South Coast AQMD v. LA Sanitation (Hyperion), Case No. 1212-39

Respondent's Exhibit G
HWRP Flare Station Revised Implementation Plan

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158631.002.005

HYPERION WATER RECLAMATION PLANT FLARE STATION
REVISED IMPLEMENTATION PLAN

1. Purpose

This document presents the Revised Implementation Plan in response to the stipulated Order of Abatement (Order) issued by South Coast Air Quality Management District (South Coast AQMD) dated March 24, 2022, to LA Sanitation & Environment (LASAN) regarding the Hyperion Water Reclamation Plant (HWRP) flare station. In response to that order, this Revised Implementation Plan describes the background on the project to ultimately construct a new flare station, and provides the proposed plan for such a flare station. The Revised Implementation Plan also presents and describes the anticipated schedule for implementing the recommendations of the proposed plan.

2. Background

The biogas produced by the HWRP anaerobic digestion process is combusted in the Hyperion Bioenergy Facility (a gas and steam turbine cogeneration facility, also referred to as the Digester Gas Utilization Project (DGUP) facility) to produce renewable energy in the form of electricity and steam for plant use. When the Hyperion Bioenergy Facility is undergoing preventive maintenance or repairs, the biogas is combusted in the steam boiler and flare station. The flare station is also an emergency backup system used to combust biogas when there is an alarm condition and a potential for the biogas pressure safety valves to release. The flare station includes crucial health and safety equipment needed to reduce the risks of a release of combustible and odorous biogas into the atmosphere. The flare station is required to be completely operational and must meet the South Coast AQMD permit requirements. A site layout is provided in ***Figure 1: HWRP Site Layout***.

HWRP FLARE STATION REVISED IMPLEMENTATION PLAN

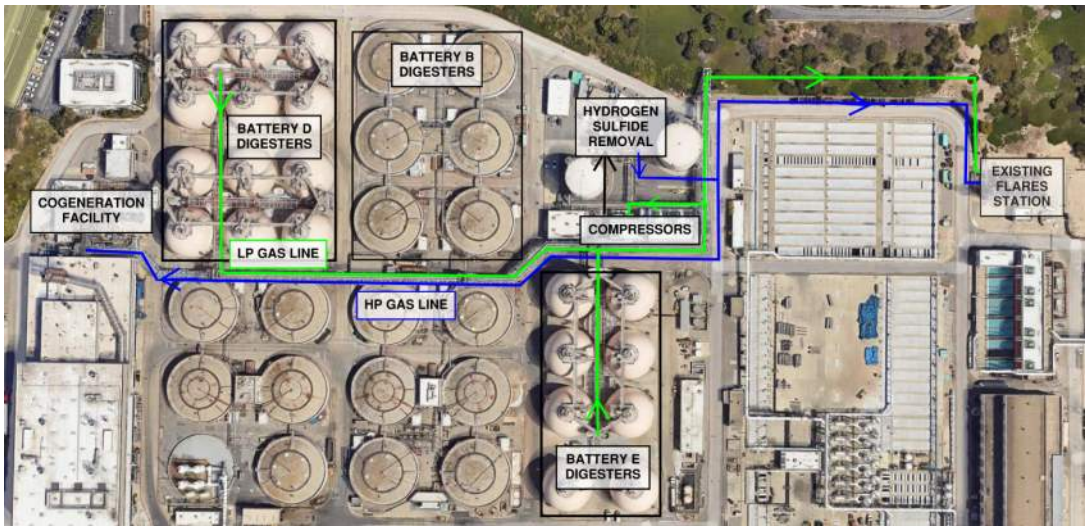

Figure 1. HWRP Site Layout

A summary of the HWRP biogas use is presented in ***Figure 2: HWRP Biogas Use.*** The digester gas is primarily used in the Hyperion Bioenergy Facility and steam boiler for beneficial use to produce electricity and steam for process heating. The steam boiler consumes biogas to produce steam when the Hyperion Bioenergy Facility is undergoing preventative maintenance or repairs. The HWRP beneficially uses approximately 97.9-99.1% of the biogas. Excess biogas not used by the Hyperion Bioenergy Facility and the steam boiler must be flared in accordance with permit requirements. Otherwise, raw combustible and odorous biogas would be released into the atmosphere. The flare station consumes 0.9-2.1% of the biogas when the Hyperion Bioenergy Facility is out of service for planned maintenance or breakdowns.

Figure 2. HWRP Biogas Use

HWRP FLARE STATION REVISED IMPLEMENTATION PLAN

* In July 2021, HWRP experienced an unforeseeable, unprecedented sewage that left sludge conveyance and treatment equipment inoperable. Residual solids already in the system produced a low amount of biogas. Until the equipment was repaired, the biogas flow was too low to operate a gas turbine generator or a boiler and had to be flared.

** In 2022, the Hyperion Bioenergy Facility had been in service for five years and had an extended preventive maintenance outage. The next scheduled extended outage is scheduled for 2027.

*** 2023 projected values. The Hyperion Bioenergy Facility preventive maintenance complete outage is scheduled for 3 days, and breakdowns are assumed to be 2 days.

The HWRP digester flare station includes six flares. During source testing of the six flares in 2021, South Coast AQMD determined that three of the flares exceeded the BACT standard for the nitrogen oxides (NOx) emission factor. Following the filing of a petition by South Coast AQMD, the Hearing Board, pursuant to a stipulation by the South Coast AQMD and the City, issued an Order of Abatement to the City of Los Angeles (City) on March 24, 2022, to (1) retest the flares and (2) bring the Hyperion flare station into compliance. A copy of the Order is included in ***Attachment B: South Coast AQMD Order of Abatement.*** The Order requires the City to complete the items pertaining to the Implementation Plan listed below in the event any flare is found to be non-compliant based on source testing performed after March 1, 2022. On May 4, 2022, South Coast AQMD communicated that the City was to initiate the Order requirements. A summary of the Order requirements, an update on the City's actions, and summary of South Coast AQMD's response are provided below.

- Order Item Number (4)(a):

  Requirement: Within 30 days from May 4, 2022 (no later than June 3, 2022), the City must enter into a contract with a vendor, contractor, or consultant to provide a technical evaluation and comprehensive report of the flare station ("Comprehensive Evaluation and Report," otherwise referred to as "Comprehensive Evaluation Report" herein). The Comprehensive Evaluation Report was required to include Flares 1-6.

  Demonstration: The City contracted with George T. Hall Company (GTH) and John Zink Hamworthy Combustion (John Zink) to complete independent Comprehensive Evaluation Reports. GTH and John Zink assessed Flares 1-6 on April 6 and 7, 2022. GTH re-assessed Flare 6 on March 7, 2023. GTH also amended the Comprehensive Evaluation Report for Flares 1-5 in April 2023 to include timelines for recommendations in their initial assessment.

- Order Item Number (4)(b):

  Requirement: Within 60 days from May 4, 2022 (no later than July 1, 2022), the City must provide a copy of the Comprehensive Evaluation Report to South Coast AQMD.

  Demonstration: The City submitted a copy of the following reports to the South Coast AQMD on June 29, 2022: "SR220120 Hyperion Flare Review Observations Report" prepared by GTH, dated June 27, 2022 and the "Hyperion WRP Flare Station Engineering Site Visit" report, prepared by John Zink, dated June 27, 2022.

  The City will submit a copy of the following updated reports to the South Coast AQMD: "SR220120 Hyperion Flare Review Observations Report, Amended" prepared by GTH, dated April 4, 2023 and the "QT-SR230050 Hyperion W.O. No. SZH12146, Flare 6 Review Report – Amended" report, prepared by GTH, dated April 3, 2023.

The GTH and John Zink Comprehensive Evaluation Reports are included in ***Attachment C: George T. Hall Company Evaluation report – Flares 1-6, Amended;*** ***Attachment D: George T. Hall Company Evaluation report – Flare 6****; and* ***Attachment E: John Zink Hamworthy Combustion Evaluation Report****.*

- Order Item Number (4)(c):

  Requirement: Within 90 days from the completion of the Comprehensive Evaluation Reports (no later than September 27, 2022), the City must submit a proposed Implementation Plan to South Coast AQMD to implement the recommendations of the Comprehensive Evaluation Reports.

  Demonstration: LASAN submitted the initial Implementation Plan on September 24, 2022. The Implementation Plan proposed replacement of the burners, mixing plates, and diverters in Flares 4 and 5. It also proposed modifying the control logic of Flares 4 and 5 to improve performance. The initial Implementation Plan is included in ***Attachment F: Implementation Plan (September 2022)*****.**

In response to LASAN's submission of an initial Implementation Plan, South Coast AQMD submitted a request for information (RFI) to LASAN to gather additional information on the existing flare facility. Based on this additional information, South Coast AQMD notified the City that it had determined that changes to Flares 1-6 have previously been made, and per Rule 219(c)(3), a new permit application is required for each flare. In addition, South Coast AQMD notified the City that Rule 1118.1 will define the emissions limits of the new permit. Due to the age of the existing flares, the flare industry does not have the capability to perform reasonable repairs that will result in the existing flares complying with Rule 219(c)(3) and the emissions limits that would be included in a new permit; therefore, this Revised Implementation Plan is being submitted, recommending replacement of the existing flares to address the Order of Abatement and comply with South Coast AQMD regulations.

3. Approach

This document represents a revised Implementation Plan to address South Coast AQMD's feedback described in ***Section 2*** above. The City contracted with Brown and Caldwell (BC) to assist the City with developing an Implementation Plan in response to Order Item No. (4)(c), and to continue to assist the City with this Revised Implementation Plan. Based on the feedback provided from South Coast AQMD on the initial Implementation Plan, this Revised Implementation Plan proposes construction of a new flare station designed to meet the newly imposed emission limits defined by Rule 1118.1. The Revised Implementation Plan is based on a conventional Design-Bid-Build project delivery method, as described herein, including a preliminary design phase, design phase, bid and award phase, and construction phase.

4. Implementation Plan

The following subsections present the recommendations of this Revised Implementation Plan.

4.1 Description

The Revised Implementation Plan proposes the construction of a new flare station designed to meet the emissions limits defined by Rule 1118.1. The new flare station will replace the existing flare station, which will remain operational until the new station is online to provide safe disposal of excess biogas.

4.1.1 New Flare Station

A new flare station will be constructed onsite and will be designed to flare high and low pressure digester gas. The flares will operate on high pressure digester gas when maintenance or repair work prevents the Bioenergy Facility or steam boilers from using all the digester gas. The flares will operate on low pressure digester gas when an emergency shutdown of the compressors or desulfurization of the facility occurs. The new flare station will be designed to meet identifiable projected future digester gas production rates associated with receiving and processing wastewater.

4.1.2 Gas Conditioning

Gas conditioning will be required for the new flare station to comply with Rule 1118.1 emissions limits. Gas treatment processes may include hydrogen sulfide removal, ammonia removal, siloxane removal, moisture removal, and gas compression. BC recommends a preliminary design project along with appropriate sampling and lab characterization of the biogas to evaluate and confirm the required gas treatment processes to meet emissions limits.

4.1.3 Operation and Maintenance

Proper operation and maintenance (O&M) will be required for reliable long-term performance of the new flare station to maintain compliance with the permit. A new flare station and the associated gas handling equipment will introduce additional O&M requirements. BC recommends a preliminary design phase to define the flare station equipment and required O&M. The preliminary design report should identify the additional staff required to fulfill the O&M responsibilities of the new flare station or evaluate if vendor-contracted operations and maintenance is preferred. The design of the new flare station should include features to facilitate ease of operation and maintenance of the new equipment.

4.2 Regulatory and Permitting

This section identifies the primary anticipated permits required for construction and operation of the new flare station. Timelines for submitting applications for the required approvals from the identified regulatory agencies are included in ***Attachment A: Revised Implementation Plan Schedule***. The regulatory requirements and permits anticipated for this project include the following:

- California Environmental Quality Act (CEQA)
- City of Los Angeles Department of Building and Safety (LADBS) Building Permits

- City of Los Angeles Fire Department Permit
- South Coast AQMD Permit to Construct
- South Coast AQMD Permit to Operate

4.3 Construction Delivery Method

The construction delivery method may impact project schedule. Design-Bid-Build (DBB) is the most common construction project delivery method used in the construction industry. Alternative delivery methods, such as Design-Build (DB), Construction Manager at Risk (CMAR), or Progressive Design-Build (PDB), may be viable alternatives to DBB to accelerate project schedule. Pre-procurement of equipment by the City may be another variation to DBB to accelerate project schedule. However, each of these methods have additional risks, some of which are identified below. This section describes the impact of construction delivery method on the project approach and schedule. The construction delivery method should be assessed and confirmed in the preliminary design phase of the project.

4.3.1 Design-Bid-Build

DBB is a conventional construction project delivery method that involves the completion of the following three distinct phases in sequence: (1) design, (2) bid and award, and (3) construction. There is no overlap between design and construction. DBB provides the Owner with more control over the ultimate facility design and installation, while also increasing the contractor pool. This delivery method allows the Owner to have greater control over the design and quality of equipment selected, which can affect reliability. DBB also allows for better coordination with plant O&M staff during design. This approach enhances the overall safety and maintainability of the flare station, and it minimizes the potential for equipment failures that would result in emission violations.

4.3.2 Alternative Delivery

Alternative delivery methods such as DB may be viable alternatives to DBB. With alternative delivery, the project starts with development of bid documents for a DB contractor, followed by bidding and award of the alternative delivery contract. The contractor then proceeds with an expedited design and equipment selection. Around a 60% level of design, the contractor submits the permit to construct (PTC) application to South Coast AQMD and provides the City with a maximum allowable construction cost. Upon receipt of the approved PTC, the contractor releases the equipment for fabrication. The PTC may determine specific equipment features and configurations; therefore, BC does not recommend fabrication of equipment prior to receipt of the PTC to avoid expensive rework and schedule delays. A detailed review of the project schedule for alternative delivery was not conducted for this Revised Implementation Plan.

Although alternative delivery provides opportunities to accelerate the schedule, the method reduces the City's control of the project details and certain quality aspects and introduces additional project risks. To provide a flare station that meets the needs of the project, several features must be included in the design and construction of the new facility. The equipment selected should have proven/reliable experience with municipal digester gas to avoid unexpected failures that would result in unsafe conditions for plant staff and air emission violations. Also, selection of gas handling equipment must include

provisions for O&M to reduce the potential for equipment failures or downtime. To achieve these goals, more details are required in the bid documents and contract for the alternative delivery contractor, reducing potential schedule savings.

4.3.3 Equipment Pre-procurement

Equipment pre-procurement is another method used by the industry to accelerate construction schedules. Equipment pre-procurement would involve the City purchasing equipment with long fabrication schedules in advance of construction. During the project design, an equipment bid package is developed and advertised for manufacturers to bid. This would allow the City to select a manufacturer and review submittals in advance of construction. The City would release the equipment for fabrication after receipt of the PTC. This approach would involve upfront effort to develop the pre-procurement bid package and may reduce the construction schedule, unless there are any equipment performance issues during startup which would fall back on the City to address risking an extended schedule. Risks increase with this approach as it omits the typical process of the installing contractor coordinating the equipment features and requirements with all other planned work, and the means and methods of installation.

Supply chain delays have had significant impact on material and equipment availability and delivery schedules. All industries have seen increased lead times for equipment. For example, vendors are currently quoting 12-18 months lead times for electrical equipment, such as medium voltage equipment, low voltage switchgear, motor control centers, transformers, variable speed drives, and similar electrical distribution equipment. The majority of equipment associated with this project, in particular the flares, gas handling equipment, and electrical equipment, are anticipated to have long lead times.

Pre-procurement of equipment is not anticipated to provide schedule savings for this project. Given the extent of equipment that would need to be pre-procured, considerable effort and time would be required to develop the pre-procurement bid documents and increases the risks of coordination issues during construction since the installation contractor is not responsible for the equipment nor involved with coordinating the equipment with other work. Given the time required to develop bid documents and the impact of the PTC application approval on releasing equipment for fabrication, pre-procurement would not result in schedule savings.

4.3.4 Construction Delivery Method Approach

The Revised Implementation Plan schedule is based on a conventional DBB delivery method, but the schedule and associated milestones were also developed to accommodate alternative delivery methods. The preliminary design phase of the project would be used to investigate potential schedule savings with the different delivery methods. Other critical aspects of the project would be defined at this phase, including gas handling equipment technologies, equipment manufacturers that meet project needs, O&M requirements for design and operation of the facilities, project safety requirements, etc. If alternative delivery is subsequently identified to reduce project schedule, the information from the preliminary design, including the critical project features, would be used to develop the alternative delivery contractor bid documents, reducing the project risks associated with alternative delivery.

This approach efficiently supports the advancement of the project, and the Revised Implementation Plan schedule and associated milestones allow both delivery methods.

4.4 Schedule and Milestones

This section presents the Revised Implementation Plan schedule to design and construct a new flare station.

4.4.1 Project Description

The new flare station and gas treatment equipment is anticipated to be located at the Battery B Digesters site location, as shown in ***Figure 3: Site Layout with Proposed New Flare Station Location***. The existing flare station site footprint is not sufficient to locate the new flare station due to code and industry standards safety setback requirements, including National Fire Protection Association (NFPA) 820 Standard for Fire Protection in Wastewater Treatment and Collection Facilities and American National Standards Institute (ANSI) B149.6 Code for digester gas, landfill gas, and biogas generation and utilization. Therefore, alternative site locations were considered. Alternative locations for the new flare station were identified and evaluated, and a summary was presented in an internal workshop. The preferred site for the new flare station was identified at the location of the Battery B Digesters. This location is adjacent to low and high pressure gas piping, should minimize impacts to the adjacent neighborhood, and aligns with future plant expansion planning. The proposed location should be confirmed in the preliminary design phase.

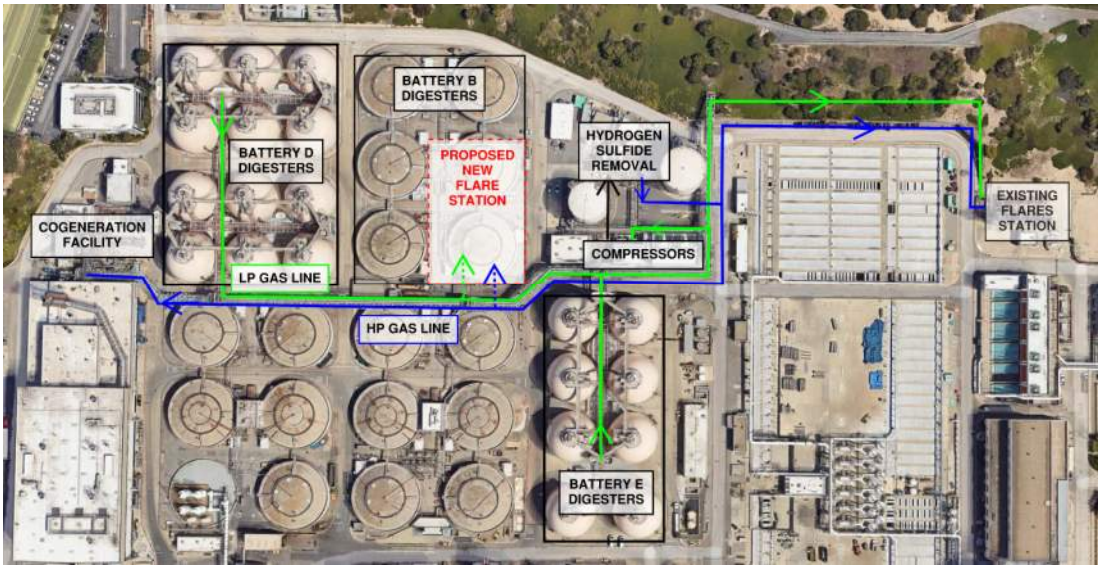

Figure 3. Site Layout with Proposed New Flare Station Location

Demolition of a portion of Battery B Digesters is required to site the new flare station. The digesters have been abandoned; however, four of the six digesters are available for emergency sludge storage. The facility will need to be taken offline and existing process piping, utilities, electrical, and controls will require removal or rerouting prior to the demolition. Due to the age of the facility, hazardous material identification and abatement are anticipated to be required. A preliminary design project is needed to further evaluate project concepts, along with a hazardous materials survey.

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The new flare station will include new ultra-low NOx flares designed to meet Rule 1118.1, and digester gas treatment and compression equipment. For the Revised Implementation Plan, it is assumed that digester gas treatment for the new flares will include hydrogen sulfide removal, ammonia removal, siloxane removal, and moisture removal. Flaring low pressure digester gas would require gas compression equipment to increase the digester gas pressure. New ultra-low NOx flares will provide digester gas flaring capacity to match the existing flare station capacity as well as the identified future growth projections. A preliminary design phase report is recommended to further define project needs.

The existing flares must remain operational until the new flare station is constructed to facilitate the safe disposal of excess biogas. Excess biogas may require occasionally flaring when maintenance or repair work prevents the Bioenergy Facility or the steam boiler from using all the digester gas.

4.4.2 Project Schedule and Milestones

BC developed a design and construction schedule for demolition of Battery B Digesters and installation of the new flare station. The demolition of Battery B Digesters will be a standalone project to expedite the demolition work in advance of the new flare station construction. The design of the new flare station requires specialized expertise; therefore, the City plans to issue a request for proposal (RFP) for a consultant to design the new flare station.

BC developed a project schedule for both projects reflecting the anticipated design-bid-build project phases and durations based on the preliminary information gathered during development of this Revised Implementation Plan. A detailed work breakdown of the demolition project and new flare station project schedules are presented in ***Attachment A: Revised Implementation Plan Schedule***. An overview of the detailed project schedule included in ***Attachment A*** is presented in ***Figure 4: Baseline Project Schedule***. The project schedule is to be further developed and the delivery method is to be confirmed in the preliminary design phase of the project.

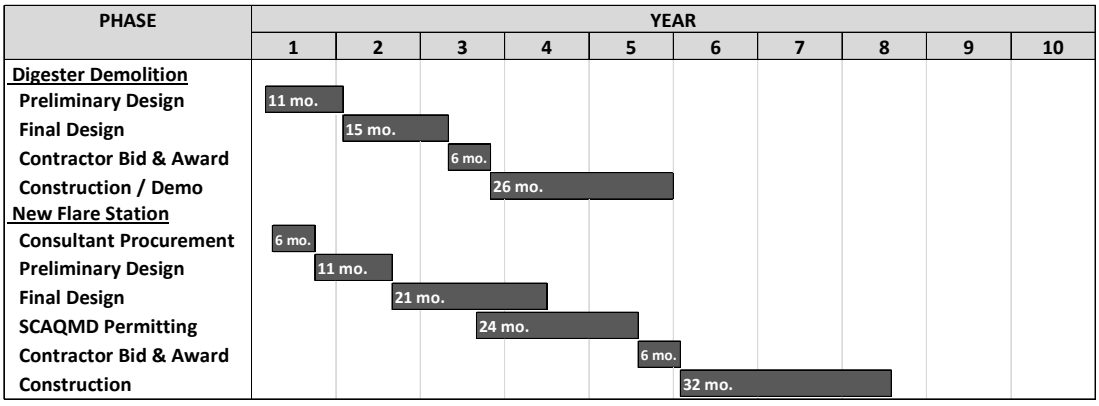

Figure 4. Baseline Project Schedule

To facilitate tracking of progress, project milestones are proposed for major project phases, critical path activities, or deliverables associated with South Coast AQMD permit approvals for the Revised Implementation Plan and are identified in ***Table 1: Revised***

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Implementation Plan Milestones. The milestones are based on the critical path activities that make up the critical path schedule. Critical path is the longest sequence of tasks that are required to complete a project. The tasks on the critical path are called critical activities because if they are delayed, the entire project schedule is delayed. The new flare station project schedule represents the critical path for installation of the new flares. The digester demolition project must be completed before installation of the new flares.

Unanticipated or uncontrollable events could impact the schedule and result in project delays; therefore, it is recommended that durations are applied to the project milestones to account for schedule risks. A description of each milestone, the project risks, and the associated schedule durations are also summarized in ***Table 1***. The estimated lower range durations are based on the project schedule presented in ***Attachment A***, industry experience from similar projects, and the City's experience with project delivery, regulatory coordination, and permit approvals. The estimated upper range durations are approximated schedule delays based on project schedule risks identified for each milestone in ***Table 1***. These are estimates and cannot capture the full potential schedule delays related to all scenarios, and longer schedule delays are possible. There are no milestones for digester demolition because the digester demolition project is not on critical path. However, a delay in the demolition project would impact Milestone No. 6: Flare Facility Construction Completion / Initial Startup/Operation of Flares, and this risk is reflected in ***Table 1,*** Milestone No. 6.

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Table 1. Revised Implementation Plan Milestones

No.	Milestone	Description	Project Schedule Risks [A]	Estimated Lower Range [B] (months)	Estimated Upper Range [C] (months)	Proposed Estimated Duration
1	Issue Request for Proposal (RFP)	The RFP advertisement date for consulting firms with flare and digester gas industry experts to submit proposals to design the new flare station. The RFP will include scope for preliminary design, final design, technical support during bid and award, and technical support during construction.	• N/A, this is a fixed date item that will trigger the subsequent milestone(s)	[Fixed Date]		
2	Consultant Notice to Proceed (NTP)	Following the advertisement of the RFP, consulting firms will develop and submit proposals. The City will review the proposals, negotiate with the selected consulting firm on scope, fee and terms, and then present the negotiated scope and fee for the City's Board of Public Works (Board) approval. Depending on the initial ranking of proposals and any questions about experience or specialty expertise, an in-person interview with the top ranked consulting firms may be required. Following Board approval, the City will contract with the selected consulting firm and issue NTP.	• Unexpected delays during the negotiating and contracting processes; for example, delays in agreement on final terms and conditions or insurance requirements • Award protest from another consulting firm, resulting in a delay of NTP to investigate and respond to the protest	6	12	Estimated completion 12 months after (1)
3	Completion of Preliminary Design	The selected consulting firm (consultant) will develop a preliminary design report to define design requirements before the start of detailed design. The preliminary design is a critical project phase that determines the final basis of design requirements, prevents rework and schedule delays during the following detailed design phase. During the preliminary design, the consultant will complete items including, but not limited to the following: conduct field investigations, review HWRP digester gas data, evaluate digester gas conditioning requirements for the new flares, assess equipment capacity requirements, identify flare manufacturers that meet project requirements, evaluate outage requirements and construction sequencing for high pressure and low pressure digester gas, conduct site location investigations, and begin the preliminary permitting process. The preliminary design will also evaluate construction delivery methods. The milestone duration includes progress meetings, internal consultant quality assurance and quality control (QAQC), City review time, incorporation of comments, and submission of the final deliverable in the form of a preliminary design report (PDR).	• Identification and execution of additional field investigations; for example, land surveys, geotechnical investigations and identification of hazardous materials would require additional field investigation/testing and development of remediation methods to address any identified issues • Delays in quality data collection or information for analysis • Changes in project conditions requiring rework • Delays in critical decision-making • Changes in key project staff	11	18	Estimated completion 18 months after completion of (2)
4	Permit to Construct Application Submitted	The detailed design will be developed to a 60% level of design, at which point enough detailed information will be included in the design to support development and submission of the permit to construct application. During this phase, CEQA documentation will be completed. The PTC application will then be developed and submitted to SCAQMD for review and approval. The duration of this milestone includes progress meetings, and all deliverables, including internal consultant QAQC and City review time.	• Changes in project conditions requiring redesign • Changes in equipment or manufacturers requiring redesign • Delays in critical decision-making • Delays in CEQA documentation • Changes in key project staff	13	20	Estimated completion 20 months after completion of (3)
5	Permit to Construct Issued	South Coast AQMD will review and approve the PTC application. The review time is based on schedules from other industry projects, and additional time is allocated for development of the application after the 60% deliverable, for South Coast AQMD to incorporate City and consultant updates, and final processing time required by South Coast AQMD to develop and issue the final permit(s).	• Delays associated with submitting supporting documentation, such as CEQA approval • PTC application updates and resubmittals • Addressing comments and/or additional requests from South Coast AQMD	24	36	Estimated completion 36 months after completion of (4)
6	Flare Facility Construction Completion and / Initial Startup/Operation of Flares	After the PTC, a contractor will construct the flare station and conduct initial system testing. For a DBB project, a bid package will be advertised, and a contractor awarded the project. For an alternative delivery project, the contractor would start fabrication after receiving the PTC. The construction schedule includes time for equipment submittal development, reviews, approval, order placement, fabrication, and delivery. It includes the time required for construction of the new flare station in accordance with the contract documents. Key equipment and materials include, but are not limited to, the new flares, gas conditioning equipment, electrical equipment, digester gas piping, and a new electrical building. The lead times for the flares, gas equipment, and electrical components required for the project are currently extremely long, and	• Extensive equipment fabrication and shipping times • Product and material availability • Delays in the digester demolition project • Delays during contractor bid and award phase, such as Board of Public Works approval, delays to award the project to the lowest responsive bidder, final contract negotiations, bidder protest, etc.	29	60	Estimated completion 60 months after completion of (5)

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Table 1. Revised Implementation Plan Milestones

No.	Milestone	Description	Project Schedule Risks [A]	Estimated Lower Range [B] (months)	Estimated Upper Range [C] (months)	Proposed Estimated Duration
		changes in market conditions or manufacturing could extend these lead times. Initial testing of the flare station involves startup and operation of the flares on digester gas to adjust and demonstrate the flare station can operate as designed before source testing begins.	• Unforeseen site conditions during construction • Contractor related delays risks; for example, if a contractor has difficulty achieving acceptable submittals with their selected vendors, or a key equipment manufacturer becomes unreliable and the Contractor changes to a different manufacturer to reduce what may otherwise be further delays, additional schedule will be required to address submittal and manufacturing time • Troubleshooting to address performance or equipment failures, including programming changes, equipment modifications, etc. • Changes in key project staff			
7	Completion of Source Testing	Source testing of the new flares is anticipated be completed within 90-days after the initial startup, and a source test report confirming compliance is anticipated to be submitted to South Coast AQMD within 60-days after completion of the source test.	• Delays in testing and commissioning the new flare station. If problems arise after the initial startup of the new system, the contractor would be required to address the problems before source testing could occur • Failure of the flare station to meet performance requirements. The manufacturer/contractor would be required to troubleshoot the system and make adjustments to improve performance. This may include additional fabrication, repairs, control modifications, etc. Follow-on testing would be conducted to demonstrate performance requirements are achieved	3	6	Estimated completion 6 months after completion of (6)
8	Completion of Construction Contract	Construction is completed when each component of the flare station is online and operational, and all contract requirements are met. The completion of construction would occur after the contractor has successfully completed testing and commissioning of the flares, including source testing to demonstrate the flare station is meeting specified performance requirements and completion of punchlist items.	• Delays in testing and commissioning the new flare station. If problems arise after the initial startup of the new system, the contractor would be required to address the problems before source testing could occur • Failure of the flare station to meet performance requirements. The manufacturer/contractor would be required to troubleshoot the system and make adjustments to improve performance. This may include additional fabrication, repairs, control modifications, etc. Follow-on testing would be conducted to demonstrate performance requirements are achieved • Contractor delays in completion of punchlist items	3	12	Estimated completion 12 months after completion of (6)
9	Completion of As-Built Drawings	The Contractor must finalize their record drawings with the actual installed or constructed conditions in the field and submit to the design consultant. Design consultant will then input Contractor markups into electronic files to generate as-built drawings. Final as-built specifications and drawings for the flare station will then be submitted to South Coast AQMD.	• Delays in Contractor finalizing record drawings and specifications due to a number of changes required during construction and level of detail required with changes • Delays in contracting with consulting firm(s) to complete as-built efforts • Software changes that result in an increase of required labor	6	12	Estimated completion 12 months after completion of (8)

A – Project schedule risk descriptions presented in *Table 1* include, but are not limited to, schedule delay risks that could affect this project schedule. The descriptions are based on industry observations and are not intended to be all-encompassing of project schedule risks.

B – Estimated lower range milestone duration is based on the schedule developed for this Revised Implementation Plan and detailed in *Attachment A.* A milestone duration shorter than the lower range is not recommended.

C – Estimated upper range milestone duration is based on industry observations and reasonably estimated schedule impacts. This duration does not include every schedule delay scenario.

Milestones are recommended to facilitate execution of the project while accounting for schedule delay risks. It is very unlikely that project delays will occur at each milestone. Therefore, if a milestone is completed before the duration expires, the subsequent milestone(s) would initiate. This progression will facilitate execution of the project and drive advancement of the schedule while accommodating potential schedule delays.

The proposed milestones recommended for this Revised Implementation Plan are presented in ***Table 2: Revised Implementation Plan Milestones***. The milestones are based on the estimated upper range durations reflected in ***Table 1*** to account for past experiences, currently known challenges with supply chain, and schedule risk to reduce revisions to milestones and triggering the need for additional hearings, which may add further delays to the process.

Table 2. Revised Implementation Plan Milestones

No.	Milestone	Proposed Estimated Duration [A]
1	Issue Request for Proposal (RFP)	[Fixed Date]
2	Consultant Notice to Proceed (NTP)	Estimated completion 12 months after completion of (1)
3	Completion of Preliminary Design	Estimated completion 18 months after completion of (2)
4	Permit to Construct Application Submitted	Estimated completion 20 months after completion of (3)
5	Permit to Construct Issued	Estimated completion 36 months after completion of (4)
6	Flare Facility Construction Completion / Initial Startup/Operation of Flares	Estimated completion 60 months after completion of (5)
7	Completion of Source Testing	Estimated completion 6 months after completion of (6)
8	Completion of Construction Contract	Estimated completion 12 months after completion of (6)
9	Completion of As-Built Drawings	Estimated completion 12 months after completion of (8)

[A] The milestone durations included herein are based on the proposed durations and assumptions identified in ***Table 1***.

5. Summary

The Revised Implementation Plan responds to Item No. (4)(c) of the Order of Abatement issued by South Coast AQMD. The Revised Implementation Plan recommends construction of a new flare station designed to meet emissions limits defined in Rule 1118.1. The new flare station will replace the existing flare station.

The Revised Implementation Plan includes project schedules related to construction of the new flare station, specifically a Battery B Digesters demolition project to create room for the new flare station project, and the flare station itself. The project schedules are preliminary and include an estimated range of durations to address unanticipated and/or uncontrollable events that could impact the schedule.

HWRP FLARE STATION REVISED IMPLEMENTATION PLAN

To facilitate tracking of progress, project milestones are proposed for each major project phase or deliverable. Milestones are presented in ***Table 2*** of this Revised Implementation Plan.

Very truly yours,

Brown and Caldwell

Tom Chapman, Project Manager

TC/ERA:wp

cc: Steve Hirai, Brown and Caldwell

Attachments (5)

- Attachment A: Revised Implementation Plan Schedule
- Attachment B: South Coast AQMD Order of Abatement 1212-39
- Attachment C: George T. Hall Company Evaluation Report – Flares 1-6, Amended
- Attachment D: George T. Hall Company Evaluation Report – Flare 6
- Attachment E: John Zink Hamworthy Combustion Evaluation Report
- Attachment F: Implementation Plan (September 2022)

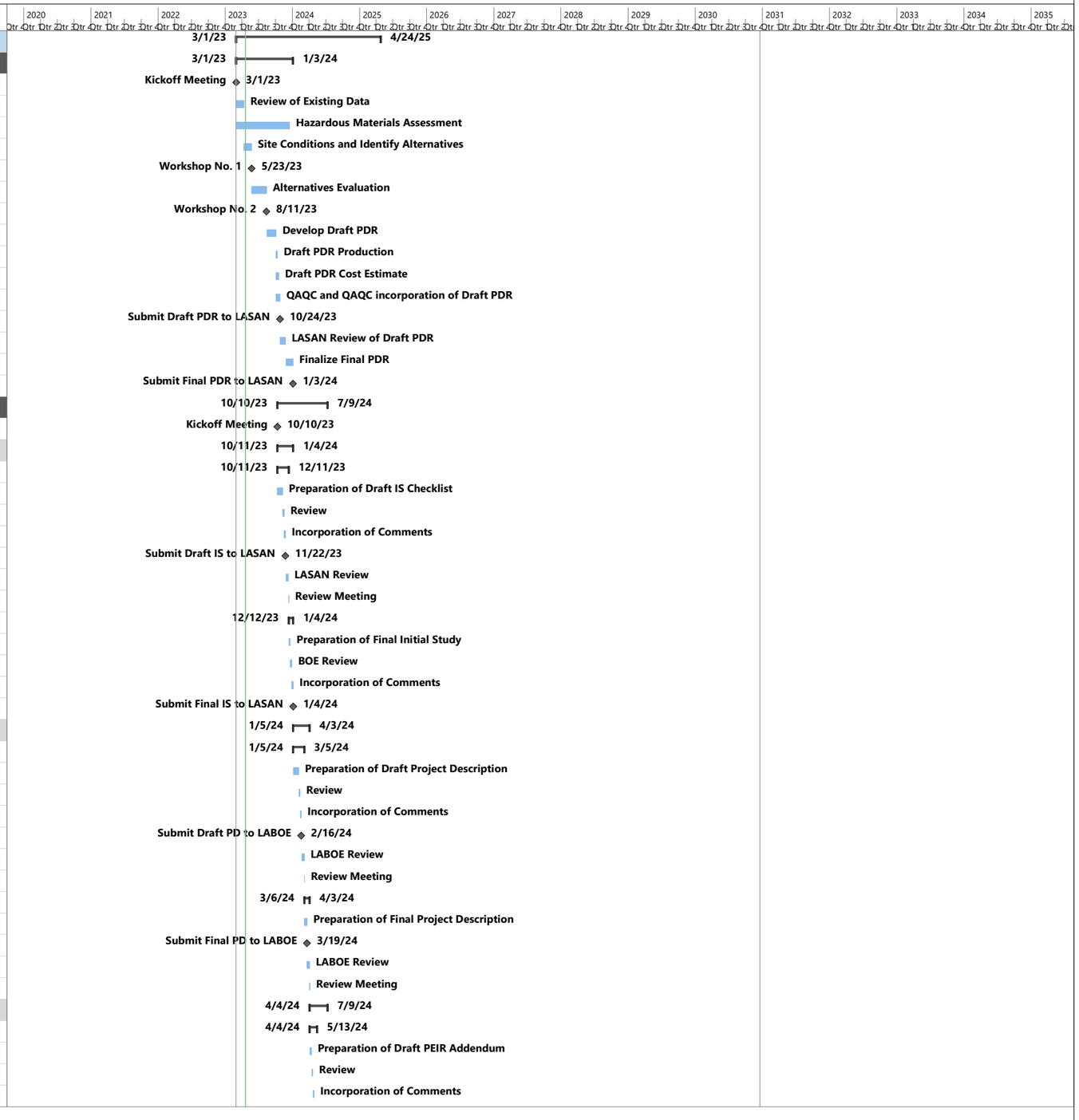
Limitations:

This document was prepared solely for the City of Los Angeles Bureau of Engineering in accordance with professional standards at the time the services were performed and in accordance with the contract between City of Los Angeles Bureau of Engineering and Brown and Caldwell dated April 21, 2023. This document is governed by the specific scope of work authorized by City of Los Angeles Bureau of Engineering; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by City of Los Angeles Bureau of Engineering and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

Attachment A:
Revised Implementation Plan Schedule

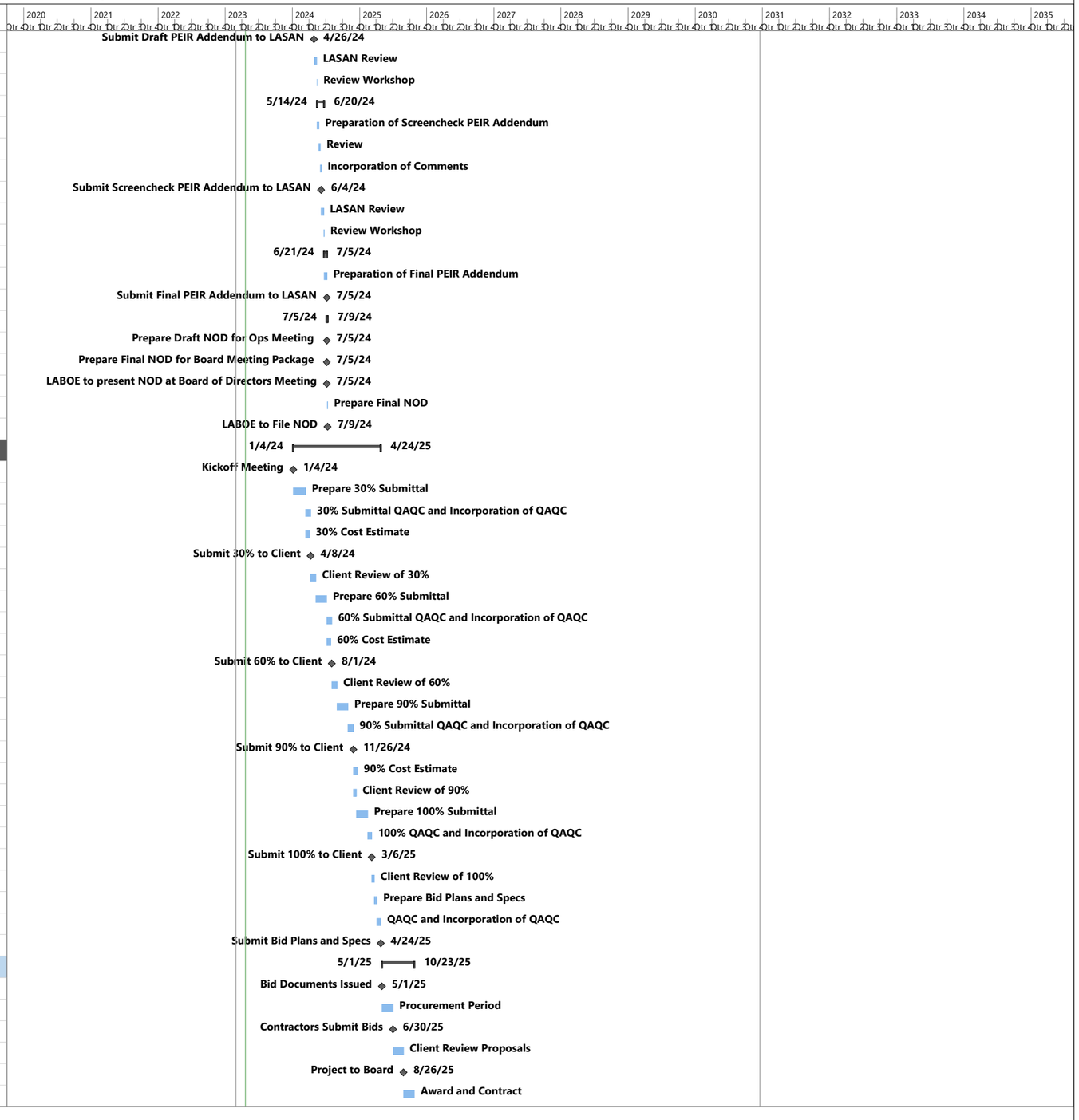
City of Los Angeles
HWRP Emergency Flare System Rehabilitation
Attachment A: Revised Implementation Plan Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		**Site Prep Design**	**536 days**	**Wed 3/1/23**	**Thu 4/24/25**	
2		**Site Prep Preliminary Design**	**210 days**	**Wed 3/1/23**	**Wed 1/3/24**	
3		Kickoff Meeting	0 days	Wed 3/1/23	Wed 3/1/23	
4		Review of Existing Data	30 days	Wed 3/1/23	Tue 4/11/23	3
5		Hazardous Materials Assessment	10 mons	Wed 3/1/23	Fri 12/15/23	3
6		Site Conditions and Identify Alternatives	30 days	Wed 4/12/23	Tue 5/23/23	4
7		Workshop No. 1	0 days	Tue 5/23/23	Tue 5/23/23	6
8		Alternatives Evaluation	55 days	Wed 5/24/23	Fri 8/11/23	7
9		Workshop No. 2	0 days	Fri 8/11/23	Fri 8/11/23	8
10		Develop Draft PDR	35 days	Mon 8/14/23	Mon 10/2/23	9
11		Draft PDR Production	5 days	Tue 10/3/23	Tue 10/10/23	10
12		Draft PDR Cost Estimate	10 days	Tue 10/3/23	Tue 10/17/23	10
13		QAQC and QAQC incorporation of Draft PDR	15 days	Tue 10/3/23	Tue 10/24/23	12SS
14		Submit Draft PDR to LASAN	0 days	Tue 10/24/23	Tue 10/24/23	13
15		LASAN Review of Draft PDR	20 days	Wed 10/25/23	Wed 11/22/23	14
16		Finalize Final PDR	25 days	Mon 11/27/23	Wed 1/3/24	15
17		Submit Final PDR to LASAN	0 days	Wed 1/3/24	Wed 1/3/24	16
18		**CEQA Documentation for Site Demo and New Flare Station**	**184 days**	**Tue 10/10/23**	**Tue 7/9/24**	
19		Kickoff Meeting	0 days	Tue 10/10/23	Tue 10/10/23	10SS+40 days
20		**3.10.1.1 Initial Study (IS)**	**56 days**	**Wed 10/11/23**	**Thu 1/4/24**	
21		**Draft Initial Study**	**41 days**	**Wed 10/11/23**	**Mon 12/11/23**	
22		Preparation of Draft IS Checklist	20 days	Wed 10/11/23	Tue 11/7/23	19
23		Review	5 days	Wed 11/8/23	Wed 11/15/23	22
24		Incorporation of Comments	5 days	Thu 11/16/23	Wed 11/22/23	23
25		Submit Draft IS to LASAN	0 days	Wed 11/22/23	Wed 11/22/23	24
26		LASAN Review	10 days	Mon 11/27/23	Fri 12/8/23	25
27		Review Meeting	1 day	Mon 12/11/23	Mon 12/11/23	26
28		**Final Initial Study**	**15 days**	**Tue 12/12/23**	**Thu 1/4/24**	
29		Preparation of Final Initial Study	5 days	Tue 12/12/23	Mon 12/18/23	27
30		BOE Review	5 days	Tue 12/19/23	Wed 12/27/23	29
31		Incorporation of Comments	5 days	Thu 12/28/23	Thu 1/4/24	30
32		Submit Final IS to LASAN	0 days	Thu 1/4/24	Thu 1/4/24	31
33		**3.10.1.2 Project Description (PD)**	**62 days**	**Fri 1/5/24**	**Wed 4/3/24**	
34		**Draft Project Description**	**41 days**	**Fri 1/5/24**	**Tue 3/5/24**	
35		Preparation of Draft Project Description	20 days	Fri 1/5/24	Fri 2/2/24	32
36		Review	5 days	Mon 2/5/24	Fri 2/9/24	35
37		Incorporation of Comments	5 days	Mon 2/12/24	Fri 2/16/24	36
38		Submit Draft PD to LABOE	0 days	Fri 2/16/24	Fri 2/16/24	37
39		LABOE Review	10 days	Tue 2/20/24	Mon 3/4/24	38
40		Review Meeting	1 day	Tue 3/5/24	Tue 3/5/24	39
41		**Final Project Description**	**21 days**	**Wed 3/6/24**	**Wed 4/3/24**	
42		Preparation of Final Project Description	10 days	Wed 3/6/24	Tue 3/19/24	40
43		Submit Final PD to LABOE	0 days	Tue 3/19/24	Tue 3/19/24	42
44		LABOE Review	10 days	Wed 3/20/24	Tue 4/2/24	43
45		Review Meeting	1 day	Wed 4/3/24	Wed 4/3/24	44
46		**3.10.1.3 PEIR Addendum**	**66 days**	**Thu 4/4/24**	**Tue 7/9/24**	
47		**Draft PEIR Addendum (based on format of IS)**	**28 days**	**Thu 4/4/24**	**Mon 5/13/24**	
48		Preparation of Draft PEIR Addendum	7 days	Thu 4/4/24	Fri 4/12/24	45
49		Review	5 days	Mon 4/15/24	Fri 4/19/24	48
50		Incorporation of Comments	5 days	Mon 4/22/24	Fri 4/26/24	49



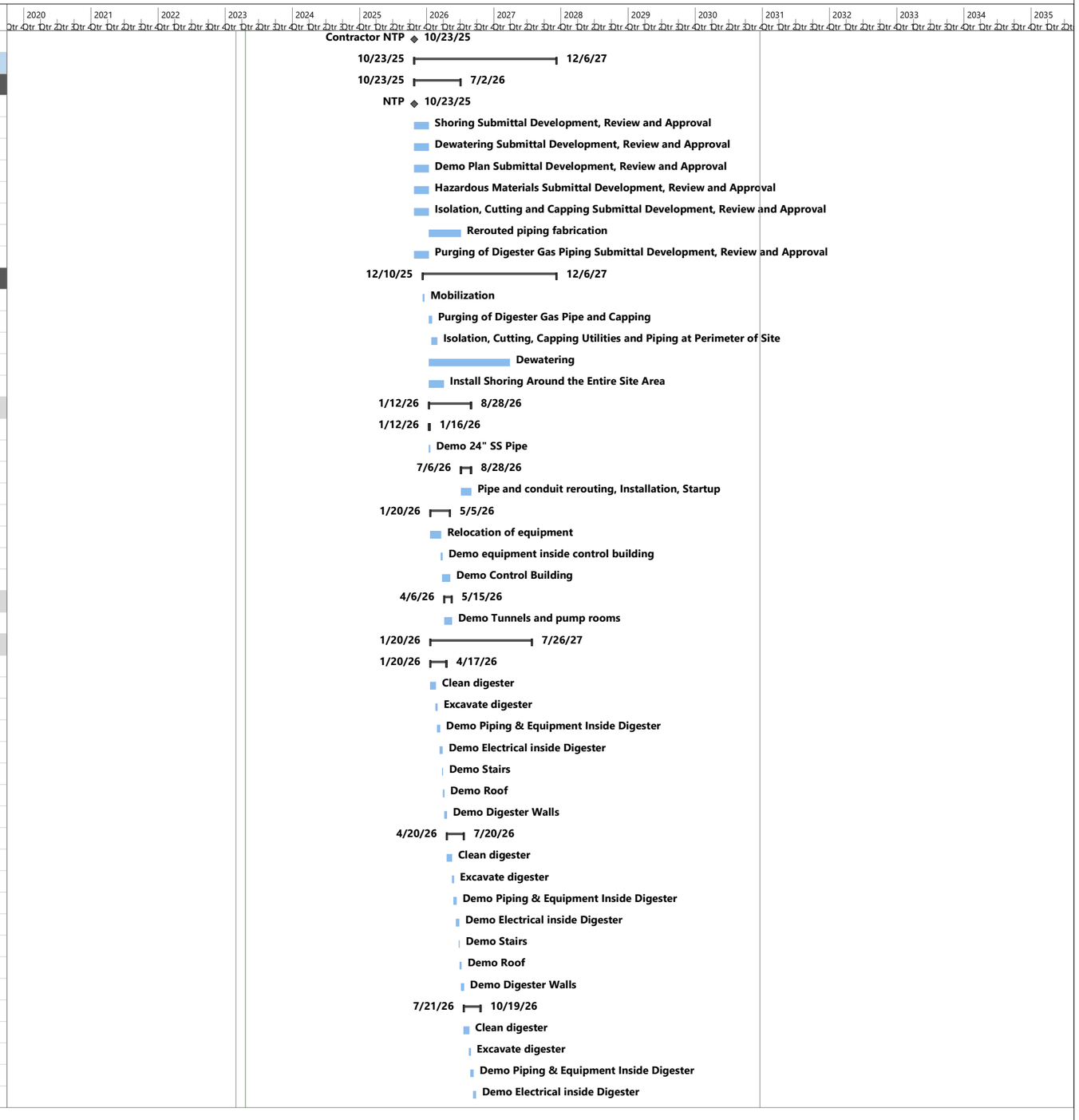
City of Los Angeles
HWRP Emergency Flare System Rehabilitation
Attachment A: Revised Implementation Plan Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
51		Submit Draft PEIR Addendum to LASAN	0 days	Fri 4/26/24	Fri 4/26/24	50
52		LASAN Review	10 days	Mon 4/29/24	Fri 5/10/24	51
53		Review Workshop	1 day	Mon 5/13/24	Mon 5/13/24	52
54		**Screencheck PEIR Addendum**	**26 days**	**Tue 5/14/24**	**Thu 6/20/24**	
55		Preparation of Screencheck PEIR Addendum	7 days	Tue 5/14/24	Wed 5/22/24	53
56		Review	5 days	Thu 5/23/24	Thu 5/30/24	55
57		Incorporation of Comments	3 days	Fri 5/31/24	Tue 6/4/24	56
58		Submit Screencheck PEIR Addendum to LASAN	0 days	Tue 6/4/24	Tue 6/4/24	57
59		LASAN Review	10 days	Wed 6/5/24	Tue 6/18/24	58
60		Review Workshop	1 day	Thu 6/20/24	Thu 6/20/24	59
61		**Final PEIR Addendum**	**10 days**	**Fri 6/21/24**	**Fri 7/5/24**	
62		Preparation of Final PEIR Addendum	10 days	Fri 6/21/24	Fri 7/5/24	60
63		Submit Final PEIR Addendum to LASAN	0 days	Fri 7/5/24	Fri 7/5/24	62
64		**Notice of Determination (NOD)**	**2 days**	**Fri 7/5/24**	**Tue 7/9/24**	
65		Prepare Draft NOD for Ops Meeting	0 days	Fri 7/5/24	Fri 7/5/24	63
66		Prepare Final NOD for Board Meeting Package	0 days	Fri 7/5/24	Fri 7/5/24	65
67		LABOE to present NOD at Board of Directors Meeting	0 days	Fri 7/5/24	Fri 7/5/24	66
68		Prepare Final NOD	2 days	Mon 7/8/24	Tue 7/9/24	67
69		LABOE to File NOD	0 days	Tue 7/9/24	Tue 7/9/24	68
70		**Site Prep Final Design**	**325 days**	**Thu 1/4/24**	**Thu 4/24/25**	
71		Kickoff Meeting	0 days	Thu 1/4/24	Thu 1/4/24	17FS+1 day
72		Prepare 30% Submittal	45 days	Fri 1/5/24	Mon 3/11/24	71
73		30% Submittal QAQC and Incorporation of QAQC	20 days	Tue 3/12/24	Mon 4/8/24	72
74		30% Cost Estimate	15 days	Tue 3/12/24	Mon 4/1/24	72
75		Submit 30% to Client	0 days	Mon 4/8/24	Mon 4/8/24	73
76		Client Review of 30%	20 days	Tue 4/9/24	Mon 5/6/24	75
77		Prepare 60% Submittal	40 days	Tue 5/7/24	Wed 7/3/24	76
78		60% Submittal QAQC and Incorporation of QAQC	20 days	Fri 7/5/24	Thu 8/1/24	77
79		60% Cost Estimate	15 days	Fri 7/5/24	Thu 7/25/24	77
80		Submit 60% to Client	0 days	Thu 8/1/24	Thu 8/1/24	78
81		Client Review of 60%	20 days	Fri 8/2/24	Thu 8/29/24	80
82		Prepare 90% Submittal	40 days	Fri 8/30/24	Mon 10/28/24	81
83		90% Submittal QAQC and Incorporation of QAQC	20 days	Tue 10/29/24	Tue 11/26/24	82
84		Submit 90% to Client	0 days	Tue 11/26/24	Tue 11/26/24	83,5
85		90% Cost Estimate	15 days	Wed 11/27/24	Thu 12/19/24	83
86		Client Review of 90%	10 days	Wed 11/27/24	Thu 12/12/24	84
87		Prepare 100% Submittal	40 days	Fri 12/13/24	Wed 2/12/25	86
88		100% QAQC and Incorporation of QAQC	15 days	Thu 2/13/25	Thu 3/6/25	87
89		Submit 100% to Client	0 days	Thu 3/6/25	Thu 3/6/25	88
90		Client Review of 100%	10 days	Fri 3/7/25	Thu 3/20/25	89
91		Prepare Bid Plans and Specs	10 days	Fri 3/21/25	Thu 4/3/25	90
92		QAQC and Incorporation of QAQC	15 days	Fri 4/4/25	Thu 4/24/25	91
93		Submit Bid Plans and Specs	0 days	Thu 4/24/25	Thu 4/24/25	92
94		**Site Prep Contractor Bid & Award**	**120 days**	**Thu 5/1/25**	**Thu 10/23/25**	
95		Bid Documents Issued	0 days	Thu 5/1/25	Thu 5/1/25	93FS+5 days
96		Procurement Period	40 days	Fri 5/2/25	Mon 6/30/25	95
97		Contractors Submit Bids	0 days	Mon 6/30/25	Mon 6/30/25	96
98		Client Review Proposals	40 days	Tue 7/1/25	Tue 8/26/25	97
99		Project to Board	0 days	Tue 8/26/25	Tue 8/26/25	98
100		Award and Contract	40 days	Wed 8/27/25	Thu 10/23/25	99



City of Los Angeles
HWRP Emergency Flare System Rehabilitation
Attachment A: Revised Implementation Plan Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
101		Contractor NTP	0 days	Thu 10/23/25	Thu 10/23/25	100
102		**Site Prep Construction**	**523 days**	**Thu 10/23/25**	**Mon 12/6/27**	
103		**Site Prep Pre Construction**	**170 days**	**Thu 10/23/25**	**Thu 7/2/26**	
104		NTP	0 days	Thu 10/23/25	Thu 10/23/25	101
105		Shoring Submittal Development, Review and Approval	10 wks	Fri 10/24/25	Fri 1/9/26	104
106		Dewatering Submittal Development, Review and Approval	10 wks	Fri 10/24/25	Fri 1/9/26	104
107		Demo Plan Submittal Development, Review and Approval	10 wks	Fri 10/24/25	Fri 1/9/26	104
108		Hazardous Materials Submittal Development, Review and Approval	10 wks	Fri 10/24/25	Fri 1/9/26	104
109		Isolation, Cutting and Capping Submittal Development, Review and Approval	10 wks	Fri 10/24/25	Fri 1/9/26	104
110		Rerouted piping fabrication	6 mons	Mon 1/12/26	Thu 7/2/26	109
111		Purging of Digester Gas Piping Submittal Development, Review and Approval	10 wks	Fri 10/24/25	Fri 1/9/26	104
112		**Site Prep Construction/Demolition**	**493 days**	**Wed 12/10/25**	**Mon 12/6/27**	
113		Mobilization	5 days	Wed 12/10/25	Tue 12/16/25	104FS+30 days
114		Purging of Digester Gas Pipe and Capping	10 days	Mon 1/12/26	Mon 1/26/26	113,111
115		Isolation, Cutting, Capping Utilities and Piping at Perimeter of Site	20 days	Tue 1/27/26	Tue 2/24/26	109,114
116		Dewatering	15 mons	Mon 1/12/26	Fri 3/26/27	113,106
117		Install Shoring Around the Entire Site Area	56 days	Mon 1/12/26	Wed 4/1/26	120SS
118		**Above Grade Demolition (other than digesters)**	**160 days**	**Mon 1/12/26**	**Fri 8/28/26**	
119		**Demo Above Grade Pipe**	**5 days**	**Mon 1/12/26**	**Fri 1/16/26**	
120		Demo 24" SS Pipe	5 days	Mon 1/12/26	Fri 1/16/26	113,107
121		**Rerouting, Outages for Process and Electrical Controls**	**40 days**	**Mon 7/6/26**	**Fri 8/28/26**	
122		Pipe and conduit rerouting, Installation, Startup	2 mons	Mon 7/6/26	Fri 8/28/26	110,113
123		**Demo Control Building**	**75 days**	**Tue 1/20/26**	**Tue 5/5/26**	
124		Relocation of equipment	40 days	Tue 1/20/26	Tue 3/17/26	107,120
125		Demo equipment inside control building	5 days	Wed 3/18/26	Tue 3/24/26	124
126		Demo Control Building	30 days	Wed 3/25/26	Tue 5/5/26	125
127		**Demo Tunnels**	**30 days**	**Mon 4/6/26**	**Fri 5/15/26**	
128		Demo Tunnels and pump rooms	30 days	Mon 4/6/26	Fri 5/15/26	137SS
129		**Demo Digesters**	**378 days**	**Tue 1/20/26**	**Mon 7/26/27**	
130		**Digester #6**	**63 days**	**Tue 1/20/26**	**Fri 4/17/26**	
131		Clean digester	20 days	Tue 1/20/26	Tue 2/17/26	120
132		Excavate digester	6 days	Wed 2/18/26	Wed 2/25/26	131
133		Demo Piping & Equipment Inside Digester	10 days	Thu 2/26/26	Wed 3/11/26	132
134		Demo Electrical inside Digester	10 days	Thu 3/12/26	Wed 3/25/26	133
135		Demo Stairs	2 days	Thu 3/26/26	Fri 3/27/26	134
136		Demo Roof	5 days	Mon 3/30/26	Fri 4/3/26	135
137		Demo Digester Walls	10 days	Mon 4/6/26	Fri 4/17/26	136
138		**Digester #4**	**63 days**	**Mon 4/20/26**	**Mon 7/20/26**	
139		Clean digester	20 days	Mon 4/20/26	Fri 5/15/26	137
140		Excavate digester	6 days	Mon 5/18/26	Tue 5/26/26	139
141		Demo Piping & Equipment Inside Digester	10 days	Wed 5/27/26	Tue 6/9/26	140
142		Demo Electrical inside Digester	10 days	Wed 6/10/26	Wed 6/24/26	141
143		Demo Stairs	2 days	Thu 6/25/26	Fri 6/26/26	142,126
144		Demo Roof	5 days	Mon 6/29/26	Mon 7/6/26	143
145		Demo Digester Walls	10 days	Tue 7/7/26	Mon 7/20/26	144
146		**Digester #5**	**63 days**	**Tue 7/21/26**	**Mon 10/19/26**	
147		Clean digester	20 days	Tue 7/21/26	Mon 8/17/26	145
148		Excavate digester	6 days	Tue 8/18/26	Tue 8/25/26	147
149		Demo Piping & Equipment Inside Digester	10 days	Wed 8/26/26	Wed 9/9/26	148
150		Demo Electrical inside Digester	10 days	Thu 9/10/26	Wed 9/23/26	149

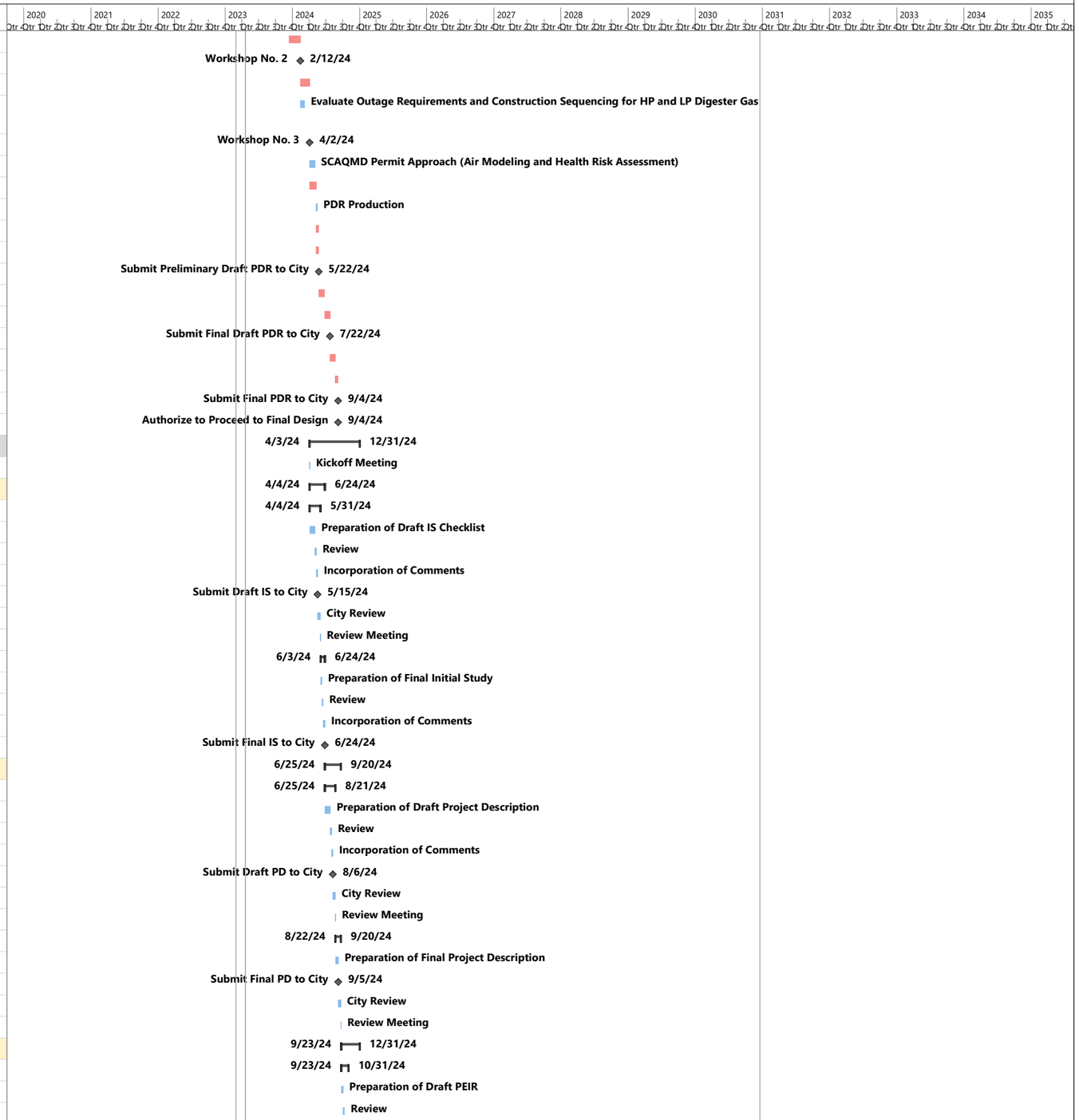


City of Los Angeles
HWRP Emergency Flare System Rehabilitation
Attachment A: Revised Implementation Plan Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
151		Demo Stairs	2 days	Thu 9/24/26	Fri 9/25/26	150
152		Demo Roof	5 days	Mon 9/28/26	Fri 10/2/26	151
153		Demo Digester Walls	10 days	Mon 10/5/26	Mon 10/19/26	152
154		**Digester #3**	**63 days**	**Tue 10/20/26**	**Mon 1/25/27**	
155		Clean digester	20 days	Tue 10/20/26	Tue 11/17/26	153
156		Excavate digester	6 days	Wed 11/18/26	Wed 11/25/26	155
157		Demo Piping & Equipment Inside Digester	10 days	Mon 11/30/26	Fri 12/11/26	156
158		Demo Electrical inside Digester	10 days	Mon 12/14/26	Tue 12/29/26	157
159		Demo Stairs	2 days	Wed 12/30/26	Thu 12/31/26	158
160		Demo Roof	5 days	Mon 1/4/27	Fri 1/8/27	159
161		Demo Digester Walls	10 days	Mon 1/11/27	Mon 1/25/27	160
162		**Digester #1**	**63 days**	**Tue 1/26/27**	**Fri 4/23/27**	
163		Clean digester	20 days	Tue 1/26/27	Tue 2/23/27	161
164		Excavate digester	6 days	Wed 2/24/27	Wed 3/3/27	163
165		Demo Piping & Equipment Inside Digester	10 days	Thu 3/4/27	Wed 3/17/27	164
166		Demo Electrical inside Digester	10 days	Thu 3/18/27	Wed 3/31/27	165
167		Demo Stairs	2 days	Thu 4/1/27	Fri 4/2/27	166
168		Demo Roof	5 days	Mon 4/5/27	Fri 4/9/27	167
169		Demo Digester Walls	10 days	Mon 4/12/27	Fri 4/23/27	168
170		**Digester #2**	**63 days**	**Mon 4/26/27**	**Mon 7/26/27**	
171		Clean digester	20 days	Mon 4/26/27	Fri 5/21/27	169
172		Excavate digester	6 days	Mon 5/24/27	Tue 6/1/27	171
173		Demo Piping & Equipment Inside Digester	10 days	Wed 6/2/27	Tue 6/15/27	172
174		Demo Electrical inside Digester	10 days	Wed 6/16/27	Wed 6/30/27	173
175		Demo Stairs	2 days	Thu 7/1/27	Fri 7/2/27	174
176		Demo Roof	5 days	Tue 7/6/27	Mon 7/12/27	175
177		Demo Digester Walls	10 days	Tue 7/13/27	Mon 7/26/27	176
178		**Backfill Site**	**80 days**	**Tue 7/27/27**	**Thu 11/18/27**	
179		Backfill Site	80 days	Tue 7/27/27	Thu 11/18/27	177
180		**Finish Pavement**	**10 days**	**Fri 11/19/27**	**Mon 12/6/27**	
181		Asphalt pavement	10 days	Fri 11/19/27	Mon 12/6/27	179
182		**New Flares Consultant Procurement**	**120 days**	**Fri 4/21/23**	**Thu 10/12/23**	
183		TOS Issued	0 days	Fri 4/21/23	Fri 4/21/23	
184		Consultant Prepare Proposals	40 days	Fri 4/21/23	Fri 6/16/23	183
185		Client Review of Proposals	20 days	Tue 6/20/23	Tue 7/18/23	184
186		Selection of Consultant	20 days	Wed 7/19/23	Tue 8/15/23	185
187		Award and Contract	40 days	Wed 8/16/23	Thu 10/12/23	186
188		Notice to Proceed/Kickoff Meeting	0 days	Thu 10/12/23	Thu 10/12/23	187
189		**New Flares Design**	**942 days**	**Thu 10/12/23**	**Mon 8/2/27**	
190		**New Flares Preliminary Design**	**300 days**	**Thu 10/12/23**	**Tue 12/31/24**	
191		**Project Management**	**222 days**	**Fri 10/13/23**	**Wed 9/4/24**	
192		Project Management	222 days	Fri 10/13/23	Wed 9/4/24	188
193		Workshops and Meetings	222 days	Fri 10/13/23	Wed 9/4/24	188
194		Project Management Plan (PMP)	20 days	Fri 10/13/23	Thu 11/9/23	188
195		**Project Preliminary Design Report**	**222 days**	**Thu 10/12/23**	**Wed 9/4/24**	
196		Kickoff Meeting	0 days	Thu 10/12/23	Thu 10/12/23	188
197		Data Request and City Response	10 days	Fri 10/13/23	Thu 10/26/23	188
198		Assessment of Future Digester Gas Production and Sizing of Buildout Conditions	15 days	Fri 10/27/23	Fri 11/17/23	197
199		Evaluate Digester Gas Conditioning Requirements for New Flares	30 days	Fri 10/27/23	Tue 12/12/23	197
200		Workshop No. 1	0 days	Tue 12/12/23	Tue 12/12/23	199

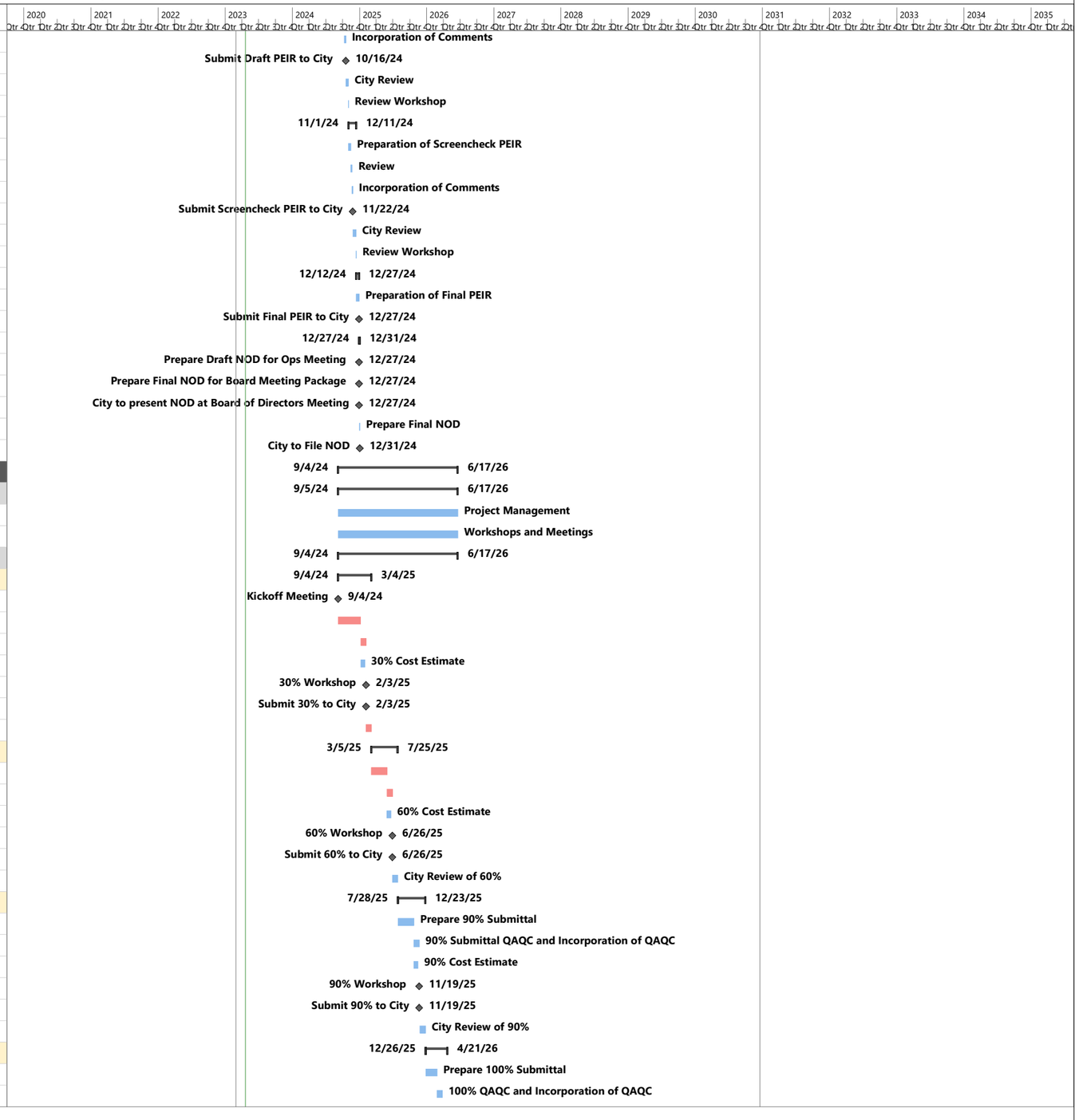
City of Los Angeles
HWRP Emergency Flare System Rehabilitation
Attachment A: Revised Implementation Plan Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
201		Identify Flare Manufacturers and Gas Conditioning Alternatives	40 days	Wed 12/13/23	Mon 2/12/24	200
202		Workshop No. 2	0 days	Mon 2/12/24	Mon 2/12/24	201
203		Evaluate Alternatives	35 days	Tue 2/13/24	Tue 4/2/24	202
204		Evaluate Outage Requirements and Construction Sequencing for HP and LP Digester Gas	15 days	Tue 2/13/24	Tue 3/5/24	202
205		Workshop No. 3	0 days	Tue 4/2/24	Tue 4/2/24	203
206		SCAQMD Permit Approach (Air Modeling and Health Risk Assessment)	20 days	Wed 4/3/24	Tue 4/30/24	205
207		Develop PDR	25 days	Wed 4/3/24	Tue 5/7/24	205
208		PDR Production	5 days	Wed 5/8/24	Tue 5/14/24	207
209		PDR Cost Estimate	10 days	Wed 5/8/24	Tue 5/21/24	207
210		QAQC and QAQC incorporation of PDR	10 days	Wed 5/8/24	Tue 5/21/24	209SS
211		Submit Preliminary Draft PDR to City	0 days	Wed 5/22/24	Wed 5/22/24	210FS+1 day
212		City Review of Preliminary Draft PDR	20 days	Thu 5/23/24	Fri 6/21/24	211
213		Prepare Final Draft PDR	20 days	Mon 6/24/24	Mon 7/22/24	212
214		Submit Final Draft PDR to City	0 days	Mon 7/22/24	Mon 7/22/24	213
215		City Review of Final Draft PDR	20 days	Tue 7/23/24	Mon 8/19/24	214
216		Finalize Final PDR	10 days	Tue 8/20/24	Tue 9/3/24	215
217		Submit Final PDR to City	0 days	Wed 9/4/24	Wed 9/4/24	216FS+1 day
218		Authorize to Proceed to Final Design	0 days	Wed 9/4/24	Wed 9/4/24	217
219		**CEQA Documentation**	**185 days**	**Wed 4/3/24**	**Tue 12/31/24**	
220		Kickoff Meeting	1 day	Wed 4/3/24	Wed 4/3/24	207SS
221		**3.10.1.1 Initial Study (IS)**	**56 days**	**Thu 4/4/24**	**Mon 6/24/24**	
222		**Draft Initial Study**	**41 days**	**Thu 4/4/24**	**Fri 5/31/24**	
223		Preparation of Draft IS Checklist	20 days	Thu 4/4/24	Wed 5/1/24	220
224		Review	5 days	Thu 5/2/24	Wed 5/8/24	223
225		Incorporation of Comments	5 days	Thu 5/9/24	Wed 5/15/24	224
226		Submit Draft IS to City	0 days	Wed 5/15/24	Wed 5/15/24	225
227		City Review	10 days	Thu 5/16/24	Thu 5/30/24	226
228		Review Meeting	1 day	Fri 5/31/24	Fri 5/31/24	227
229		**Final Initial Study**	**15 days**	**Mon 6/3/24**	**Mon 6/24/24**	
230		Preparation of Final Initial Study	5 days	Mon 6/3/24	Fri 6/7/24	228
231		Review	5 days	Mon 6/10/24	Fri 6/14/24	230
232		Incorporation of Comments	5 days	Mon 6/17/24	Mon 6/24/24	231
233		Submit Final IS to City	0 days	Mon 6/24/24	Mon 6/24/24	232
234		**3.10.1.2 Project Description (PD)**	**62 days**	**Tue 6/25/24**	**Fri 9/20/24**	
235		**Draft Project Description**	**41 days**	**Tue 6/25/24**	**Wed 8/21/24**	
236		Preparation of Draft Project Description	20 days	Tue 6/25/24	Tue 7/23/24	233
237		Review	5 days	Wed 7/24/24	Tue 7/30/24	236
238		Incorporation of Comments	5 days	Wed 7/31/24	Tue 8/6/24	237
239		Submit Draft PD to City	0 days	Tue 8/6/24	Tue 8/6/24	238
240		City Review	10 days	Wed 8/7/24	Tue 8/20/24	239
241		Review Meeting	1 day	Wed 8/21/24	Wed 8/21/24	240
242		**Final Project Description**	**21 days**	**Thu 8/22/24**	**Fri 9/20/24**	
243		Preparation of Final Project Description	10 days	Thu 8/22/24	Thu 9/5/24	241
244		Submit Final PD to City	0 days	Thu 9/5/24	Thu 9/5/24	243
245		City Review	10 days	Fri 9/6/24	Thu 9/19/24	244
246		Review Meeting	1 day	Fri 9/20/24	Fri 9/20/24	245
247		**3.10.1.3 PEIR**	**66 days**	**Mon 9/23/24**	**Tue 12/31/24**	
248		**Draft PEIR**	**28 days**	**Mon 9/23/24**	**Thu 10/31/24**	
249		Preparation of Draft PEIR	7 days	Mon 9/23/24	Tue 10/1/24	246
250		Review	5 days	Wed 10/2/24	Tue 10/8/24	249



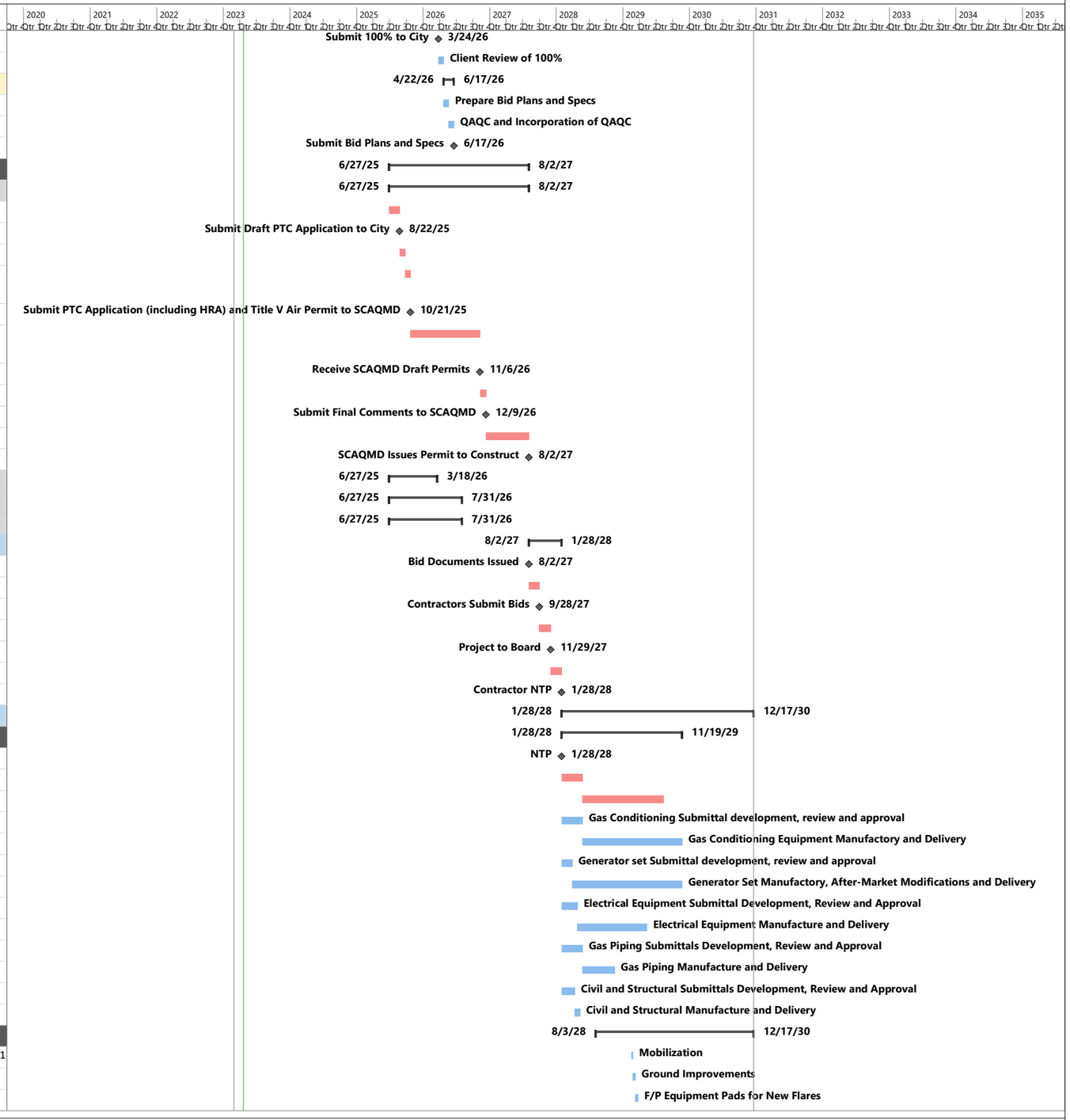
City of Los Angeles
HWRP Emergency Flare System Rehabilitation
Attachment A: Revised Implementation Plan Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
251		Incorporation of Comments	5 days	Wed 10/9/24	Wed 10/16/24	250
252		Submit Draft PEIR to City	0 days	Wed 10/16/24	Wed 10/16/24	251
253		City Review	10 days	Thu 10/17/24	Wed 10/30/24	252
254		Review Workshop	1 day	Thu 10/31/24	Thu 10/31/24	253
255		**Screencheck PEIR**	**26 days**	**Fri 11/1/24**	**Wed 12/11/24**	
256		Preparation of Screencheck PEIR	7 days	Fri 11/1/24	Tue 11/12/24	254
257		Review	5 days	Wed 11/13/24	Tue 11/19/24	256
258		Incorporation of Comments	3 days	Wed 11/20/24	Fri 11/22/24	257
259		Submit Screencheck PEIR to City	0 days	Fri 11/22/24	Fri 11/22/24	258
260		City Review	10 days	Mon 11/25/24	Tue 12/10/24	259
261		Review Workshop	1 day	Wed 12/11/24	Wed 12/11/24	260
262		**Final PEIR**	**10 days**	**Thu 12/12/24**	**Fri 12/27/24**	
263		Preparation of Final PEIR	10 days	Thu 12/12/24	Fri 12/27/24	261
264		Submit Final PEIR to City	0 days	Fri 12/27/24	Fri 12/27/24	263
265		**Notice of Determination (NOD)**	**2 days**	**Fri 12/27/24**	**Tue 12/31/24**	
266		Prepare Draft NOD for Ops Meeting	0 days	Fri 12/27/24	Fri 12/27/24	264
267		Prepare Final NOD for Board Meeting Package	0 days	Fri 12/27/24	Fri 12/27/24	266
268		City to present NOD at Board of Directors Meeting	0 days	Fri 12/27/24	Fri 12/27/24	267
269		Prepare Final NOD	2 days	Mon 12/30/24	Tue 12/31/24	268
270		City to File NOD	0 days	Tue 12/31/24	Tue 12/31/24	269
271		**New Flares Final Design**	**442 days**	**Wed 9/4/24**	**Wed 6/17/26**	
272		**Final Design Project Management**	**442 days**	**Thu 9/5/24**	**Wed 6/17/26**	
273		Project Management	442 days	Thu 9/5/24	Wed 6/17/26	218
274		Workshops and Meetings	442 days	Thu 9/5/24	Wed 6/17/26	218
275		**Final Design**	**442 days**	**Wed 9/4/24**	**Wed 6/17/26**	
276		**30% Design**	**120 days**	**Wed 9/4/24**	**Tue 3/4/25**	
277		Kickoff Meeting	0 days	Wed 9/4/24	Wed 9/4/24	218
278		Prepare 30% Submittal	80 days	Thu 9/5/24	Fri 1/3/25	218
279		30% Submittal QAQC and Incorporation of QAQC	20 days	Mon 1/6/25	Mon 2/3/25	278
280		30% Cost Estimate	15 days	Mon 1/6/25	Mon 1/27/25	278
281		30% Workshop	0 days	Mon 2/3/25	Mon 2/3/25	279
282		Submit 30% to City	0 days	Mon 2/3/25	Mon 2/3/25	279
283		City Review of 30%	20 days	Tue 2/4/25	Tue 3/4/25	282
284		**60% Design**	**100 days**	**Wed 3/5/25**	**Fri 7/25/25**	
285		Prepare 60% Submittal	60 days	Wed 3/5/25	Wed 5/28/25	283
286		60% Submittal QAQC and Incorporation of QAQC	20 days	Thu 5/29/25	Thu 6/26/25	285
287		60% Cost Estimate	15 days	Thu 5/29/25	Wed 6/18/25	285
288		60% Workshop	0 days	Thu 6/26/25	Thu 6/26/25	286
289		Submit 60% to City	0 days	Thu 6/26/25	Thu 6/26/25	286
290		City Review of 60%	20 days	Fri 6/27/25	Fri 7/25/25	289
291		**90% Design**	**102 days**	**Mon 7/28/25**	**Tue 12/23/25**	
292		Prepare 90% Submittal	60 days	Mon 7/28/25	Tue 10/21/25	290
293		90% Submittal QAQC and Incorporation of QAQC	20 days	Wed 10/22/25	Wed 11/19/25	292
294		90% Cost Estimate	15 days	Wed 10/22/25	Wed 11/12/25	292
295		90% Workshop	0 days	Wed 11/19/25	Wed 11/19/25	293
296		Submit 90% to City	0 days	Wed 11/19/25	Wed 11/19/25	293
297		City Review of 90%	20 days	Mon 11/24/25	Tue 12/23/25	296FS+2 days
298		**100% Design**	**80 days**	**Fri 12/26/25**	**Tue 4/21/26**	
299		Prepare 100% Submittal	40 days	Fri 12/26/25	Tue 2/24/26	297
300		100% QAQC and Incorporation of QAQC	20 days	Wed 2/25/26	Tue 3/24/26	299



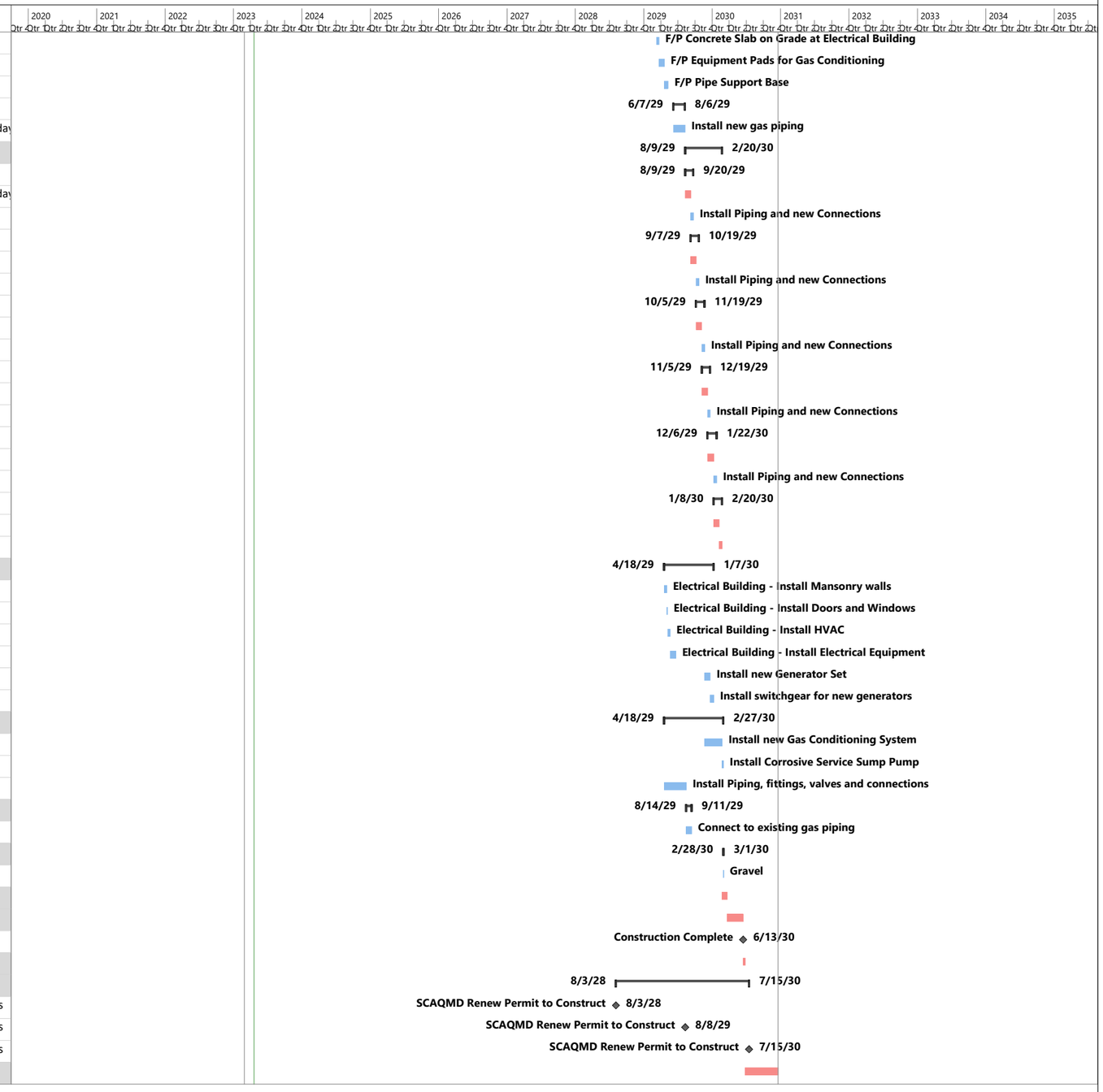
City of Los Angeles
HWRP Emergency Flare System Rehabilitation
Attachment A: Revised Implementation Plan Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
301		Submit 100% to City	0 days	Tue 3/24/26	Tue 3/24/26	300
302		Client Review of 100%	20 days	Wed 3/25/26	Tue 4/21/26	301
303		**Bid Documents**	**40 days**	**Wed 4/22/26**	**Wed 6/17/26**	
304		Prepare Bid Plans and Specs	20 days	Wed 4/22/26	Tue 5/19/26	302
305		QAQC and Incorporation of QAQC	20 days	Wed 5/20/26	Wed 6/17/26	304
306		Submit Bid Plans and Specs	0 days	Wed 6/17/26	Wed 6/17/26	305
307		**Permitting**	**520 days**	**Fri 6/27/25**	**Mon 8/2/27**	
308		**SCAQMD Permitting Schedule**	**520 days**	**Fri 6/27/25**	**Mon 8/2/27**	
309		Draft PTC Application and Title V Air Permit	40 days	Fri 6/27/25	Fri 8/22/25	289
310		Submit Draft PTC Application to City	0 days	Fri 8/22/25	Fri 8/22/25	309
311		City Review of Draft PTC Application	20 days	Mon 8/25/25	Mon 9/22/25	310
312		Finalize Draft PTC Application and Title V Air Permit and incorporate comments	20 days	Tue 9/23/25	Tue 10/21/25	311
313		Submit PTC Application (including HRA) and Title V Air Permit to SCAQMD	0 days	Tue 10/21/25	Tue 10/21/25	312,219
314		SCAQMD Review of PTC Application and Title V Air Permit and Preparation of Draft Permits	13 mons	Wed 10/22/25	Fri 11/6/26	313
315		Receive SCAQMD Draft Permits	0 days	Fri 11/6/26	Fri 11/6/26	314
316		Review SCAQMD Draft Permits and Provide Comments	20 days	Mon 11/9/26	Wed 12/9/26	315
317		Submit Final Comments to SCAQMD	0 days	Wed 12/9/26	Wed 12/9/26	316
318		SCAQMD Develops Final Permits	8 mons	Thu 12/10/26	Mon 8/2/27	317
319		SCAQMD Issues Permit to Construct	0 days	Mon 8/2/27	Mon 8/2/27	318
320		**CUP/CDP Permit (Do not anticipate this will be required)**	**178 days**	**Fri 6/27/25**	**Wed 3/18/26**	
336		**Building Permit**	**272 days**	**Fri 6/27/25**	**Fri 7/31/26**	
352		**Fire Department Permit**	**272 days**	**Fri 6/27/25**	**Fri 7/31/26**	
368		**New Flares Contractor Bid & Award**	**120 days**	**Mon 8/2/27**	**Fri 1/28/28**	
369		Bid Documents Issued	0 days	Mon 8/2/27	Mon 8/2/27	319,306
370		Procurement Period	40 days	Tue 8/3/27	Tue 9/28/27	369
371		Contractors Submit Bids	0 days	Tue 9/28/27	Tue 9/28/27	370
372		Client Review Proposals	40 days	Wed 9/29/27	Mon 11/29/27	371
373		Project to Board	0 days	Mon 11/29/27	Mon 11/29/27	372
374		Award and Contract	40 days	Tue 11/30/27	Fri 1/28/28	373
375		Contractor NTP	0 days	Fri 1/28/28	Fri 1/28/28	374
376		**New Flares Construction**	**716 days**	**Fri 1/28/28**	**Tue 12/17/30**	
377		**New Flares Pre Construction**	**450 days**	**Fri 1/28/28**	**Mon 11/19/29**	
378		NTP	0 days	Fri 1/28/28	Fri 1/28/28	375
379		Flares Submittal Development, Review and Approval	16 wks	Mon 1/31/28	Mon 5/22/28	378
380		Flares Equipment Manufacture and Delivery	60 wks	Tue 5/23/28	Wed 8/8/29	379
381		Gas Conditioning Submittal development, review and approval	16 wks	Mon 1/31/28	Mon 5/22/28	378
382		Gas Conditioning Equipment Manufactory and Delivery	74 wks	Tue 5/23/28	Mon 11/19/29	381
383		Generator set Submittal development, review and approval	8 wks	Mon 1/31/28	Mon 3/27/28	378
384		Generator Set Manufactory, After-Market Modifications and Delivery	82 wks	Tue 3/28/28	Mon 11/19/29	383
385		Electrical Equipment Submittal Development, Review and Approval	12 wks	Mon 1/31/28	Mon 4/24/28	378
386		Electrical Equipment Manufacture and Delivery	52 wks	Tue 4/25/28	Thu 5/10/29	385
387		Gas Piping Submittals Development, Review and Approval	16 wks	Mon 1/31/28	Mon 5/22/28	378
388		Gas Piping Manufacture and Delivery	6 mons	Tue 5/23/28	Tue 11/14/28	387
389		Civil and Structural Submittals Development, Review and Approval	10 wks	Mon 1/31/28	Mon 4/10/28	378
390		Civil and Structural Manufacture and Delivery	4 wks	Tue 4/11/28	Mon 5/8/28	389
391		**New Flares Construction**	**586 days**	**Thu 8/3/28**	**Tue 12/17/30**	
392		Mobilization	5 days	Thu 2/15/29	Thu 2/22/29	380FS-120 days,1
393		Ground Improvements	10 days	Fri 2/23/29	Thu 3/8/29	392,390
394		F/P Equipment Pads for New Flares	10 days	Fri 3/9/29	Thu 3/22/29	393



City of Los Angeles
HWRP Emergency Flare System Rehabilitation
Attachment A: Revised Implementation Plan Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
395		F/P Concrete Slab on Grade at Electrical Building	8 days	Fri 3/9/29	Tue 3/20/29	390,393
396		F/P Equipment Pads for Gas Conditioning	20 days	Wed 3/21/29	Tue 4/17/29	395
397		F/P Pipe Support Base	15 days	Wed 4/18/29	Tue 5/8/29	396
398		**Gas Piping**	**40 days**	**Thu 6/7/29**	**Mon 8/6/29**	
399		Install new gas piping	40 days	Thu 6/7/29	Mon 8/6/29	388,397FS+20 da
400		**Flares**	**130 days**	**Thu 8/9/29**	**Wed 2/20/30**	
401		**Flare #1**	**30 days**	**Thu 8/9/29**	**Thu 9/20/29**	
402		Install new flare	20 days	Thu 8/9/29	Thu 9/6/29	380,394FS+20 da
403		Install Piping and new Connections	10 days	Fri 9/7/29	Thu 9/20/29	402
404		**Flare #2**	**30 days**	**Fri 9/7/29**	**Fri 10/19/29**	
405		Install new flare	20 days	Fri 9/7/29	Thu 10/4/29	402
406		Install Piping and new Connections	10 days	Fri 10/5/29	Fri 10/19/29	405
407		**Flare #3**	**30 days**	**Fri 10/5/29**	**Mon 11/19/29**	
408		Install new flare	20 days	Fri 10/5/29	Fri 11/2/29	405
409		Install Piping and new Connections	10 days	Mon 11/5/29	Mon 11/19/29	408
410		**Flare #4**	**30 days**	**Mon 11/5/29**	**Wed 12/19/29**	
411		Install new flare	20 days	Mon 11/5/29	Wed 12/5/29	408
412		Install Piping and new Connections	10 days	Thu 12/6/29	Wed 12/19/29	411
413		**Flare #5**	**30 days**	**Thu 12/6/29**	**Tue 1/22/30**	
414		Install new flare	20 days	Thu 12/6/29	Mon 1/7/30	411
415		Install Piping and new Connections	10 days	Tue 1/8/30	Tue 1/22/30	414
416		**Flare #6**	**30 days**	**Tue 1/8/30**	**Wed 2/20/30**	
417		Install new flare	20 days	Tue 1/8/30	Tue 2/5/30	414
418		Install Piping and new Connections	10 days	Wed 2/6/30	Wed 2/20/30	417
419		**Electrical**	**177 days**	**Wed 4/18/29**	**Mon 1/7/30**	
420		Electrical Building - Install Mansonry walls	10 days	Wed 4/18/29	Tue 5/1/29	395FS+20 days
421		Electrical Building - Install Doors and Windows	3 days	Wed 5/2/29	Fri 5/4/29	420
422		Electrical Building - Install HVAC	10 days	Mon 5/7/29	Fri 5/18/29	421
423		Electrical Building - Install Electrical Equipment	20 days	Mon 5/21/29	Mon 6/18/29	422,386
424		Install new Generator Set	20 days	Tue 11/20/29	Wed 12/19/29	423,384
425		Install switchgear for new generators	10 days	Thu 12/20/29	Mon 1/7/30	424
426		**Gas Conditioning System**	**212 days**	**Wed 4/18/29**	**Wed 2/27/30**	
427		Install new Gas Conditioning System	60 days	Tue 11/20/29	Wed 2/20/30	396,382
428		Install Corrosive Service Sump Pump	5 days	Thu 2/21/30	Wed 2/27/30	427
429		Install Piping, fittings, valves and connections	80 days	Wed 4/18/29	Mon 8/13/29	396
430		**Gas Piping Connections**	**20 days**	**Tue 8/14/29**	**Tue 9/11/29**	
431		Connect to existing gas piping	20 days	Tue 8/14/29	Tue 9/11/29	429
432		**Finish Road**	**2 days**	**Thu 2/28/30**	**Fri 3/1/30**	
433		Gravel	2 days	Thu 2/28/30	Fri 3/1/30	426
434		**Functional Testing of Equipment and Electrical Equipment**	**20 days**	**Thu 2/21/30**	**Wed 3/20/30**	**400,419**
435		**Startup and Commissioning**	**60 days**	**Thu 3/21/30**	**Thu 6/13/30**	**434**
436		Construction Complete	0 days	Thu 6/13/30	Thu 6/13/30	435
437		**SCAQMD Source Testing**	**6 days**	**Fri 6/14/30**	**Mon 6/24/30**	**435**
438		**SCAQMD Permit Renewals**	**480 days**	**Thu 8/3/28**	**Mon 7/15/30**	
439		SCAQMD Renew Permit to Construct	0 days	Thu 8/3/28	Thu 8/3/28	319FS+250 days
440		SCAQMD Renew Permit to Construct	0 days	Wed 8/8/29	Wed 8/8/29	439FS+250 days
441		SCAQMD Renew Permit to Construct	0 days	Mon 7/15/30	Mon 7/15/30	440FS+230 days
442		**As-Built Drawings**	**6 mons**	**Tue 6/25/30**	**Tue 12/17/30**	**437**



Attachment B:
South Coast AQMD Order of Abatement 1212-39

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Attorneys for Petitioner
South Coast Air Quality Management District

BEFORE THE HEARING BOARD OF THE

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

In the Matter of SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT, Petitioner, vs. LOS ANGELES CITY SANITATION BUREAU, HYPERION WATER RECLAMATION PLANT [Facility ID No. 800214] Respondent.	**Case No. 1212-39** **FINDINGS AND DECISION ~~[PROPOSED]~~** South Coast AQMD Rule 3002(c)(1) Hearing Date: March 24, 2022 Time: 9:00 a.m. Place: Hearing Board South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765

Adopted 3/24/22 BD

FINDINGS AND DECISION OF THE HEARING BOARD

This Petition for An Order for Abatement ("Petition') was heard on March 9 and 24, 2022, pursuant to notice and accordance with the provisions of the California Health and Safety Code section 40823 and South Coast AQMD Rule 812. The following members of the Hearing Board were present: Cynthia Verdugo-Peralta, Chair; Mohan Balagopalan, Vice-Chair; Allen Bernstein, DPM; Micah Ali; and Robert Pearman, Esq. Petitioner, Executive Officer of the South Coast Air

PETITIONER: CASE NO. 1212-39
Exhibit No. 4 Consisting of 9 pages
Identification 3/24/22 Evidence 3/24/22

Quality Management District ("South Coast AQMD" or "Petitioner"), was represented by Mary Reichert, Senior Deputy District Counsel, and Erika Chavez, Senior Deputy District Counsel. Respondent Los Angeles City Sanitation Bureau ("Respondent" or "LA Sanitation") was represented by Adena Hopenstand, Deputy City Attorney, City of Los Angeles. The parties have stipulated to issuance of this order. The public was given the opportunity to testify. Evidence was received and the matter was submitted. The Hearing Board finds and decides as follows: The Hearing Board finds that GOOD CAUSE exists to issue the Stipulated Order for Abatement. This finding of good cause is based on the following:

The Hearing Board finds that GOOD CAUSE exists to issue the Stipulated Order for Abatement. This finding of good cause is based on the following:

1. South Coast AQMD has established a prima facie case that LA Sanitation is violating South Coast AQMD Rule 3002(c)(1). South Coast AQMD's prima facie case is based on the following allegations and evidence set forth in Paragraphs 2 through 9, below.

2. Petitioner is a body corporate and politic established and existing pursuant to Health and Safety Code §40000, et seq. and §40400, et seq., and is the sole and exclusive local agency with the responsibility for comprehensive air pollution control in the South Coast Air Basin.

3. Respondent LA Sanitation operates the Hyperion Water Reclamation Plant ("Hyperion"), a facility subject to the jurisdiction of the South Coast AQMD. Hyperion is located in southwest Los Angeles at 12000 Vista Del Mar, Playa Del Rey, CA 90293. Its Facility ID Number is 800214.

4. Hyperion is a wastewater treatment facility. As part of its operations, the facility operates a digester flare station consisting of six flares, Nos. 1-6 ("Flare Station").

5. South Coast AQMD has issued Permit to Operate No. R-D39256, A/N 227143 for the Flare Station. Permit Condition No. 15 of that permit requires that the operator determine compliance with the NOx emission rates by conducting a source test at least once every five years. Permit Condition No. 16 of that permit states that the equipment is subject to emission limits for NOx of 0.06 lb/MMBTU, pursuant to BACT, South Coast AQMD Rule 1303(a)(1) ("BACT limit

for NOx" or "NOx limits").

6. South Coast AQMD Rule 3002(c)(1) requires Title V facilities to comply with the conditions of their permits.

7. LA Sanitation source tested Flares 1 through 4 during September 20-23, 2021. Flare 6 was source tested on December 28, 2021. South Coast AQMD's evaluation of the source tests revealed that LA Sanitation did not successfully demonstrate compliance for Flares 3 and 4 for the BACT limit for NOx. LA Sanitation did not source test Flare 5 in 2021.

8. Based on the foregoing, in its Petition, South Coast AQMD alleges that LA Sanitation is currently in violation of Permit Conditions Nos. 15 and 16 and South Coast AQMD Rule 3002(c)(1) because the source tests conducted in September 2021 did not successfully demonstrate compliance for Flares 3 and 4 for the BACT limit for NOx set forth in Permit to Operate No. R-D39256. The Petition further alleges that Flare 5 was not source tested after 2015 to demonstrate compliance with its NOx limits set forth in Permit to Operate No. R-D39256. On October 8, 2021, the South Coast AQMD issued Notice of Violation P63324.

9. In February 2022, Respondent engaged vendor John Zink Company, LLC also known as John Zink Hamworthy Combustion, a combustion specialist ("John Zink Company"), to evaluate its Flare Station and provide an assessment in written reports ("John Zink Report").

10. At the March 9, 2022 hearing on the Petition ("March 9 Hearing"), the Hearing Board received and evaluated Petitioner's Exhibit 1, Proposed Findings and Decision, Petitioner's Exhibit 2, Revised Proposed Findings and Decision, as well as Respondent's Exhibits A through F. The Hearing Board also heard public comment and testimony from party witnesses. Sheri Symons, Environmental Engineer with the City of Los Angeles working at Hyperion, testified for Respondent. Michal Haynes (District Inspector III for the Toxic Waste Management Unit), Ray Ronquillo (Senior Air Quality Engineer for the Waste Management Permitting Team), and Michael Wickson (Senior Air Quality Engineer in the Source Testing Division), testified for Petitioner. The Hearing Board concluded that it required additional time to evaluate the Revised Proposed Findings and Decision (Petitioner's Exhibit 2), and continued the hearing on the Petition

to March 24, 2022.

11. On February 25, 2022, following its on-site evaluation of Flares 1-5, John Zink Company provided the John Zink Report recommending the cleaning and repair of the burners, mixing plates, and brackets for those flares. Thereafter, John Zink Company also performed its evaluation of Flare 6, and on March 14, 2022, an updated and amended version of the John Zink Report, adding John Zink's assessment of Flare 6 to the existing report ("Updated John Zink Report"), was provided to South Coast AQMD.

12. Since the March 9th Hearing, Respondent has completed the cleanings and repairs recommended by the John Zink Report for Flares 1, 2, 3, 4, and 5. Respondent has also completed source tests for Flares 1, 3, 4, 5, and 6 consistent with Conditions 1 and 2 of Petitioner's Exhibit 2. The vendor that tested Flare 3 indicated that, at the time of source testing, its fuel flow was erratic, which potentially affected the test results. Accordingly, Flare 3 will be re-tested to account for this factor on March 24, 2022 or March 25, 2022. Source testing for Flare 2 is also scheduled for March 24, 2022 and/or March 25, 2022.

13. Since the March 9th Hearing, Respondent has also provided maintenance records and manuals to South Coast AQMD consistent with Condition 3 of Petitioner's Exhibit 2, and has been submitting weekly reports to South Coast AQMD consistent with Conditions 6 and 7 of that Exhibit.

14. Respondent has agreed to stipulate to issuance of this Order for Abatement pursuant to California Health & Safety Code section 42451(b). Respondent states that it can comply with the conditions set forth below. The reporting requirements and time limits set forth in the conditions below have been justified.

CONCLUSIONS

1. The parties have stipulated to issuance of this Order for Abatement pursuant to California Health & Safety Code § 42451(b).

2. The issuance of this stipulated Order for Abatement following a fully noticed hearing will not constitute a taking of property without due process of law. If the issuance of this stipulated

Order for Abatement results in the closing or elimination of an otherwise lawful business, such closing would not be without a corresponding benefit in reducing air contaminants.

3. This stipulated Order for Abatement is not intended to be, nor does it act as a variance, and Respondent remains subject to all rules and regulations of the District, and with all applicable provisions of California law.

ORDER

THEREFORE, based on the foregoing and good cause appearing, the Hearing Board hereby orders Respondent to immediately cease and desist from violating Rule 3002(c)(1), or in the alternative, comply with the following conditions:

1. Prior to April 16, 2022, Respondent shall complete the source test for Flare 2 and the re-test of Flare 3, pursuant to the permit conditions of Permit R-D39256, A/N 227143. Respondent shall request and pay for expedited processing of the source testing results from all source tests performed since March 1, 2022, if available, and shall submit the final test results for each flare's source test as soon as it becomes available, but no later than 30 days after the respective source test's completion to South Coast AQMD by email (attention Michal Haynes, mhaynes@aqmd.gov; Ray Ronquillo, rronquillo1@aqmd.gov; Erika Chavez, echavez@aqmd.gov; Mary Reichert, mreichert@aqmd.gov). Other than for total hydrocarbon (THC), LA Sanitation shall conduct the source tests in accordance with a previously approved protocol, approved by South Coast AQMD in or about November 2021, including but not limited to the recalibration of the fuel flow meters. For THC testing, Respondent shall proceed pursuant to industry standard and shall utilize South Coast AQMD methods 25.1 and 25.3 for a minimum sample time of 15 minutes simultaneously at the inlet and the outlet, respectively. The source test shall also determine the destruction removal efficiency (DRE) of for THC, and the mass and concentration (in ppmvd @ 3% O2) emissions for carbon monoxide (CO) and nitrogen oxide (NOx) (and compute the lbs NOx/MMBTU).

2. Respondent shall complete the repairs and maintenance recommended by the John Zink Report(s) for Flare 6 by no later than April 16, 2022.

3. Respondent shall submit a weekly progress report on the status of all testing, repairs,

and maintenance work, to any flare in the Flare Station, to South Coast AQMD by email (attention: Michal Haynes, mhaynes@aqmd.gov; Ray Ronquillo, rronquillo1@aqmd.gov; Erika Chavez, echavez@aqmd.gov; Mary Reichert, mreichert@aqmd.gov), every Monday of each week, by 11:59 pm. At a minimum, the report shall provide the status of the procurement and execution of any contract(s), as well as a detailed description of any work completed, challenges encountered, unexpected additional repair work performed, delays in parts/components delivery (if any), and estimated completion of each phase of the work.

4. In the event that any flare is found to be non-compliant based on South Coast AQMD's evaluation of the source testing performed since March 1, 2022, Respondent shall:

a. Within 30 days of South Coast AQMD's communication that any flare is noncompliant based upon source tests performed since March 1, 2022, contract or subcontract an appropriate vendor, contractor, or consultant to provide a technical evaluation and comprehensive report of the Flare Station ("Comprehensive Evaluation and Report"). The Comprehensive Evaluation and Report shall encompass all Flares Nos. 1-6, and shall include: (a) an assessment of the conditions of the flares and their components as of the date of the evaluation(s); (b) an evaluation of the cleaning and repairs performed on the flares pursuant to the John Zink Reports and whether such cleaning and repairs had any impacts on flare performance; and (c) identification of further recommendations for additional repair, maintenance work, and/or replacement of the flares, if any, as well as estimated timelines for completion thereof. Respondent shall include in its weekly progress report (Condition 3, infra) the status of the Comprehensive Evaluation and Report and/or related vendor, contractor, or consultant retention.

b. No later than 60 days after South Coast AQMD's communication to Respondent regarding the first non-compliant flare, Respondent shall provide a copy of the Comprehensive Evaluation and Report to South Coast AQMD by email (attention: Michal Haynes, mhaynes@aqmd.gov; Ray Ronquillo,

rronquillo1@aqmd.gov; Erika Chavez, echavez@aqmd.gov; Mary Reichert, mreichert@aqmd.gov).

c. No later than 90 days after the completion of the Comprehensive Evaluation and Report, Respondent shall submit a proposed plan implementing the recommendations of the Comprehensive Evaluation and Report ("Implementation Plan") to South Coast AQMD by email (attention: Michal Haynes, mhaynes@aqmd.gov; Ray Ronquillo, rronquillo1@aqmd.gov; Erika Chavez, echavez@aqmd.gov; Mary Reichert, mreichert@aqmd.gov). The Implementation Plan shall include the steps required to bring all of Respondent's flares into compliance, including but not limited to timelines for submitting applications for all required approvals from the South Coast AQMD and any other regulatory entity, timelines for completing all necessary steps for Respondent to execute contracts and purchase orders to complete the required work, and a manufacturing and installation schedule, as applicable.

d. On the same date that the Respondent submits its Implementation Plan to South Coast AQMD, Respondent shall submit the Comprehensive Evaluation and Report, Implementation Plan, and a status report to the Hearing Board (attention: Clerk of the Board).

amended 3/24/22 KD

5. Respondent shall take the following actions ahead of the Digester Gas Utilization Project (DGUP) shutdown scheduled for April 16, 2022: (a) investigate the availability of a thermal oxidizer or other appropriate digester gas control system to use in replacement of non-compliant flare(s) and procure if there is availability; and (b) investigate obtaining a various locations permit with expedited processing for a thermal oxidizer or other appropriate digester gas control system. If there is no availability to utilize a thermal oxidizer, or other appropriate digester gas control system in replacement of non-compliant flare(s), Respondent shall prioritize operation of its compliant flares.

6. Notwithstanding the deadlines for the deliverables stipulated in Conditions 1, 2, 4

and 5, Respondent shall expedite and pay for expediting costs for the delivery of all goods, supplies, parts, components, technical consultation services and source testing services required for the execution of the requirements in this Order for Abatement.

7. Respondent shall pay its annual fees such as annual permit renewal fees, including any late fees, for the facility (ID# 800214), expeditiously, but by no later than April 16, 2022.

8. The Hearing Board shall hold a hearing at 9:00 am on November 3, 2022 to review the status of this matter and consider a modification and/or extension of this Order.

9. The Hearing Board shall retain jurisdiction over this matter until and including **March 24, 2023**, or 30 days after Respondent has achieved final compliance, whichever comes first. Final Compliance is defined as South Coast AQMD's confirmation that Flare Nos. 1-6 are compliant, pursuant to source test results for Flare Nos. 1-6 submitted by LA Sanitation to South Coast AQMD.

10. The Hearing Board may modify the Order for Abatement upon making the findings required by Health and Safety Code Section 42451(a) and South Coast AQMD Rule 806(a). Any modification of the Order shall be made only at a public hearing held upon 10 days published notice and appropriate written notice to Respondent.

11. Nothing herein shall be deemed or construed to limit the authority of South Coast AQMD to issue Notices of Violation, or to seek civil penalties, criminal penalties, or injunctive relief, or to seek further orders for abatement, or other administrative or legal relief.

12. Respondent shall notify the Clerk of the Hearing Board in writing when final compliance is achieved.

FOR THE BOARD: _____

DATE SIGNED: _____

SO STIPULATED:

DATE: March 24, 2022

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
OFFICE OF THE GENERAL COUNSEL

By: _____

Mary Reichert, Senior Deputy District Counsel
Erika Chavez, Senior Deputy District Counsel
Attorneys for Petitioner

DATE: March 24, 2022

LA CITY SANITATION BUREAU, HYPERION WATER RECLAMATION PLANT

By: _____

Adena Hopenstand
Deputy City Attorney
City of Los Angeles
Attorney for Respondent

Attachment C:
George T. Hall Company Evaluation Report – Flares 1-6, Amended

Brown AND Caldwell

GEORGE T. HALL COMPANY

April 4, 2023

Environmental Engineering Division
12000 Vista Del Mar, Suite 200
Playa Del Rey, CA 90293

ATTN: Erica Aghagholizadeh

Phone: 407-619-9007
Email: erica.aghagholizadeh@lacity.org

Subject: SR220120 Hyperion Flare Review Observations Report, Amended.

Erica:

To follow is the report for Hyperion Flares numbers 1 through 6, and local control functions as observed by myself and Vitorio Antunes of George T. Hall Co. Inc. during the site visits on April 6 and 7, 2022.

While on site April 6th and 7th in depth attention was directed to flares numbered 4 and 5.

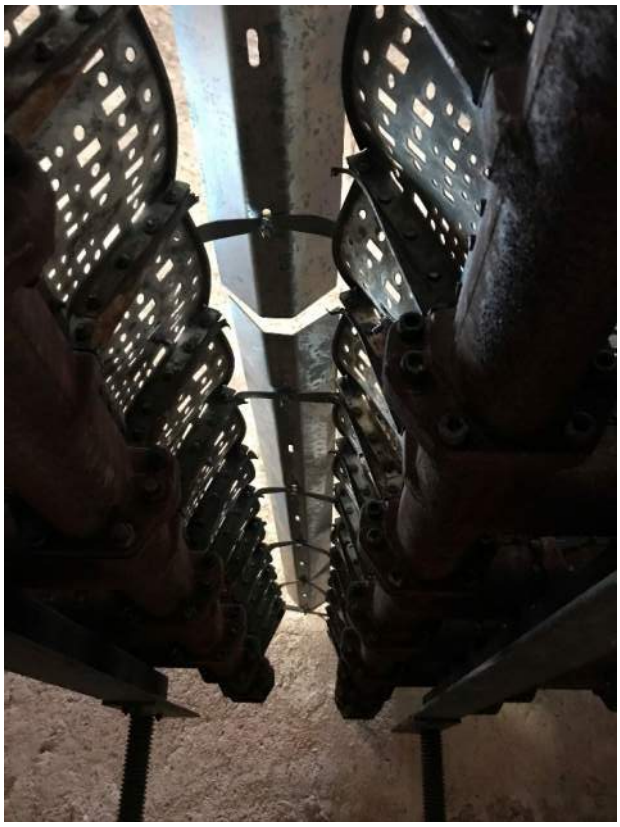
Wednesday April 6, 2022.

Flares 1, 2, 3, and 6 were offline during the site visit on April 6, 2022.

Flare number 4 had been readied to allow entry through the inlet air opening and review of the physical condition of the Maxon LV-4D Airflow burner.

1. Flare 4 inspection revealed the following:
   1.1. Several of the burner stainless-steel profile plates had been recently replaced with new stainless-steel profile plates. I was told this was done because the original stainless-steel profile plates had deteriorated over time.
   1.2. Many the burner stainless-steel mixing plates on the “southeast side “of the burner were deformed and had over 50% of their metal missing.

1.3. Stainless-steel mixing plates running down the center of the burner showed signs of having been overheated and are beginning to deteriorate.



1.4. Many of the remaining stainless-steel mixing plates showed evidence of being exposed to high temperatures.
1.5. The refractory inside of the Flare appeared to be in very good condition.
1.6. Exterior review of the flare did not reveal any signs of concern at the time of inspection.
1.7. The exterior gas piping appeared to be sound.
1.8. The damper linkages were in good mechanical condition.
1.9. LCP controls were not operational while the Flare was open for physical inspection.

2. Flare 5 was being source tested by “Air Quality Engineering, Inc.” This meant that it was not possible to interrupt its operation during the source test.
   2.1 A cursory review of the external areas of Flare 5 was performed while its was operating in a steady state condition.
   2.2. Looking at the HMI for Flare 5 in the local control panel, “LCP” did not show any cause for concern while the Flare was being held in the steady state firing position.

Thursday April 7, 2022.

3. Flare 4 was operational allowing observation of the burner under normal operating conditions.
   3.1 The flare was operating as follows:

3.1.1 Temperature as displayed on the LCP HMI was 1580 F.
3.1.2 Digester gas flow as displayed on the LCP HMI was 1240 CFM.

3.2. Looking between the air damper blades into the Flare, below the burner, revealed the following:
3.2.1. Fire was observed below the burner cast-iron manifold at what appeared to be the flange connections between the burner sections. This is in the area near and below the badly deteriorated burner mixing plates mentioned in item 1.1.2 above.

3.2.2. Similar observations were made in the areas where deteriorated mixing plates existed during the April 6th physical inspection.

Flare number 5 had been readied to allow entry through the inlet air opening and review of the physical condition of the Maxon LV-4D Airflow burner.

We were told that Flare 5 had successfully passed the source test done the previous day. The detailed written report had not been received from the testing company as of April 7th.

4. Flare 5 inspection revealed the following:
4.1 The burner stainless-steel profile plates were in very good condition.
4.2 The burner stainless-steel mixing plates were in good condition and did not show signs of deterioration.
4.3 The stainless-steel mixing plates showed evidence of being exposed to elevated temperatures over time.

4.4. The refractory inside of the Flare appeared to be in very good condition.
4.5. Exterior review of the flare did not reveal any signs of concern at the time of inspection.
4.6. The exterior gas piping appeared to be sound.
4.7. The damper linkages were in good mechanical condition.
4.8. LCP controls were not operational while the Flare was open for physical inspection.

We requested that Flare 5 be reassembled and be placed back into operation for observation of the Maxon LV-4D Airflow burner under normal operation.

5. Flare 5 was put back into operation allowing observation of the burner under normal operating conditions.
   5.1. The flare was operated as follows:
      5.1.1. The temperature as displayed on the LCP HMI was 1550 F.
      5.1.2. Digester gas flow as displayed on the LCP HMI was 2000 CFM.
   5.2. Looking between the air damper blades into the Flare, below the burner, revealed that the burner was functioning as would be expected. No flames were visible below the burner mixing plates.
   5.3. Observed that the three (3) air dampers were not equally matched in reference to position.

Proceeded to have operator fire Flares 1, 2, 3 and 6 so burner operation could be observed by looking between the air damper blades below the burners.

6. Flare 1. was put into operation allowing observation of the Maxon LV-4D Airflow burner the following operating conditions.
   6.1. The temperature as displayed on the LCP HMI was 1500 F.
   6.2. Digester gas flow as displayed on the LCP HMI was 1400 CFM.
   6.3. Noticed an air distribution issue under the burner, the three (3) air dampers were not equally matched in reference to position.

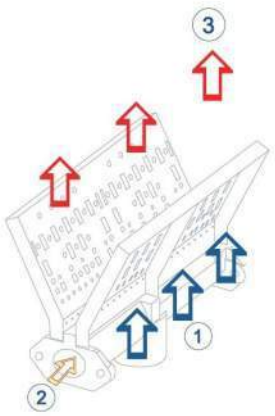
7. Flare 2. was put into operation allowing observation of the Maxon LV-4D Airflow burner under the following operating conditions.
   7.1. Temperature as displayed on the LCP HMI was 1510 F.
   7.2. Digester gas flow as displayed on the LCP HMI was 1692 CFM.
   7.3. Fire could be seen emanating from around each of the flanges where the gas supply header entering the Flare connects to the Stainless-Steel manifold supplying fuel to the burner cast iron inlet connections.

8. Flare 3. Was put into operation allowing observation of the Maxon LV-4D Airflow burner under the following operating conditions.
   8.1. The temperature as displayed on the LCP HMI was 1500 F.
   8.2. Digester gas flow as displayed on the LCP HMI was 1700 CFM.
   8.3. Initially one damper was closed. Found that the air supply valve to the actuator had been turned off. The air supply valve was opened, and the damper moved to a physical position similar to the other two dampers.

9. Flare 6. Is a different manufacture and style of burner. It was run for a short period of time at a flow rate of 1545 CFM. Temperature was not achieved because the Flare was shut down after about ten minutes of operation.
   9.1. Access to this flare was not made possible.
   9.2. No external issues were observed on this flare.

10. **Series LV AIRFLO® burner description, in part, from Maxon bulletin 4-21.4-3.**

MAXON Series LV AIRFLO® burners are designed for heating process air in motion. An iron body which serves as the gas manifold is drilled to discharge the fuel gas between diverging mixing plates.



1) Fresh air 2) Gas 3) Hot air

The entire burner assembly is mounted inside a process air duct directly in the air stream being heated. The air stream passes across the burner and through the mixing plates and is used as combustion air. Carefully controlled mixing plate aeration patterns give progressive mixing, superior cross-ignition, and flame retention across the entire burner assembly length. The Series LV AIRFLO® burner burns clean and odor-free with low levels of NOx production.

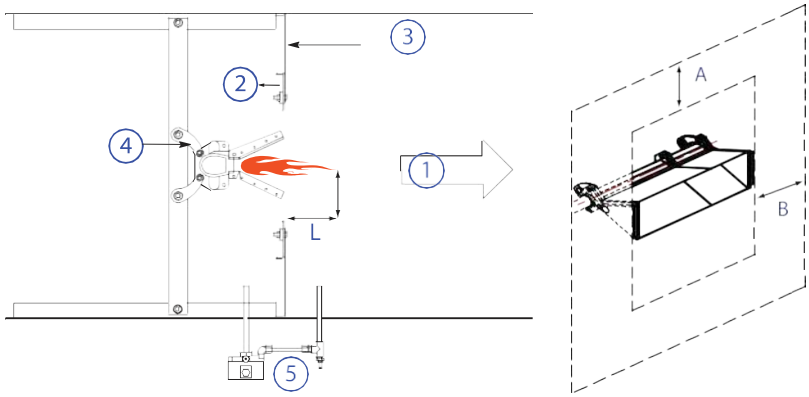
*Correctly sized process air ducts and the resulting duct **static pressure drop across the burner** are the keys to successful operation.*

Air stream velocity

Air stream velocity and resulting pressure drop affect performance of Series LV AIRFLO® burners. This velocity across and through the burners mixing plates must be kept uniform by use of a silhouette profile plate through which the burner fires. A minimum 6" profile plate should be installed surrounding the interior duct walls at the leading edge of the burners mixing plates.

1) direction of process air movement
2) adjustable profile plate
3) fixed profile plate
4) universal support bracket
5) differential pressure switch

A Minimum 6"
B Minimum 6"
L Flame length



Normal capacities vary widely with the application and the duct pressures. The fuel used and the design velocities will affect the burner turndown. Modular design permits the burner shape and total heat release to match the application needs.

Performance data varies depending upon temperature of air upstream and downstream of the burner assembly, the percentage of oxygen (by volume) in the passing air stream, and the allowable duct static pressure drop across the Series LV AIRFLO® burner.

LV AIRFLO® burners are designed for stable, efficient, raw gas operations in air streams with relatively low duct velocities. Duct static pressure drops may be as low as 0.2" WC up to 2.5" WC.

LV-4D AIRFLO® burners have a ductile iron body and #310 stainless steel mixing plates for applications **with outlet temperatures up to 1500° F.** For upstream process air temperature up to 1000° F.

Since Series LV AIRFLO® burners are installed in such widely diversified applications, it is often difficult to get into the chamber/ duct and profile plate area to obtain any velocity pressure readings described above. For this reason, a close approximation of operating velocities may be made with a measurement of duct static pressure drop. Preferably, *a static pressure test point on duct diameter in distance upstream from the profile plate and one duct diameter length downstream will give approximation of operating velocity across the burner.*

11. Conclusions:
    11.1. The ability of the MAXON Series LV AIRFLO® burner presently installed in Flare 5, to pass the source test conducted by Air Quality Engineering, Inc. on April 6, 2022, @ 0.06lb NOx/BTU confirmed that it is viable for this application. To do so, the Maxon burner must be good mechanical condition and installed per the manufactures recommendations to operate at the tested levels.
    11.2. The air dampers are presently not repeatable and are influencing the operation of the burners.
    11.3. Operating continuously at a set point of 1500° F is influencing the longevity of the LV-4D burner.
    11.4. The present temperature control scheme has influence on the velocity of air across the burner. This variation in velocity can influence both emission values and operational life expectancy. As explained in item 10 above.

12. Recommendations:
    12.1. Implement PM plan to include routine inspection of the burners to correct mechanical issues prior to catastrophic failure of the burner. (Hyperion to implement prior to July 2022.)
    12.2. Consider expanding the present control logic to keep the air velocity, fuel/air ratio within the burner design heat release per foot as the temperature controller calls for a reduction in temperature. Presently the fuel flow remains constant as temperature is controlled by varying airflow. (Implemented third quarter 2022, no additional timeline required.)
    12.3. Consider expanding on the air damper control scheme to incorporate individual feedback from each damper. This would ensure all dampers maintain the same mechanical position, thereby providing uniform air supply under the burner as well as velocity across the burner. (This was reviewed third quarter of 2022 and it was found the present strategy is effective. (No additional timeline required.)
    12.4. Consider adding the ability to select one of the installed thermocouples to maintain the temperature within the operating parameters for the flare. (Implemented and no additional timeline required.)
    12.5. Replace the existing Maxon LV-4D AIRFLO® burners, that have #310 stainless steel mixing plates good to 1500° F downstream temperature, with Maxon the LV-5D AIRFLO® burners incorporating Hastelloy-X mixing plates good to 1700° F. The #310 stainless steel mixing plate material is presently being subjected to temperatures near the upper limit of the manufacturers design parameters. These conditions are causing premature failure of the mixing plates. This change is a must-do, to maintain the integrity of the mixing plates. *(RECOMMENDED TIMELINE WAS SET FOR SEPTEMBER 2022.)*
    12.6. **The present lead time for Maxon LV series burners is 26 - 28 weeks *after* the "City – of – LA" management signs off on the outstanding burner submittals.**

Submitted by:

Ronald P. Heintskill

Ronald P. Heintskill
Sr. Project Engineer.
George T. Hall Company

Attachment D:
George T. Hall Company Evaluation Report – Flare 6

Brown AND Caldwell

GEORGE T. HALL COMPANY

April 3, 2023

Environmental Engineering Division
12000 Vista Del Mar, Suite 200
Playa Del Rey, CA 90293

Attn: Erica AghaGholizadeh

Cell: 407-619-8007
Email: erica.aghagholizadeh@lacity.org

Subject: QT-SR230050 Hyperion W.O. No. SZH12146, Flare 6 Review Report - Amended.

Erica:

To follow is the report for Hyperion Flare 6, and local control functions observed by Derrick Okuna and I while we were on site March 7 and 8, 2023.

Tuesday March 7, 2023

1. Mechanical review of Flare 6 involved the following: (Pictures on Page 2)
   - 1.1. A visual inspection of the exterior of the Flare 6, revealed it to be in good condition with no visible anomalies.
   - 1.2. The digester gas piping was visually inspected, and no inconsistencies were found.
   - 1.3. All the air dampers were inspected and showed good mechanical integrity.
   - 1.4. All damper linkages were inspected, and no abnormal wear was found.
   - 1.5. The damper positioners were found to be in good mechanical condition.
   - 1.6. An internal inspection of the Flare revealed that the refractory lining was in good condition.
   - 1.7. The Flare burner was reviewed as follows:
     - 1.7.1. The fuel manifold proper showed no signs of degradation.
     - 1.7.2. All burner components appeared to be in good condition.

Wednesday March 8, 2023

2. Review of Flare 6 control system during operation as follows:
   - 2.1. The operator initiated the flare operation utilizing the standard operating procedures.
   - 2.2. The control system cycled the flare through a purge, pilot lightoff, and main flame ignition.
   - 2.3. The Flare followed the commands from its Local control Panel, “LCP” to maintain 1600 F temperature setpoint.
     - 2.3.1. Digester flow control valve followed the command from the “LCP” to maintain the requested average fuel flow of 1700 SCFM.
     - 2.3.2. Damper positioners modulated the dampers per command signals from the “LCP.”

3. Conclusions:
   - 3.1. Flare 6 was in good mechanical operating condition on the day of the inspection.
   - 3.2. Flare 6 control system as observed was functional and maintained the operational setpoint.
   - 3.3. No maintenance was required on the days the writer was on site.

4. Recommendation: Continue the existing inspection and preventative maintenance program presently in place.(This is the only recommendation and there are no associated timelines for any additional items.)

Flare pictures:

1St large damper

2nd Large Damper

3rd large and 2nd of two small dampers

Fuel inlet and 1st set of small dampers.

Natural Gas Pilot and Scanner

Propane Pilot and Scanner

Main Flame Scanner

Flare – Internal
Fuel inlet and 4 air diverters

Flare – Internal
Typical – Gas Manifold

Submitted by:

Ronald P. Heintskill

Ronald P. Heintskill
Sr. Project Engineer.
George T. Hall Company

Attachment E:
John Zink Hamworthy Combustion Evaluation Report

Brown AND Caldwell

Introduction

The John Zink Company, LLC was invited by the City of Los Angeles Hyperion Water Reclamation Plant to evaluate the existing flare station to recommend any changes required to pass the air source emissions testing and gather information that will aid in design, cost, and installation of new equipment that will meet AQMD requirements. The Hyperion WR Plant has six (6) enclosed flare systems for the treatment of digester gas from the facility. All six flares were installed sometime during or before 1990. Flare 6 had been overhauled with a new design and is not considered as part of this study. The site had performed the 5-year source test for all of the flares. Flares 1, 2, and 6 passed. The remaining flares failed on NO_x emissions. John Zink Co, LLC was invited to the site to evaluate Flares 1-5 and provide recommendations.

Flares 1-5 are 10'-6" in diameter by 65' OAH. Each flare is rated for 2,000 SCFM of 60% CH_4, 40% CO2 flow rate. These flares have a Sure-Lite natural draft burner design. Each flare was set at a 1,550 ^oF operating temperature and each flare has three (3) 3' x 2' pneumatically controlled dampers. The dampers are controlled by loop set to the 1,550 ^oF operating temperature. The flare system is staged to open each additional flare based on inlet pressure. During the visit, only one flare at a time was in operation and the flow was controlled manually.

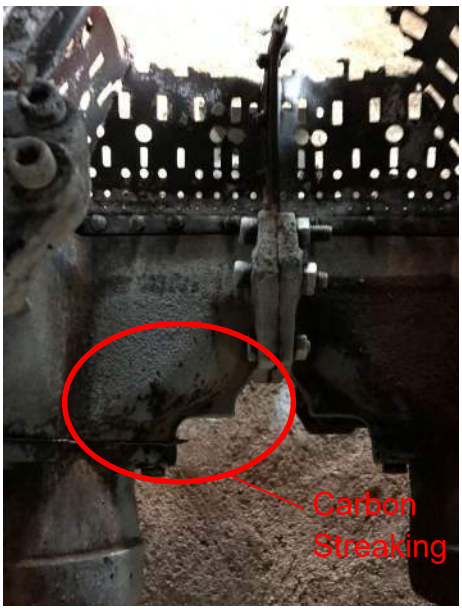
Picture 1 – Hyperion WRP Flare Station

On Site Observations

Our first day on site was April 6. Upon arrival and after the safety meeting, a visual inspection was performed on the internals of Flare 4. The burners are a natural draft, raw gas design, with air mixing plates and air diverter plates to manage the combustion process. See picture 2 and 3 below, the digester gas exits the holes at the bottom of the combustion zone. As the gas exits the combustion zone, air enters through the open holes in the mixing plate. The air entrance area increases at the top of the mixing plate. Correct functioning of the mixing plate is important for emissions control. Most of Flare 4's burners were intact and of good condition. It is noted however that one region of Flare 4's burner grid was heavily damage, see picture 4. It is noted that the damage appears to be caused by a leak underneath the burner. Evidence of this leak can be seen by the carbon streaking in picture 3. An observation about all of the flares, 1 through 5, is that there appears to be a fresh air quench port in the lower portion of the stack. This is not industry standard and may adversely affect flare emissions measurement. See picture 5 for the quench opening.

Picture 2 – Close Up of Burner Ports

Picture 3 – Flare 4 Burner Grid

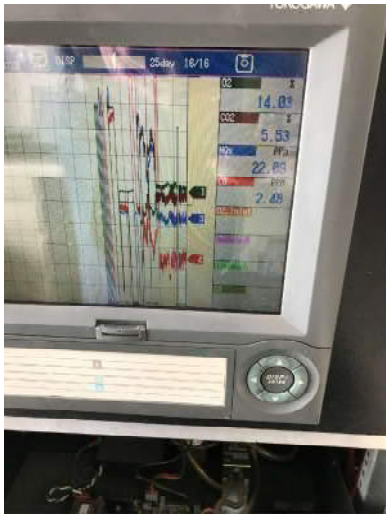


Picture 4 – Flare 4 Burner Damage

Picture 5 – Quench Port on All Flares

After the inspection of Flare 4 we observed the emissions testing of Flare 5. Flare 5 was operating at a flow rate of 2,200 SCFM of digester gas. The flare operated at a temperature ranging from 1,430 ^{o}F to 1,600 ^{o}F and the NO_x consistently stayed between 21 and 23 ppm, which was below the level required for compliance. It was understood at the time that Flare 5 passed the emissions test with a NO_x requirement of less than 0.06 #NO_x/MMBtu. The flame is a "hot" flame, bright orange and red. It is important to note that burners of Flare 5 had just recently been maintained. This will be discussed later in this report. No further observations of Flare 5 testing were made on April 6th. See pictures 6 and 7 for Flare 5 testing.

Picture 6 – Flare 5 Flame



Picture 7 – Flare 5 Test Data Recorder

At the beginning of the second day, April 7th, the first task was to inspect the burners of Flare 5 after the successful testing. The burner elements were free of debris and all of the mixing plates and diverters were in good condition. There was no evidence of leaking gaskets or burning underneath the manifolds. See pictures 8 and 9 for the condition of Flare 5's burners.

Picture 8 – Flare 5 Burner Grid

Picture 9 – Flare 5 Burner Manifold

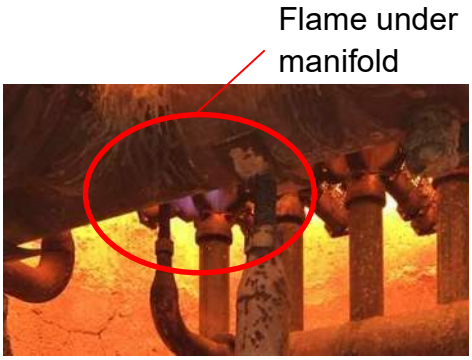
The rest of April 7 was spent observing the operation of Flares 1 through 4. Specific comments on each flare are as follows:

Flare 1

- Flame out of the top of the stack.
- 1,380 SCFM flow rate
- Probable leakage in bolted manifold under burners.
- Dampers opening evenly.

Picture 10 – Flare 1 Flame

Picture 11 – Flare 1 Temps

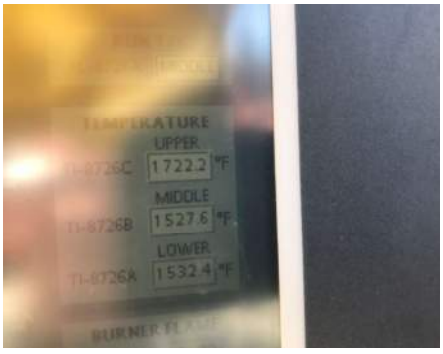


Picture 12 – Flare 1 Burner Manifold

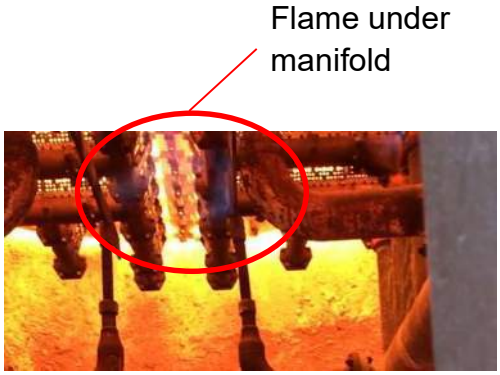
Flare 2

- Flame out of the top of the stack.
- 1,692 SCFM flow rate.
- Probable leakage in bolted manifold under burners.
- Dampers opening evenly.

Picture 13 – Flare 2 Flame



Picture 14 – Flare 2 Temps



Picture 15 – Flare 2 Burner Manifold

Flare 3

- Flame out of the top of the stack.
- 1,713 SCFM flow rate.
- No flame pulldown or leakage observed.

Picture 16 – Flare 3 Flame

Picture 17 – Flare 3 Temps

Picture 18 – Flare 3 Burner Manifold

Flare 4

- 1,219 SCFM flow rate
- Probable leakage in bolted manifold under burners.
- Flame from leak in main manifold inlet. Large amount of flame observed in this area.

Picture 19 – Flare 4 Flame

Picture 20 – Flare 4 Temps

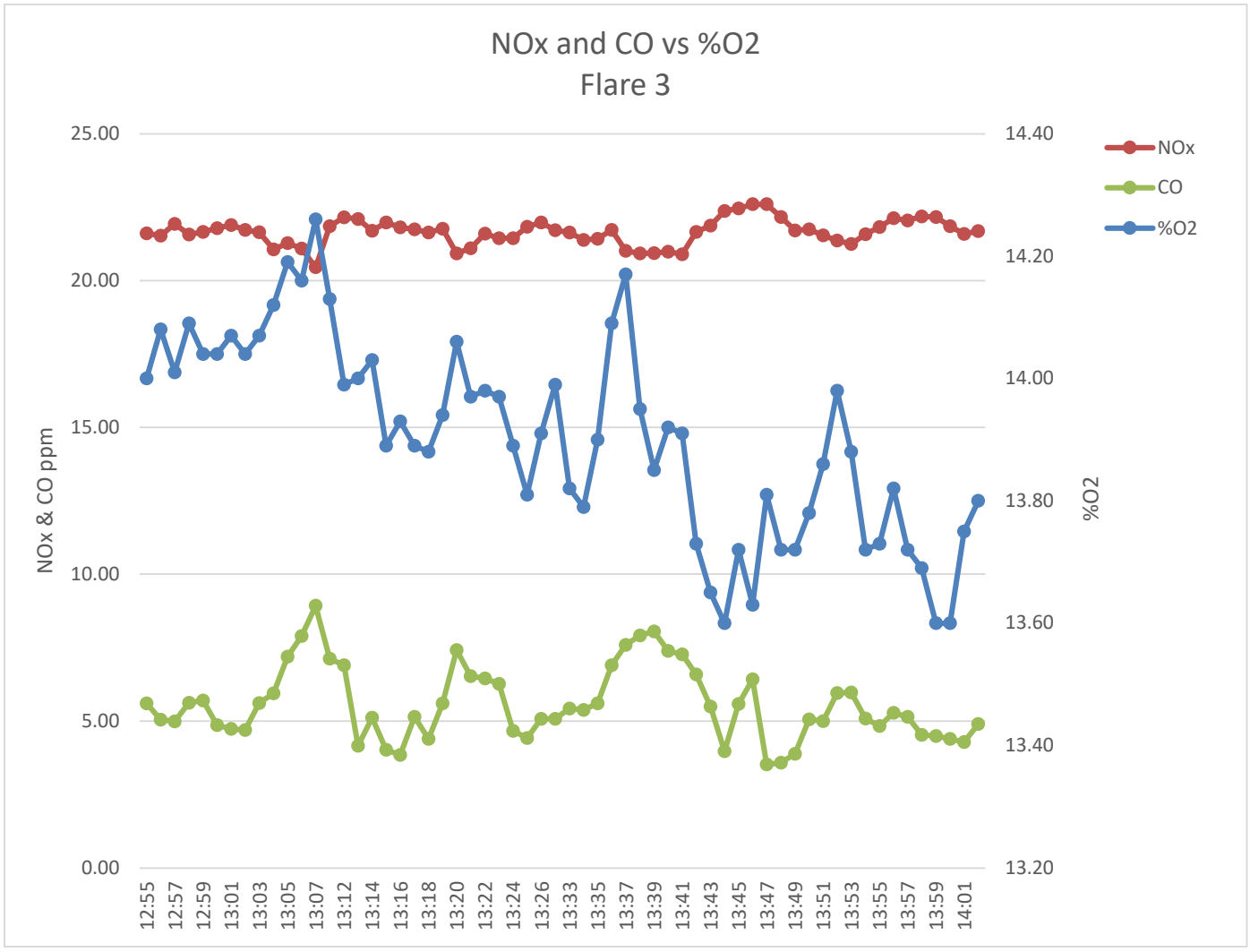
Picture 21 – Flare 4 Burner Manifold

Test Reports

Review of the test reports for Flares 1 through 3 reveal nothing unusual. Test for Flares 4 and 5 are not yet available, but they are expected to yield similar results. However, it is important to note the relationship between O_2, NO_x, and CO. Below is a table showing the average values of different aspects of the testing. Note, that the performance is similar but Flare 1's NO_x level is significantly lower than the other two. It is subtle but the difference in air is significant. Flare 1 has almost twice as much air as Flare 2 and 1.3 times as much as Flare 3. This appears to be because Flare 1's flow rate is much lower. While the operating temperature is close for Flare 1 and Flare 3, Flare 1 could be in an optimal state for these burners and the flame temperature is relatively cooler than that of Flare 2 and Flare 3.

Unit	Temp. (ºF)	O_2 (%)	Excess Air (%)	Flow Rate (SCFM)	NO_x (#/MMBtu)	CO (#/MMBtu)
Flare 1	1,550	14.98	253	1413	0.044	0.029
Flare 2	1,592	11.78	129	1708	0.057	0.005
Flare 3	1,548	13.80	194	1740	0.058	0.009

Attached is a graph of the testing points from Flare 3. Note the relationship between O_2, NO_x, and CO. When the O_2 is relatively high, the NO_x is relatively low, and the CO is relatively high. This is important in operation during testing.



NO_x Theory

NO_x generally includes nitrogen monoxide (NO), and nitrogen dioxide (NO_2). Other less common combinations are nitrous oxide (N_2O) and nitrogen tetroxide (N_2O_4). The majority of NO_x emitted in a high temperature application such as flaring will be NO and NO_2. The NO_x is formed in the combustion zone when free nitrogen partners with excess oxygen. There are three main mechanisms in formation of NO_x; Fuel Bound NO_x, Prompt NO_x, and Thermal NO_x. Fuel bound NO_x happens when a fuel rich in N_2 is burned, such as ammonia. Because this is not the case in a digester application, fuel bound NO_x will not be considered any further in this discussion. Prompt NO_x occurs immediately in the combustion zone and is a function of the burner design. Prompt NO_x will generally be a small amount of the total NO_x and cannot be changed regardless of most safe operating conditions and is a function of the design of the unit. Thermal NO_x is the greatest contributor to NO_x generation in a combustion application. At temperatures above 2,000 ^oF, the NO_x generation increases exponentially. For this application of 60% CH_4 and 40% CO_2, the adiabatic flame temperature is ~2,800 ^oF. The adiabatic flame temperature is the ideal (stoichiometric) flame temperature meaning that if the flame had just the perfect amount of air in perfect combustion, the temperature would be ~2,800 ^oF. It is probable that this flame is greater than 2,000 ^oF. Looking at the deep orange and light red flame quality, an estimated temperature range would be 2,400 ^oF to 2,700 ^oF. There are too many variables to calculating a flame temperature, but this range is conceivable.

In the case where there is flame below the burner manifold or a leak, the presence if this flame is either making a hot region of combustion zone, or has let to degradation of the mixing plate, which in turn makes a hot region in the combustion zone. This hot zone is increasing the NO_x generated.

Recommendations

Maintenance

Looking at the data and witnessing the testing of Flare 5, we can confidently state that the correct maintenance of this equipment is extremely important. It has been proven that a like new set of burners can meet the required 0.06 #NO_x/MM Btu. These flares must be maintained in order to achieve the emissions goals. John Zink recommends replacing any mixing plates, diverters, or burners that are damaged. In addition to proper maintenance, the operation of a unit in good condition should allow for favorable performance of each flare system. Operating at a lower flow rate, a lower operating temperature will generate less NO_x emissions as long as the unit is operating below the CO emissions limit.

For more information, refer to the attached inspection report with maintenance recommendations from an earlier visit by John Zink's Travis Beck.

Attachment F:
Implementation Plan (September 2022)

Brown AND Caldwell

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September 22, 2022

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Bureau of Engineering
Environmental Engineering Division
12000 Vista Del Mar, Suite 200
Playa Del Rey, California 90293

158631.002.005

HYPERION WATER RECLAMATION PLANT FLARE STATION IMPLEMENTATION PLAN

1. Purpose

This document presents the Implementation Plan in response to the Order of Abatement (Order) issued by South Coast Air Quality Management District (South Coast AQMD) and dated March 24, 2022, to LA Sanitation & Environment (LASAN) regarding the Hyperion Water Reclamation Plant (HWRP) Flare Station. Specifically, this Implementation Plan has been written to address Item No. (4)(c) of the Order, which requires submission of a proposed plan (Implementation Plan) to execute recommendations of the Comprehensive Evaluation Reports, which were developed and prepared by others. The Comprehensive Evaluation Reports referenced include the "Hyperion WRP Flare Station Engineering Site Visit" report, prepared by John Zink Hamworthy Combustion (John Zink), dated June 27, 2022, and the "SR220120 Hyperion Flare Review Observations Report" prepared by George T. Hall (GTH) Company, dated June 27, 2022.

This Implementation Plan describes the project background, provides an overview of the recommendations presented in the Comprehensive Evaluation Reports, and provides the proposed plan for executing those recommendations. The Implementation Plan also describes steps that have been taken and/or will be taken to bring the HWRP flares into compliance, including timelines for executing contracts and purchase orders to complete the required work, along with schedules for completing the work.

2. Background

The HWRP Digester Flare Station includes six flares. The Flare Station is an emergency system designed to be used whenever the Bioenergy Facility is undergoing preventive maintenance or repairs and more biogas is produced than the steam boiler can process. The Flare Station is also used when there is an alarm condition and a potential for the pressure safety valves to release. The Flare Station is crucial health and safety equipment to prevent the release of explosive and odorous biogas to the atmosphere. The Flare Station is required to be completely operational to meet the South Coast AQMD permit requirements.

During source testing of the six flares in 2021 and 2022, South Coast AQMD determined that the Flare Station exceeded permitted nitrogen oxides (NOx) emission limits. South Coast AQMD issued an Order of Abatement to the City of Los Angeles (City) on March 24, 2022, to bring the Hyperion Flare Station into compliance. A copy of the Order is included in ***Attachment B: South Coast AQMD Order of Abatement.*** The Order requires the City to complete the items listed below in the event any flare is found to be non-compliant based on source testing performed after March 1, 2022. Flares 4 and 5 were determined to be non-compliant through testing that occurred after March 1, 2022. On May 4, 2022, South Coast AQMD communicated that the City was to initiate the Order requirements. A summary of the Order requirements and an update on the City's actions are provided below. Further details on the City's actions are provided in *Section 5*.

- Order Item Number (4)(a):

  Requirement: Within 30 days from May 4, 2022 (no later than June 3, 2022), the City must enter into a contract with a vendor, contractor, or consultant to provide a technical evaluation and comprehensive report of the Flare Station ("Comprehensive Evaluation and Report," otherwise referred to as "Comprehensive Evaluation Report" herein). The Comprehensive Evaluation Report was required to include Flares 1-6.

  Demonstration: The City contracted with both John Zink and GTH to complete independent Comprehensive Evaluation Reports within the designated timeframe.

- Order Item Number (4)(b):

  Requirement: Within 60 days from May 4, 2022 (no later than July 1, 2022), the City must provide a copy of the Comprehensive Evaluation Report to South Coast AQMD.

  Demonstration: The City submitted a copy of the John Zink and GTH Comprehensive Evaluation Reports to the South Coast AQMD on June 29, 2022, within the designated timeframe. A summary of the recommendations from the Comprehensive Evaluation Reports is provided in *Section 4* herein.

- Order Item Number (4)(c):

  Requirement: Within 90 days from the completion of the Comprehensive Evaluation Reports (no later than September 27, 2022), the City must submit a proposed Implementation Plan to South Coast AQMD to implement the recommendations of the Comprehensive Evaluation Reports.

  Demonstration: The Implementation Plan is described in *Section 5* herein.

3. Approach

Brown and Caldwell (BC) was contracted to assist the City to develop the Implementation Plan in response to Order Item No. (4)(c). The approach of this Implementation Plan relied upon the third-party condition assessments and detailed inspection reports of the existing flares that were performed by John Zink and GTH.

4. Comprehensive Evaluation Report Recommendations

Two Comprehensive Evaluation Reports were submitted to South Coast AQMD on June 29, 2022 to address Order Item (4)(b) (See ***Section 2*** for the background of Order requirements): one written by John Zink and one written by the GTH. The recommendations from both reports are copied verbatim in the subsections below.

4.1 John Zink Hamworthy Combustion Report Recommendations

The John Zink Comprehensive Evaluation Report recommended the items listed below. The report in entirety is presented in ***Attachment C: John Zink Hamworthy Combustion Evaluation Report***.

1. "Looking at the data and witnessing the testing of Flare 5, we can confidently state that the correct maintenance of this equipment is extremely important. It has been proven that a like new set of burners can meet the required 0.06 [lb]NOx/MM Btu. These flares must be maintained in order to achieve the emissions goals."
2. "John Zink recommends replacing any mixing plates, diverters, or burners that are damaged."
3. "In addition to proper maintenance, the operation of a unit in good condition should allow for favorable performance of each flare system. Operating at a lower flow rate, a lower operating temperature will generate less NOx emissions as long as the unit is operating below the [carbon monoxide] CO emissions limit."

4.2 George T. Hall Company Report Recommendations

The GTH Comprehensive Evaluation Report recommended the items listed below. The complete report in entirety is presented in ***Attachment D: George T. Hall Company Evaluation Report***.

1. "Implement [preventative maintenance] PM plan to include routine inspection of the burners to correct mechanical issues prior to catastrophic failure of the burner."
2. "Consider expanding the present control logic to keep the air velocity, fuel/air ratio within the burner design heat release per foot as the temperature controller calls for a reduction in temperature. Presently the fuel flow remains constant as temperature is controlled by varying airflow."
3. "Consider expanding on the air damper control scheme to incorporated individual feedback from each damper. This would ensure all dampers maintain the same mechanical position, thereby providing uniform air supply under the burner as well as velocity across the burner."
4. "Consider adding the ability to select one of the installed thermocouples to maintain the temperature within the operating parameters for the flare."
5. "When replacing the existing Maxon LV-4D AIRFLO® burners, that have #310 stainless steel mixing plates good to 1500º F downstream temperature, consider going to the LV-5D which incorporates Hastelloy-X mixing plates [which are] good to 1700º F."

5. Implementation Plan

The following subsections present key details of the HWRP Flare Station Implementation Plan.

5.1 Description of Scope

To address the recommendations of the Comprehensive Evaluation Reports, the City will replace the burners, mixing plates, and diverters in Flares 4 and 5. The City will modify the control logic of Flares 4 and 5. Additionally, the City will reassess the current preventive maintenance program for the flares based on manufacturer recommendations. The findings and recommendations of John Zink and GTH indicate that replacement of the burners and modification of the control logic should bring flares 4 and 5 into compliance and provide the City with the ability to better manage emissions and increase reliability.

5.1.1 Repair Burners and Mixing Plates

Per GTH recommendations, the existing Maxon LV-4D AIRFLO burners will be repaired or replaced with Maxon LV-5D burners. The GTH report indicated damage to the mixing plates in Flare 4 could be due to high temperatures in the flare. Since LV-5D burners have mixing plates made of Hastelloy instead of stainless steel, they are able to withstand temperatures up to 1700°F (versus 1500°F for stainless steel). GTH recommends the LV-5D burners to help prevent future damage to the mixing plates.

5.1.2 Repair Diverters

Since the diverters are an integral part of managing the combustion process (as they direct the airflow within the flare), the diverters will be repaired or replaced in both Flares 4 and 5.

5.1.3 Control Logic

As recommended in the GTH report, GTH will revise the air damper control scheme to incorporate feedback from each damper and will investigate the control logic of the flares to manage the heat release at varying gas flows.

5.1.4 Operation and Maintenance

A condition assessment will be conducted with operations and maintenance staff to verify all components of the Flare Station meet safety and performance requirements. Items identified through this condition assessment will be repaired or replaced as part of the project.

The City will continue to provide proper operation and maintenance of the flares. The City will also implement routine inspections of the burners according to manufacturer recommendations to find and correct mechanical issues prior to more severe deterioration of the burners.

5.2 Permitting

The deteriorated burners for Flares 4 and 5 are being replaced and will not require structural changes to the equipment. Per South Coast AQMD Rule 219(c), it is understood that these repairs will not require a permit modification. The Contractor

selected to perform the repairs will obtain all required construction permits during project construction.

5.3. Manufacturing and Installation Schedule

This Implementation Plan includes a schedule for the design and construction phases for the items outlined in ***Section 5.1***. The proposed schedule is approximately 18 months in duration and incorporates the estimated manufacturing and installation timelines to complete the work. A detailed work breakdown of the schedule is presented in ***Attachment A: Implementation Plan Schedule***. A summary of the schedule is provided in ***Table 1***.

The proposed schedule includes a design phase duration of approximately 9 months. It was assumed that the project will consist of a design project, and an emergency contractor will execute construction and installation. The proposed schedule includes a construction phase duration of approximately 18 months. The manufacturing and shipping industries are currently impacted by global market volatility, and delivery timelines are difficult to control. BC's experience is that manufacturers cannot guarantee delivery dates; therefore, reasonable assumptions for extended equipment lead times are accounted for in the schedule. The breakdown of each phase is provided in ***Table 1***.

Table 1. Implementation Plan Schedule Overview [a]

Project Phase	Estimated Duration, months	Start Date	End Date
Overall Project Schedule	18	7/5/2022	12/29/2023
Design Phase	9	8/4/2022	5/8/2023
Consultant Procurement	1	8/4/2022	9/6/2022
PDR Phase	3	9/6/2022	11/28/2022
Final Design	5	11/28/2022	5/8/2023
Construction Phase	18	7/5/2022	12/29/2023
Control Modifications	5	7/5/2022	2/24/2023
Pre-Procurement of Burners	13	8/4/2022	9/7/2023
Pre-Construction	3	5/9/2023	8/16/2023
Construction	4	9/5/2023	12/29/2023

a. See Attachment A: Implementation Plan Schedule for a more detailed schedule.

5.4 Actions to Expedite Schedule

Given the anticipated schedule length, the City is already taking steps to expedite progress and bring the flares into compliance as quickly as possible. These steps include implementing changes to the flare control logic, as recommended in the GTH report, and pre-procurement of the new burners available for component or complete replacement.

5.4.1 Control Changes

After the Comprehensive Evaluation Report was developed by GTH, the City requested that GTH return to the HWRP to implement their recommended control changes. GTH made changes in July and August of 2022 that included expanding the air damper control scheme to incorporate individual feedback from each damper to help operations staff confirm all dampers maintain the same mechanical position once the system is calibrated. Additionally, GTH modified the control logic to maintain air velocity and vary fuel flow when the temperature controller calls for a reduction in temperature. This will allow for lower operating temperatures. Once the control modifications are complete, the City will perform source testing on the flares while adjusting control parameters for management of emissions to confirm the changes have improved the emissions from the flares.

5.4.2 Pre-Procurement of Burners

As noted above, the equipment lead times make up a significant portion of the schedule. To expedite the schedule, the City has ordered replacement burners for Flares 4 and 5 in parallel with the control system updates. This is reflected in the detailed ***Attachment A: Implementation Plan Schedule***.

6. Summary

This Implementation Plan responds to Item No. (4)(c) of the Order of Abatement issued by South Coast AQMD on March 24, 2022, to bring the HWRP Flare Station into compliance. The Implementation Plan incorporates recommendations from third-party Comprehensive Evaluation Reports which recommended replacing the burners, mixing plates, and diverters and modifying the existing flare control logic.

The Implementation Plan schedule presents a timeline for completing the necessary steps to bring the HWRP Flare Station into compliance, along with a schedule for completing the work. The City is taking proactive steps to expedite the work by implementing control logic changes through GTH and pre-procurement of the burners.

Very truly yours,

Brown and Caldwell

Tom Chapman, Project Manager

TC/ERA:wp

cc: Steve Hirai, Brown and Caldwell

Attachments (4)

- Attachment A: Implementation Plan Schedule
- Attachment B: South Coast AQMD Order of Abatement
- Attachment C: John Zink Hamworthy Combustion Evaluation Report

HWRP FLARE STATION IMPLEMENTATION PLAN

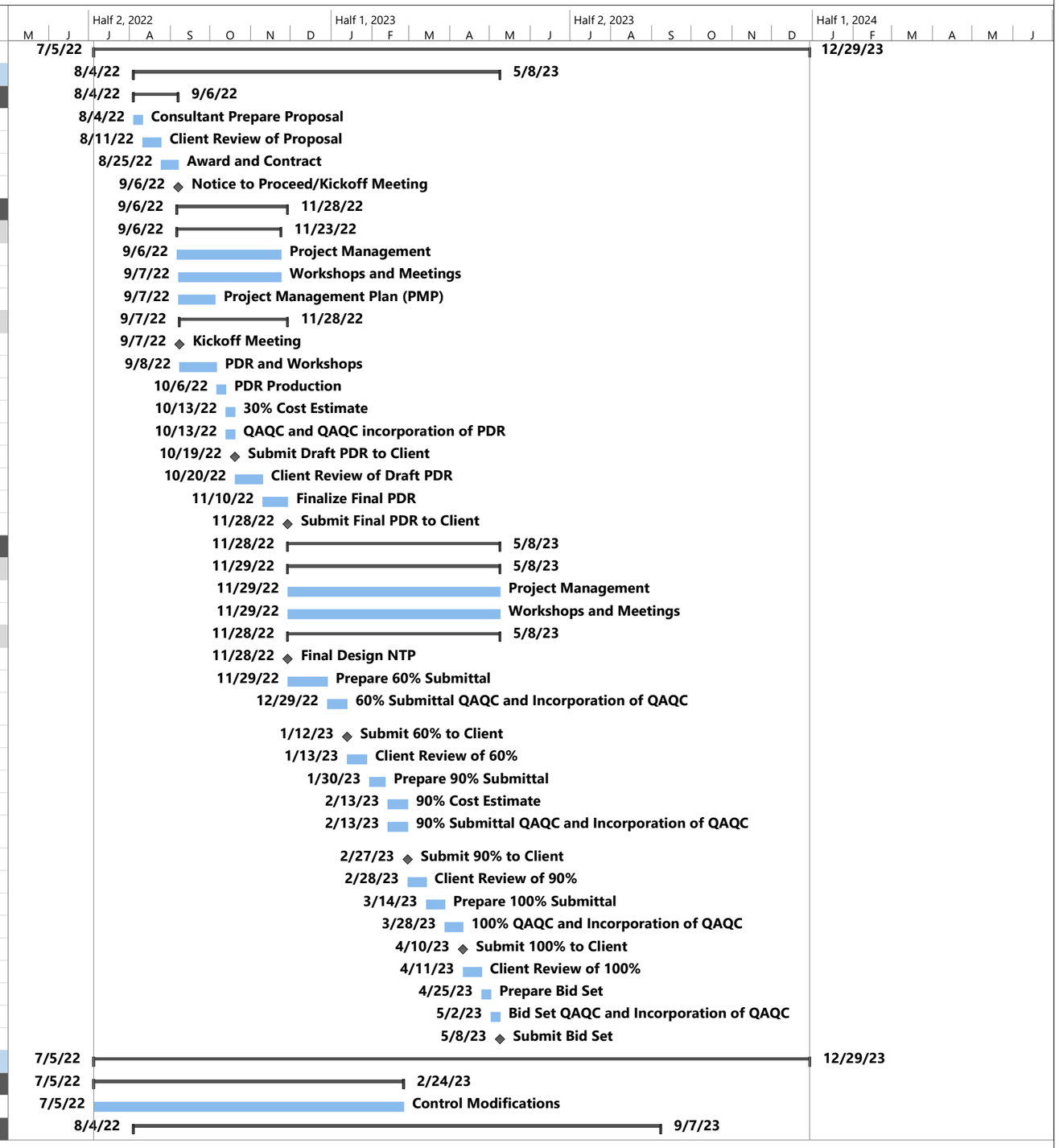
- Attachment D: George T. Hall Company Evaluation Report

Limitations:

This document was prepared solely for the City of Los Angeles Bureau of Engineering in accordance with professional standards at the time the services were performed and in accordance with the contract between City of Los Angeles Bureau of Engineering and Brown and Caldwell dated September 22, 2022. This document is governed by the specific scope of work authorized by City of Los Angeles Bureau of Engineering; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by City of Los Angeles Bureau of Engineering and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

Attachment A: Implementation Plan Schedule

ID	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1	**Overall Schedule**	**372 days**	**Tue 7/5/22**	**Fri 12/29/23**		
2	**Burner Replacement Design**	**189 days**	**Thu 8/4/22**	**Mon 5/8/23**		
3	**Consultant Procurement**	**23 days**	**Thu 8/4/22**	**Tue 9/6/22**		
4	Consultant Prepare Proposal	5 days	Thu 8/4/22	Wed 8/10/22		
5	Client Review of Proposal	10 days	Thu 8/11/22	Wed 8/24/22	4	
6	Award and Contract	8 days	Thu 8/25/22	Tue 9/6/22	5	
7	Notice to Proceed/Kickoff Meeting	0 days	Tue 9/6/22	Tue 9/6/22	5,6	
8	**PDR & 30% Design**	**57 days**	**Tue 9/6/22**	**Mon 11/28/22**		
9	**PDR & 30% Project Management**	**56 days**	**Tue 9/6/22**	**Wed 11/23/22**		
10	Project Management	56 days	Tue 9/6/22	Wed 11/23/22	7SS-1 day	
11	Workshops and Meetings	55 days	Wed 9/7/22	Wed 11/23/22	7	
12	Project Management Plan (PMP)	20 days	Wed 9/7/22	Tue 10/4/22	7	
13	**PDR Design**	**55 days**	**Wed 9/7/22**	**Mon 11/28/22**		
14	Kickoff Meeting	0 days	Wed 9/7/22	Wed 9/7/22	7FS+1 day	
15	PDR and Workshops	20 days	Thu 9/8/22	Wed 10/5/22	14	
16	PDR Production	5 days	Thu 10/6/22	Wed 10/12/22	15	
17	30% Cost Estimate	5 days	Thu 10/13/22	Wed 10/19/22	16	
18	QAQC and QAQC incorporation of PDR	5 days	Thu 10/13/22	Wed 10/19/22	16	
19	Submit Draft PDR to Client	0 days	Wed 10/19/22	Wed 10/19/22	18	
20	Client Review of Draft PDR	15 days	Thu 10/20/22	Wed 11/9/22	19	
21	Finalize Final PDR	10 days	Thu 11/10/22	Mon 11/28/22	20	
22	Submit Final PDR to Client	0 days	Mon 11/28/22	Mon 11/28/22	21	
23	**Final Design**	**110 days**	**Mon 11/28/22**	**Mon 5/8/23**		
24	**Final Design Project Management**	**110 days**	**Tue 11/29/22**	**Mon 5/8/23**		
25	Project Management	110 days	Tue 11/29/22	Mon 5/8/23	22	
26	Workshops and Meetings	110 days	Tue 11/29/22	Mon 5/8/23	22	
27	**Final Design**	**110 days**	**Mon 11/28/22**	**Mon 5/8/23**		
28	Final Design NTP	0 days	Mon 11/28/22	Mon 11/28/22	22	
29	Prepare 60% Submittal	20 days	Tue 11/29/22	Wed 12/28/22	28	
30	60% Submittal QAQC and Incorporation of QAQC	10 days	Thu 12/29/22	Thu 1/12/23	29	
31	Submit 60% to Client	0 days	Thu 1/12/23	Thu 1/12/23	30	
32	Client Review of 60%	10 days	Fri 1/13/23	Fri 1/27/23	31	
33	Prepare 90% Submittal	10 days	Mon 1/30/23	Fri 2/10/23	32	
34	90% Cost Estimate	10 days	Mon 2/13/23	Mon 2/27/23	33	
35	90% Submittal QAQC and Incorporation of QAQC	10 days	Mon 2/13/23	Mon 2/27/23	33	
36	Submit 90% to Client	0 days	Mon 2/27/23	Mon 2/27/23	35	
37	Client Review of 90%	10 days	Tue 2/28/23	Mon 3/13/23	36	
38	Prepare 100% Submittal	10 days	Tue 3/14/23	Mon 3/27/23	37	
39	100% QAQC and Incorporation of QAQC	10 days	Tue 3/28/23	Mon 4/10/23	38	
40	Submit 100% to Client	0 days	Mon 4/10/23	Mon 4/10/23	39	
41	Client Review of 100%	10 days	Tue 4/11/23	Mon 4/24/23	40	
42	Prepare Bid Set	5 days	Tue 4/25/23	Mon 5/1/23	41	
43	Bid Set QAQC and Incorporation of QAQC	5 days	Tue 5/2/23	Mon 5/8/23	42	
44	Submit Bid Set	0 days	Mon 5/8/23	Mon 5/8/23	43	
45	**Burner Replacement Construction**	**372 days**	**Tue 7/5/22**	**Fri 12/29/23**		
46	**Control Modifications**	**160 days**	**Tue 7/5/22**	**Fri 2/24/23**		
47	Control Modifications	160 days	Tue 7/5/22	Fri 2/24/23		
48	**Pre-Procurement of Burners**	**274 days**	**Thu 8/4/22**	**Thu 9/7/23**		



Attachment A: Implementation Plan Schedule

ID	Task Name	Duration	Start	Finish	Predecessors	Resource Names
49	Award and Contract to Emergency Contractor	0 days	Thu 8/4/22	Thu 8/4/22		
50	Contractor Purchase Order	14 days	Thu 8/4/22	Tue 8/23/22	49	
51	Submittal Review and Approval	40 days	Wed 8/24/22	Wed 10/19/22	50	
52	Manufacture and Delivery	44 wks	Thu 10/20/22	Thu 9/7/23	51	
53	**Pre Construction**	**70 days**	**Tue 5/9/23**	**Wed 8/16/23**		
54	Package Bid Set Documents	20 days	Tue 5/9/23	Tue 6/6/23	44	
55	Bid Set Documents to Emergency Contractor	0 days	Tue 6/6/23	Tue 6/6/23	54	
56	Contractor Review and Pricing	20 days	Wed 6/7/23	Wed 7/5/23	55	
57	Contractor Submits Proposal	0 days	Wed 7/5/23	Wed 7/5/23	56	
58	Client Review Proposal	10 days	Thu 7/6/23	Wed 7/19/23	57	
59	Project to Board	0 days	Wed 8/16/23	Wed 8/16/23	58FS+20 days	
60	Contractor NTP for Construction	0 days	Wed 8/16/23	Wed 8/16/23	59	
61	**Construction**	**79 days**	**Tue 9/5/23**	**Fri 12/29/23**		
62	Mobilization	5 days	Tue 9/5/23	Mon 9/11/23	60FF+2 days,52FF+2	
63	Flare #4	22 days	Tue 9/12/23	Wed 10/11/23		
64	Demo Existing Burner/ ancillary equipment	5 days	Tue 9/12/23	Mon 9/18/23	62	
65	Repair/Replace Burners/ ancillary equipment	7 days	Tue 9/19/23	Wed 9/27/23	64	
66	Replace Piping Dampers and Install New Connections	10 days	Thu 9/28/23	Wed 10/11/23	65	
67	Flare #5	22 days	Thu 10/12/23	Mon 11/13/23		
68	Demo Existing Burner/ ancillary equipment	5 days	Thu 10/12/23	Wed 10/18/23	66	
69	Repair/Replace Burners/ ancillary equipment	7 days	Thu 10/19/23	Fri 10/27/23	68	
70	Replace Piping Dampers and Install New Connections	10 days	Mon 10/30/23	Mon 11/13/23	69	
71	Startup and Commissioning	30 days	Tue 11/14/23	Fri 12/29/23	63,67