



Nam Ngiep 1 Hydropower Project

Quarterly Environment Monitoring Report Fourth Quarter of 2025

October to December 2025

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ABBREVIATIONS / ACRONYMS

AIP	Annual Implementation Plan
ADB	Asian Development Bank
ADM	Administration Division
BAC	Biodiversity Advisory Committee
BOF	Biodiversity Offset Framework
BOMC	Biodiversity Offset Management Committee
BOMP	Biodiversity Offset Management Plan
BOMU	Biodiversity Offset Management Unit
BSP	Biodiversity Service Provider
CA	Concession Agreement between the NNP1PC and GOL
CAP	Corrective Action Plan
CCA	Community Conservation Agreement
CDP	Community Development Plan
COD	Commercial Operation Date
CVC	Conventional Vibrated Concrete
CWC	Civil Works Contract
DAFO	District Agriculture and Forestry Office
DCC	Document Control
DD	Data Deficient of IUCN conservation status
DEB	Department of Energy and Business of the Ministry of Energy and Mine
DEMO	District Energy and Mines Office
DOF	Department of Forestry of Ministry of Agriculture and Forestry
DWP	Detailed Work Program
EC	Electrolytic Conductivity
EIA	Environmental Impact Assessment
EMMR	Environmental Management and Monitoring Reports
EMO	Environmental Management Office of ESD within NNP1PC
EMU	Environmental Monitoring Unit
EMWC	Electrical-Mechanical Works Contract
EPF	Environmental Protection Fund
ESD	Environmental and Social Division of NNP1PC
ESMMP	Environmental and Social Monitoring and Management Plan
FMM	Financial Management Manual

FPF	Forest Protection Fund
FTS	Fortune Service
GOL	Government of Lao PDR
GIS	Geographic Information Systems
HMWC	Hydraulic Metal Works Contract
HR	Human Resources
H&S	Health and Safety
IAP	Independent Advisory Panel
IEE	Initial Environmental Examination
IMA	Independent Monitoring Agency
INRMP	Integrated Natural Resources Management Plan
IUCN	International Union for Conservation of Nature
ISP	Intergraded Spatial Planning
KGS	Khammany General Service
KPI	Key Performance Indicator
kV	kilo-Volt
LC	Least Concern of IUCN conservation status
LTA	Lender's Technical Advisor
LHSE	Lao Holding State Enterprise
MAF	Ministry of Agriculture and Forestry
MEM	Ministry of Energy and Mines, Lao PDR
MOM	Minutes of Meeting
MONRE	Ministry of Natural Resource and Environment, Lao PDR
MOU	Memorandum of Understanding
MPI	Ministry of Planning and Investment
NC-NX	Nam Chouane-Nam Xang
NCR	Non-Compliance Report
NNP1PC	Nam Ngiep 1 Power Company Limited
OAA	Other aquatic animals
OC	Obayashi Corporation
OFIs	Opportunity for Improvement
O&M	Operation & Maintenance
ONC	Observation of Non-Compliance
OSOV	Owners' Site Office and Village

PAFO	Provincial Department of Agriculture and Forestry
PCD	Procurement Division
PEMO	Province Energy and Mine Office
PONRE	Provincial Department of Natural Resource and Environment, MONRE
RCC	Roller Compacted Concrete
SIR	Site Inspection Report
SMO	Social Management Office of ESD within NNP1PC
SMART	Spatial Monitoring and Reporting Tool
SOP	Standard Operating Procedure
SS-ESMMP	Site Specific Environmental and Social Monitoring and Management Plan
TD	Technical Division
TOR	Terms of Reference
TPZ	Totally Protected Zone
TSS	Total Suspended Solids
UAE	United Analysis and Engineering Consultant Company Ltd.
UR	Upper Reservoir
VU	Vulnerable of IUCN conservation status
WCS	Wildlife Conservation Organization
WMF	Watershed Management Fund
WMP	Watershed Management Plan
WRPC	Watershed and Reservoir Protection Committee
WRPO	Watershed and Reservoir Protection Office
WWTS	Wastewater Treatment System

EXECUTIVE SUMMARY

The quarterly environment monitoring report of Nam Ngiep 1 Hydropower Project provides information and analysis of compliance with the environmental and social obligations of the Project stipulated in the Concession Agreement between the Nam Ngiep 1 Power Company (NNP1PC) and the Government of Lao PDR (GOL), and as required by environmental legislation of the Lao PDR, the ADB Safeguard Policy Statement and IFC Performance Standards. The Company ensures compliance with these requirements through implementation of project specific sub-plans, programmes and activities prepared as part of the Environmental and Social Management and Monitoring Plan for the Operation Phase (ESMMP-OP).

During Q4 2025, The ISO14001:2015 internal audit 2025 was conducted from 14 October – 06 November 2025, covering all 31 work function areas across three key areas: 1) Industrial Areas, 2) Camp Facilities, and 3) Management System. One non-compliance was identified related to the lack of specific training of staff performing high-risk tasks (e.g., operation of the overhead mobile crane used at the main and re-regulation power stations) and 23 Opportunities for Improvement (OFIs) were identified. The absence of training on high-risk activities for gantry/overhead mobile crane operation at both main and re-regulation powerhouses resulted in issuance and submission of a Non-conformity (NC) with required actions to TD on 28 November 2025. This training was originally included in an OFI in 2024; however, no evidence of implementation or competence records have been made available. The Sixth EMS management review meeting was held on 17 December 2025. The meeting reviewed EMS performance, progress on previous actions, and key updates to policies, audits, and emergency preparedness. Management noted strengths such as strong compliance, a robust EMS, and positive regulatory recognition, while also acknowledging weaknesses related to enforcement gaps and contractor performance. Opportunities were identified in supportive regulations and strengthened stakeholder collaboration, with key threats arising from climate risks, biodiversity impacts, and potential regulatory changes. Four new Environmental Management Plans (EMPs)—covering health and safety and environmental awareness, food-waste composting, environmental performance auditing, and tree planting—are currently being reviewed by each relevant department and are expected to be implemented from January 2026 and throughout the year. The next ISO Surveillance Audit by SGS (Thailand) is scheduled for 3–4 February 2026.

Three joint monthly site inspections were conducted by EMO, ADM and Technical Division (TD) to follow up on the progress of corrective actions from previous findings and any new findings. During these inspections, three Observation of Non-Compliance (ONCs) were identified. The Site Inspection Reports (SIRs) with findings and recommendations were submitted to TD and ADM and two of the ONCs were resolved by the end of Q4 2025; however, one issue was pending and one pending NCR level 1 that carried over from the previous quarter was closed.

In Q4 2025, a total of 15.22 m³ solid waste from NNP1 project sites and camps was disposed of at the NNP1 Project Landfill, an increase of 0.32 m³ compared with Q3 2025. The local waste management contractor maintained routine waste collection and operation of the NNP1 Project Landfill throughout Q4 2025.

Starting from early November 2025, NNP1PC implemented weekly turbid water monitoring at three locations: The water intake level for the main dam powerhouse, Nam Ngiep downstream at the bridge to Phouhomxay Village, and at the water intake for Kouay Village's water supply located approximately 200 meters downstream of NNG08. The turbidity monitoring results

during November and December 2025 are still higher than the range of turbidity measured in June, July and August 2025.

The environmental flow requirements have been monitored in accordance with the ESMMP-OP, and the results show that the rate of water level increase due to dam operations (ramping-up) in sixteen cases did not comply with the requirements.

The concentration of dissolved oxygen (DO) at the surface level in R05 (Main Reservoir immediately upstream of the main dam) ranged between 5.8 mg/L and 7.9 mg/L. The monthly mean DO concentration at the intake level increased from 1.54 mg/L in October 2025 to 1.99 mg/L in November 2025 and then decreased to 0.79 mg/L in December 2025. The DO concentrations in Nam Chian was above 6 mg/L. The DO concentrations at the surface level in the Re-regulation Reservoir (R07) were between 3.9 and 7.9 mg/L. During combined gate and labyrinth discharges in October 2025, DO concentrations in Nam Ngiep downstream the Re-regulation Dam were greater than 6 mg/L (complied with the standard). During turbine discharges in November and December 2025, the DO levels did not comply with the Standard for the first 14.6 km and then gradually increased to 6 mg/L and 7 mg/L at the further downstream stations thus complying with the Standard.

The depth profile monitoring during the period indicates formation of oxyclines in the Main Reservoir at the monitored stations at varying depths.

In Q4 2025, the XSB Provincial Assembly requested to XSB WRPO to conduct consultations with district offices and representatives from all 12 watershed villages on the FCMR. XSB WRPO has completed the consultations, and the outcomes were submitted to the Provincial Assembly for final review and approval of the FCMR. XSB WRPO in collaboration with Anouvong District Authorities completed collecting land use information and field verification for 39 households who built an access road to the NNP1 TPZ1.

In Q4 2025, The Bolikhamxay Watershed and Reservoir Protection Office (BLX WRPO) received AIP 2025 funds from the Environment and Forestry Protection Fund (EFPF), Ministry of Agriculture and Environment (MoAE), and resumed forest and reservoir patrols within the NNP1 watershed and reservoir.

In Q4 2025, Bolikhamxay Biodiversity Offset Management Unit (BOMU) guarded the patrol sub-stations. The Community Conservation Agreements (CCA) and Fish Conservation Zones (FCZ) were finalized and signed by all relevant parties. BSP-WCS and NNP1-EMO finalized the Participatory Land Use Plan (PLUP) of Meungcham Village, Xaychamphone District and continued finalizing the PLUP of Sopkhone and Phonmeung villages. The Bolikhamxay Provincial Department of Agriculture and Environment (PDAE) and BOMU conducted an annual exchange visit to Pu Mat National Park, Viet Nam. BOMU, the Viengthong and Xaychamphone District Agriculture and Environment Offices (DAEOs), and the NNP1 Environmental Management Office (NNP1-EMO) jointly conducted village-level reviews of Community Development Plan (CDP) activities. In addition, BOMU has received the Nam Chouan–Nam Xang (NC–NX) 2025 Annual Implementation Plan (AIP) funds from the National Treasury, Ministry of Finance. In addition, NNP1-EMO conducted an initial biodiversity impact assessment in the Nam Chat-Nam Pan proposed National Park to support discussions on additional biodiversity offset measures to comply with ADB safeguard requirements

The fish species dominating the fish catch by weight in Q3 2025 include *Oreochromis niloticus*, *Cyprinus carpio*, *Clarias batrachus* and two species group of Hampala and Poropuntius which are classified as Least Concern (LC) according to the IUCN Red List of Threatened Species and *Oreochromis niloticus* which is an exotic species. There is a slightly change in the dominant

species composition. Some species/groups present in Q2 (e.g., *Barbonymus gonionotus*, *Hypsibarbus*, *Mastacembelus*) do not appear in Q3, and two new species (*Cyprinus carpio* and *Clarias batrachus*) appear in Q3. The recorded catch of threatened species includes two species that are classified as Vulnerable (VU): *Scaphognathops bandanensis*, and *Tor sinensis*.

1 INTRODUCTION

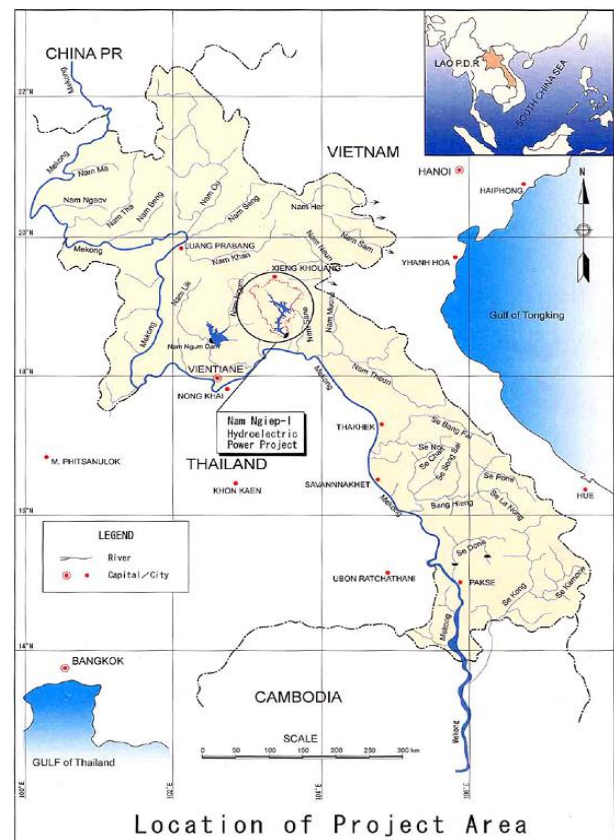
The Nam Ngiep originates in the mountains of Xiengkhouang Province, flowing through Khoun District into Thathom District of Xaysomboun Province, through Hom District and into Bolikhamxay Province. The Nam Ngiep meets the Mekong River just upstream from Pakxan in Bolikhamxay Province.

Two dams and power stations were constructed along the Ngiep River in Bolikhamxay. At the main dam site, a primary power station generated around 1,546 GWh of electricity for export to Thailand and released water to a regulating pond where a second dam and power station generate around 105 GWh of electricity for local use.

The Project Commercial Operation Date was achieved on 05 September 2019.

This Quarterly Environment Report provides a summary of environmental monitoring activities and mitigation actions during **Q4 2025**. The report is published on the Company website (<https://namngiep1.com/>).

Related construction Site Specific Environmental and Social Monitoring and Management Plans (SS-ESMMPs) are also publicly disclosed on the Company website as required under the Concession Agreement.



2 ENVIRONMENTAL MANAGEMENT AND MONITORING

The environmental management and monitoring activities reported in this section document the implementation of the relevant sub-plans and programmes of the Environmental and Social Management and Monitoring Plan for the Operation Phase during Q4 2025.

2.1 ENVIRONMENTAL MANAGEMENT SYSTEM

During Q4 2025, The ISO14001:2015 internal audit 2025 was conducted from 14 October – 06 November 2025, covering all 31 work function areas across three key areas: 1) Industrial Areas, 2) Camp Facilities, and 3) Management System. One non-compliance was identified related to the lack of specific training of staff performing high-risk tasks (e.g., operation of the overhead mobile crane used at main and re-regulation power stations) and 23 Opportunities for Improvement (OFIs) were identified.



The absence of training on high-risk activities for gantry/overhead mobile crane operation at both main and re-regulation powerhouses resulted in issuance and submission of a Non-conformity (NC) with required actions to TD on 28 November 2025. This training was originally included in an OFI in 2024; however, no evidence of implementation or competence records have been made available. This finding is a non-compliance with relevant ISO 14001:2015 Clauses:

ISO 14001	Requirements
7.2 Competence	Determine necessary competence, provide training/education, identify needs, and evaluate effectiveness
7.3 Awareness	Ensure staff understand policy, significant aspects, and compliance roles.
8.1 Operational Control	High-risk activities must be managed through documented procedures and competence assurance.
8.2 Emergency Preparedness	Lack of training increases risk of inadequate response to incidents (e.g., hydraulic fluid spills).

The Sixth EMS Management Review Meeting was held on 17 December 2025. The meeting reviewed EMS performance, progress on previous actions, and key updates to policies, audits,

and emergency preparedness. Management noted strengths such as strong compliance, a robust EMS, and positive regulatory recognition, while also acknowledging weaknesses related to enforcement gaps and contractor performance. Opportunities were identified in supportive regulations which create an opportunity by clearly requiring organizations to prioritise environmental management and climate-related actions. This regulatory clarity helps strengthen internal enforcement and awareness, which in turn supports stronger EMS implementation, with key threats arising from climate risks, biodiversity impacts, and potential regulatory changes. The next ISO 14001 surveillance audit by SGS (Thailand) is scheduled for 3–4 February 2026.

2.2 ENVIRONMENTAL MANAGEMENT PLANS (EMP) 2026

Four Environmental Management Plans (EMPs)—covering health and safety and environmental awareness, food-waste composting, environmental performance auditing, and planting—are under review by the respective departments and are expected to be implemented from January 2026 and throughout the year.

EMP No.	Activity Description	KPI
EMP-01:2026	Providing HSE Awareness Training to NNP1PC Staff and Contractors	100% of new NNP1PC employees and contractors, and 80% of existing NNP1PC employees and contractors have successfully passed HSE Awareness Training in 2026
EMP-02:2026	Food Waste-to-Compost	Utilize approximately 30% of monthly food waste for compost production.
EMP-03:2026	Environmental Performance Audit	100% of environmental observations of noncompliance (ONCs) resolved before escalating to NCR.
EMP-04:2026	Planting of 300 CHAMPA trees (local national flower symbol species): 1. Route from OSOV1 to the Main Powerhouse, and 2. Route from OSOV1 to the Re-regulation Powerhouse	At least 60% of the planted trees survive by December 2026.

2.3 CONTRACTOR SS-ESMMPs

In Q4 2025, three SSESMMMP for Temporary Road Repairing at the Main Dam Powerhouse, Riverbed Excavation, and Access Road 5169 Repair Works in Year 2025 were submitted to the Environment Management Office (EMO) for review and approval. EMO issued no objection with comments for LAO SPECIALIST AND ENGINEERING PROVIDER Co., Ltd (LSEP) and PKCC Company Limited to revise and resubmit the documents within 10 business days, addressing the following key comments:

- **For LSEP;**
 - **Disposal Site** – Specify the designated location(s) for placement of excavated materials.
 - **Borrow Area** – Identify the source location(s) for fill materials such as soil and rock for riprap placement.

- **Location of the camp**, including layout.
 - **Designated parking area** for machinery, equipment, and tools.
 - **Types and quantities** of hazardous materials to be used on site (e.g., gasoline, diesel, other chemicals)
 - **Transportation methods** for hazardous materials to the site.
 - **Storage facilities** prepared for hazardous materials at site, including specifications and safety features.
 - **Mobile refuelling activities**, provide detailed environmental and safety protocols for mobile refuelling at site.
 - **Emergency response procedures** for accidental spills or leaks.
 - **Proposed disposal options** for hazardous waste generated by LSEP operations.
 - **Identification of areas to be decommissioned and revegetated**, including but not limited to: Camp site, Workshop, Spoil disposal site, Borrow Pit, Access Road, any other operational areas utilized by LSEP.
 - **Description of site-specific decommissioning and rehabilitation measures**, including methods and timelines, in accordance with the standards and procedures set forth in ESMMP-OP, SP09.
- **For PKCC;**
 - **Types and quantities** of hazardous materials to be used on site (e.g., gasoline, diesel.)
 - **Mobile refuelling activities**, provide detailed environmental and safety protocols for mobile refuelling at site.
 - **Proposed disposal options** for hazardous waste generated by PKCC.
 - **Identification of areas to be decommissioned and revegetated**, including but not limited to: Spoil disposal site, Access Road, any other operational areas utilized by PKCC
 - **Description of site-specific decommissioning and rehabilitation measures**, including methods and timelines, in accordance with the standards and procedures set forth in ESMMP-OP, SP09.

The SS-ESMMP is provided in **Error! Reference source not found..** The EMO's comment and contractor's responses to the EMO's comments are documented in **APPENDIX 7: EMO Comments & Contractor's responses to SSESMP -.**

2.4 RESULTS OF COMPLIANCE INSPECTIONS AT CONSTRUCTION SITES

During Q4 2025, three joint monthly site inspections were conducted by EMO, ADM and Technical Division (TD) to follow up on the progress of corrective actions from previous and new findings. Three Site Inspection Reports (SIRs) were submitted to TD and ADM. During the inspection, three Observation of Non-Compliance (ONCs) were identified. Subsequent inspections have confirmed that two issues have been resolved by the end of Q4 2025, one issue was pending, and one pending NCR level 1 that was carried over from the previous quarter was closed. Detailed issue is presented in **Appendix 1**.

The status of the ONC and NCR reports is summarized in **Table 2.4-1, Figure 2.4-1 and Figure 2.4-2**. The Site Inspection Results During Q4 2025 is presented in **Appendix 1: The Site Inspection Results During Q4 2025**.

TABLE 2.4-1: STATUS OF ONCs AND NCRs REPORT DURING Q4 2025

Status	ONC	NCR- Level 1	NCR- Level 2	NCR- Level 3	Incident Report
Carried over ONC/NCR from the previous quarter	0	1	0	0	0
Newly opened ONC/NCR	3	0	0	0	0
Total No. of ONC/NCR	3	1	0	0	0
Resolved ONC/NCR	2	1	0	0	0
Unresolved ONC/NCR carried forward to the next quarter	1	0	0	0	0

¹ One pending NCR level 1 (NCR-01-ADM/2025). For a detailed description, please refer to **Appendix 1: The Site Inspection Results During Q4 2025**

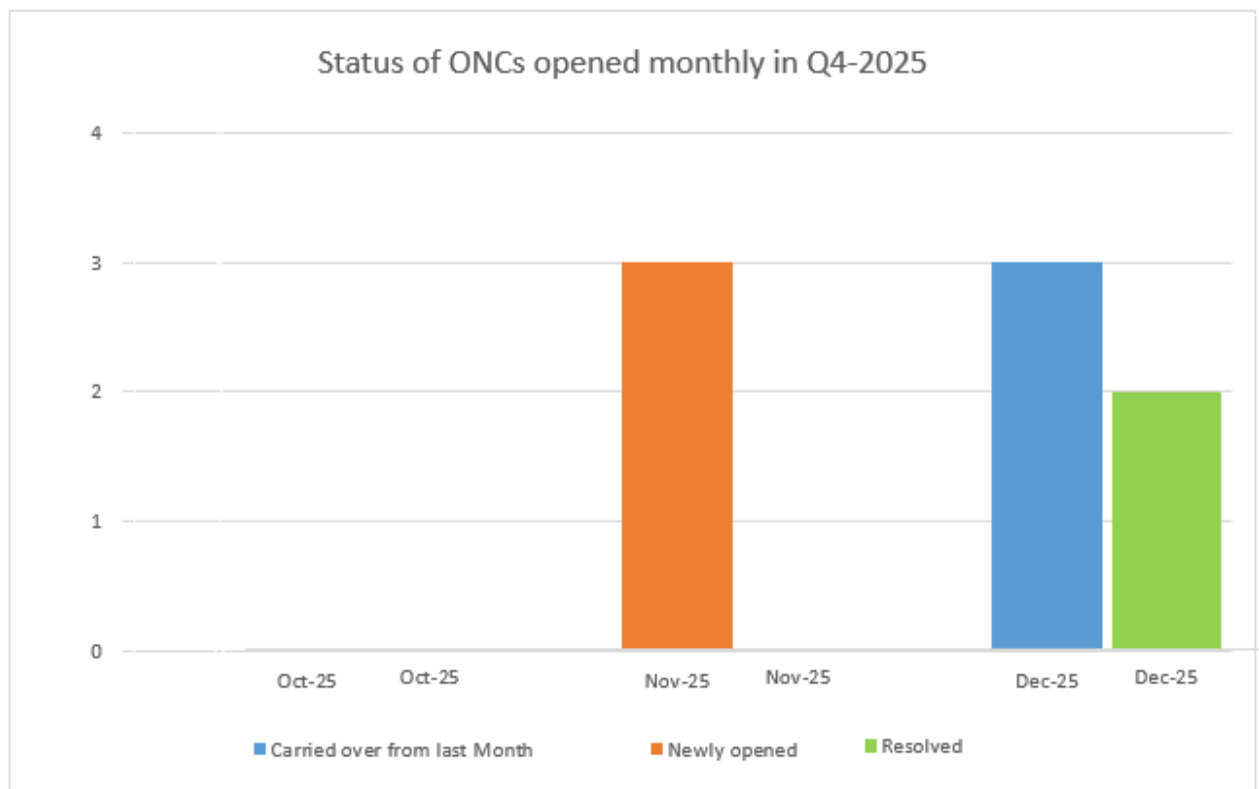
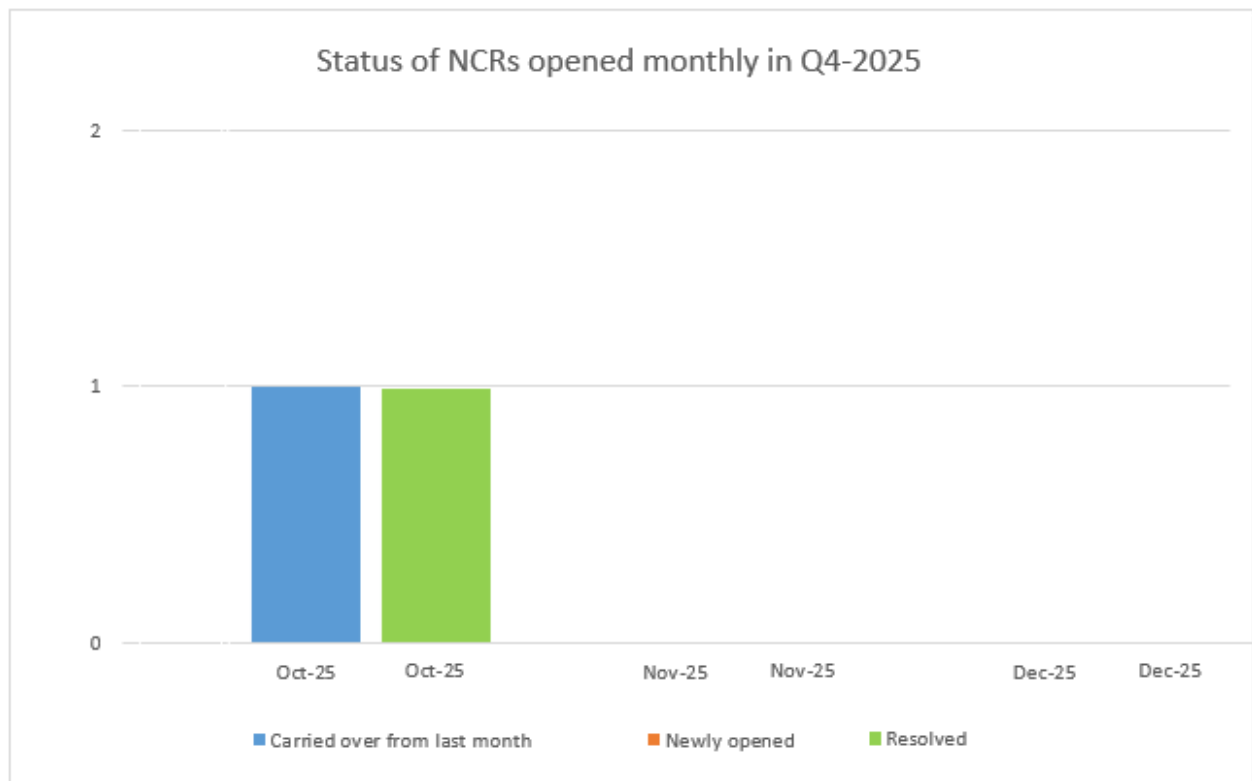
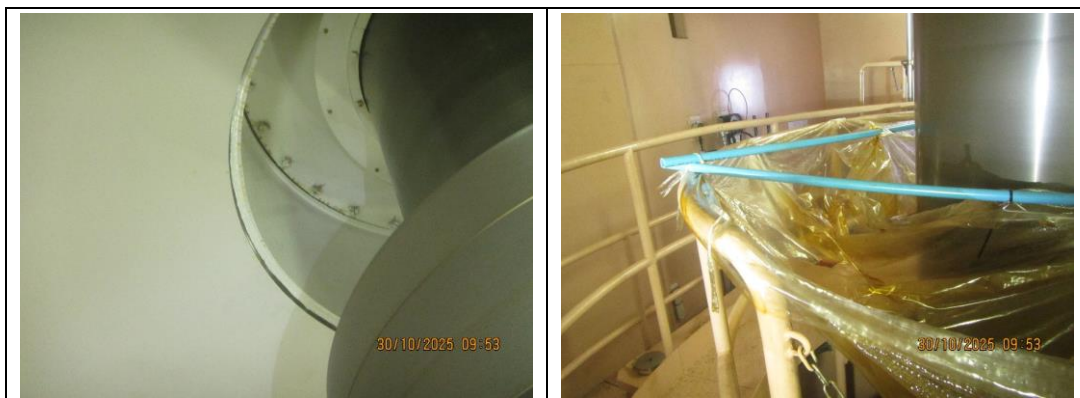
FIGURE 2.4-1: STATUS OF ONCs DURING Q4 2025

FIGURE 2.4-2: STATUS OF NCRs DURING Q4 2025

- Oil leakage status at the Main Dam Powerhouse**

The oil leakage was first detected in June 2023. The permanent resolution is still under discussion, as a repair will require a prolonged shutdown of turbine operations. In the meantime, temporary countermeasures are in place. Currently, the oil leakage from unit 1 in the Main Powerhouse is about 5 Liters/month or less. The oil is being collected in a bucket using plastic sheets and regularly transferred to the designated hazardous waste storage facility. Daily monitoring by TD has confirmed that no oil contamination has occurred outside this room, including any discharge to the river. During the monthly joint environmental site inspections, special attention is consistently given to this area to ensure that the leakage remains fully contained. The permanent countermeasure has not yet been determined as the place of leakage is not accessible and can only be checked and repaired when Unit No. 1 is closed down. This will be done during a scheduled major maintenance in February 2027.





- **Oil leakage status at the Re-regulation Powerhouse**

In the Re-regulation Powerhouse, an oil leakage from the combined bearing housing (thrust bearing) was detected in July 2022. Currently, the oil leakage of about 3 Liters/month or less is contained and collected in buckets and transferred to the designated hazardous waste storage facility. As a temporary measure, the maintenance engineer has applied silicone to seal the leakage. The permanent countermeasure has not yet been determined. This will be done during a scheduled major maintenance (January 2027).



2.5 SITE DECOMMISSIONING AND REHABILITATION

All 31 rehabilitated areas were inspected. No evidence of erosion or instability were observed at any of the inspected sites. The rehabilitation currently excludes spoil disposal area no. 02 which has been reopened by TD division as a borrow pit for sourcing soil and rock for repairing of the access road to the main dam powerhouse (Ref. **Appendix 1: The Site Inspection Results During Q4 2025**).

2.6 WASTE MANAGEMENT AT THE OPERATION SITES

2.6.1 Waste Management at NNP1 Project Sites

In Q4 2025, a total of 15.22 m³ solid waste from NNP1 project sites and camps was disposed of at the NNP1 Project Landfill, an increase of 0.32 m³ compared with Q3 2025. The local waste management contractor has maintained routine waste collection and operation of the NNP1 Project Landfill management throughout Q4 2025.

The amount of recyclable waste managed on site during Q4 2025 is shown in **Table 2.6-1**.

TABLE 2.6-1: AMOUNTS OF RECYCLABLE WASTE DURING Q4 2025

Source and Type of Recyclables		Unit	Carried Over from Q3 2025	Status in Q4 2025			
				Additions	Total (A)	Sold (B)	Remaining Amount (A - B)
Construction activity							
1	Scrap metal	kg	0	0	0	0	0
Sub-Total 1		kg	0	0	0	0	0
Operation camp							
2	Plastic bottle	kg	20	120	140	140	0
3	Aluminium Can	kg	N/A*	N/A	N/A*	N/A	N/A
4	Paper/Cardboard	kg	21	147	168	168	0
5	Glass	kg	281	51	332	332	0
6	Scrap metal	Kg	0	0	0	0	0
Sub-Total 2		kg	322	318	640	640	0
Grand Total (Sub-Total 1+2)		kg	322	318	640	640	0

*Please note that aluminium cans are collected and sold separately by housekeepers before storage so there is no accurate recorded quantity. The item is therefore marked Not-available (N/A).

2.6.2 Hazardous Waste Management

The amounts of hazardous waste and hazardous materials that were collected, stored and disposed of during Q4 2025 are shown in **TABLE 2.6-2**.

TABLE 2.6-2: HAZARDOUS MATERIAL AND HAZARDOUS WASTE RECORDED DURING Q3 2025

No.	Type of Hazardous Material	Unit	Total in Q4 2025	Used/ Disposed	Remaining
1	Diesel	Litre	18,304	13,180	5,124
2	Gasoline	Litre	3,177	2,235	942
3	Lubricant (Turbine oil)	Litre	31	0	31
4	Colour paint	Litre	38	0	38
5	Thinner	Litre	1	0	1
6	Grease oil	Litre	745	0	745
7	Gear Oil	Litre	61	12	49
8	Chlorine Liquid	Litre	100	75	25

No.	Type of Hazardous Material	Unit	Total in Q4 2025	Used/ Disposed	Remaining
9	HA Cut AF	Litre	3,925	0	3,925
10	HA Cut Cat AF	Litre	373	0	373
	Type of Hazardous Waste				
11	Used Oil (Hydraulic + Engine)	Litre	335.3	0	335.3
12	Used oil mixed with water	Litre	0	0	0
13	Empty used oil drum/container (drum 200L)	Unit	53	0	53
14	Used Oil Filter	Unit	31	0	31
15	Contaminated soil, sawdust and textile material	m3	1.2	0	1.2
16	Used tyre	Unit	5	0	5
17	Empty used chemical drum/container (drum 20L)	Unit	153	0	153
18	Lead acid batteries	Unit	6	0	6
19	Empty paint and spray cans	Can	167	0	167
20	Halogen/fluorescent bulbs	Unit	37	0	37
21	Empty cartridge (Ink)	Piece	140	0	140
22	Clinic Waste	Kg	25	25	0
23	Expired Chlorine Powder	Kg	65	0	65

2.6.3 Animal Fodder (Pig Feed) Collection Programme

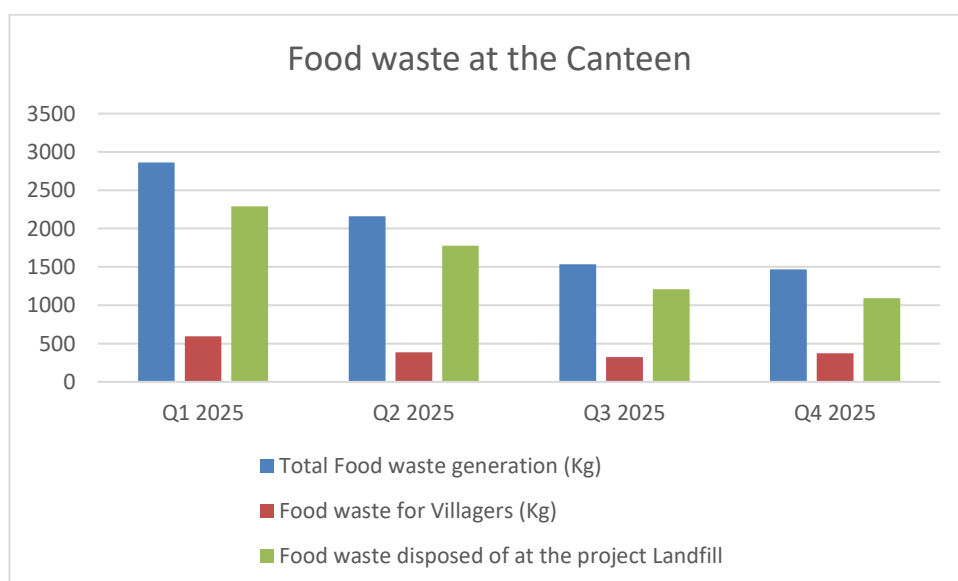
During Q4 2025, the OSOV1 canteen generated 1,466.3 kg of waste, of which **373 kg** of food waste was collected by the villagers from Phouhomxay, Hat Gniun, and Thahuea villages for feeding their animals. The remaining waste was disposed of at the NNP1 landfill.

As part of the company's effort to reduce food waste at the canteen, aiming to maximize resource use and minimize disposal at the project landfill. EMO's waste management team interviewed the new canteen service provider and ADM on 13 February 2025 to identify the causes of increased food waste. The key factors identified were:

- The new provider, operating since January 2025, is still adjusting meal preparation to match actual staff demand.
- According to ADM, around 40% of staff did not pre-book meals in January and February 2025, resulting in unplanned walk-ins. This uncertainty led the canteen operator to prepare extra meals, increasing food waste.
- To address food waste, EMO issued an internal notice on 19 February 2025 urging staff to pre-book meals. Food waste from the canteen is routinely monitored, and Q4 2025 meal bookings increased compared to Q3 2025. This slightly helped to reduce food waste generation in Q4 2025, as shown in **Table 2.6-3**.

Table 2.6-3: Food waste generated in the canteen

Month	Pre-book meals (A)	Walk in for meals (B)	Total Food waste generation (kg) (C)	Food waste for Villagers (kg) (D)	Food waste disposed of at the project Landfill (C) - (D)
Jan 2025	2,047	878	1002.2	192	810.2
Feb 2025	2,657	801	946	210.5	735.5
Mar 2025	2,556	788	913	167	746
April 2025	3,184	939	717	128	589
May 2025	3,110	829	903	170	733
June 2025	3,027	868	541	87	454
July 2025	2,184	1,155	497	128	369
August 2025	2,148	1,099	500	107	393
September 2025	3,043	1,271	535	88	447
October 2025	2,561	1,284	488.2	78	410.2
November 2025	2,580	1,049	480	158	322
December 2025	2,649	905	498.1	137	361.1



2.6.4 Community Solid Waste Management and Recycling Programme

NNP1-EMO has collaborated with Bolikhan EMU on the handover of the Houay Soup Landfill and community waste management. It was agreed that villagers from Thahuea, Hat Gniun, and Phouhomxay could use NNP1PC's landfill, with NNP1PC committing to repair the Houay Soup landfill for shared use once NNP1PC's landfill is full. This agreement was reported to the Department of Natural Resources and Environment Inspection, Ministry of Natural Resources and Environment (DNREI-MONRE), which raised no objections. Both EMU and EMO will continue to guide communities on proper waste disposal at the NNP1PC landfill.

On 27 Feb 2025, the EMO-EC&WM team held a community consultation meeting with representatives from 3 villages regarding the shared use of the NNP1PC landfill. Key messages on the Landfill operation schedule and waste handling procedures were communicated. This is to ensure proper waste separation by the villagers prior to disposing of the waste at the landfill.

- **Landfill Operational Schedule:**
 - Open three times a week (Mon, Wed, Fri) from 08:00 to 16:00
 - Managed by a local waste collection contractor
 - Contact numbers for inquiries: Tel: 020 76249274 and 020 99888747
- **Waste Handling Procedures:**
 - Detailed explanation provided on waste separation, storage, and transfer to the landfill.



Phouhomxay Village



Hat Gnuin Village



Thaheua Village

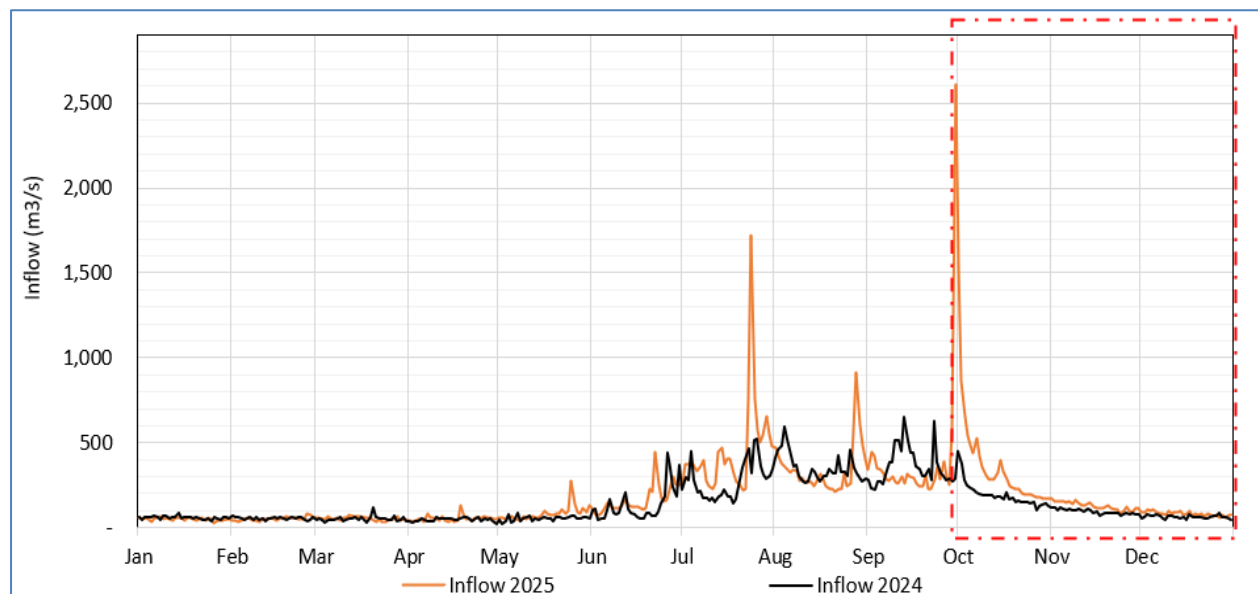
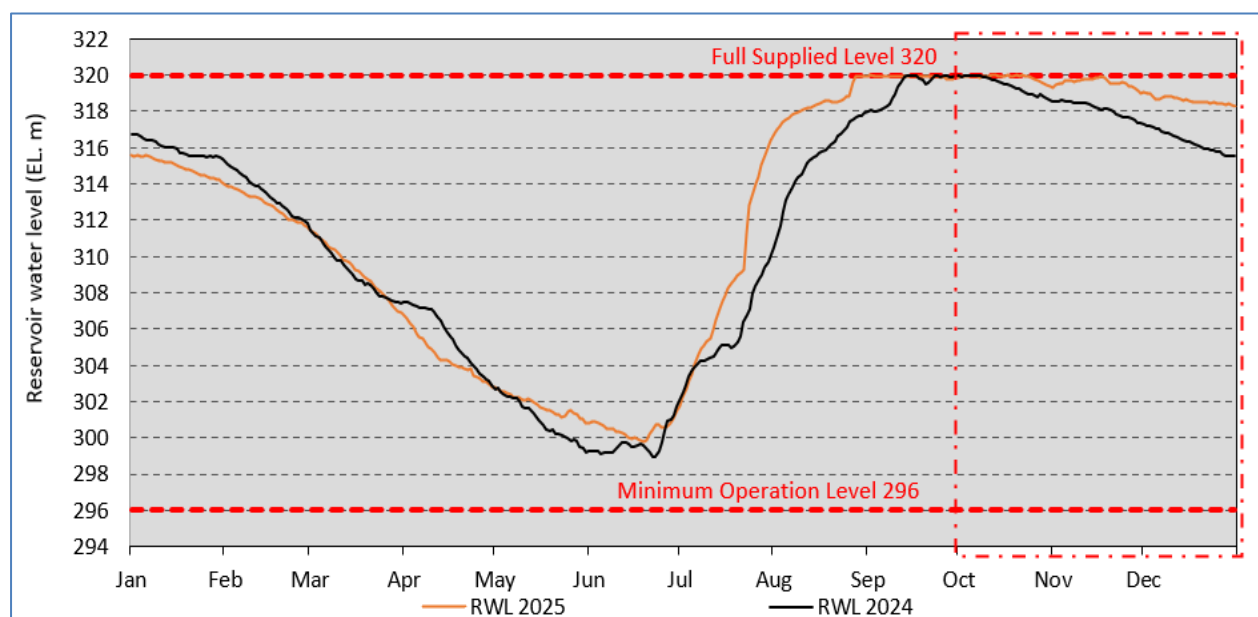
2.7 RESERVOIR OPERATIONS

2.7.1 Main Reservoir

The water level in and inflow to the main reservoir since January 2024 are displayed in the graphs in **Figure 2.7-1** and **Figure 2.7-2**.

During Q4 2025, the mean daily inflow to the main reservoir was 191 m³/s. The minimum daily inflow was 61 m³/s, maximum daily inflow was recorded at 1,569 m³/s, and 25th percentile of 91 m³/s and 75th percentile of 195 m³/s. The peak inflow happened during Typhoon Bualoi on 01 October 2025. It triggered spillway gate operations and evacuation of downstream villages. The detailed flood event report is still being finalised and will be shared once completed. As indicated in **Figure 2.7-1**, the inflow during Q4 2025 was higher compared to the same period in 2024.

The water level in the main reservoir increased with 0.09 m from El. 319.89 m asl (01 October 2025) to 319.98 m asl (12 October 2025) and then decreased with 1.68 m to 318.30 m asl (31 December 2025).

FIGURE 2.7-1: INFLOW TO THE MAIN RESERVOIR**FIGURE 2.7-2: WATER LEVEL OF THE MAIN RESERVOIR**

2.7.2 Environmental Flow Requirements for the Operation Phase

NNP1PC has monitored compliance with the Environmental Flow Requirements (EFRs) stipulated in the CA, Annex C, Clause 53 (g) and as further modified in the Environmental Flow Assessment Report of July 2014 approved by MONRE. The EFRs have been monitored in accordance with the monitoring programme outlined in the ESMMP-OP 2019 (Vol. II, Part 2 on Subplan 1 on Reservoir and River Health Management), except with respect to thalweg water depth monitoring.

The results of the EFR compliance monitoring during Q4 2025 are summarized in **Table 2.7-1**.

TABLE 2.7-1: SUMMARY OF EFRs COMPLIANCE MONITORING IN Q4 2025

No	EFRs in the Downstream of the Re-regulation dam	EFRs compliance
1	Min flow 27 m ³ /s at all times	100% of observations comply
2	Thalweg water depth at least 0.5 m in the entire reach from immediately downstream of the Re-regulation dam until 4.3 km downstream the dam (measured at cross-sections where visual observations or boat navigation indicate shallow waters)	The Q4 2025 monthly thalweg monitoring missions included monitoring of navigation difficulties. Water depth measurements were not carried out due to the discharge from the re-regulation dam was greater than 30 m³/s. The results of previous monitoring missions, as also confirmed by the LTA, have documented that when the discharge is 30 m³/s or greater, the water depth requirements are met and there are no problems with navigating the river. Furthermore, in Q4 2024, at the beginning of the dry season, to gather and assess any complaints about boat navigation difficulties NNP1PC conducted interviews with inhabitants who use boats. There were no complaints from inhabitants, and no damages have been reported or observed. NNP1PC has consulted with the Environmental and social specialist who recommended that revisions to the monitoring programme should be made as part of ESMMP-OP update which is expected to be proposed in Q1 2026.
3	Maximum rate of change (both rise and fall, separately) in stage of 0.6 m per hour	Twelve instances where the maximum rate of change was exceeded. Eight of these instances were caused by flood conditions during the Typhoon Bualoi necessitating the operation of the spillway gates of the Main Dam on 01 and 02 October 2025. The other four instances included Re-regulation Dam gate malfunction on 17 October 2025 (one instance), Main Powerhouse's generator troubleshooting on 03 November 2025 (one instance), Main Powerhouse Access Road Survey and Repairing on 28 and 30 November 2025 (two instances). According to the Concession Agreement, Annex C, during floods, NNP1PC is exempted from complying with this rule. NNP1PC is working with government agencies to assess the flood impacts, and the findings will be included and a separate report from the Technical Division and SMO will be submitted once completed. To mitigate potential risks, TD, in coordination with ESD, issued an advance notification via WhatsApp to all downstream villages, the water supply operator, and relevant local government offices.

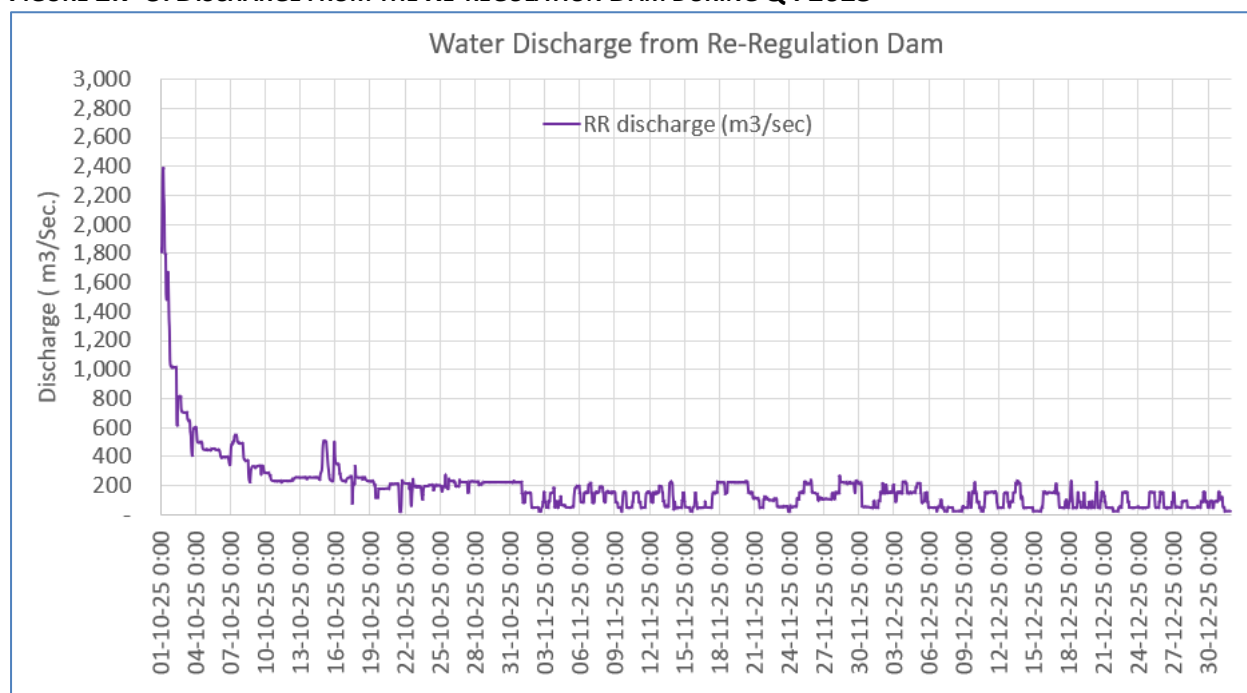
No	EFRs in the Downstream of the Re-regulation dam	EFRs compliance
4	Maximum fluctuation in stage of 1.7 m over 24-hour (this requirement is about range and determines the maximum difference in stage height over 24-hour periods)	Two instances of non-compliance due to Typhoon Bualoi necessitating rapid increases in spillway discharges to ensure that the water level in the main reservoir would not exceed the full supply level of 320 m a.s.l. According to the Concession Agreement, Annex C, during floods, NNP1PC is exempted from complying with this rule. An advance notification via WhatsApp was sent to all downstream villages, the water supply operator, and relevant local government offices.
5	Maximum fluctuation in stage of 1.7 m over 7-days (this requirement is about range and determines the maximum difference in stage height over 7-day periods)	Two instances of non-compliance. One case on 07 October 2025 due to flood condition which could not be controlled and another case on 22 October 2025 due to Re-regulating Dam gate operation malfunction. According to the Concession Agreement, Annex C, during floods, NNP1PC is exempted from complying with this rule. Advance notifications via WhatsApp were given to all downstream villages, the water supply operator, and relevant local government offices.

2.7.2.1 Minimum Flow Requirements

The discharge monitoring data for the re-regulation dam during Q4 2025 indicates that the minimum flow requirement of 27 m³/s has been met at all times. The Re-regulation Dam discharge graph can be found in **Figure 2.7-3**.

During Q4 2025, the mean discharge from the re-regulation dam was about 349 m³/s in October 2025 and about 129 m³/s and 94 m³/s in November and December 2025 respectively.

The changes in the discharge from the re-regulation dam were informed in advance to the RMU and to the heads of the downstream villages, who then announced the changes to the communities over the village speaker systems. There were no complaints related to the flow discharges or fluctuation levels downstream the Re-regulation dam during the reporting period.

FIGURE 2.7-3: DISCHARGE FROM THE RE-REGULATION DAM DURING Q4 2025

2.7.2.2 Minimum Water Depth

Since 18 July 2018, NNP1PC has carried out weekly monitoring of river depths at 19 locations downstream the re-regulation dam as shown on **Figure 2.7-4**. These locations represent cross-sections with possible shallow water depths at low discharge rates.

The monitoring is undertaken to confirm compliance with the water depth requirements in the Concession Agreement, Annex C, and the approved Environmental Flow Assessment (Thalweg water depth at least 0.5 m in the entire reach from immediately downstream of the Re-regulation dam until 4.3 km downstream the re-regulation dam).

Starting in December 2020, the water depths have been measured across the river channel where visual observations or boat navigation indicate shallow waters to ensure that the measurements represent the river thalweg.

According to the recommendations by the Lenders' Technical Advisor (LTA) during the virtual site visit on 21 to 26 November 2021, NNP1PC has continued to monitor the situation at the critical sites under conditions with discharge of less than 30 m³/s for detecting any navigation problems and also monitor whether any complaints have been raised to consider how to solve the problems, if any. The results of these monitoring missions have documented that when the discharge is 30 m³/s or greater, the water depth requirements are met and there are no problems with navigating the river.

NNP1PC carried out three boat monitoring missions in Q4 2025. However, the discharges during all three missions were greater than 30 m³/s. Therefore, no thalweg water depth measurements were carried out.

NNP1PC has consulted with the Environmental and social specialist who recommended that revisions to the monitoring programme should be made as part of the currently ongoing updating of the ESMMP-OP which is scheduled to be completed within Q1 2026.

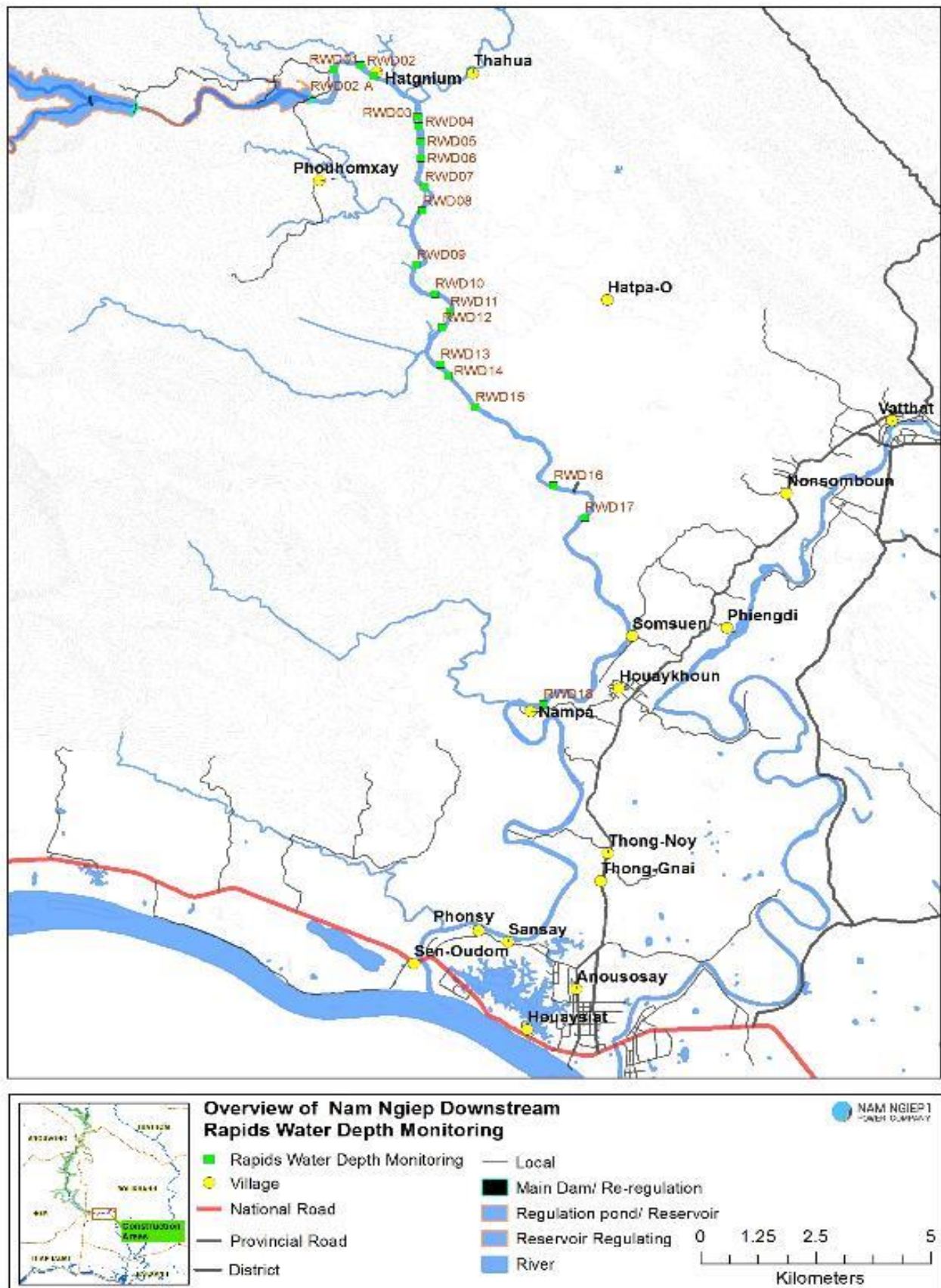


FIGURE 2.7-4: LOCATION MAP OF RIVER DEPTH MONITORING POINTS

2.7.2.3 Stage Height Fluctuations

The requirements on stage height fluctuations constitute a rise or a fall in water elevation and include two aspects:

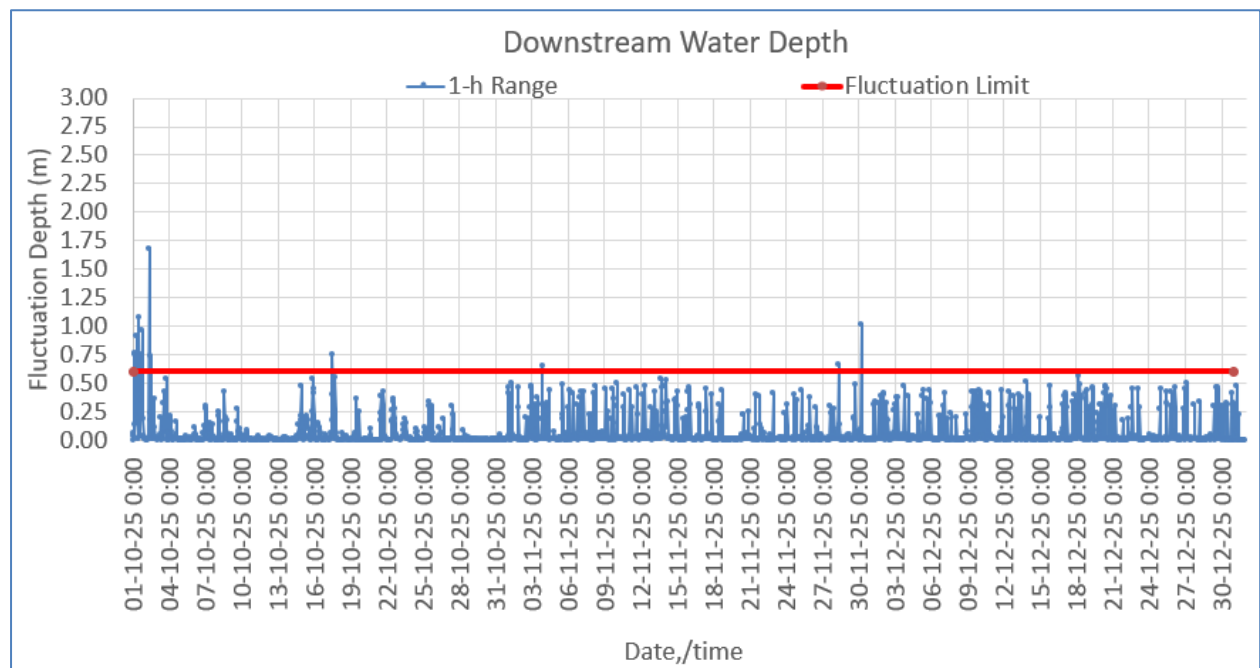
1. A requirement on the rate of change which is set at a maximum of 0.6 m per hour (calculated from the hourly water level recordings).
2. Requirements on the range in fluctuations over 24-hour periods and 7-day periods respectively, which is set at a maximum of 1.7 m for both periods. In other words, the range requirements determine the maximum difference in stage height over 24-hour periods and 7-day periods respectively.

Compliance with the 24-hour maximum fluctuation EFR is determined by calculating the difference between the maximum and the minimum stage height over each 24-hour period. In the same way, the 7-day maximum fluctuation EFR, is determined by calculating the difference between the maximum and the minimum stage height over each 7-day period. There is no compulsion for the Company to meet the stage height fluctuation requirements after a high flow event passes over the Re-regulation dam spillway.

In practice, meeting stage height fluctuation EFRs are managed through controlling the rate of change in discharge from the re-regulation dam/powerhouse. This is done using established rating relationships between stage height and discharge, as set out in the Re-regulation dam operation manual. These relationships are regularly checked and revised as necessary, as they would change whenever the channel morphology changes due to significant erosion or deposition.

During Q4 2025, the maximum allowed rate of change of 0.6 m over 1-hour was complied with for all hourly periods, except on 01 and 02 October 2025 due to the Typhoon Bualoi, on 17 October 2025 due to Re-regulation Dam gate malfunction, on 03 November 2025 due to Main Powerhouse's generator troubleshooting, on 28 and 30 November 2025 for Main Powerhouse Access Road Survey and Repairing. An advance notification via WhatsApp was sent to all downstream villages, the water supply operator, and relevant local government offices. The results are presented in **Figure 2.7-5**.

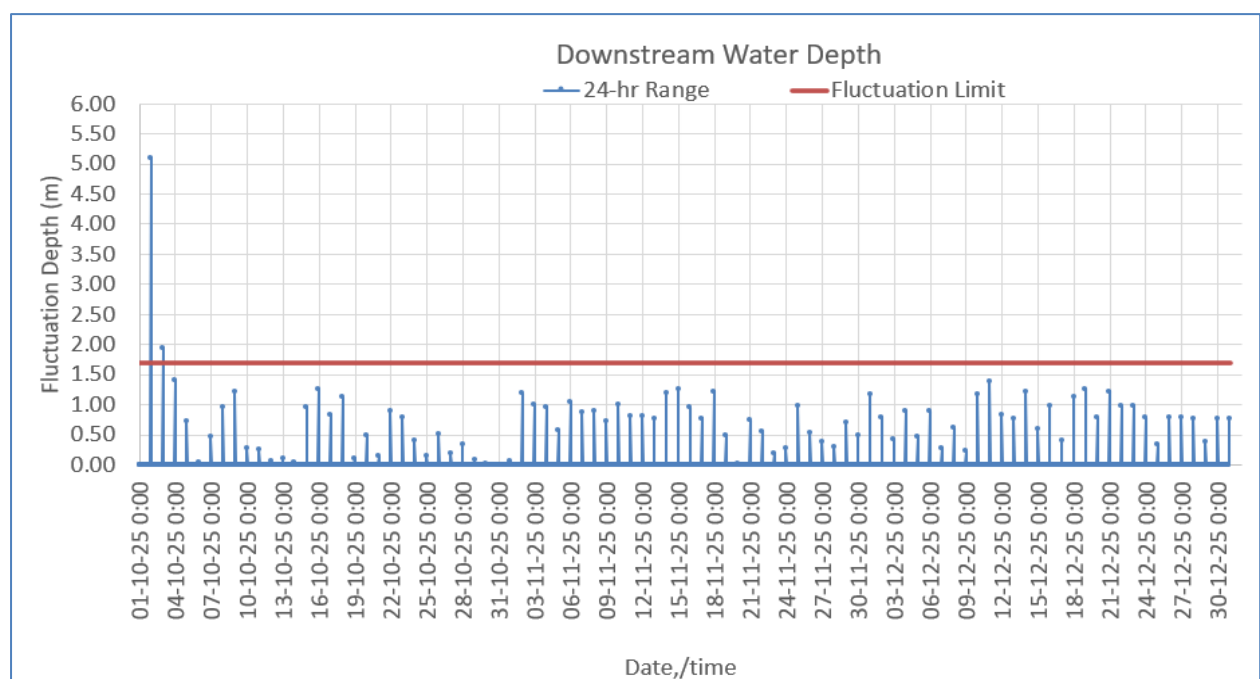
Note that according to the Concession Agreement, Annex C, during floods, NNP1PC is exempted from complying with the maximum allowed rate of change rule.

FIGURE 2.7-5: HOURLY STAGE HEIGHT FLUCTUATIONS DURING Q4 2025

During Q4 2025, the maximum allowed difference in stage height of 1.7 m over 24-hour periods was complied with for all 24-hour periods (00:00 – 23:59), except on 01 and 02 October 2025 where there were two instances of exceedance due to Typhoon Bualoi necessitating rapid increases in spillway discharges to ensure that the water level in the main reservoir would not exceed the full supply level of 320 m a.s.l.

The results of the monitoring are presented in **Figure 2.7-6**.

Note that according to the Concession Agreement, Annex C, during floods, NNP1PC is exempted from complying with the maximum allowed difference in stage height rule.

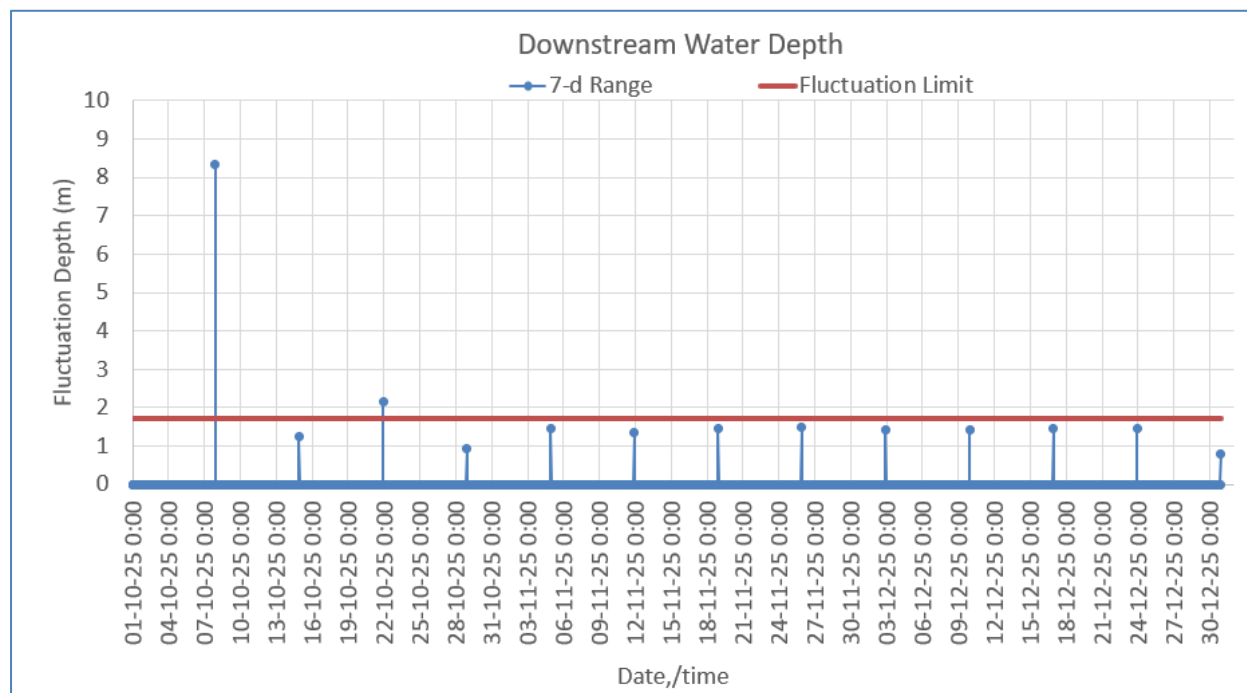
FIGURE 2.7-6: 24-HOUR STAGE HEIGHT DIFFERENCE (M) DURING Q4 2025

During Q4 2025, the maximum difference in stage height of 1.7 m over 7-days was complied with for all 7-day periods, except for two instances, one in the week of 07 October 2025 due to reducing discharge for minimizing the flood impact to downstream villages and one in the week of 22 October 2025 due to Re-regulation Dam gate operation malfunction.

The results are presented in **Figure 2.7-7**.

Note that according to the Concession Agreement, Annex C, during floods, NNP1PC is exempted from complying with this maximum allowed difference in stage height rule.

FIGURE 2.7-7: 7-DAY STAGE HEIGHT DIFFERENCE (M) DURING Q4 2025



2.8 WATER QUALITY MONITORING

2.8.1 Surface Water (River) and Depth Profile Water Quality

Descriptions of each monitoring station, surface water and depth profile water quality monitoring parameters, and the location of sampling map can be found in **Appendix 3** and all surface water quality data for Q4 2025 are listed in **Appendix 5-1**.

Dissolved Oxygen (DO)

The results of DO measurements for the station immediately upstream of the main dam (R05 – intake at 276 m asl.) and immediately downstream of the re-regulation dam (NNG05) are presented in **Figure 2.8-1**, the DO long profile measurement as timeseries are presented in **Figure 2.8-2**, and the full set of DO surface water quality data are shown in **Table 2.8-1**.

The water temperature and DO depth profiles in the main reservoir at R05 during Q4 2024, Q3 2025 and Q4 2025 are presented in **Figure 2.8-4** to **Figure 2.8-6**.

FIGURE 2.8-1: DISSOLVED OXYGEN IMMEDIATELY UPSTREAM AND DOWNSTREAM OF THE MAIN DAM

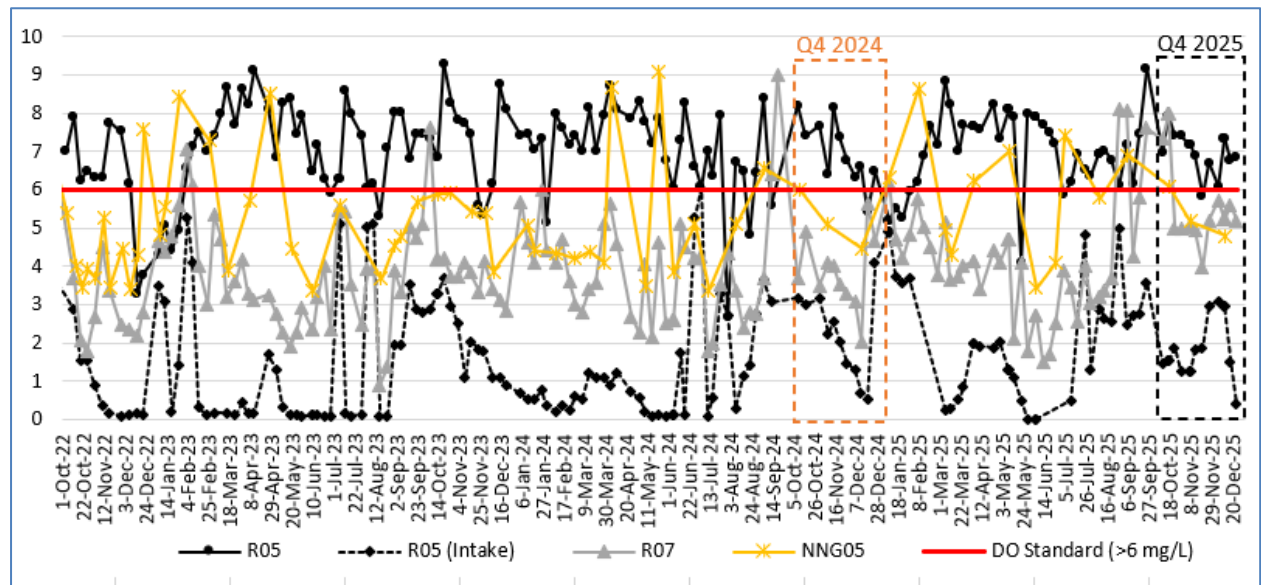
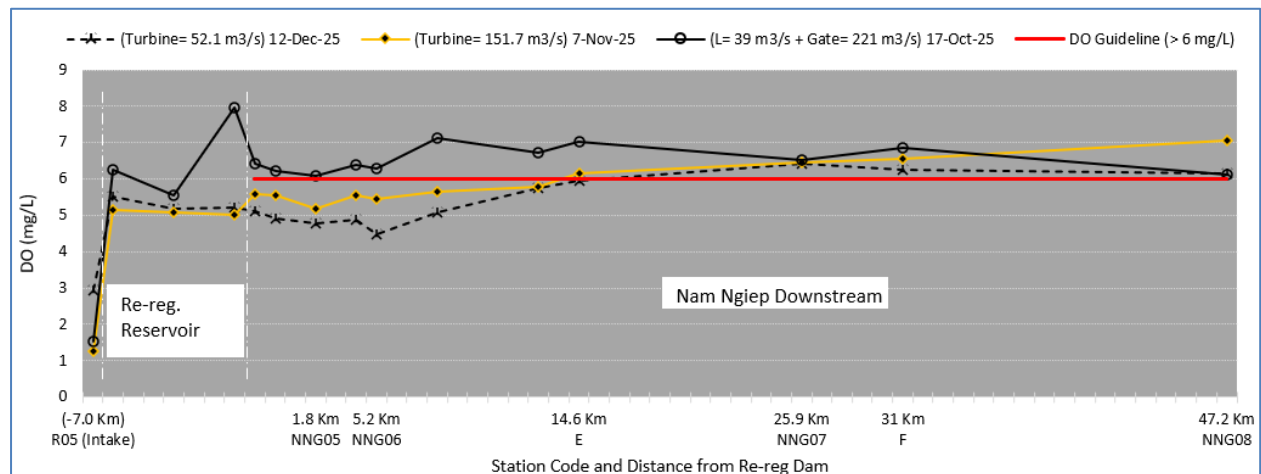
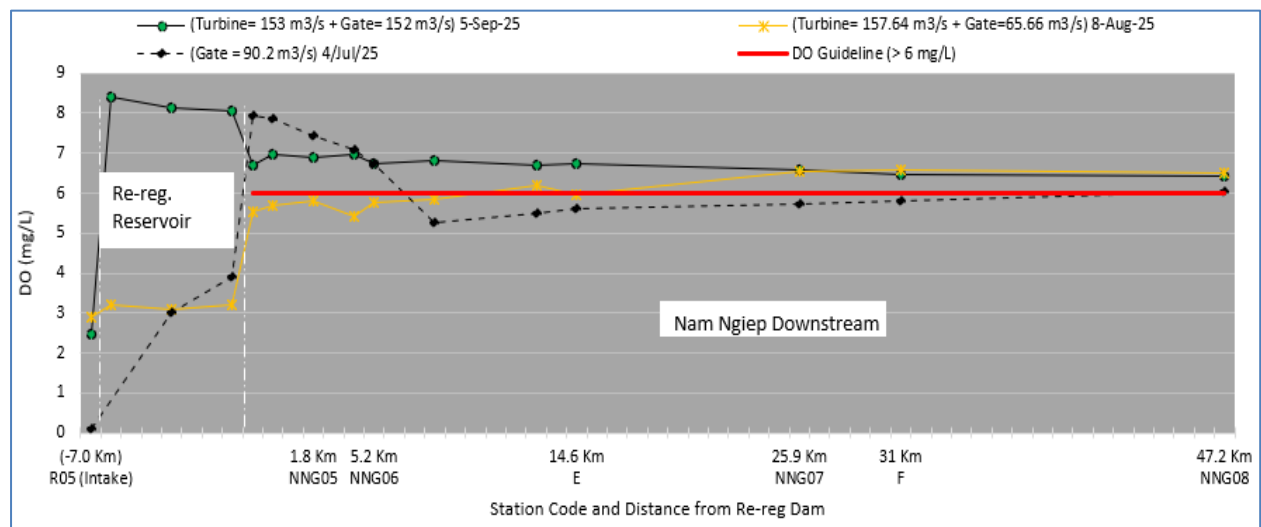


FIGURE 2.8-2: DISSOLVED OXYGEN LONG PROFILE MEASUREMENT FROM IMMEDIATELY UPSTREAM THE MAIN DAM TO LOWER NAM NGIEP (Q3 2025 AND Q4 2025)



Main Reservoir

Figure 2.8-6 and **Figure 2.8-7** present the DO and water temperature depth profile timeseries in the Main Reservoir (R04 and R05) from September 2018 to December 2025, the graphs clearly show seasonal variations in water temperatures and a deepening of the thermocline during periods with cooler water leading to a corresponding deepening of the oxycline.

The depth profile monitoring during Q4 2025 indicates formation of thermoclines and oxyclines in the main reservoir at the monitored stations at different depths.

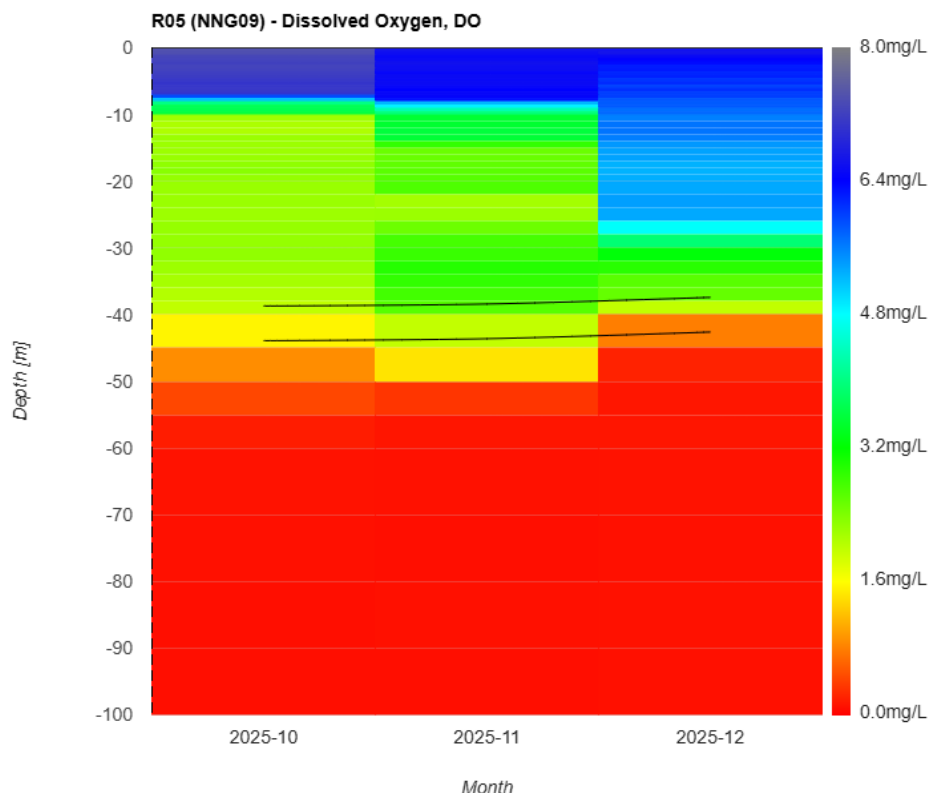
At R05, when comparing Q4 2025 with Q4 2024, the thermocline and oxycline show similar patterns.

Figure 2.8-5 shows the mean DO and water temperature depth profiles for Q4 2024, Q3 2025 and Q4 2025 at R05. As expected, the profiles for Q3 2025 and Q4 2025 show decreasing water temperatures over Q4, formation of an oxycline occurred at depths between 7.5 m and 30 m. The profiles for Q4 2025 indicate that oxygen depletion (about 2 mg/L DO) is found at about 45 m below surface in October and November 2025 and decreasing to a depth of about 40 m in December 2025. Compared to Q4 2024, there are no obvious improvements in the DO levels.

The monthly mean DO concentration at the intake level varied slightly from 1.54 mg/L in October 2025, to 1.99 mg/L in November 2025 and then dropped to 0.79 mg/L in December 2025. Anoxic levels were found at decreasing depths from about 55 m in October and November 2025 (about 10 m below the intake sill) to a depth of about 50 m in December 2025 (about 5 m below the intake sill), with a peak in DO of 0.8 mg/L to 1.4 mg/L at about 50 m depth followed by a drop in DO down to anoxic levels at 45 m depth (about the intake sill) (see **Figure 2.8-3**).

The DO concentrations at R04 showed a similar pattern to R05.

FIGURE 2.8-3 MONTHLY MEAN CONCENTRATIONS OF DISSOLVED OXYGEN IN R05



At R03, during Q4 2025, DO concentrations varied between 3.7 mg/L and 9.7 mg/L with an average of 7.4 mg/L in the upper 5.5 m and at depths from 6.0 m to about 60 m below surface the DO varied between 0.4 mg/L and 7.1 mg/L. Anoxic conditions were only found at the bottom late October and late November 2025.

At R02, during Q4 2025, DO concentrations varied between 3.5 mg/L and 9.3 mg/L with an average of 6.7 mg/L in the upper 5.0 m and at depths from 5.5 m to about 36 m below surface the DO varied between 0.1 mg/L and 6.8 mg/L. Anoxic conditions (less than 0.5 mg/L) were found at depths between 8.5 m and 10 m in November 2025.

At R01, the mean DO concentration throughout the quarter was about 7.3 mg/L over the entire water column with no measurements below 6.1 mg/L.

Re-regulation Reservoir (R06 and R07)

The depth profiles at R06 and R07 in the Re-regulation Reservoir showed no indications of a thermocline, because the Re-regulation Reservoir behaves more like a river than a lake.

The mean monthly DO concentrations at R06 over the entire water column decreased from 5.3 mg/L in October to 4.9 mg/L in November and December 2025. A similar pattern was found at R07. The DO concentrations in R06 and R07 are likely linked to the DO concentrations at the intake level in the main reservoir. It should be noted that the actual flow patterns and movements of water from R05 to the intake is not known and is likely rather complex with circulation patterns or other complex water movements near the intake, which adds uncertainties to correlating water quality data at or near the intake depth at R05 in the main reservoir with water quality data in the Re-regulation Reservoir.

Nam Ngiep Upstream and Tributaries

The Nam Ngiep Upstream station (NNG01), the station in Nam Chian (NCH01) a left bank tributary at the upper part of the reservoir had DO concentrations above 6 mg/L during Q4 2025 and there was no access to the station in Nam Phouan (NPH01) a right bank tributary at the upper part of the reservoir during Q4 2025 due to the floating debris blocked.

Downstream Stations

During Q4 2025, a total of three monitoring missions were conducted. All three monitoring missions were undertaken during discharges greater than 27 m³/s (complied with the minimum environmental flow requirement).

As indicated in **Figure 2.8-2**, during combination of gate and labyrinth discharges in October 2025, the DO concentrations were above the National Surface Water Quality Standard of 6 mg/L for all downstream stations.

In November 2025, during turbine discharge, DO concentrations were between 5.2 mg/L and 5.8 mg/L for the first 13.0 km and then increasing to above 6 mg/L further downstream. In December 2025, during turbine discharge, DO concentrations were between 4.5 mg/L and 5.9 mg/L for the first 14.6 km and then increasing to above 6 mg/L further downstream.

No dead fish was observed in Nam Ngiep downstream during Q4 2025.

NNP1PC continues to carefully compile and assess all monitoring data to determine if any additional water aeration measures may be necessary to improve the DO levels in Nam Ngiep River downstream the Re-regulation Dam.

Starting from early November 2025, NNP1PC implemented weekly turbid water monitoring at three locations: The water intake level for the main dam powerhouse, Nam Ngiep downstream at the bridge to Phouhomxay Village, and at the water intake for Kouay Village's water supply located approximately 200 meters downstream of NNG08. The monitoring aims to gather additional data to assess the turbidity transportation from the main reservoir to the confluence with the Mekong River until conditions return to normal. The turbidity monitoring results in the table below indicate a slight decrease in turbidity at the intake level in the main reservoir and in the downstream stations. In early November 2025, water turbidity remained high, above 200 NTU at a depth of 40 m corresponding to the powerhouse intake level and at the bridge to Phouhomxay Village 300 m downstream of the re-regulation dam. By late December 2025, turbidity had decreased to 191 NTU at the intake level and from 289 NTU to 115 NTU immediately downstream of the reregulation dam, and at the station 200 m downstream of NNG08 (47 km from the re-regulation dam) turbidity had dropped from 254 NTU to 107 NTU. However, these levels are still higher than the range of turbidity measured in June, July and August 2025.

Turbidity (NTU)					
Station Name		R05 (Surface - 0.2 m)	R05 (Water Intake - 40 m)	Bridge to Phouhomxay Village	NNG08 (Lower Nam Ngiep – Near Water Supply Intake)
Date	07-Nov-25	1.2	216	289	254
	12-Nov-25	1.2	216	271	268
	19-Nov-25	1.3	227	229	238
	26-Nov-25	7.3	155	154	159
	05-Dec-25	17.9	152	124	122
	12-Dec-25	14.8	127	157	154
	17-Dec-25	12.1	122	133	124
	23-Dec-25	8.75	191	115	107

FIGURE 2.8-4: MAIN RESERVOIR DISSOLVED OXYGEN AT THE END OF Q4 2025

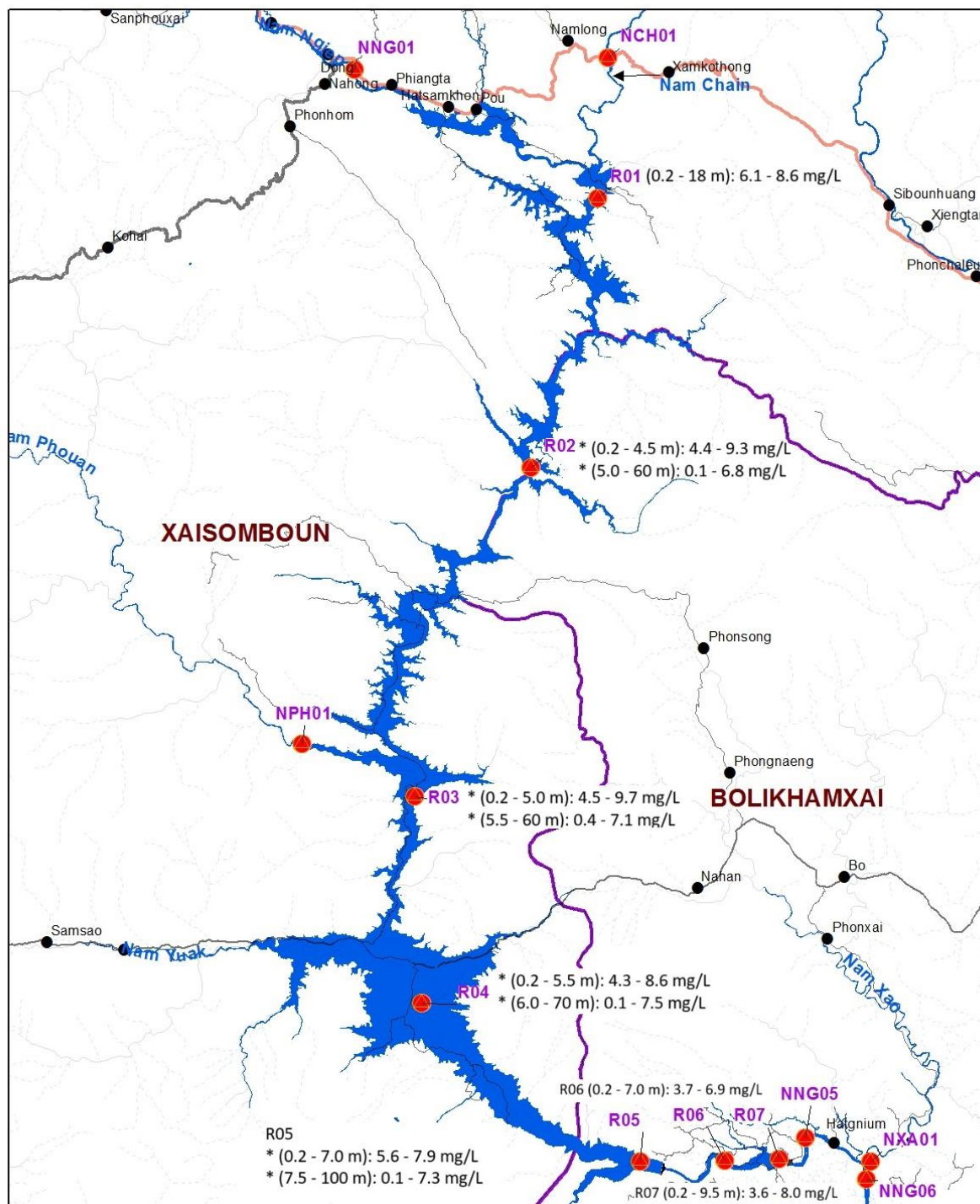


FIGURE 2.8-5: MEAN WATER TEMPERATURE AND DISSOLVED OXYGEN – DEPTH PROFILES IN THE MAIN RESERVOIR IMMEDIATELY UPSTREAM OF THE MAIN DAM (R05)

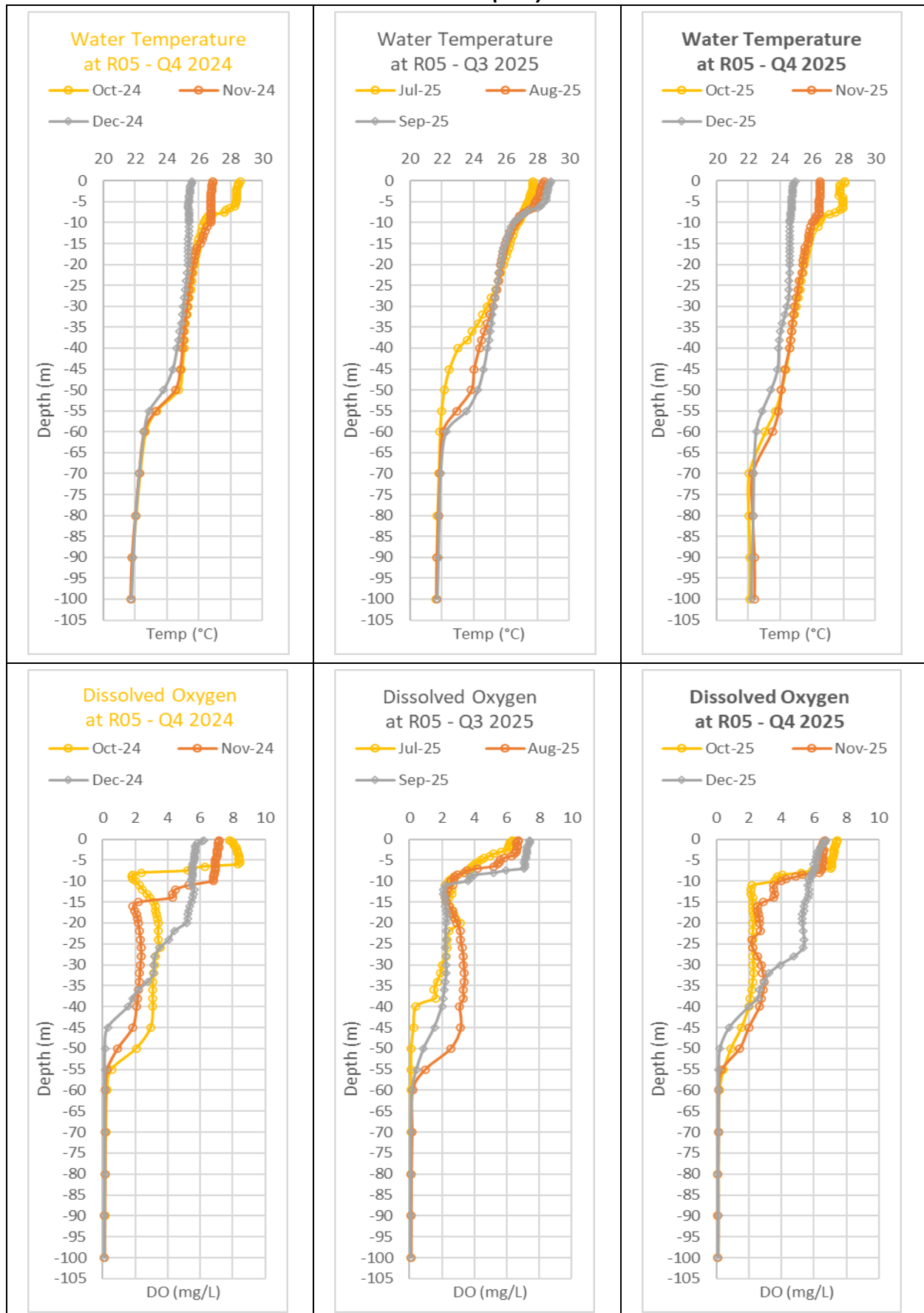


FIGURE 2.8-6: WATER TEMPERATURE AND DO DEPTH PROFILES IN THE MAIN RESERVOIR (R04 - R05), WITH POSITION OF INTAKE AT THE ACTUAL WATER LEVEL DURING SEPTEMBER 2018 – DECEMBER 2025

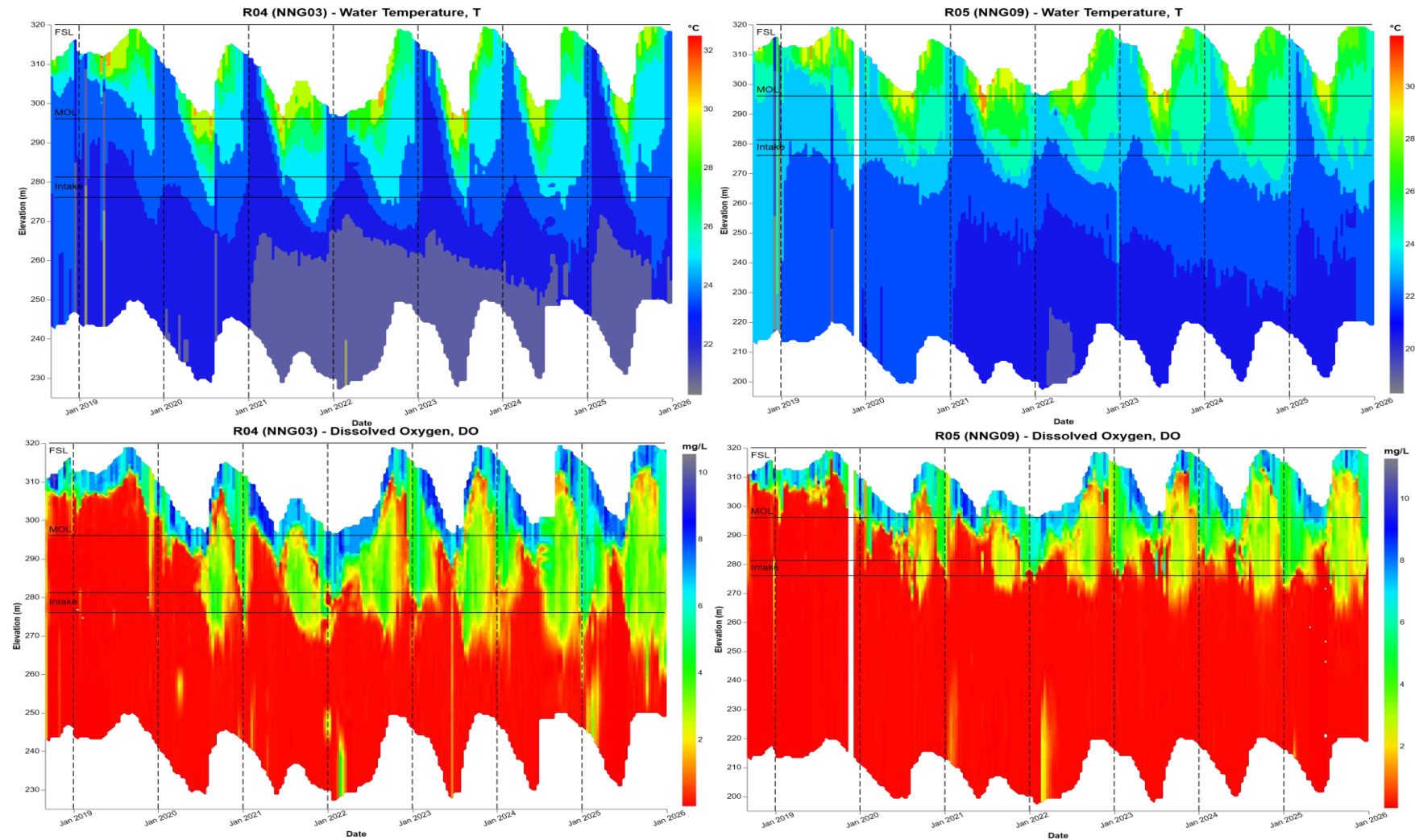


FIGURE 2.8-7: THE STRAIGHT-LINE GRAPH OF MONTHLY AVERAGED DO AND WATER TEMPERATURE AT R04 AND R05

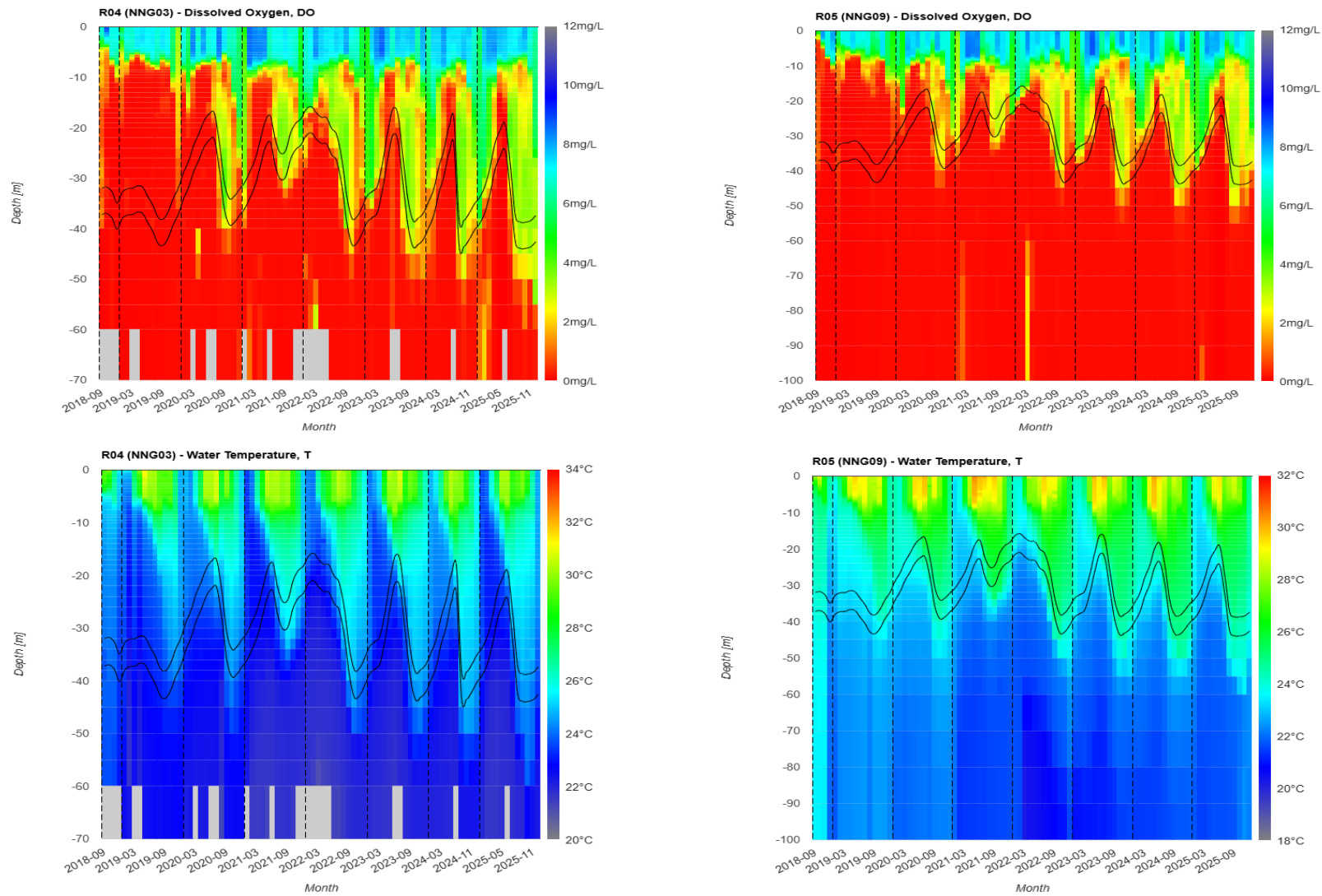


TABLE 2.8-1: DO (MG/L) RESULTS OF SURFACE WATER IN MAIN RESERVOIR, DO (MG/L) RESULTS OF R05 AT INTAKE DEPTH, RE-REGULATION RESERVOIR, NAM NGIEP AND ITS MAIN TRIBUTARIES MONITORED IN Q4 2025**(NATIONAL SURFACE WATER QUALITY STANDARD FOR DISSOLVED OXYGEN: ≥ 6 MG/L)**

Station Code	NNG01	R01	R02	R03	R04	R05 Intake	R05	R06	R07	NNG05	NNG06	NNG07	NNG08	NCH01	NPH01	NXA01	NHS01
9-Oct-25			8.2	9.08	8.54												
10-Oct-25						1.47	6.99	6.82	7.33								
14-Oct-25	7.43													8.32			
15-Oct-25		6.42	7.52	7.38													
16-Oct-25					7.66	1.54	7.91	5.56	7.98								
17-Oct-25										6.09	6.3	6.53	6.11			6.07	6.15
21-Oct-25		7.41	8.49	8.26	7.65												
22-Oct-25						1.88	7.41	4.38	4.99								
28-Oct-25		7.78	7.85	8.79	7.92												
29-Oct-25						1.25	7.4	4.35	4.98								
4-Nov-25	6.4													7.04			
5-Nov-25		8.19	7.84	7.88	7.15												
6-Nov-25						1.25	7.19	5.09	5.01								
7-Nov-25										5.18	5.44	6.45	7.07			6.82	6.56
11-Nov-25		7.85	8.4	7.69	7.39												
12-Nov-25						1.84	6.88	5.49	4.94								
18-Nov-25		7.69	7	8.16	7.05												
19-Nov-25						1.88	5.85	4.29	3.96								
26-Nov-25					6.18	2.97	6.71	4.97	5.2								

Station Code	NNG01	R01	R02	R03	R04	R05 Intake	R05	R06	R07	NNG05	NNG06	NNG07	NNG08	NCH01	NPH01	NXA01	NHS01
4-Dec-25		7.34	6.2	7.19	6.16												
5-Dec-25						3.1	6.1	5.55	5.72								
9-Dec-25	6.25													8.53			
10-Dec-25		8.01	6.66	6.28													
11-Dec-25					6.45	2.95	7.34	5.18	5.22								
12-Dec-25										4.79	4.49	6.41	6.16			6.69	6.49
17-Dec-25						1.52	6.77	4.97	5.6								
18-Dec-25		8.17	6.71	7.8	7.32												
23-Dec-25						0.39	6.85	4.96	5.21								
24-Dec-25		7.12	6.42	7.56	7.02												

Ammonia Nitrogen

In Q4 2025, Ammonia Nitrogen complied with the National Surface Water Quality Standard (<0.2 mg/L) in all monitored stations.

TABLE 2.8-2: AMMONIA NITROGEN (MG/L) RESULTS FOR THE SURFACE WATER IN NAM NGIEP AND ITS MAIN TRIBUTARIES MONITORED IN Q4 2025

(NATIONAL SURFACE WATER QUALITY STANDARD FOR AMMONIA NITROGEN: <0.2 MG/L)

Station Code	NN G01	R01	R02	R03	R04	R05	R06	R07	NN G05	NN G06	NN G07	NN G08	NC H01	NP H01	NX A01	NHS 01
14-Oct-25	<0.1												<0.1			
15-Oct-25		<0.1		<0.1												
16-Oct-25					<0.1	<0.1										
4-Nov-25	<0.1												<0.1			
5-Nov-25		<0.1		<0.1	<0.1											
6-Nov-25						<0.1										
09-Dec-25	<0.1												<0.1			
10-Dec-25		<0.1		<0.1												
11-Dec-25					<0.1	<0.1										

Biochemical Oxygen Demand (BOD₅)

Since 2014, the Biochemical Oxygen Demand (BOD₅) values in the Nam Ngiep River and its tributaries have generally been below the detection limit (< 1 mg/L). The results for Q4 2025 indicate that the BOD₅ levels are compliant with the standard at all stations.

In addition, NNP1PC continues to carefully compile and assess all monitoring data to determine if any additional water aeration measures may be necessary to improve the DO levels in Nam Ngiep River downstream the Re-regulation Dam.

TABLE 2.8-3: BOD₅ (MG/L) RESULTS FOR THE SURFACE WATER IN NAM NGIEP AND ITS MAIN TRIBUTARIES MONITORED IN Q4 2025**(NATIONAL SURFACE WATER QUALITY STANDARD FOR BOD₅: <1.5 MG/L)**

Station Code	NN G01	R01	R02	R03	R04	R05	R06	R07	NN G05	NN G06	NN G07	NN G08	NC H01	NPH 01	NXA 01	NHS 01
14-Oct-25	<1												<1			
15-Oct-25		<1		<1												
15-Oct-25 Bottom				4.4												
16-Oct-25					<1	<1	<1	<1								
16-Oct-25 Bottom					7.1	<1										
17-Oct-25									<1	<1	<1	<1			<1	<1
4-Nov-25	1.1												<1			
5-Nov-25		<1		<1	<1											
5-Nov-25 Bottom				<1	3.8											
6-Nov-25						<1	<1	<1								
6-Nov-25 Bottom						<1										
7-Nov-25									<1	<1	<1	<1			<1	<1
9-Dec-25	<1												<1			
10-Dec-25		<1		<1												
10-Dec-25 Bottom				<1												
11-Dec-25					<1	<1	<1	<1								
11-Dec-25 Bottom					<1	<1										
12-Dec-25									<1	<1	<1	<1			<1	<1

Chemical Oxygen Demand (COD)

The COD measurements in Q4 2025 are presented in **Table 2.8-4**.

TABLE 2.8-4: COD (MG/L) RESULTS FOR THE SURFACE WATER IN NAM NGIEP AND ITS MAIN TRIBUTARIES IN Q4 2025
(NATIONAL SURFACE WATER QUALITY STANDARD FOR COD: < 5 MG/L)

Station Code	NNG 01	R0 1	R0 2	R 03	R 04	R0 5	R06	R0 7	NNG 05	NNG 06	NN G07	NNG 08	NC H01	NPH 01	NX A01	NHS 01
14-Oct-25	26.2												18.6			
16-Oct-25							8.3	14.7								

Station Code	NNG 01	R0 1	R0 2	R 03	R 04	R0 5	R06	R0 7	NNG 05	NNG 06	NN G07	NNG 08	NC H01	NPH 01	NX A01	NHS 01
17-Oct-25									14.7	7.0	13.4	4.5			23.7	7.1
4-Nov-25	8.9												11.5			
6-Nov-25							12.8	10.2								
7-Nov-25									8.3	10.9	18.6	21.1			9.6	4.5
9-Dec-25	7.7												6.4			
11-Dec-25							11.5	12.8								
12-Dec-25									3.8	6.4	2.56	7.7			5.1	3.8

Faecal Coliform Bacteria

The results of the faecal coliform analyses in Q4 2025 are presented in **Table 2.8-5**.

During the Q4 2025, the surface water quality standard for Faecal coliform was complied with in all stations, except in NNG01 (October and November 2025) and NNG07, NNG08, NHS01, NCH01 and NXA01 (October 2025).

The data indicates that the concentrations of faecal coliform bacteria in the re-regulation reservoir (R06 and R07) and at R05 in the main reservoir are well below the surface water quality standard (and within typical standards for excellent inland bathing waters¹).

Overall, the data indicates that NNP1 is not causing any increase in faecal coliform bacterial neither in the re-regulation reservoir nor in Nam Ngiep downstream the re-regulation dam. On the contrary, the concentrations of faecal coliform bacteria typically increase from rather low levels at the stations closest to the re-regulation dam (NNG05 and NNG06) to rather high levels further downstream.

TABLE 2.8-5: FAECAL COLIFORMS (MPN/100 ML) RESULTS IN NAM NGIEP AND ITS MAIN TRIBUTARIES IN Q4 2025 (NATIONAL SURFACE WATER QUALITY STANDARD FOR TOTAL COLIFORMS: <1,000 MPN/100 ML)

Station Code	NNG 01	R 01	R 02	R 03	R 04	R 05	R 06	R 07	NNG 05	NNG 06	NNG 07	NNG 08	NCH 01	NPH 01	NXA 01	NHS 01
14-Oct-25	1,600												1,600			
16-Oct-25						23	130	170								
17-Oct-25									240	920	1,600	1,600			1,600	1,600
4-Nov-25	1,600												17			
6-Nov-25						2	5	17								
7-Nov-25									27	79	170	240			540	540
9-Dec-25	920												540			

¹ *E. Coli* < 500 cfu/100 mL, <https://environment.data.gov.uk/bwq/profiles/help-understanding-data.html>

Station Code	NNG 01	R 01	R 02	R 03	R 04	R 05	R 06	R 07	NNG 05	NNG 06	NNG 07	NNG 08	NCH 01	NPH 01	NXA 01	NHS 01
11-Dec-25						0	2	5								
12-Dec-25									33	40	34	27			34	2

Total Coliform Bacteria

The results of measurements for total coliform bacteria are presented in **Table 2.8-6**. The results indicate a similar pattern and same tendency as for faecal coliform bacteria. There were no exceedances of the National Surface Water Quality Standard (<5,000 MPN/100 mL) for total coliform bacteria.

TABLE 2.8-6: TOTAL COLIFORM (MPN/100 ML) RESULTS IN NAM NGIEP AND ITS MAIN TRIBUTARIES IN Q4 2025 (NATIONAL SURFACE WATER QUALITY STANDARD FOR TOTAL COLIFORMS: <5,000 MPN/100 ML)

Station Code	NNG 01	R 01	R 02	R 03	R 04	R 05	R 06	R 07	NNG 05	NNG 06	NNG 07	NNG 08	NCH 01	NPH 01	NXA 01	NHS 01
14-Oct-25	1,600												1,600			
16-Oct-25						33	350	1,600								
17-Oct-25									350	1,600	1,600	1,600			1,600	1,600
4-Nov-25	1,600												33			
6-Nov-25						5	8	26								
7-Nov-25									170	170	540	350			920	920
9-Dec-25	1,600												920			
11-Dec-25						0	130	33								
12-Dec-25									170	920	540	140			540	350

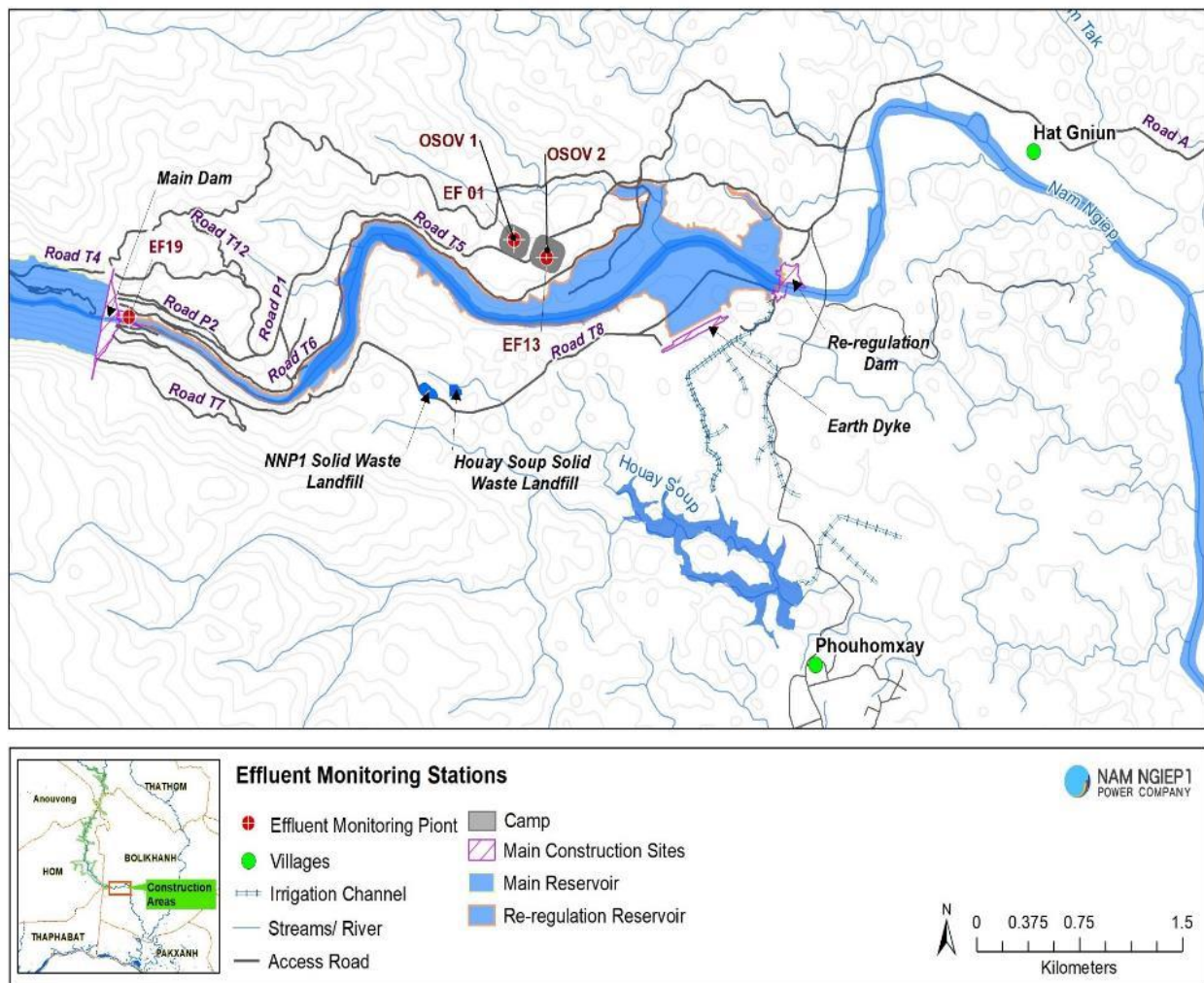
2.8.2 Compliance Monitoring of Effluents from Camps

A total of 03 sites discharged effluents in Q4 2025, including 02 camps (OSOV1 and OSOV2) and at the Wastewater Treatment System of the Main Powerhouse. The effluent monitoring location sites can be found in **Figure 2.8-8**.

The results are described in **Table 2.8-7** and the full data set is in **Appendix 5-2**.

The status of compliance as of 31 December 2025 can be summarized as follows:

- Non-compliance with total nitrogen for the wastewater treatment systems in the Main Powerhouse (EF19), OSOV1 Camp (EF01) and OSOV2 Camp (EF13);
- Non-compliance with total phosphorus at Main Powerhouse (EF19).

FIGURE 2.8-8: LOCATION OF EFFLUENT MONITORING POINTS**TABLE 2.8-7: RESULTS OF THE EFFLUENT WATER QUALITY MONITORING OF THE CAMPS IN Q4 2025 (NON-COMPLIANCE PARAMETERS ONLY)**

		Site Name	OSO V1	OSO V 2	Main Powerhouse
		Station Code	EF01	EF13	EF19
Date	Parameter (Unit)	Guideline in the CA			
13-Oct-25	Total Nitrogen (mg/L)	<10.0	7.0	10.0	45.0
04-Nov-25	Total Nitrogen (mg/L)	<10.0	9.0	16.0	50.0
17-Nov-25	Total Nitrogen (mg/L)	<10.0	14.2	9.0	38.0
03-Dec-25	Total Nitrogen (mg/L)	<10.0	17.0	16.0	45.0
15-Dec-25	Total Nitrogen (mg/L)	<10.0	9.0	14.0	39.0
13-Oct-25	Total Phosphorus (mg/L)	<2	0.68	0.3	5.9
04-Nov-25	Total Phosphorus (mg/L)	<2	0.82	0.8	5.0

		Site Name	OSOV1	OSOV 2	Main Powerhouse
		Station Code	EF01	EF13	EF19
Date	Parameter (Unit)	Guideline in the CA			
17-Nov-25	Total Phosphorus (mg/L)	<2	0.85	0.6	6.6
03-Dec-25	Total Phosphorus (mg/L)	<2	1.21	0.8	6.3
15-Dec-25	Total Phosphorus (mg/L)	<2	1.33	0.7	6.6
13-Oct-25	Total coliform (MPN/100 mL)	<400	350	240	79
04-Nov-25	Total coliform (MPN/100 mL)	<400	22	27	0
17-Nov-25	Total coliform (MPN/100 mL)	<400	170	23	0
03-Dec-25	Total coliform (MPN/100 mL)	<400	540	5	23
15-Dec-25	Total coliform (MPN/100 mL)	<400	140	240	240

TABLE 2.8-8: COMPLIANCE STATUS OF EFFLUENT DISCHARGE FROM THE CAMPS IN Q4-2025

Site	ID	WWTS	Key Non-Compliance Issues ² in Q4-2025	Corrective Actions
OSOV 1 (Owner's Site Office and Village)	EF01	- Septic tanks (kitchen and black water) and wetland (grey water), discharge: 70 m³/day. - The effluent from this site flows into the Re-regulation Reservoir.	- Total coliform (<400 MPN/100 mL): Non-compliance in 1 out of 1 sampling. Q4 mean 224 MPN/100 mL. - Total nitrogen (<10 mg/L): Non-compliance in 2 out of 5 samplings. Q4 mean 11.2 mg/L.	Continue closely monitoring the treatment system operation.
OSOV 2 (ESD Camp)	EF13	- Septic tanks (kitchen and black water) and SBR with chlorination system. - The effluent from this site is led into a ditch connected to the Re-regulation reservoir, however, due to low quantities of effluent, the liquid is absorbed in the soil before reaching the reservoir.	- Total nitrogen (<10 mg/L): Non-compliance in 4 out of 5 samplings. Q3 mean 13 mg/L. -	Continue closely monitoring the treatment system operation.
Main Powerhouse	EF19	- Septic tanks (grey and black water), biofilm tank and chlorination tank. - The effluent from this site flows into the tailrace of the Main Powerhouse and then into the Re-regulation Reservoir.	- Total nitrogen (<10 mg/L): Non-compliance in all 5 samplings. Q4 mean 43.4 mg/L. - Total Phosphorus (<2 mg/L): Non-compliance in all 5 samplings. Q4 mean 6.1 mg/L.	Continue closely monitoring the treatment system operation.

² The values in brackets indicate the applicable standard

2.8.3 Groundwater Quality Monitoring

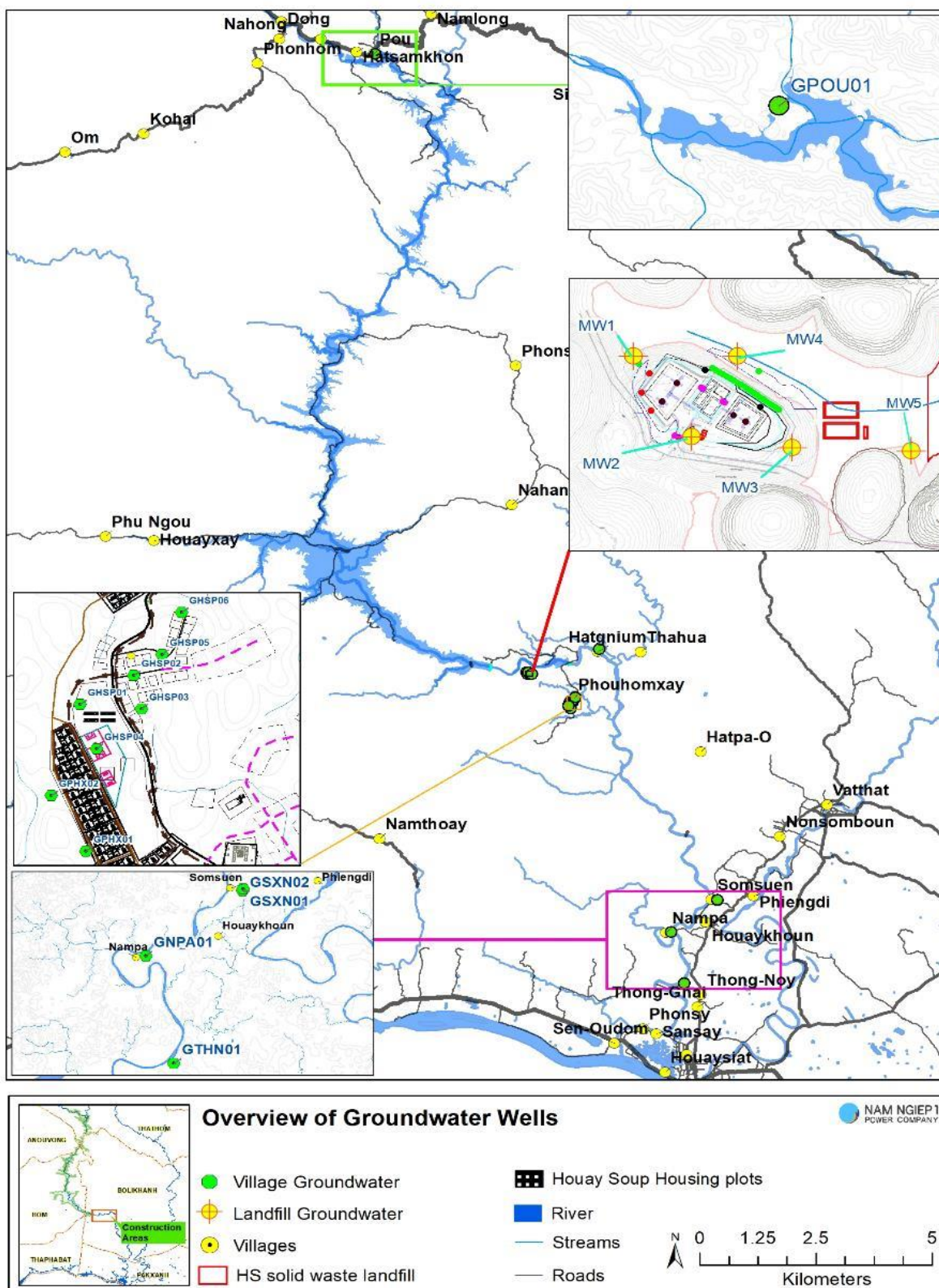
During Q4 2025, five boreholes at Somseun, Nam Pa and Thong Noy and Pou Villages (two boreholes) have been monitored for the following parameters:

- a. *Monthly*: pH, DO (%), DO (mg/L), Conductivity ($\mu\text{S}/\text{cm}$), Temperature ($^{\circ}\text{C}$), Turbidity (NTU), Faecal Coliform (MPN/100 mL) and *E. coli* (MPN/100 mL);
- b. *Annually (Not This Quarter)*: Arsenic (mg/L), Total Iron (mg/L), Magnesium (mg/L), Fluoride (mg/L), Total Hardness (mg/L), Nitrate (mg/L), Nitrite (mg/L) and Lead (mg/L).

Note that the water pumps of two boreholes (GPHX01 and GPHX02) in Phouhomxay Village were out of operation as they were broken and Social Management Office (SMO) informed the EMO that these two boreholes will no longer be used, as villagers rely on gravity-fed water supply as their primary source. Therefore, the GPHX01 and GPHX02 have been removed from EMO's routine monitoring since January 2025.

The groundwater sampling locations are displayed in **Figure 2.8-9** and the groundwater monitoring data is presented in **Appendix 5-3**.

FIGURE 2.8-9: GROUNDWATER SAMPLING LOCATIONS



Key findings from the groundwater quality monitoring are summarized as the follows:

Thong Noy Village: all monitored parameters complied with the standard, except pH (in October 2025), faecal coliform and *E. coli* bacteria.

Somseun Village: all monitored parameters complied with the standard, except pH, faecal coliform and *E. coli* bacteria in October 2025.

Nampa Village: all monitored parameters complied with the standard, except faecal coliform and *E. coli* bacteria in October and November 2025.

Pou Village: all monitored parameters complied with the standard, except faecal coliform and *E. coli* bacteria.

The villagers were advised to boil water before drinking. This advice is in accordance with the Law on Hygiene, Disease Prevention and Health Promotion No 01/NA of 10 April 2001, which states that domestic water supply for daily use is not required to be readily drinkable but would normally have to be boiled or otherwise treated before it would be suitable for drinking.

There are two types of water supply systems in Lao PDR:

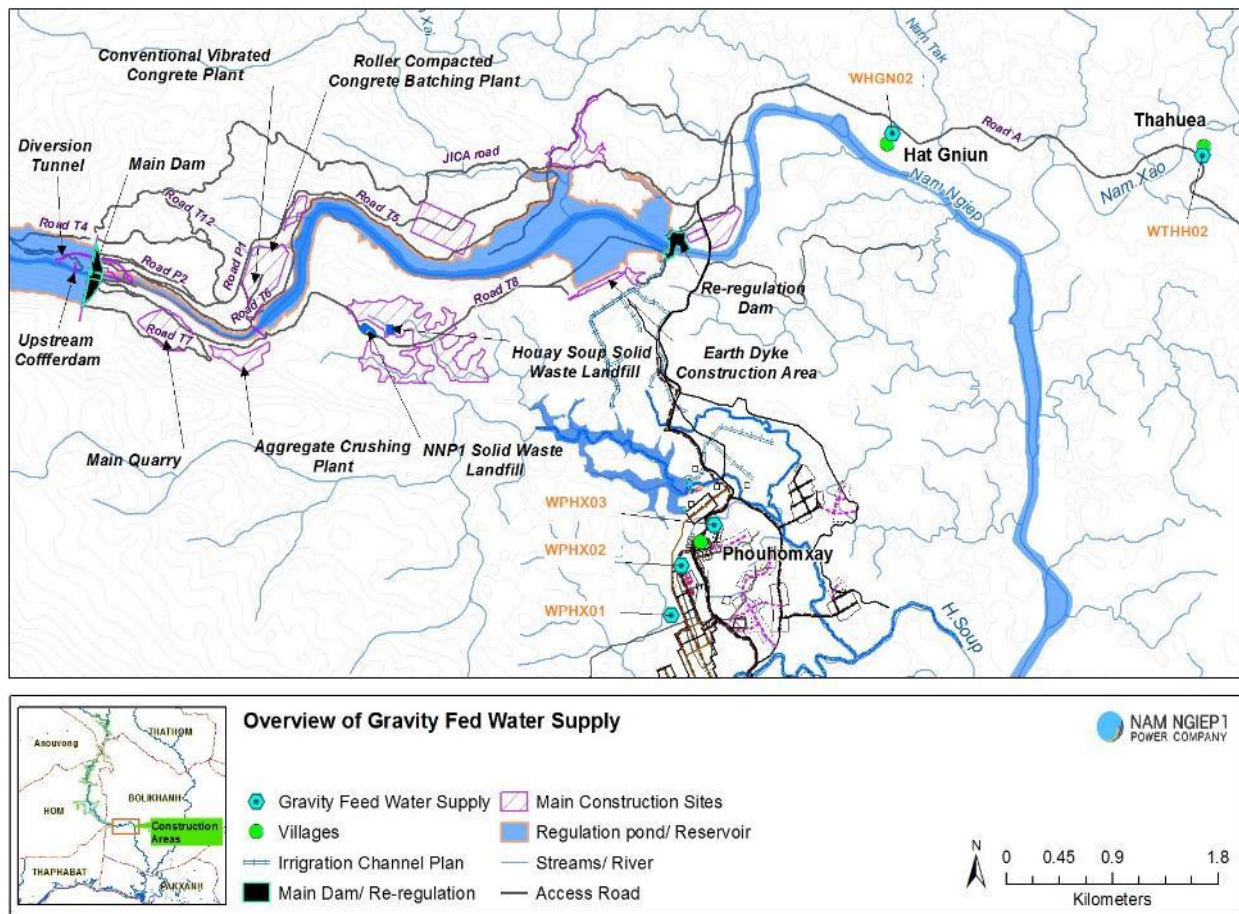
- (A) **Nam Papa systems (water supply)** – water from natural water sources that has gone through a treatment process to become clean and safe water in compliance with the drinking water quality standards. These systems are managed by the Department of Water Supply, Ministry of Public Works and Transport; and
- (B) **Nam Sa-at Systems (domestic water supply)** – provide water to rural areas that are not connected to Nam Papa systems. Nam Sa-at systems include gravity fed systems and boreholes with motorised pumps or hand pumps. These systems are managed by the Centre for Environmental Health and Water Supply (Nam Sa-at) under the Department of Hygiene and Health Promotion, Ministry of Health.

The community water supply systems related to the NNP1 hydropower project are under Nam Sa-at system with the monitoring requirements identify in the Minister's Decision on the Water Quality Standard Management for Drinking and Domestic Use, No. 561/MoH dated 27 February 2014.

The issue of bacterial contamination in the communities' water supply has been investigated by ESD team together with the respective local authorities and the villagers to find the likely root causes. A series of actions have been taken to prevent the contamination according to the Water Safety Plans (WSP); however, the Project, Nam Sa-at (GOL) and the villagers considered that disinfection treatment processes (e.g., chlorination, ceramic filtration) would not be sustainable and cost effective in a long run. It is well understood and agreed with the villagers that the water shall be boiled before drinking as mentioned above. It is also noted that boiling of water from domestic water supply (Nam Sa-at) systems before drinking is a general practice in the rural areas of Lao PDR.

2.8.4 Gravity Fed Water Supply (GFWS) Monitoring

The monitoring of the GFWS aims to assess the quality of water that is being used for bathing and washing by villagers at Hat Gniun, Thahuea and Phouhomxay villages. The gravity fed water supply system at Phouhomxay Village has been in use since December 2017.

FIGURE 2.8-10: OVERVIEW OF GRAVITY FED WATER SUPPLY

Water samples were taken from the taps for analysis during the reported period and selected results are shown in **Table 2.8-9**. The full set of data is presented in **Appendix 5-4**.

TABLE 2.8-9: THE GFWS MONITORING RESULT IN Q4 2025

Date	Parameter (Unit)	Site Name	Tha Heua Village	Hat Gnuin Village	Phouhomxay Village	
		Station	WTHH02	WHGN02	WPHX02	WPHX03
		Guideline				
20-Oct-25	Faecal Coliform (MPN/100 mL)	0	27	17	39	17
13-Nov-25		0	49	49	23	23
22-Dec-25		0	7.8	13	130	49
20-Oct-25	E. Coli Bacteria (MPN/100 mL)	0	29	17	39	17
13-Nov-25		0	22	22	4.5	4.5
22-Dec-25		0	7.8	13	130	49

Thahuea Village (WTHH02): all parameters complied with the standard, except for faecal coliform and *E. coli*.

Hat Gniun Village (WHGN02): all parameters complied with the standard, except for faecal coliform and *E. coli*.

Phouhomxay Village (WPHX02-tap water at primary school; and **WPHX03**-tap water at a villager's house): all parameters complied with the standard, except faecal coliform and *E. coli* in the Q4 2025 samples. Note here that during sampling of tap water in Phouhomxay Village, surface water from Houay Soup Stream was still supplied into the system.

As observed in the field during water sample collection, livestock is roaming around in the water intake areas which may have contributed to the presence of Faecal Coliform Bacteria and *E. coli* in GFS samples. According to the 2019 site condition survey, it is not feasible to fence off the upstream water course due to cattle having access from all directions along the stream. The villagers generally use tap water for washing and cleaning. They were informed about the monitoring results and were advised to prevent the bacterial contamination by removing livestock from the intake areas and boil water before drinking. The advice to boil the water is in accordance with the Law on Hygiene, Disease Prevention and Health Promotion No 01/NA of 10 April 2001, which states that domestic water supply for daily use is not required to be readily drinkable but would normally have to be boiled or otherwise treated before it would be suitable for drinking.

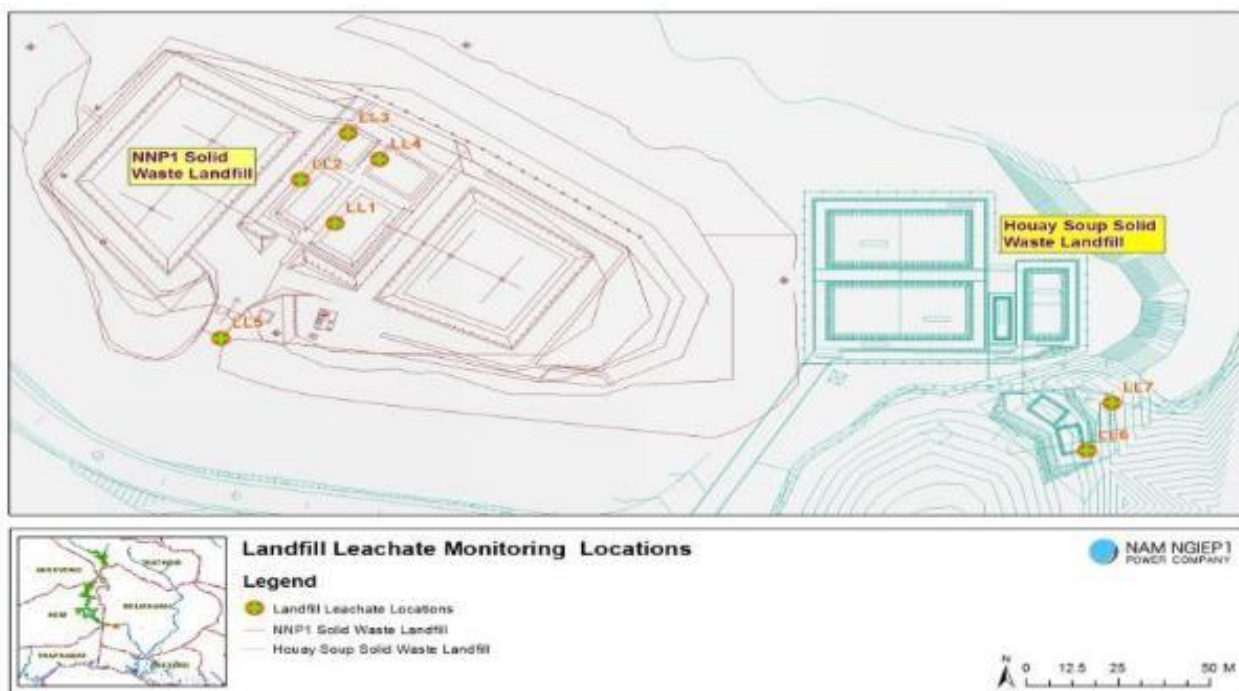
As mentioned in **section 2.8.3**, the gravity fed system is a domestic water supply managed by the Centre for Environmental Health and Water Supply (Nam Sa-at) under the Department of Hygiene and Health Promotion, Ministry of Health. It is well understood and agreed with the villagers that the water shall be boiled before drinking.

For Phouhomxay Village, the villagers requested NNP1PC and the District Water Supply Office during a meeting in March 2022 to reuse the Gravity Fed System (GFS) as a main supply and reserve the existing ground water supply system for times when the GFS would have to be repaired. The water from the gravity fed system needs to be boiled before drinking but may be used directly for other purposes such as washing, feeding animals, watering the garden, and other households' activities.

In addition, to ensure sufficient water quantity, the ESD will work with the District Water Supply Office to improve the water intake of the GFS under NNP1PC's Corporate Social Responsibility (CSR). For the presence of bacteria, the community confirmed that they will boil water before drinking. It is also noted that boiling domestic water supply (Nam Sa-at) before drinking is a general practice in the rural areas of Lao PDR.

2.8.5 Landfill Leachate Monitoring

The landfill leachate treatment systems at NNP1 Project landfill and Houay Soup landfill are monitored to control the functioning of the treatment process and ensure compliance with effluent standards. The monitoring locations are presented in the **Figure 2.8-11**.

FIGURE 2.8-11: LANDFILL LEACHATE MONITORING LOCATION

The monitoring results in Q4 2025 indicate compliance with the applicable standards for all monitored parameters for both NNP1 Project Landfill leachate and Houay Soup Landfill leachate. The monitoring data can be found in **Appendix 5-5**.

2.8.6 Water Quality Compliance Monitoring

The water quality non-compliance issues in Q4 2025 are summarized in **Table 2.8-10**.

TABLE 2.8-10: NON-COMPLIANCES RELATING TO WATER QUALITY MONITORING IN Q4 2025

No	Non-compliance Issues	Corrective Actions	Status
1	During turbine discharges (November and December 2025), Dissolved Oxygen (DO) in the Nam Ngiep River downstream for the first 14.6 Km from the Re-regulation Dam was lower than the National Surface Water Quality Standard (6 mg/L)	- NNP1PC has continued implementing the water quality monitoring program and discussed the results with the LTA during the May 2023 visit; - LTA recommended to maintain the monitoring program, and concluded that other measures aiming at an improvement, like e.g. the possibility of artificial re-aeration of the water in the re-regulation pond for increasing oxygen content, are not required.	- Closely monitoring
2	Effluents discharged from the Wastewater	In October, November and December 2025, EMO, ADM and TD conducted a monthly joint	- Closely monitoring

No	Non-compliance Issues	Corrective Actions	Status
	Treatment Systems (WWTS) at OSOV1, OSOV2 and the Main Dam exceeded the National Effluent Standard Guideline for some parameters	inspection for the operation and maintenance of the WWTS: - All 17 septic tanks and air blowers at OSOV1 were checked on monthly basis by the ADM staff and they are functioning properly. The sludge in these tanks are cleaned up yearly. - Wetland maintenance at OSOV1 including weeding and replacing dead reeds were implemented. - The malfunction in OSOV2's WWTS control panel was replaced with new control panel in end of September 2025. - Closely monitor the residual chlorine content and chlorination dosage adjustment for the effluents of the Main Powerhouse WWTS.	the system operation and maintenance.
3	Groundwater quality monitored for the communities (Somsuen, Pou, Nam Pa and Thong Noy Villages) were not in compliance with the National Groundwater Quality Standard for drinking purpose on Faecal Coliform and <i>E.coli</i> parameters	- A full inspection of the water supply systems in Som Seun, Nam Pa and Thong Noy Village was conducted in September 2020 by NNP1PC team including consultations with the Village Water Use Committee (VWUC) and also interviews with some consumers (detailed in Q4 2020 Report). - Potential contamination sources of coliform were identified and recommendations on operation and maintenance of the water supply system were provided to the involved parties. - The villagers were informed about the monitoring results and were advised to boil water before drinking in accordance with the Law on Hygiene, Disease Prevention and Health Promotion No 01/NA of 10 April 2001, which states that domestic water supply for daily use is not required to be readily drinkable but would normally have to be boiled or otherwise treated before it would be suitable for drinking.	- The villagers were advised and encouraged to boil water before drinking. - Continue to monitor.
4	Gravity Fed Water Supply monitored for the communities (Thahuea, Hat Gniun,	- Site observations were conducted during the routine water sampling; it was observed that livestock was roaming around the water intake areas and faeces from livestock	- The villagers generally use tap water for washing and

No	Non-compliance Issues	Corrective Actions	Status
	and Phouhomxay Village) were not complied with the National Drinking Water Quality Standard on Faecal Coliform and <i>E.coli</i> parameters.	and birds may contribute to the presence of bacterial contamination. It is not feasible to fence off the upstream water course due to cattle having access from all directions along the stream. The villagers were informed about the monitoring results and were advised to boil water before drinking.	cleaning, and were encouraged to boil water before drinking. - Continue monitoring.

3 WATERSHED AND BIODIVERSITY MANAGEMENT

3.1 WATERSHED MANAGEMENT

3.1.1 Implementation of Watershed Management Plan

3.1.1.1 Xaysomboun Watershed and Reservoir Protection Office (WRPO)

a) Fishery Co-Management Plan (FCMP):

In Q4 2025, Xaysomboun Provincial Assembly requested XSB WRPO to conduct consultations with relevant district offices and village representatives on the Fishery CO-Management Regulation (FCMR), and adopt organization structure aligned with current GOL policies. The XSB WRPO subsequently conducted consultations in the 12 watershed villages including 2 watershed villages in Hom District (PhouNgou and Houayxai villages), 3 watershed villages in Anouvong District (Thamlo, Om and Korhai villages), and 7 watershed villages in Thathom District (Pou, Naxong, Nahong, Thaviengxay, Phonhom, Hatsamkhone and Phiengta villages). The consultation outcomes were submitted to the Provincial Assembly for final review and approval of the FCMR.

b) NNP1 Watershed TPZs Encroachment Resolution

In Q4 2025, Anouvong District Governor and the Agriculture and Environment Office (DAEO) collaborated with key offices and met with village authorities and residents in Om, Thamlo, Korhai and AoNeua villages to gather land data. The land data collection focused on the 39 households who had constructed an access road to their grassland within the NNP1 TPZ1 area. The field verification was completed and the report submitted to Anouvong District Authority and XSB PG for acknowledgement and further directive guidance.

In Q4 2025, Hom District Governor and DAEO finished an outreach campaign in two watershed village (PhouNgou and Houayxay villages) and six adjacent watershed villages (Namkhien, Homthat, Phalavaek, Nampong, Phoukatha and Namthouay villages).

 Hom District Governor and DAEO disseminated laws, decrees and regulations on forest encroachment and illegal wildlife to key offices 21 October 2025	 Hom District Governor conducted outreach campaign in PhouNgou and Houayxay village on 19 November 2025
 Anouvong District Governor and key offices conducted land information collection 28-31 October 2025	 Field verification by Anouvong key offices on 4 November 2025

c) Construction of Reservoir Checkpoints:

In Q4 2025, NNP1 EMO met with the deputy head of XSB Provincial Department of Agriculture and Environment Office (PDAE) and the head of XSB WRPO to discuss the prolonged delay in construction of the downstream reservoir checkpoint. The head of XSB PDAE confirmed that the contractor will complete construction before end of 2025. However, as of the end of 2025, there is no progress and no reason for the continued delay has been provided.

d) Patrolling:

In Q4 2025, XSB WRPO resumed reservoir patrolling and staff deployment to the two reservoir checkpoints including 2 forest inspections staffs, 2 police officers and 2 soldiers. At the downstream site where construction remains unfinished, staff operated from a temporary tent.

3.1.1.2 Bolikhamxay Watershed and Reservoir Protection Office (WRPO)

In Q4 2025, BLX WRPO held a monthly meeting to discuss challenges and they resumed forest and reservoir patrols within the NNP1 watershed TPZ and reservoir after receiving funds from the Environment and Forest Protection Fund (EFPF), Ministry of Agriculture and Environment (MOAE).

3.1.1.3 NNP1PC EMO

In Q4 2025, EMO in collaboration with Hom District Agriculture and Environment Office (DAEO) and cattle production groups from PhouNgou and Houayxay villages organized a cattle knowledge exchange in Xangthong District of Vientiane Capital. The knowledge exchange topics included disease control, vaccination, nutrition, grazing management and fattening techniques.

Additionally, EMO collaborated with Environment and Forestry Protection Fund (EFPF), Ministry of Agriculture and Environment (MOAE) and conducted a workshop on the approved NNP1 Financial Manual Management (FMM) for XSB and BLX WRPOs and BOMU. The event was co-chaired by the Deputy Head of EFPF-MOAE and XSB PAEO, with 23 participants from the EFPF, MoAE, XSB and BLX WRPOs and BOMU and NNP1 EMO.

Hom and Thathom District Agriculture and Environment Offices (DAEOs) in collaboration with the Xaysomboun Development Fund provided training on business plan development and loan applications. The training targeted pineapple production groups in PhouNgou and Houayxay villages and to handicraft production groups in Nahong, Phonhom and Thaviengxay villages. The training topics covered fund request procedures, loan requirements and repayment planning.

EMO also collaborated with Thathom District Trading and Commercial Office (DTCO) on a handicraft production knowledge exchange event with representatives from Nahong, Phonhom and Thaviengxay villages. The event was held in Phonmi and Nonsavang villages, Viengkham District of Vientiane Province, and the knowledge exchange focused on production techniques and strengthening market networks.



Cattle knowledge exchange in Xangthong district of Vientiane Capital on 23 October 2025



NNP1 FMM workshop training on 4-5 December 2025



Training on writing business development and loan application in Hom and Thathom Districts on 4 and 12 December 2025



Lesson sharing exchange on handicraft production on 16-18 December 2025

3.1.2 Preparation of Annual Implementation Plan (AIP)

TABLE 3.1-1 provides an overview of the progress in preparing the Annual Implementation Plans (AIP) for 2026 by Xaysomboun WRPO and Bolikhamxay WRPO and highlights of fund preparation, approvals, and transfer status.

TABLE 3.1-1 ANNUAL IMPLEMENTATION PLAN PREPARATION STATUS

Watershed and Reservoir Protection Office (WRPO)	Preparation of Annual Implementation Plan (AIP) 2026
Xaysomboun WRPO	The remaining budget from the previous AIPs has been allocated for outreach and field inspection activities implemented by Hom, Thathom and Anouvong Districts for 2025. Preparation of AIP 2026 will begin once XSB WRPO submits the financial report for the October–December 2025 implementation period, in line with the Financial Management Manual (FMM).
Bolikhamxay WRPO	Preparation of AIP 2026 began in mid-November 2025 and was jointly reviewed by EMO, BSP-WCS, and BLX WRPO, with minor revisions incorporated. The plan is expected to be shared with ADB and IAP for final review by the end of Q1 2026.

3.2 BIODIVERSITY OFFSET MANAGEMENT

3.2.1 Implementation of Biodiversity Offset Management Plan

Progresses on the implementation of activities by component in Q4 2025 are described as below:

a. Component 1 - Spatial Planning and Regulation

BSP-WCS submitted the revised Participatory Land Use Plan (PLUP) for Phonmeung and Sopkhone villages, Xaychamphone district, to NNP1-EMO and BOMU on 30 December 2025. The PLUPs are currently under review by NNP1-EMO and BOMU, and expected to be finalized in January 2026.

b. Component 2 - Law Enforcement

There were no forest patrols in Q4 2025 due to delays in the receipt of the NC-NX 2025 Annual Implementation Plan (AIP) funds from the National Treasury, Ministry of Finance. However, the patrol teams conducted the patrol sub-stations guarding and access controls in October, November and December 2025.

c. Component 4 - Conservation linked livelihood

Community Conservation Agreement (CCA): The CCAs were finalized and signed by village authorities, BOMU, the Viengthong and Xaychamphone District Agriculture and Environment Offices (DAEOs), and the District Governors. Training for CCA committees and the first payment of funds are scheduled for January and February 2026, respectively.

Village Fish Conservation Zone (FCZ): The agreements and regulations for the FCZs in all six NC–NX villages were finalized and signed by village authorities, BOMU, the Viengthong and Xaychamphone DAEOs, and the District Governors. Training for FCZ committees and the installation of signage are scheduled for January 2026.

Community Development Plan (CDP): Following recommendations from ADB and LTA Social in April 2025, BOMU, the Viengthong and Xaychamphone DAEs and NNP1-EMO conducted a review of CDP activities in six NC-NX villages from 9 to 18 December 2025. List of the proposed activities by the villages are presented in **Table 3.2-1**.

Table 3.2-1 List of activities proposed by villages

No.	Activity	Viengthong			Xaychamphone			Total	Remark
		NT	NG	VP	PM	MC	SK		
1	Technical support on poultry raising	3	34	21	18	20	14	110	
2	Technical support on the rice production improvement	7	39	5	23	13	13	100	
3	Pipeline for carrying water to paddy fields	11	1	37	19	1	0	69	New
4	Technical support on cattle raising	0	39	26	0	0	0	65	
5	Technical support on pigs raising	0	20	6	15	11	8	60	
6	Technical support on fruit tree plantation	7	2	0	13	3	11	36	
7	Technical support on food preservation	7	0	1	8	3	6	25	
8	Technical support on rubber plantation	0	0	19	0	1	0	20	New
9	Technical support on maize planting	16	1	0	0	1	0	18	New
10	Technical support on bee keeping	0	0	0	7	8	0	15	
11	Technical support on fish aquaculture	0	0	4	0	11	0	15	New
12	Technical support on mushroom production	0	0	0	0	8	0	8	New
13	Technical support on goat raising	0	0	2	0	5	0	7	
14	Steel nets for making dike to carry water to paddy fields	0	0	0	5	0	0	5	New
15	Technical support on cucumber production	0	0	0	0	5	0	5	New
16	Technical support on Ranaculture	0	0	0	0	4	0	4	New
17	Technical support on wasp keeping	0	0	0	0	2	0	2	New
18	Technical support on vegetable production	0	0	0	0	1	0	1	
Number of families interested in CDP activities:		51	136	121	108	97	52		
Total number of families in the village:		68	179	160	111	105	85		

Note: NT refers to Natan, NG to Na Ghang, VP to Vangphieng, PM to Phonmeung, MC to Meungcham, and SK to Sopkhone.

The list of proposed activities will be further discussed and agreed with BOMU, DAEs, BSP-WCS, and other relevant offices. The activities will be considered based on budget availability and cross-checked against those supported by other projects to avoid duplication. Section 5 of the CDP will be updated accordingly once the activities are finalized.



CDP activities review in Vangphieng village



CDP activities review in Na Gngang village



CDP activities review in Natan village



CDP activities review in Phonmeung village



CDP activities review in Meungcham village



CDP activities review in Sopkhone village

d. Component 5 - Coordination and collaboration

Bolikhamxay PDAE, BOMU, the Viengthong and Xaychamphone District Governors and DAEOs conducted an exchange visit to Pu Mat National Park, Vietnam from 7-9 December 2025, to strengthen the collaboration between the two parties regarding NC-NX Offset Site and Pu Mat National Park management. The two parties agreed to strengthen cooperation in forest protection and biodiversity conservation through regular information exchange, sharing of technical experience, and mutual support in the use of equipment, management tools, and

research methods. The parties will also collaborate with border military forces to conduct joint patrols at least once per year to prevent illegal hunting and wildlife trade along the shared border. The Save Vietnam's Wildlife Organization agreed to provide support to NC-NX on some equipment required for the biodiversity research and protection. In addition, both parties agreed to designate representatives for annual exchange visits to share lessons learned in forest and biodiversity management.



3.2.2 NC-NX AIP2025 fund disbursement

NNP1PC disbursed a total amount of 5,708,907,000 LAK (CA: 2,783,061,000 LAK and>NNL: 2,925,846,000 LAK) to the bank account of the Environment and Forest Protection Fund, Ministry of Agriculture and Environment on 17 September 2025. BOMU received the amount from the National Treasury, Ministry of Finance on 9 December 2025.

3.2.3 The Wind Power Project

According to unofficial information reported by BOMU and local villagers, and verified by>NNP1-EMO through satellite imagery, the project has installed a total of nine anemometer stations. Of these, four stations are located within the NC-NX Total Protection Zone (TPZ), two stations are within the Controlled Use Zone (CUZ), and three stations are situated outside but in close proximity to the NC-NX boundary. Installation activities are expected to continue.

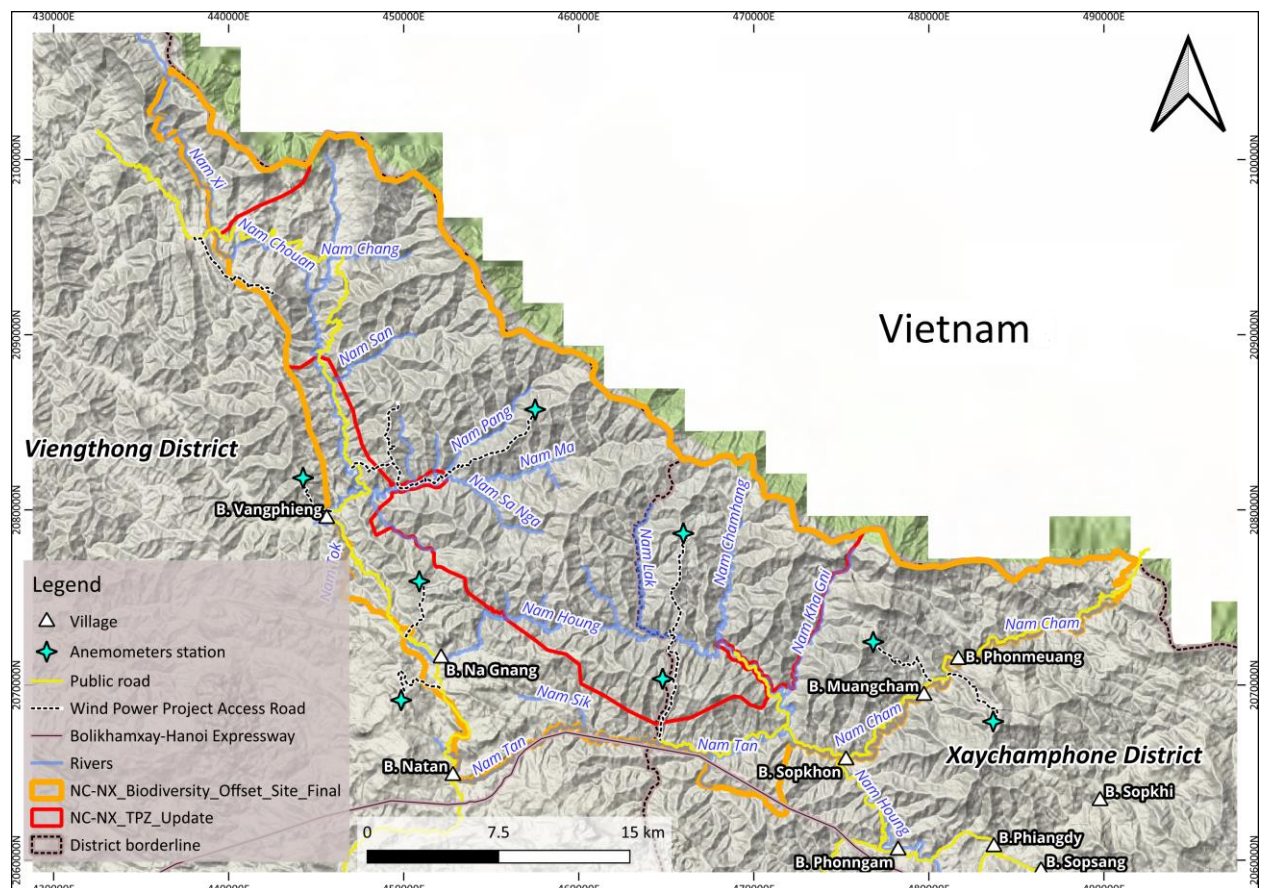


Figure 3.2-1 Map illustrating the locations of the installed anemometer stations within and nearby the NC-NX area

3.2.4 Field observation of the wind power project in Nam Chat-Nam Pan (NC-NP) proposed National Park

NNP1-EMO conducted an initial biodiversity impact assessment in the NC-NP on 13 November 2025.

to support discussions on additional biodiversity offset measures as may be required to comply with ADB safeguard requirements. Findings of the field assessment are as follows:

- Road construction (6–8 m wide with 30–40 m cleared on each side) has significantly removed vegetation, reduced wildlife habitat and disrupted wildlife movement.
- Road construction changed drainage patterns, causing erosion or water pooling that may affect nearby aquatic ecosystems.
- Turbine foundations (each covering around one hectare) contribute to further habitat loss and pose risks to bird species due to noise and collision.
- Although two checkpoints have been established to control access, the team observed ongoing unauthorized activities such as hunting, fishing, NTFP collection, and small-scale gold extraction, indicating weak enforcement.

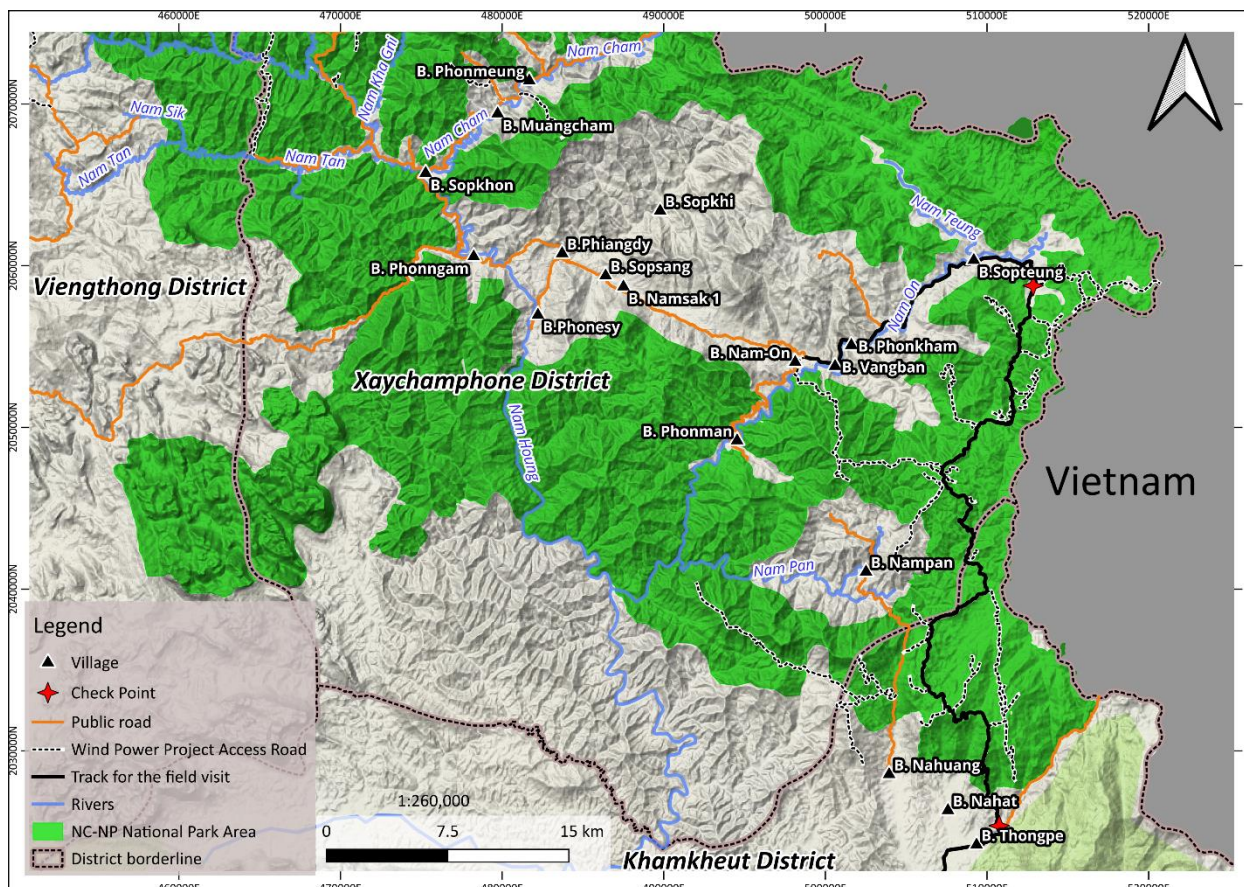


Figure 3.2-2 Map of the wind power project's development footprint overlaid with the NC-NP proposed National Park

4 FISHERY MONITORING

Two species groups and three species dominated the fish catch by weight in Q3 2025 as listed in **Table 4-1**. All species are classified as Least Concern (LC) according to the IUCN Red List of Threatened Species¹ and *Oreochromis niloticus* is an exotic species. The last in-house fisheries monitoring was carried out in November 2025, and the Q3 results presented here are from the final reporting cycle completed by the in-house team. The October and November 2025 monitoring data will be part of the regular biennial fisheries management reports to be prepared by external consultants.

TABLE 4-1: FISH SPECIES DOMINATING THE FISH CATCH IN Q3 2025

Species	Lao Name	Fish Catch (kg)	IUCN Red List Classification
<i>Oreochromis niloticus</i>	ປານິນ	800	LC (Exotic)
<i>Hampala dispar</i> , <i>Hampala macrolepidota</i>	ປາສຸດ	387.3	LC
<i>Cyprinus carpio</i>	ປາໄນ	240	LC (exotic)
<i>Poropuntius normani</i> , <i>Poropuntius laoensis</i> , <i>Poropuntius carinatus</i>	ປາຈາດ	264.4	LC
<i>Clarias batrachus</i>	ປາດຸກ	115.3	LC

The recorded catch of Threatened species (IUCN Red List classification) in Q3 2025 are presented in **Table 4-2**. The list includes three species which are classified as Vulnerable (VU).

TABLE 4-2: THREATENED SPECIES OF Q3 2025 FISH CATCH

Species	Lao Name	Fish Catch (kg)	IUCN Red List Classification
<i>Scaphognathops bandanensis</i>	ປາປ້ນ/ປາວຽນໄຟ	65.1	VU
<i>Tor sinensis</i>	ປາແດງ	17.8	VU

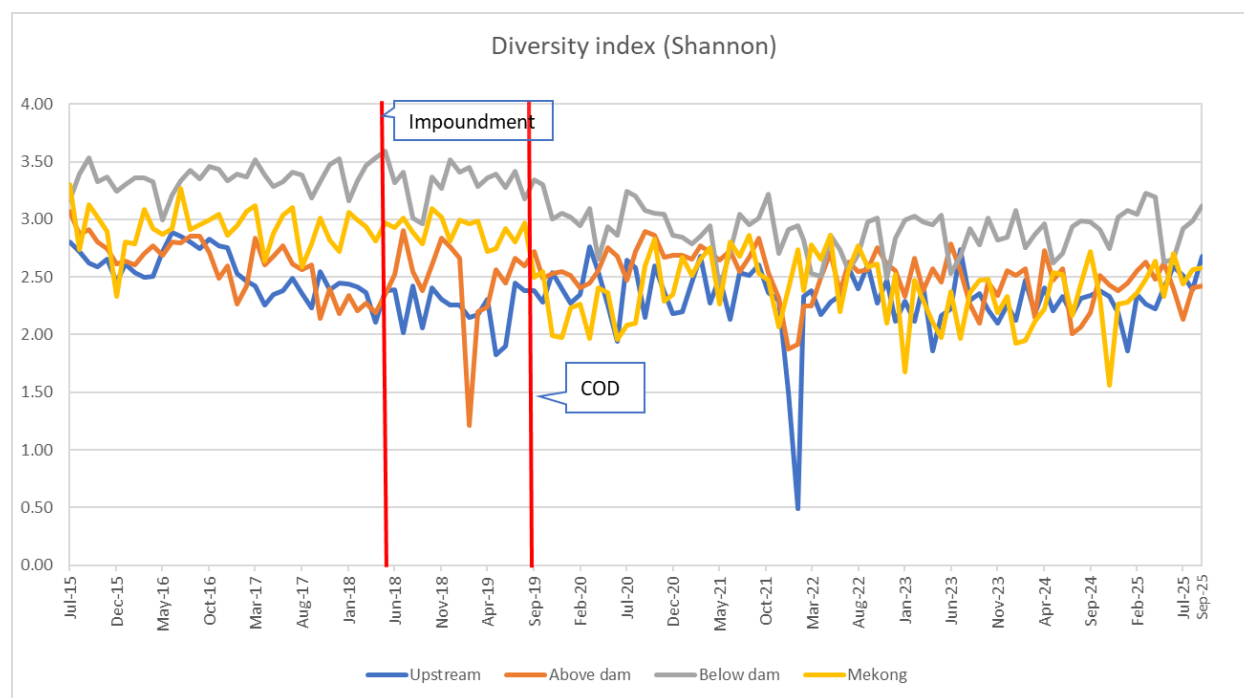
Species abundance and occurrence is based on the 7-day reported catch from the DCL survey in Q3 2025. The catch is divided in 4 areas including upstream, above the main dam³, below the main dam and Mekong area. Main biodiversity indicators in Q3 2025 for upstream, above dam, below dam and Mekong area are presented in **Table 4-3** and the Shannon biodiversity index has been calculated (the higher the value, the higher the diversity of species).

³ Above dam includes lower reservoir and upper reservoir zones.

TABLE 4-3: MAIN BIODIVERSITY INDICATORS FOR Q3 2025

Biodiversity Indicators	Mekong	Below dam	Above dam	Upstream
Total species and groups	34	51	38	18
Single species	29	36	26	11
Species groups	5	15	12	7
Top 15 species (% total catch weight)	91.20%	77.56%	90.18%	98.34%
Proportion for species groups	25.21%	48.37%	27.29%	45.28%
Diversity index (Shannon)	2.7376	3.1630	2.5153	2.4924

Figure 4-1 shows fish diversity index (Shannon) for upstream, above dam, below dam and Mekong area from July 2015 to September 2025.

**FIGURE 4-1: FISH DIVERSITY INDEX (SHANNON) BY FISHING ZONE FROM JULY 2015 TO SEPTEMBER 2025**

The mean daily fish catch per household from July 2015 to September 2025 is displayed in **Figure 4-2** and the mean fish catch per household per fishing day for Q3 from 2015 to 2025 are shown in **Table 4-4**.

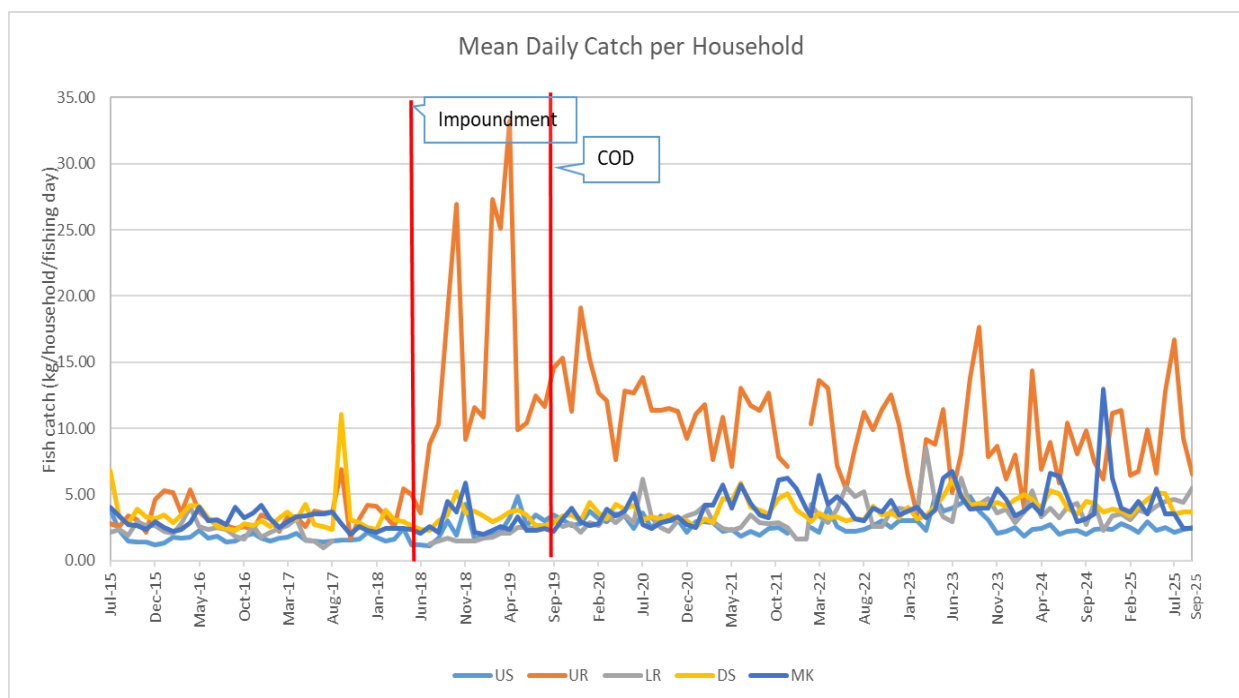


FIGURE 4-2: MEAN DAILY FISH CATCH PER HOUSEHOLD FROM JULY 2015 TO SEPTEMBER 2025

TABLE 4-4: MEAN DAILY FISH CATCH PER HOUSEHOLD FOR Q3 FROM 2015 TO 2025

Fishing Zone	Q3 2015 (kg)	Q3 2016 (kg)	Q3 2017 (kg)	Q3 2018 (kg)	Q3 2019 (kg)	Q3 2020 (kg)	Q3 2021 (kg)	Q3 2022 (kg)	Q3 2023 (kg)	Q3 2024 (kg)	Q3 2025 (kg)
Upstream	2.56	1.59	1.49	1.94	3.31	3.12	2.21	2.40	4.31	2.16	2.33
Upper reservoir	2.94	2.71	4.71	12.64	12.90	12.20	11.92	9.87	13.18	9.43	10.83
Lower reservoir	2.16	2.24	1.24	1.49	2.67	3.97	3.05	4.21	4.89	3.73	4.83
Downstream	4.32	2.42	5.31	2.93	2.73	3.20	3.79	3.46	4.51	4.00	3.64
Mekong	3.38	3.30	3.32	3.08	2.30	2.67	3.70	3.40	4.24	3.67	2.80

The survey results in Q3 2025 indicate that Nam Ngiep are the main fishing habitat for upstream and downstream zones, while the main fishing habitat for the upper reservoir, lower reservoir and Mekong zones is reservoir, tributary and stream, and Mekong respectively. The proportion of fishing habitats in Q3 2025 are displayed in **Table 4-5**.

TABLE 4-5: PROPORTION OF THE CATCH REPORTED BY MAIN HABITATS (%) IN Q3 2025

Habitats	US	UR	LR	DS	MK
Mekong	0.0%	0.0%	0.0%	3.9%	86.0%
Nam Ngiep	54.8%	7.0%	0.0%	49.0%	4.5%
Nam Xan	0.0%	0.0%	0.0%	0.0%	0.0%
Reservoir	23.7%	88.0%	41.7%	0.0%	0.0%
Tributary and stream	16.9%	2.9%	54.7%	46.8%	0.0%
Wetland	4.6%	2.0%	3.5%	0.3%	9.5%
Others	0.0%	0.0%	0.0%	0.0%	0.0%

The proportions of other aquatic animal (OAA) in the total catch for the same 7-day period in Q3 from 2015 to 2025 are shown in **Figure 4-3**.

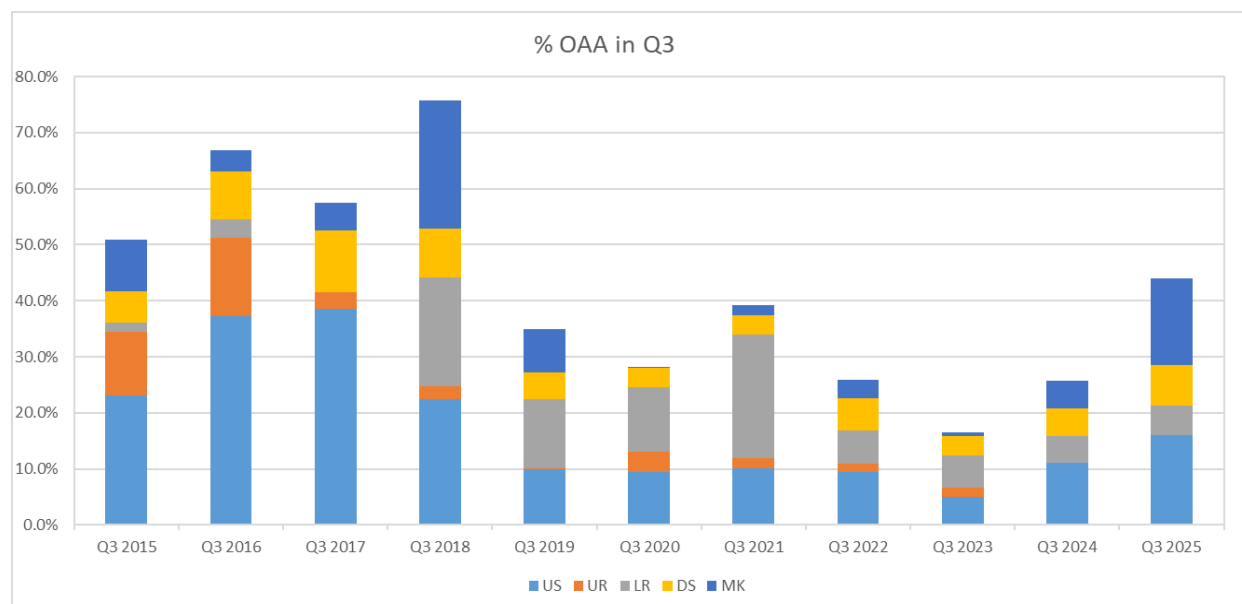


FIGURE 4-3: PROPORTION OF OAA TO THE TOTAL REPORTED KILOGRAM (KG) OF FISH AND OAA FOR A 7-DAY PERIOD BY FISHING ZONE IN Q3 FROM 2015 TO 2025

5 HEALTH AND SAFETY

5.1 RELATED TO NNP1PC HEALTH AND SAFETY

A summary of the safety incidents reported during the Construction Phase (up to the end of August 2019) are provided in the *Q4 2020 Environmental Monitoring Report (October to December 2020)*.

A summary of the safety incidents reported during the Operation Phase (September 2019 to September 2025) are provided in **TABLE 5.1-1**.

TABLE 5.1-1: SAFETY INCIDENTS REPORTED DURING THE OPERATION PHASE (SEPTEMBER 2019 TO DECEMBER 2025)

Type of Incidents	LTI	RI	NM	PD	FI	MVI	Total
No. of Incidents in Q4 2025	0	3	0	0	0	0	0
Cumulative Total Incidents to 31 December 2025	0	6	0	0	0	2	8

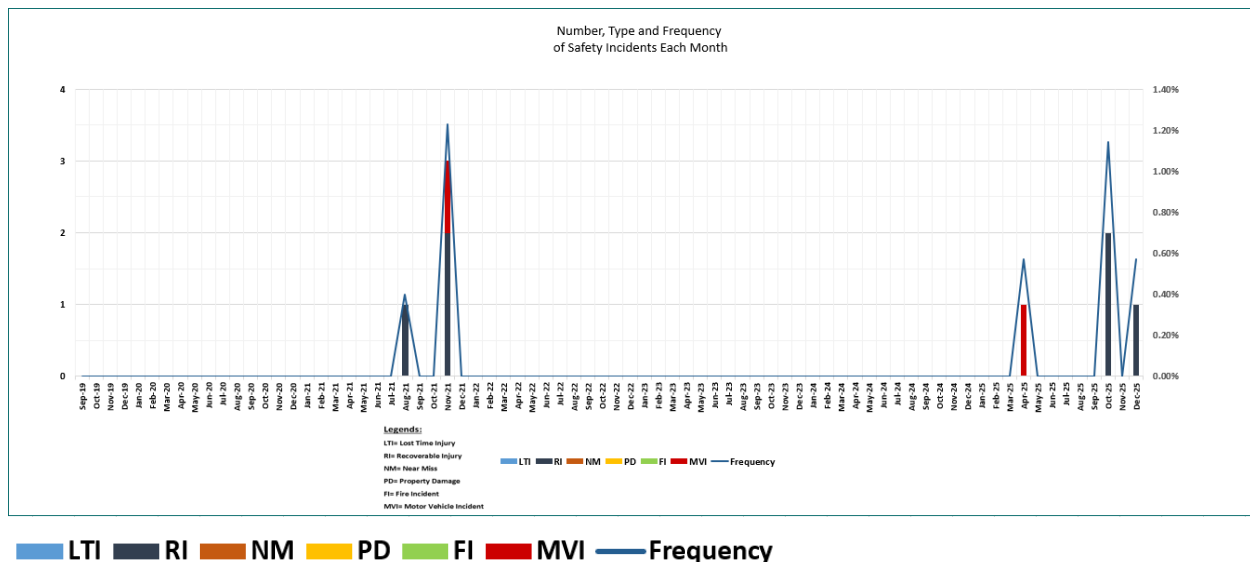
LTI: Lost Time Incident; **RI:** Recordable Injury; **NM:** Near Miss; **PD:** Property Damage; **FI:** Fire Incident; **MVI:** Motor Vehicle Incident

There were three incidents or accident reported in Q4 2025.

The histogram below in **Figure 5.1-1** shows the number of reported incidents in each month since the start of the Operation Phase (September 2019) with the colour indicating the type of incident including near misses. The graph superimposed on the histogram shows the frequency

of incidents, including reported near misses, with the number of incidents occurring each month expressed as a percentage of the total number of Project workers employed in each month being the total man-months.

All reported incidents that have involved the Owner and its Contractors and Subcontractors are included in the histogram and shown graphically below.



LTI: Lost Time Incident; **RI:** Recordable Injury; **NM:** Near Miss; **PD:** Property Damage; **FI:** Fire Incident; **MVI:** Motor Vehicle Incident

FIGURE 5.1-1: NUMBER, TYPE AND FREQUENCY OF SAFETY INCIDENTS FROM SEPTEMBER 2019 TO DECEMBER 2025

The second histogram in **Figure 5.1-1** shows the number of persons who were injured, or lost their lives in the reported Lost Time Incidents. Detailed record injuries are as follows:

In October 2025, two injury incidents:

- **On 17 October**, a rope sling was suddenly pulled by spillway flow during log boom installation at the RRD, causing it to snap upward and strike a PKCC worker's legs, resulting in a **minor injury**; work was stopped and first aid was provided.
- **On 25 October**, during boat preparation for log boom installation, the tongue coupler of a boat trailer unexpectedly dropped onto an NNP1 boat operator's foot, causing a **minor injury**; first aid was given and equipment handling was corrected.

In December 2025, one injury incident:

On 30 December 2025 at around 9:25 AM, during the relocation of a drilling-rig platform on a rocky slope near Hole DK-180-03, a Sinohydro worker was struck on the brow when a steel pipe rebounded while he attempted to free a platform frame that had become wedged against rocks. He sustained a minor laceration and was sent to the site clinic, where he received two stitches and follow-up care. In Q3 and Q4 of 2021, and Q4 2025 there were a total of six cases of Recordable Injury (RI) and in Q4 2021 and Q2 2025 there were a total of two cases of Motor Vehicle Incident (MVI) have been recorded.

5.1.1 Health and Safety Training and Emergency Drills in the Project site

During Q4 2025, Health and Safety and Environmental (HSE) inductions were conducted for new contractors and visitors. The primary objective of these inductions was to ensure that all new personnel including staffs, contractors and local labours understand the HSE policy, measures and practices.



FIGURE 5.1-2: REPRESENTATIVE PHOTOS OF THE HSE INDUCTION TRAINING FOR NEW CONTRACTOR STAFFS DURING Q4 2025

5.2 RELATED TO COVID-19

- The pandemic-related measures remain in effect. No COVID-19 infections were reported in Q4 2025.

6 External missions and visits

There was no external mission during the reporting period.

APPENDICES

APPENDIX 1: THE SITE INSPECTION RESULTS DURING Q4 2025

No	Issue ID	Inspection Date	Site Name	Issue/Description	Action Required/Recommendation	Deadline	Latest Follow-up Date	Status
1	NCR Level 1 (01-ADM/2025)	03-Sep-25	OSOV2	It was observed that WWTS had been malfunctioning caused by a failure of the automatic control panel. This prevented proper operation of the aeration and chlorination processes - essential steps in wastewater treatment. As a result, approximately 15 m ³ of wastewater bypassed treatment and was discharged daily without adequate aeration and chlorination, posing a risk of environmental contamination.	- Short-Term Action: The ADM team has been instructed to manually operate the chlorination system and discharge control valve to ensure a chlorine contact time of 20 - 30 minutes prior to discharge. This measure is intended to prevent the release of untreated wastewater and maintain basic treatment standards. - Long-Term Solution: The ADM has been instructed to urgently inspect and repair the control panel to restore full functionality by the end of July 2025 (agreed timeline) to prevent further discharge of untreated wastewater and ensure compliance with environmental standards	Within Sep 2025	30 October 2025	Resolved (The corrective action was verified and accepted)
2	ON-TD-0028	27-Nov-25	Spoil disposal area no. 02	It was observed that soil materials from this spoil disposal was sourced by LSED contractor for repairing of access road to main dam powerhouse.	-TD was requested to submit the updated DWP&SSESMMP by 03 December 2025 incorporating the use of this spoil disposal as borrow area for soil material sourcing for road repairing work.	By 03 Dec 2025	16 Dec 2026	Pending issue and expected to be resolved in Q1 2026

No	Issue ID	Inspection Date	Site Name	Issue/Description	Action Required/Recommendation	Deadline	Latest Follow-up Date	Status
					The information shall include the quantity of soil (m ³) to be sourced, work schedule for borrow pit operation, erosion control measures and closing and rehabilitation plan of this borrow area.			
3	ON-TD-0029	27-Nov-25	Re-regulation Powerhouse	It was observed that hazardous waste bin at the re-regulation Powerhouse was full, indicating irregularly transferring of waste to the hazardous waste storage. This poses potential risk of mixed disposal with other waste type and,	-TD should establish a proper waste transfer schedule to ensure hazardous waste is removed before reaching 80% bin capacity, and transported to the LILAMA Storage Facility.	By 12 Dec 2025	16 Dec 2026	Resolved (The corrective action was verified and accepted)
4	ON-TD-0030	27-Nov-25	Contractor LSEP Accommodation at Hat Gnuin Village	During this joint site inspection, it was observed that the diesel tanks were placed on the ground with no roof cover, no concrete bunding, no concrete floor and no control measures, this is non-compliance with the hazardous material management procedure.	-The contractor was instructed to provide the roof cover, concrete floor and bunding of >120% of largest container capacity; Clear labels and display of SDS; Provide signage / warning such as access restriction, PPEs and no smoking.... etc. -TD was instructed to follow up the contractor to rectify this issue.	By 05 Dec 2025	16 Dec 2026	Resolved (The corrective action was verified and accepted)

APPENDIX 2: ENVIRONMENTAL MONITORING CORRECTIVE ACTIONS Q4 2025

No.	Aspects	Aspects and Observations from previous mission	Required Actions (April 2025 mission)	Delivery Timeline	NNP1 responses_31 December 2025
1	EAP	EAP is under revision and will be submitted to Government for comments and approval (in April 2025?). Dam Safety Panel is not included in the process.	NNP1 to share the copy of the EAP to ADB	July 2025	In Progress - The EAP was submitted to DESM in May 2025 and is currently under review. - The draft EAP was shared with ADB on July 31, 2025. - The relevant submission letter was also shared with ADB on July 31, 2025. - No progress update has been received in Q4
2.a	Houay Soup Dam	Houay Soup dam (irrigation reservoir): As per LTA's view, in the case of a dam break, the village would not be affected (on higher ground, protected by a small hill. However, people at the demonstration farm and people working in the fields would be at risk.	NNP1 to confirm if the dimension and sufficiency of the spillway.	August 2025	In Progress - Details will be provided in the Village Emergency Evacuation (VEE) Drill 2025 Report. - The 2025 Village Emergency Evacuation Workshop and Drill Report is currently being prepared in collaboration with the District Disaster Management Committees (DDMCs) of Bolikhan and Paksan Districts. The report is approximately 60% complete and is expected to be finalized in Q3 2025. - In Q4-2025, the report has been completed, the DDMC of both districts not yet signed, the completed version will share on Q1-2026 after DDMC signed.
2.b			Based on the outcome of the confirmation, a warning system should be established [e.g., ideally through a WhatsApp group].	August 2025	
3.a	Muster Points	Hat Gnuin Muster Point: The muster point is at	Identify a closer hill to the village that can be an alternative	August 2025	

No.	Aspects	Aspects and Observations from previous mission	Required Actions (April 2025 mission)	Delivery Timeline	NNP1 responses_31 December 2025
3.b		1.5 km from the village => people will not have enough time to reach it.	Verify the elevation levels of both the current and alternative muster points.	August 2025	- The suitable elevation muster point of Hat Gnuin Village has identified, but it may fit only the Emergency level 3 of 4, NNP1PC to develop the point including the vegetation clearance and access route to ensure that the place is ready before rainy season of 2026. - For the elevation of muster point of Thahuea village is adequated for Emergency level 4, the community requested for roofed shelter, electricity, toilets and drinking water in the muster point is under consideration and plan to discuss with the DDMC of both districts.
3.c			Improve access and safety going to the muster point (e.g., maintain clear paths, access improvements due to steep terrain, install signages, ensure that gates can be opened during emergency) The gate has not yet installed due to the HGN village authorities not yet consult with the landowner. However, after the flooding incident occurred in Oct 2025, the HGN village authorities know the safe place and require to change the point start from 2026 onward.	August 2025	
4.a		Muster Point at Thahuea	Verify the elevation level of the muster point	August 2025	
4.b			Evaluate the community request to provide structure (e.g., toilets, drinking water storage) at the muster point	August 2025	
5.a	Reporting of environmental incident	(a) Oil Leakage in Unit No. 1, Main Power House and (b) Part C of Unit 1 SF6 Switchyard	Include incidents in the periodic reports submitted to ADB	These incidents, as well as any that may arise, will be reported in the	Ongoing In January 2025, NNP1 submitted an incident report on the oil leakage in Unit No. 1 of the Main

No.	Aspects	Aspects and Observations from previous mission	Required Actions (April 2025 mission)	Delivery Timeline	NNP1 responses_31 December 2025
		was damaged due to lightning strike at tower No. 1		Environmental Quarterly Progress Report to be submitted to ADB, beginning with the Q1 2025 report, which is scheduled for submission in Q2 2025.	Powerhouse and Part C of the Unit 1 SF6 Switchyard to the LTA for review and comments. - The LTA and NNP1 conducted a verification inspection during the ADB-IAP-LTA mission in early April 2025. - NNP1 followed up on the additional corrective actions and ensure that updates are reflected in the report. - The email exchanges between NNP1-EMO and LTA in 'RE: Q3 2024 Report' were shared with ADB on July 31, 2025, for reference. - The status of the oil leakage in Unit No. 1, Main Power House. Ref: Section 2.3 of this report.
5.b			Review the safeguards and social reporting event in the legal agreement	Q2 2025	Completed - The safeguards and social reporting provisions in the legal agreement have been reviewed. - The internal email to NNP1PC teams, titled “Review of ADB Safeguard Requirements and Required Reporting Actions,” was shared with ADB on July 31, 2025, for reference.

No.	Aspects	Aspects and Observations from previous mission	Required Actions (April 2025 mission)	Delivery Timeline	NNP1 responses_31 December 2025
6.a		Issues at the Contractor Workshop: - poor housekeeping - Spots showing sign of soil contamination with oil. Needs to be cleaned, contaminated soil to be removed and safely disposed. - has an underground fuel tank	Develop an action plan to address the site findings	Completed	In Progress - The SCI contractor's workshop was decommissioned in early April 2025, one week after the ADB-IAP-LTA mission concluded. - The Site Inspection Report and the actions implemented for hazardous waste management were shared with ADB on July 31, 2025, with relevant information found on: (1) Site Name: SCI Contractor's Workshop) – highlighting the ongoing rehabilitation work by TD. (2) Site Name: LILAMA10_Hazardous Material and Waste Storage Facility) – describing the corrective actions taken for hazardous waste. - NNP1-TD will carry out the rehabilitation works in accordance with the standards outlined in the SDRP. - While a specific completion date has not been set, both parties have agreed that the rehabilitation activities will continue through the end of the 2025 wet season. - The NNP1-EMO will conduct monthly joint environmental site inspections and provide regular progress updates on a monthly basis.
6.b			Implement the agreed action	Completed	

No.	Aspects	Aspects and Observations from previous mission	Required Actions (April 2025 mission)	Delivery Timeline	NNP1 responses_31 December 2025
8.a		Canteen food waste: Significant amounts of food waste. However, the reported figures only account for the portion collected by farmers and do not represent the full extent of food waste. A substantial amount is discarded as general waste and ends up in landfills, making the actual total much higher. Currently, surplus food is often given to farmers to feed pigs. However, this practice may become unacceptable in the future due to concerns such as African Swine Fever (ASF).	Raise awareness for the importance of pre-ordering meals.	July - August 2025	Ongoing On February 13, 2025, NNP1's waste management team interviewed the new canteen service provider and the NNP1 ADM team to identify the root causes of increased food waste. Key findings: 1. The new service provider, operational since January 2025, is still adjusting meal preparation to align with actual staff demand. 2. Approximately 40% of staff did not pre-book meals in January and February, resulting in a high number of unplanned walk-ins. Actions taken to address the issue: 1. On 19 February 2025, NNP1 issued an internal notice encouraging all staff to pre-book meals in order to reduce food waste. Evidence of this action was shared with ADB on July 31, 2025, for reference. 2. Awareness training was conducted during the annual training session in August 2025.

No.	Aspects	Aspects and Observations from previous mission	Required Actions (April 2025 mission)	Delivery Timeline	NNP1 responses_31 December 2025
8.b			Try to find out if persons from certain groups come unannounced especially often, if yes, go through the section head.	Ongoing monitoring	- NNP1 will continue its routine monitoring, follow up on record-keeping with the canteen operator and report findings on a monthly and quarterly basis. -
8.c			Continue monitoring.	Ongoing monitoring	

Social Matters

9	E&S Capacity Unfilled E&S positions	Action from April 2024 and status Fast track appointment to vacant positions Status as of April 2025: Partially completed. TL-livelihood PHX/ Z4 & Z3 is still vacant.	Ensure appointment to key positions based on the Updated Livelihoods Development Plan (2025-2029).	Jul-25	In Progress - Since the consultant team is from the National Agriculture and Forestry Research Institute (NAFRI), Ministry of Agriculture and Environment (MAF), the Updated Livelihood Development Plan, LDP (2025–2029) has experienced delays due to the need to await structural changes within the Ministry of Agriculture and Environment and other relevant agencies. In July-August 2025, the consultant team developed the first draft of the livelihood development plan 2025-2029 and conducted the consultation workshop with GOL stakeholders and villagers of three Districts namely Bolikhan District, Bolikhamxay Province, Thathom and Hom District, Xaysomboun Province for validating
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No.	Aspects	Aspects and Observations from previous mission	Required Actions (April 2025 mission)	Delivery Timeline	NNP1 responses_31 December 2025
					the existing Livelihood Development Plan 2019-2024 and gathering inputs for the draft of new LDP, fostering local ownership and alignment, and enhancing transparency and collaboration among all implementing partners and affected communities. The draft plan is now expected to be completed in Q4 2025, after which it will be shared with ADB, IAP, and LTA for review and feedback - As a result, the discussion on filling the vacant position within the Livelihood Team will be postponed until the plan is finalized.
10	Fisheries Co-Management Plan (FCMP) Delay in the approval and implementation of the FCMP	Follow up and support the relevant GOL offices in reviewing and approving the FCMP (Status as of April 2025: Approved by XASB WRPC in Nov 2024.)	Follow up approval of FCMR with GOL and ensure implementation of FCMP	Jul-25	In Progress - The fisheries Co-management Plan was endorsed by the Xaysomboun Provincial Agriculture and Forestry Office on 23 May 2025. - On 23 July 2025, XSB WRPO reported to NNP1 EMO that FCMR was endorsed by the Head of XSB Provincial Justice Office and submitted to the XSB Provincial Governor and Provincial Assembly for approval on 24 July 2025. On 24 September 2025, XSB WRPO reported to NNP1 EMO that FCMR was signed by the XSB Provincial Governor
		Start FCMP implementation (Pending. Awaiting approval of FCMR by Provincial Assembly Office and XSB Provincial Governor)			

No.	Aspects	Aspects and Observations from previous mission	Required Actions (April 2025 mission)	Delivery Timeline	NNP1 responses_31 December 2025
11	Grievance Management Access restriction of 21 HH to 3 paddy fields when the reservoir reached FSL at 320 masl.	Resolve access restriction of 21 HHs (Status as of April 2025: Partially completed. 13 of 21 cases closed. Outstanding actions are related to (i) installing culverts to function as draining canal for paddy field of 4 HHS in Pou; (ii) building 1-km tractor road 4 HHs in Hatsamkhone.)	Fully resolve 8 outstanding cases	May-25	In Progress - The installation of culverts serving as drainage canals and an access road across Houay Pou Creek to the paddy fields of 4 households in Pou Village was completed and documented in July 2025. The payment to Pou Village is scheduled to be completed in early August 2025. - The construction of a 3-km tractor road for 4 households in Hatsamkhone Village has also been completed and documented in July 2025. The payment to the Contractor is scheduled to be completed in early August 2025.
12	BOMP No clear link of livelihood programs to conservation. High demand for rice land expansion	WCS to prepare ToR, identifying alternative sustainable economic activities and market chain analysis	Update NC-NX Livelihood Program (section 5 in CDP), through collaborative efforts of EMO and SMP	Sep-25	
			Install community-managed irrigation system outside buffer zone to increase rice harvest frequency	Dec-25	In Progress - BSP-WCS, BOMU, and NNP1-EMO will conduct a field visit to all NC-NX villages after the rainy season (October 2025) to confirm and update the CDP activities, as well as to engage in discussions regarding the community-managed irrigation system located outside the buffer zone.

No.	Aspects	Aspects and Observations from previous mission	Required Actions (April 2025 mission)	Delivery Timeline	NNP1 responses_31 December 2025
13	Encroachment into PHX land	Formalize 2nd generation land (not completed).	Conduct mapping of PHX land (including G2 and village lands) to determine encroached and unencroached lands for submission to GOL	Oct-25	In Progress Resolutions on land encroachment are being implemented in phases. Bolikhon District has returned three plots of encroached land to the Phouhomxay village authorities for use by the second generation of PAPs and for cemetery purposes.
14	Updated Livelihood Development Plan		Deliver to ADB the Updated Livelihood Development Plan (2025-2029) incorporating the following: ➤ Inputs from consultations with stakeholders including vulnerable households and lagging households ➤ Corrected income data ➤ Time-series data and analysis of occupational participation for each village ➤ Sub-plan for landless and near landless AHs on non-land-based livelihoods with comparable income streams ➤ Clear market linkages	Jun-25	In Progress - Since the consultant team is from the GOL, the Updated Livelihood Development Plan (2025–2029) has experienced delays due to the need to await structural changes within the Ministry of Agriculture and Environment and other relevant agencies. The draft plan is now expected to be completed in Q3 2025, after which it will be shared with ADB, IAP, and LTA for review and feedback. - The requested information has been shared with the consultants and will be incorporated into the updated plan accordingly.

No.	Aspects	Aspects and Observations from previous mission	Required Actions (April 2025 mission)	Delivery Timeline	NNP1 responses_31 December 2025
15	E&S reporting		Submit the Jan-July 2024 Social Monitoring Report to ADB for disclosure	Apr-25	Completed Social report disclosed on ADB website
			Incorporate time series data on occupational participation		Duly Noted The requested information will be incorporated into the preparation of the next report.

APPENDIX 3: SITE CODES, LOCATIONS AND MONITORING PARAMETERS OF THE SURFACE WATER QUALITY MONITORING

SITE CODES AND LOCATION STATION FOR SURFACE WATER QUALITY MONITORING

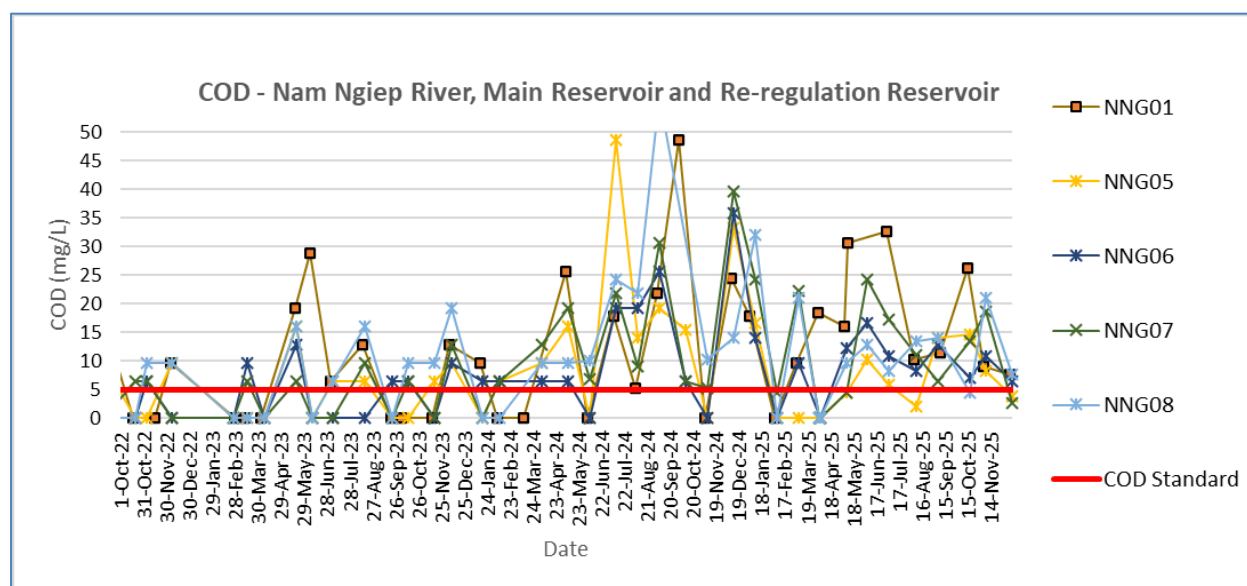
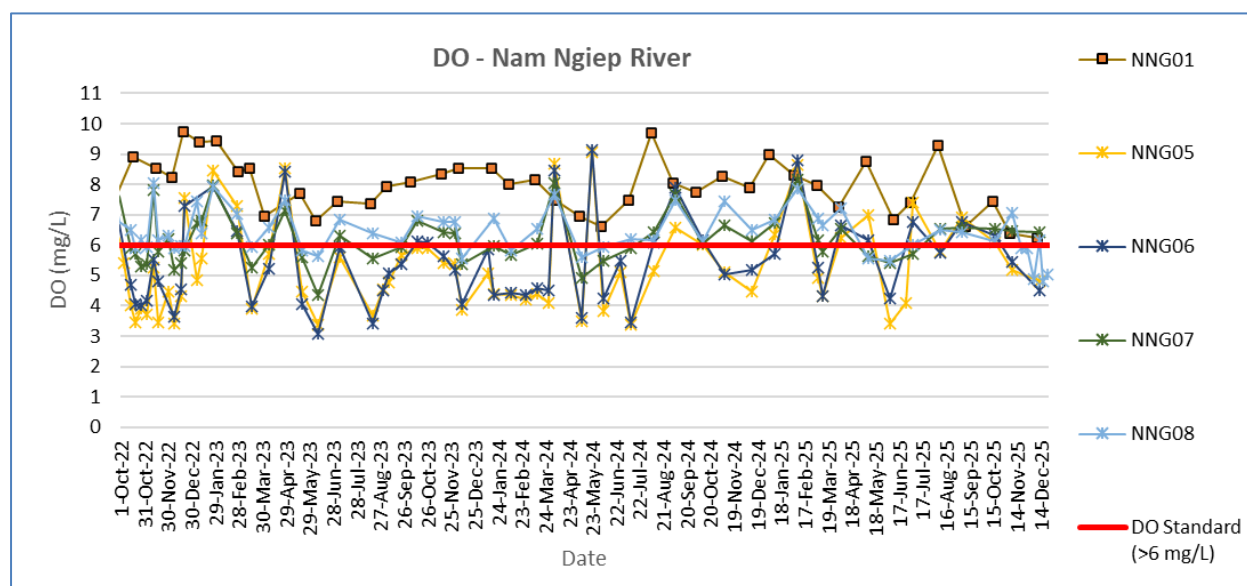
Site Code	Location station	Zone
NNG01	Nam Ngiep Upstream of Phiengta Village	Upstream Project Construction Site
R01	Main reservoir upstream main dam approx. 50 Km.	
R02	Main reservoir upstream main dam approx. 35 Km.	
NNG02/R03	Nam Ngiep Upstream of Nam Phouan Confluence / Main reservoir upstream main dam approx. 21 Km.	
NNG03/R04	Nam Ngiep Downstream of Sopyouak Village/ Main reservoir upstream main dam approx. 13 Km.	
NNG09/R05	Nam Ngiep Upstream Main Dam / Main reservoir upstream main dam approx. 0.5 Km	
NNG04/R06	Nam Ngiep Downstream RT Camp (Middle Re-regulation Reservoir)	Within Project Construction Site
R07	Reservoir Upstream Re-Regulation Dam	
NNG05	Nam Ngiep Upstream of Hat Gniun Village	Downstream Project Construction Site
NNG06	Nam Ngiep Downstream of Nam Xao Confluence	
NNG07	Nam Ngiep at Somsuen Village	
NNG08	Nam Ngiep at the Bridge of Road 13	
NCH01	Nam Chiane at the Bridge of Road 1D	Tributaries Upstream of Project Construction Site
NPH01	Nam Phouan Upstream of Nam Ngiep Confluence	
NXA01	Nam Xao Upstream of Nam Ngiep Confluence	Tributaries Downstream of Project Construction Site
NSH01	Nam Houay Soup Upstream Nam Ngiep Confluence	

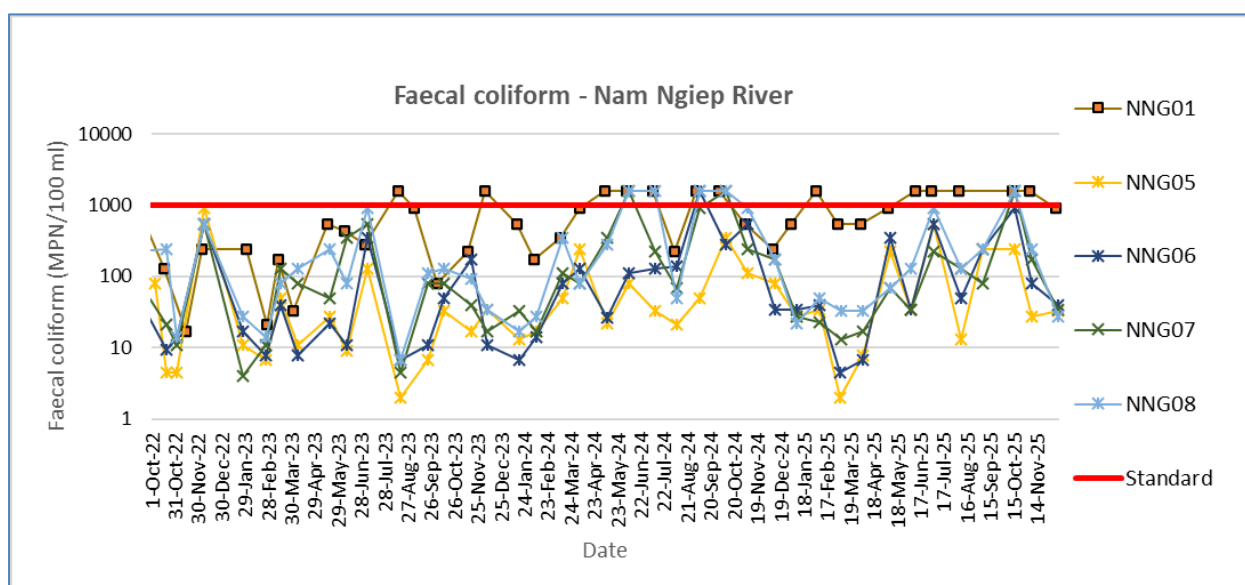
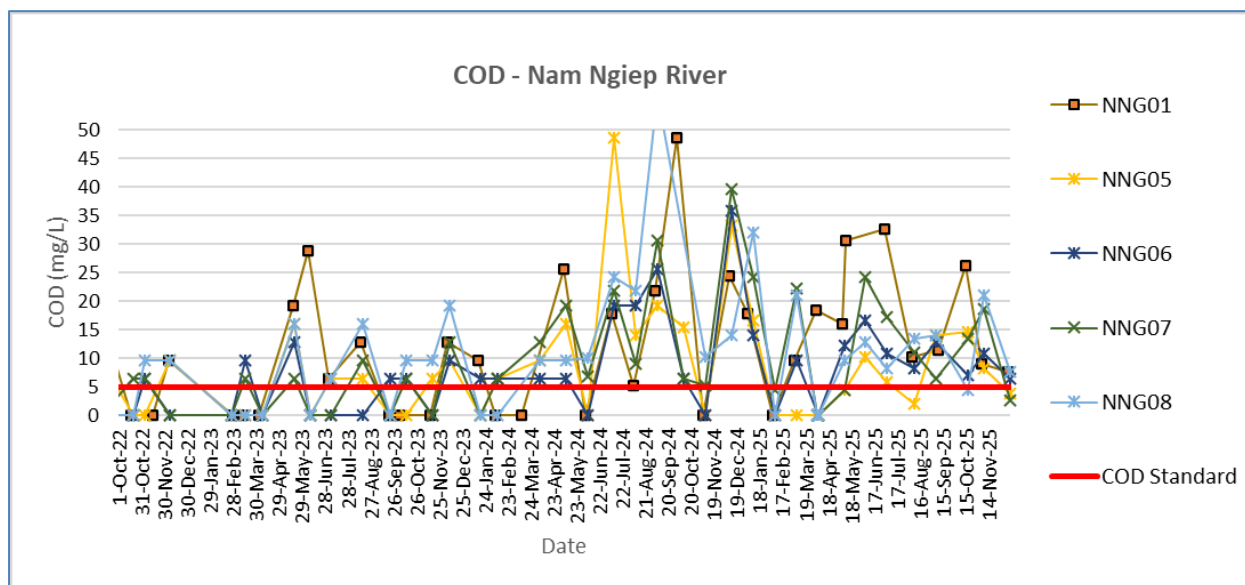
MONITORING FREQUENCY FOR SURFACE WATER QUALITY PARAMETERS

Frequency of Monitoring	Parameters (Unit)	Monitoring Sites
Weekly	pH, DO (%), DO (mg/L), Conductivity (µs/cm), Temperature (°C), Turbidity (NTU).	- Main Reservoir: R01, R02, R03, R04, R05; - Re-regulation Reservoir: R06 and R07.
Monthly	pH, DO (%), DO (mg/L), Conductivity (µs/cm), Temperature (°C), Turbidity (NTU).	- NNG01, NCH01, NPH01, NNG05, NNG06, NNG07, NNG08, NXA01 and NHS01
Monthly	TSS (mg/L), BOD ₅ (mg/L), COD (mg/L), NH ₃ -N (mg/L), NO ₃ -N (mg/L), total coliform (MPN/100 mL), faecal coliform (MPN/100 mL), Chlorophyll a, TOC and TKN.	As per ESMMP-OP. Noted: Hydrogen sulphide and Phytoplankton biomass remained in the analysis program for Q1 2023, but they were no longer monitored starting from Q2 2023.

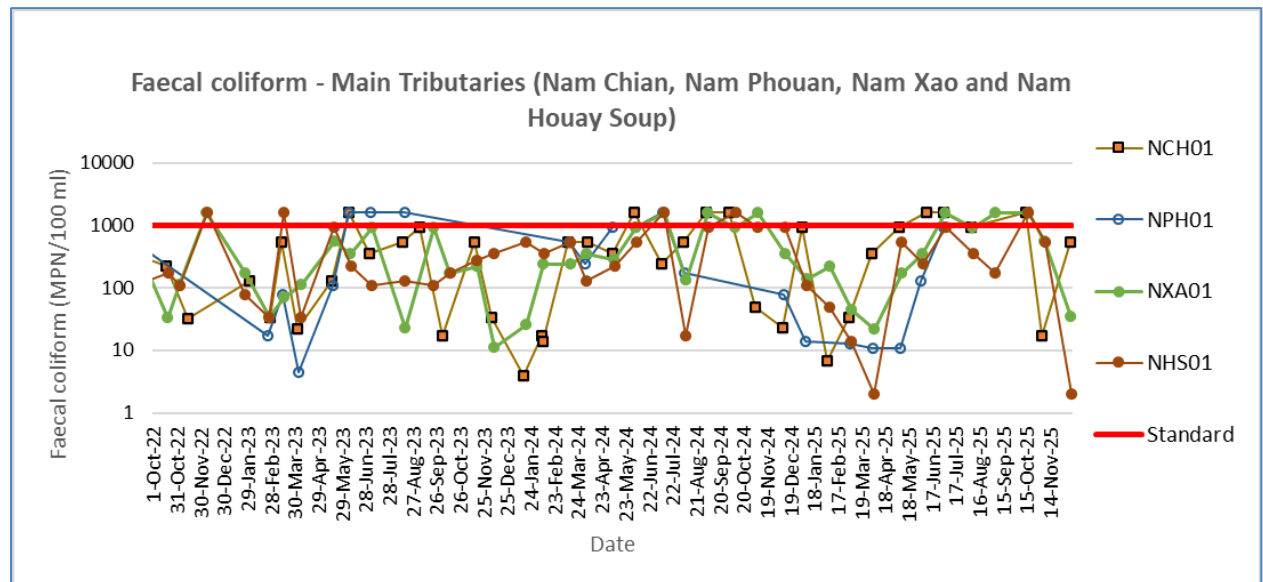
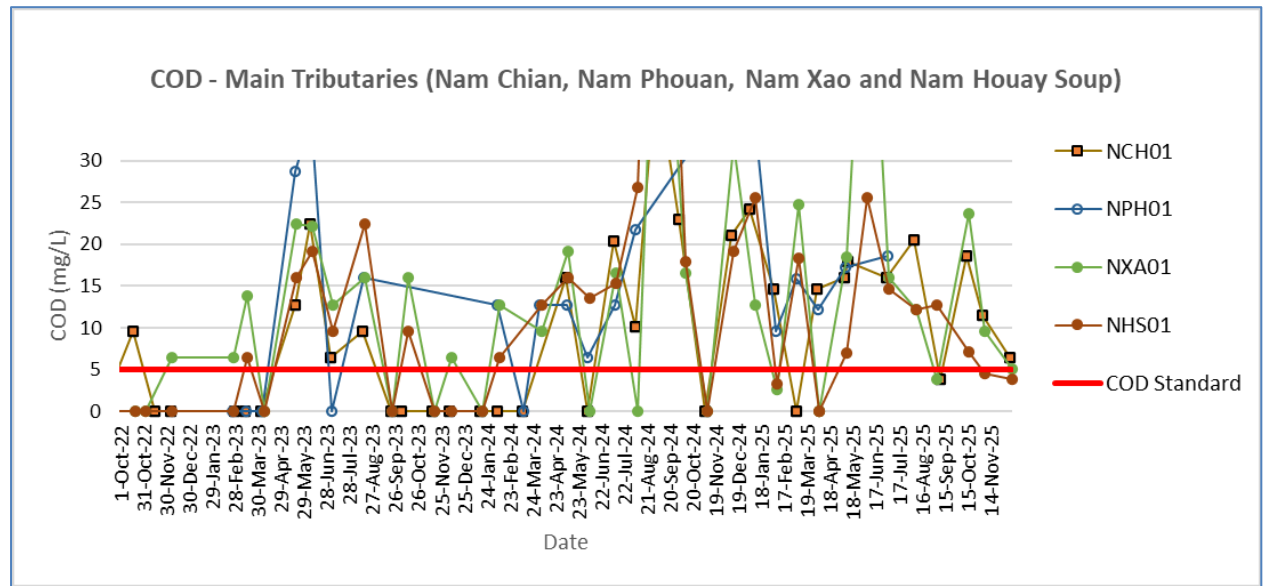
APPENDIX 4: KEY TRENDS OF WATER QUALITY MONITORING FROM OCTOBER 2022 TO END OF DECEMBER 2025 (ONLY PARAMETERS THAT EXCEEDED THE STANDARDS)

Nam Ngiep Surface Water

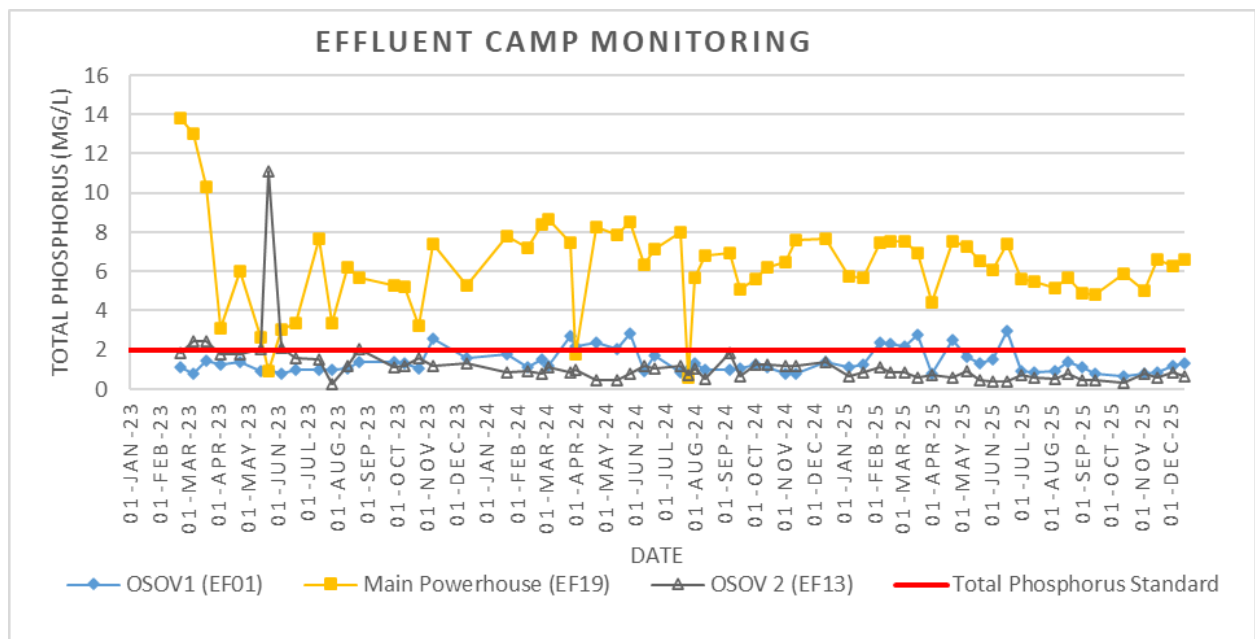
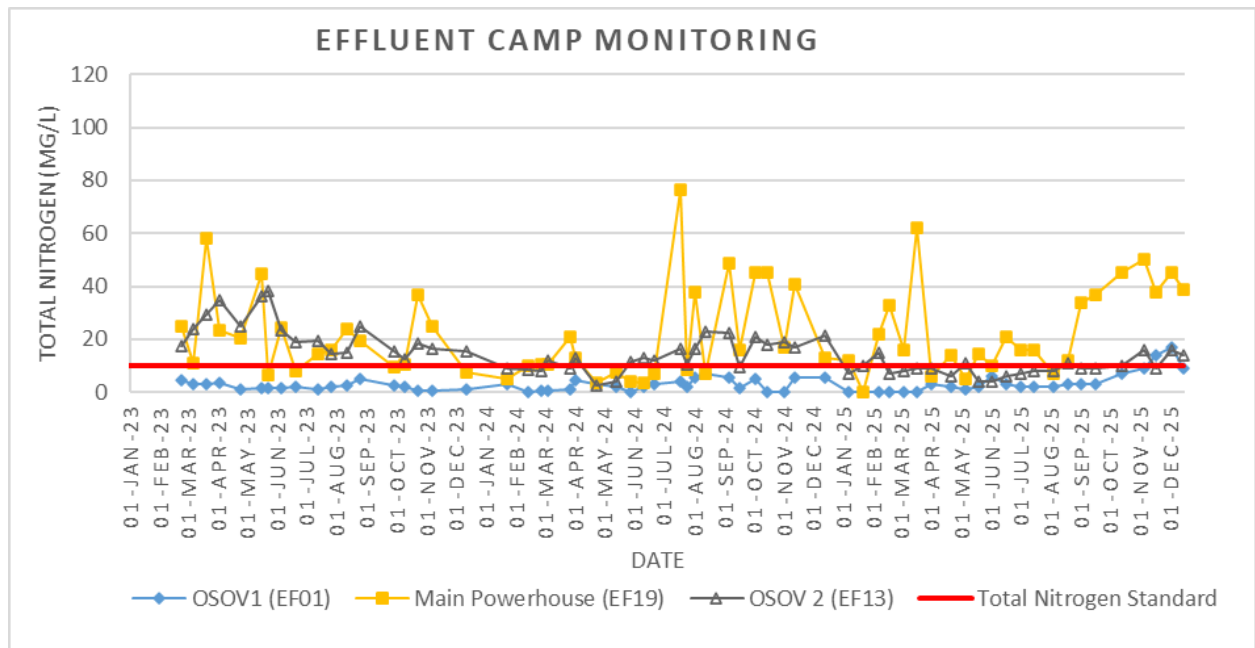


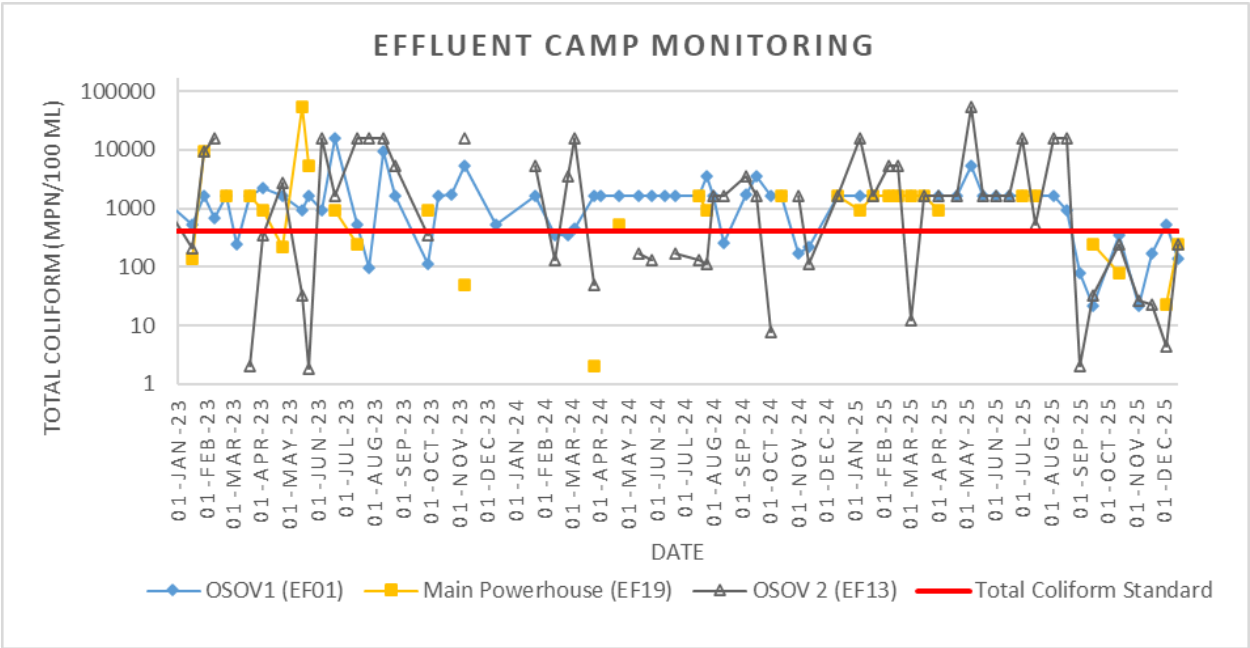


Key Water Quality Parameters for the Nam Ngiep Tributaries: Nam Chian, Nam Phouan, Nam Xao, Nam Houay Soup



Camps' Effluent Water Quality Trends (Since January 2023 to December 2025)





APPENDIX 5: WATER QUALITY MONITORING DATA

APPENDIX 5-1: SURFACE WATER QUALITY MONITORING – Q4 2025

		River Name	Nam Ngiep												Nam Chain	Nam Phouan	Nam Xao	Nam Houay Soup
		Zone	Location Refer to Construction Sites												Location Refer to Construction Sites			
			Upstream/Main Reservoir						Re-Regulation Reservoir/Within		Downstream				Tributaries Upstream		Tributaries Downstream	
		Station Code	NNG01	R01	R02	R03	R04	R05	R06	R07	NNG05	NNG06	NNG07	NNG08	NCH01	NPH01	NXA01	NHS01
Date	Parameters (Unit)	Guideline																
9-Oct-25	pH	5.0 - 9.0			6.47	6.68	6.09											
10-Oct-25	pH	5.0 - 9.0						6.21	6.76	6.65								
14-Oct-25	pH	5.0 - 9.0	6.42											6.7				
15-Oct-25	pH	5.0 - 9.0		6.68	6.42	6.58												
16-Oct-25	pH	5.0 - 9.0					6.4	6.55	6.7	6.82								
17-Oct-25	pH	5.0 - 9.0									6.44	6.55	6.88	6.95		7.03	6.92	
21-Oct-25	pH	5.0 - 9.0		6.81	6.97	6.55	6.68											
22-Oct-25	pH	5.0 - 9.0						6.64	6.76	6.82								
28-Oct-25	pH	5.0 - 9.0		6.94	6.48	6.49	6.34											
29-Oct-25	pH	5.0 - 9.0						6.86	6.95	6.85								
4-Nov-25	pH	5.0 - 9.0	6.23											7.2				
5-Nov-25	pH	5.0 - 9.0		6.22	5.78	5.58	5.84											
6-Nov-25	pH	5.0 - 9.0						5.62	5.84	5.77								
7-Nov-25	pH	5.0 - 9.0									6.81	6.3	6.83	6.86		7.12	6.1	
11-Nov-25	pH	5.0 - 9.0		6.46	6.7	6.31	6.24											
12-Nov-25	pH	5.0 - 9.0						6.39	6.54	6.68								
18-Nov-25	pH	5.0 - 9.0		6.3	6.38	6.65	6.23											
19-Nov-25	pH	5.0 - 9.0						6.89	7.64	6.8				6.96				
26-Nov-25	pH	5.0 - 9.0					7.3	7.4	6.9	7				6.96				
4-Dec-25	pH	5.0 - 9.0		7.4	7	7.5	7.3											
5-Dec-25	pH	5.0 - 9.0						7.2	7.2	7.1				7.3				
9-Dec-25	pH	5.0 - 9.0	6.9												6.5			
10-Dec-25	pH	5.0 - 9.0		7	7.1	7.6												
11-Dec-25	pH	5.0 - 9.0					7.2	7	7.6	7								
12-Dec-25	pH	5.0 - 9.0									7	7.1	7.3	7.5		7.4	6.7	

		River Name	Nam Ngiep												Nam Chain	Nam Phouan	Nam Xao	Nam Houay Soup
		Zone	Location Refer to Construction Sites												Location Refer to Construction Sites			
			Upstream/Main Reservoir						Re-Regulation Reservoir/Within		Downstream				Tributaries Upstream		Tributaries Downstream	
		Station Code	NNG01	R01	R02	R03	R04	R05	R06	R07	NNG05	NNG06	NNG07	NNG08	NCH01	NPH01	NXA01	NHS01
Date	Parameters (Unit)	Guideline																
17-Dec-25	pH	5.0 - 9.0						7.4	7.1	7.3				7.4				
18-Dec-25	pH	5.0 - 9.0		7.8	7.4	7.1	7.5											
23-Dec-25	pH	5.0 - 9.0						7.1	6.98					6.88				
24-Dec-25	pH	5.0 - 9.0		6.74	7.7	6.95	7.6											
9-Oct-25	Sat. DO (%)				107.1	122.2	110.8											
10-Oct-25	Sat. DO (%)							89.2	82.7	89.9								
14-Oct-25	Sat. DO (%)		87.4												97.3			
15-Oct-25	Sat. DO (%)			77.6	98.2	98.5												
16-Oct-25	Sat. DO (%)						100.1	102.6	67.1	98.2								
17-Oct-25	Sat. DO (%)										73.3	76.7	79.4	75.1			76.1	76.9
21-Oct-25	Sat. DO (%)			97.8	111.7	110.3	99.6											
22-Oct-25	Sat. DO (%)							95.2	52.8	60.5								
28-Oct-25	Sat. DO (%)			97.6	99.6	114.6	100.8											
29-Oct-25	Sat. DO (%)							93.4	52.5	61.2								
4-Nov-25	Sat. DO (%)		76.1												78.6			
5-Nov-25	Sat. DO (%)			105.5	101.5	100.7	90.6											
6-Nov-25	Sat. DO (%)							90.9	61.4	60.7								
7-Nov-25	Sat. DO (%)										62.5	65.6	77.8	85.3			84.2	81.6
11-Nov-25	Sat. DO (%)			100.9	106.8	101	93.9											
12-Nov-25	Sat. DO (%)							86.5	66.2	59								
18-Nov-25	Sat. DO (%)			96	87.1	102.3	88.2											
19-Nov-25	Sat. DO (%)							72.6	51.6	47.4				69.5				
26-Nov-25	Sat. DO (%)						74.5	81.9	59.7	63				69.5				
4-Dec-25	Sat. DO (%)			89	75.4	89.4	74.6											
5-Dec-25	Sat. DO (%)							73.5	66.4	69.8				58.7				
9-Dec-25	Sat. DO (%)		66.7												88.9			
10-Dec-25	Sat. DO (%)			96.7	77.9	74.5												
11-Dec-25	Sat. DO (%)						77.6	88.8	61.8	63.4								
12-Dec-25	Sat. DO (%)										57.3	53.4	76.2	71			77.9	73.4

		River Name	Nam Ngiep												Nam Chain	Nam Phouan	Nam Xao	Nam Houay Soup
		Zone	Location Refer to Construction Sites												Location Refer to Construction Sites			
			Upstream/Main Reservoir						Re-Regulation Reservoir/Within		Downstream				Tributaries Upstream		Tributaries Downstream	
		Station Code	NNG01	R01	R02	R03	R04	R05	R06	R07	NNG05	NNG06	NNG07	NNG08	NCH01	NPH01	NXA01	NHS01
Date	Parameters (Unit)	Guideline																
17-Dec-25	Sat. DO (%)							83	59.4	67.7				59.1				
18-Dec-25	Sat. DO (%)			99.2	81.4	96.3	88.2											
23-Dec-25	Sat. DO (%)							82.5	62.7	68.9				66.9				
24-Dec-25	Sat. DO (%)			86.9	78.3	93.7	84.3											
9-Oct-25	DO (mg/L)	>6.0			8.2	9.08	8.54											
10-Oct-25	DO (mg/L)	>6.0						6.99	6.82	7.33								
14-Oct-25	DO (mg/L)	>6.0	7.43												8.32			
15-Oct-25	DO (mg/L)	>6.0		6.42	7.52	7.38												
16-Oct-25	DO (mg/L)	>6.0					7.66	7.91	5.56	7.98								
17-Oct-25	DO (mg/L)	>6.0						7.91	5.56	7.98	6.09	6.3	6.53	6.11			6.07	6.15
21-Oct-25	DO (mg/L)	>6.0		7.41	8.49	8.26	7.65											
22-Oct-25	DO (mg/L)	>6.0						7.41	4.38	4.99								
28-Oct-25	DO (mg/L)	>6.0		7.78	7.85	8.79	7.92											
29-Oct-25	DO (mg/L)	>6.0						7.4	4.35	4.98								
4-Nov-25	DO (mg/L)	>6.0	6.4												7.04			
5-Nov-25	DO (mg/L)	>6.0		8.19	7.84	7.88	7.15											
6-Nov-25	DO (mg/L)	>6.0						7.19	5.09	5.01								
7-Nov-25	DO (mg/L)	>6.0						7.19	5.09	5.01	5.18	5.44	6.45	7.07			6.82	6.56
11-Nov-25	DO (mg/L)	>6.0		7.85	8.4	7.69	7.39											
12-Nov-25	DO (mg/L)	>6.0						6.88	5.49	4.94								
18-Nov-25	DO (mg/L)	>6.0		7.69	7	8.16	7.05											
19-Nov-25	DO (mg/L)	>6.0						5.85	4.29	3.96								
26-Nov-25	DO (mg/L)	>6.0					6.18	6.71	4.97	5.2								
4-Dec-25	DO (mg/L)	>6.0		7.34	6.2	7.19	6.16											
5-Dec-25	DO (mg/L)	>6.0						6.1	5.55	5.72								
9-Dec-25	DO (mg/L)	>6.0	6.25												8.53			
10-Dec-25	DO (mg/L)	>6.0		8.01	6.66	6.28												
11-Dec-25	DO (mg/L)	>6.0					6.45	7.34	5.18	5.22								
12-Dec-25	DO (mg/L)	>6.0									4.79	4.49	6.41	6.16			6.69	6.49

		River Name	Nam Ngiep												Nam Chain	Nam Phouan	Nam Xao	Nam Houay Soup
		Zone	Location Refer to Construction Sites												Location Refer to Construction Sites			
			Upstream/Main Reservoir						Re-Regulation Reservoir/Within		Downstream				Tributaries Upstream		Tributaries Downstream	
		Station Code	NNG01	R01	R02	R03	R04	R05	R06	R07	NNG05	NNG06	NNG07	NNG08	NCH01	NPH01	NXA01	NHS01
Date	Parameters (Unit)	Guideline																
17-Dec-25	DO (mg/L)	>6.0						6.77	4.97	5.6								
18-Dec-25	DO (mg/L)	>6.0		8.17	6.71	7.8	7.32											
23-Dec-25	DO (mg/L)	>6.0						6.85	4.96	5.21								
24-Dec-25	DO (mg/L)	>6.0		7.12	6.42	7.56	7.02											
9-Oct-25	Conductivity (µs/cm)				72	64												
10-Oct-25	Conductivity (µs/cm)						64	65	70	64								
14-Oct-25	Conductivity (µs/cm)		108												28			
15-Oct-25	Conductivity (µs/cm)			96	70	64												
16-Oct-25	Conductivity (µs/cm)						64	64	68	68								
17-Oct-25	Conductivity (µs/cm)										69	68	69	67			92	19
21-Oct-25	Conductivity (µs/cm)			78	74	64	64											
22-Oct-25	Conductivity (µs/cm)							64	69	68								
28-Oct-25	Conductivity (µs/cm)			84	78	66	64											
29-Oct-25	Conductivity (µs/cm)							64	69	68								
4-Nov-25	Conductivity (µs/cm)		104												27			
5-Nov-25	Conductivity (µs/cm)			76	72	62	62											
6-Nov-25	Conductivity (µs/cm)							60	69	69								
7-Nov-25	Conductivity (µs/cm)										67	70	70	68			112	32
11-Nov-25	Conductivity (µs/cm)			75	71	63	63											
12-Nov-25	Conductivity (µs/cm)							62	69	69								
18-Nov-25	Conductivity (µs/cm)			76	72	63	63											
19-Nov-25	Conductivity (µs/cm)							62	71	71				71				
26-Nov-25	Conductivity (µs/cm)						64	63	73	74				71				
4-Dec-25	Conductivity (µs/cm)			76	73	65	64											
5-Dec-25	Conductivity (µs/cm)							64	72	72				72				
9-Dec-25	Conductivity (µs/cm)		116												28			
10-Dec-25	Conductivity (µs/cm)			75	72	65												
11-Dec-25	Conductivity (µs/cm)						66	65	71	72								
12-Dec-25	Conductivity (µs/cm)										72	74	74	72			121	58

		River Name	Nam Ngiep												Nam Chain	Nam Phouan	Nam Xao	Nam Houay Soup
		Zone	Location Refer to Construction Sites												Location Refer to Construction Sites			
			Upstream/Main Reservoir						Re-Regulation Reservoir/Within		Downstream				Tributaries Upstream		Tributaries Downstream	
		Station Code	NNG01	R01	R02	R03	R04	R05	R06	R07	NNG05	NNG06	NNG07	NNG08	NCH01	NPH01	NXA01	NHS01
Date	Parameters (Unit)	Guideline																
17-Dec-25	Conductivity (µs/cm)						62	74	75				75					
18-Dec-25	Conductivity (µs/cm)			74	69	66	66											
23-Dec-25	Conductivity (µs/cm)						66	75	76				78					
24-Dec-25	Conductivity (µs/cm)			73	69	67	67											
9-Oct-25	Temperature (°C)				29.03	31.04	28.85											
10-Oct-25	Temperature (°C)						27.91	25.15	25.82									
14-Oct-25	Temperature (°C)		23.6											23.15				
15-Oct-25	Temperature (°C)			24.92	29.38	30.66												
16-Oct-25	Temperature (°C)						29.24	28.83	24.97	26.1								
17-Oct-25	Temperature (°C)										25.28	25.2	25.41	25.67		26.9	26.57	
21-Oct-25	Temperature (°C)			29.82	29.54	30.43	29.06											
22-Oct-25	Temperature (°C)							28.28	24.76	25.13								
28-Oct-25	Temperature (°C)			26.75	27.61	29.09	27.78											
29-Oct-25	Temperature (°C)							27.28	24.8	25.6								
4-Nov-25	Temperature (°C)		23.98											20.74				
5-Nov-25	Temperature (°C)			28.41	28.61	27.92	27.48											
6-Nov-25	Temperature (°C)							27.25	24.84	25.41								
7-Nov-25	Temperature (°C)										24.75	24.84	24.87	25.04		26.12	25.91	
11-Nov-25	Temperature (°C)			28.55	28.23	29.57	27.79											
12-Nov-25	Temperature (°C)							27.04	24.71	24.84								
18-Nov-25	Temperature (°C)			26.71	26.73	26.94	26.61											
19-Nov-25	Temperature (°C)							26.19	24.59	24.54				23.9				
26-Nov-25	Temperature (°C)						25.43	25.47	24.63	25.38				23.9				
4-Dec-25	Temperature (°C)			24.89	25.29	26.46	24.96											
5-Dec-25	Temperature (°C)							24.76	24.44	25.12				24.71				
9-Dec-25	Temperature (°C)		19.01											17.67				
10-Dec-25	Temperature (°C)			24.82	24.93	24.79												
11-Dec-25	Temperature (°C)						24.68	24.96	24.35	24.7								
12-Dec-25	Temperature (°C)										24.29	24.06	24.16	24.28		22.86	22.8	

		River Name	Nam Ngiep												Nam Chain	Nam Phouan	Nam Xao	Nam Houay Soup
		Zone	Location Refer to Construction Sites												Location Refer to Construction Sites			
			Upstream/Main Reservoir						Re-Regulation Reservoir/Within		Downstream				Tributaries Upstream		Tributaries Downstream	
		Station Code	NNG01	R01	R02	R03	R04	R05	R06	R07	NNG05	NNG06	NNG07	NNG08	NCH01	NPH01	NXA01	NHS01
Date	Parameters (Unit)	Guideline																
17-Dec-25	Temperature (°C)							25.44	24.27	24.95				24.54				
18-Dec-25	Temperature (°C)			25.35	25.11	26.56	24.84											
23-Dec-25	Temperature (°C)							24.69	27.6	29.94				24.77				
24-Dec-25	Temperature (°C)			25.55	25.52	26.27	24.7											
9-Oct-25	Turbidity (NTU)				9.41	3.14	2.92											
10-Oct-25	Turbidity (NTU)							2.94	216	153								
14-Oct-25	Turbidity (NTU)		253											43.8				
15-Oct-25	Turbidity (NTU)			99.3	3.76	2.85												
16-Oct-25	Turbidity (NTU)						2.52	2.9	330	210								
17-Oct-25	Turbidity (NTU)										309	297	298	270			41	9.03
21-Oct-25	Turbidity (NTU)			9.98	3.15	2.43	2.52											
22-Oct-25	Turbidity (NTU)							2.06	319	312								
28-Oct-25	Turbidity (NTU)			9.75	2.2	2.7	2.14											
29-Oct-25	Turbidity (NTU)							1.72	290	276								
4-Nov-25	Turbidity (NTU)		149											18.6				
5-Nov-25	Turbidity (NTU)			4.15	1.78	1.86	1.79											
6-Nov-25	Turbidity (NTU)							1.24	271	249								
7-Nov-25	Turbidity (NTU)										290	263	238	254			10.2	8.74
11-Nov-25	Turbidity (NTU)			2.78	1.57	1.82	1.65											
12-Nov-25	Turbidity (NTU)							1.15	273	263								
18-Nov-25	Turbidity (NTU)			3.54	3.07	1.7	1.71											
19-Nov-25	Turbidity (NTU)							1.33	234	233				238				
26-Nov-25	Turbidity (NTU)						6.5	7.31	158	158				238				
4-Dec-25	Turbidity (NTU)			3.04	8.26	6.35	14.2											
5-Dec-25	Turbidity (NTU)							17.9	136	124				132				
9-Dec-25	Turbidity (NTU)		52											10				
10-Dec-25	Turbidity (NTU)			3.64	5.49	10.1												
11-Dec-25	Turbidity (NTU)						13	14.8	165	157								
12-Dec-25	Turbidity (NTU)										172	164	140	145			9.86	5.27

		River Name	Nam Ngiep												Nam Chain	Nam Phouan	Nam Xao	Nam Houay Soup
		Zone	Location Refer to Construction Sites												Location Refer to Construction Sites			
			Upstream/Main Reservoir						Re-Regulation Reservoir/Within		Downstream				Tributaries Upstream		Tributaries Downstream	
		Station Code	NNG01	R01	R02	R03	R04	R05	R06	R07	NNG05	NNG06	NNG07	NNG08	NCH01	NPH01	NXA01	NHS01
Date	Parameters (Unit)	Guideline																
17-Dec-25	Turbidity (NTU)							12.1	144	133				129				
18-Dec-25	Turbidity (NTU)			6.67	3.62	4.44	10.6											
23-Dec-25	Turbidity (NTU)							8.75	111	115				110				
24-Dec-25	Turbidity (NTU)			3.87	2.91	2.69	9.26											
14-Oct-25	TSS (mg/L)		203.1												21.6			
15-Oct-25	TSS (mg/L)			41.2		<5												
16-Oct-25	TSS (mg/L)						<5	<5	157.6	94.3								
17-Oct-25	TSS (mg/L)										202.1	133.1	142.8	131.0			20.0	<5
4-Nov-25	TSS (mg/L)		104.0												10.3			
5-Nov-25	TSS (mg/L)			<5		<5	<5											
6-Nov-25	TSS (mg/L)							<5	104.8	103.3								
7-Nov-25	TSS (mg/L)										118.5	115.6	108.4	104.2			8.7	<5
8-Dec-25	TSS (mg/L)		35.5												5.1			
10-Dec-25	TSS (mg/L)			<5		<5												
11-Dec-25	TSS (mg/L)						5.2	5.0	58.6	41.7								
12-Dec-25	TSS (mg/L)										62.0	66.2	60.5	54.1			<5	<5
14-Oct-25	BOD ₅ (mg/L)	<1.5	<1												<1			
15-Oct-25	BOD ₅ (mg/L)	<1.5		<1		<1												
16-Oct-25	BOD ₅ (mg/L)	<1.5					<1	<1	<1	<1								
17-Oct-25	BOD ₅ (mg/L)	<1.5									<1	<1	<1	<1			<1	<1
4-Nov-25	BOD ₅ (mg/L)	<1.5	1.07												<1			
5-Nov-25	BOD ₅ (mg/L)	<1.5		<1		<1	<1											
6-Nov-25	BOD ₅ (mg/L)	<1.5						<1	<1	<1								
7-Nov-25	BOD ₅ (mg/L)	<1.5									<1	<1	<1	<1			<1	<1
9-Dec-25	BOD ₅ (mg/L)	<1.5	<1												<1			
10-Dec-25	BOD ₅ (mg/L)	<1.5		<1		<1												
11-Dec-25	BOD ₅ (mg/L)	<1.5					<1	<1	<1	<1								
12-Dec-25	BOD ₅ (mg/L)	<1.5									<1	<1	<1	<1			<1	<1
14-Oct-25	COD (mg/L)	<5.0	26.2												18.6			

		River Name	Nam Ngiep												Nam Chain	Nam Phouan	Nam Xao	Nam Houay Soup
		Zone	Location Refer to Construction Sites												Location Refer to Construction Sites			
			Upstream/Main Reservoir						Re-Regulation Reservoir/Within		Downstream				Tributaries Upstream		Tributaries Downstream	
		Station Code	NNG01	R01	R02	R03	R04	R05	R06	R07	NNG05	NNG06	NNG07	NNG08	NCH01	NPH01	NXA01	NHS01
Date	Parameters (Unit)	Guideline																
16-Oct-25	COD (mg/L)	<5.0							8.32	14.7								
17-Oct-25	COD (mg/L)	<5.0									14.7	7.04	13.4	4.48			23.7	7.14
4-Nov-25	COD (mg/L)	<5.0	8.96												11.5			
6-Nov-25	COD (mg/L)	<5.0							12.8	10.2								
7-Nov-25	COD (mg/L)	<5.0									8.32	10.9	18.6	21.1			9.6	4.48
9-Dec-25	COD (mg/L)	<5.0	7.68												6.4			
11-Dec-25	COD (mg/L)	<5.0							11.5	12.8								
12-Dec-25	COD (mg/L)	<5.0									3.84	6.4	2.56	7.68			5.12	3.84
14-Oct-25	NH ₃ -N (mg/L)	<0.2	<0.1												<0.1			
15-Oct-25	NH ₃ -N (mg/L)	<0.2		<0.1		<0.1												
16-Oct-25	NH ₃ -N (mg/L)	<0.2					<0.1	<0.1										
4-Nov-25	NH ₃ -N (mg/L)	<0.2	<0.1												<0.1			
5-Nov-25	NH ₃ -N (mg/L)	<0.2		<0.1		<0.1	<0.1											
6-Nov-25	NH ₃ -N (mg/L)	<0.2						<0.1										
10-Dec-25	NH ₃ -N (mg/L)	<0.2		<0.1		<0.1												
11-Dec-25	NH ₃ -N (mg/L)	<0.2					<0.1	<0.1										
14-Oct-25	NO ₃ -N (mg/L)	<5.0	0.37												0.18			
15-Oct-25	NO ₃ -N (mg/L)	<5.0		1.79		0.25												
16-Oct-25	NO ₃ -N (mg/L)	<5.0					0.24	0.18										
4-Nov-25	NO ₃ -N (mg/L)	<5.0	0.76												0.3			
5-Nov-25	NO ₃ -N (mg/L)	<5.0		0.06		<0.01	3.75											
6-Nov-25	NO ₃ -N (mg/L)	<5.0						<0.01										
10-Dec-25	NO ₃ -N (mg/L)	<5.0		<0.01		0.14												
11-Dec-25	NO ₃ -N (mg/L)	<5.0					0.07	0.08										
14-Oct-25	Faecal coliform (MPN/100 mL)	<1,000	1,600												1,600			
16-Oct-25	Faecal coliform (MPN/100 mL)	<1,000						23	130	170								
17-Oct-25	Faecal coliform (MPN/100 mL)	<1,000									240	920	1,600	1,600			1,600	1,600
4-Nov-25	Faecal coliform (MPN/100 mL)	<1,000	1,600												17			
6-Nov-25	Faecal coliform (MPN/100 mL)	<1,000						2	5	17								

		River Name	Nam Ngiep												Nam Chain	Nam Phouan	Nam Xao	Nam Houay Soup
		Zone	Location Refer to Construction Sites												Location Refer to Construction Sites			
			Upstream/Main Reservoir						Re-Regulation Reservoir/Within		Downstream				Tributaries Upstream		Tributaries Downstream	
		Station Code	NNG01	R01	R02	R03	R04	R05	R06	R07	NNG05	NNG06	NNG07	NNG08	NCH01	NPH01	NXA01	NHS01
Date	Parameters (Unit)	Guideline																
7-Nov-25	Faecal coliform (MPN/100 mL)	<1,000								27	79	170	240			540	540	
9-Dec-25	Faecal coliform (MPN/100 mL)	<1,000	920											540				
11-Dec-25	Faecal coliform (MPN/100 mL)	<1,000					0	2	5	33	40	34	27			34	2	
12-Dec-25	Faecal coliform (MPN/100 mL)	<1,000																
14-Oct-25	Total Coliform (MPN/100 mL)	<5,000	1,600											1,600				
16-Oct-25	Total Coliform (MPN/100 mL)	<5,000					33	350	1,600									
17-Oct-25	Total Coliform (MPN/100 mL)	<5,000								350	1,600	1,600	1,600			1,600	1,600	
4-Nov-25	Total Coliform (MPN/100 mL)	<5,000	1,600											33				
6-Nov-25	Total Coliform (MPN/100 mL)	<5,000					5	8	26									
7-Nov-25	Total Coliform (MPN/100 mL)	<5,000								170	170	540	350			920	920	
9-Dec-25	Total Coliform (MPN/100 mL)	<5,000	1,600											920				
11-Dec-25	Total Coliform (MPN/100 mL)	<5,000					0	130	33									
12-Dec-25	Total Coliform (MPN/100 mL)	<5,000								170	920	540	140			540	350	
4-Nov-25	TKN		1											<1				
5-Nov-25	TKN			<5		<5												
6-Nov-25	TKN						<5											
9-Dec-25	TKN		1											1				
10-Dec-25	TKN			1		1												
11-Dec-25	TKN					1	2											
14-Oct-25	TOC (mg/L)		24.81											17.22				
16-Oct-25	TOC (mg/L)							28.18	26.76									
17-Oct-25	TOC (mg/L)									26.98	28.39	28.5	28.6			27.17	27.52	
4-Nov-25	TOC (mg/L)		29.53											33.16				
6-Nov-25	TOC (mg/L)							23.8	35.28									
7-Nov-25	TOC (mg/L)									22.9	25.97	37.79	41.28			31.74	26.74	
9-Dec-25	TOC (mg/L)		14.36											18.67				
10-Dec-25	TOC (mg/L)							31.87	28.84									
11-Dec-25	TOC (mg/L)									15.09	20.44	15.1	16.85			13.84	17.85	
4-Nov-25	Total Phosphorus (mg/L)		0.21											0.05				

		River Name	Nam Ngiep												Nam Chain	Nam Phouan	Nam Xao	Nam Houay Soup
		Zone	Location Refer to Construction Sites												Location Refer to Construction Sites			
			Upstream/Main Reservoir						Re-Regulation Reservoir/Within		Downstream				Tributaries Upstream		Tributaries Downstream	
		Station Code	NNG01	R01	R02	R03	R04	R05	R06	R07	NNG05	NNG06	NNG07	NNG08	NCH01	NPH01	NXA01	NHS01
Date	Parameters (Unit)	Guideline																
5-Nov-25	Total Phosphorus (mg/L)			<0.05		<0.05												
6-Nov-25	Total Phosphorus (mg/L)							<0.05										
9-Dec-25	Total Phosphorus (mg/L)		0.12											0.08				
10-Dec-25	Total Phosphorus (mg/L)			0.07		0.11												
11-Dec-25	Total Phosphorus (mg/L)						0.08	0.07										
4-Nov-25	Total Dissolved Phosphorus (mg/L)		0.08											0.07				
5-Nov-25	Total Dissolved Phosphorus (mg/L)			0.2		0.09	0.08											
6-Nov-25	Total Dissolved Phosphorus (mg/L)							0.05										
9-Dec-25	Total Dissolved Phosphorus (mg/L)		0.1											0.11				
10-Dec-25	Total Dissolved Phosphorus (mg/L)			0.16		0.11												
11-Dec-25	Total Dissolved Phosphorus (mg/L)						0.09	0.15										
15-Oct-25	Turbidity (NTU)-bottom					1380												
16-Oct-25	Turbidity (NTU)-bottom						222	990										
5-Nov-25	Turbidity (NTU)-bottom					191	245											
6-Nov-25	Turbidity (NTU)-bottom							719										
15-Oct-25	TSS (mg/L)-bottom					725												
16-Oct-25	TSS (mg/L)-bottom						125	498.18										
5-Nov-25	TSS (mg/L)-bottom					68.07	<5											
6-Nov-25	TSS (mg/L)-bottom							379										
10-Dec-25	TSS (mg/L)-bottom					18.6												
11-Dec-25	TSS (mg/L)-bottom						<5	217.77										
15-Oct-25	BOD ₅ (mg/L)-bottom					4.38												
16-Oct-25	BOD ₅ (mg/L)-bottom						7.08	<1										
5-Nov-25	BOD ₅ (mg/L)-bottom					<1	3.8											
6-Nov-25	BOD ₅ (mg/L)-bottom							<1										

		River Name	Nam Ngiep												Nam Chain	Nam Phouan	Nam Xao	Nam Houay Soup
		Zone	Location Refer to Construction Sites												Location Refer to Construction Sites			
			Upstream/Main Reservoir						Re-Regulation Reservoir/Within		Downstream				Tributaries Upstream		Tributaries Downstream	
		Station Code	NNG01	R01	R02	R03	R04	R05	R06	R07	NNG05	NNG06	NNG07	NNG08	NCH01	NPH01	NXA01	NHS01
Date	Parameters (Unit)	Guideline																
10-Dec-25	BOD ₅ (mg/L)-bottom					<1												
11-Dec-25	BOD ₅ (mg/L)-bottom						<1	<1										
16-Oct-25	Total Coliform (MPN/100 mL)-bottom							240										
6-Nov-25	Total Coliform (MPN/100 mL)-bottom							14										
11-Dec-25	Total Coliform (MPN/100 mL)-bottom							0										
16-Oct-25	Faecal coliform (MPN/100 mL)-bottom							49										
6-Nov-25	Faecal coliform (MPN/100 mL)-bottom							0										
11-Dec-25	Faecal coliform (MPN/100 mL)-bottom							0										
5-Nov-25	NH ₃ -N (mg/L)-bottom					<0.1	<0.1											
6-Nov-25	NH ₃ -N (mg/L)-bottom							<0.1										
10-Dec-25	NH ₃ -N (mg/L)-bottom					<0.1												
11-Dec-25	NH ₃ -N (mg/L)-bottom						<0.1	0.05										
5-Nov-25	NO ₃ -N (mg/L)-bottom					0.24	0.06											
6-Nov-25	NO ₃ -N (mg/L)-bottom							0.06										
10-Dec-25	NO ₃ -N (mg/L)-bottom					0.14												
11-Dec-25	NO ₃ -N (mg/L)-bottom						0.17	<0.05										
5-Nov-25	TKN-bottom					<1	1											
6-Nov-25	TKN-bottom							2										
10-Dec-25	TKN-bottom					1												
11-Dec-25	TKN-bottom						2	2										
5-Nov-25	Total Dissolved Phosphorus (mg/L)-bottom					0.13	0.09											
6-Nov-25	Total Dissolved Phosphorus (mg/L)-bottom							0.09										

		River Name	Nam Ngiep												Nam Chain	Nam Phouan	Nam Xao	Nam Houay Soup
		Zone	Location Refer to Construction Sites												Location Refer to Construction Sites			
			Upstream/Main Reservoir						Re-Regulation Reservoir/Within		Downstream				Tributaries Upstream		Tributaries Downstream	
		Station Code	NNG01	R01	R02	R03	R04	R05	R06	R07	NNG05	NNG06	NNG07	NNG08	NCH01	NPH01	NXA01	NHS01
Date	Parameters (Unit)	Guideline																
10-Dec-25	Total Dissolved Phosphorus (mg/L)-bottom				0.1													
11-Dec-25	Total Dissolved Phosphorus (mg/L)-bottom					0.08	0.1											
5-Nov-25	Total Phosphorus (mg/L)-bottom				0.14	0.12												
6-Nov-25	Total Phosphorus (mg/L)-bottom						0.33											
10-Dec-25	Total Phosphorus (mg/L)-bottom				0.08													
11-Dec-25	Total Phosphorus (mg/L)-bottom					0.08	0.12											
5-Nov-25	Chlorophyll-A-bottom				0.0012	0.0032												
6-Nov-25	Chlorophyll-A-bottom						0.0013											
10-Dec-25	Chlorophyll-A-bottom				0.0007													
11-Dec-25	Chlorophyll-A-bottom					0.0003	0.0006											
15-Oct-25	Chlorophyll-A			0.0009		0.0007												
16-Oct-25	Chlorophyll-A						0.0004	0.0002										
5-Nov-25	Chlorophyll-A			0.0019		0.001	0.0011											
6-Nov-25	Chlorophyll-A							0.0011										
10-Dec-25	Chlorophyll-A			0.0009		0.0005												
11-Dec-25	Chlorophyll-A						0.0005	0.0004										

APPENDIX 5-2: EFFLUENT CAMP MONITORING RESULTS – Q4 2025

		Site Name	OSOV1	OSOV 2	Main Powerhouse
		Station Code	EF01	EF13	EF19
Date	Parameter (Unit)	Guideline in the CA			
13-Oct-25	pH	6.0 - 9.0	6.53	6.78	6.88
04-Nov-25	pH	6.0 - 9.0	6.89	6.73	8.1
17-Nov-25	pH	6.0 - 9.0	6.1	6.97	6.72
03-Dec-25	pH	6.0 - 9.0	6.6	8.1	8
15-Dec-25	pH	6.0 - 9.0	6.6	7.9	8
13-Oct-25	Sat. DO (%)		24.8	50.9	60.4
04-Nov-25	Sat. DO (%)		38.7	62	74
17-Nov-25	Sat. DO (%)		58.4	85.4	77.2
03-Dec-25	Sat. DO (%)		21.8	58.7	64.1
15-Dec-25	Sat. DO (%)		25.3	53.3	57.4
13-Oct-25	DO (mg/L)		1.93	4.1	4.8
04-Nov-25	DO (mg/L)		2.3	5.87	5.94
17-Nov-25	DO (mg/L)		5.28	6.84	6.08
03-Dec-25	DO (mg/L)		1.87	5.15	5.04
15-Dec-25	DO (mg/L)		2.13	4.4	4.51
13-Oct-25	Conductivity (µs/cm)		290	231	917
04-Nov-25	Conductivity (µs/cm)		307	290	981
17-Nov-25	Conductivity (µs/cm)		312	233	935
03-Dec-25	Conductivity (µs/cm)		322	265	954
15-Dec-25	Conductivity (µs/cm)		338	261	1037
13-Oct-25	Temperature (°C)		28.32	27.1	26.97
04-Nov-25	Temperature (°C)		26.8	26.87	28.5
17-Nov-25	Temperature (°C)		25.23	26.72	28.21
03-Dec-25	Temperature (°C)		23.61	22.9	27.54
15-Dec-25	Temperature (°C)		23.94	25.09	27.65
13-Oct-25	Turbidity (NTU)		1.66	6.07	12.2
04-Nov-25	Turbidity (NTU)		0.97	7.32	17.1
17-Nov-25	Turbidity (NTU)		1.85	6.62	20.5
03-Dec-25	Turbidity (NTU)		1.51	8.8	10.1
15-Dec-25	Turbidity (NTU)		0.87	4.84	6.09
13-Oct-25	TSS (mg/L)	<50	<5	<5	15.33
04-Nov-25	TSS (mg/L)	<50	<5	7.6	40.41
17-Nov-25	TSS (mg/L)	<50	<5	<5	30.64
03-Dec-25	TSS (mg/L)	<50	<5	<5	13.6
15-Dec-25	TSS (mg/L)	<50	<5	<5	6.84
13-Oct-25	BOD ₅ (mg/L)	<30	<6	6.87	<6
04-Nov-25	BOD ₅ (mg/L)	<30	<6	<6	<6
17-Nov-25	BOD ₅ (mg/L)	<30	<6	<6	<6
03-Dec-25	BOD ₅ (mg/L)	<30	<6	<6	<6
15-Dec-25	BOD ₅ (mg/L)	<30	<6	<6	<6
13-Oct-25	COD (mg/L)	<125	21.1	24.9	34
04-Nov-25	COD (mg/L)	<125	21.8	48.6	26
17-Nov-25	COD (mg/L)	<125	20	37.8	66

		Site Name	OSOV1	OSOV 2	Main Powerhouse
		Station Code	EF01	EF13	EF19
Date	Parameter (Unit)	Guideline in the CA			
03-Dec-25	COD (mg/L)	<125	29.4	37.1	28
15-Dec-25	COD (mg/L)	<125	14.1	17.9	14
13-Oct-25	NH ₃ -N (mg/L)	<10.0	<0.1	<0.1	0.1
04-Nov-25	NH ₃ -N (mg/L)	<10.0	0.06	0.9	0.7
17-Nov-25	NH ₃ -N (mg/L)	<10.0	0.06	0.4	0.5
03-Dec-25	NH ₃ -N (mg/L)	<10.0	<0.1	0.5	0.5
15-Dec-25	NH ₃ -N (mg/L)	<10.0	0.17	0.5	0.5
13-Oct-25	Total Nitrogen (mg/L)	<10.0	7.0	10.0	45.0
04-Nov-25	Total Nitrogen (mg/L)	<10.0	9.0	16.0	50.0
17-Nov-25	Total Nitrogen (mg/L)	<10.0	14.2	9.0	38.0
03-Dec-25	Total Nitrogen (mg/L)	<10.0	17.0	16.0	45.0
15-Dec-25	Total Nitrogen (mg/L)	<10.0	9.0	14.0	39.0
13-Oct-25	Total Phosphorus (mg/L)	<2	0.68	0.3	5.9
04-Nov-25	Total Phosphorus (mg/L)	<2	0.82	0.8	5.0
17-Nov-25	Total Phosphorus (mg/L)	<2	0.85	0.6	6.6
03-Dec-25	Total Phosphorus (mg/L)	<2	1.21	0.8	6.3
15-Dec-25	Total Phosphorus (mg/L)	<2	1.33	0.7	6.6
13-Oct-25	Faecal Coliform (MPN/100 mL)	<400	130	23	17
04-Nov-25	Faecal Coliform (MPN/100 mL)	<400	22	27	0
17-Nov-25	Faecal Coliform (MPN/100 mL)	<400	49	5	0
03-Dec-25	Faecal Coliform (MPN/100 mL)	<400	79	5	8
15-Dec-25	Faecal Coliform (MPN/100 mL)	<400	110	240	130
13-Oct-25	Total coliform (MPN/100 mL)	<400	350	240	79
04-Nov-25	Total coliform (MPN/100 mL)	<400	22	27	0
17-Nov-25	Total coliform (MPN/100 mL)	<400	170	23	0
03-Dec-25	Total coliform (MPN/100 mL)	<400	540	5	23
15-Dec-25	Total coliform (MPN/100 mL)	<400	140	240	240
13-Oct-25	Residual Chlorine (mg/L)	<1.0	N/A	0.08	0.12
04-Nov-25	Residual Chlorine (mg/L)	<1.0	N/A	0.42	1.98
17-Nov-25	Residual Chlorine (mg/L)	<1.0	N/A	0.30	0.86
03-Dec-25	Residual Chlorine (mg/L)	<1.0	N/A	0.34	0.37
15-Dec-25	Residual Chlorine (mg/L)	<1.0	N/A	0.43	0.39

APPENDIX 5-3: COMMUNITY GROUNDWATER QUALITY MONITORING RESULTS – Q4 2025

Month Year	Parameter (Unit)	Site Name	Somseun Village	NamPa Village	ThongNoy Village	Pou Village	
		Station	GSXN 01	GNPA 01	GTHN 01	GPOU 01	GPOU 02
		Guideline					
14-Oct-25	pH	6.5 - 9.2				6.44	6.52
20-Oct-25	pH	6.5 - 9.2	6.35	6.56	6.47		
03-Nov-25	pH	6.5 - 9.2				6.57	6.75
13-Nov-25	pH	6.5 - 9.2	6.69	6.97	6.9		
09-Dec-25	pH	6.5 - 9.2				6.41	
22-Dec-25	pH	6.5 - 9.2	7.2	7.4	7.0		
14-Oct-25	Turbidity (NTU)	<20				3.59	1.5
20-Oct-25	Turbidity (NTU)	<20	1.43	1.5	2.4		
03-Nov-25	Turbidity (NTU)	<20				2.02	1.75
13-Nov-25	Turbidity (NTU)	<20	0.65	1.46	1.87		
09-Dec-25	Turbidity (NTU)	<20				2.1	
22-Dec-25	Turbidity (NTU)	<20	0.67	0.59	1.67		
14-Oct-25	Fecal coliform (MPN/100ml)	0				23	4.5
20-Oct-25	Fecal coliform (MPN/100ml)	0	3.7	9.3	17		
03-Nov-25	Fecal coliform (MPN/100ml)	0				0	2
13-Nov-25	Fecal coliform (MPN/100ml)	0	0	4.5	23		
09-Dec-25	Fecal coliform (MPN/100ml)	0				2	
22-Dec-25	Fecal coliform (MPN/100ml)	0	0	0	7.8		
14-Oct-25	E.coli Bacteria (MPN/100ml)	0				4.5	0
20-Oct-25	E.coli Bacteria (MPN/100ml)	0	3.7	9.3	13		
03-Nov-25	E.coli Bacteria (MPN/100ml)	0				0	0
13-Nov-25	E.coli Bacteria (MPN/100ml)	0	0	4.5	4.5		
09-Dec-25	E.coli Bacteria (MPN/100ml)	0					
22-Dec-25	E.coli Bacteria (MPN/100ml)	0	0	0	7.8	2	

APPENDIX 5-4: GRAVITY FED WATER SUPPLY QUALITY MONITORING RESULTS – Q4 2025

		Site Name	Thaheua Village	Hat Gnuin Village	Phouhomxay Village	
		Station	WTHH 02	WHGN 02	WPHX 02	WPHX 03
Date	Parameter (Unit)	Guideline				
20-Oct-25	pH	6.5 - 8.5	6.78	6.64	6.69	6.71
13-Nov-25	pH	6.5 - 8.5	6.82	6.7	6.47	6.62
22-Dec-25	pH	6.5 - 8.5	7.4	7.5	7.3	7.6
20-Oct-25	Sat. DO (%)		77.9	63.6	74.8	88.6
13-Nov-25	Sat. DO (%)		79	96.7	106.4	93.6
22-Dec-25	Sat. DO (%)		85.3	75	78.2	76.5
20-Oct-25	DO (mg/L)		6.13	5.06	5.71	6.68
13-Nov-25	DO (mg/L)		6.46	7.52	8.69	8.01
22-Dec-25	DO (mg/L)		7.23	6.33	6.47	6.08
20-Oct-25	Conductivity (µS/cm)	<1,000	37	66		
13-Nov-25	Conductivity (µS/cm)	<1,000	46	85	8	7
22-Dec-25	Conductivity (µS/cm)	<1,000	56	243	11	12
20-Oct-25	Temperature (°C)	<35	28.09	27.09	30.26	30.42
13-Nov-25	Temperature (°C)	<35	26.12	26.05	25.75	25.24
22-Dec-25	Temperature (°C)	<35	23.65	23.83	25.98	27.24
20-Oct-25	Turbidity (NTU)	<10	12.4	6.17	4.43	4.5
13-Nov-25	Turbidity (NTU)	<10	3.47	1.56	1.55	1.72
22-Dec-25	Turbidity (NTU)	<10	0.8	0.69	1.19	1.12
20-Oct-25	Faecal Coliform (MPN/100 mL)	0	27	17	39	17
13-Nov-25	Faecal Coliform (MPN/100 mL)	0	49	49	23	23
22-Dec-25	Faecal Coliform (MPN/100 mL)	0	7.8	13	130	49
20-Oct-25	E.coli Bacteria (MPN/100 mL)	0	29	17	39	17
13-Nov-25	E.coli Bacteria (MPN/100 mL)	0	22	22	4.5	4.5
22-Dec-25	E.coli Bacteria (MPN/100 mL)	0	7.8	13	130	49

APPENDIX 5-5: LANDFILL LEACHATED QUALITY MONITORING RESULTS – Q4 2025

			Site Name	NNP1 Landfill Leachate					Houay Soup Landfill	
			Location	Pond No.01	Pond No.02	Pond No.03	Pond No.04	Discharge Point	Last pond	Discharged Point
			Station	LL1	LL2	LL3	LL4	LL5	LL6	LL7
Date	Parameter (Unit)	Guideline								
13-Oct-25	pH	6.0-9.0					6.92		6.74	
13-Oct-25	Sat. DO (%)						50.9		68.1	
13-Oct-25	DO (mg/L)						3.85		5.01	
13-Oct-25	Conductivity (µS/cm)						46		86	
13-Oct-25	Temperature (°C)						30.46		31.98	
13-Oct-25	Turbidity (NTU)						7.57		5.7	
13-Oct-25	BOD5 (mg/L)	<30					<6		<6	
13-Oct-25	COD (mg/L)	<125					44.1		32.5	
13-Oct-25	Faecal Coliform (MPN/100mL)	<400					5		2	
13-Oct-25	Total Coliform (MPN/100mL)	<400					49		49	
13-Oct-25	Total Nitrogen (mg/L)	<10					1		2	
13-Oct-25	Lead (mg/L)	<0.2					<0.02		<0.02	
13-Oct-25	Copper (mg/L)						<0.1		<0.1	
13-Oct-25	Iron (mg/L)						<0.1		<0.1	
13-Oct-25	Ammonia nitrogen (mg/L)	<10					<0.1		<0.1	
13-Oct-25	Oil & Grease (mg/L)	<10					<0.7		1	

APPENDIX 6: DWP AND SSESMP FOR TEMPORARY ROAD REPAIRING FOR THE MAIN DAM POWERHOUSE, RIVERBED EXCAVATION, AND ACCESS ROAD 5169 REPAIR WORKS IN YEAR 2025LSEP_DWP and
SS_ESMMP.pdfDWP & SS-ESMMP
(NNP1PC-CF-TD-2021)Detail Work
Program for Access I**APPENDIX 7: EMO COMMENTS & CONTRACTOR'S RESPONSES TO SSESMP - FOR TEMPORARY ROAD REPAIRING FOR THE MAIN DAM POWERHOUSE, RIVERBED EXCAVATION, AND ACCESS ROAD 5169 REPAIR WORKS IN YEAR 2025**DAS and EMO
Comments to DWP &DAS and EMO
Comments for DWP