



PROJECT ENGINEER *for*

National Mission for Clean Ganga- Development, Rehabilitation with
Operation & Maintenance of STPs at Kanpur under Hybrid Annuity based PPP mode

Shah Technical Consultants Private Limited

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Ref. STC / PE / KNP / 1303 / Unnao

Date 03/12/2021

To,

Superintendent Engineer,
3rd Circle, UP Jal Nigam
Lucknow

Sub: HAM KANPUR: Unnao 15 MLD STP Site Inspection Report of dated 11th, 12th, 23rd,
24th & 25th November 2021

Dear Sir,

With reference to the above said subject Dr. Giridhar Prabhukumar, Team Leader, STC along with STC experts and support engineers inspected 15 MLD STP construction site at Dakari, Unnao on dated 8th, 12th, 18th, 25th & 29th October 2021. Inspection report is attached herewith for your reference.

Yours Sincerely,

(Dr. Giridhar Prabhukumar)
TEAM LEADER, STC Kanpur

Copy to the following for information and necessary action:

- i. Mr. R.K. Gupta, SWMS, NMCG, New Delhi
- ii. Chief Engineer, UP Jal Nigam, Lucknow
- iii. SE, E&M, UP Jal Nigam, Lucknow
- iv. EE, CD, UP Jal Nigam, Unnao.
- v. Project Manager Kanpur River Management Pvt. Ltd., Kanpur
- vi. Mr. Sumit Katiyar, Manager- Construction, KRMPL

SITE INSPECTION REPORT - 15 MLD STP AT UNNAO

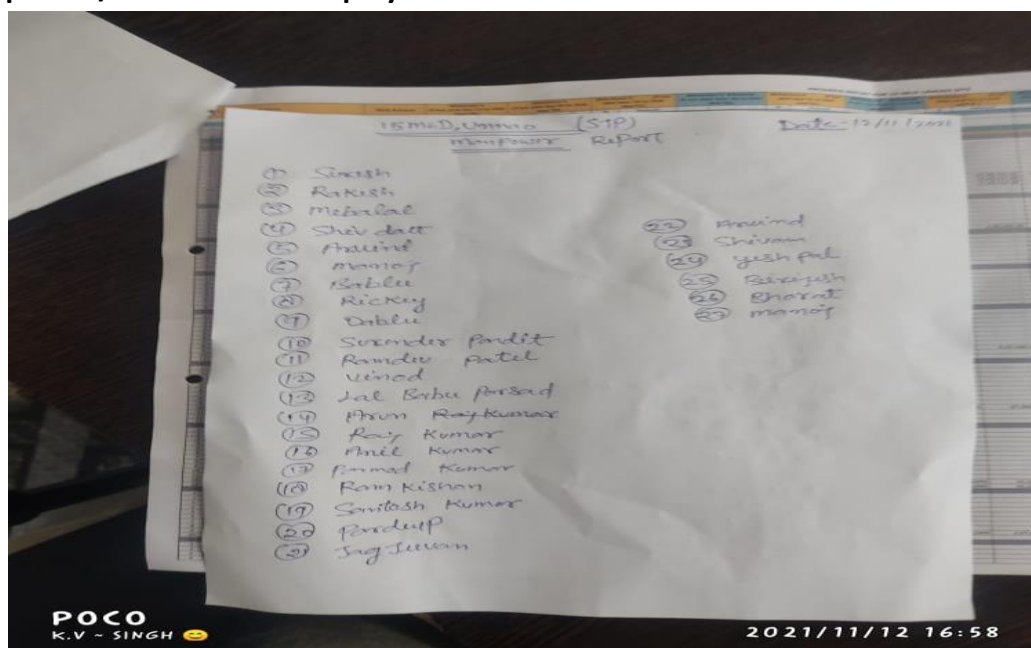
Date of site visit	11 th , 12 th , 23 rd 24 th & 25 th November 2021
STC Site Inspection team	Dr. Giridhar Prabhukumar, Team Leader STC Mr. Satish Kama Raju, Process Expert STC Mr. Rahul Sharwan Electrical Support Engg. STC Mr. Ajay Goyel Mechanical Support Engg. STC Mr. Priyesh Shukla, Support Engg. STC Mr. Karm Veer Singh, Support Supervisor STC
Persons met	Mr. Subhash Chandra, AE UP Jal Nigam, Unnao Mr. Manish Kumar Tiwari, JE, UP Jal Nigam, Unnao Mr. Puneet Kumar, JE UP Jal Nigam Unnao Mr. Goutam Sarkar, Dy. Project Manager KRMPL Mr. Roopchand, Site Engineer KRMPL Mr. Ashok Tyagi, Site Engineer KRMPL

1. COVID 19 precautions followed at site

Use of face masks were not followed by most of the workers. Workers were also not found wearing PPE's like Ear Plugs, Goggles, Hand gloves and Safety helmets. Disinfection spray fogging is being done in labour camps. Personal screening and awareness programme are implemented. It is advised for procurement and usage of the PPE usage during work by workers, staff and visitors.

2. Specific Points related to the site inspection

- i. Dr. Giridhar discussed about the progress of work, no. of labours, compliance of the previous observations, quality checks with UPJN and STC representatives.
- ii. It is to be noted that during inspection dated 12th November 2021, total 27 nos. of manpower / workers were deployed at the site.





- iii. On 23rd November total manpower was around 90. On 24th, 25th Nov. total manpower was found to be 90 nos. Details are:

SN	Particular	No. of workers
1.	Supervisor	09
2.	Carpenter	16
3.	Helper	32
4.	Fitter	13
5.	Masson	11
6.	Plant operator	1
7.	Pump operator	1
8.	Pipe Fitter	1
9.	D G operator	1
10.	Dewatering	2
11.	Grouting	2
12.	Electrician	1
	Total	90

The number of workers should be increased about 200-250 to complete the project on time.

- iv. During visit, progress of different STP components were checked as per the approved construction plan and it was found that **total progress till November 2021 is 62.3%. Out of total 8 milestones, till date only 4 milestones have been achieved by the Concessionaire. It is to be noted that final i.e. 8th milestone completion was due on 15.09.2021 but due to very less manpower and absence of required material & machinery, desired progress was not achieved.**

- v. As per the direction given by ED (P), NMCG New Delhi during meeting dated 17.11.2021, balance works of the STP were to be completed by 31st January 2021. For that KRMPL need to submit a detail balance work plan and get the approval from STC/UPJN.
- vi. Status of the progress for different STP Units/components till Nov. 2021 are given in the following table:

SN	STP Units	Target Progress, %	Achieved %
i.	I&D structure	100%	5%
ii.	Sewer Laying	100%	80%
iii.	Manholes	100%	10%
iv.	Rising Main	100%	0%
v.	MPS	100%	70%
vi.	PTU	100%	
	Inlet Chamber		41%
	Manual & Mechanical Fine Bar Screen		17.5%
	Grit Chamber		18.3%
	Parshall Flume		48%
vii.	SBR	100%	85%
viii.	Air Blower	100%	75%
ix.	CCT	100%	90%
x.	Chlorination Room	100%	85%
xi.	Supernatant Sump	100%	90%
xii.	Sludge Thickener	100%	90%
xiii.	Centrifuge Building	100%	70%
xiv.	Effluent Disposal System	100%	0%
xv.	Admin Building	100%	60%
xvi.	Staff Quarter	100%	80%
xvii.	Guard Room	100%	80%
xviii.	Transformer Yard Area	100%	0%
xix.	DG Shed Area	100%	0%
xx.	Sludge Storage Platform	100%	11%
xxi.	Boundary Wall	100%	70%

- vii. **The main reason for less progress is under-deployment of manpower and poor planning by the Concessionaire.** Work fronts on the most of the STP units/structures are available and the Concessionaire should plan for working in double shift on multiple fronts to complete the balance works. Instructions for the same have been given by NMCG/UPJN many times but KRMPL has not complied till date.
- viii. **As informed in Oct 2021 month inspection report, KRMPL has not complied regarding availability of onsite batching plant till date. Earlier mini batch plant belonged to the previous contractor (Aspark infratech) which is not working on the STP anymore. In the absence of mini batch plant, concreting is done either by bringing from RMC plant or by on site using manual mixture which is not desirable as quality of concrete can't be ensured.**

- ix. **For concreting through RMC, KRMPL must inform UPJN/STC prior to bring any lot from there so that concerned JE / STC supervisor may be deployed there. KRMPL has been asked for the same and compliance is still required.**
- x. During visits, some issues in construction and quality works of compound wall were observed by JE, UPJN and STC which are as following:
- PCC and raft in compound wall has not been done properly and its alignment is zigzag type, also width of PCC is not proper. This has happened due to KRMPL Engineer has not given proper instruction to P/t Contractor. Shuttering for casting & finishing is also poor. Photographs are attached for the reference:



- clear cover is not exactly as per design due to use of wide range of cover blocks;

- KRMPL is not using vibrator frequently at the time of casting. Due to which at some structures honey combing was observed. KRMPL has been instructed to rectify it and use vibrator in regular practice.
- Works of SBR were almost completed around 85% in past month. After that no activity started till 23rd Nov.



- The reinforcement steel was found kept in open area, due to which corrosion has started. KRMPL has been told many a times that open storage of steel is undesirable. It is instructed to KRMPL that they should store steel in such way that rusting / corrosion could be avoided and also, before using steel they should check it properly and steel should be free of corrosion.
 - It was also noticed that curing of the ongoing civil structure works is not done regularly. KRMPL has been instructed many times to perform curing by tying funny bags around the civil structures and watering regularly.
- xi. During visit quality check register was inspected by PE, STC for different construction materials like, cement, brick, concrete cube, construction water sample etc.
 - xii. For curing 2 tanks were found, these need to be marked with days and week so that sample may not mix up. Water should be changed regularly and time of change should be displayed in a board.

3. Status and Progress of I & D WORKS

Progress at I&D structure is very slow. Despite of many directions given by EE, UPJN Unnao and PE, STC through letters, the works of I&D have not been completed till date. The main reason for this is under deployment of labour and non-continuous work at the I&D location. Following points are to be noted:

- i. Out of 3.2 km sewer (1200 mm) only 2.2 km pipe has been laid till date. There was some hindrance by local villagers and farmers for - approach road and laying of 1200

mm RCC pipe as local residents are opposing the work. District authorities were informed about the matter on 23/10/2021 to resolve the matter.

- ii. If such issue arise again, then KRMPL need to inform UPJN/STC and suitable measures can be taken like requesting district administration to deploy police men for smooth laying of sewer pipeline.
- iii. It was observed on 27.11.2021 that due to ongoing sewer laying work, approx 50m length of adjacent effluent drain from CETP Banthar got damaged. Due to which flow of the drain was obstructed. Photographs are attached for the ready reference. KRMPL has been directed to repair the damaged effluent drain.



- iv. Out of 46 manholes only 04 manholes were laid. Quality of manhole works is very poor due to which KRMPL was directed to dismantle these manholes and reconstruct with proper finishing. One manhole on the road site was spilled with water. Dewatering is being done but appropriate power rating pump must be installed for dewatering. Photographs are attached



- v. Odour control is not effective in this area due to tannery waste is flowing in to the proposed discharge nala of the ID works. Necessary action to be taken to address odour issues of tannery waste water by involving PCB authorities.
- vi. Dewatering pump to be barricaded in safety point of view. Dewatering pump cover was open during the inspection and advised to close it after stopping the motor.
- vii. Excavated manhole work area hard barricading to be done. In this area safety caution boards to be displayed and workers need to wear PPE's.

4. General Points related to the site

- i. Lot of debris and materials were all around various units. This should be removed so that laying of RCC pipes (150 mm) work to be started for cables to pass to other units.
- ii. Only HT VCB Panel has reached to site, rest of the items have not **arrived** to site.
- iii. 2 Nos. CC TV cameras were installed but monitor not provided. Minimum 4 nos. of CCTV should be installed.
- iv. Electrical/mechanical vendors for installation work not yet finalized.
- v. As the work is to be completed by 15th December 2021, micro level monitoring is required. KRMPL to submit unit/item wise day by day work plan.
- vi. It was noticed that staking of materials including steel was not proper. Pile of aggregate was lying on the ground where loose soil and mud was getting mixed. It is recommended that a raised platform should be built to stake the construction materials. At steel yard steel was immersed with water.
- vii. Hard barricading around the excavated structures still not provided which may lead to unwarranted mishap.
- viii. Around excavated MPR, SBR, CCT and along with boundary wall hard barricading is urgently needed. IS 3764: 1992, IS 7323: 1994
- ix. Provision of main entrance gate should be taken on urgent basis. At present two entrances provided without any barricading.
- x. Site entrance road and internal site roads are in very bad condition. Lots of water logging and mud makes site dangerous to work.
- xi. Number of Site safety slogan boards and caution boards display are to be increased in different places of site area like: DANGER-DEEP EXCAVATION, MEN AT WORK, ELECTRICAL HAZARD, ASSEMBLY POINT, SITE ENTRANCE MAIN BOARD, FIRE EXTINGUISHER, FIRE POINT, and EMERGENCY TELEPHONE NOS.etc. IS 3764 -1992, IS 1642: 1989. IS 9457; 1980.
- xii. Proper site house-keeping need to be done particularly inside and outside labour camps and toilets. Toilets doors damaged. Toilets water tanks water is continuously flowing. Water tank structure and toilets rusted one to be replace with good condition one.
- xiii. Basic PPE's to be arranged to workers. Safety helmets, safety shoes and safety nose masks to be provided to all workers, staff and visitors.
- xiv. Permanent fire hydrant plan to be planned and incorporated in the Unnao 15 MLD STP Construction site.
- xv. Monthly safety committee meeting to be conducted by KRMPL along with workers, staff from each department, consultant representative and client representative. Such committee meeting minutes need to be circulated and resolved by the next month meeting. KRMPL advised to schedule meeting on regular basis and communicate the same to STC & UPJN in weak advance through mail.
- xvi. At present fire extinguishers monthly/quarterly service and checking is not being done, there is no checked date, due date of checks stickers by third party. Sufficient Fire extinguishers to be provided at site in different fire prone areas of the site.

- xvii. Scrap yard to be developed for storage of scrap material in the site. Hot work area to be marked and barricaded separately work-wise for each sub-contractor.
- xviii. Mock drills need to be conducted at site once in a month Example of topics for mock drill:
 - i. Fire mock drill
 - ii. Incident mock drill
 - iii. Poison mock drill
 - iv. Electrical shock mock drill
 - v. Excavation collapse mock drills.
- xix. Every mock drill report to be prepared and response, response time and the gap analysis to be done accordingly. It can be used as lesson learning and improvement on mock drills as part of onsite emergency plan. Mock drill schedule information to be given at least a week in advance to PE and UPJN.
- xx. Electrical safety is very poor in this site. Electrical plug tops, welding machine lugs and crimping to be arranged to avoid electrical shock and fire incidents. These problems were explained to KRMPL Safety officer during the visit. Open electrical mains at different area of plant to be closed with covers in safety point of view and with danger boards and unauthorised persons should not be allowed in this area and other relevant situations. Electrical wires in the plant must go through either underground or through overhead only. Some places the cables were found open on the earth. Still the problem is as such in some areas since long, during inspection it was shown to KRMPL Safety officer for necessary action.
- xxi. Trained first aid person should be available in labour camp during night time and First aid box to be arranged at labour camp..
- xxii. Accident statistics and Accident-free man day's board to be displayed at site entrance for creating safety awareness to workers and visitors.
- xxiii. During the rainy season doctor consultation to be introduced to workers once in a week for an hour in labour camp to prevent and control of workers health from viral attacks and reduce from sick and to speed up progress as per schedule.
- xxiv. Workers monthly payment has not being done before 7th of every month. July 2021 payment details not provided by KRMPL during visit. This is against applicable labour laws of State and against commitment of KRMPL on statutory compliance as per CA. KRMPL to comply to the same immediately.
- xxv. Concessioner site in charge along with site safety officer safety audit and safety inspections to be done periodically and such reports along with the compliance to be sent to UPJN / STC. IS 14489; 1998.
- xxvi. As per IS 8990:1978 Code of practice of maintenance and care of industrial safety clothing to be followed.
- xxvii. As per IS: 11972:1980 Safety colours and Safety signs not following by KRMPL.
 - 1. KRMPL must follow work permit system including but not limited to:
 - i. Excavation
 - ii. Confined space entry
 - iii. Electrical work(HV/LV)
 - iv. Opening manholes, covers and grills
 - v. Blasting operations
 - vi. Hot works
 - vii. works on plant,
 - viii. Machinery & other power-driven equipment
 - ix. Working at height

- x. Working at night.

It is requested UPJN to advise KRMPL to rectify the shortfalls, expedite the progress and submit compliance of inspection report.