Environmental Monitoring Report

Semestral Report July - December 2016

UZB: Takhiatash Power Plant Efficiency Improvement Project

Prepared by State Joint Stock Company UzbekEnergo for the Republic of Uzbekistan and the Asian Development Bank.

Bi-Annual Environmental Monitoring Report

Project No.: 3141-UZB
Reporting period: July - December 2016

Republic of Uzbekistan:

Project "Construction of two CCGT units with the capacity of 230-280 MW each at Takhiatash TPP"

(Financed by the Asian Development Bank)

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For the agency:"Uzbekenergo" (execution)

Approved:
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February 2017

Abbreviations

ADB	-	Asian Development Bank
DAIIIP	-	Department of attraction of investments and implementation of investment projects - renamed Project Management Unit
EA	-	Executing Agency
EARF	-	Environmental Assessment and Review Framework
EHS	-	Environmental Health & Safety
EIA	-	Environmental Impact Assessment
EIP	-	Environmental Impact Permit
EMP/ SEMP	-	Environmental Management Plan/ Site-Specific Environmental Management Plan
ES/ SES	-	Environmental Specialist/ Senior Environmental Specialist
GRC	-	Grievance Redress Committee
GRM	-	Grievance Redress Mechanism
IA	-	Implementing Agency
IEE	-	Initial Environmental Examination
IFC	-	International Financial Organization
MAX	-	Maximum Allowed Concentration
SanN&R	-	Sanitarian Norms and Rules
SC	-	Supervision Consultant
SS	-	Suspended Solids

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1.1. Construction activities and project progress during the previous 6 months

1. The present Biannual Environmental Monitoring Report covers the period from July to December of 2016.

2. During the period covered by this report, performance related to the project were carried out within the framework of the Corrective Action Plan. Construction activities in the framework of project itself were not carried out during the period covered by the report.

3. At the moment of preparation of present report, the tender was carried out for selection of the General Contractor for construction of CCGT units at the Takhiatash TPP. “Turn key” contract was awarded and Contract # MB-1618 dated from 23 December, 2016 was concluded between JSC “Uzbekenergo” and Consortium of Hyundai Engineering Co. Ltd. jointly with Hyundai Engineering & Construction Co. Ltd.

4. National Environment Specialist of construction supervision Consultant «Gas Natural Fenosa Ingeniria D Desarrollo De Generacion S.L.» (Spain) was attracted since January 2017 (which is earlier than planned schedule) to assist in the preparation of environmental monitoring reports.

1.2. Changes in Project Organization and Environmental Management Team (Organizational structure)

5. During period covered by report, changes in the organizational structure of the project team and environmental management team (EMT) did not occur. The only change was to attraction of the National Environmental Specialist for providing consulting services, as mentioned above.

6. Existing organizational structure of the PMU and EMT is illustrate in the Pic. 1.

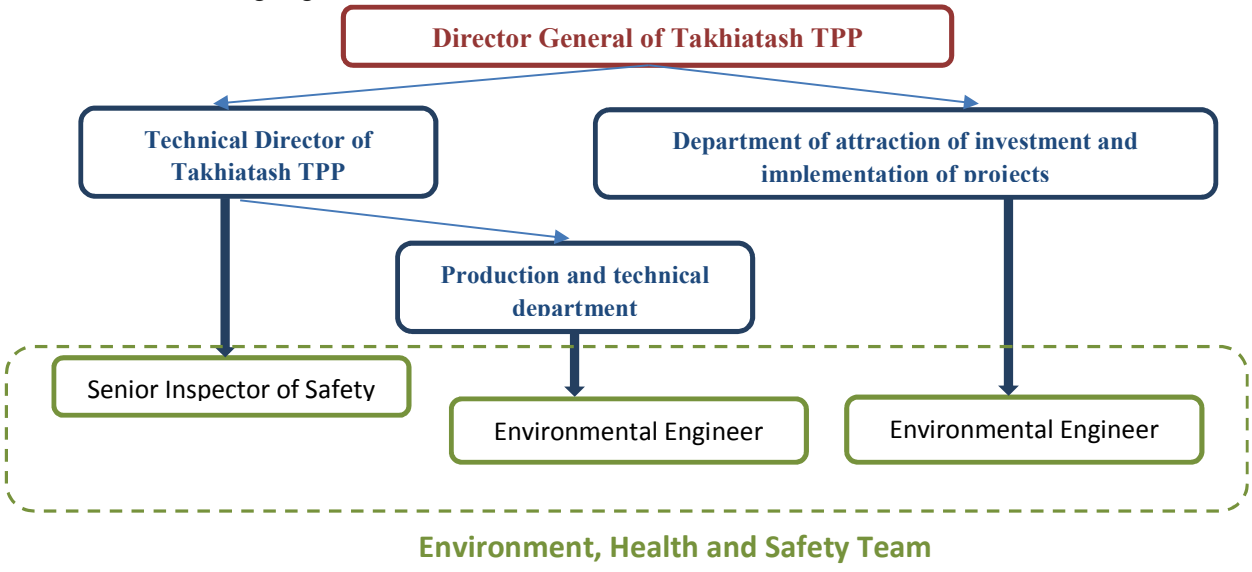


Figure 1: Organizational structure of Environment, Health and Safety Team

1.3. Interaction with the Contractor, project owner, loaner and others

7. As General Contractor has not yet been approved, the interaction with them will be started after signing of the contract.

8. Department of attraction of investments and implementation of investment projects (DAIIIP), which is the executive body of the project, is in constant contact with the Supervision Consultant, including consultation on the implementation of environmental protection measures and the preparation of environmental reports.

9. On the part of EA - JSC "Uzbekenergo" support in implementation to the project is provided, in particular the establishment DAIIIP and environmental management team. With the support of administration Takhiatash TPP close cooperation is established with local organizations on issues of instrumental monitoring of environmental quality: Environmental Protection Committee of the Republic of Karakalpakstan, Takhiatash hydrometeorological service station and etc. Also Takhiatash TPP is working with local authorities on the conduct of public hearings, information disclosure and implementation of a grievance mechanism.

10. Continuous support is provided by the Loaner - the Asian Development Bank (ADB), in the form of technical advice, including on protective issues by specialists of ADB headquarters in Manila (Ms Fong Tran), the local residence of the ADB (Ms. Feruza Insavalieva), and a consultant of the regional technical assistance (Ms. Keti Jebuadze).

1. ENVIRONMENTAL MONITORING

11. In accordance with the EIA and the accompanying Environmental Monitoring Plan (EMP), the Contractor is required to undertake parametric measurements and observations at Takhiatash TPP on air quality, water quality, noise, dust and vibration. Accordingly, the monitoring guidelines were set as shown below in the table 1 below:

Table 1: Parameters of monitoring measurements and frequency

Parameters	Frequency & Location	Remarks
Monitoring of air quality		
Air emissions	Weekly, at 3 km from Takhiatash TPP on meteorological station	SO_2, NOx, CO, CO_2. Since the CEMS is in operation, it is measured daily at the sources (Stacks).
Noise	Every 6 months, At the location as indicated in Figure 30 of EIA (point 1-4 industrial zone and 5-8 – residential area).	Initial noise monitoring in the points indicated in Figure 30 will be conducted in March 2017, agreement with Uzbekenrgo sub company has already signed.
Water quantity and water quality		
Water quality	Every 15 days Water intake and discharge	TS monitoring is being implemented by Takhiatash TPP. It will be continued during project

	canals.	construction and operation phases
Extension of the current water quality monitoring of the TPP done every 15 days	Every 15 days Extended water quality monitoring as per Env.monitoring plan, included in EIA.	Will be implemented during project construction stage. List of monitored pollutants should comply with Norms for pollutants into the discharging water (for Takhiatash TPP) and Table 5 of Thermal Power Plants IFC EHS guidelines.
Waste water quality	Every time the sanitation systems need to be emptied. Takhiatash municipal waste water treatment plant.	List of monitoring pollutant should comply with requirements indicated in Municipal waste water treatment plant should fulfill SanR&N No 0172-04 Hygiene requirements for the protection of surface waters.

11. Currently Environmental Monitoring at the Takhiatash TPP is carried out according the following parameters:

- monitoring of the quality of inlet and outlet channels of Suenli;
- monitoring the quality of waste water in the sludge collectors;
- monitoring of the quality of municipal water discharged into the municipal sewage system;
- monitoring of groundwater from wells located on the territory of the station;
- flue gas monitoring.

12. Monitoring of water quality in the inlet and outlet channels of Suenli is held on a monthly basis. The sampling points are shown in Pic 2. The analysis is conducted in the chemical laboratory of the station and the data is provided in the form of an environmental report to the Committee of Environmental Protection of Karakalpakstan.

13. Results of analyzes of water quality in the inlet and outlet channels for the reporting period (July-December 2016) in the form of graphs are shown in Pic 3, analyzes in Appendix 1. As can be seen from the graphs, the concentration of pollutants does not exceed the MAC, with the exception of the concentration of suspended solids. However, the concentration of this at the inlet is also higher than the MAC, which indicates the minimum impact of the station on the water quality in the channel Suenli.

14. There is an excess on the temperature indicator. According to national standards, the water temperature in the offtake should not exceed more than 3°C above the average monthly temperature (Figure 2).

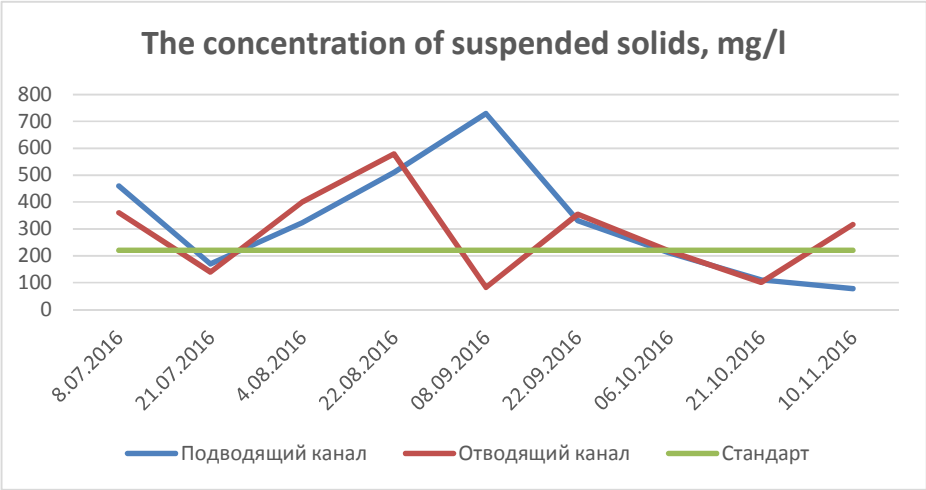
Figure 2: Water sampling points in the inlet and outlet channels

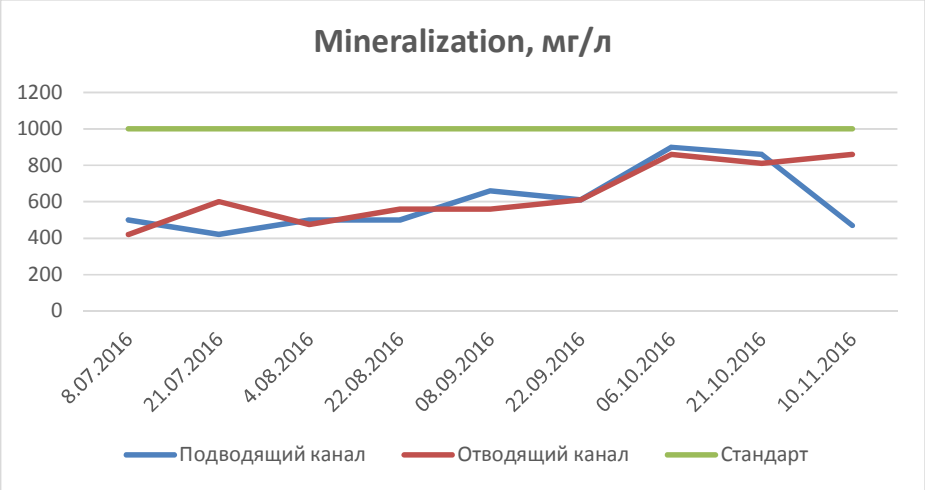
15. In addition to waste water discharges to Suenli channel, wastewater from Takhiatash TPP is discharged into municipal sewage and sludge collectors. Into municipal sewage the water is discharged through the four discharges - through 1 and 2 discharge of treated industrial wastewater, and through 3 and 4 - municipal and domestic waste water. Results of analyzes of 1-2 and 3-4 are shown in Pic 4 and in Appendix 2.

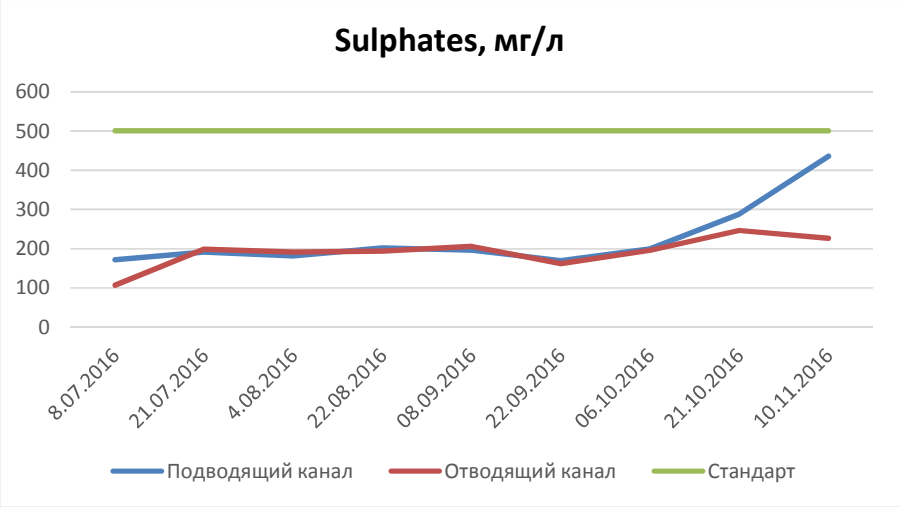
16. Analysis of water quality discharged into the municipal sewage system showed no excess on all 8 of this indicator.

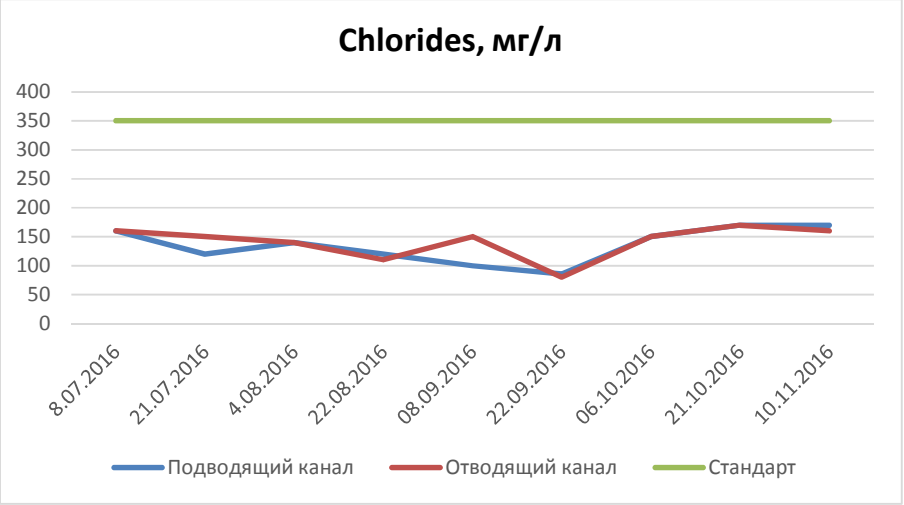
17. On the territory of the station there are 57 wells for monitoring of the level and quality of groundwater. The scheme of locations of wells in the area of the station is shown in Pic 5. Of these, 14 are in the non-working state. According to the corrective action plan (CAP), it is necessary to carry out the rehabilitation of non-working wells and to consider increasing the observation wells. According to the CAP, it was recommended to drill additional observation wells on the territory of the sludge collectors. Currently TPP administration is carrying out negotiations with representatives of the Karakalpak hydrogeological expedition on the rehabilitation of 14 wells and conditions of drilling new wells. The analysis results are presented in Appendix 3.

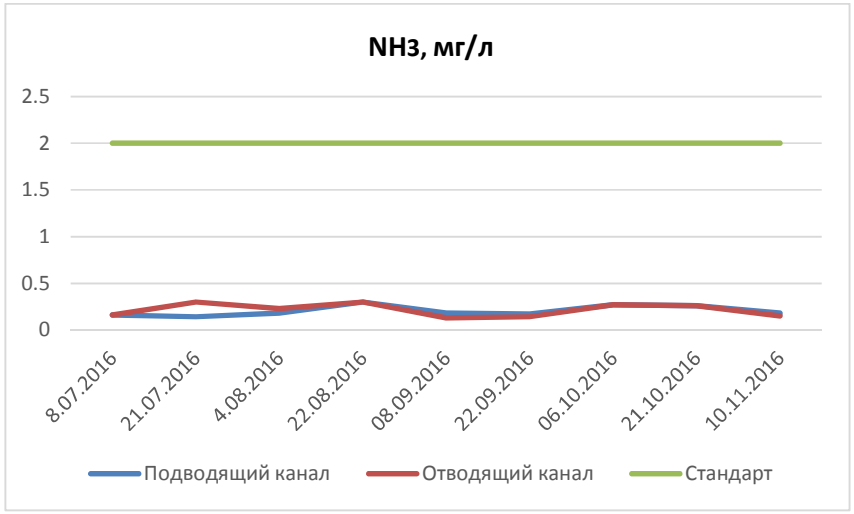
18. Groundwater quality analysis showed significant variation in the concentration and excess on several indicators, namely: sulphates, calcium and sodium. Exceedings have mainly natural origin, because the ground water throughout the area belong to the sulphate-sodium-calcium group. Such chemical indicators of groundwater result in a high level of hardness.

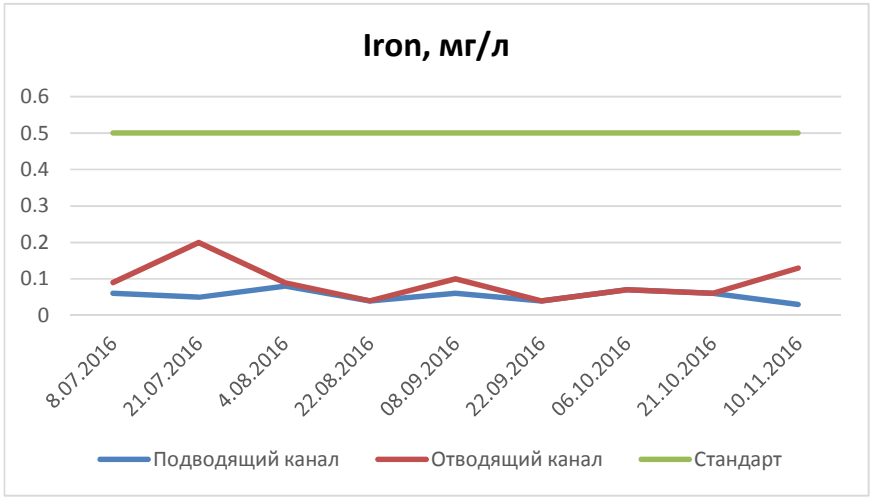

The concentration of suspended solids, mg/l
800
700
600
500
400
300
200
100
0
8.07.2016
21.07.2016
4.08.2016
22.08.2016
08.09.2016
22.09.2016
06.10.2016
21.10.2016
10.11.2016
Подводящий канал
Отводящий канал
Стандарт

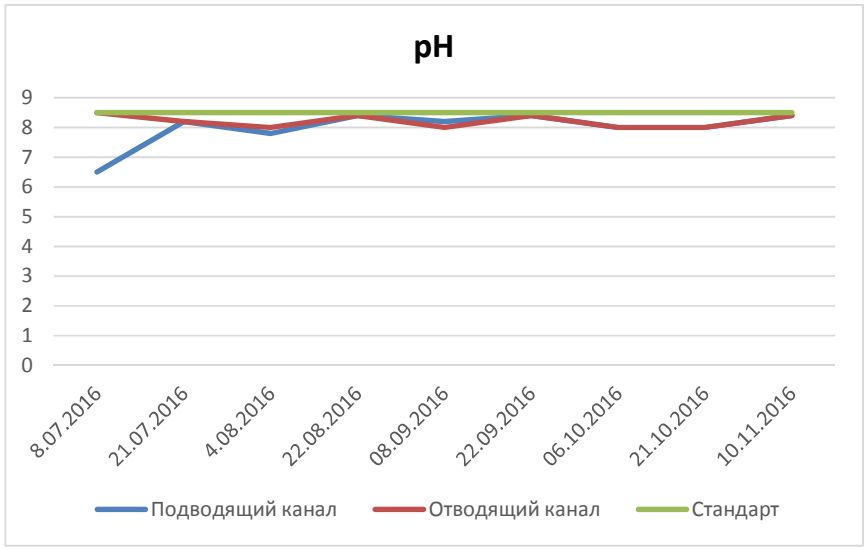

Mineralization, мг/л
1200
1000
800
600
400
200
0
8.07.2016
21.07.2016
4.08.2016
22.08.2016
08.09.2016
22.09.2016
06.10.2016
21.10.2016
10.11.2016
Подводящий канал
Отводящий канал
Стандарт


Sulphates, мг/л
600
500
400
300
200
100
0
8.07.2016
21.07.2016
4.08.2016
22.08.2016
08.09.2016
22.09.2016
06.10.2016
21.10.2016
10.11.2016
Подводящий канал
Отводящий канал
Стандарт

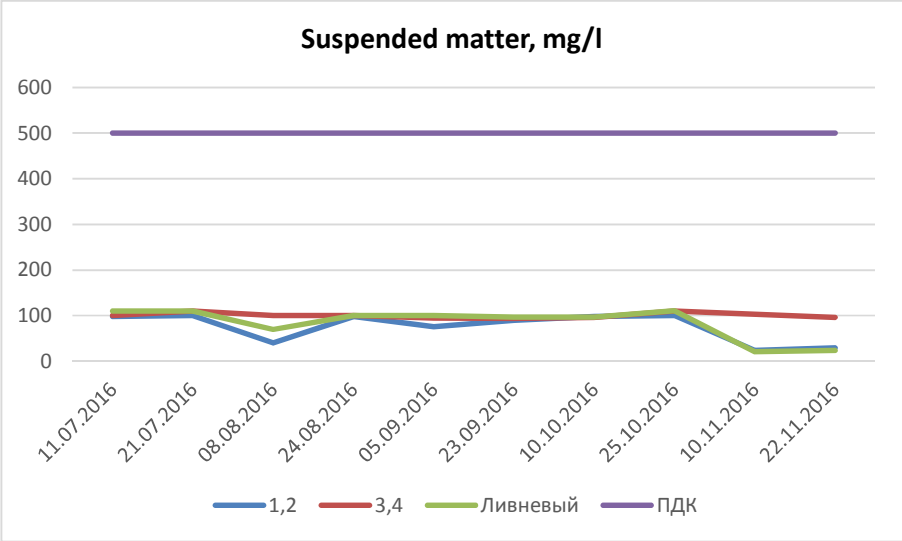

Chlorides, мг/л
400
350
300
250
200
150
100
50
0
8.07.2016
21.07.2016
4.08.2016
22.08.2016
08.09.2016
22.09.2016
06.10.2016
21.10.2016
10.11.2016
Подводящий канал
Отводящий канал
Стандарт

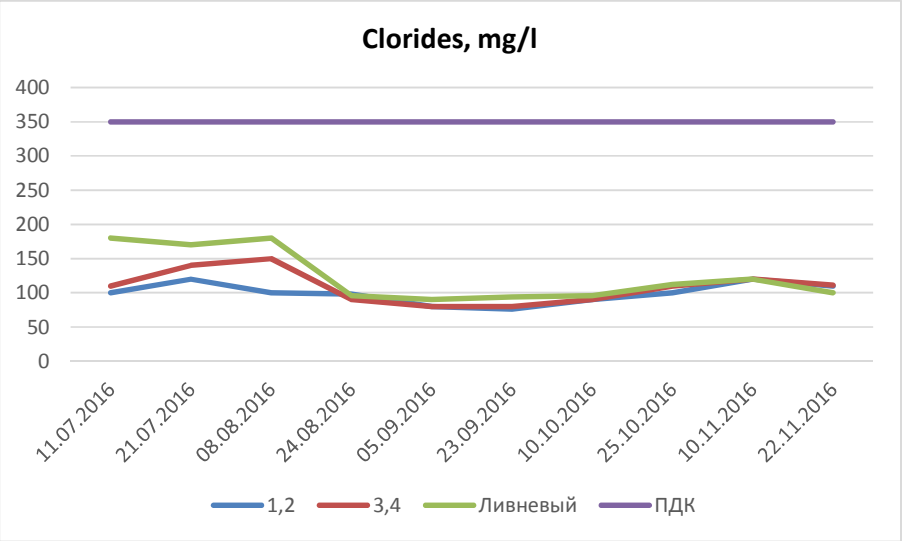


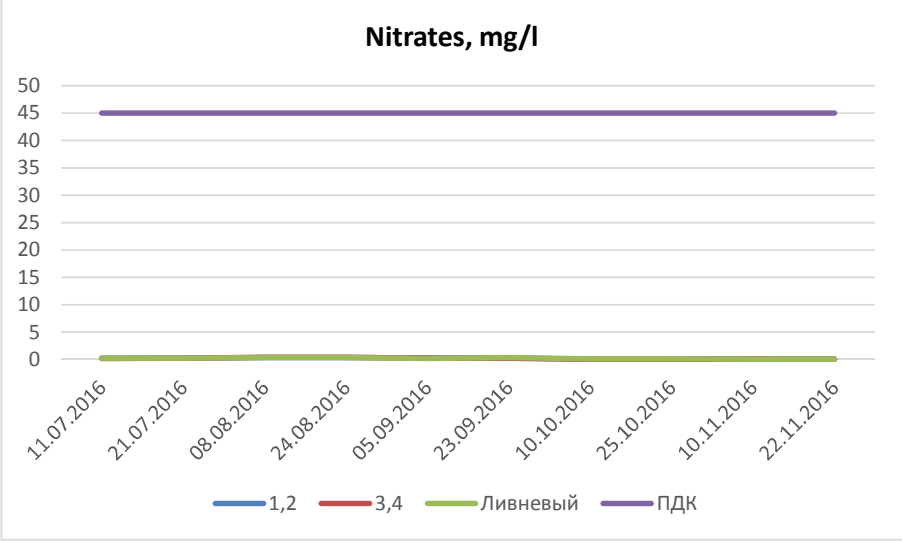


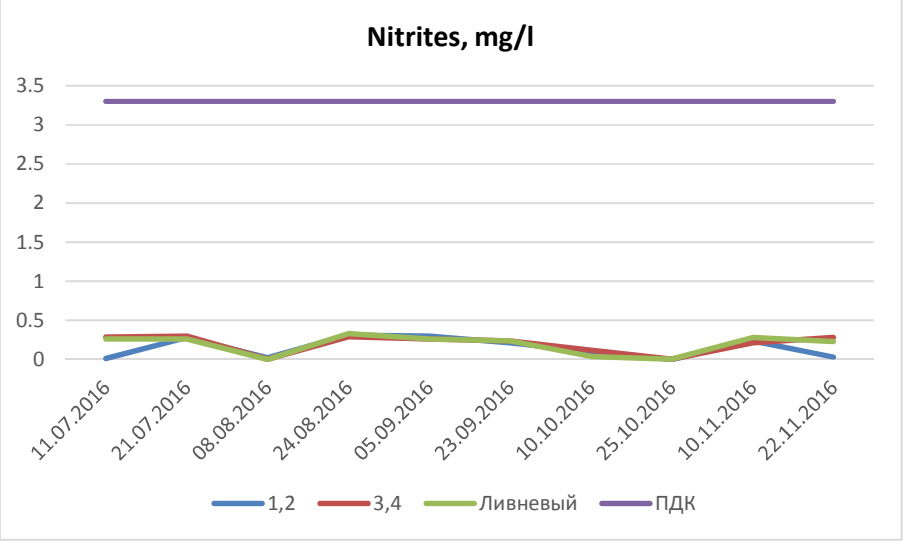


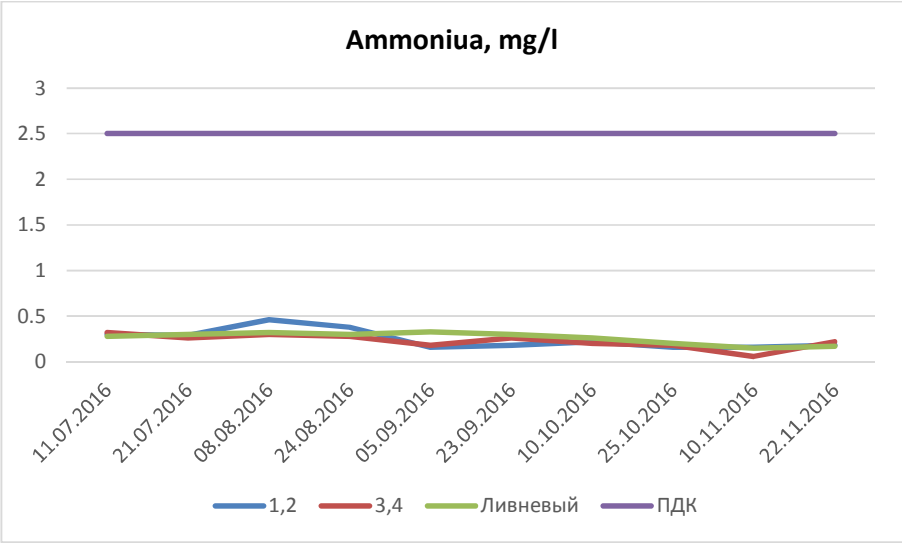
Pic 3: The concentration of pollutants in the inlet and outlet channels Suenli

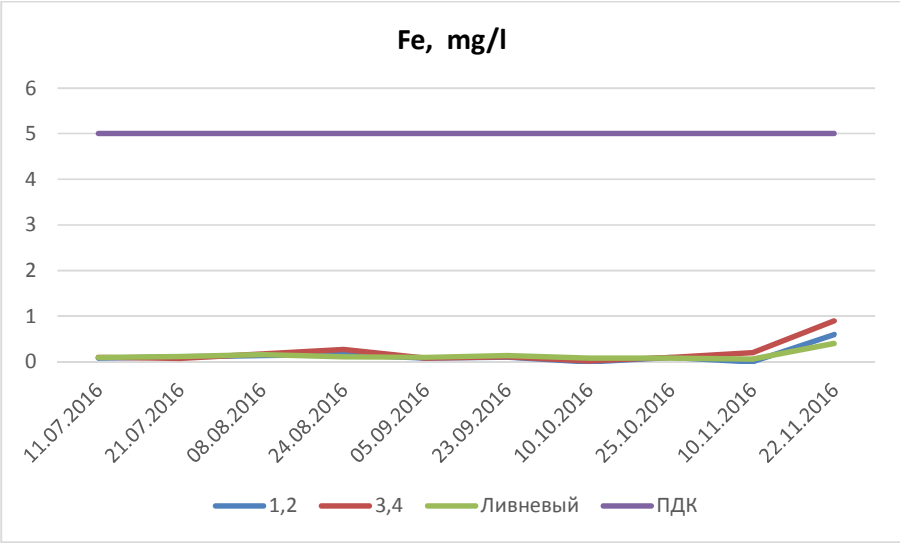

Suspended matter, mg/l
600
500
400
300
200
100
0
11.07.2016
21.07.2016
08.08.2016
24.08.2016
05.09.2016
23.09.2016
10.10.2016
25.10.2016
10.11.2016
22.11.2016
1,2
3,4
Ливневый
ПДК


Clorides, mg/l
400
350
300
250
200
150
100
50
0
11.07.2016
21.07.2016
08.08.2016
24.08.2016
05.09.2016
23.09.2016
10.10.2016
25.10.2016
10.11.2016
22.11.2016
1,2
3,4
Ливневый
ПДК


Nitrates, mg/l
50
45
40
35
30
25
20
15
10
5
0
11.07.2016
21.07.2016
08.08.2016
24.08.2016
05.09.2016
23.09.2016
10.10.2016
25.10.2016
10.11.2016
22.11.2016
1,2
3,4
Ливневый
ПДК


Nitrites, mg/l
3.5
3
2.5
2
1.5
1
0.5
0
11.07.2016
21.07.2016
08.08.2016
24.08.2016
05.09.2016
23.09.2016
10.10.2016
25.10.2016
10.11.2016
22.11.2016
1,2
3,4
Ливневый
ПДК


Ammoniua, mg/l
3
2.5
2
1.5
1
0.5
0
11.07.2016
21.07.2016
08.08.2016
24.08.2016
05.09.2016
23.09.2016
10.10.2016
25.10.2016
10.11.2016
22.11.2016
1,2
3,4
Ливневый
ПДК


Fe, mg/l
6
5
4
3
2
1
0
11.07.2016
21.07.2016
08.08.2016
24.08.2016
05.09.2016
23.09.2016
10.10.2016
25.10.2016
10.11.2016
22.11.2016
1,2
3,4
Ливневый
ПДК

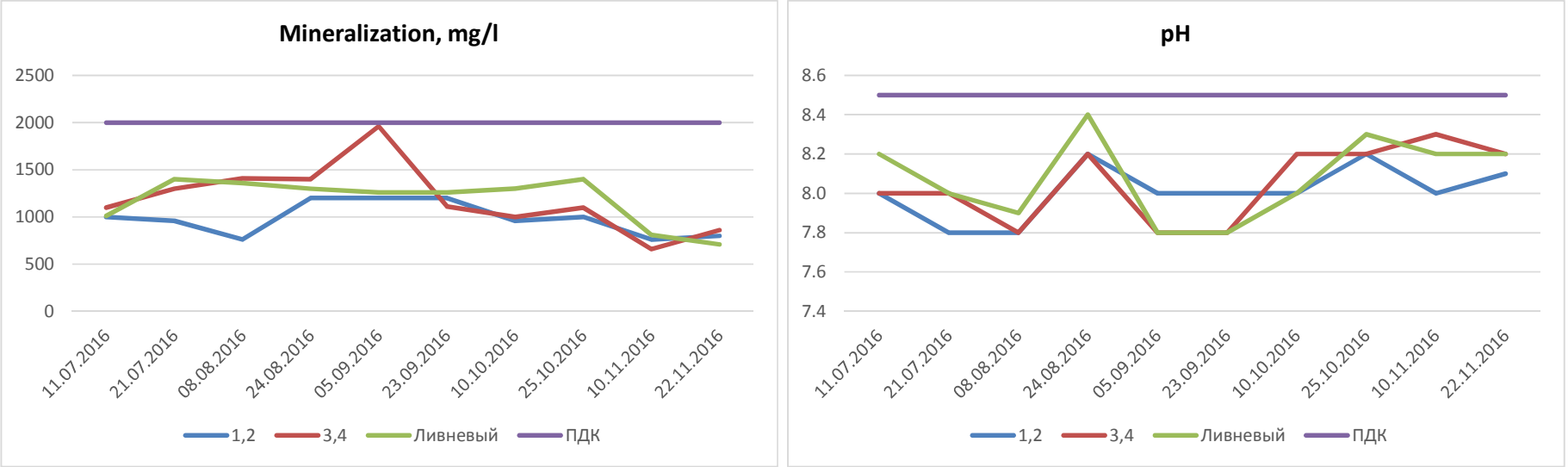
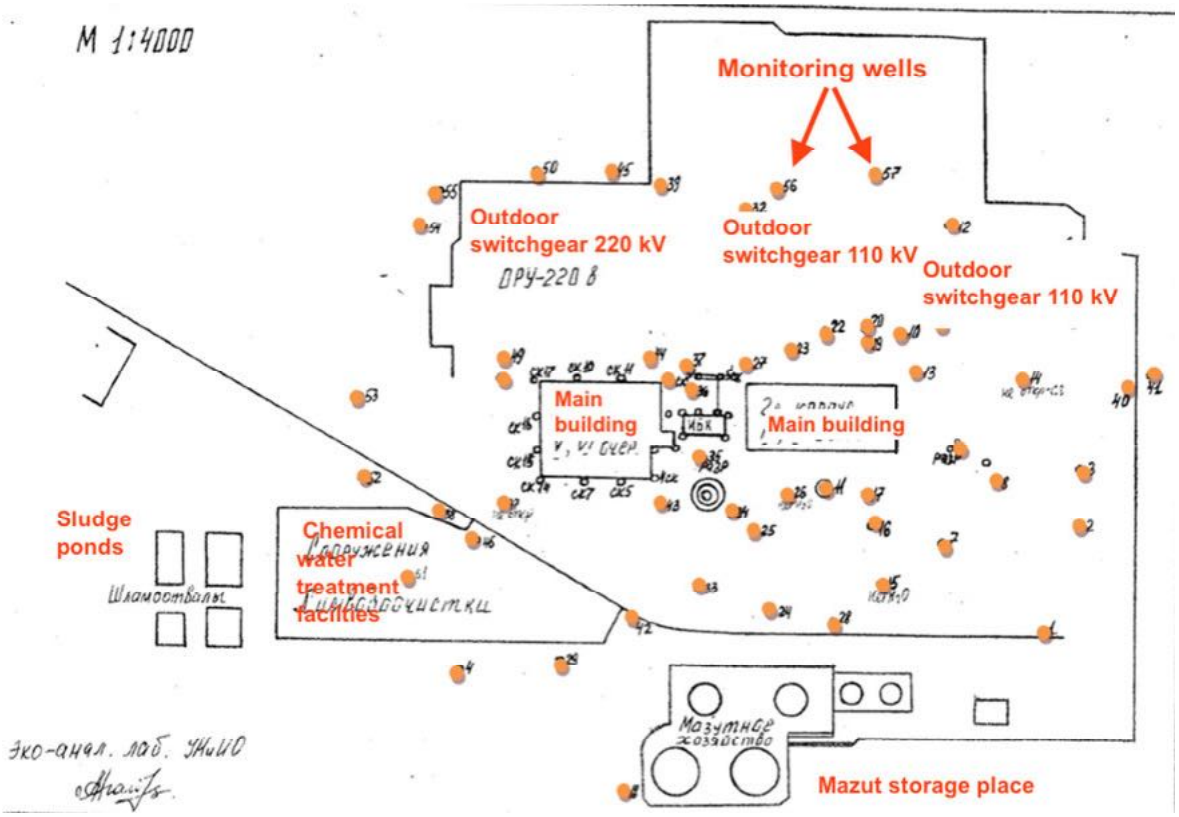


Figure 4: The concentration of pollutants in the wastewater discharged into the municipal sewage treatment plant



Pic 5: Arrangement of observation wells of the groundwater at the station

19. As a result of negotiations between the Takhiatash TPP and the weather station "Takhiatash" a contract was signed for the provision of materials for the meteorological parameters was, such as air humidity and temperature, wind speed and direction. Measurement results are presented in Appendix 4.

20. Also according to the agreement between the station and JSC “ORGRES” measurements of CO_2 and NO_2 emissions is conducted. Measurement results are presented in Appendix 5.

21. Noise monitoring will be implemented by Contractor after commissioning of the project works. Requirements on conduction of noise measurement are included in Contractor’s contracts. Currently noise measurements are not being implemented

2. ENVIRONMENTAL MANAGEMENT

3.1. System of management site-specific environmental management plan (SSEMP) and activities plan

22. Environmental Management Plan at the construction site (EMPCS) will be developed by the General Contractor before construction works start. As indicated above, at the time of preparation of the report, between JSC "Uzbekenergo" and the Contractor the Contract was

concluded on 23rd of December 2016, which is currently submitted to the MFERIT Uzbekistan for registration.

23. All environmental requirements with reference to Environmental Impact Assessment (2013) and Environmental Management Plan were included in contract documents of Contractor.

3.2. Inspection and Audit

23. Inspection and audit of implementation of EMPCS at the moment of preparation of this report was not carried out as the contractor has not started the works.

3.3. Failure to comply with notice

24. Not applicable yet.

25. In framework of preparation of the report on the Environmental Assessment (2013) the Corrective Action Plan (CAP) was prepared, the implementation of which was assigned to Takhiatash TPP. In Appendix 6 of this report CAP with the status of completion of each activity is presented.

26. As shown in CAP, most of the developed measures were implemented: the establishment of the environmental, health and safety team, inspection and repair of fuel oil storage, conclusion of contracts for the provision of meteorological data, etc.

3.4. Actions taken to reflect the findings of the ADB mission

27. In November 7, 2016 Takhiatash TPP was visited by ADB environmental consultant Keti Jebuadze. The findings revealed during the site monitoring and the status of corrective actions are given in the Table 2 below:

Table 2: Actions taken to reflect the findings of ADB mission carried out on 7 November 2016:

#	Specific issues	Deadline for submission/Implement ation	Implementation Status
1.	Mission requested to dispose hazardous waste temporarily at specially designated area complying national and international standards.	December, 2016	Mazut storage place for disposal of hazardous materials (such as asbestos) have been renovated and official confirmation from State Nature Protection Committee were receive
2.	According to CAP, Asbestos Management Plan have to be prepared by CC for gradual removal and replacement of asbestos in the existing units III and IV before commencement of demolishing phase and relevant	Q1 2017	

	training conducted by SC for workers (in cooperation with RETA/ADB Regional Environmental Consultant).		
3.	SSEMP to be prepared by CC in cooperation with SC national environmental specialist and RETA/ADB Regional Environmental Consultant	Q1 2017	
4.	Preparation of Hazardous Waste (asbestos) Management Plan by CC	Q1 2017	
5.	Conducting of training related to asbestos management for CC by SC in consultation with RETA/ADB Regional Environmental Consultant.	Q1 2017	Training will be conducted in March-April 2017.

28. ADB review mission was conducted for this project during 16-29 November, 2016 and a site visit to the TPP revealed the following main environmental issues related to waste management at TPP including the operations of the sewage system and WWTP, absence of track record system of monitoring data, excessive noise level at two points in the nearest residential village, formal coordination among the environmental specialist, and the Health and Safety staff of the TPP and other.

29. Mission also prepared the Actions which had to be implemented by TPP by indicated time. The Table 2 provides information about required actions and status of their implementation.

Table 2: Priority Actions

Pending Issues/Problems	Action Required	Responsible Party	Due Date	Status
CAP implementation	Completion of 9 prior-construction actions	TPP and PIU	Jan 2017	Almost all actions which had to be implemented by TPP before construction commissioning have been implemented. Monitoring track record system is under being developed in assistance with PIC and ADB RETA consultant.

Pending Issues/Problems	Action Required	Responsible Party	Due Date	Status
Waste management	Improvement for Oil linkage, thermo isolation materials, operations of sewage system, effluent discharge from WWTP	TPP	Jan 2017	Done. See action 14 of CAP
Excessive noise level	Consultation with villagers and TPP technical team for mitigation	PIU and TPP	Dec 2016	Consultation have been conducted, finding are presented in chapter 3.5 of this report
Environmental Monitoring measurement	Collect monitoring data, establish track record system, conduct additional measurements as required in CAP	TPP with assistance from PIC and RETA 8663 consultants	Dec 2016 Jan 2017	Monitoring data from TPP are systemized. Track monitoring system is under development
Semiannual EMRs	Submit revised EMR (Jan-Jun 2016) and disclose at Uzbekenergo Submit EMR (Jul-Dec 2016)	PIU	ASAP 15 Jan 2017	Semi-annual report for Jan-Jun 2016 is submitted to ADB and disclosed to on website

30. It should be noted that most of the requested actions have been implemented, only few actions will be implemented upon contract with selected EPC Contractor will become effective and EPC Contractor will be mobilized.

31. To conduct noise measurement at settlements located close to TPP (as indicated in EIA, 2013) an agreement on conduction noise measurement has been concluded with JSC "Energosozlash". It is planning that measurements will be implemented in the first quarter of 2017. Further monitoring of noise (both pre-construction and during construction) at all 8 points indicated in EIA will be implemented by EPC Contractor. Appropriate requirements on conduction noise monitoring are included in EPC contract.

32. To establish an environmental monitoring track system on the TPP, PIC's national environmental specialist, which was mobilized in January 2017, plans to visit the TPP and to work closely with TPP's environmental and social team. The developed track system will be presented in the next EMR.

33. Training on Environment, Health and Safety and waste management will be conducted in first quarter 2017 by ADB RETA Consultant and PIC's national consultant. The training will cover environmental monitoring and data management topics as well.

3.5. Consultations and complaints

34. By the administration on Takhiatash TPP permanent measures are taken on the disclosure of information and public relations work. On December 7, 2016 in the auditorium of the College of Energy of Takhiatash training was conducted with the residents of the 8 communities located in the project area. During the training information regarding the investment project "Construction of two CCGT units with the capacity of 230-280 MW at Takhiatash TPP", ADB's policy on environmental protection was provided, environmental management plan which will be implemented during construction phase.

35. During the public consultations TPP's environmental specialist and DAIIIP's gender discussed noise impact on settlements around TPP. Residents noted noticeable noise during the valve opening process on TPP. This comment was noted by TPP specialists and delivered to engineers. It should be noted that noise measurement company planned in March 2017 will measure ambient noise level during both situation: normal regime and during opening valves. Based on results of measurements appropriate mitigation measures will be developed.

36. Also explanations for the grievance redress mechanism established under this project were given during the public consultations. During the reporting period, no complaints from the public were received.

PART IV - ACTION PLAN FOR THE NEXT PERIOD

37. Action plan for the next period

- Follow up rehabilitation of ground water monitoring wells located within TPP territory (2017, Q2);
- Investigate possibility conduction additional analysis of water quality in order to comply with IFC requirements for discharge water quality (2017, Q2);
- Conduct noise measurement in the points indicated in EIA (2013) (2017, Q2);
- Develop environmental monitoring track system (2017, Q1);
- Conduct training on waste management (2017, Q1).

APPENDIXES

Appendix 1. Results of analyzes inlet and outlet channels of Suenli

АО «Tahiatosh IES»

Р е з у л ь т а т ы

хим. анализов подводящего и отводящего каналов.

Дата и место отбора	в/в	с/с	CL	SO_4	NO_3	NO_2	NH_3	Ie	БПК-5	п-п	pH	t-ра
	~~111,0~~ мг/л	~~942.5~~ мг/л	~~290.5~~ мг/л	~~358.15~~ мг/л	~~1.02~~ мг/л	~~0.08~~ мг/л	~~0.15~~ мг/л	~~0.37~~ мг/л	~~3.0~~ мг/л	2.1 мг/л	~~8.15~~	°C
08.09.16г.	220,5	1000	~~350~~	~~500~~	~~2,5~~	0,5	4,0	0,5	6,0		8,5	
Подвод. канал	730	660	100	197	0,09	0,02	0,18	0,06	отс	–	8,2	26
Отвод. канал	658	610	95	195	0,08	0,02	0,17	0,05	отс	–	8,2	34
22.09.16г												
Подвод. канал	303,5	610	86	170	0,1	0,01	0,17	0,04	отс	–	8,4	24
Отвод. канал	354,5	810	80	1624	0,08	0,01	0,14	0,04	отс	–	8,4	30

Начальник хим. лаборатории Джумаханизова Г

Инженер Э.А.Л Базарбаева С.А.

НПК-Б-128-Т-200-2015ж

АО «Tahiatosh IES»

Р е з у л ь т а т ы

хим. анализов подводящего и отводящего каналов.

Наименование ингредиентов, их нормы и ед. измерения

Дата и место	в/в	с/с	CL	SO_4	NO_3	NO_2	NH_3	Fe	БПК-5	п-п	pH	t-ра
отбора	~~111.~~0 мг/л	~~942.5~~ мг/л	~~290.~~5 мг/л	~~500~~ ~~358.15~~ мг/л	~~45~~ ~~1.02~~ мг/л	~~0,5~~ ~~0.08~~ мг/л	~~2,0~~ ~~0.15~~ мг/л	~~0,5~~ ~~0.37~~ мг/л	~~6,0~~ ~~3.0~~ мг/л	2.1 мг/л	~~8,5~~ 8.15	^{0}C
10.11.16г	220,5	1000	350									
Подвод. канал	78	470	170	436	0,09	0,003	0,18	0,03	отс	—	8,4	9
Отвод. канал	60	500	170	313	0,09	0,003	0,18	0,025	отс	—	8,3	17
18.11.16г												
Подвод. канал	80	860	200	433,7	0,17	0,006	0,3	отс	отс	—	7,8	8
Отвод. канал	72	710	200	283,5	0,53	0,003	0,3	отс	отс	—	7,8	12

Начальник хим. лаборатории Джуманиязова Г

Инженер Э.А.Л Базарбаева С.А.

НПК-Б-128-Т-200-2015ж

Результаты

хим. анализов с хоз. Фекальных стоков, сбрасываемых в Гор. Очистное сооружение.

№ п/п	Дата и Место отбора	Наименование ингредиентов, их нормы и ед. измерения									
		в/в	CL	NO_3	NO_2	NH_3	Fe	БПК-5	Сухой остаток	н/п	pH
	11.07.16г.	500 мг/л	350 мг/л	45,0 мг/л	3,3 мг/л	2,5 мг/л	5,0 мг/л	11,3-22,6 мг/л	2000 мг/л	1,0 мг/л	6,5-8,5
1.	Хоз.фекал-1,2оч	98	100	0,22	0,01	0,30	0,08	отс	1.000	–	8,0
2.	Хоз.фекал-5,6оч	100	110	0,19	0,29	0,32	0,1	отс	1100	–	8,0
3.	Хоз. питьевой (промлиневой)	110	180	0,23	0,26	0,28	0,09	отс	1010	–	8,2
	21.07.16г.										
1.	Хоз.фекал-1,2оч	100	120	0,21	0,28	0,29	0,11	отс	960	–	7,8
2.	Хоз.фекал-5,6оч	110	140	0,24	0,3	0,26	0,07	отс	1300	–	8,0
3.	Хоз. питьевой (промлиневой)	110	170	0,22	0,26	0,3	0,12	отс	1400	–	8,0

Инженер Э.А.Л Базарбаева С.А.

НХЛ Джуманиязова Г

НПК-Б-127-Т-200-2015ж

Appendix 2. Results of analysis of communal wastes waters and rain sewage

АО «Tahiatosh IES»

Результаты

хим. анализов с хоз. Фекальных стоков, сбрасываемых в Гор. Очистное сооружение.

№ п/п	Дата и Место отбора	Наименование ингредиентов, их нормы и ед. измерения									
		в/в	CL	NO_3	NO_2	NH_3	Fe	БПК-5	Сухой остаток	н/п	pH
	08.08.16г	500 мг/л	350 мг/л	45,0 мг/л	3,3 мг/л	2,5 мг/л	5,0 мг/л	11,3-22,6 мг/л	2000 мг/л	1,0 мг/л	6,5-8,5
1.	Хоз.фекал-1,2оч	40	100	0,33	0,023	0,46	0,14	отс	760	–	7,8
2.	Хоз.фекал-5,6оч	100	150	0,4	0,0022	0,3	0,17	отс	1410	–	7,8
3.	Хоз. питьевой (промлиневой)	70	180	0,36	0,0008	0,32	0,16	отс	1360	–	7,9
	24.08.16г										
1.	Хоз.фекал-1,2оч	98	98	0,33	0,31	0,38	0,16	отс	1200	–	8,2
2.	Хоз.фекал-5,6оч	100	90	0,4	0,29	0,28	0,27	отс	1400	–	8,2
3.	Хоз. питьевой (промлиневой)	100	96	0,36	0,33	0,30	0,11	отс	1300	–	8,4

Инженер Э.А.Л Базарбаева С.А.

Н.Х.Л. Джуманиязова Г

НПК-Б-127-Т-300-2015ж

АО «Tahiatosh IES»

Результаты

хим. анализов с хоз. Фекальных стоков, сбрасываемых в Гор. Очистное сооружение.

№ п/п	Дата и Место отбора	Наименование ингредиентов, их нормы и ед. измерения									
		в/в	CL	NO_3	NO_2	NH_3	Fe	БПК-5	Сухой остаток	н/п	pH
	05.09.16.	500 мг/л	350 мг/л	45,0 мг/л	3,3 мг/л	2,5 мг/л	5,0 мг/л	11,3-22,6 мг/л	2000 мг/л	1,0 мг/л	6,5-8,5
1.	Хоз.фекал-1,2оч	76	80	0,26	0,3	0,16	0,08	отс	1200	–	8,0
2.	Хоз.фекал-5,6оч	95	80	0,24	0,26	0,18	0,08	отс	1960	–	7,8
3.	Хоз. питьевой (промлиневой)	100	90	0,19	0,26	0,33	0,1	отс	1260	–	7,8
	23.09.16г.										
1.	Хоз.фекал-1,2оч	90	76	0,24	0,21	0,18	0,1	отс	1200	–	8,0
2.	Хоз.фекал-5,6оч	94	80	0,24	0,24	0,26	0,11	отс	1110	–	7,8
3.	Хоз. питьевой (промлиневой)	97	94	0,33	0,24	0,30	0,14	отс	1260	–	7,8

Инженер Э.А.Л Базарбаева С.А.

Н.Х.Л Джуманиязова Г

НПК-Б-127-Т-200-2015ж

АО «Tahiatosh IES»

Результаты

хим. анализов с хоз. Фекальных стоков, сбрасываемых в Гор. Очистное сооружение.

№ п/п	Дата и Место отбора	Наименование ингредиентов, их нормы и ед. измерения									
		в/в	CL	NO_3	NO_2	NH_3	Fe	БПК-5	Сухой остаток	н/п	pH
	10.10.16г.	500 мг/л	350 мг/л	45,0 мг/л	3,3 мг/л	2,5 мг/л	5,0 мг/л	11,3-22,6 мг/л	2000 мг/л	1,0 мг/л	6,5-8,5
1.	Хоз.фекал-1,2оч	98	90	0,08	0,1	0,22	отс	отс	960	–	8,0
2.	Хоз.фекал-5,6оч	96	90	0,06	0,12	0,2	0,02	отс	1000	–	8,2
3.	Хоз. питьевой (промлиневой)	97	96	0,1	0,04	0,26	0,08	отс	1300	–	8,0
	25.10.16г.										
1.	Хоз.фекал-1,2оч	100	100	0,07	0,0020	0,16	0,09	отс	1000	–	8,2
2.	Хоз.фекал-5,6оч	110	110	0,07	0,0022	0,18	0,1	отс	1100	–	8,2
3.	Хоз. питьевой (промлиневой)	111	112	0,09	0,0023	0,20	0,08	отс	1400	–	8,3

Инженер Э.А.Л Базарбаева С.А.

Н.Х.Л. Джумаханизова Г

НПК-Б-127-Т-200-2015ж

АО «Tahiatosh IES»

Результаты

хим. анализов с хоз. Фекальных стоков, сбрасываемых в Гор. Очистное сооружение.

№ п/п	Дата и Место отбора	Наименование ингредиентов, их нормы и ед. измерения									
		в/в	CL	NO_3	NO_2	NH_3	Fe	БПК-5	Сухой остаток	н/п	pH
	10.11.16г	500 мг/л	350 мг/л	45,0 мг/л	3,3 мг/л	2,5 мг/л	5,0 мг/л	11,3-22,6 мг/л	2000 мг/л	1,0 мг/л	6,5-8,5
1.	Хоз.фекал-1,2оч	24	120	0,06	0,24	0,16	отс	отс	760	–	8,0
2.	Хоз.фекал-5,6оч	103	120	0,09	0,21	0,06	0,2	отс	660	–	8,3
3.	Хоз. питьевой (промлиневой)	21	120	0,08	0,28	0,15	0,06	отс	810	–	8,2
	22.11.16г.										
1.	Хоз.фекал-1,2оч	30	110	0,07	0,30	0,18	0,6	отс	800	–	8,1
2.	Хоз.фекал-5,6оч	96	111	0,08	0,28	0,22	0,9	отс	860	–	8,2
3.	Хоз. питьевой (промлиневой)	24	100	0,06	0,23	0,17	0,4	отс	710	–	8,2

Инженер Э.А.Л Базарбаева С.А.

Н.Х.Л. Джуманиязова Г

НПК-Б-127-Т-200-2015ж

АО «Tahiyatosh IES»

Результаты анализов контроля сбросных вод с ХВО-3 и насосной шламовой КОПС

№п\п	Дата отбора	Место отбора	Взв в-ва mg/l	Cl mg/l	C\c mg/l	Жесткость mg-экv/l	NO_3 mg/l	Нп mg/l	pH
1	08.07.16г.	ХВО-3 КОПС	300 400	150	710	5,0	0,82	---	8,4
2	18.07.16г	ХВО-3 КОПС	120 225	140	800	6,0	0,54	---	8,2
3	09.08.16г	ХВО-3 КОПС	110 145	120	810	7,0	0,42	---	8,0
4	22.08.16г	ХВО-3 КОПС	60 100	120	710	4,0	0,33	---	12
5	05.09.16г	ХВО-3 КОПС	100 105	86	7,0	810	0,42	---	9,0
6	22.09.16г	ХВО-3 КОПС	92 95	90	7,2	810	0,48	---	8,4
7	14.10.16г	ХВО-3 КОПС	100 116	80	8,0	760	0,36	---	8,2
8	25.10.16г	ХВО-3 КОПС	190 200	170	7,8	710	0,46	---	8,3
9	10.11.16г	ХВО-3 КОПС	138 145	130	560	7,8	0,36	---	8,4
10	22.11.16г	ХВО-3 КОПС	142 148	250	600	8,0	0,33	---	8,4

НХЛ Джуманиязова Г.

Инж. ЭАЛ Базарбаева С.

Appendix 3. Results of analysis of ground water

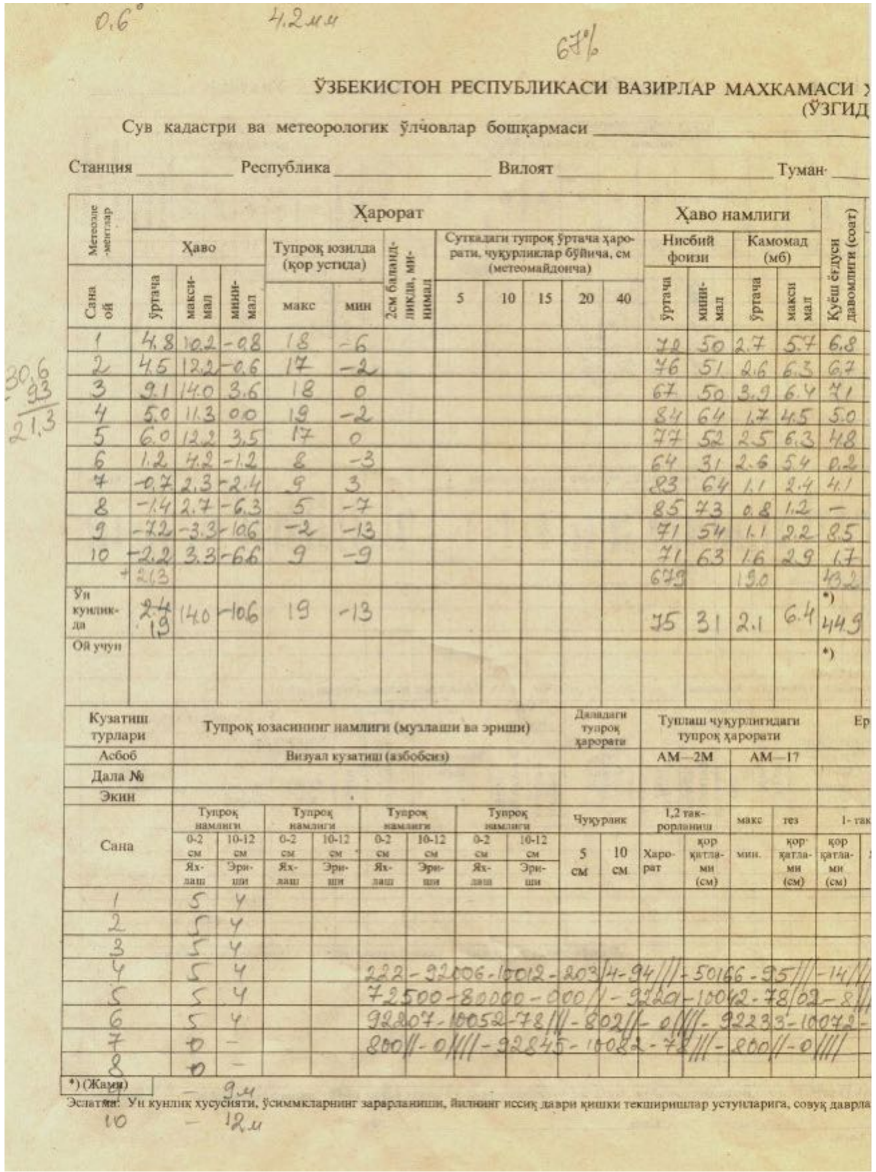
	номер		ekv/l	ekv/l					
Сентябрь	1		нет	воды					
	2		нет	воды					
2016г	3		нет	воды					
	4	6,9	5,5	21,5	959,5	78	900	отс/8,5	27
	5		требуется	ремонт					
	6		Требуется	ремонт					
	7		Требуется	ремонт					
	8	7,0	17	8	1338,1	280	1086	отс/7,1	29
	9	7,0	8,0	5	928,8	110	824	отс/7,8	13
	10	7,0	22	60	960	40	992	отс/10	82
	11	7,8	28	27	1368,2	416	998	отс/9,2	55
	12		треб.	ремонт					
	13	7,8	3,1	2,4	1302,1	52	1231	отс/24,6	5,5
	14	7,4	10	110	811,5	40	886	отс/5,5	120
	15		нет	воды					
	16	7,2	7,6	17,4	920,6	150	788	отс/7,6	25
	17	7,2	7	5	1149,6	130	1030	отс/1,6	12
	18	8,2	17	21	630,2	100	563,5	отс/4,7	38
	19		требуется	ремонт					
	20	7,8	11	24	486,1	27	490	отс/4,1	35
	21		требуется	ремонт					
	22	7,6	5	41	1297,4	28	1310	отс/5,4	46
	23	7,4	11	11	1345,2	32	1330	отс/5,2	22
	24		нет	воды					
	25	7,0	34	28	1590	690	1550	отс/10	62
	26		нет	воды					
	27	7,6	7	28	1768	70	1600	отс/5,0	35
	28	8,0	6,0	24	1124,5	50	1100	отс/4,5	30
	29	8,0	3	5	1234	80	1157	отс/5,0	8,0
	30	7,2	5	3	542	105	438	отс/3,0	8,0
	31	7,0	8	2	716	60	660	отс/6,0	10

	32	7,8	20	22	865	100	800	отс/7,0	42
	33		нет воды						
	34		треб ремонт						
	35		треб ремонт						
	36	7,8	12	15	1344,5	370	997,5	отс/4,0	27
	37	8,0	10	18	1475,5	280	1160	отс/3,5	28
	38	8,0	7	23	1319	335	1009	отс/5,0	30
	39	7,8	4	13	970,2	70	980	отс/7,2	17
	40		треб ремонт						
	41		треб ремонт						
	42		треб ремонт						
	43		треб ремонт						
	44	7,4	22	18	1028	270	790	отс/8,0	40
	45	7,6	17	21	992	210	810	отс/10	38
	46	7,2	20	7	1776	90	1700	отс/13	27
	47		треб ремонт						
	48	7,2	32	20	2345	870	1510	отс/17	52
	49	7,0	4	6	756	270	490	отс/6,0	10
	50		треб ремонт						
	51	7,2	12	8	1396	130	1280	отс/6,0	20
	52		нет воды						
	53		~						
	54		~						
	55		~						
	56	7,4	11	9	1675	80	1610	отс/5,0	20
	57	7,6	13	7	2028	110	1930	отс/8,0	20

НХЛ Джуманиязова Г.

Инж. ЭАЛ Базарбаева С.

Appendix 4. Data from Takhiatash meteorological station



ЎЗБЕКИСТОН РЕСПУБЛИКАСИ ВАЗИРЛАР МАХКАМАСИ

(ЎЗГИД

Сув кадастри ва метеорологик ўлчовлар бошқармаси

Станция ____ Республика ____ Вилоят ____ Туман ____

Сана ой	Ҳаво ўртача	Ҳаво максимал	Ҳаво минимал	Тупроқ юзида макс	Тупроқ юзида мин	2см баландликда минимал	5	10	15	20	40	Нисбий фоизи ўртача	Нисбий фоизи минимал	Камомад ўртача	Камомад максимал	Қуёш ёғдуси давомлиги (соат)
1	4.8	10.2	-0.8	18	-6							72	50	2.7	5.7	6.8
2	4.5	12.2	-0.6	17	-2							76	51	2.6	6.3	6.7
3	9.1	14.0	3.6	18	0							67	50	3.9	6.4	7.1
4	5.0	11.3	0.0	19	-2							84	64	1.7	4.5	5.0
5	6.0	12.2	3.5	17	0							77	52	2.5	6.3	4.8
6	1.2	4.2	-1.2	8	-3							64	31	2.6	5.4	0.2
7	-0.7	2.3	-2.4	9	3							83	64	1.1	2.4	4.1
8	-1.4	2.7	-6.3	5	-7							85	73	0.8	1.2	—
9	-7.2	-3.3	-10.6	-2	-13							71	54	1.1	2.2	8.5
10	-2.2	3.3	-6.6	9	-9							71	63	1.6	2.9	1.7
	21.3											679		19.0		43.2
Ўн кунликда	2.4 / 1.9	14.0	-10.6	19	-13							75	31	2.1	6.4	*) 44.9
Ой учун																*)

Кузатиш турлари: Тупроқ юзасининг намлиги (музлаши ва эриши); Даладаги тупроқ ҳарорати; Туплаш чуқурлигидаги тупроқ ҳарорати

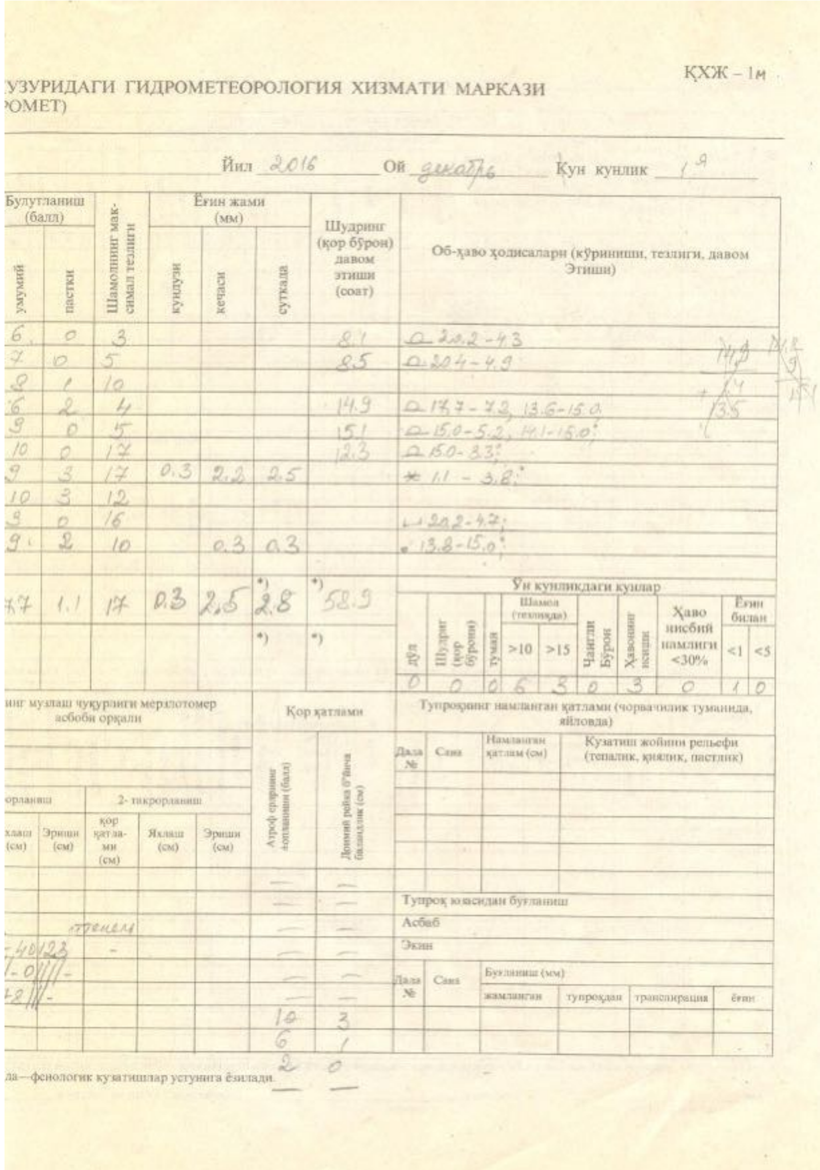
Асбоб: Визуал кузатиш (асбобсиз); AM—2M; AM—17

Дала №

Экин

*) (Жами)

Эслатма: Ўн кунлик хусусияти, ўсимликларнинг зарарланиши, йилнинг иссиқ даври қишки текширишлар устунларига, совуқ даврла



ҚХЖ – 1м

ҲУЗУРИДАГИ ГИДРОМЕТЕОРОЛОГИЯ ХИЗМАТИ МАРКАЗИ

РОМЕТ)

Йил 2016 Ой декабрь Кун кунлик 1

Булутланиш умумий	Булутланиш пастки	Шамолнинг максимал тезлиги	Ёғин жами кундузи	Ёғин жами кечаси	Ёғин жами суткада	Шудринг (қор бўрон) давом этиши (соат)	Об-ҳаво ҳодисалари (кўриниши, тезлиги, давом этиши)
6	0	3				8.1	20.2-4.3
7	0	5				8.5	20.4-4.9
8	1	10					
6	2	4				14.9	17.7-7.2, 13.6-15.0
9	0	5				15.1	15.0-5.2, 14.1-15.0
10	0	17				12.3	15.0-3.3
9	3	17	0.3	2.2	2.5		1.1-3.8
10	3	12					
9	0	16					20.2-4.7
9	2	10		0.3	0.3		13.8-15.0
7.7	1.1	17	0.3	2.5	*) 2.8	*) 58.9	

Ўн кунликдаги кунлар

Дўл	Шудринг (қор бўрони)	Туман	Шамол (тезлигида) >10	Шамол (тезлигида) >15	Чангли бўрон	Ҳавонинг иссиши	Ҳаво нисбий намлиги <30%	Ёғин билан <1	Ёғин билан <5
0	0	0	6	3	0	3	0	1	0

Қор қатлами

Тупроқнинг намланган қатлами (чорвачилик туманида, яйловда)

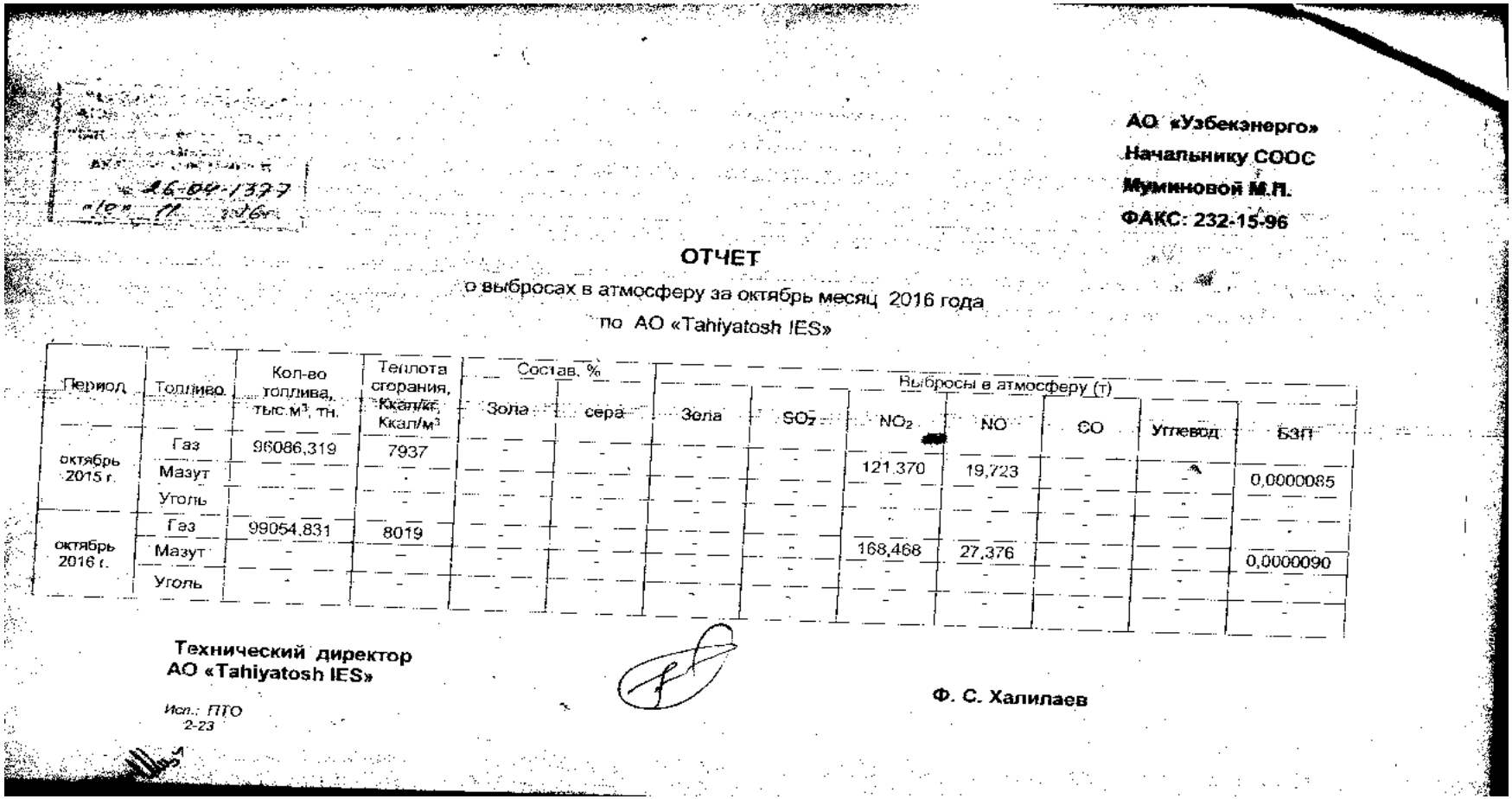
Тупроқ юзасидан буғланиш

Асбоб

Экин

Дала—фенологик кузатишлар устунига ёзилади.

Appendix 5. Results of noise measurements of exhausted gases



АО «Узбекэнерго»
Начальнику СООС
Муминовой М.П.
ФАКС: 232-15-96

ОТЧЕТ

о выбросах в атмосферу за октябрь месяц 2016 года
по АО «Tahiyatosh IES»

Период	Топливо	Кол-во топлива, тыс.м³, тн.	Теплота сгорания, Ккал/кг, Ккал/м³	Состав, %		Выбросы в атмосферу (т)						
				Зола	сера	Зола	SO_2	NO_2	NO	CO	Углевод.	БЗП
октябрь 2015 г.	Газ	96086,319	7937	-	-	-	-	121,370	19,723	-	-	0,0000085
	Мазут	-	-	-	-	-	-	-	-	-	-	-
	Уголь	-	-	-	-	-	-	-	-	-	-	-
октябрь 2016 г.	Газ	99054,831	8019	-	-	-	-	168,468	27,376	-	-	0,0000090
	Мазут	-	-	-	-	-	-	-	-	-	-	-
	Уголь	-	-	-	-	-	-	-	-	-	-	-

Технический директор
АО «Tahiyatosh IES»

Ф. С. Халилаев

Исп.: ПТО
2-23

Appendix 6. Corrective Action Plan

Environmental corrective actions plan

№	Name of actions	Execution	Responsibility		Notes
			Implementation	Supervision	
General management of environmental issues, health protection and safety measures					
1	Create a team on ecology, health and safety (EHS)	Yes	Technical Director JSC “Takhitash TPP”	Director General JSC “Takhitash TPP”	JSC “Takhitash TPP” Order №179 dated 16.04.2015
2	Provide trainings on SEMP included in the report on an ecological assessment.	No	Environment protection specialist of DAIIIP	Director for prospective development and investments of JSC “Takhitash TPP”	The training will be implemented after Contractor mobilization
3	To provide a complex control system on ecology, health protection and safety (CCSEHPS)	In the process	DAIIIP	Director General JSC “Takhitash TPP”	System was created and Environment, Health and Safety Team is working on this measure
Monitoring program					
4	Include in the tender documentation creation of eco-analytical laboratory completed with the equipment for carrying out continuous monitoring of emissions SO2, NO, NO2, CO, O2, CO2, the soil, drains, underground waters (all residual chlorine, metals Cr, Cu, Zn, Pb, CD, Hg, As, Co, Ni),	Yes	DAIIIP	Director for prospective development and investments of JSC “Takhitash TPP”	See Bidding Documents (BD) - Laboratory, section 2.6.5.

	temperatures, atmospheric pressure and water vapor, oil and fuel);				
5	Make the annual contract with "Uzhydromet" service for receiving meteorological data (speed and the direction of a wind, relative humidity, temperature, atmospheric pressure)	Yes	Environment protection specialist of DAIIIP	Director for prospective development and investments of JSC “Takhitash TPP”	See appendix 7
6	Include in tender documentation the installation of devices in necessary places for noise measurement; vibrations.	Yes	DAIIIP	Head of DAIIIP	See EIA Noise standard 472
7	To provide scheduling of calibration for automated and manual systems of measurement for carrying out an environmental monitoring	On yearly basis, but with consideration of specifications	DAIIIP	Head of DAIIIP	See appendix 8
8	To provide with necessary devices or other means for creation of the monitoring system of quality of sampling and the analysis including plan of works and system of electronic record.	Before mobilization of the Contractor	DAIIIP	Head of DAIIIP	Not started yet
Reports					
9	Develop a format of the annual report on EHS, covering each demanded parameters	Yes	DAIIIP	Head of DAIIIP	A format of the annual report on the implementation of measures to mitigate the impact on the environment and monitoring has been elaborated.
Air quality and air missions					
10	Reduction of emissions of the polluting substances by replacement	According to the plan	JSC “Takhiatash TPP”	Technical Director of JSC “Takhiatash TPP”	Monitoring of reduction emission will start after the CCGT commissioning

	of the old equipment (3 and 4 turns) and an operation start of new Steam-gas installation.	of implementation of the loan agreement			
11	Include to tender documentation installation of electronic measuring device of each Steam-gas installation block for definition of emissions polluting substances in the atmosphere	Yes	DAIIIP	Director for prospective development and investments of JSC “Takhitash TPP”	See BD, section 2.1.7 Control and instrumentation Section 2.6.1 System of observation of continuous emmission
Sewage and quality of water of environment					
12	Provide transformation of the system opened coolings in temperature of the cooling water closed for reduction. The project of replacement of old equipment III-IV of turn on new Steam-gas installation from the closed cooling water system.	Commissioning of new CCGT units	DAIIIP	Head of DAIIIP	2.4.8. 36 Control and analysis system
13	To define an origin of an oil slick. In this regard confirmation is required on presence greasy sewage on the channel.	Yes	Chemical Department	Environmental Protection Engineer	Oil slicks have a temporary nature. During monitoring period no oil slick were observed
14	Improve a condition of receivers of sewage – sludge collectors by additional concreting of a surface of settlers for the prevention of infiltration of production drains to the soil.	Yes	Chemical Department	Technical Director of JSC “Takhiatash TPP”	Chemical department carries out quarterly works to repair sewage receivers -waste disposal site. See. Appendix 10 photos.
15	To develop the management plan asbestos for gradual removal and replacement of asbestos in the existing units.	No	DAIIIP	Head of DAIIIP	Asbestos Management Plan will be developed General Constructor after official launching of the contract

16	Storage place of asbestos has to be repaired on purpose to provide tightness and chemical firmness of walls of storage, the volume of the tank has to make 110% of substance which will be stored there.	Yes	JSC “Takhiatash TPP”	Technical Director of JSC “Takhiatash TPP”	Storage placed were repaired and joint observation with State Nature Protection Committee was conducted. See photo appendix 12
17	Include in tender documentation ensuring signs of safety of the dangerous materials seen on places of storage . Correctly mark signs of safety of dangerous materials.	Yes	DAIIIP	Director for prospective development and investments of JSC “Takhitash TPP”	Requirement are in Contractor contracts
18	For prevention of flood, support a good shape and safety of settlers, storages and containers for fuel, oil and other chemicals.	Yes	Workshops	Technical Director of JSC “Takhiatash TPP”	All mazut storage places have a facilities (asphalted area with embankment) for prevention oil leakages
Waste management					
19	Include new system of recycling which has to be carried out in tender documentation to adapt its procedures for the international recommendations and appropriate practices.	Yes	DAIIIP	Director for prospective development and investments of JSC “Takhitash TPP”	See BD 1.8.2.1 Local Law
Noise					
20	Include in tender documentation replacement of old and noisy units by new and more effective technologies with low noise level.	Yes	DAIIIP	Head of PIU	Included in BD
21	Annual monitoring of noise has to be carried out for the purpose of an assessment of compliance to standards on level of noise.	Yes	JSC “Takhiatash TPP”	Director General JSC “Takhiatash TPP”	Agreement is signed on monitoring of noise with JSC “Energosozlash” to conduct of assessment of all working places as per national standards

					"Methodology of work places assessment" (1996)
The polluted soil and ground waters					
22	It is necessary to expand an observation network of wells in the following points: • In the territory of storage of dangerous materials • In the territory of an evaporator pond	Yes	JSC "Takhiatash TPP"	Technical Director of JSC "Takhiatash TPP"	A registry log is kept of the results of groundwater level in piezometer-wells, the schedule is approved for measurement and chemical analysis results. Of the existing 57 monitoring wells 14 wells are in non-working condition and cannot be repaired. See appendix 14
23	Measures for elimination of floods and the plan of action in emergencies on elimination of emergency floods have to be to develop.	Yes	JSC "Takhiatash TPP"	Technical Director of JSC "Takhiatash TPP"	Each workshop has a plan of actions in emergency situations to eliminate spills.
Security system of work and health					
24	Include in tender documentation the plan of health and safety for ensuring implementation of the guidelines of the World Bank. Definition of structure and duties of Management of incidents.	Yes	DAIIIP	Director for prospective development and investments of JSC "Takhitash TPP"	See BD 2. Ambient conditions of the working places of health and safety 3.20 Environment, health and safety, and environmental audit and amenities
Training					
25	Include in the program for training of the personnel of thermal power plant point on ecology, behavior of the personnel improvement: ecological requirements of the personnel, especially procedures of waste management (dangerous and	Yes	JSC "Takhiatash TPP"	Technical Director of JSC "Takhiatash TPP"	The training program was developed and implemented at Takhiatash TPP

	harmless a segregation, use of containers, etc.), and also air emissions, quality of air, meteorology, noise issues and sewage have to be also included in the program of a course.				
Social management and communication					
26	Create the following conditions for submission of the complaint: A) complaint book B) a box for reception of complaints C) organization of public consultations	Yes	Environmental protection specialist of DAIIIP	Director for prospective development and investments of JSC “Takhitash TPP”	Done: - Book for complaints and suggestions - box for receiving complaints - Public consultation
27	Inform local communities on ecological indicators of thermal power plant. Local communities have to be informed on results of implementation of the Management plan by environment by means of access to annual ecological reports	Yes	Environmental protection specialist of DAIIIP	Director for prospective development and investments of JSC “Takhitash TPP”	Public Consultation were conducted in November 2016 with representatives of 6 makhallas living on surrounded to TPP area. Continuously public consultation will be hold during project construction and operation phases. On December 7, 2016 training was conducted with the residents of the 8 communities located in the project area in the auditorium of the College of Energy of Takhiatash. During the training information was provided about the investment project "Construction of two CCGT units with a capacity of 230-280 MW at Takhiatash TPP", on ADB's policy on environmental protection, conducted a survey of residents for the negative effects of noise coming from Takhiatash TPP.

28	Inform local communities on the plan for emergency situations on thermal power plant. Inform local population about the emergency plan of thermal power plant. Neighborhoods that has to be informed (1 Crew, collective farm of "Hamza", Hodzheyli area).	Once a year	Environmental protection specialist of DAIIIP, II department of thermal power plant	Director General JSC “Takhiatash TPP”	Public Consultation were conducted in November 2016 with representatives of 6 makhallas living on surrounded to TPP area. Continuously public consultation will be hold during project construction and operation phases.

Appendix 8. Plan of conduction calibration and certifications

ИСПОЛНИТЕЛЬ

Агентство «Узстандарт» Государственное Предприятие Каракалпакский центр испытаний и сертификации.
КК отд.НацБанка ВЭД РУз ОКОНХ-85400
Р/с 20210000204225086001
МФО 00582 ИНН 204285144

Адрес: г. Нукус, Гарезсизлик, 57
Тел: 222-74-02, 222-86-86
Факс: 780-0007
Директор: Ч. Худайбергенов

Подпись _____ печать

Место приема передачи СИ

ДОГОВОР-ГРАФИК

Государственный периодический поверки средств измерений на 2017 год на листах по химический

видам измерений
Форма расчета за работу по

Поверке 02; 07; 08; 09; 10; 11; 15
(Код)

Кодификатор формы расчета за работу по поверке СИ

Код Расчета	Наименование	расчетный документ
1.	Безналичный через банк	счет-фактура Договор-счет
2.	Наличный через банк	квитанция счет
3.	Взаиморасчет услугами	договор
4.	Расчет через сторонние хозяйственные субъекты по кодам 1, 2, 3	договор

ЗАКАЗЧИК

АО «Tahiyatosh IES»

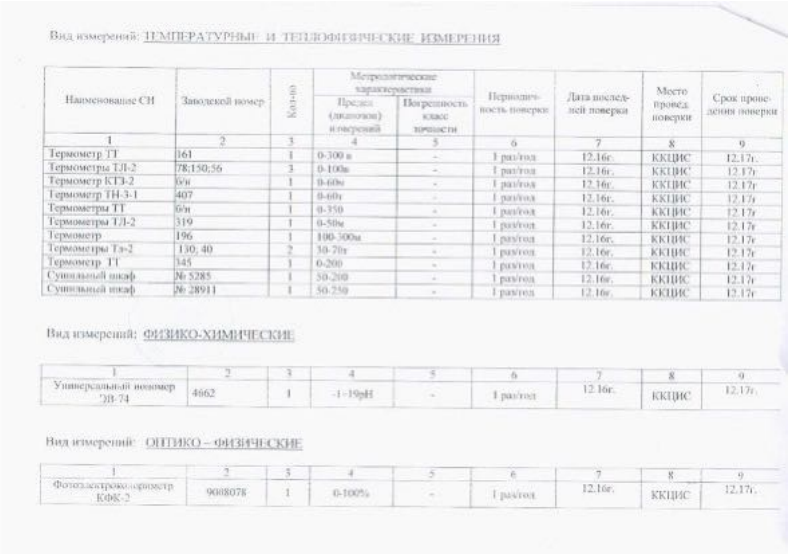
(наименование хозяйственного суб)

Код по ОКПО 2421
Ходжейлийский р-н
Адрес: г. Ташкент
Факс: 83712381133 и 48009141 86

Р/счет : 20210000800314238001
МФО 00616 ИНН 200366401
ОКОНХ 11110
Руководитель Б.Г.Мадрезимов

Подпись _____ печать

Справочные телефоны: 572-29-48
Ответственный за состояние средств измерений _____



Вид измерений: ТЕМПЕРАТУРНЫЕ И ТЕПЛОФИЗИЧЕСКИЕ ИЗМЕРЕНИЯ

Наименование СИ	Заводской номер	Кол-во	Метрологические характеристики: Предел (диапазон) измерений	Погрешность класс точности	Периодичность поверки	Дата последней поверки	Место провед. поверки	Срок проведения поверки
1	2	3	4	5	6	7	8	9
Термометр ТТ	161	1	0-300 в	-	1 раз/год	12.16г.	ККЦИС	12.17г.
Термометры ТЛ-2	78;150;56	3	0-100в	-	1 раз/год	12.16г.	ККЦИС	12.17г.
Термометр КТЗ-2	б/н	1	0-60в	-	1 раз/год	12.16г.	ККЦИС	12.17г.
Термометр ТН-3-1	407	1	0-60г	-	1 раз/год	12.16г.	ККЦИС	12.17г.
Термометры ТТ	б/н	1	0-350	-	1 раз/год	12.16г.	ККЦИС	12.17г.
Термометры ТЛ-2	319	1	0-50в	-	1 раз/год	12.16г.	ККЦИС	12.17г.
Термометр	196	1	100-300в	-	1 раз/год	12.16г.	ККЦИС	12.17г.
Термометры Тэ-2	130; 40	2	50-70г	-	1 раз/год	12.16г.	ККЦИС	12.17г.
Термометр ТТ	345	1	0-200	-	1 раз/год	12.16г.	ККЦИС	12.17г.
Суповальный шкаф	№ 5285	1	50-200	-	1 раз/год	12.16г.	ККЦИС	12.17г.
Суповальный шкаф	№ 28911	1	50-250	-	1 раз/год	12.16г.	ККЦИС	12.17г.

Вид измерений: ФИЗИКО-ХИМИЧЕСКИЕ

1	2	3	4	5	6	7	8	9
Универсальный иономер ЭВ-74	4662	1	-1-19pH	-	1 раз/год	12.16г.	ККЦИС	12.17г.

Вид измерений: ОПТИКО – ФИЗИЧЕСКИЕ

1	2	3	4	5	6	7	8	9
Фотоэлектроколориметр КФК-2	9008078	1	0-100%	-	1 раз/год	12.16г.	ККЦИС	12.17г.

Пипетка градуир.	2 см³	-	2	0-2	2 класс	1 раз/год	12.16г.	ККЦИС	12.17г.
Пипетка градуир.	5 см³	-	3	0-5	2 класс	1 раз/год	12.16г.	ККЦИС	12.17г.
Пипетка градуир.	10 см³	-	4	0-10	2 класс	1 раз/год	12.16г.	ККЦИС	12.17г.
Пипетка градуир.	50 см³	-	2	0-50	2 класс	1 раз/год	12.16г.	ККЦИС	12.17г.
Бюретка объемная	50 см³	-	2	0-50	2 класс	1 раз/год	12.16г.	ККЦИС	12.17г.
Микробюретка	1 см³	-	1	0-1	2 класс	1 раз/год	12.16г.	ККЦИС	12.17г.

Вид измерений: ИЗМЕРЕНИЕ МАССЫ

1	2	3	4	5	6	7	8	9
Гири Т-2 210	364	9	1-100 гр	2 класс	1 раз/год	12.16г.	ККЦИС	12.17г.
Гири Г-4 6111-10	б/н	20	1-2 кг, 1-500 гр	4 класс	1 раз/год	12.16г.	ККЦИС	12.17г.
Гири Т-2 210	611	9	1-100 гр	2 класс	1 раз/год	12.16г.	ККЦИС	12.17г.
Весы лабораторные ВЛТ-4	143	1	5 кг	-	1 раз/год	12.16г.	ККЦИС	12.17г.
Весы лабораторные ВЛР-200	740	1	0-200 гр	2 класс	1 раз/год	12.16г.	ККЦИС	12.17г.
Весы лабораторные ВЛР-200	№ В 336	1	0-200 гр	2 класс	1 раз/год	12.16г.	ККЦИС	12.17г.
Весы лабораторные ВЛТ	№ 06165	1	50-1400	4 класс	1 раз/год	12.16г.	ККЦИС	12.17г.
Весы лабораторные ВЛ-500	№ А-059	1	0-500	2 класс	1 раз/год	12.16г.	ККЦИС	12.17г.
Весы лабораторные ВЛ-500	№ А-060	1	0-500	2 класс	1 раз/год	12.16г.	ККЦИС	12.17г.
Весы лабораторные ВЛ-210	№ А-066	1	0-200	1 класс	1 раз/год	12.16г.	ККЦИС	12.17г.
Весы лабораторные ВЛТ-500	№ А-69	1	0-500	2 класс	1 раз/год	12.16г.	ККЦИС	12.17г.

АО «Tuhiyatosh IES»
(руководитель заявителя)

(подпись)

МАДРЕИМОВ Б.Т.
(расшифровка подписи)

СИСТЕМА ОБЕСПЕЧЕНИЯ ЕДИНСТВА ИЗМЕРЕНИЙ
РЕСПУБЛИКИ УЗБЕКИСТАН

Узбекское агентство стандартизации, метрологии и сертификации
(агентство "Узстандарт")

ГП ККЦИС
наименование юридического лица, проводившего поверку

СЕРТИФИКАТ ПОВЕРКИ
СРЕДСТВА ИЗМЕРЕНИЙ

№ 216

Действителен до
« 10 » 01 20 18 г.

Настоящий сертификат удостоверяет, что средство измерений

Гири лабараторные №611
(наименование и обозначение средства измерения, заводской номер)

с метрологическими характеристиками Г-2-210
(наименование параметра,

0÷100 g (М1) класс
пределы измерения, погрешности, класс точности средства измерений)

изготовленное (импортированное)
(юридическое лицо-изготовитель,

Россия
юридическое лицо-изготовитель, страна импортер средства измерений)

принадлежащее АО "Tahiyatosh IES"
(юридическое лицо-владелец средства измерений)

поверенное ГП Каракалпакский Центр Испытаний и Сертификации
(наименование юридического лица, поверившего средство измерений)

в соответствии с ГОСТ OIML R 111-1-2009
(обозначение и наименование нормативного документа по поверке)

с использованием Весы образцовые ВЛО-200, ГО-2-1110
(обозначение и наименование эталонов, образцовых средств измерений, дата их поверки)

соответствует требованиям МИ 1747-87. ГОСТ OIML R 111-1-2009
(обозначение и наименование нормативного документа,

Метрологические и технические требования
описание типа средств измерений, регламентирующего требования к средству измерений)

и допущено к применению в сфере распространения государственного метрологического контроля и надзора.

Дата поверки « 10 » 01 20 17 г.

оттиск поверительного клейма

Поверитель Сейтимбетов.Б

O'E 0211237

O'ZBEKISTON RESPUBLIKASINING O'LCHASHLAR
BIRLILIGINI TA'MINLASH TIZIMI

O'zbekiston standartlashtirish, metrologiya va sertifikatlashtirish agentligi
("O'zstandart" agentligi)

qiyoslashni o'tkazuvchi yuridik shaxsning nomi

_____-sonli

O'LCHASH VOSITALARINI
QIYOSLASH SERTIFIKATI

Amal qilish muddati
« ___ » _____ 20 ___ y.gacha

Ushbu sertifikat

(etalonlar (namunaviy O'V) belgilanishi va nomlanishi, qiyoslash sanasi)

_____dan foydalangan holda

(qiyoslash bo'yicha MH belgilanishi va nomlanishi) _____ga muvofiq

(o'lchash vositasini qiyoslagan yuridik shaxs nomi) _____tomonidan qiyoslangan

(O'V egasi-yuridik shaxs) _____tegishli

(yuridik shaxs-O'V tayyorlovchisi) _____tayyorlangan (import qilingan)

(yuridik shaxs-tayyorlovchi va import qiluvchi manzillari)

(parametrlar nomi, o'lchashlar chegaralari, O'V xatoliklari aniqlik sinfi) _____metrologik tavsifli

(o'lchash vositasining nomlanishi va belgilanishi, zavod raqami) _____o'lchash vositasi

(O'Vga qo'yiladigan talablarni reglamentlovchi MH (ularning tavsifi, belgilanishi va nomlanishi) _____talablariga mosligini

tasdiqlaydi va davlat metrologik tekshiruvi va nazoratiga taalluqli doirada qo'llanishiga yo'l qo'yiladi.

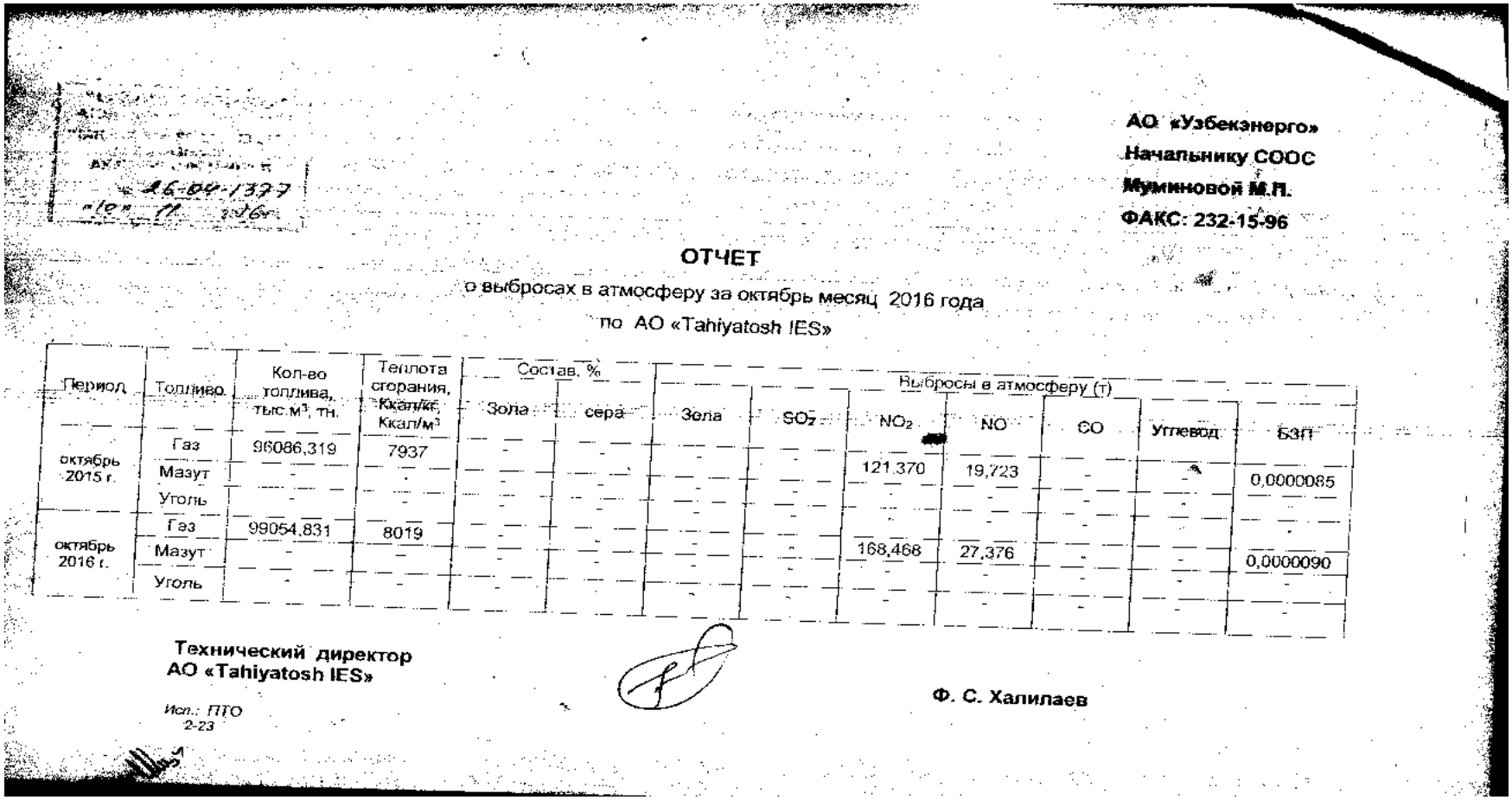
Qiyoslash sanasi « ___ » _____ 20 ___ y.

Qiyoslash tamg'asi izi

Qiyoslovchi _____

O'E 0211237

Appendix 9. Calculation of discharge of exhausted gases from Takhiatash TPP



АО «Узбекэнерго»
Начальнику СООС
Муминовой М.П.
ФАКС: 232-15-96

№ 16-04-1377
«10» 11 2016г.

ОТЧЕТ

о выбросах в атмосферу за октябрь месяц 2016 года
по АО «Tahiyatosh IES»

Период	Топливо	Кол-во топлива, тыс.м³, тн.	Теплота сгорания, Ккал/кг, Ккал/м³	Состав, %		Выбросы в атмосферу (т)						
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	Уголь	-	-	-	-	-	-	-	-	-	-	-
октябрь 2016 г.	Газ	99054,831	8019	-	-	-	-	168,468	27,376	-	-	0,0000090
	Мазут	-	-	-	-	-	-	-	-	-	-	-
	Уголь	-	-	-	-	-	-	-	-	-	-	-

Технический директор
АО «Tahiyatosh IES»

Ф. С. Халилаев

Исп.: ПТО
2-23

Appendix 10. Photos of industrial waste water receivers

Appendix 11. Water quality analysis in intake and discharge canals

ОАО «Тахиаташская ТЭС»

РЕЗУЛЬТАТЫ

химических анализов подводящего и отводящего каналов

09.01.17г.

Дата и место отбора	Наименование ингредиентов, их нормы и ед. измерения											
	в/в	с/с	CL	SO_4	NO_3	NO_2	NH_3	Fe	БПК-5	н/п	pH	t-ра
	мг/л	мг/л	мг/л	мг/л	мг/л	мг/л	мг/л	мг/л	мг/л	мг/л		°C
Подвод. канал	78,5	960	70	337,4	0,92	0,08	0,33	0,06	отс	–	8,0	11°C
Отвод. канал	66	960	70	319,3	1,06	0,09	0,36	0,04	отс	–	8,0	14°C
Подвод. канал	98	910	50	459,6	0,79	0,18	0,28	0,06	отс	–	8,4	11°C
Отвод. канал	99	910	50	376,9	0,96	0,17	0,27	0,04	отс	–	8,4	14°C

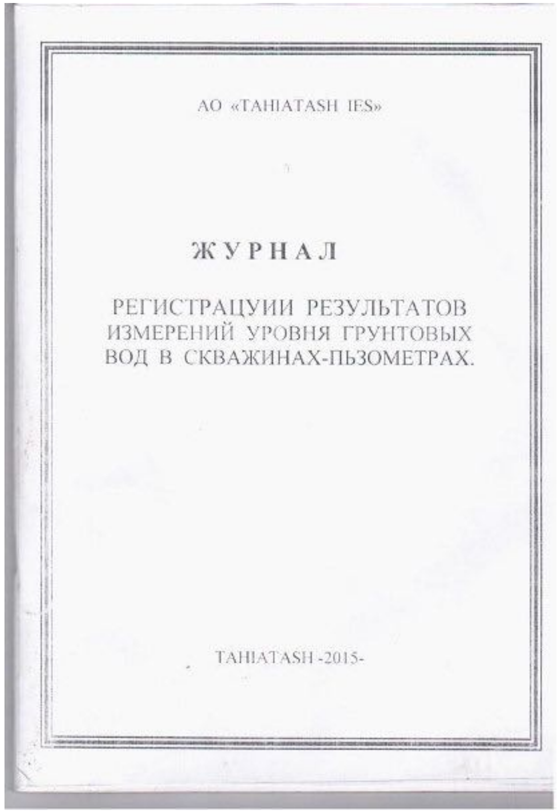
Начальник хим. лаборатории Джуманиязова Г.

Инженер Э.А.Л. Базарбаева С.А.

Appendix 12. Photos of mazut storage places

Appendix 13. Dams to avoiding spills of mazut and hazardous materials

Appendix 14. Registration of ground water table in monitoring wells and results of chemical analysis

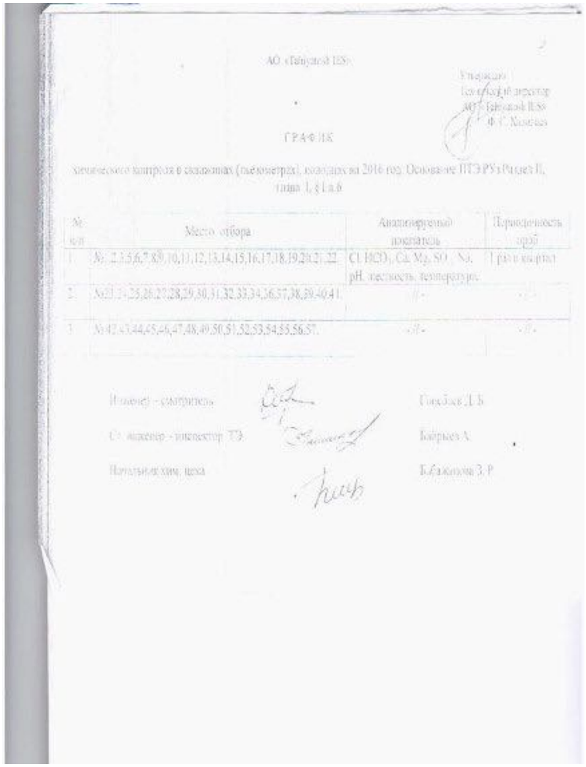


АО «TAHIATASH IES»

ЖУРНАЛ

РЕГИСТРАЦУИИ РЕЗУЛЬТАТОВ ИЗМЕРЕНИЙ УРОВНЯ ГРУНТОВЫХ ВОД В СКВАЖИНАХ-ПЬЗОМЕТРАХ.

TAHIATASH -2015-



АО «[illegible] IES»

Утверждаю
[illegible] директор
АО «[illegible] IES»
Ф. С. [illegible]

ГРАФИК

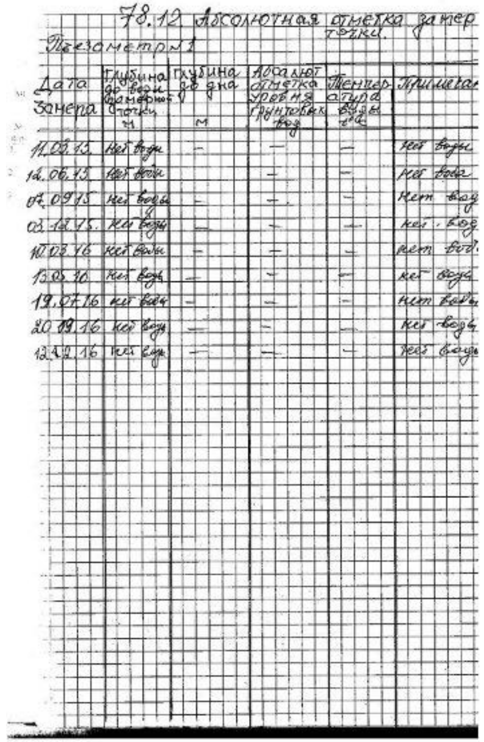
химического контроля в скважинах (пьезометрах), колодцах на 2016 год. Основание ПТЭ РУз Раздел II, глава 1, § 1 п.6

№ п/п	Место отбора	Анализируемый показатель	Периодичность проб
1.	№: 2,3,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22	Cl, HCO3, Ca, Mg, SO4, Na, pH, жесткость, температура	1 раз в квартал
2.	№23,24,25,26,27,28,29,30,31,32,33,34,36,37,38,39,40,41	-//-	-//-
3.	№42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57	-//-	-//-

Инженер - смотритель [illegible] Д.Б.

Ст. инженер - инспектор ТЭ Байрыев А.

Начальник хим. цеха [illegible] З.Р.



78.12 Абсолютная отметка замер точки.

Пьезометр №1

Дата замера	Глубина до воды от замерной точки, м	Глубина до дна, м	Абсолют. отметка уровня грунтовых вод	Температура воды t°C	Примечание
11.03.15	нет воды	–	–	–	нет воды
12.06.15	нет воды		–	–	нет воды
07.09.15	нет воды	–	–	–	нет воды
03.12.15	нет воды	–	–	–	нет воды
10.03.16	нет воды	–	–	–	нет воды
13.05.16	нет воды	–	–	–	нет воды
19.07.16	нет воды	–	–	–	нет воды
20.09.16	нет воды	–	–	–	нет воды
12.12.16	нет воды	–	–	–	нет воды

76.63 Абсолютная отметка замерной точки

Пьезометр №10

Дата замера	Глубина до воды от замер. точки м	Глубина до дна м	Абсолют. отметка уровня грунто-я вод м	Темпер. воды t°C	Примеча-е
11.03.15	2,50	3,00	74,13	16°C	проба воды
12.06.15	3,10	4,00	73,53	20°C	проба воды
07.09.15	3,00	4,00	73,63	22°C	проба воды
08.12.15	3,10	4,00	73,63	18°C	проба воды
10.03.16	2,90	4,0	73,73	16°C	проба воды
12.05.16	3,00	4,00	73,63	18°C	проба воды
20.07.16	2,60	4,00		27°C	проба воды
20.09.16	3,00	4,00		25°C	проба воды
13.12.16	3,00	4,00		22°C	проба воды

76.43 Абсолютная отметки замерной точки

Пьезометр №20

Дата замера	Глубина до воды от замер. точки м	Глубина до дна м	Абсолют. отметки уровня грунтов. вод м	Темпе-ра воды t°C	Примеч-е
11.03.15	3,00	5,00	73,73	17°C	проба воды
12.06.15	3,10	5,20	73,33	20°C	проба воды
08.09.15	2,80	5,00	73,53	23°C	проба воды
08.12.15	3,10	5,17	73,33	15°C	проба воды
10.03.16	3,00	5,00	73,43	16°C	проба воды
12.05.16	3,00	5,00	73,43	19°C	проба воды
19.07.16	2,60	5,00		23°C	проба воды
21.09.16	3,00	5,00		20°C	проба воды
13.12.16	3,00	5,00		18°C	проба воды

76.16

Пьезометр №30

Дата замера	Глубина до воды от замер. точки м	Глубина до дна м	Абсолют. отметки уровня грунтов. вод м	Темпер. воды	Примеч.
11.03.15	2,90	5,30	73,26	16,8°C	проба воды
12.06.15	2,90	5,20	73,25	20°C	проба воды
08.09.15	2,85	5,20	73,31	22°C	проба воды
08.12.15	2,90	5,30	73,26	15°C	проба воды
10.03.16	2,90	5,30	73,26	16°C	проба воды
12.05.16	2,50	5,00	[illegible]	19°C	проба воды
19.07.16	2,60	5,00		22°C	проба воды
21.09.16	2,50	5,00		22°C	проба воды
13.12.16	2,50	5,00		22°C	проба воды