

BPW-2025-0060

CONSTRUCTION SERVICES CONTRACT (CiSCo) – HYPERION WATER RECLAMATION PLANT (HWRP) CRYOGENIC FACILITY LIQUID OXYGEN AND LIQUID NITROGEN TANKS REFURBISHMENT – CAPITAL IMPROVEMENT PROJECT (CIP) 8187

Recommending the Board:

1. AUTHORIZE the City Engineer to use CiSCo and to issue task work orders to the contractor for an amount not-to-exceed \$2,898,000 for the CIP 8187 HWRP Cryogenic Facility Liquid Oxygen (LOX) and Liquid Nitrogen Tanks Refurbishment;
2. AUTHORIZE the Director of the Bureau of Sanitation (BOS) to request the City Engineer to sole source the selection of Chicago Bridge & Iron Co (CB&I) to inspect, design and undertake needed repairs for the LOX Tanks for an amount not-to-exceed \$200,000;
3. AUTHORIZE the Director of BOS to request the City Engineer to sole source the selection of Rosemount for two flow transmitters, two level transmitters, and six pressure transmitters for LOX Tanks and to sole source selection of Honeywell for two level indicator transmitters for LOX Tanks for an amount not-to-exceed \$200,000; and
4. AUTHORIZE the City Engineer to negotiate a price agreement with CB&I for the inspection, design, and repairs of LOX Tanks, and for the sole source purchase of process instruments including flow transmitters, level transmitters, pressure transmitters, and level indicator transmitters which will be procured and installed by the CiSCo contractor.

(W.O. SZH12232)

Department of Public Works

Bureau of Engineering
Bureau of Sanitation
Joint Report No. 1

January 27, 2025
CD No. 11

CAPITAL IMPROVEMENT PROJECT 8187 HYPERION WATER RECLAMATION PLANT CRYOGENIC FACILITY LIQUID OXYGEN AND LIQUID NITROGEN TANKS REFURBISHMENT - AUTHORIZATION TO UTILIZE CONSTRUCTION SERVICES CONTRACT AND VARIOUS SOLE SOURCE REQUESTS - WORK ORDER No. SZH12232

RECOMMENDING THE BOARD OF PUBLIC WORKS (BOARD):

1. AUTHORIZE the City Engineer to use Construction Services Contract (CiSCo) and to issue task work orders (TWO) to the contractor for an amount not-to-exceed \$2,898,000 for the Capital Improvement Project (CIP) 8187 Hyperion Water Reclamation Plant (HWRP) Cryogenic Facility Liquid Oxygen (LOX) and Liquid Nitrogen (LIN) Tanks Refurbishment.
2. AUTHORIZE the Director and General Manager of the Los Angeles Sanitation and Environment (LASAN) to request the City Engineer to sole source the selection of Chicago Bridge & Iron Co (CB&I) to inspect, design and undertake needed repairs for the LOX Tanks for an amount not-to-exceed \$200,000.
3. AUTHORIZE the Director and General Manager of LASAN to request the City Engineer to sole source the selection of Rosemount for two flow transmitters, two level transmitters, and six pressure transmitters for LOX Tanks and to sole source selection of Honeywell for two level indicator transmitters for LOX Tanks for an amount not-to-exceed \$200,000.
4. AUTHORIZE the City Engineer to negotiate a price agreement with CB&I for the inspection, design, and repairs of LOX Tanks, and for the sole source purchase of process instruments including flow transmitters, level transmitters, pressure transmitters, and level indicator transmitters which will be procured and installed by the CiSCo contractor.

DISCUSSION

Background

In 1994, the HWRP was upgraded to incorporate the use of High-Purity Oxygen Activated Sludge in the full secondary treatment of its wastewater. This process requires pure oxygen to be mixed into the secondary influent within the aeration basins, where it helps the microbes to digest the biological solids within the sewage. This 98 percent pure gaseous oxygen is produced onsite using a cryogenic air separation process, which is a low-temperature rectification process to produce oxygen and nitrogen. The Cryogenic Facility at the HWRP includes three - 250 tons per day cryogenic oxygen generating plants, referred to as Cold Box Nos. 1 through 3, two LOX Tanks (each 320,000 gallons capacity, double walled) and one LIN Storage Tank (30,000 gallons capacity, double walled), Direct Contact After Coolers & Evaporative

Cooling Tower, Compressor Facility and complex subsystems, instrumentation, and controls, interconnecting piping, and structures. See Figure No. 1 below.



Figure No. 1: LOX and LIN Tanks at HWRP Cryogenic Facility

These plants generate gaseous oxygen for pipeline distribution to the HWRP secondary activated sludge process and nitrogen for in-plant use. The inspection of Cryogenic Facility and its supporting components in 2015-2016 required the refurbishment of LOX and LIN Tanks as these components are past their service life and exposed to corrosion as being in the wastewater reclamation plant and close to the marine environment. See Figure No. 2 below.

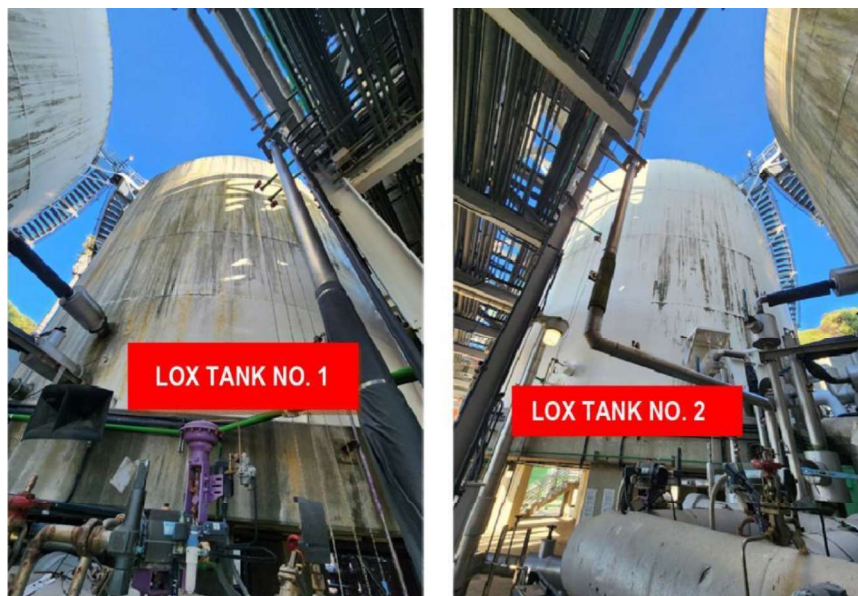


Figure No. 2: LOX Tanks covered with Fungus/Algae

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Proposed CiSCo Project

The CIP 8187 HWRP Cryogenic Facility LOX and LIN Tanks Refurbishment proposes to improve infrastructure at LOX Tank No. 1, LOX Tank No. 2 and LIN Tank. The scope of work includes the following:

- a) Positively isolate LOX and LIN tanks from the Cryogenic Facility.
- b) Install scaffolding, lighting, ventilation, monitoring, and confined space entry.
- c) Inspect LOX Tank No. 1, LOX Tank No. 2 and LIN Tank by CB&I.
- d) Design and repairs of LOX Tank No. 1, LOX Tank No. 2 and LIN Tank by CB&I.
- e) Procure and install sole source process instruments. Corrosion abatement of LOX Tank No.1, LOX Tank No. 2 and LIN Tank.
- f) Repair stairs of LOX Tank No. 1 and LOX Tank No. 2.
- g) Repair of auxiliary structural steel and concrete of LOX Tank Nos. 1 and 2.

The Use of Construction Services Contract (CiSCo)

To implement the project, LASAN is requesting the City Engineer to use CiSCo and to issue task work orders for simultaneous work, inspection, and expertly engineered refurbishment of cryogenic tanks.

LASAN's HWRP Cryogenic Oxygen Generation Facility must always remain in operation. Cryogenic tanks are critical components providing a high-rate storage of pure oxygen, nitrogen as liquid products. Only one tank can be taken offline for inspection and expertly engineered refurbishment with a balance of liquid oxygen required for the process imported during refurbishment. Step-by-step sequential removal from service, inspection by the manufacturer, and refurbishment by CiSCo contractor are operational requirements. Carrying out this highly specialized work would be very challenging under a conventional bid and award process. Using the CiSCo contractor partnered with LASAN HWRP Operations and Maintenance team, and the manufacturer CB&I technical experts will make it possible to deliver the project in a timely and effective manner.

Sole Source Justification

To implement the project, the Bureau of Engineering (BOE) and LASAN recommend to sole source CB&I to inspect and engineer refurbishment of LOX Tanks. This is highly specialized work and because CB&I is the original designer and manufacturer, they are uniquely suited to perform this specialty diagnostic and repair work on their own equipment. Process instruments at the selected locations will be sole-sourced and replaced with in-kind instruments to eliminate replacement of custom instrument manifolds which are expensive to replace. See Table 1 below for details.

Table 1					
Item	Process Instrument	Service	Instrument Tag No.	Manufacturer	Procurement Cost
1	Flow Transmitter for LOX Tank No. 1	Oxygen from Lox Vaporizer No.1	FT-704-1	Rosemount	\$ 8,500
2	Level Transmitter for LOX Tank No. 1	Liquid Oxygen Level in Storage Tank No.1	LT-731-1	Rosemount	\$ 8,500
3	Pressure Transmitter for LOX Tank No. 1	Oxygen gas from Lox Vaporizer No.1	PT-704-1	Rosemount	\$ 7,000
4	Pressure Transmitter for LOX Tank No. 1	Oxygen gas from Lox Vaporizer No.1	PT-726-1	Rosemount	\$ 7,000
5	Pressure Transmitter for LOX Tank No. 1	O2 Vapor Pressure in Storage Tank No.1	PT-731-1	Rosemount	\$ 7,000
6	Level Indicator Transmitter for LOX Tank No. 1	LOX Level in LOX Tank No. 1	LIT-740-1	Unspecified	\$ 45,000
7	Flow Transmitter for LOX Tank No. 2	Oxygen from Lox Vaporizer No.2	FT-704-2	Rosemount	\$ 8,500
8	Level Transmitter for LOX Tank No. 2	Liquid Oxygen Level in Storage Tank No.2	LT-731-2	Rosemount	\$ 8,500
9	Pressure Transmitter for LOX Tank No. 2	Oxygen gas from Lox Vaporizer No.2	PT-704-2	Rosemount	\$ 7,000
10	Pressure Transmitter for LOX Tank No. 2	Oxygen gas from Lox Vaporizer No.2	PT-726-2	Rosemount	\$ 7,000
11	Pressure Transmitter for LOX Tank No. 2	O2 Vapor Pressure in Storage Tank No.2	PT-731-2	Rosemount	\$ 7,000
12	Level Indicator Transmitter for LOX Tank No. 2	LOX Level in LOX Tank No. 2	LIT 740-2	Honeywell	\$ 45,000
Subtotal					\$166,000
Contingency					\$ 34,000
Total					\$200,000

The projected duration for the completion of the work is 40 weeks: 8 weeks for preparation, 28 weeks for the scheduled work, and 4 weeks for the functional testing of process instruments. The estimated costs are shown in Table 2 below:

Table 2		
Item	Description	Cost
1	Sole source inspection, design, and repairs by CB&I	\$ 200,000
2	Sole source procurement of process instruments	\$ 200,000
3	Scaffolding and safe site access	\$ 355,000
4	Refurbish LOX Tank No. 1 and LOX Tank No. 2	\$1,785,000
5	Install instruments and loop checks	\$ 100,000
Subtotal		\$2,640,000
Construction Contingency		\$ 258,000
Total		\$2,898,000

Program Review Committee (PRC) Approval

The project budget was approved by PRC on December 14, 2022, in the amount of \$2,898,000.

STATUS OF FUNDING

There is no impact to the General Fund. The total funding for this project is not to exceed \$2,898,000. Funding in the amount of \$725,000 is available in the Fund No. 70X, Wastewater System Commercial Paper B Construction Fund, Department No. 50, Appropriation Account No. 50YDFD, HWRP Cryo Facility Lox & Lin Storage Tanks Refurbishing. The remaining funding will be budgeted within the Sewer Construction and Maintenance Fund.

Funds and appropriations for future fiscal years are not yet identified and existing appropriations may change based on available cash balances. Therefore, funds and appropriations will be determined by the Director and General Manager of LASAN.

Funding as of the date of this Board Report has been verified and approved by the Director of the Office of Accounting subject to terms and conditions and cash availability described above.

The City's liability under this contract shall only be to the extent of the present City appropriation to fund the contract. However, if the City shall appropriate funds for any succeeding years, the City's liability shall be extended to the extent of such appropriation, subject to the terms and conditions of the contract.

(EBW VA AM)

Report reviewed by:

BOE (ADM) and LASAN (FMD, WESD, HWRP)

Report prepared by:


Environmental Engineering Division

Ethan B. Wong, PE, ENV SP

Division Engineer

Phone No. (310) 648-6120

Reviewed and approved by:


Sarai Bhaga (Dec 19, 2024 10:46 PST)

Sarai Bhaga

Chief Financial Officer

Bureau of Sanitation

Date: _____

Statement as to funds approved by:



for Miguel De La Peña, Director

Office of Accounting

70X/50/50YDFD \$725,000

Date: 12/26/2024

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Questions regarding this
report may be referred to:

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Respectfully submitted,


ENGINEERING
Document Signed by Ted Allen
Date: 12/26/2024

Ted Allen, PE

City Engineer

Bureau of Engineering



Barbara Romero

Director and General Manager

Bureau of Sanitation