Power generation	*	
208	Vaksh HPP	Switchyard 110 kV	*	
209	Vaksh HPP	Switchyard 35 kV	*	
210	Vaksh HPP	HPP - 6 Power generation	*	
211	Vaksh HPP	Switchyard 6 kV	*	
212	Vaksh HPP	Substation own needs	*	
213	Varzob HPP	Varzob HPP-1	*	
214	Varzob HPP	Varzob HPP-2		
215	Yavan TPP-10	Power Generation	*	
216	Yavan TPP-10	Substation own needs	*	
217	Yavan TPP-10	Switchyard 220 kV	*	
218	Yavan TPP-10	SS 110/6 kV «Nasosnaya stanchiya №1» (YTPP)	*	
219	Yavan TPP-10	SS 110/6 kV «Nasosnaya stanchiya №2» (YTPP)	*	
220	Yavan EN	SS Yavan 220/35/10 kV	100	
221	Central (Markazi) EN	SS «ТМК» - 110/35/10 кV	*	
222	Central (Markazi) EN	SS «Парвоз» - 110/10 kV	*	
223	Central (Markazi) EN	«Ushniya Portal» - 110/35/10 kV	*	
224	Chanubi EN	SS «Vodii Zarrin» - 110/10kV	*	
225	Chanubi EN	SS «Navobod» - 110/10kV	*	100%

№	Name of Network	Name of Substation	Installation of CT, VT	Installation of meters
226	Dushanbe City	SS «Касри тенниs» - 110/10 kV	*	100%
227	Istarafshan	SS "Zafarobod" 110/35/10 kV	100	
228	Istarafshan	SS "Stepnaya" 110/35/10 kV	*	
229	Istarafshan	SS "Ulduzkok" 110/35/6 kV	100	
230	Khujand city EN	SS «Radiy»- 110/10 kV	*	
231	Sugd EN	SS «Aprelevskaya» - 110/6 kV	*	
232	Sugd EN	SS «Metalzavod» - 110/6 kV	*	
233	Sugd EN	SS «Tajikskaya» - 110/35/6 kV	*	

8.3 Annex III: Non-Conformity Letter sent by the PMU to the Contractor on 17/10/2019

ҲУКУМАТИ
ҶУМҲУРИИ ТОҶИКИСТОН
МУАССИСАИ ДАВЛАТИИ
«МАРКАЗИ ИДОРАИ ЛОИҲАҲОИ
БАХШИ ЭЛЕКТРОЭНЕРГЕТИКА»

ПРАВИТЕЛЬСТВО
РЕСПУБЛИКИ ТАДЖИКИСТАН
ГОСУДАРСТВЕННОЕ УЧРЕЖДЕНИЕ
«ЦЕНТР УПРАВЛЕНИЯ ПРОЕКТАМИ
ЭЛЕКТРОЭНЕРГЕТИЧЕСКОГО СЕКТОРА»

GOVERNMENT OF THE REPUBLIC OF TAJIKISTAN
STATE ESTABLISHMENT
"PROJECT MANAGEMENT UNIT FOR ELECTRO – ENERGY SECTOR"

734042 ш. Душанбе к. Кахаров – 39А телефон: 222-25-58; Факс: 222-25-56; E-mail:pmu_tj@mail.ru

17.10.19 № 10/1906-1983

ба: _____ аз _____

To: TBEA
Attn: Mr. Wang Jian
Local Representative Director
E-mail: 18323482@qq.com
34/2 Spartak Street
Dushanbe, Tajikistan.

cc: AF Mercados EMI
Attn. Mr. Stefan Rose – Team Leader
E-mail: stefan.rose@afconsult.com

Wholesale Metering and Transmission Reinforcement Project ADB Grant - 0417TAJ
Lot 2: "Rehabilitation of Substation Rudaki and Extension of Substation Ayni 220 kV and Construction of 220 kV OHL between SS Ayni 220 kV and SS Rudaki"
Subject: Environmental violations and corrective actions

Dear Sir,

Referring to your Contract, we would like to submit for your information and further actions the attached document / form for monitoring the implementation of the Contractor's Environmental Management Plan for the site (SSEMP).

Best regards,

Executive Director N. Nazarzoda

Enclosure: as mentioned in the text

Ex: Karimov S.
Tel: 919602724

Identified violations	Recommendations	Responsible persons, data
1. The complaints book is absent at the Rudaki SS.	1.The complaints book should be available by the end of October 2019.	TBEA October, 2019.
2. Monthly environmental monitoring reports are not provided.	2. Provide monthly environmental monitoring reports from July 2018	TBEA November 10, 2019.
3. Damage is observed at Rudaki substation due to a lack of compaction during construction.	3. Eliminate all damage at Rudaki substation caused by a lack of compaction during construction, and therefore reduce risks for H & S.	TBEA October 21, 2019
4. Waste generated after the dismantling of working camp near SS Ayni is not disposed.	4. Waste generated after dismantling of working camp near SS Ayni should be collected and safely disposed.	TBEA October 31, 2019.

Photos of environmental violations:

Figure 1: Presence of concrete floors.

Figure 2: Presence of construction material waste after dismantling the camp.

Figure 3: Damage at Rudaki substation due to lack of compaction.

Figure 4: Damage at Rudaki substation due to lack of compaction.

8.4 Annex IV: Attendance sheet of the wrap-up meeting of the mission of the PIC International Safeguards Specialist on 21/11/2019

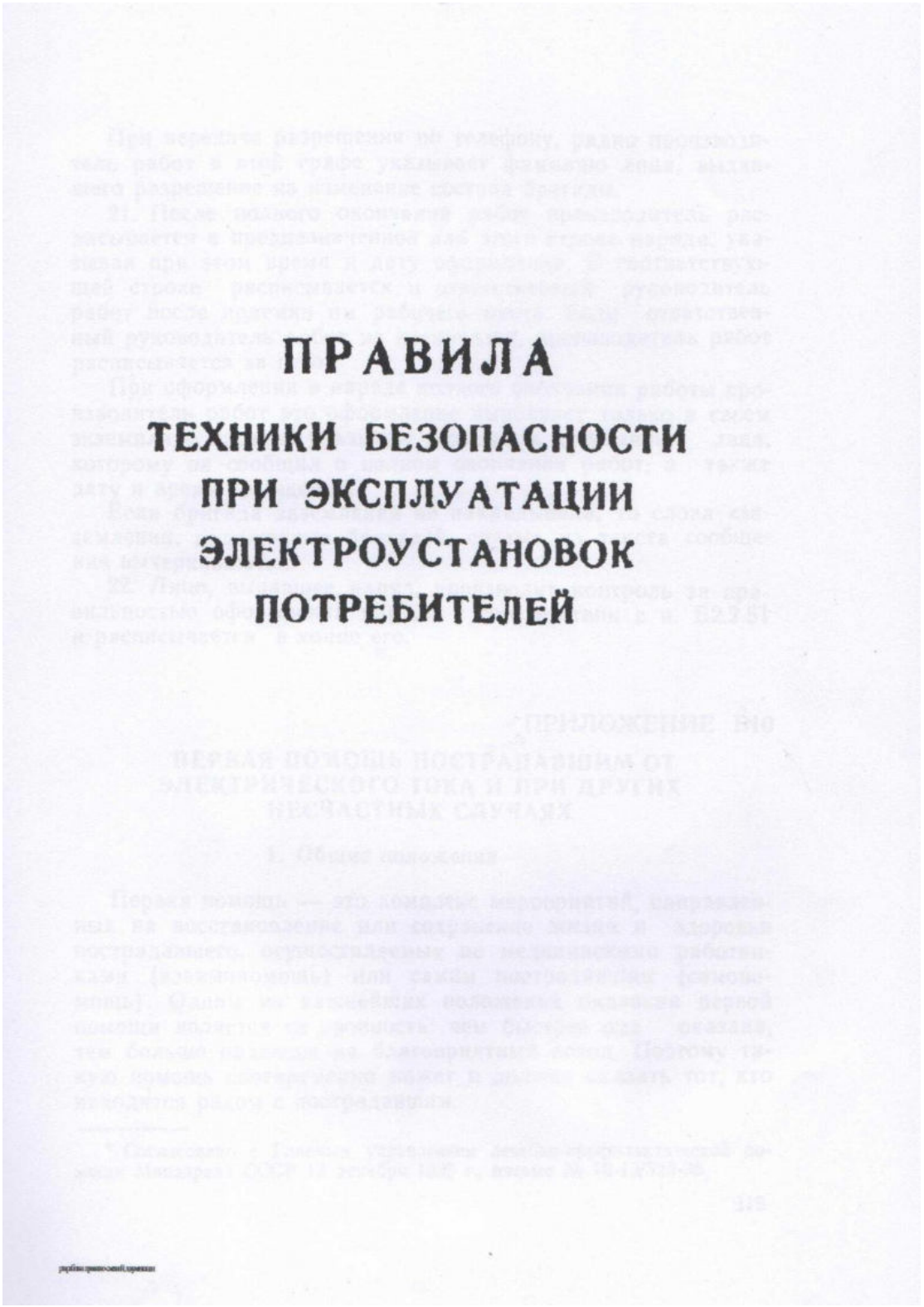
Список участников совещания

от 21.11.2019 г.

№	ФИО	Организация, должность	Подпись
1	Шерипов. Х.	ГУ „И.У.П.Э.С"	[signature]
2	Хокироева Ш.	мутахассиси	
3		пешбарии оҷёба ММ	[signature]
4	Nematov SH	PMU	[signature]
5	[illegible]	TBEA	[signature]
6	Хойдоров Хайём	TBEA	[signature]
7	Холов А.Р.	ГУ „И УПЭС" эколог	[signature]
8	Ван Липинг	TBEA	[signature]
9	Каримов С	ГУ „ИУПЭС"	[signature]
10	Неъматов Ф	Конс. АБР по ОЗС	[signature]
13	Бабаджанова М.	Конс. АБР по экологии / вопросам переселения	[signature]
14	PATRICIA RAMOS	PIC ENVIRONMENTAL AND SOCIAL SPECIALIST	[signature]
15	Inomullo Mirboboev	Mercados	[signature]
16			

8.5 Annex V: Training on H&S provided by the Contractor to its workers

8.5.1 Contents of the used H&S training manual


ПРАВИЛА

ТЕХНИКИ БЕЗОПАСНОСТИ
ПРИ ЭКСПЛУАТАЦИИ
ЭЛЕКТРОУСТАНОВОК
ПОТРЕБИТЕЛЕЙ

Первая помощь при поражении электрическим током человека

Если несмотря на все принятые меры все же происходит поражение человека электрическим током, то спасение пострадавшего в большинстве случаев зависит от быстроты освобождения его от действия тока, а также от быстроты и правильности оказания пострадавшему первой помощи.

Может оказаться, что пострадавший сам не в состоянии освободиться от действия электрического тока. В этом случае ему немедленно нужно оказать помощь, приняв меры предосторожности, чтобы самому не оказаться в положении пострадавшего. Необходимо отключить установку ближайшим выключателем или прервать цепь тока, перерезав провод ножом, кусачками, топором и др.

Если пострадавший лежит на земле или на проводящем ток полу, следует изолировать его от земли, подсунув под него деревянную доску или фанеру.

После освобождения пострадавшего от действия электрического тока ему немедленно нужно оказать доврачебную помощь в соответствии с его состоянием. Если пострадавший не потерял сознания и может самостоятельно передвигаться, отвести его в помещение, удобное для отдыха, успокоить, дать выпить воды, предложить полежать.

Если при этом у пострадавшего оказались какие-либо травмы (ушибы, порезы, вывихи суставов, переломы костей и т. п.), то оказать на месте соответствующую помощь, а при необходимости направить в медицинский пункт или вызвать врача.

Если после освобождения от электрического тока пострадавший находится в бессознательном состоянии, но дышит нормально и прослушивается пульс, надо немедленно вызвать врача, а до его прибытия оказывать помощь на месте - привести пострадавшего в сознание: дать понюхать нашатырный спирт, обеспечить поступление свежего воздуха.

Если после освобождения от действия электрического тока пострадавший находится в тяжелом состоянии, т. е. не дышит или дышит тяжело, прерывисто, то, вызвав врача, необходимо, не теряя ни минуты, приступить к искусственному дыханию.

Универсальная схема оказания первой помощи на месте происшествия

1. Если нет сознания и нет пульса на сонной артерии - ПРИСТУПИТЬ К РЕАНИМАЦИИ
2. Если нет сознания, но есть пульс на сонной артерии - ПОВЕРНУТЬ НА ЖИВОТ И ОЧИСТИТЬ РОТОВУЮ ПОЛОСТЬ
3. При артериальном кровотечении - НАЛОЖИТЬ ЖГУТ
4. При наличии ран - НАЛОЖИТЬ ПОВЯЗКИ
5. Если есть признаки переломов костей конечностей - НАЛОЖИТЬ ТРАНСПОРТНЫЕ ШИНЫ

- Эта схема является универсальной для всех случаев оказания первой помощи на месте происшествия.

8.5.2 Attendance sheet of training provided on 12 August 2019

Список работников ОАО ТВЕА в РТ

Практические занятия по ТБ

Дата проведения: 12.08.2019

Пройденный курс лекций содержание

1. **Первая помощь пострадавшим от электрического тока и при других несчастных случаях**
2. **Первая помощь при обмороке, тепловом и солнечном ударах и отравлениях**
3. **Проведение искусственного дыхания**
4. **Освобождение пострадавшего от действия электрического тока**

Ф.И.О	Должность	Группа по ТБ	Подпись	Производитель
Бобохонов Л.Ф	Главный инженер	V		Производитель работ
Каримов У.Н	Инженер ТБ	V		Производитель работ
Холов С.Ё	Инженер служба подстанции	V		Производитель работ
Солиев Д.Р	Начальник РЗА	V		Производитель работ
Субхонов А.О	Инженер ПТО	IV		Производитель работ
Бобохонов К.Ф	Электромонтер	IV		Производитель работ
Нуров Т.З	Электромонтер	IV		Производитель работ
Холов Р.Ё	Электромонтер	IV		Производитель работ
Зарипов Ш.С	Инженер РЗА	IV		Производитель работ
Холики Ш.	Электромонтер РЗА	IV		Производитель работ
Сандов М.Р	Начальник кос-строительного бригада	IV		Производитель работ
Асроров Ш.М	Строитель	III		
Эсоев С.А	Сварщик	III		
Кучов З.А	Строитель	III		
Искандаров М.К	Строитель	III		
Хочакулов М.И	Строитель	III		
Искандаров А.К	Строитель	III		
Бирншов Р.А	Строитель	III		
Шарипов М.А	Сварщик	III		
Биколов А.Т	Строитель	III		
Икомов Н.	Водитель (монипулятор)	III		
Годоев Д	Электрик	IV		-
Рахмонов Ю	Водитель	III		-
Шералиев П.Х	Начальник технического отдела	III		-
Каримзода С.У	Строитель	III		-
Саттаров Ш.	Строитель	III		
Муллоев Ф.К	Строитель	IV		

Занятия провел: _____Инженер ТБ . Каримов У _____

8.6 Annex VI: Template for the post-construction monitoring report

It is suggested that the following custom-made template is used for performing the post-construction monitoring of all the substations under Lot 1 by the PMU and the PIC.

Name of the SS	
Date of the audit	
Name of person doing the audit	
Installation of CTs and VTs performed (yes/no)	
Installation of meters performed (yes/no)	
Compaction performed (yes/no)	
Leveling performed (yes/no)	
Gravel put back (yes/no)	
Presence of waste (yes/no)	
Uninstalled equipment store in the warehouse	
Pictures	