



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 /1402/ Unnao

Date 20/01/2022

To,

Superintendent Engineer,
3rd Circle, UP Jal Nigam
Lucknow

Sub: HAM KANPUR: 15 MLD STP Unnao Site Inspection Report dated 13th January
2022

Dear Sir,

With reference to the above said subject; a team of STC experts and support engineers inspected 15 MLD STP construction site at Dakari, Unnao on dated 13th January 2022. 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	13th January 2022
STC Site Inspection team	Mr. Priyesh Shukla, Support Engineer, STC Kanpur Mr. Karm Veer Singh, Support Supervisor, STC Kanpur
Persons met	Mr. Goutam Sarkar, Dy. Project Manager KRMPL Mr. Gulshan Kumar – Safety Officer, KRMPL Kanpur

1. COVID 19 precautions at site

- Use of face masks were not followed by most of the workers. Workers were also not found wearing PPE's like Safety helmets, safety shoes, Ear Plugs, Goggles and Hand gloves;
- Disinfection spray and mosquito fogging is not being done in labour camp;
- 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 (Civil)

- I. STC team discussed about the progress of work, no. of labours, compliances of the previous observations and quality checks with KRMPL representatives.
- II. **It is to be noted that during inspection dated 13th January 2021, total 130 nos. of manpower / workers were deployed at the site.**

SN	Particular	No. of workers
I.	Supervisor	09
II.	Carpenter	20
III.	Helper	65
IV.	Fitter	10
V.	Masson	18
VI.	Plant operator	1
VII.	Pump operator	1
VIII.	Pipe Fitter	1
IX.	D G operator	1
X.	Dewatering	2
XI.	Grouting	1
XII.	Electrician	1
XIII.	Total	130

- III. **The number of workers should be increased about 200-250 to achieve further targets / milestones 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 13th January 2022 is 64.70%. Out of total 8 milestones, till date only 5 milestones have been achieved by the Concessionaire. Progress of balance work plan is very slow and unsatisfactory.**

Status of the progress for different STP Units/components is given in the following table:

SN	STP Units	Target Progress, %	Achieved %
I.	I&D structure	100%	50%
II.	Sewer Laying	100%	80%
III.	Manholes	100%	8%
IV.	Rising Main	100%	0%
V.	MPS	100%	80%
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%	35%
IX.	CCT	100%	90%
X.	Chlorination Room	100%	90%
XI.	Supernatant Sump	100%	90%
XII.	Sludge Thickener	100%	90%
XIII.	Centrifuge Building	100%	85%
XIV.	Effluent Disposal System	100%	5%
XV.	Admin Building	100%	80%
XVI.	Staff Quarter	100%	90%
XVII.	Guard Room	100%	90%
XVIII.	Transformer Yard Area	100%	30%
XIX.	DG Shed Area	100%	30%
XX.	Sludge Storage Platform	100%	10%
XXI.	Boundary Wall	100%	90%

The main reason for less progress is under-deployment of manpower and poor planning by the Concessionaire.

- V. During visits, some issues in construction and quality works of boundary wall were observed by STC which are as following:
- VI. Concreting of compound wall has not been done properly and it is rough. This has occurred due to KRMPL has not used proper shuttering for casting & also finishing of top surface level is poor due to poor shuttering arrangement. Photographs attached:
- VII. Clear cover is not exactly as per design due to use of wide range of cover blocks;
- VIII. KRMPL is not using vibrator frequently at time of casting due to which at some locations honey combing was observed. KRMPL has been instructed to rectify it and use vibrator in regular practice.



- IX. At admin building & Staff Quarter, brick work and Plaster work is almost done, finishing work in progress.
- X. During inspection observed in Chlorination tank, coal tar epoxy coating in not done uniformly.





- XI. **Improper Brick masonry in Centrifuge Building:** Improper Brick masonry work found in Staff quarter & Centrifuge Building. Brick Masonry is not found in vertical alignment. Raking in masonry is also improper. Brick masonry work Plum is not in vertical alignment. Joint in brick masonry found less quantity of mortar above the Lintel Beam Level.



- XII. Out of 46 manholes only 04 manholes has constructed. Quality of RCC work in found very poor. PE/STC and EE Unnao UPJN had already are KRMPL many time directed to dismantle these manholes and reconstruct with proper finishing. But KRMPL not dismantling yet.



Regarding supply of EMI equipments, following items were yet not received at the Site:

- MPS : Gates and Valves, flow meter, Gauges, level
- Inlet Chamber Area : Gate & Valves (50%)
- Air blower : Air Blower and hoist;
- Chlorination Room : Chlorination System (50%) and Chlorine Neutralization tank;
- Admin Building : PMCC work (50%) and PLC/SCADA,
- Transformer Yard : Transformer
- DG Area :DG set

- I. The reinforcement steel was found kept in open area, due to which corrosion has started. KRMPL has been told many times that open storage of steel is undesirable. KRMPL need to store steel material as per **IS code 4082:1996(Recommendations on stacking and storage of construction materials and components at site) point no. 4.13.1 page no. 5.**



3. SPECIFIC POINTS RELATED TO THE I & D WORKS

- i. 2.6 Km Dia, (1200)mm laying Completed against of 3.2 Km. Out of 46 manholes only 06 manholes constructed. One manhole on the road side was spilled with water.
- ii. **Dewatering is being done but it is not sufficient as dewatering pump is of under capacity. Appropriate power rating pump must be installed for dewatering. KRMPPL should complete dewatering and casting of manhole immediately to avoid water logging**
- iii. There were two issues - one approach road and other one is laying of 1200 mm RCC pipe as local residents are opposing the work. It was informed that district authorities to resolve the matter.
- iv. It was noted during visit, id damage is drain of CETP Banther has not been Repaired by KRMPPL. PE/STC and EE Unnao UPJN had already are KRMPPL many time to repair the damage drain and restore it is previous condition KRMPPL need comply the same earliest. Photographs attached:
- v. Casting of Raft of collection chamber done. And all channels of reinforcement was done and casting in progress,

During visit of I&D there was only 5 Manpower deployed at the site. KRMPPL need to increase manpower for complete of balance work earliest.



4. SPECIFIC POINTS RELATED TO THE SAFETY

- i. Site inspection report was not made available during the inspection.
- ii. Hard barricading around the excavated structures still not provided which may lead to unwarranted mishap.
- iii. Along with unfinished boundary wall hard barricading is urgently needed. IS 3764: 1992, IS 7323: 1994
- iv. Provision of main entrance gate should be taken on urgent basis. At present two entrances provided without any barricading.
- v. Site entrance road and internal site roads are in very bad condition to be improved.
- vi. 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.
- vii. Proper site house-keeping need to be done particularly inside and outside labour camps and toilets. Water tank structure and toilet doors rusted one to be replaced with good condition one.
- viii. Basic PPE's to be arranged for workers. Safety helmets, safety shoes and safety face masks to be provided to all workers, staff and visitors.
- ix. Permanent fire hydrant plan to be planned and incorporated in the Unnao 15 MLD STP Construction site.
- x. 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.
- xi. Scrap yard to be developed for storage of scrap material in the site. Hot work area to be marked and barricaded separately work-wise.
- xii. Mock drills need to be conducted at site once in a month Example of topics for mock drill:
 - a. Fire mock drill
 - b. Incident mock drill
 - c. Poison mock drill
 - d. Electrical shock mock drill
 - e. Excavation collapse mock drills.
- xiii. 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.
- xiv. Electrical safety is very poor in this site. Electrical plug tops to be arranged for all points, 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.

- xv. Trained first aid person should be available in labor camp during night time and First aid box to be arranged at labor camp.
- xvi. Accident statistics and Accident-free man day's board to be displayed at site entrance for creating safety awareness to workers and visitors.
- xvii. Workers monthly payment has not being done before 7th of every month. November, 2021 payment details not provided by KRMPL during visit. This is against applicable labor laws of State and against commitment of KRMPL on statutory compliance as per CA. KRMPL to comply to the same immediately.
- xviii. 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.
- xix. As per IS 8990:1978 Code of practice of maintenance and care of industrial safety clothing to be followed.
- xx. As per IS:11972:1980 Safety colours and Safety signs not following by KRMPL.
- xxi. KRMPL must follow work permit system including but not limited to:
 - a. Excavation
 - b. Confined space entry
 - c. Electrical work(HV/LV)
 - d. Opening manholes, covers and grills
 - e. Blasting operations
 - f. Hot works
 - g. works on plant,
 - h. Machinery & other power-driven equipment
 - i. Working at height
 - j. Working at night.

Safety points: I&D Construction Works

- i. PPE's face masks, Safety Helmets, Safety Shoes, Ear Plugs, Goggles, Hand gloves should be provided by KRMPL and used by the workers, staff and visitors
- ii. 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.
- iii. Excavated manhole work area hard barricading to be done.
- iv. In this area safety caution boards to be displayed.

- v. Concrete mixing machine was found at edge of excavation while pouring concrete, it is to be kept two meters away from the excavated edge for avoiding fall of concrete mixing machine on workers working in the pit.
- vi. Two minors were found at construction site, it is against labor law. KRMPL must follow the legal compliance at all times.
- vii. RCC pipes 1200mm storage area to be barricaded with name board.
- viii. Steel yard to be developed with barricading with name board.
- ix. In this construction area house-keeping is very poor need to be improved.
- x. JCB and Tractor valid documents of RC, Driver license, Insurance and fitness certificate not available during inspection.

It is requested the KRMPL to comply the raised points at the earliest and the compliance report to be submitted to UPJN & PE within 7 days.