

Environmental Monitoring Report

Bi-Annual Report
January 2016

AZE: Road Network Development Program – Project 3

Prepared by AzerRoad Service OJC (Ministry of Transport) for the Asian Development Bank.

This environmental monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

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Bi-annual Environmental Monitoring Report

Project Number: 39176

January 2016

Republic of Azerbaijan:
Road Network Development Program: Project 3
Masalli to Astara Motorway

(Financed by the Asian Development Bank)

Report 9: 1st July 2015 to 31st December 2015

Part II - Loan 2831 AZE, Covering Sections B & C

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CURRENCY EQUIVALENTS

(As of 1 July 2015)

Currency Unit	–	Azerbaijan New Manat (AZN)
AZN 1.00	=	USD 0.953
USD 1.00	=	AZN 1.0485

ABBREVIATIONS

ADB	–	Asian Development Bank
ARS	–	Azerbaijan Road Service
AZN	–	Azerbaijan New Manat
BOD	–	Biological Oxygen Demand
EIA	–	Environmental Impact Assessment
EMP	–	Environmental Management Plan
EPM	–	Environmental Protection Manager
EPP	–	Environmental Protection Plan
GRM	–	Grievance Redress Mechanism
IPC	–	Interim Payment Certificate
MENR	–	Ministry of Ecology and Natural Resources
PIU	–	Project Implementation Unit
PMC	–	Project Management Consultant
PPE	–	Personal Protective Equipment
SSEMP	–	Site-Specific Environmental Management Plan
STD	–	Sexually Transmitted Disease
ADB	–	Asian Development Bank
ARS	–	Azerbaijan Road Service
EIA	–	Environmental Impact Assessment
EMP	–	Environmental Management Plan
EPM	–	Environmental Protection Manager
EPP	–	Environmental Protection Plan
GRM	–	Grievance Redress Mechanism
MENR	–	Ministry of Ecology and Natural Resources
PIU	–	Project Implementation Unit
PPE	–	Personal Protective Equipment
SSEMP	–	Site-Specific Environmental Management Plan

WEIGHTS AND MEASURES

m	–	Metre
km	–	Kilometre

TABLE OF CONTENTS

I.	INTRODUCTION	5
A.	Introduction to Project	5
B.	Objectives of Biannual Environmental Reporting.....	6
C.	Methodology	6
D.	Construction Activities and Project Progress during previous six months	6
E.	Project organization and environmental management team	8
F.	Relationships with Contractors, owner, lender, etc.	8
II.	ENVIRONMENTAL MONITORING	9
A.	Status	9
B.	Results.....	9
C.	Action	11
III.	ENVIRONMENTAL MANAGEMENT.....	12
A.	Status	12
B.	Documents.....	13
C.	Inspections and Audits	13
D.	Non-Compliance and Corrective Actions.....	13
E.	Consultations and Complaints.....	22
F.	Emerging Issues	27
G.	Conclusions	27
IV.	APPENDICES	28
	Appendix 1: Environmental Monitoring Results.....	28
	Appendix 2: List of participants at public consultations (samples).....	65

LIST OF FIGURES

FIGURE 1: DUST ISSUE ON SECTION B ACCESS ROAD (L) AND CONTRACTOR RESPONSE AT THE SAME LOCATION (R)	14
FIGURE 2: POOR STATE OF ROAD AT ENTRANCE TO SECTION B CONTRACTOR CAMP	14
FIGURE 3: VEHICLES UNDER MAINTENANCE OUTSIDE THE WORKSHOP AGAIN (L) AND BADLY-STORED OIL CONTAINERS (R)	16
FIGURE 4: HAZARDOUS WASTE AREA REQUIRING EMPTYING (L) AND HEALTH AND SAFETY ISSUES (R).....	16
FIGURE 5: DAMAGED BUND AT ASPHALT PLANT (L) AND UNSATISFACTORY REPAIR OF HOLE PREVIOUSLY IN BUND PREVIOUSLY NOTED AT ASPHALT PLANT (R) ..	16
FIGURE 6: GENERALLY CLEAN AND TIDY AT “HIRKAN FOREST” IN DECEMBER 2015 (L) BUT NOISE BARRIERS STILL FALL SHORT (R)	17
FIGURE 7: IMPROVEMENTS AT THE SECTION C “OFFICE CAMP”	18
FIGURE 8: UNPROTECTED WATERWAYS (L) AND DETERIORATED DIVERSION ROAD (R)	19
FIGURE 9: WORKSHOP DRAIN FILLED WITH OIL IN MAY 2015 (L) AND THE SAME LOCATION (PROBLEM ADDRESSED) IN DECEMBER 2015 (R).....	19
FIGURE 10: EVIDENCE OF USE AT THE SECTION C ASPHALT PLANT (L) AND CONCRETE TRUCK BEING WASHED OUT OUTSIDE THE CONTRACTOR CAMP (R)	20
FIGURE 11: EVIDENCE OF USE AT THE SECTION C ASPHALT PLANT (L) AND BITUMEN TANK LOCATED OFF THE CONCRETE BASE AT THE SAME LOCATION (R)	21

LIST OF TABLES

TABLE 1: MONTHLY PROGRESS OF THE SECTION B CONTRACTOR DURING THE LAST SIX MONTHS	7
TABLE 2: MONTHLY PROGRESS OF THE SECTION C CONTRACTOR DURING THE LAST SIX MONTHS	7
TABLE 3: INSTRUCTIONS TO SECTION B CONTRACTOR DURING THE LAST SIX MONTHS	17
TABLE 4: INSTRUCTIONS TO SECTION C CONTRACTOR DURING THE LAST SIX MONTHS.....	21
TABLE 5: GRIEVANCE REGISTER – SECTION B.....	24
TABLE 6: GRIEVANCE REGISTER – SECTION C.....	26

I. INTRODUCTION

A. Introduction to Project

1. The Masalli to Astara Motorway is a new 62 km motorway section of the M-3 highway corridor that links the capital city, Baku, to the south of the country and the town of Astara, which straddles the Azeri/Iranian border. The project is split into three sections; A (0 - 22.15 km), B (22.15 - 45.00 km), and C (45.00 – 62.14 km).
2. The Executing Agency for the project is the Azeri Road Service (ARS) Open Joint Stock Company¹.
3. Following screening², an Environmental Impact Assessment (EIA) was carried out for the project in 2007. The EIA report was approved by ARS and ADB, and has served as a basis for the development of the specification and contract documents, and for the preparation and pricing of the Contractor Environmental Management Plan (EMP).
4. The Engineer appointed by ARS is Nippon Koei UK Ltd. The construction contract for Section B was awarded to Özgün Construction Industry and Trading Co. Inc. Section C was awarded to Polat LLC in November 2013.
5. The first bi-annual environmental monitoring report covered the period 1st March to 31st August 2011 (Section A only). Subsequent bi-annual environmental monitoring reports covered the following periods:
 - Second: 1st September 2011 to 31st May 2012₃ (Section A only).
 - Third: 1st June 2011 to 31st December 2012 (Section A & Lenkaran Bridge).
 - Fourth: 1st January 2013 to 30th June 2013 (Section A, Lenkaran Bridge & Section B).
 - Fifth: 1st July 2013 to 31st December 2013 (All contracts).
 - Sixth: 1st January 2014 to 30th June 2014 (All contracts).
 - Seventh: 1st July 2014 to 31st December 2014 (All contracts).
 - Eighth: 1st January to 30th June 2015 (all contracts).
 - Ninth: 1st July 2015 to 31st December 2015. (all contracts).
6. From the Fifth issue onwards, the report has been split according to loan source into two; Part I, covering Section A and Lenkaran Bridge (Loan 2354 AZE), and Part II, covering Sections B & C (Loan 2831 AZE).
7. Key milestones relating to mobilisation are summarised below:
 - Overall Contract agreement: 15th Dec 2010.
 - The Engineer mobilised on 21st February 2011.
 - Section B Contract Agreement: 29th March 2013.
 - Notice to Commence for Section B was issued on 18th June 2013.

¹ Formerly called "The Road Transport Service Department" (The change of name took effect on 22nd February 2007)

² Screening was carried out according to ADB's Environment Policy and Operations Manual (OM) 20. The project was classified as Category A, principally due to the anticipated resettlement issues triggering the ADB *Policy on Involuntary Resettlement* (1995).

³ Due to the extended period of inactivity during the winter season, and so that the present report includes the results of the ADB mid-term review

- Earthworks began on Section B in August 2013.
- Section C Contract Agreement: 31st October 2013.
- Notice to Commence for Section C was issued on 27th January 2014.

B. Objectives of Biannual Environmental Reporting

8. The purpose of the Biannual Environmental Monitoring Reports is to provide a summary of the key issues relating to environmental management over the past six months. The summary includes an update on overall project progress, the status of SSEMP implementation, any progress made with environmental management, environmental monitoring results, and other relevant issues such as non-compliance and corrective actions, and monitoring of the Grievance Redress Mechanism (GRM).

9. The Reports are prepared by ARS and are intended to inform ADB and any other interested parties of the status of environmental management of the project. The Reports are summaries; more detailed information is included in the monthly and quarterly reports prepared by the Contractors and the Engineer.

C. Methodology

10. The Biannual Environmental Monitoring Reports are prepared by reviewing and extracting key information from a number of sources, as follows:

- Contractors' Quarterly Environmental Management Reports;
- Contractors' Grievance Registers;
- Engineer's Quarterly and Monthly Progress Reports;
- Engineer's Environmental Specialist's Field Reports;
- Monthly instrumented monitoring results;
- *Ad Hoc* reports from the Contractors on training and public consultation; and
- Correspondence between ARS, Engineer and Contractors relating to environmental and social issues.

11. In addition, some information and opinion in the reports results from site visits, technical meetings and public meetings and interviews over the preceding six months.

D. Construction Activities and Project Progress during previous six months

12. Key milestones and construction activities relating to the past six months' work are summarised below:

Section B

- Table 1 below shows the Contractor's monthly progress throughout the current reporting period.
- During this period, the Contractor carried out site clearances and removal top soil works and continues the road embankment works.
- There were substantial works accomplished on the road construction works during this period such as the following: (i) road embankment works, (ii) laying of crushed stone base, (iii) asphalt paving works, (iv) rockfill and (v) bridge construction works. The Contractor took advantage of the good weather condition to have good work accomplishments.

- During the last quarter of the year, the Contractor has demobilised some machinery and equipment for embankment works and asphalt works due to unfavorable weather condition.
- Utility relocations near Bridge No. 5 and Bridge No. 6 are in progress and most of the culverts are completed,
- Fabrications of pre-cast beams and precast panels were all completed. Works on the 3 bridges Br. No. 5, Bridge No. and No. 9 are in progress.
- River diversion and slope protection works at Bridge No, 8 have been completed.
- Total of 13 Interim Payment Certificates (IPC) 13 have been paid.

Table 1: Monthly Progress of the Section B Contractor during the last Six Months

Month	Progress (%)
July 2015	6.27
August 2015	7.03
September 2015	6.02
October 2015	2.51
November 2015	0.27
December 2015	0.34

Section C

- Table 2 below shows the Contractor's monthly progress throughout the current reporting period.
- During the present reporting period the Contractor has re-started the road embankment works.
- On the 3rd quarter of the year, There were constructions works going on at the following: bridges, drainage and utility structures.
- Road works continue including laying of rockfill materials and installations of geotextile materials in the soft areas and progress in sections of the road are being compiled.
- During the last quarter of the year, the Contractor stopped embankment works and asphalt works due to unfavorable weather condition.
- Interim Payment Certificate (IPC) 9 has been submitted by the Contractor.

Table 2: Monthly Progress of the Section C Contractor during the last Six Months

Month	Progress (%)
July 2015	5.04
August 2015	5.21

September 2015	1.91
October 2015	1.74
November 2015	1.03
December 2015	0.67

E. Project organization and environmental management team

13. There have been no changes to the organization of the environmental management teams within the PIU, Contractors or Engineer over the past six months.

F. Relationships with Contractors, owner, lender, etc.

14. The relationships between contractors, Engineer, Owner, and Lender are considered normal working relationships.

15. At the working level, communication with regards to environmental issues remains good.

II. ENVIRONMENTAL MONITORING

A. Status

Section B

16. Regular monthly monitoring has been carried out in accordance with the SSEMP throughout the current reporting period.

17. The sampling has been carried out by Platan Group, who then send the samples for analysis at the Central Laboratory of the Ministry of Ecology and National Resources of Azerbaijan.

Section C

18. Regular monthly monitoring has been carried out in accordance with the SSEMP throughout the current reporting period.

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B. Results

Section B

20. All water quality monitoring results for all determinants and all monitoring stations were below Azeri national standards during the present reporting period. The full results are provided in Appendix 1; Some further observations on the results are provided below:

- pH, conductivity and DO showed more variance between stations (not so much between survey dates) than in previous reporting periods; the Ogru and Gamlishi Rivers had generally higher pH and lower DO than the other stations at the start of the reporting period, but these equalized again to a more standard reading by November.
- Following two periods of high turbidity, the turbidity in the Ogru and Gamlishi Rivers dropped significantly during the present reporting period, and the Gamlishi had the lowest turbidity of all rivers. Average turbidity dropped across all monitoring stations and sampling dates.
- Heavy metal levels are all well below the national standards, and show very little variance between the pre-construction monitoring and tall months of the present reporting period.
- Nitrates / Nitrites and other major ions are well below the standards at all locations.
- Oil and grease levels are constant throughout the reporting period at a very low level, well below the limits.
- Interestingly, the faecal coliform levels at all stations dropped in comparison with the previous monitoring period. The Ogru and Gamlishi Rivers continue to have lower coliform levels than other monitoring stations.

21. All air quality monitoring results for all determinants and all monitoring stations were below Azeri national standards during the present reporting period. Particulate, NO₂ and CO readings were generally lower than in previous monitoring periods and they even showed a further lowering trend towards the end of the reporting period. The reductions could be due to a

combination of factors, such as higher rainfall, reduced earthworks and also a reduction in activity at the municipal crushing facility.

22. Noise and vibration monitoring results were all below the permitted limits during the reporting period. Noise levels were close to the limits at certain stations during certain months (e.g. 48.6 dB at Yuxari Nuvadi in September) but were in general slightly lower than observed in previous reporting periods.

Section C

23. All water quality monitoring results for all determinants and all monitoring stations were below Azeri national standards during the present reporting period. The full results are provided in Appendix 1. Some further observations on the results are provided below:

- In July and August, BOD in the “office camp” lake was approaching the limits. This is perhaps not surprising given the nature of the water body and the time of year. The high result is not thought to be as a result of project activities.
- In common with Section B, DO readings were higher at most stations during the latter part of the reporting period. It is not clear why this should be the case, but is not considered a significant concern.
- pH, conductivity and DO showed very little variance between stations and between survey dates.
- Turbidity levels were similar to the pre-construction levels (i.e. on the high side) at all stations and during all surveys.
- Heavy metal levels are all well below the national standards, and show very little variance between the pre-construction monitoring and all months of the present reporting period.
- Sulphates, Nitrates / Nitrites and oil and grease results are all well below the standards at all locations.
- Phenol levels jumped by an order of magnitude between September and October, and remained at the limits for the remainder of the reporting period. It is suspected that the tenfold increase in levels could be an instrumental issue. It should be noted that the highest levels were still at rather than over the permitted limits.
- Faecal coliform levels are generally rather high at all stations, as they have been on all sections of the project throughout. There was no drop in coliform numbers noted for Section C during the present reporting, as was noted for Section B.

24. All air quality monitoring results for all determinants and all monitoring stations were below Azeri national standards during the present reporting period. Particulate, NO₂ and CO readings were occasionally higher than the pre-construction levels, however air quality over the past six months appears to have been generally better than in previous reporting periods. No station stands out as of concern.

25. Pre-construction noise and vibration monitoring results showed moderate to high levels of background noise in the project area. Noise was particularly high in Burjali and Yuxari Nuvadi villages (due to Municipal crushing activities), and this has continued over the past six months, with generally moderate noise and vibration levels, and high levels at the two stations that are impacted by the extraction industry ongoing in the Lenkaran Bridge area. Despite the generally

fairly high levels of noise and vibration recorded, all monitoring results were below the permitted limits, and generally slightly less than the previous reporting period.

C. Action

26. No action on site is required on either Section B or Section C in response to the monitoring results from the present reporting period. The monitoring contractor has been contacted to verify the phenol results but no conclusion has yet been communicated.

III. ENVIRONMENTAL MANAGEMENT

A. Status

27. Environmental management of the project for the Section B is described in two parts; one covers general project activities and the second is dedicated to works around Hirkan forest area. This is due to the sensitivity and importance of the area requiring special attention.

Section B

28. In general, environmental management on Section B has continued to be of an acceptable standard during the present reporting period. Although each site visit by the Engineer observed several minor non-compliances (see Part D below) these are usually addressed quickly. General cleanliness is good, and the physical mitigation measures set out in the SSEMP are generally all constructed and functioning as designed.

29. There have been no accidents during the reporting period involving the public, however there was a non-fatal vehicular accident on the approach road to the Qrunba borrow pit on the 11th July 2015. No one was hurt but the truck driver was taken to hospital as a precaution (and soon discharged).

Hirkan forest area

30. There has been no work carried out in the Hirkan Forest area for some months, but during the December visit, the site was found to be in a better state than in previous audits, with no municipal waste on site. The installation of noise barriers remains an issue and this is discussed in Part D below.

31. There have been no accidents during the reporting period involving the public or workers.

Section C

32. The Section C Contractor's site performance continues to improve, and is largely compliant with the provisions of the SSEMP. As with Section B, the Contractor has made some efforts over the past months to address the non-compliances that were observed during the previous site audit in May, and only very few new minor non-compliances were noted. Indeed, it was reported during the visit that the section C site (and in particular the camps) have been visited by delegations from other internationally funded projects in the area as an example of "best practice".

33. Health and Safety practices, whilst not ideal, are notably better on Section C than on the other sections.

34. The Contractor's "office camp" (in Burjali village) is generally very well managed. The camp area is clean and tidy, accommodation is of a good standard, and the welding area is well equipped. Health and safety standards are also good.

35. At the Contractor's "plant camp" (at km 33+000 / Yuxari Nuvadi village), the facilities are of a good standard in general, however several non-compliances were observed during the reporting period (see Part D below for further information). As with the "office camp", the Contractor generally resolved any problems raised by the Engineer within an acceptable timeframe.

B. Documents

Section B

36. Reporting for Section B is generally compliant, and the Quarterly Environmental Reports continue to improve. An inspection of site documentation in December 2015 showed that all relevant paperwork, including the Grievance Register, was present at the site office.

Section C

37. Inspection showed that Section C reporting and paperwork is similarly compliant as with Section B.

C. Inspections and Audits

38. The ADB Representatives, Mr. Olly Onorojono, Mr. Faraj Huseynbayov and Mr. Neal Valiyev together with PIU Engineer, Mr. Vugar Pashayev visited the site last 5th of August 2015.

39. During the month of September, there were visitors from Asian Development Bank including Mr. Biswanath Debath, Principal Development Specialist, Mr. Nurzhan Dzhumabaev, Regional Coordinator for TA 7433 and Mr. Elshan Rustamanov, Resettlement Consultant, who came to site on the 3rd of September.

40. Ms. Zehra Abbas, the ADB Environmentalist, visited the site on the 14 to 15 September together with Mr. Shahin Isayev to check the Contractor's environmental compliance.

41. The ADB's National environmental specialist as well as project team have visited the site numerous times in the past six months. Non compliances observed during the visits were discussed with PIU and with supervision consultants. Following these visits letters were prepared to Contractors and necessary actions were taken.

42. The Section B & C contractor's EPMs conduct *ad hoc* site visits on a daily basis, with a full audit of all sites once a week.

43. The Engineer's National Environmental Specialist is based at the Section C camp area and he visits all sites on a twice-weekly basis, with additional *ad hoc* visits as required.

44. During the present reporting period The Engineer's International Environmental Specialist visited construction sites on the 2nd to the 4th December 2015.

45. The Executing Agency has made a number of *ad hoc* visits to site as required.

D. Non-Compliance and Corrective Actions

Section B

46. The Contractor has significantly advanced the construction works on site over the past six months, and has done so within the bounds of the SSEMP; all works on the alignment were compliant, and the site was clean, tidy, and well maintained. Culverts and other working areas were clearly demarcated with warning barriers.

47. Dust control, which was previously reported as being excellent, became problematic during the middle of the reporting period (late summer) but was swiftly addressed in each instance by the Contractor following a warning from the Engineer.

48. As usual, the Contractor has made some efforts over the past months to address the non-compliances that were observed during the various site audits carried out during the last six months, however, a number of easily-avoided non-compliances were still noted during a December audit.



Figure 1: Dust Issue on Section B access road (L) and Contractor response at the same location (R)

49. A considerable amount of asphaltting has taken place since the start of the reporting period, and all piling work and other groundwork is substantially complete. The result is that large parts of the alignment are starting to look tidier, there is less opportunity for dust/mud generation, and with fewer working areas, there are fewer other common non-compliances. However, the areas requiring attention along the alignment over the past six months were as follows:

- During the middle of the reporting period, waste management at bridge construction sites (e.g. Bridge no 9) was again problematic. Following warnings from the Engineer, these issues were swiftly resolved, and there were no waste management problems identified during the final audit of the year in December.
- Towards the end of the reporting period, temporary access roads again became problematic, both at diversions and the entrance to the Contractor's camp (see Figure 2). The Contractor is not able to make significant improvements until the asphalt plant is reinstated in the spring, but has been instructed to make attempts at improving the problem area by grading and filling.



Figure 2: Poor state of road at entrance to Section B Contractor Camp

50. At the Contractor's camp a number of non-compliances were noted during the reporting period; most of them were repeat offences of the same problems that arise. No matter how many times the Contractor is warned about certain issues (and addresses each incident), re-occurrences inevitably occur. Despite this frustration, the Contractor is always quick to address any non-compliances raised, even if their prevention of re-occurrence could be improved.

51. The Contractor has now excavated and crushed sufficient material for the coming construction season, so the crushing plant has been dismantled and removed. This appears to have been done in a compliant manner as there is no evidence of its prior presence on site.

52. A summary of the main non-compliances noted during the reporting period, and corresponding actions, is provided below:

- Drums of oil were occasionally observed at various locations on site outside the designated area. This was swiftly resolved in each instance. The hazardous materials and fuel storage area had no materials stored outside the bund area during the December audit, however some of the containers were not fully within the bund wall, resulting in spillage, as shown in Figure 3.
- The oil change area occasionally required clean-up. This was swiftly resolved in each instance;
- Despite the improvements made to the sewage and vehicle washing facilities during the previous monitoring period, there were occasional problems and overflows. Again, this issue was swiftly addressed whenever it occurred;
- Very few material haulage vehicles were fitted with compliant tarpaulins. This issue continually occurs, despite repeated warnings. Fortunately, the distance that vehicles travel on public roads is minimal now that the service/access roads along the alignment are accessible;
- Outdoor vehicle maintenance was again observed during the December audit (see Figure 3). A discussion with the Contractor's site manager resulted in agreement on the construction of an "emergency" working / parking area outside the main workshop. This will be a concrete pad to be used for temporary storage of vehicles awaiting space in the workshop or parts delivery;
- Breaches of the Health and Safety Procedures were sometimes observed (Figure 4). This is a perennial problem.
- The bund at the hazardous waste storage area near the generator set was almost full of water/oil and requires emptying and proper disposal (see Figure 4).
- The hole previously observed in the bund at the asphalt plant was not sufficiently well addressed; a token effort of some leftover concrete had been placed at the hole but a proper repair is required (See Figure 5).
- The bund wall at the asphalt plant was observed in December to have a significant breakage (apparently caused by a mistake during the removal of a generator from within the bund) that requires repair (see Figure 5).



Figure 3: Vehicles under maintenance outside the workshop again (L) and badly-stored oil containers (R)



Figure 4: Hazardous waste area requiring emptying (L) and health and safety issues (R)



Figure 5: Damaged bund at asphalt plant (L) and unsatisfactory repair of hole previously in bund previously noted at asphalt plant (R)

53. Following the December audit, all of the outstanding non-compliances in the above list were clearly explained to the Contractor's EPM who agreed to address the problems swiftly. The

majority of the above non-compliances were then addressed within a week; further details will follow in the next report.

Hirkan Forest Area

54. At the Hirkan Forest area, the large amounts of domestic waste previously observed were removed by the Contractor as instructed, and the area was found to be clean and clear during the December audit (see Figure 6 below).

55. During the last major audit in May 2015, the Contractor was instructed to extend the temporary noise barriers alongside the forest so that they cover the entire edge of the forest, in accordance with the stated design in the SSEMP. During an ADB visit to the site in October the work had not been completed, and further instructions were issued. It was therefore a disappointment to find during the December audit that the noise barriers are still incomplete (see Figure 6). They have actually been extended slightly on the northern end, but both ends still fall short of the forest boundary. The Contractor provided various weak excuses as to why the work had not been completed, but the Contractor has now been issued with a firm two week window in which to address the problem or face further consequences.

56. It should be noted that the ADB previously requested that the height of the barriers also be extended. Whilst the height of the barriers is somewhat insufficient due to the earthworks raising the height of the working area, a check of the SSEMP reveals that the barriers specified are 2 m in height; there is therefore no contractual basis for requesting a height extension.



Figure 6: Generally clean and tidy at “Hirkan Forest” in December 2015 (L) but noise barriers still fall short (R)

57. Minor conflict with the local population in the adjacent village continues; during the present reporting period the Contractor installed the required fencing, as instructed by the Engineer, however the fencing was swiftly removed by the local population. This is because they wish to maintain access to the Hirkan Forest for animal grazing, which is strictly forbidden in protected areas.

Table 3: Instructions to Section B Contractor during the last Six Months

No	Date	Description of Instruction
1	01/07/2015	Letter No BNK684 Fire extinguishers
2	31/08/2015	Letter No BNK745 About taking safety measures
3	15/09/2015	Letter No BNK755 Noise Barrier at Moscow Forest Area
4	09/12/2015	Letter No BNK803

		Safety measures and Traffic Management
5	09/12/2015	Letter No BNK804 Public Consultations

Section C

58. As mentioned earlier in this report, the Section C Contractor's site performance has been good over the past six months, with only a handful of non-compliances observed, all of which have been swiftly addressed. As with Section B, though, many of the minor non-compliances are repeat offences of easily avoided problems.

59. Some additional improvements have also been made at the Contractor's camps, for example the parking area at the "office" camp has been improved with better surfacing and parking arrangements, the municipal waste storage area has been fenced off, and the wheel washer at the "plant camp" has had asphalt ramps installed.



Figure 7: Improvements at the Section C "Office Camp"

60. The main non-compliances noted at the start of the reporting period were all addressed; piling has finished, and the small temporary construction "camp" at Bridge 4 was no longer present. Most of the bridge and culvert works were completed, and the majority of culverts were back filled. However, some of the culverts and other excavations that were not yet backfilled had flooded, and these and the river banks at bridges were not equipped with any form of warning of safety provisions (see Figure 8). In view of the sad deaths that occurred in the past on Section B, it is very important that the Contractor addresses this problem immediately. The Contractor was informed and has pledged to do install safety measures in the very near future.

61. As with Section B, some of the diversion/access roads were in a fairly poor state and require attention; see Figure 8.



Figure 8: Unprotected waterways (L) and deteriorated diversion road (R)

62. As mentioned above, the outstanding issues at the two construction camps from the previous reporting period were inspected, and were all found to have been addressed. For example, the non-compliant use of the workshop drain for oil disposal has ceased and the drain showed no sign of containing any oil, as shown in Figure 9. The waste storage area was also improved as required, and the wheel washer area had been asphalted.



Figure 9: Workshop drain filled with oil in May 2015 (L) and the same location (problem addressed) in December 2015 (R)

63. Despite the above progress, some repeat and new non-compliances were observed during the reporting period, as follows:

- Waste was not correctly stored at the workshops, and used oil drums were not stored in the hazardous waste area on more than one occasion during the reporting period. Swift action was taken by the Contractor when issued with warnings.
- Vehicles were again found to be occasionally worked upon outside the workshop during the earlier part of the reporting period (see Figure 10). By the end of the reporting period the practice had ceased.
- On one occasion during September, a worker was observed cleaning out a concrete truck outside the designate area in the Contractor Camp (see Figure 10). He was swiftly berated and the issue has not arisen again.
- On one occasion during August, the septic tanks overflowed due to failure to empty at the correct time. The area was cleaned up and there has been no repeat offence since.
- During the December audit, the hazardous materials storage was, in similarity with Section B, not being carried out prudently enough, with containers sitting outside the bund walls.
- The fire fighting stations at the “office camp” did not contain sand in their sand boxes.
- The new asphalt plant has not been bunded, yet is showing some signs of use. Most of the plant sits on a concrete base, but one of the bitumen tanks (currently empty) is not on a concrete base (see Figure 11).



Figure 10: Evidence of use at the Section C asphalt plant (L) and concrete truck being washed out outside the Contractor Camp (R)



Figure 11: Evidence of use at the Section C asphalt plant (L) and bitumen tank located off the concrete base at the same location (R)

64. Following the December audit, all of the outstanding non-compliances in the above list were clearly explained to the Contractor's EPM who agreed to address the problems swiftly. If the problems are not addressed within two weeks, further action will be taken by the Engineer.

Table 4: Instructions to Section C Contractor During the last Six Months

No	Date	Description of Instruction
1	31/08/2015	Letter No CNK493 About Taking Safety Measures
2	02/09/2015	Letter No CNK496 Repair of the damaged main road
3	09/12/2015	Letter No CNK559 Public Consultations
4	16/12/2015	Letter No CNK561 Safety measures and Traffic Management

E. Consultations and Complaints

Section B

65. During the present reporting period public consultations were held on the following dates at the Contractor Camp:

- 21st July 2015: Haftoni, Laj, Sapnakaran and Yuxari Nuvadi villages.
- 20th August 2015: Haftoni, Sapnakaran and Yuxari Nuvadi villages.
- 19th September 2015: Haftoni, Laj, and Saglakuze villages.
- 16th October 2015: Haftoni, Laj, and Saglakuze villages.
- 11th November 2015: Laj and Haftoni villages.

66. Detailed lists of the participants were provided to Engineer within monthly and quarterly reports. Some examples of meeting registration are provided in Appendix 2.

67. During each meeting the EPM delivered a presentation, which focussed on three main subjects:

- The construction process and schedule;
- HIV awareness; and
- The Grievance Redress Mechanism.

68. Following the presentation, attendees were then given an opportunity to make comments or ask questions. Few questions were asked during the meetings but the following grievance was registered during the 16th October meeting. The grievance was lodged regarding the poor state of the access road to Haftoni settlement near Bridge no. 4. The EPM registered the complaint and informed management. The problem was soon solved.

69. Several grievances have been made of late for both Sections B and C that have not been directed through the correct channels, i.e. the Grievance Redress Mechanism (GRM), with letters of complaint being sent directly to government. An ongoing example is the case of a complaint from a resident in proximity to Bridge no. 5). It was not clear whether this occurred due to complainants not being aware of the GRM, or whether they believe it will be more effective to communicate directly with government. Follow up with the Section B EPM determined that it is likely a combination of both causes. The EPM reported that, since shifting to a monthly public consultation meeting from six-monthly⁴, interest from local people and executive powers has waned considerably; they are simply too frequent for them to want to attend, and the result is little more than going through the motions with no meaningful discussions, and no real forum for voicing complaints and being reminded of the GRM. It should be added that the lack of enthusiasm for monthly meetings extends to the Contractor, who is clearly somewhat lackadaisical with regards to the organisation and discussion.

70. In an attempt to make the meetings more meaningful, it was provisionally agreed that it may be more effective to reduce the meeting frequency to once every three months. This should make the meeting enough of an “event” to encourage attendance, without the period between meetings being such that many issues are left unresolved for long periods of time. The

⁴ The contractual frequency is six-monthly, but this was changed in 2015 to monthly in an attempt to improve the GRM

agreement was made by the Engineer with the understanding that the Contractor would make significantly more effort to engage with the public during the less frequent meetings.

71. The above proposed approach was subsequently discussed with the PIU, who agreed to it, and a follow up letter instructing the Contractor and setting out the required conditions was issued.

72. A summary of all grievances to date and how they were resolved is provided in Table 5 below.

Section C

73. During the present reporting period public consultations were held on the following dates at the Contractor Camp:

- 21st July 2015: Burjali, Boyuk Shahagaji, and Shiyakaran villages.
- 18th August 2015: Burjali, and Shiyakaran villages.
- 21st September 2015: Burjali, Yuxari Nuvadi, and Shiyakaran villages.
- 20th October 2015: Burjali, Yuxari Nuvadi, Boyuk Shahagaji, and Shiyakaran villages.
- 14th November 2015: Burjali and Yuxari Nuvadi villages.

74. Detailed lists of the participants were provided to Engineer within monthly and quarterly reports. Some examples of meeting registration are provided in Appendix 2.

75. During each meeting the EPM delivered a presentation, which focussed on the same subjects as the Section B consultations.

76. Following the presentation, attendees were then given an opportunity to make comments or ask questions, however there were no questions raised or complaints made in any of the meetings.

77. As can be seen from the lack of interaction described above, the standard and attendance levels at the Section C public consultations have been very similar to the description provided for Section B. It has therefore been decided to trial a period of quarterly consultation meetings, using the same format and conditions applied to Section B. An update on the effectiveness of the new approach will be provided in the next Biannual Report.

78. A summary of all grievances to date and how they were resolved is provided in Table 6 below.

Table 5: Grievance Register – Section B

No	Tranche	Location	Date Received	How grievance was received	Complainant	Description of the issues/complaints	Contact details	Notes, undertaken actions	Status
1	Section B	Haftoni settlement	15.08.2013	From local Municipality	Rovshen Zeynalov	During the delivery of materials construction vehicles caused dust on local roads	050-546-86-20	Contractor appointed the water truck on that roads and the local roads had been watered by sprinkler truck on July, August and during dry weather periods every hour	Solved
2	Section B	Haftoni settlement	26.08.2013	From local Municipality	Rovshen Zeynalov	Contractor had been requested for recruited workers from close communities	050-546-86-20	Request was accepted and a 15 workers recruited from close communities	Solved
3	Section B	Laj Village	04.07.2014	From local Executive Representative	Cefer Bayramov	Contractor was requested to excavate the village channel for rain water	070-203-94-69	Request was accepted and the Laj village channel excavated for rain water	Solved
4	Section B	Laj Village	09.10.2014	From local Executive Representative	Cefer Bayramov	Village access road near the Bridge No 3 is destroyed	070-203-94-69	Village access road near the Bridge No 3 is repaired	Solved
5	Section B	Laj Village	24.11.2014	In person	Name unknown	Kargalan village access road near the Bridge No 4 is destroyed	TBC	Road has been repaired	Solved
6	Section B	Kargalan village	30.11.2014	In meeting	Vaqif Aliyev	Village access road near the Bridge No 4 is destroyed	TBC	Road has been repaired	Solved
7	Section B	Kargalan village	10.04.2015	From local people	Samed Dadashov	Sapnakaran village access road near the B ridge No 1 Interchange is destroyed	TBC	Road has been repaired	Solved

No	Tranche	Location	Date Received	How grievance was received	Complainant	Description of the issues/complaints	Contact details	Notes, undertaken actions	Status
8	Section B	Kargalan village	12.06.2015	From local people	Aslan Xelilov	Kargalan village access road is destroyed	TBC	Road has been repaired	Solved
9	Section B	Haftoni settlement	16.10.2015	In meeting	Kenan Bagirzade	Haftoni settlement access road near the Bridge No 4 is destroyed	TBC	Road has been repaired	Solved
10	Section B	Qrunba village	01.12.2015	From local people	Elekberov Firdovsi	Existing culverts near the Bridge No 5 are not enough for rain water flow	TBC	It was promised that another big size of culverts will be placed near the Bridge No 5	Ongoing

Table 6: Grievance Register – Section C

No	Tranche	Location	Date Received	How grievance was received	Complainant	Description of the issues/complaints	Contact details	Notes, undertaken actions	Status
1	Section C	Between km 60+950 & 61+400	21.07.2014	Directly from landowners	Names unknown	During the site clearance the contractor was interrupted by a land owner between Ch. 60+950 ~ 61+400. They claimed that they had not been reimbursed for all of his land	Unknown	Contractor has informed Engineer by its official letter MASAC-107/14 dated 22 July 2014	Contractor waiting for answer from Engineer
2	Section C	Yuxari Nuvadi village	10.09.2014	From local Municipality	Names unknown	During the installation of Crushing plant there was a noise at night time at Plant Yard	Unknown	Contractor has been reminded about night time working restrictions	Solved
3	Section C	Shiyakaran village	18.04.2015	in a meeting	Ayaz Rzayev	Village access road is destroyed at bridge No 2	Unknown	Road has been repaired	Solved
3	Section C	Yuxari Nuvadi village	14.05.2015	unknown	Izam Efendiyev	During the regular material transportation Yuxari Nuvadi village access road is destroyed	Unknown	Road has been asphalted	Solved

F. Emerging Issues

79. No emerging issues are reported.

G. Conclusions

80. The work on the road alignment has progressed significantly over the past six months, but activity on site has now been significantly reduced due to a combination of completion of much of the earthworks and bridge/culvert structures, and the start of the winter season. As a result of the above, by the end of the present reporting period, the alignment was generally in a compliant status, with only a few minor exceptions.

81. The Section B and C contractors continue to act on previously observed issues, and whilst new non-compliances were noted during the reporting period, with each visit these non-compliances are gradually reducing in number.

82. However, both Contractors continue to make the same recurrent violations of the SSEMP, largely with respect to waste management, hazardous materials storage and vehicle maintenance outside the dedicated areas. The contractors' EPMs simply don't seem to make sufficiently regular site inspections. The Engineer is working hard to eliminate these infractions, but it is a challenge.

83. In terms of documentation, both contractors are compliant.

84. It is hoped that the planned change from monthly public consultations to quarterly meetings (with associated conditions intended to make the meetings more meaningful) will improve the GRM over the coming months. The situation will be reviewed towards the end of the next reporting period in mid-2016.

IV. APPENDICES

Appendix 1: Environmental Monitoring Results

Section B

Water Quality

1) Pre-Construction Monitoring

Determinand	Unit	Lakar 1 River		Lakar 2 River		Ogru River		Gamishli River		Limit
		Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	
pH		7.7	7.7	7.6	7.5	7.5	7.5	7.6	7.7	6.0-9.0
Electrical conductivity	X10³ cm/cm	0.204	0.205	0.203	0.204	0.204	0.204	0.206	0.207	-
Limpidity	Cm	24.0	25.0	24.0	24.0	24.0	25.0	25.0	25.4	<30
Turbidity	mg/l	26.3	26.4	26.7	25.5	25.5	25.7	24.9	24.9	<30
Dissolved O₂	mg/l	4.2	4.2	4.4	4.6	4.9	4.7	4.5	4.7	4.6-6.0
BOD	mg/l	1,6	1,6	1,9	1,9	2,8	2,7	2,7	2,9	3
Total roughness	mgekvl	4.13	4.15	4.18	4.22	4.56	4.59	4.60	5.15	7.0
Calcium ion Ca²⁺	mg/l	114.0	115.0	128.0	128.0	108.0	109.0	106.0	105.9	180.0
Magnesium ion Mg²⁺	mg/l	10.2	10.3	11.9	11.9	9.9	9.9	9.9	9.9	200.0
Chloride ion Cl⁻	mg/l	145.2	146.1	148.7	148.8	138.5	139.3	137.8	138.2	350.0
Sulphate SO₄²⁻	mg/l	266.3	261.6	269.9	269.9	178.4	178.5	177.9	177.9	500.0
Bicarbonate ion, HCO₃⁻	mg/l	229.4	229.7	231.9	231.9	182.6	183.4	182.5	182.8	-
Na⁺+K⁺ ions	mg/l	157.9	158.6	159.7	159.8	144.9	144.9	144.7	144.9	-
Sum of ions, Σ 1	mg/l	932.7	933.4	934.3	935.5	743.4	743.2	745.3	745.8	1000.0
Ammonium ion, NH₄⁺	mg/l	0.336	0.337	0.337	0.338	0.231	0.231	0.240	0.242	0.39
Nitrite ion, NO₂⁻	mg/l	0.007	0.008	0.007	0.007	0.007	0.008	0.005	0.006	0.02
Nitrate ion, NO₃⁻	mg/l	3.22	3.24	3.20	3.23	2.52	2.53	2.34	2.40	9.0
Oil & grease	mg/l	0.002	0.003	0.003	0.003	0.002	0.002	0.001	0.002	0.05
Faecal coliform	per 100 ml	<2.0x10 ⁵	<2.0x10 ⁵	<2.0x10 ⁵	<2.0x10 ⁵	<2.0x10 ⁵	<2.0x10 ⁵	<2.0x10 ⁵	<2.0x10 ⁵	<2.0
TSS	mg/l	0.226	0.226	0.228	0.229	0.110	0.113	0.114	0.117	
SSAM	mg/l	0.028	0.029	0.033	0.033	0.020	0.025	0.025	0.026	0.1
Phenol	mg/l	0.001	0.001	0.001	0.001	0.001	0.0002	0.0003	0.0004	0.001

2) July 2015

Ingredients	Unit	Lakar 1 River		Lakar 2 River		Ogru River		Gamishli River		Allowed Concentration
		Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream	
pH		6.5	6.6	6.7	6.8	7.0	7.1	7.3	7.3	6.0-9.0
Electrical conductivity	X10 ³ cm/cm	0.274	0.280	0.204	0.205	0.192	0.195	0.154	0.156	-
Limpidity	cm	19.2	19.2	18.6	18.7	19.4	19.6	23.7	23.9	>30
Turbidity	mg/l	16.1	16.2	16.2	16.3	17.5	17.6	12.2	12.5	>30
Dissolved O ₂	mg/l	4.3	4.4	5.5	5.5	5.0	5.1	4.3	4.4	4.6-6.0
BOD	mg/l	2,6	2,7	2,6	2,7	1.8	1.9	1,2	1,3	3
Total roughness	mqekv/l	5.79	5.84	5.84	5.86	4.42	4.43	3.10	3.12	7.0
Calcium ion Ca ²⁺	mg/l	124.3	124.5	125.1	125.2	115.2	115.4	101.2	101.4	180.0
Magnesium ion Mg ²⁺	mg/l	11.9	12.1	12.2	12.3	11.3	11.4	9.7	9.8	200.0
Chloride ion Cl ⁻	mg/l	156.2	156.4	148.9	149.2	138.4	138.6	122.3	122.6	350.0
Sulphate SO ₄ ²⁻	mg/l	265.4	265.5	198.2	198.5	195.8	196.0	186.4	186.5	500.0
Bicarbonate ion, HCO ₃ ⁻	mg/l	219.3	219.8	202.1	202.6	198.4	198.7	196.4	196.7	-
Na ⁺ +K ⁺ ions	mg/l	170.7	170.9	168.4	168.7	155.2	155.5	142.5	142.8	-
Sum of ions, Σ 1	mg/l	947.8	949.2	854.9	856.5	814.3	815.6	758.5	759.8	1000.0
Ammonium ion, NH ₄ ⁺	mg/l	0.384	0.385	0.280	0.282	0.260	0.263	0.242	0.245	0.39
Nitrite ion, NO ₂ ⁻	mg/l	0.007	0.008	0.006	0.007	0.005	0.006	0.004	0.005	0.02
Nitrite ion, NO ₃ ⁻	mg/l	3.66	3.69	2.38	2.40	2.24	2.25	2.20	2.24	9.0
Oil & grease	mg/l	0.002	0.003	0.002	0.003	0.001	0.002	0.001	0.002	0.05
E-coli	Per liter	782	785	812	815	680	682	670	672	1000
TSS	mg/l	0.083	0.084	0.015	0.017	0.065	0.070	0.054	0.055	0.25
SSAM	mg/l	0.04	0.05	0.05	0.05	0.02	0.03	0.01	0.02	0.1
Phenol	mg/l	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Ingredients	Unit	Lakar 1 River		Lakar 2 River		Ogru River		Gamishli River		Allowed Concentration
		Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream	
pH		6.5	6.6	6.7	6.8	7.0	7.1	7.3	7.3	6.0-9.0
Electrical conductivity	X10 ³ cm/cm	0.274	0.280	0.204	0.205	0.192	0.195	0.154	0.156	-
Limpidity	cm	19.2	19.2	18.6	18.7	19.4	19.6	23.7	23.9	>30
Turbidity	mg/l	16.1	16.2	16.2	16.3	17.5	17.6	12.2	12.5	>30
Dissolved O ₂	mg/l	4.3	4.4	5.5	5.5	5.0	5.1	4.3	4.4	4.6-6.0
BOD	mg/l	2,6	2,7	2,6	2,7	1.8	1.9	1,2	1,3	3
Total roughness	mgekv/l	5.79	5.84	5.84	5.86	4.42	4.43	3.10	3.12	7.0
Calcium ion Ca ²⁺	mg/l	124.3	124.5	125.1	125.2	115.2	115.4	101.2	101.4	180.0
Magnesium ion Mg ²⁺	mg/l	11.9	12.1	12.2	12.3	11.3	11.4	9.7	9.8	200.0
Chloride ion Cl ⁻	mg/l	156.2	156.4	148.9	149.2	138.4	138.6	122.3	122.6	350.0
Sulphate SO ₄ ²⁻	mg/l	265.4	265.5	198.2	198.5	195.8	196.0	186.4	186.5	500.0
Bicarbonate ion, HCO ₃ ⁻	mg/l	219.3	219.8	202.1	202.6	198.4	198.7	196.4	196.7	-
Na ⁺ +K ⁺ ions	mg/l	170.7	170.9	168.4	168.7	155.2	155.5	142.5	142.8	-
Sum of ions, Σ 1	mg/l	947.8	949.2	854.9	856.5	814.3	815.6	758.5	759.8	1000.0
Ammonium ion, NH ₄ ⁺	mg/l	0.384	0.385	0.280	0.282	0.260	0.263	0.242	0.245	0.39
Nitrite ion, NO ₂ ⁻	mg/l	0.007	0.008	0.006	0.007	0.005	0.006	0.004	0.005	0.02
Nitrite ion, NO ₃ ⁻	mg/l	3.66	3.69	2.38	2.40	2.24	2.25	2.20	2.24	9.0
Oil & grease	mg/l	0.002	0.003	0.002	0.003	0.001	0.002	0.001	0.002	0.05
E-coli	Per liter	782	785	812	815	680	682	670	672	1000
TSS	mg/l	0.083	0.084	0.015	0.017	0.065	0.070	0.054	0.055	0.25
SSAM	mg/l	0.04	0.05	0.05	0.05	0.02	0.03	0.01	0.02	0.1
Phenol	mg/l	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Ingredients	Unit	Lakar 1 River		Lakar 2 River		Ogru River		Gamishli River		Allowed Concentration
		Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream	
pH		6.5	6.5	6.5	6.6	6.4	7.0	7.0	7.1	6.0-9.0
Electrical conductivity	X10 ³ cm/cm	0.273	0.274	0.216	0.215	0.191	0.192	0.159	0.159	-
Limpidity	cm	19.2	19.3	18.0	18.2	19.3	19.3	23.4	23.5	>30
Turbidity	mg/l	16.0	16.1	16.2	16.3	17.7	17.7	13.2	13.3	>30
Dissolved O ₂	mg/l	5.0	5.1	5.3	5.3	5.2	5.3	5.6	5.6	4.6-6.0
BOD	mg/l	2.5	2.5	2.3	2.4	1.9	2.1	1.5	1.5	3
Total roughness	mkekvl	5.79	5.81	5.86	5.88	4.48	4.50	3.12	3.14	7.0
Calcium ion Ca ²⁺	mg/l	122.2	122.3	124.5	124.6	115.5	115.4	102.2	102.0	180.0
Magnesium ion Mg ²⁺	mg/l	10.4	10.5	11.2	11.3	10.8	11.1	9.8	9.9	200.0
Chloride ion Cl ⁻	mg/l	157.3	158.0	148.2	149.1	139.5	139.6	123.2	123.3	350.0
Sulphate SO ₄ ²⁻	mg/l	254.4	255.6	196.6	197.5	194.3	194.4	187.4	187.5	500.0
Bicarbonate ion, HCO ₃ ⁻	mg/l	217.7	218.4	204.5	204.6	198.5	198.8	196.8	196.9	-
Na ⁺ +K ⁺ ions	mg/l	174.6	174.7	169.3	169.3	156.4	156.7	143.7	143.8	-
Sum of ions, Σ 1	mg/l	937.4	939.5	854.5	855.9	815.5	816.6	762.2	763.5	1000.0
Ammonium ion, NH ₄ ⁺	mg/l	0.334	0.335	0.287	0.287	0.263	0.264	0.234	0.234	0.39
Nitrite ion, NO ₂ ⁻	mg/l	0.009	0.009	0.007	0.008	0.006	0.006	0.004	0.005	0.02
Nitrite ion, NO ₃ ⁻	mg/l	3.65	3.70	2.42	2.45	2.29	2.29	2.21	2.22	9.0
Oil & grease	mg/l	0.002	0.002	0.001	0.002	0.001	0.002	0.001	0.002	0.05
E-coli	Per liter	785	785	811	813	686	687	667	668	1000
TSS	mg/l	0.090	0.092	0.054	0.056	0.070	0.071	0.052	0.052	0.25
SSAM	mg/l	0.02	0.04	0.03	0.04	0.03	0.03	0.01	0.02	0.1
Phenol	mg/l	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Ingredients	Unit	Lakar 1 River		Lakar 2 River		Ogru River		Gamishli River		Allowed Concentration
		Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream	
pH		6.3	6.4	6.0	6.1	6.2	6.4	7.0	7.1	6.0-9.0
Electrical conductivity	X10 ³ cm/cm	0.270	0.272	0.219	0.219	0.190	0.192	0.156	0.159	-
Limpidity	cm	19.4	19.6	18.3	18.6	19.0	19.2	23.0	23.5	>30
Turbidity	mg/l	16.0	16.0	16.2	16.3	17.7	17.7	13.4	13.6	>30
Dissolved O ₂	mg/l	4.5	4.7	5.0	5.1	4.2	4.3	4.6	4.6	4.6-6.0
BOD	mg/l	2.5	2.6	2.3	2.4	2.0	2.1	1.5	1.8	3
Total roughness	mgekv/l	5.70	5.72	5.80	5.83	4.48	4.49	3.12	3.12	7.0
Calcium ion Ca ²⁺	mg/l	122.2	122.3	124.5	124.6	115.5	115.4	102.2	102.0	180.0
Magnesium ion Mg ²⁺	mg/l	10.4	10.5	11.2	11.3	10.8	11.1	9.8	9.9	200.0
Chloride ion Cl ⁻	mg/l	157.0	158.1	148.3	149.4	139.5	139.6	123.3	123.3	350.0
Sulphate SO ₄ ²⁻	mg/l	254.4	255.6	196.6	197.5	194.3	194.4	187.4	187.5	500.0
Bicarbonate ion, HCO ₃ ⁻	mg/l	217.7	218.4	204.5	204.6	198.5	198.8	196.8	196.9	-
Na ⁺ +K ⁺ ions	mg/l	174.6	174.7	169.3	169.3	156.4	156.7	143.7	143.8	-
Sum of ions, Σ 1	mg/l	937.4	939.5	854.5	855.9	815.5	816.6	762.2	763.5	1000.0
Ammonium ion, NH ₄ ⁺	mg/l	0.332	0.334	0.280	0.282	0.281	0.284	0.234	0.235	0.39
Nitrite ion, NO ₂ ⁻	mg/l	0.004	0.005	0.007	0.008	0.006	0.006	0.004	0.005	0.02
Nitrite ion, NO ₃ ⁻	mg/l	3.65	3.68	2.42	2.45	2.29	2.29	2.21	2.22	9.0
Oil & grease	mg/l	0.001	0.002	0.001	0.002	0.001	0.001	0.001	0.002	0.05
E-coli	Per liter	780	784	811	816	688	692	660	668	1000
TSS	mg/l	0.090	0.092	0.054	0.056	0.070	0.071	0.052	0.052	0.25
SSAM	mg/l	0.02	0.03	0.03	0.04	0.02	0.03	0.01	0.02	0.1
Phenol	mg/l	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Results of Physical-Chemical Analysis carried out on Water Samples (mg/l)

Ingredients	Unit	Lakar 1 River		Lakar 2 River		Ogru River		Gamishli River		Allowed Concentration
		Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream	
pH		6.0	6.1	5.8	5.9	6.0	6.2	6.0	6.1	6.0-9.0
Electrical conductivity	X10 ³ cm/cm	0.268	0.270	0.215	0.216	0.191	0.192	0.150	0.152	-
Limpidity	cm	19.3	19.4	18.0	18.2	19.1	19.2	22.0	23.0	>30
Turbidity	mg/l	19.0	19.3	17.2	18.3	18.7	17.9	18.6	18.7	>30
Dissolved O ₂	mg/l	4.1	4.2	5.0	5.2	4.0	4.1	4.3	4.7	4.6-6.0
BOD	mg/l	2.7	2.8	2.2	2.4	2.5	2.6	2.5	2.5	3
Total roughness	mg/l	5.71	5.72	5.80	5.80	4.42	4.44	3.13	3.15	7.0
Calcium ion Ca ²⁺	mg/l	122.0	122.2	120.1	122.5	115.6	116.1	102.2	102.1	180.0
Magnesium ion Mg ²⁺	mg/l	10.1	10.2	11.0	11.1	10.8	10.9	9.8	9.8	200.0
Chloride ion Cl ⁻	mg/l	157.2	158.0	148.1	149.2	139.4	139.5	123.0	123.1	350.0
Sulphate SO ₄ ²⁻	mg/l	254.5	255.6	196.2	197.3	194.0	194.2	187.2	187.3	500.0
Bicarbonate ion, HCO ₃ ⁻	mg/l	216.1	216.2	204.2	204.5	198.0	198.0	196.3	196.4	-
Na ⁺ +K ⁺ ions	mg/l	174.5	174.6	169.1	169.2	156.5	156.7	143.1	143.2	-
Sum of ions, $\sum 1$	mg/l	935.0	935.5	854.3	855.6	815.2	816.5	762.1	763.2	1000.0
Ammonium ion, NH ₄ ⁺	mg/l	0.330	0.331	0.280	0.281	0.282	0.283	0.231	0.232	0.39
Nitrite ion, NO ₂ ⁻	mg/l	0.004	0.004	0.005	0.006	0.006	0.007	0.004	0.004	0.02
Nitrite ion, NO ₃ ⁻	mg/l	3.60	3.61	2.40	2.42	2.26	2.27	2.20	2.21	9.0
Oil & grease	mg/l	0.002	0.002	0.001	0.002	0.001	0.002	0.001	0.001	0.05
E-coli	Per Liter	785	787	819	825	680	691	663	670	1000
TSS	mg/l	0.087	0.089	0.051	0.053	0.070	0.070	0.051	0.052	0.25
SSAM	mg/l	0.01	0.02	0.03	0.03	0.02	0.03	0.02	0.02	0.1
Phenol	mg/l	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Ingredients	Unit	Lakar 1 River		Lakar 2 River		Ogru River		Gamishli River		Allowed Concentration
		Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream	
pH		6.5	6.5	5.2	5.4	6.0	6.0	6.1	6.2	6.0-9.0
Electrical conductivity	X10 ³ cm/cm	0.265	0.267	0.213	0.215	0.190	0.192	0.150	0.153	-
Limpidity	cm	19.0	19.2	18.1	18.2	19.1	19.2	22.4	23.0	>30
Turbidity	mg/l	19.4	19.5	17.2	18.0	18.3	17.9	18.2	18.5	>30
Dissolved O ₂	mg/l	4.1	4.2	4.0	4.2	4.0	4.1	4.3	4.4	4.6-6.0
BOD	mg/l	2.5	2.6	2.4	2.4	2.6	2.6	2.7	2.7	3
Total roughness	mgekv/l	5.70	5.73	5.80	5.81	4.43	4.44	3.15	3.16	7.0
Calcium ion Ca ²⁺	mg/l	122.2	122.3	120.1	122.5	115.6	116.1	102.2	102.1	180.0
Magnesium ion Mg ²⁺	mg/l	10.3	10.4	11.0	11.1	10.9	10.9	9.8	9.8	200.0
Chloride ion Cl ⁻	mg/l	157.5	158.0	148.2	149.2	139.4	139.5	123.0	123.1	350.0
Sulphate SO ₄ ²⁻	mg/l	254.4	255.6	196.2	197.3	194.0	194.2	187.2	187.3	500.0
Bicarbonate ion, HCO ₃ ⁻	mg/l	216.0	216.2	204.2	204.5	198.0	198.0	196.3	196.4	-
Na ⁺ +K ⁺ ions	mg/l	174.6	174.7	169.1	169.2	156.5	156.7	143.1	143.2	-
Sum of ions, $\sum 1$	mg/l	935.0	935.5	854.3	855.6	815.2	816.5	762.1	763.2	1000.0
Ammonium ion, NH ₄ ⁺	mg/l	0.333	0.334	0.280	0.281	0.282	0.283	0.231	0.232	0.39
Nitrite ion, NO ₂ ⁻	mg/l	0.004	0.005	0.005	0.006	0.004	0.005	0.004	0.004	0.02
Nitrite ion, NO ₃ ⁻	mg/l	3.62	3.61	2.41	2.42	2.27	2.29	2.22	2.21	9.0
Oil & grease	mg/l	0.001	0.002	0.001	0.002	0.001	0.001	0.001	0.001	0.05
E-coli	Per Liter	790	793	823	830	682	691	660	664	1000
TSS	mg/l	0.080	0.084	0.050	0.052	0.070	0.072	0.051	0.054	0.25
SSAM	mg/l	0.02	0.03	0.01	0.02	0.02	0.03	0.02	0.02	0.1
Phenol	mg/l	0.0001	0.0001	0.0001	0.0001	0.001	0.001	0.0001	0.001	0.001

Air Quality

1) Pre-Construction Monitoring

Monitoring locations	Determinand	Concentration	Allowed concentration
Contractor Camp	Dust	0.3	0.5
	NO₂	0.063	0.085
	Carbon monoxide	3	5
Sensitive Receptor 1	Dust	0.3	0.5
	NO₂	0.060	0.085
	Carbon monoxide	3	5
Sensitive Receptor 2	Dust	0.3	0.5
	NO₂	0.062	0.085
	Carbon monoxide	3	5
Sensitive Receptor 3	Dust	0.3	0.5
	NO₂	0.063	0.085
	Carbon monoxide	3	5
Sensitive Receptor 4	Dust	0.3	0.5
	NO₂	0.055	0.085
	Carbon monoxide	3	5
Sapnakaran village	Dust	0.3	0.5
	NO₂	0.063	0.085
	Carbon monoxide	4	5
Yuxari Nuvadi village	Dust	0.3	0.5
	NO₂	0.062	0.085
	Carbon monoxide	4	5
Mamusta village	Dust	0.3	0.5
	NO₂	0.060	0.085
	Carbon monoxide	4	5
Lenkaran Borrow Pit	Dust	0.4	0.5
	NO₂	0.073	0.085
	Carbon monoxide	4	5
Sovu Borrow Pit	Dust	0.4	0.5
	NO₂	0.075	0.085
	Carbon monoxide	4	5

2) July 2015

(Air Quality Monitoring Results for July 2015)

Thickness of Pollution Ingredients in Atmosphere (mg/m³)

Monitoring locations	Ingredients	Components quantity	Allowed concentration
Haftoni Settlement	Dust	0.3	0.5
	NO2	0.053	0.085
	Carbon monoxide	2	5
Sensitive Receptor 1	Dust	0.2	0.5
	NO2	0.051	0.085
	Carbon monoxide	2	5
Sensitive Receptor 2	Dust	0.2	0.5
	NO2	0.046	0.085
	Carbon monoxide	2	5
Sensitive Receptor 3	Dust	0.3	0.5
	NO2	0.054	0.085
	Carbon monoxide	2	5
Yuxari Nuvadi village	Dust	0.3	0.5
	NO2	0.055	0.085
	Carbon monoxide	3	5
Dasdaligjar village	Dust	0.3	0.5
	NO2	0.054	0.085
	Carbon monoxide	3	5

3) August 2015

(Air Quality Monitoring Results for August 2015)

Thickness of Pollution Ingredients in Atmosphere (mg/m³)

Monitoring locations	Ingredients	Components quantity	Allowed concentration
Haftoni Settlement	Dust	0.3	0.5
	NO2	0.053	0.085
	Carbon monoxide	2	5
Sensitive Receptor 1	Dust	0.2	0.5
	NO2	0.051	0.085
	Carbon monoxide	2	5
Sensitive Receptor 2	Dust	0.2	0.5
	NO2	0.046	0.085
	Carbon monoxide	2	5
Sensitive Receptor 3	Dust	0.3	0.5
	NO2	0.054	0.085
	Carbon monoxide	2	5
Yuxari Nuvadi village	Dust	0.3	0.5
	NO2	0.055	0.085
	Carbon monoxide	3	5

4) September 2015

(Air Quality Monitoring Results for September 2015)

Thickness of Pollution Ingredients in Atmosphere (mg/m³)

Monitoring locations	Ingredients	Components quantity	Allowed concentration
Haftoni Settlement	Dust	0.3	0.5
	NO2	0.050	0.085
	Carbon monoxide	2	5
Sensitive Receptor 1	Dust	0.2	0.5
	NO2	0.049	0.085
	Carbon monoxide	3	5
Sensitive Receptor 2	Dust	0.2	0.5
	NO2	0.040	0.085
	Carbon monoxide	2	5
Sensitive Receptor 3	Dust	0.3	0.5
	NO2	0.050	0.085
	Carbon monoxide	2	5
Yuxari Nuvadi village	Dust	0.3	0.5
	NO2	0.048	0.085
	Carbon monoxide	3	5
Dasdaligjar village	Dust	0.3	0.5
	NO2	0.054	0.085
	Carbon monoxide	2	5

5) October 2015

(Air Quality Monitoring Results for October 2015)

Thickness of Pollution Ingredients in Atmosphere (mg/m³)

Monitoring locations	Ingredients	Components quantity	Allowed concentration
Haftoni Settlement	Dust	0.2	0.5
	NO2	0.46	0.085
	Carbon monoxide	2	5
Sensitive Receptor 1	Dust	0.2	0.5
	NO2	0.043	0.085
	Carbon monoxide	3	5
Sensitive Receptor 2	Dust	0.2	0.5
	NO2	0.039	0.085
	Carbon monoxide	2	5
Sensitive Receptor 3	Dust	0.3	0.5
	NO2	0.048	0.085
	Carbon monoxide	2	5
Yuxari Nuvadi village	Dust	0.2	0.5
	NO2	0.048	0.085
	Carbon monoxide	3	5
Dasdaligjar village	Dust	0.2	0.5
	NO2	0.043	0.085
	Carbon monoxide	2	5

6) November 2015

Monitoring locations	Ingredients	Components quantity	Allowed concentration
Haftoni Settlement	Dust	0.1	0.5
	NO2	0.42	0.085
	Carbon monoxide	2	5
Sensitive Receptor 1	Dust	0.2	0.5
	NO2	0.040	0.085
	Carbon monoxide	1	5
Sensitive Receptor 2	Dust	0.1	0.5
	NO2	0.034	0.085
	Carbon monoxide	2	5
Sensitive Receptor 3	Dust	0.2	0.5
	NO2	0.039	0.085
	Carbon monoxide	2	5
Yuxari Nuvadi village	Dust	0.2	0.5
	NO2	0.040	0.085
	Carbon monoxide	2	5
Dasdaligjar village	Dust	0.1	0.5
	NO2	0.032	0.085
	Carbon monoxide	1	5

Thickness of Pollution Ingredients in Atmosphere (mg/m³)

Monitoring locations	Ingredients	Components quantity	Allowed concentration
Haftoni Settlement	Dust	0.1	0.5
	NO2	0.40	0.085
	Carbon monoxide	1	5
Sensitive Receptor 1	Dust	0.1	0.5
	NO2	0.038	0.085
	Carbon monoxide	1	5
Sensitive Receptor 2	Dust	0.1	0.5
	NO2	0.037	0.085
	Carbon monoxide	2	5
Sensitive Receptor 3	Dust	0.2	0.5
	NO2	0.035	0.085
	Carbon monoxide	1	5
Yuxari Nuvadi village	Dust	0.1	0.5
	NO2	0.040	0.085
	Carbon monoxide	2	5
Dasdalıgjar village	Dust	0.1	0.5
	NO2	0.030	0.085
	Carbon monoxide	1	5

Noise & Vibration

1) Pre-Construction Monitoring

Noise level (dB)

Monitoring locations	Results	Allowed
Haftoni Settlement	33	50
Sensitive Receptor 1	32	50
Sensitive Receptor 2	34	50
Sensitive Receptor 3	30	50
Sensitive Receptor 4	29	50
Luveser village	40	50
Sovu village	44	50
Sapnakaran village	40	50
Yuxari Nuvadi village	41	50
Mamusta village	27	50

1)

Vibration level (dB)

Monitoring locations	Results	Allowed
Haftoni Settlement	54	77
Sensitive Receptor 1	51	77
Sensitive Receptor 2	53	77
Sensitive Receptor 3	52	77
Sensitive Receptor 4	41	77
Luveser village	69	77
Sovu village	70	77
Sapnakaran village	63	77
Yuxari Nuvadi village	64	77
Mamusta village	39	77

2) July 2015

(Noise Monitoring Results for July 2015)

Noise level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Haftoni Settlement	Noise	44.4	50
Sensitive Receptor 1	Noise	43.5	50
Sensitive Receptor 2	Noise	45.9	50
Sensitive Receptor 3	Noise	43.4	50
Yuxari Nuvadi village	Noise	48.4	50
Dasdaligjar village	Noise	44.6	50

(Vibration Monitoring Results for July 2015)

Vibration level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Haftoni Settlement	Noise	51	77
Sensitive Receptor 1	Noise	49	77
Sensitive Receptor 2	Noise	53	77
Sensitive Receptor 3	Noise	50	77
Yuxari Nuvadi village	Noise	56	77
Dasdaligjar village	Noise	52	77

3) August 2015

(Noise Monitoring Results for August 2015)

Noise level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Haftoni Settlement	Noise	44.4	50
Sensitive Receptor 1	Noise	43.5	50
Sensitive Receptor 2	Noise	45.9	50
Sensitive Receptor 3	Noise	43.4	50
Yuxari Nuvadi village	Noise	48.4	50
Dasdaligjar village	Noise	44.6	50

(Vibration Monitoring Results for August 2015)

Vibration level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Haftoni Settlement	Vibration	51	77
Sensitive Receptor 1	Vibration	49	77
Sensitive Receptor 2	Vibration	53	77
Sensitive Receptor 3	Vibration	50	77
Yuxari Nuvadi village	Vibration	56	77
Dasdaligjar village	Vibration	52	77

4) September 2015

(Noise Monitoring Results for September 2015)

Noise level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Haftoni Settlement	Noise	43.1	50
Sensitive Receptor 1	Noise	40.5	50
Sensitive Receptor 2	Noise	43.6	50
Sensitive Receptor 3	Noise	45.1	50
Yuxari Nuvadi village	Noise	48.6	50
Dasdaligjar village	Noise	41.2	50

(Vibration Monitoring Results for September 2015)

Vibration level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Haftoni Settlement	Vibration	50	77
Sensitive Receptor 1	Vibration	45	77
Sensitive Receptor 2	Vibration	51	77
Sensitive Receptor 3	Vibration	53	77
Yuxari Nuvadi village	Vibration	57	77
Dasdaligjar village	Vibration	49	77

5) October 2015

(Noise Monitoring Results for October 2015)

Noise level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Haftoni Settlement	Noise	38.3	50
Sensitive Receptor 1	Noise	39.2	50
Sensitive Receptor 2	Noise	40.1	50
Sensitive Receptor 3	Noise	38.6	50
Yuxari Nuvadi village	Noise	43.2	50
Dasdaligjar village	Noise	37.4	50

(Vibration Monitoring Results for October 2015)

Vibration level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Haftoni Settlement	Vibration	48	77
Sensitive Receptor 1	Vibration	40	77
Sensitive Receptor 2	Vibration	41	77
Sensitive Receptor 3	Vibration	45	77
Yuxari Nuvadi village	Vibration	58	77
Dasdaligjar village	Vibration	46	77

Noise level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Haftoni Settlement	Noise	38.1	50
Sensitive Receptor 1	Noise	39.0	50
Sensitive Receptor 2	Noise	40.1	50
Sensitive Receptor 3	Noise	39.8	50
Yuxari Nuvadi village	Noise	41.5	50
Dasdaligjar village	Noise	36.2	50

Vibration level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Haftoni Settlement	Vibration	43	77
Sensitive Receptor 1	Vibration	39	77
Sensitive Receptor 2	Vibration	39	77
Sensitive Receptor 3	Vibration	42	77
Yuxari Nuvadi village	Vibration	51	77
Dasdaligjar village	Vibration	40	77

Noise level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Haftoni Settlement	Noise	35.5	50
Sensitive Receptor 1	Noise	37.1	50
Sensitive Receptor 2	Noise	40.2	50
Sensitive Receptor 3	Noise	38.5	50
Yuxari Nuvadi village	Noise	41.7	50
Dasdaligjar village	Noise	36.9	50

Vibration level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Haftoni Settlement	Vibration	40	77
Sensitive Receptor 1	Vibration	34	77
Sensitive Receptor 2	Vibration	36	77
Sensitive Receptor 3	Vibration	40	77
Yuxari Nuvadi village	Vibration	49	77
Dasdaligjar village	Vibration	38	77

Section C

Water Quality

1) Pre-Construction Monitoring

Determinant	Unit	Penser 1 River		Penser 2 River		Suhari River		Gulyari River		Lake	Limit
		Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream		
<i>pH</i>		7.3	7.3	7.2	7.3	7.4	7.5	7.5	7.6	7.4	6.0-9.0
<i>Electrical conductivity</i>	<i>X10³ cm/cm</i>	0.184	0.183	0.204	0.206	0.221	0.223	0.226	0.227	0.220	-
<i>Limpidity</i>	<i>cm</i>	23.0	23.1	23.0	23.3	22.6	23.7	21.5	22.3	19.4	<30
<i>Turbidity</i>	<i>mg/l</i>	26.1	26.3	27.9	28.7	28.6	28.8	29.5	28.9	20.9	<30
<i>Dissolved O₂</i>	<i>mg/l</i>	4.0	4.1	4.8	5.1	4.7	4.8	5.4	5.4	3.4	4.6-6.0
<i>BOD</i>	<i>mg/l</i>	2,2	2,4	2,3	2,4	2,1	2,4	2,3	2,3	2,3	3
<i>Total roughness</i>	<i>mgek v/l</i>	5.20	5.22	4.68	4.68	4.59	4.59	5.08	5.08	4.01	7.0
<i>Calcium ion Ca²⁺</i>	<i>mg/l</i>	123.3	123.3	103.0	103.1	106.2	106.1	96.6	99.1	94.4	180.0
<i>Magnesium ion Mg²⁺</i>	<i>mg/l</i>	11.3	11.3	8.3	8.6	8.3	8.4	9.3	9.3	9.3	200.0
<i>Chloride ion Cl⁻</i>	<i>mg/l</i>	156.7	156.7	131.5	131.9	135.1	136.6	126.5	126.8	123.1	350.0
<i>Sulphate SO₄²⁻</i>	<i>mg/l</i>	263.0	264.1	173.1	174.2	196.5	197.6	188.1	187.5	180.3	500.0
<i>Bicarbonate ion, HCO₃⁻</i>	<i>mg/l</i>	229.2	229.3	182.6	183.6	213.0	215.4	196.1	197.0	190.0	-
<i>Na⁺+K⁺ ions</i>	<i>mg/l</i>	167.3	167.4	146.0	146.2	151.6	151.7	139.3	140.7	139.3	-
<i>Sum of ions, $\Sigma 1$</i>	<i>mg/l</i>	933.4	933.6	743.1	744.0	818.0	817.3	749.4	749.8	730.1	1000.0
<i>Ammonium ion, NH₄⁺</i>	<i>mg/l</i>	0.338	0.338	0.331	0.330	0.177	0.178	0.254	0.256	0.243	0.39
<i>Nitrite ion, NO₂⁻</i>	<i>mg/l</i>	0.005	0.005	0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.02
<i>Nitrate ion, NO₃⁻</i>	<i>mg/l</i>	3.27	3.27	2.38	2.39	2.35	2.38	2.36	2.37	2.34	9.0
<i>Phosphate</i>											
<i>Oil & grease</i>	<i>mg/l</i>	0.002	0.002	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.05
<i>Faecal coliform</i>	<i>per 100 ml</i>	<1.5x10 ⁷	<1.5x10 ⁷	<1.3x10 ⁴	<1.3x10 ⁴	<1.4x10 ⁶	<1.4x10 ⁶	<1.9x10 ³	<1.9x10 ³	<1.5x10 ⁷	<2.0
<i>TSS</i>	<i>mg/l</i>	0.223	0.224	0.235	0.236	0.129	0.131	0.125	0.126	0.119	
<i>SSAM</i>	<i>mg/l</i>	0.027	0.027	0.035	0.035	0.029	0.032	0.026	0.027	0.023	0.1
<i>Phenol</i>	<i>mg/l</i>	0.0001	0.0001	0.0002	0.0001	0.001	0.001	0.0002	0.0002	0.0001	0.001

2) July 2015

Ingredients	Unit	Penser 1 River		Penser 2 River		Suhari River		Gulyari River		Camp Lake	Allowed Concentration
		Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream		
pH		6.7	6.8	6.9	7.0	7.1	7.2	7.3	7.4	6.6	6.0-9.0
Electrical conductivity	X10 ³ cm/cm	0.220	0.221	0.225	0.227	0.170	0.172	0.183	0.185	0.253	-
Limpidity	cm	20.3	20.4	21.1	21.3	24.8	25.0	23.3	23.1	15.2	>30
Turbidity	mg/l	16.8	16.9	16.6	16.7	13.2	13.3	14.1	14.4	19.3	>30
Dissolved O ₂	mg/l	4.3	4.4	4.3	4.5	5.0	5.2	5.5	5.6	5.2	4.6-6.0
BOD	mg/l	2.1	2.2	1.9	2.0	1.2	1.3	1.6	1.8	6.2	3
Total roughness	mquev/l	5.28	5.32	5.38	5.42	3.5	3.52	4.46	4.49	6.2	7.0
Calcium ion Ca ²⁺	mg/l	121.3	121.4	130.1	130.2	116.2	116.3	118.9	119.0	127.4	180.0
Magnesium ion Mg ²⁺	mg/l	10.1	10.2	10.5	10.7	9.6	9.7	9.7	9.8	10.6	200.0
Chloride ion Cl ⁻	mg/l	147.4	147.5	157.4	157.6	141.3	141.5	142.5	142.6	142.1	350.0
Sulphate SO ₄ ²⁻	mg/l	258.3	259.0	259.5	259.6	179.5	179.9	178.4	178.7	205.4	500.0
Bicarbonate ion, HCO ₃ ⁻	mg/l	224.7	224.8	226.3	226.4	180.4	180.8	186.2	186.9	197.3	-
Na ⁺ +K ⁺ ions	mg/l	158.6	159.0	159.2	159.6	141.2	141.9	152.3	152.6	154.6	-
Sum of ions, $\sum 1$	mg/l	920.4	921.9	943.0	944.1	768.2	770.1	788.0	789.6	837.4	1000.0
Ammonium ion, NH ₄ ⁺	mg/l	0.354	0.355	0.340	0.342	0.180	0.182	0.212	0.214	0.298	0.39
Nitrite ion, NO ₂ ⁻	mg/l	0.007	0.008	0.006	0.007	0.003	0.005	0.005	0.006	0.009	0.02
Nitrite ion, NO ₃ ⁻	mg/l	3.45	3.48	3.31	3.34	2.21	2.25	2.35	2.40	3.47	9.0
Oil & grease	mg/l	0.002	0.003	0.002	0.003	0.002	0.003	0.002	0.002	0.003	0.05
E-coli	Per litre	878	879	882	883	762	764	852	855	894	1000
TSS	mg/l	0.053	0.055	0.061	0.063	0.060	0.062	0.064	0.067	0.082	0.25
SSAM	mg/l	0.05	0.06	0.05	0.06	0.01	0.02	0.01	0.03	0.05	0.1
Phenol	mg/l	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Ingredients	Unit	Penser 1 River		Penser 2 River		Suhari River		Gulyari River		Camp Lake	Allowed Concentration
		Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream		
pH		6.8	6.9	6.5	6.6	7.0	7.1	7.2	7.3	6.8	6.0-9.0
Electrical conductivity	X10 ³ cm/cm	0.232	0.233	0.223	0.225	0.182	0.184	0.186	0.188	0.247	-
Limpidity	cm	19.4	19.5	20.7	20.8	24.2	24.4	23.0	23.1	15.0	>30
Turbidity	mg/l	17.1	17.2	16.9	17.0	13.5	13.6	14.1	14.2	19.4	>30
Dissolved O ₂	mg/l	5.2	5.3	5.4	5.5	5.8	5.9	5.6	5.8	5.0	4.6-6.0
BOD	mg/l	2.0	2.1	1.8	1.9	1.4	1.5	1.6	1.7	2.8	3
Total roughness	mquev/l	5.20	5.22	5.30	5.32	3.6	3.64	4.40	4.45	6.4	7.0
Calcium ion Ca ²⁺	mg/l	120.4	120.5	129.6	129.8	115.4	115.6	117.6	117.7	128.1	180.0
Magnesium ion Mg ²⁺	mg/l	10.2	10.3	10.4	10.5	9.8	9.9	10.1	10.2	10.3	200.0
Chloride ion Cl ⁻	mg/l	148.5	148.6	152.4	152.5	142.4	142.5	142.8	143.0	144.2	350.0
Sulphate SO ₄ ²⁻	mg/l	257.3	258.0	258.3	258.6	178.3	179.0	179.2	179.4	202.5	500.0
Bicarbonate ion, HCO ₃ ⁻	mg/l	221.1	221.2	223.1	223.2	179.1	180.2	180.3	180.4	194.3	-
Na ⁺ +K ⁺ ions	mg/l	158.9	159.0	160.2	160.3	144.5	144.7	144.8	145.2	153.6	-
Sum of ions, $\sum 1$	mg/l	916.4	917.6	934.0	934.9	769.5	771.9	774.8	775.9	833.0	1000.0
Ammonium ion, NH ₄ ⁺	mg/l	0.362	0.365	0.352	0.354	0.183	0.186	0.215	0.217	0.320	0.39
Nitrite ion, NO ₂ ⁻	mg/l	0.008	0.009	0.007	0.008	0.003	0.005	0.006	0.006	0.011	0.02
Nitrite ion, NO ₃ ⁻	mg/l	3.53	3.57	3.62	3.67	2.28	2.30	2.38	2.44	3.53	9.0
Oil & grease	mg/l	0.002	0.003	0.002	0.002	0.001	0.002	0.002	0.002	0.003	0.05
E-coli	Per litre	882	884	887	890	764	765	854	855	896	1000
TSS	mg/l	0.056	0.058	0.067	0.068	0.064	0.065	0.069	0.072	0.098	0.25
SSAM	mg/l	0.04	0.05	0.05	0.06	0.03	0.03	0.01	0.02	0.06	0.1
Phenol	mg/l	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

4) September 2015

Ingredients	Unit	Penser 1 River		Penser 2 River		Suhari River		Gulyari River		Camp Lake	Allowed Concentration
		Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream		
pH		6.5	6.6	6.7	6.7	7.0	7.2	7.0	7.3	6.9	6.0-9.0
Electrical conductivity	X10 ³ cm/cm	0.230	0.231	0.224	0.226	0.180	0.182	0.182	0.184	0.241	-
Limpidity	cm	19.0	19.2	20.4	20.6	24.0	24.0	23.3	23.2	15.1	>30
Turbidity	mg/l	17.2	17.2	16.6	17.1	13.0	13.2	14.4	14.4	19.0	>30
Dissolved O ₂	mg/l	5.0	5.2	5.1	5.3	5.5	5.3	5.0	5.2	5.0	4.6-6.0
BOD	mg/l	2.0	2.1	1.9	1.9	1.5	1.6	1.7	1.7	2.2	3
Total roughness	mquev/l	5.19	5.20	5.31	5.32	3.62	3.64	4.43	4.45	6.1	7.0
Calcium ion Ca ²⁺	mg/l	120.4	120.5	129.6	129.7	115.0	115.3	117.4	117.5	128.0	180.0
Magnesium ion Mg ²⁺	mg/l	10.4	10.3	10.5	10.5	9.8	9.8	10.2	10.2	10.1	200.0
Chloride ion Cl ⁻	mg/l	148.0	148.1	152.0	152.0	142.2	142.2	142.7	143.8	144.3	350.0
Sulphate SO ₄ ²⁻	mg/l	257.0	258.1	258.2	258.5	178.4	179.3	179.2	179.4	202.6	500.0
Bicarbonate ion, HCO ₃ ⁻	mg/l	221.2	221.2	223.0	223.3	179.0	180.1	180.4	180.5	194.0	-
Na ⁺ +K ⁺ ions	mg/l	158.8	159.0	160.3	160.3	144.5	144.6	144.9	145.1	153.7	-
Sum of ions, $\sum 1$	mg/l	916.6	917.2	934.1	934.7	769.3	771.8	774.4	775.7	833.2	1000.0
Ammonium ion, NH ₄ ⁺	mg/l	0.366	0.366	0.353	0.354	0.184	0.185	0.216	0.217	0.321	0.39
Nitrite ion, NO ₂ ⁻	mg/l	0.008	0.008	0.006	0.007	0.004	0.005	0.006	0.006	0.010	0.02
Nitrite ion, NO ₃ ⁻	mg/l	3.54	3.55	3.64	3.66	2.26	2.28	2.33	2.39	3.51	9.0
Oil & grease	mg/l	0.002	0.002	0.001	0.002	0.001	0.002	0.002	0.002	0.003	0.05
E-coli	Per litre	886	888	888	891	767	769	856	857	894	1000
TSS	mg/l	0.055	0.056	0.060	0.063	0.064	0.064	0.069	0.070	0.095	0.25
SSAM	mg/l	0.04	0.04	0.06	0.06	0.04	0.05	0.03	0.04	0.05	0.1
Phenol	mg/l	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Ingredients	Unit	Penser 1 River		Penser 2 River		Suhari River		Gulyari River		Camp Lake	Allowed Concentration
		Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream		
pH		6.2	6.3	6.4	6.4	6.0	6.2	7.0	7.1	6.4	6.0-9.0
Electrical conductivity	X10 ³ cm/cm	0.229	0.230	0.220	0.222	0.182	0.182	0.184	0.185	0.240	-
Limpidity	cm	19.1	19.1	20.0	20.1	24.0	24.0	23.0	23.1	15.2	>30
Turbidity	mg/l	17.4	17.5	16.1	17.0	13.3	13.4	14.6	14.8	19.0	>30
Dissolved O ₂	mg/l	4.0	4.2	4.1	4.3	5.3	5.3	5.3	5.4	5.1	4.6-6.0
BOD	mg/l	2.2	2.2	1.9	1.9	1.6	1.7	1.7	1.7	2.1	3
Total roughness	mgekv/l	5.18	5.20	5.30	5.31	3.60	3.62	4.43	4.45	6.1	7.0
Calcium ion Ca ²⁺	mg/l	120.1	120.2	129.3	129.3	115.1	115.2	117.4	117.5	128.1	180.0
Magnesium ion Mg ²⁺	mg/l	10.5	10.6	10.0	10.1	9.9	9.9	10.2	10.2	10.3	200.0
Chloride ion Cl ⁻	mg/l	148.0	148.1	152.0	152.0	142.2	142.2	142.7	143.8	144.3	350.0
Sulphate SO ₄ ²⁻	mg/l	257.2	258.1	258.2	258.5	178.2	179.3	179.2	179.4	202.3	500.0
Bicarbonate ion, HCO ₃ ⁻	mg/l	221.2	221.2	223.0	223.3	179.0	180.1	180.4	180.5	194.0	-
Na ⁺ +K ⁺ ions	mg/l	158.8	159.0	160.3	160.3	144.5	144.6	144.9	145.1	153.7	-
Sum of ions, Σ 1	mg/l	916.6	917.2	934.1	934.7	769.3	771.8	774.4	775.7	833.2	1000.0
Ammonium ion, NH ₄ ⁺	mg/l	0.366	0.366	0.353	0.354	0.184	0.185	0.216	0.217	0.321	0.39
Nitrite ion, NO ₂ ⁻	mg/l	0.008	0.008	0.006	0.007	0.004	0.005	0.006	0.006	0.010	0.02
Nitrite ion, NO ₃ ⁻	mg/l	3.54	3.55	3.64	3.66	2.26	2.28	2.33	2.39	3.51	9.0
Oil & grease	mg/l	0.001	0.002	0.001	0.002	0.002	0.002	0.002	0.002	0.003	0.05
E-coli	Per litre	880	883	888	893	760	766	850	857	890	1000
TSS	mg/l	0.050	0.053	0.061	0.063	0.063	0.067	0.069	0.070	0.085	0.25
SSAM	mg/l	0.01	0.02	0.06	0.06	0.04	0.05	0.03	0.04	0.06	0.1
Phenol	mg/l	0.001	0.002	0.001	0.001	0.002	0.002	0.001	0.001	0.002	0.001

Ingredients	Unit	Penser 1 River		Penser 2 River		Suhari River		Gulyari River		Camp Lake	Allowed Concentration
		Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream	Up Stream	Down Stream		
pH		5.0	5.1	5.5	5.6	4.0	4.4	6.0	6.1	5.7	6.0-9.0
Electrical conductivity	X10 ³ cm/cm	0.220	0.222	0.221	0.222	0.180	0.184	0.180	0.182	0.243	-
Limpidity	cm	20.3	20.2	20.0	20.5	24.0	24.0	23.3	23.6	16.5	>30
Turbidity	mg/l	21.2	21.3	17.2	17.2	14.3	14.5	15.2	15.5	20.2	>30
Dissolved O ₂	mg/l	4.1	4.2	4.3	4.4	4.1	4.2	4.4	4.5	4.8	4.6-6.0
BOD	mg/l	2.1	2.3	1.9	1.9	1.8	1.9	1.7	1.7	2.2	3
Total roughness	mquev/l	5.19	5.20	5.32	5.32	3.58	3.60	4.40	4.42	6.0	7.0
Calcium ion Ca ²⁺	mg/l	120.0	120.1	129.0	129.2	115.2	115.3	117.5	117.6	128.0	180.0
Magnesium ion Mg ²⁺	mg/l	10.1	10.2	10.2	10.4	9.8	9.9	10.5	10.6	10.1	200.0
Chloride ion Cl ⁻	mg/l	148.2	148.3	152.1	152.0	142.2	142.2	142.6	143.8	144.4	350.0
Sulphate SO ₄ ²⁻	mg/l	257.1	258.1	258.4	258.5	175.0	176.6	178.1	179.0	200.4	500.0
Bicarbonate ion, HCO ₃ ⁻	mg/l	221.0	221.2	223.1	223.2	179.3	180.0	180.1	180.3	194.2	-
Na ⁺ +K ⁺ ions	mg/l	158.5	159.1	160.0	160.2	144.6	144.6	144.2	145.0	153.2	-
Sum of ions, $\sum 1$	mg/l	915.0	916.1	935.2	936.3	768.4	770.2	774.0	775.2	830.0	1000.0
Ammonium ion, NH ₄ ⁺	mg/l	0.365	0.366	0.355	0.356	0.186	0.187	0.217	0.217	0.320	0.39
Nitrite ion, NO ₂ ⁻	mg/l	0.007	0.008	0.006	0.006	0.004	0.005	0.005	0.006	0.009	0.02
Nitrite ion, NO ₃ ⁻	mg/l	3.50	3.55	3.64	3.66	2.26	2.28	2.33	2.39	3.51	9.0
Oil & grease	mg/l	0.002	0.003	0.001	0.002	0.002	0.002	0.002	0.002	0.003	0.05
E-coli	Per litre	886	890	880	892	765	769	852	858	885	1000
TSS	mg/l	0.052	0.053	0.063	0.063	0.060	0.062	0.065	0.067	0.080	0.25
SSAM	mg/l	0.01	0.01	0.05	0.06	0.04	0.04	0.03	0.03	0.05	0.1
Phenol	mg/l	0.001	0.001	0.001	0.002	0.002	0.002	0.001	0.001	0.001	0.001

Ingredients	Unit	Penser 1 River		Penser 2 River		Suhari River		Gulyari River		Camp Lake	Allowed Concentration
		UpStream	DownStream	UpStream	DownStream	UpStream	DownStream	UpStream	DownStream		
pH		6.0	6.3	4.5	5.2	4.0	4.7	6.0	6.3	5.2	6.0-9.0
Electrical conductivity	X10 ³ cm/cm	0.222	0.222	0.223	0.224	0.182	0.185	0.180	0.182	0.247	-
Limpidity	cm	20.1	20.4	20.3	20.5	24.0	24.1	23.5	23.6	17.5	>30
Turbidity	mg/l	21.4	21.3	17.6	17.7	14.3	14.4	15.2	15.6	20.4	>30
Dissolved O ₂	mg/l	4.2	4.2	4.4	4.4	4.6	4.7	4.7	4.6	4.5	4.6-6.0
BOD	mg/l	2.2	2.3	1.9	1.9	1.9	1.9	1.8	1.7	2.1	3
Total roughness	mgekv/l	5.19	5.20	5.32	5.32	3.58	3.60	4.40	4.42	6.0	7.0
Calcium ion Ca ²⁺	mg/l	120.2	120.1	129.0	129.2	115.4	115.3	117.5	117.6	128.0	180.0
Magnesium ion Mg ²⁺	mg/l	10.1	10.2	10.2	10.4	9.8	9.9	10.5	10.6	10.1	200.0
Chloride ion Cl ⁻	mg/l	148.3	148.4	152.1	152.0	142.2	142.2	142.6	143.8	144.4	350.0
Sulphate SO ₄ ²⁻	mg/l	257.3	258.5	258.4	258.5	175.0	176.6	178.1	179.0	200.4	500.0
Bicarbonate ion, HCO ₃ ⁻	mg/l	221.1	221.2	223.1	223.2	179.3	180.0	180.1	180.3	194.2	-
Na ⁺ +K ⁺ ions	mg/l	158.3	159.2	160.0	160.2	144.6	144.6	144.2	145.0	153.2	-
Sum of ions, Σ 1	mg/l	915.1	916.1	935.2	936.3	768.4	770.2	774.0	775.2	830.0	1000.0
Ammonium ion, NH ₄ ⁺	mg/l	0.367	0.368	0.355	0.356	0.186	0.187	0.217	0.217	0.320	0.39
Nitrite ion, NO ₂ ⁻	mg/l	0.008	0.008	0.006	0.007	0.005	0.005	0.005	0.006	0.006	0.02
Nitrite ion, NO ₃ ⁻	mg/l	3.50	3.55	3.64	3.66	2.26	2.28	2.33	2.39	3.51	9.0
Oil & grease	mg/l	0.003	0.003	0.001	0.001	0.002	0.003	0.001	0.002	0.002	0.05
E-coli	Per Liter	880	885	881	890	764	768	854	860	880	1000
TSS	mg/l	0.050	0.052	0.060	0.062	0.060	0.061	0.064	0.066	0.078	0.25
SSAM	mg/l	0.02	0.02	0.04	0.05	0.04	0.04	0.02	0.03	0.06	0.1
Phenol	mg/l	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Air Quality

1) Pre-Construction Monitoring

Monitoring locations	Determinand	Concentration	Allowed concentration
Contractor Camp	<i>Dust</i>	0.2	<i>0.5</i>
	<i>NO₂</i>	0.040	<i>0.085</i>
	<i>Carbon monoxide</i>	1	<i>5</i>
Sensitive Receptor 1	<i>Dust</i>	0.2	<i>0.5</i>
	<i>NO₂</i>	0.039	<i>0.085</i>
	<i>Carbon monoxide</i>	1	<i>5</i>
Sensitive Receptor 2	<i>Dust</i>	0.2	<i>0.5</i>
	<i>NO₂</i>	0.042	<i>0.085</i>
	<i>Carbon monoxide</i>	2	<i>5</i>
Sensitive Receptor 3	<i>Dust</i>	0.1	<i>0.5</i>
	<i>NO₂</i>	0.040	<i>0.085</i>
	<i>Carbon monoxide</i>	2	<i>5</i>
Sensitive Receptor 4	<i>Dust</i>	0.1	<i>0.5</i>
	<i>NO₂</i>	0.041	<i>0.085</i>
	<i>Carbon monoxide</i>	1	<i>5</i>
Sensitive Receptor 5	<i>Dust</i>	0.2	<i>0.5</i>
	<i>NO₂</i>	0.042	<i>0.085</i>
	<i>Carbon monoxide</i>	2	<i>5</i>
Sensitive Receptor 6	<i>Dust</i>	0.2	<i>0.5</i>
	<i>NO₂</i>	0.050	<i>0.085</i>
	<i>Carbon monoxide</i>	3	<i>5</i>
Sensitive Receptor 7	<i>Dust</i>	0.1	<i>0.5</i>
	<i>NO₂</i>	0.035	<i>0.085</i>
	<i>Carbon monoxide</i>	1	<i>5</i>
Burjali village	<i>Dust</i>	0.2	<i>0.5</i>
	<i>NO₂</i>	0.052	<i>0.085</i>
	<i>Carbon monoxide</i>	3	<i>5</i>
Yuxari Nuvedi village	<i>Dust</i>	0.3	
	<i>NO₂</i>	0.055	
	<i>Carbon monoxide</i>	3	
Bellebur village	<i>Dust</i>	0.2	<i>0.5</i>
	<i>NO₂</i>	0.040	<i>0.085</i>
	<i>Carbon monoxide</i>	1	<i>5</i>

2) July 2015

(Air Quality Monitoring Results for July 2015)

Results of Concentration of Air Pollutants Ingredients (mg/m³)

Monitoring locations	Ingredients	Components quantity	Allowed concentration
Burjali village	Dust	0.2	0.5
	NO2	0.045	0.085
	Carbon monoxide	2	5
Yuxari Nuvedi village	Dust	0.3	0.5
	NO2	0.048	0.085
	Carbon monoxide	3	5
Sensitive Receptor 1	Dust	0.3	0.5
	NO2	0.045	0.085
	Carbon monoxide	2	5
Sensitive Receptor 2	Dust	0.2	0.5
	NO2	0.042	0.085
	Carbon monoxide	2	5

3) August 2015

(Air Quality Monitoring Results for August 2015)

Results of Concentration of Air Pollutants Ingredients (mg/m³)

Monitoring locations	Ingredients	Components quantity	Allowed concentration
Burjali village	Dust	0.2	0.5
	NO2	0.050	0.085
	Carbon monoxide	2	5
Yuxari Nuvedi village	Dust	0.3	0.5
	NO2	0.042	0.085
	Carbon monoxide	3	5
Sensitive Receptor 1	Dust	0.2	0.5
	NO2	0.047	0.085
	Carbon monoxide	2	5
Sensitive Receptor 2	Dust	0.2	0.5
	NO2	0.045	0.085
	Carbon monoxide	2	5

4) September 2015

(Air Quality Monitoring Results for September 2015)

Results of Concentration of Air Pollutants Ingredients (mg/m³)

Monitoring locations	Ingredients	Components quantity	Allowed concentration
Burjali village	Dust	0.3	0.5
	NO2	0.053	0.085
	Carbon monoxide	2	5
Yuxari Nuvedi village	Dust	0.3	0.5
	NO2	0.045	0.085
	Carbon monoxide	3	5
Sensitive Receptor 1	Dust	0.2	0.5
	NO2	0.048	0.085
	Carbon monoxide	2	5
Sensitive Receptor 2	Dust	0.2	0.5
	NO2	0.040	0.085
	Carbon monoxide	2	5

5) October 2015

Results of Concentration of Air Pollutants Ingredients (mg/m³)

Monitoring locations	Ingredients	Components quantity	Allowed concentration
Burjali village	Dust	0.2	0.5
	NO2	0.048	0.085
	Carbon monoxide	2	5
Yuxari Nuvedi village	Dust	0.2	0.5
	NO2	0.042	0.085
	Carbon monoxide	3	5
Sensitive Receptor 1	Dust	0.2	0.5
	NO2	0.040	0.085
	Carbon monoxide	2	5
Sensitive Receptor 2	Dust	0.2	0.5
	NO2	0.041	0.085
	Carbon monoxide	2	5

6) November 2015

(Air Quality Monitoring Results for November 2015)

Results of Concentration of Air Pollutants Ingredients (mg/m³)

Monitoring locations	Ingredients	Components quantity	Allowed concentration
Burjali village	Dust	0.1	0.5
	NO2	0.038	0.085
	Carbon monoxide	1	5
Yuxari Nuvedi village	Dust	0.1	0.5
	NO2	0.040	0.085
	Carbon monoxide	2	5
Sensitive Receptor 1	Dust	0.1	0.5
	NO2	0.035	0.085
	Carbon monoxide	1	5
Sensitive Receptor 2	Dust	0.1	0.5
	NO2	0.036	0.085
	Carbon monoxide	1	5

7) December 2015

Monitoring locations	Ingredients	Components quantity	Allowed concentration
Burcəlikəndi	Toz	0.1	0.5
	Azot 4-oksidi	0.035	0.085
	Dəmqazı	1	5
Yuxarı Nüvədi kəndi	Toz	0.1	0.5
	Azot 4-oksidi	0.039	0.085
	Dəmqazı	2	5
Sensitive Receptor 1	Toz	0.1	0.5
	Azot 4-oksidi	0.030	0.085
	Dəmqazı	1	5
Sensitive Receptor 2	Toz	0.1	0.5
	Azot 4-oksidi	0.033	0.085
	Dəmqazı	1	5

Noise & Vibration

1) Pre-Construction Monitoring

Noise level (dB)

Monitoring locations	Results	Allowed
Haftoni Settlement	31	50
Sensitive Receptor 1	29	50
Sensitive Receptor 2	30	50
Sensitive Receptor 3	32	50
Sensitive Receptor 4	31	50
Sensitive Receptor 5	32	50
Sensitive Receptor 6	35	50
Sensitive Receptor 7	30	50
Burjali village	47	50
Yuxari Nuvadi village	47	50
Bellebur village	31	50

Vibration level (dB)

Monitoring locations	Results	Allowed
Haftoni Settlement	36	77
Sensitive Receptor 1	30	77
Sensitive Receptor 2	28	77
Sensitive Receptor 3	26	77
Sensitive Receptor 4	28	77
Sensitive Receptor 5	29	77
Sensitive Receptor 6	26	77
Sensitive Receptor 7	27	77
Burjali village	30	77
Yuxari Nuvadi village	54	77
Bellebur village	36	77

2) July 2015

(Noise Monitoring Results for July 2015)

Noise level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Burjali village	Noise	42.6	50
Yuxari Nuvedi village	Noise	48.4	50
Sensitive Receptor 3	Noise	42.5	50
Sensitive Receptor 4	Noise	43.0	50

(Vibration Monitoring Results for July 2015)

Vibration level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Burjali village	Vibration	48	77
Yuxari Nuvedi village	Vibration	55	77
Sensitive Receptor 3	Vibration	47	77
Sensitive Receptor 4	Vibration	49	77

3) August 2015

(Noise Monitoring Results for August 2015)

Noise level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Burjali village	Noise	43.2	50
Yuxari Nuvedi village	Noise	45.6	50
Sensitive Receptor 3	Noise	41.3	50
Sensitive Receptor 4	Noise	43.4	50

(Vibration Monitoring Results for August 2015)

Vibration level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Burjali village	Vibration	47	77
Yuxari Nuvedi village	Vibration	52	77
Sensitive Receptor 3	Vibration	46	77
Sensitive Receptor 4	Vibration	48	77

4) September 2015

(Noise Monitoring Results for September 2015)

Noise level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Burjali village	Noise	40.3	50
Yuxari Nuvedi village	Noise	43.1	50
Sensitive Receptor 3	Noise	40.5	50
Sensitive Receptor 4	Noise	42.3	50

(Vibration Monitoring Results for September 2015)

Vibration level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Burjali village	Vibration	49	77
Yuxari Nuvedi village	Vibration	55	77
Sensitive Receptor 3	Vibration	42	77
Sensitive Receptor 4	Vibration	45	77

5) October 2015

(Noise Monitoring Results for October 2015)

Noise level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Burjali village	Noise	38.5	50
Yuxari Nuvedi village	Noise	42.4	50
Sensitive Receptor 3	Noise	39.1	50
Sensitive Receptor 4	Noise	40.6	50

(Vibration Monitoring Results for October 2015)


Vibration level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Burjali village	Vibration	38	77
Yuxari Nuvedi village	Vibration	51	77
Sensitive Receptor 3	Vibration	39	77
Sensitive Receptor 4	Vibration	40	77

6) November 2015

(Noise Monitoring Results for November 2015)

Noise level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Burjali village	Noise	30.1	50
Yuxari Nuvedi village	Noise	40.5 	50
Sensitive Receptor 3	Noise	34.3	50
Sensitive Receptor 4	Noise	35.2	50

(Vibration Monitoring Results for November 2015)

Vibration level (dB)

Monitoring locations	Parameters	Measuring results	Allowed
Burjali village	Vibration	39	77
Yuxari Nuvedi village	Vibration	50	77
Sensitive Receptor 3	Vibration	37	77
Sensitive Receptor 4	Vibration	41	77

Noise level (dB)

Monitoring locations	Ingredients	Componentsquantity	Allowedconcentration
Burcəlikəndi	Noise	30.5	50
YuxarıNüvədikəndi	Noise	41.3	50
SensitiveReceptor 1	Noise	32.6	50
SensitiveReceptor 1	Noise	38.1	50

Vibration level (dB)

Monitoring locations	Ingredients	Componentsquantity	Allowedconcentration
Burcəlikəndi	Vibration	35	77
YuxarıNüvədikəndi	Vibration	47	77
SensitiveReceptor 1	Vibration	38	77
SensitiveReceptor 1	Vibration	40	77

Appendix 2: List of participants at public consultations (samples)

Section B: 19th September 2015

PUBLIC CONSULTATION – ATTENDANCE REGISTER

No	Surname	Name	Location	Signature
1	Ismayilov	Iziz	Haffoni	[Signature]
2	Rzaev	Mahip	Haffoni	[Signature]
3	Risizomli	Beisal	Haffoni	[Signature]
4	Sarayzade	Abil	Haffoni	[Signature]
5	Izzetov	Emil	Haffoni	[Signature]
6	Museynov	Rovson	Haffoni	[Signature]
7	Heydorzade	Heydr	Haffoni	[Signature]
8	Rzaev	Sigraev	Haffoni	[Signature]
9	Kabir	Arslan	Sajlaxiev	[Signature]
10	Qurbani	Elm	Sajlaxiev	[Signature]
11	Mustafayev	Elmar	Sajlaxiev	[Signature]
12	Unirov	Elmur	Sajlaxiev	[Signature]
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Topics: Enlightening people about the construction schedule and Grievance Redress Mechanism

Date: 19.09.2015

Location: Contractor's Camp

Section C: 19th September 2015

PUBLIC CONSULTATION – ATTENDANCE REGISTER

No	Surname	Name	Location	Signature
1	Imayilov	Fikrullohi	Yuxarı Nisədi	<i>[Signature]</i>
2	İbrahimov	Ebrar	Yuxarı Nisədi	<i>[Signature]</i>
3	Əliyev	Günəz	Yuxarı Nisədi	<i>[Signature]</i>
4	Əliyev	Cavir	Yuxarı Nisədi	<i>[Signature]</i>
5	Əliyev	Kif	Burjili	<i>[Signature]</i>
6	Fətəliyev	Əlibar	Burjili	<i>[Signature]</i>
7	Xəlilov	Kim	Burjili	<i>[Signature]</i>
8	Babayev	Sakir	Burjili	<i>[Signature]</i>
9	Əliyev	Nisari	Siyaxoran	<i>[Signature]</i>
10	Məmmədov	Turab	Siyaxoran	<i>[Signature]</i>
11	Məmmədov	Ramiel	Siyaxoran	<i>[Signature]</i>
12	Fəxrəddin	Nurəli	Siyaxoran	<i>[Signature]</i>
13	Əliyev	Həsən	Böyük Sahajacı	<i>[Signature]</i>
14	Həbibov	Vidəli	Böyük Sahajacı	<i>[Signature]</i>
15				
16				
17				
18				
19				
20				
21				

Topics: Enlightening people about the construction schedule and Grievance Redress Mechanism

Date: 20.10.2015

Location: Contractor's Camp