

Mayor  
**John J. Lee**

City Manager  
**Ryann Juden**

Council Members  
**Scott Black**  
**Pamela A. Goynes-Brown**  
**Isaac E. Barron**  
**Richard J. Cherchio**



**Finance Department**  
Purchasing Department  
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**July 27, 2020**

**CITY OF NORTH LAS VEGAS  
INVITATION TO BID  
BID B-1611 GRANULAR ACTIVATED CARBON CHANGEOUT**

Bids will be received electronically only through the Nevada Gov eMarketplace (NGEM) System at [www.ngemnv.com](http://www.ngemnv.com) until **August 17, 2020 at 1:00 P.M.** (the "Bid Due Date"). **A Bid opening will be held on a conference call via Google Meet, Telephone# 1-662-508-0857, Meeting Pin# 161 196 968#.** The purpose of this meeting is to disclose Respondents and their response totals only. All other information should be requested as a public records request.

An optional Pre-Bid Meeting will be held on **August 3, 2020 at 10:00 a.m.** via Google Meet conference call, Telephone # 1-574-221-0074, Meeting Pin# 827 468 816#. The purpose of this meeting is to discuss the Invitation to Bid requirements and answer any questions or concerns. Any and all questions asked during this meeting must be sent via email or submitted in NGEM at the conclusion of the Pre-Bid Meeting.

All questions or concerns must be submitted electronically in the NGEM System or via e-mail to Joy Yoshida, Buyer, at [yoshidaj@cityofnorthlasvegas.com](mailto:yoshidaj@cityofnorthlasvegas.com). The cut-off time for all questions is **August 10, 2020 at 12:00 p.m.** All questions received will be consolidated and answered AFTER the question cut off period via Addendum on NGEM. Any questions received after the question cut off period will not be answered.

Bid documents may be accessed at [www.ngemnv.com](http://www.ngemnv.com) or on the City of North Las Vegas Purchasing Web Page (listed above). The City reserves the right to reject any and all Bids, waive any informality or technicality, or to otherwise accept Bids deemed in the best interest of the City.

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Joy Yoshida  
Buyer

Published in the Las Vegas Review Journal  
(July 27, 2020)

**CITY OF NORTH LAS VEGAS INVITATION TO BID  
BID B-1611 GRANULAR ACTIVATED CARBON CHANGEOUT**

**1. PUBLIC RECORDS:**

The Bid documents and all Bids submitted in response thereto are public records. You are cautioned not to put any material into the Bid that is proprietary in nature. The City is a public agency as defined by state law. As such, it is subject to the Nevada Public Records Law (Chapter 239 of the Nevada Revised Statutes). The City's Records are public records, which are subject to inspection and copying by any person, unless declared by law to be confidential.

**2. PERFORMANCE OF WORK:**

The selected Respondent shall perform all work as may be necessary to complete the Contract in a satisfactory and acceptable manner, and unless otherwise provided, shall furnish all transportation, materials, equipment, labor and incidentals necessary to complete the project.

**3. FORM OF CONTRACT:**

Execution of the Contract by all named parties will authorize delivery of services obtained under this Invitation to Bid.

**4. ELECTRONIC BID THROUGH NGEM SYSTEM:**

Bids must be submitted online through the Nevada Government eMarketplace (NGEM). The NGEM System is an electronic bidding system used by a consortium of local government entities in Nevada for supplier registration and the submission of electronic bids and proposals. The NGEM System is available at [www.ngemnv.com](http://www.ngemnv.com). There is no cost for any Respondent to use the NGEM System, however, all Respondents must register prior to gaining access to see the details of any solicitation and to submit a bid or proposal online. All Bids must be submitted on the NGEM System no later than the Bid Due Date and time. Per the Terms of Use of the NGEM System, Bids may not be submitted after the Bid Due Date, and the server clock will govern.

**5. EXPLANATION TO RESPONDENT:**

Any explanations desired by Respondent regarding the meaning or interpretation of specifications must be requested in writing and with sufficient time allowed for a reply to reach Respondent before submission of their Bid. Oral explanations given before the award of the contract will not be binding. Any written interpretation made will be furnished to all Respondents and its receipt by the Respondent will be acknowledged. Interpretation of the meaning of the plans, specifications, or other pre-Bid documents will not be binding if presented to any Respondent orally. Every request for such interpretation should be in writing addressed to Joy Yoshida, Buyer at [yoshidaj@cityofnorthlasvegas.com](mailto:yoshidaj@cityofnorthlasvegas.com). Any and all such interpretations and any supplemental instructions deemed necessary will be in the form of a written addendum to the specifications which, if issued, will be posted on NGEM. Failure of any Respondent to receive any such addendum or interpretation shall not relieve such Respondent from any obligation under these Bid documents as submitted. All addenda issued shall become part of the Bid documents.

**6. METHOD OF EVALUATION AND AWARD OPTIONS:**

The evaluation of this Bid will be conducted by City personnel. The City will award this Bid to the Respondent(s) that submits the lowest responsive and responsible Bid deemed to be in the City's best interest. The City reserves the right to reject all Bids. Pursuant to NRS 332.065(3), the City shall not enter into a contract with a Respondent to this Bid unless the contract includes the written certification that the company is not currently engaged in, and agrees for the duration of the contract not to engage in, a boycott of Israel.

**7. ASSIGNMENT OF CONTRACTUAL RIGHTS:**

It is agreed that the Contract must not be assigned, transferred, conveyed, or otherwise disposed of

by either party in any manner, unless approved in writing by the other party or unless otherwise allowed pursuant to NRS 332.095(2). The Respondent will be an independent contractor for all purposes and no agency, either expressed or implied, exists.

**8. CONDITIONS OF BID SUBMITTAL:**

- (a) The Bid must be signed by a duly authorized official of the proposing firm or company submitting the Bid.
- (b) No Bid will be accepted from any person, firm, or corporation that is in arrears for any obligation to the City, or that otherwise may be deemed irresponsible or unresponsive by City staff or City Council.
- (c) No Bid will be accepted from any person, firm, or corporation if that person, firm, or corporation or any of its principals are debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from transactions with any federal or state department or agency. By signing and submitting a Bid to the City, the Respondent certifies that no current suspension or debarment exists.
- (d) All Bids shall be prepared in a comprehensive manner as to content, but no necessity exists for expensive binders or promotional material.

**9. BID PROTESTS:**

The City will publish the Recommendation of Award Notification on NGEM. . Any Respondent may file a notice of protest regarding the proposed award of the Contract by the North Las Vegas City Council. Respondents will have five (5) business days from the date the Recommendation of Award is published to submit the written protest to the City Clerk. The written protest must include a statement setting forth, with specificity, the reasons the person filing the protest believes that applicable provisions of the Bid documents or law were violated. At the time a notice of protest is filed, the person filing such notice of protest shall post a bond with a good and solvent surety authorized to do business in the State of Nevada, and supply it to the City Clerk. The bond posted must be in an amount equal to the lesser of: (i) twenty-five percent (25%) of the total value of the Bid submitted by the person filing the notice of protest; or (ii) two hundred fifty thousand dollars (\$250,000).

A notice of protest filed in accordance with this section shall operate as a stay of action in relation to the award of the Contract until a determination is made by the North Las Vegas City Council. A person who makes an unsuccessful Bid may not seek any type of judicial intervention until after the North Las Vegas City Council has made a determination on the notice of protest and awarded the contract. Neither the City nor any authorized representative of the City is liable for any costs, expenses, attorney's fees, loss of income, or other damages sustained by a person who submits a Bid, whether or not the person files a notice of protest pursuant to this section.

If a protest is upheld, the bond posted and submitted with the notice of protest will be returned to the person who posted the bond. If the protest is rejected, a claim may be made against the bond by the City in an amount equal to the expenses incurred by the City because of the unsuccessful protest.

**10. LICENSES:**

All Respondents must provide a copy of all appropriate licenses in accordance with the laws of the State of Nevada, prior to submission of Bids for this project. Upon award, the successful Respondent will be required to obtain a North Las Vegas Business License.

**11. PUBLIC OPENING:**

Bids received will be opened and the name of the Respondent's company will be read via conference call at the time and place indicated in the Bid documents. Respondents, their authorized agents, and the public are invited to call in. No responsibility will attach to any City official or employee for the pre-opening of, or the failure to open, a Bid not properly addressed or identified.

**12. TERM OF THE CONTRACT:**

The contract commences upon approval by the City Council (if required) and execution of a contract. Contractor will have 45 days from notice to proceed to complete the replacement.

**13. INSURANCE:**

Prior to the commencement of the Contract, each successful Respondent must provide properly executed Certificates of Insurance to the City, which shall clearly evidence all insurance required by the City, including a policy or certificate of comprehensive general liability insurance in which the City, its public officials, officers, employees, agents, and volunteers shall be the named insured or be named as an additional insured. In compliance with this provision, the Respondent may file with the City a satisfactory policy providing a minimum \$1,000,000 "blanket coverage" policy or certificate of insurance. Such insurance will be primary and any insurance or self-insurance maintained by the City will apply in excess of, and not contribute with, the insurance required. Required insurance shall not be canceled, allowed to expire, or be materially reduced in coverage until after 30 days' written notice has been given to and approved in writing by, the City Attorney or the City Risk Manager.

The Respondent shall secure, maintain in full force and effect, and bear the cost of the following insurances throughout the duration of the contract:

**COMMERCIAL GENERAL LIABILITY**

Each Occurrence	\$1,000,000 each occurrence/accident
Products/Completed Operations	\$2,000,000 aggregate
Property Damage	\$1,000,000
Personal/Advertising Injury	\$1,000,000
COMBINED SINGLE LIMIT OF	\$1,000,000
Aggregate of	\$2,000,000

**AUTOMOBILE LIABILITY**

Bodily Injury - - - - -	\$1,000,000 each accident
Property Damage - - - -	\$1,000,000 each accident

Coverage must include all owned, leased, hired, non-owned and employee non-owned vehicles, where applicable, Personal Injury Protection.

**WORKERS' COMPENSATION**

Nevada Statutory Requirements

If no employees, then Exhibit D- Affidavit of Rejection of Coverage for Workers' Compensation must be completed and submitted with response to this Bid. The City, or any of its officers or employees, will not be responsible for any claims or suits in law or equity occasioned by the failure of the successful Respondent to comply with the provisions of this paragraph.

Such insurance shall include the specific coverage set out herein and be written for NOT LESS THAN the limits of liability and coverage provided in the "Insurance Service Office", or required by law and other governing agencies, whichever is greater. The cost of this insurance shall be deemed included in the Bid prices and no additional compensation will be made.

In addition, the Respondent shall furnish evidence of a commitment by the insurance company to

notify the City by registered mail of the expiration or cancellation of the insurance policies required not less than 30 days before the expiration or cancellation is effective.

**14. INDEMNITY:**

The successful Respondent agrees to defend, indemnify, and hold the City, its officers, agents, and employees, harmless from any and all liabilities, causes of action, claims, damages, losses, expenses, proceedings, actions, judgements, reasonable attorneys' fees, and court costs which the City suffers or its officers, agents, or employees suffer, as a result of, or arising out of, the negligent or intentional acts or omissions of Respondent, its subcontractors, agents, and employees, in the fulfillment or performance of the work described herein until such time as the applicable statutes of limitation expire.

**15. PROVISIONS PROVIDED BY LAW:**

Each and every provision and clause required by law to be inserted in the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the Contract forthwith shall be physically amended to make such insertion or correction. The Respondent's attention is directed to the fact that all applicable city, county, state, and federal laws, and the rules and regulations of all authorities having jurisdiction over the project shall apply to the Contract throughout its duration and such laws, rules, and regulations will be deemed to be included in the Contract the same as though they had been written out in full herein.

**16. ADDENDA INTERPRETATIONS:**

If it becomes necessary to revise any part of this Bid, a written or electronic addendum will be provided publicly. The City is not bound by any oral clarifications changing the scope of work for this project.

**17. CANCELLATION OF CONTRACT:**

The City reserves the right to cancel the award or execution of any contract at any time before the Contract has been approved by the City Council without any liability or claims thereof against the City.

**18. TERMINATION FOR CONVENIENCE:**

The City shall have the right at any time to terminate further performance of the Contract, in whole or in part, for any reason whatsoever (including no reason). Such termination shall be effected by written notice from the City to the Respondent, specifying the extent and effective date of the termination. On the effective date of the termination, the successful Respondent shall terminate all work and take all reasonable actions to mitigate expenses. The successful Respondent shall submit a written request for incurred costs for services performed through the date of termination within 30 days of the date of termination. All requests for reimbursement of incurred costs shall include substantiating documentation requested by the City. In the event of such termination, the City agrees to pay the successful Respondent, thirty days after receipt of a correct, adequately documented written request. The City's sole liability under this Paragraph is for payment of the costs for the services requested by the City and actually performed by the successful Respondent.

**19. TAXES:**

The City is exempt from state, retail, and federal excise taxes. The Bid price must be net, exclusive of taxes.

**20. EXCEPTIONS:**

Each Respondent must list on a separate document any exceptions to specifications and attach it to their Bid. Exceptions, deviations, or contingencies requested in Respondent's bid response, while possibly necessary in the view of the Respondent, may result in lower scoring or disqualification of a Bid response. **A template of the City of North Las Vegas Service Agreement is attached in**

**Exhibit F. Any and all exceptions to this document must be declared at the time of submission.**

**21. FISCAL FUNDING OUT:**

In the event the City fails to appropriate funds for the performance of the Contract, the Contract will terminate once the existing funds have been exhausted.

**22. LIMITATION OF FUNDING:**

The City reserves the right to reduce estimated or actual quantities, in whatever amount necessary, without prejudice or liability to the City, if funding is not available or if legal restrictions are placed upon the expenditure of monies for the services required under the Contract.

**23. ESCALATION:**

Prices may not be increased during the term of the Contract

**24. AUDIT OF RECORDS:**

(a) The successful Respondent agrees to maintain financial records pertaining to all matters relative to this Bid in accordance with standard accounting principles and procedures and to retain all records and supporting documentation applicable to this Bid for a period of three (3) years after completion of this Bid and any subsequent extensions thereof. All records subject to audit findings shall be retained for three (3) years after such findings have been resolved. In the event the successful Respondent goes out of existence, the successful Respondent shall turn over to the City all of its records relating to this Bid. The successful Respondent agrees to give the City access to records immediately upon request.

(b) The successful Respondent agrees to permit the City or the City's designated representative(s) to inspect and audit its records and books relative to this Bid at any time during normal business hours and under reasonable circumstances and to copy and/or transcribe any information concerning successful Respondent's operation hereunder, at the City's discretion. The successful Respondent further understands and agrees that said inspection and audit would be exercised upon written notice. If the successful Respondent or its records and books are not located within Clark County, Nevada, and in the event of an inspection and audit, successful Respondent agrees to deliver the records and books or have the records and books delivered to the City or the City's designated representative(s) at an address within the City as designated by the City. If the City or the City's designated representative(s) finds that the records and books delivered by the successful Respondent are incomplete, the successful Respondent agrees to pay the City's or the City's representative(s)' costs to travel (including travel, lodging, meals, and other related expenses) to the successful Respondent's offices to inspect, audit, retrieve, copy and/or transcribe the complete records and books. The successful Respondent further agrees to permit the City or the City's designated representatives to inspect and audit, as deemed necessary, all records of this project relating to finances, as well as other records including performance records that may be required by relevant directives of funding sources of the City.

(c) If, at any time during the term of this Bid, or at any time after the expiration or termination of the Bid, the City or the City's designated representative(s) finds the dollar liability is less than payments made by the City to the successful Respondent, the successful Respondent agrees that the difference shall be either: (i) repaid immediately by the successful Respondent to the City or (ii) at the City's option, credited against any future billings due the successful respondent.

(d) The successful Respondent must assert its right to an adjustment under this clause within 30 days from the date of receipt of the written order; however, if the City decides that the

facts justify, the City may receive and act upon an invoice submitted before final payment of the Bid.

- (e) The successful Respondent shall provide current, complete, and accurate documentation to the City in support of any equitable adjustment. Failure to provide adequate documentation, within a reasonable time after a request from the City will be deemed a waiver of the successful respondent's right to dispute.

**25. INDEPENDENT CONTRACTOR:**

In the performance of services under the Contract, the successful Respondent and any other persons employed by it shall be deemed to be an independent contractor and not an agent or employee of the City. The City shall hold the successful respondent company ("Company") as the sole responsible party for the performance of the Contract. The Respondent shall maintain complete control over its employees. Nothing contained in this Invitation to Bid, the Contract, or awarded by the City shall create a partnership, joint venture, or agency. Neither party shall have the right to obligate or bind the other party in any manner to any third party. The Contract may not be subcontracted.

**26. COMPANY PERSONNEL:**

The successful Respondent is solely responsible for the supervision and control of its staff performing work under the Contract; however, the City reserves the right to request removal from its premises the successful Respondent's "on site" staff personnel for just cause, and the successful Respondent shall take reasonable action to comply with the request. Upon award of the Contract, a listing of all personnel authorized to participate in the awarded program shall be submitted and included as part of the executed agreement. The successful Respondent (and employees performing work) may be required to go through a City Background check which can be coordinated with the City's HR department if the successful Respondent will be performing work on City Property or have access to the City's network or data. Successful Respondent shall be notified during the contract phase what background check requirements apply to the contract.

**27. KEY PERSONNEL:**

The City designates Joy Yoshida, Buyer, as the responsible party for managing this Bid Advertisement. She can be reached at 702-633-1745 or at [yoshidaj@cityofnorthlasvegas.com](mailto:yoshidaj@cityofnorthlasvegas.com) and is available Monday through Thursday from 6:30 am to 4pm.

The City also designates Daniel Ybarra, Operations Supervisor, as the project manager for this service. He can be contacted at 702-633-1124 or at [ybarrad@cityofnorthlasvegas.com](mailto:ybarrad@cityofnorthlasvegas.com) and is available Monday through Thursday from 8am to 4pm.

The cutoff date for any questions regarding this is **August 10, 2020 at 12:00 p.m Pacific Standard Time. Any questions submitted beyond this cut off time will not be answered.**

**CITY OF NORTH LAS VEGAS  
INVITATION TO BID  
BID B-1611 GRANULAR ACTIVATED CARBON CHANGEOUT**

**DEFINITIONS**

**Bid** - document submitted by Respondent in NGEN to the City of North Las Vegas offering the product or service that meets the requested specifications. Respondent will fill out the bid document with their price offering and complete all required documents

**Certificates of Insurance** – a document issued by an insurance company/broker that is used to verify the existence of insurance coverage under specific conditions granted to listed individuals. This document should list the effective date of the policy, the type of insurance coverage provided and the type and dollar amount of applicable liability and shall list the City of North Las Vegas, its public officials, officers, employees, agents, and volunteers, as an additional insured.

**City** - the City of North Las Vegas.

**City Attorney** – the lawyer employed by the City, who is legally appointed as legal counsel to transact business on the City's behalf.

**City Clerk** - a public officer charged with recording the official proceedings and vital statistics of the City.

**City Council** - the legislative body that governs the city.

**City Manager** - a person not publicly elected but appointed by the City Council to manage the City.

**City Records** - information, minutes, files, accounts or other records which the City is required to maintain, and which must be accessible to scrutiny by the public.

**City Staff** - any person currently employed by the City.

**Contract** – the written agreement between the City and the Respondent selected by the City as having the best Proposal, as approved by City Council and fully executed by the parties.

**Invitation to Bid** - the official legal published advertisement of the bid requirements.

**Key Personnel** - defined City employees listed in Paragraph 27.

**Pre-Bid Meeting** – a meeting that Respondent may attend to have the project requirements defined. This allows the Respondent to ask questions necessary to enable Respondent to provide a bid.

**Nevada Public Records Law** – as defined in NRS Chapter 239.

**Purchasing Department** – Department that reviews the bids for compliance to specifications, reviews the pricing, and awards the bid to the most responsive and responsible Respondent.

**Recommendation of Award Notification** – notification to the general public the City has recommended a Respondent who has been selected based on having the best bid/proposal by meeting the Criteria listed in the bid/Proposal documents. This Recommendation of Award goes to the City Council and upon City Council approval will be selected to fulfill the requirements as outlined in the bid.

**Representative** – person who represents a company and compiles questions to enable the company to submit a bid that accurately identifies the City's requirements.

**Respondent** – Vendor who offers the requested product or service to the City on the official bid document.

**Subcontractor** – a person who, or business that, contracts to provide some service or material necessary for the performance of another's contract.

**CITY OF NORTH LAS VEGAS  
INVITATION TO BID  
BID B-1611 GRANULAR ACTIVATED CARBON CHANGEOUT**

**SCOPE OF WORK**

**1. Scope of Work:**

The City of North Las Vegas is soliciting bids to remove five (5) Granular Activated Carbon units (GAC) and replacement of screens, if necessary. Each vessel contains approximately 680 cubic feet of carbon. Each vessel is 12 feet in diameter and has 2 beds. The City is not responsible for any shortage or miscalculation. The vendor must perform their own calculations. Depending on the density of the material, carbon is installed at a level of 3 feet. Additionally:

- Carbon must be specifically designed for treatment of Hydrogen Sulfide and “wastewater treatment odors”;
- Carbon must have a minimum of 0.2/g/ml H<sub>2</sub>S removal capacity;
- Density must typically not exceed 25 pounds per cubic foot;
- Vendor must provide an analysis of the carbon being removed;
- Vendor must dispose of spent carbon; and
- Vendor hours of operation/installation are 7:30 am to 4:30 pm, Monday – Friday

**TASK LIST**

<b>Task No.</b>	<b>Task</b>	<b>Equipment &amp; Services Needed</b>	<b>Reporting Head</b>
1	Remove carbon from dual bed units (replace screens if required)	Industrial Vacuum System with filtration system	City of North Las Vegas Utilities Department Daniel Ybarra, WRF Operations Supervisor Frazier Speaks, WRF Operations Supervisor
2	Inspect screen and grate deck		City of North Las Vegas Utilities Department Daniel Ybarra, WRF Operations Supervisor Frazier Speaks, WRF Operations Supervisor
3	Repair or replace screening, as needed	Screen Mesh	City of North Las Vegas Utilities Department Daniel Ybarra, WRF Operations Supervisor Frazier Speaks, WRF Operations Supervisor
4	Install fresh activated carbon	High reach lift carbon installation device	City of North Las Vegas Utilities Department Daniel Ybarra, WRF Operations Supervisor Frazier Speaks, WRF Operations Supervisor
5	Dispose of spent carbon	Coordinate bin and disposal service	EPA

**Warranty:** Bidder must provide information on warranty of GAC and screen replacement (if necessary).

**2. Contractor Responsibilities:**

Granular Activated Carbon removal and replacement in all (5) dual bed vessels must be completed in a reasonable timeframe after award of bid. Not to exceed 45 days.

At the time of submission of the bid, the Bidder must provide a copy of all appropriate licenses in accordance with the laws of the State of Nevada as well as a North Las Vegas Business License.

After proposed bids are reviewed, the City will award the bid to the vendor submitting the most responsive bid related to the scope of work needed, and at a competitive cost.

**CITY OF NORTH LAS VEGAS  
INVITATION TO BID  
BID B-1611 GRANULAR ACTIVATED CARBON CHANGEOUT**

**EXHIBIT LISTING**

**Exhibit A** - Offer Statement and Business Information which consists of the following:

- (a) An individual authorized to bind the Company should sign the statement, and the date signed should follow the signature.
- (b) Provide the name and phone number of the representative authorized to negotiate on behalf of the Respondent and answer questions regarding the Bid.
- (c) Provide copies of all Respondent's held state and local licenses applicable to performance of the subject potential Contract. Any Respondent conducting business must have a City of North Las Vegas Business License upon award of the contract. Information concerning City Business License requirements and fees may be obtained by calling the Business Services Division at 702-633-1520. However, a business license is not required to provide a Bid to the City.
- (d) Acknowledgement of any Bid addenda.

**Exhibit B** – Qualifications and Experience of Respondent

**Exhibit C** –Affidavit of Rejection of Coverage for Workers' Compensation under NRS 616B.627 and NRS 617.210 (If applicable, this form must also be notarized)

**Exhibit D** – Non-Collusion Affidavit \*\* this form must be notarized \*\*

**Exhibit E** – Written Certification Required by NRS 332.065(3) for contracts with an estimated annual amount required for performance that is in excess of \$100,000.00.

**Exhibit F** – Template of City of North Las Vegas Purchase & Service Agreement. Any and all exceptions to the terms this agreement with explanation must be turned in with electronic submission

**Exhibit G** – Quarterly Adsorber Odor Control Systems Test Report





**CITY OF NORTH LAS VEGAS  
INVITATION TO BID  
BID B-1611 GRANULAR ACTIVATED CARBON CHANGEOUT  
EXHIBIT B – QUALIFICATIONS AND EXPERIENCE OF RESPONDENT (Continued)**

**Example Contract 2:**

Company Name: \_\_\_\_\_

Company Address: \_\_\_\_\_

Point of Contact: \_\_\_\_\_ Phone Number: \_\_\_\_\_

E-Mail Address: \_\_\_\_\_

Brief Description of Contract Scope: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Term of Contract (Base plus Option Years): \_\_\_\_\_

Year of Base Contract Award: \_\_\_\_\_ Year Contract Completed: \_\_\_\_\_

Base Contract Amount: \$ \_\_\_\_\_ Total Contract Amount (including all option years) \$ \_\_\_\_\_

Did the contract contain a liquidated damages clause?  YES  NO

If yes, were damages assessed?  YES  NO If yes, what was the amount assessed? \$ \_\_\_\_\_

**Example Contract 3:**

Company Name: \_\_\_\_\_

Company Address: \_\_\_\_\_

Point of Contact: \_\_\_\_\_ Phone Number: \_\_\_\_\_

E-Mail Address: \_\_\_\_\_

Brief Description of Contract Scope: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Term of Contract (Base plus Option Years): \_\_\_\_\_

Year of Base Contract Award: \_\_\_\_\_ Year Contract Completed: \_\_\_\_\_

Base Contract Amount: \$ \_\_\_\_\_ Total Contract Amount (including all option years) \$ \_\_\_\_\_

Did the contract contain a liquidated damages clause?  YES  NO

If yes, were damages assessed?  YES  NO If yes, what was the amount assessed? \$ \_\_\_\_\_

**(ATTACH ADDITIONAL SHEET(S) IF EXTRA SPACE IS NEEDED)**

**CITY OF NORTH LAS VEGAS  
INVITATION TO BID  
BID B-1611 GRANULAR ACTIVATED CARBON CHANGEOUT  
EXHIBIT C – AFFIDAVIT OF REJECTION OF COVERAGE  
FOR WORKERS’ COMPENSATION  
UNDER NRS 616B.627 AND NRS 617.210**

In the State of Nevada, County of Clark, \_\_\_\_\_, being duly sworn, deposes and says:

1. I make the following assertions pursuant to NRS 616B.627 and NRS 617.210.
2. I am a sole proprietor who will not use the services of any employees in the performance of this Contract with the City of North Las Vegas.
3. In accordance with the provisions of NRS 616B.659, I have not elected to be included within the terms, conditions and provisions of chapters 616A to 616D, inclusive, of NRS, relating thereto.
4. I am otherwise in compliance with the terms, conditions and provisions of chapters 616A to 616D, inclusive, of NRS.
5. In accordance with the provisions of NRS 617.225, I have not elected to be included within the terms, conditions and provisions of chapter 617 of NRS.
6. I am otherwise in compliance with the terms, conditions and provisions of chapter 617 of NRS.
7. I acknowledge that the City of North Las Vegas will not be considered to be my employer or the employer of my employees, if any; and that the City of North Las Vegas is not liable as a principal contractor to me or my employees, if any, for any compensation or other damages as a result of an industrial injury or occupational disease incurred in the performance of this Contract.

I, \_\_\_\_\_, do here swear under penalty of perjury that the assertions of this affidavit are true.

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

Signature\_\_\_\_\_

State of \_\_\_\_\_

County of \_\_\_\_\_

Signed and sworn to (or affirmed) before me on this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_,

by\_\_\_\_\_ (name of person making statement).

Notary Signature\_\_\_\_\_

STAMP AND SEAL



**CITY OF NORTH LAS VEGAS  
INVITATION TO BID  
BID B-1611 GRANULAR ACTIVATED CARBON CHANGEOUT  
EXHIBIT D- Non-Collusion Affidavit**

State of \_\_\_\_\_ County of \_\_\_\_\_

\_\_\_\_\_ being first duly sworn deposes that:

- (1) He/She is the \_\_\_\_\_ of \_\_\_\_\_, the Respondent that has submitted the attached Bid.
- (2) He/She is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
- (3) Such Bid is genuine and is not a collusive or sham Bid;
- (4) Neither the said Respondent nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Respondent, firm, or person to submit a collusive or sham Bid in connection with the contract or agreement for which the attached Bid has been submitted or to refrain from making a Bid in connection with such contract or agreement, or collusion or communication or conference with any other Respondent, or, to fix any overhead, profit, or cost element of the Bid price or the Bid price of any other Respondent, or to secure through collusion, conspiracy, connivance, or unlawful agreement any advantage against the City of North Las Vegas or any person interested in the proposed contract or agreement; and
- (5) The Bid of service outlined in the Bid is fair and proper and is not tainted by collusion, conspiracy, connivance, or unlawful agreement on the part of the Respondent/team or any of its agents, representatives, owners, employees, or parties including this affiant.

(Signed): \_\_\_\_\_  
Title:

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 201\_\_.

\_\_\_\_\_  
Notary Public

My Commission expires: \_\_\_\_\_



**CITY OF NORTH LAS VEGAS  
INVITATION TO BID  
BID B-1611 GRANULAR ACTIVATED CARBON CHANGEOUT  
EXHIBIT E- Written Certification**

Pursuant to NRS 332.065(3), a governing body or its authorized representative shall not enter into a contract with an estimated value in excess of \$100,000 with a company unless the contract includes a written certification that the company is not currently engaged in, and agrees for the duration of the contract not to engage in, a boycott of Israel.

By signing below, the Respondent agrees and certifies that they do not currently boycott Israel and will not boycott Israel during any time in which they are entering into, or while in contract, with the City. If at any time after the signing of this certification, the Respondent decides to engage in a boycott of Israel, the Respondent must notify the City in writing.

\_\_\_\_\_  
AUTHORIZED SIGNATURE NAME (TYPE OR PRINT)

\_\_\_\_\_  
LEGAL NAME OF RESPONDENT

\_\_\_\_\_  
AUTHORIZED SIGNATURE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
TITLE



**CITY OF NORTH LAS VEGAS  
INVITATION TO BID  
BID B-1611 GRANULAR ACTIVATED CARBON CHANGEOUT  
EXHIBIT F- Exceptions to North Las Vegas Service Agreement**

Please provide an explanation to any and all exceptions on terms of the North Las Vegas Service Agreement.

## SERVICES AGREEMENT

This Services Agreement (this "Agreement") is made and entered into as of \_\_\_\_\_ (the "Effective Date") by and between the City of North Las Vegas, a Nevada municipal corporation (the "City") and [name of entity], a [state of registration and type of entity] (the "Services Provider").

### RECITALS

A. The City desires to purchase Five (5) Granular Activated Carbon units (GAC) (the "Products")

B. The City desires to purchase the Products from Services Provider as outlined in this Agreement, and Provider agrees to sell the Products upon the terms and conditions described in this Agreement.

C. The City further needs inspection of screen and grate deck, repair or replace screening as needed, install fresh activated carbon, and disposal of spent, and the Provider agrees to except the terms and conditions described in this Agreement

**NOW, THEREFORE**, upon good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the City and the Provider agree to the following terms, conditions and covenants:

### SECTION ONE RESPONSIBILITY OF PROVIDER

1.1. The Services Provider shall perform all of its obligations in the manner set forth in this Agreement including, without limitation, selling the Products to the City at the prices and quantities set forth in the Services Provider's [bid] dated [ ] (the ["Bid" or "Quote"]) attached hereto as Exhibit A, [complying with the terms of the Invitation to Bid attached hereto as Exhibit B], [additional terms attached hereto as Exhibit C], and all related additional or incidental tasks necessary to effectuate the intent of this Agreement.

1.2. The Products shall be new and must meet or exceed the technical specifications detailed in the [Quote/Bid] or as otherwise specified by the City.

1.3. The Services Provider shall ship the Products to a shipping address specified by the City (the "Delivery Location") F.O.B. Delivery Location as ordered by the City. Services Provider bears all risk of loss or damage to the Products until delivery of the Products to the City. Title to the Products passes to the City only after delivery and unloading of the Products at the Delivery Location is complete. Delivery of the Products is not complete until such Products have physically been received and accepted by the City.

1.4. The Services Provider shall furnish all user, instruction, or operator manuals for the Products as applicable.

1.5. The Services Provider shall furnish copies of all standard product warranties, extended warranties, and service and maintenance agreements for the Products from any manufacturer. To the extent possible, the Provider shall transfer or assign such warranties and agreements upon the request of the City.

1.6. The Services Provider shall promptly notify the City any time that the Services Provider fails to meet the requirements of this Agreement and shall, at its own expense, promptly take all actions to come back into compliance with this Agreement. If the Services Provider performs any additional task without obtaining the City's prior written approval, the Provider does so at its own risk and expense.

1.7. The Services Provider shall at its own expense comply at all times with all municipal, county, state and federal laws, regulations, rules, codes, ordinances and other applicable legal requirements.

## **SECTION TWO PAYMENT AND TERM**

2.1. The term of this Agreement shall commence on the Effective Date and continue until Services Provider delivers the Product to the City (the "Term"). [Depending on the City's order quantities for the Project] the City may pay the Provider for the Products up to an amount not to exceed [\_\_\_\_\_ (\$\_\_\_\_\_)].

2.2. The prices in the [Bid] will remain in effect for [the Term]. No additional compensation shall be paid, and no increase in the time of performance shall be awarded to the Services Provider without the prior written authorization of the City to proceed with such changes.

2.3. Payment to the Provider shall be made within thirty (30) calendar days after the City receives each invoice from the Provider, provided that such invoice is complete, correct, and undisputed by the City. Upon reconciliation of all errors, corrections, credits, and disputes, payment to the Provider will be paid in full within 30 calendar days. Invoices received without a valid purchase order number will be returned unpaid. The Provider shall submit the original invoice to:

City of North Las Vegas Finance Department  
ATTN: Accounts Payable, Suite 700  
2250 Las Vegas Blvd., N.  
North Las Vegas, NV 89030

## **SECTION THREE REPRESENTATIONS AND WARRANTIES**

3.1. Services Provider represents and warrants for the benefit of City, in addition to any other representations and warranties made in this Agreement, with the knowledge and expectation of City's reliance thereon, as follows:

- (a) Services Provider is a duly formed and validly existing [entity type] and is in

good standing pursuant to the laws of the State of Nevada and has the full power, authority and legal right to execute, deliver and perform under this Agreement.

(b) The Products are now and shall be at the time of delivery free from any security interest, lien, or other encumbrance.

(c) Services Provider is financially solvent, able to pay its debts as they mature, and possessed of sufficient working capital to perform all of its obligations under this Agreement.

3.2. The representations and warranties made by Services Provider survive the termination or expiration of the Agreement.

## **SECTION FOUR INSURANCE**

4.1. Services Provider shall procure and maintain, and shall cause each subcontractor, principal or agent to procure and maintain at all times the following insurance coverage for all work related to the performance of this Agreement:

(a) Workers' Compensation Insurance as required by applicable law, covering all persons employed in connection with the matters contemplated hereunder and with respect to whom death or injury claims could be asserted against City, Provider or Provider's subcontractors, principals or agents.

(b) Commercial General Liability (bodily injury and property damage) insurance in a policy limit of not less than \$1,000,000.00 per occurrence and in the aggregate. Such General Liability insurance policy shall include the City as an additional insured under a blanket Additional Insured endorsement.

(c) Automobile Liability (bodily injury and property damage) insurance in a policy limit of not less than \$1,000,000 for combined single limit per occurrence. Such Automobile Liability insurance policy shall be endorsed as to include the City as an additional insured.

## **SECTION FIVE TERMINATION**

The City may terminate this Agreement at any time with or without cause upon notice to the Services Provider, and the City shall have no liability to the Services Provider for such termination except that the City shall pay the Services Provider for the reasonable value of the Products provided by the Provider to City up through and including the date of termination, provided that the Services Provider, within thirty (30) days following the date of the City's termination notice, submits an invoice for such Products in a form reasonably acceptable to the City and such invoice is supplemented by such underlying source documentation as is reasonably requested by the City.

## **SECTION SIX INDEMNIFICATION**

Notwithstanding any of the insurance requirements or limits of liability set forth herein, the Services Provider shall defend, protect, indemnify and hold harmless the City, and its officers, agents and employees, from any liabilities, claims, damages, losses, expenses, proceedings, suits, actions, decrees, judgments, reasonable attorneys' fees, and court costs which the City suffers, and/or its officers, agents or employees suffer, as a result of, or arising out of, the negligent or intentional acts or omissions of the Services Provider, its agents, and employees, or anyone employed by any of them, in fulfillment or performance of the terms, conditions or covenants of this Agreement [including, without limitation, compliance with the terms of Exhibit ]. This Section 6 shall survive [the completion of the Project, if applicable, and] the termination or expiration of this Agreement until such time as the applicable statutes of limitation expire.

## SECTION SEVEN NOTICES

7.1. All notices, demands and other instruments required or permitted to be given pursuant to this Agreement shall be in writing and be deemed effective upon delivery in writing if served by personal delivery, by overnight courier service, by facsimile or by overnight express mail, or upon posting if sent by registered or certified mail, postage prepaid, return receipt requested, and addressed as follows:

To City: City of North Las Vegas  
Attention: Joy Yoshida  
2250 Las Vegas Blvd.,N.,Suite 710 \_\_\_\_\_  
North Las Vegas, Nevada 89030  
Phone: 702-663-1745

To Provider: [redacted]  
Attention: [redacted]  
[redacted]  
[redacted]

7.2. The address to which any notice, demand or other writing may be delivered to any party as above provided may be changed by written notice given by such party as above provided.

## SECTION EIGHT MISCELLANEOUS

8.1. Nevada and City Law. The laws of the State of Nevada and the North Las Vegas Municipal Code shall govern the validity, construction, performance and effect of this Agreement, without regard to conflicts of law. The parties to this Agreement consent to the jurisdiction of any court of competent jurisdiction in Clark County, Nevada to adjudicate any dispute related top this Agreement or actions to enforce or interpret the terms of this Agreement.

8.2. Assignment. Any attempt to assign this Agreement by the Services Provider without the prior written consent of the City shall be void.

8.3. Non-Waiver. The failure to enforce or the delay in enforcement of any provision of this Agreement by a party shall in no way be construed to be a waiver of such provision or right unless such party expressly waives such provision or right in writing.

8.4. Partial Invalidity. If any term of this Agreement should be held by a court of competent jurisdiction to be invalid, void or unenforceable, all provisions not held invalid, void or unenforceable, shall continue in full force and effect.

8.5. Controlling Agreement. To the extent any of the terms or provisions in the [Bid] conflict with this Agreement, the terms and provisions of this Agreement shall govern and control. Any additional, different or conflicting terms or provisions contained in Services Provider's [Bid] or any other written or oral communication from Provider shall not be binding in any way on the City whether or not such terms would materially alter this Agreement, and the City hereby objects thereto.

8.6. Attorneys' Fees. In the event any action is commenced by either party against the other in connection with this Agreement, the prevailing party shall be entitled to its costs and expenses, including reasonable attorneys' fees, as determined by the court, including without limitation, fees for the services of the City Attorney's Office. This Section 8.6 shall survive the completion of this Agreement until the applicable statutes of limitation expire.

8.7. Entire Agreement. This Agreement constitutes the entire agreement between the parties and supersedes all prior representations, agreements and understandings of the parties. No addition to or modification of this Agreement shall be binding unless executed in writing by the parties hereto.

8.8. Time of Essence. Time is of the essence in the performance of this Agreement.

8.9. Shipping. The Products are to be packaged in a manner that assures they are protected against deterioration and contamination. All shipments are to meet applicable D.O.T. Regulations. Serial numbers noted on the packing slip must match the serial number of the actual goods shipped. Incorrect or questionable documentation of serial numbers may result in shipment rejection. Shipments rejected due to Provider error will be returned solely at Services Provider's cost.

8.10. Inspection. An authorized representative of the City will inspect the Products at time of delivery. If deficiencies are detected, the Products may be rejected and the Provider will be required to make necessary repairs, corrections, or replacements. Payment and/or commencement of a discount period will not be made until the corrective action is made, the Products are re-inspected and accepted.

8.11. Further Assurances. The Provider shall execute and deliver all such documents and perform such acts as are reasonably requested by the City to complete its obligations under this Agreement.

8.12. Effect of Agreement Termination. In the event this Agreement is terminated, all rights and obligations of the parties hereunder shall cease, other than indemnity obligations and matters that by their terms survive the termination hereof.

8.13. Fiscal Funding Out. The City reasonably believes that sufficient funds can be obtained to make all payments during the term of this Agreement. Pursuant to NRS Chapter 354, if the City does not allocate funds to continue the function performed by the Provider under this Agreement, this Agreement will be terminated when appropriated funds expire.

8.14. Public Record. Pursuant to NRS 239.010 and other applicable legal authority, each and every document provided to the City may be a "Public Record" open to inspection and copying by any person, except for those documents otherwise declared by law to be confidential. The City shall not be liable in any way to the Provider for the disclosure of any public record, including but not limited to documents provided to the City by the Provider. In the event the City is required to defend an action with regard to a public records request for documents submitted by the Provider, the Provider agrees to indemnify, hold harmless, and defend the City from all damages, costs, and expenses, including court costs and reasonable attorney's fees related to such public records request. This section 8.14 shall survive the expiration or early termination of the Agreement.

8.15. Electronic Signatures. For purposes of this Agreement, the use of facsimile, email or other electronic medium shall have the same force and effect as original signatures.

8.16 Federal Funding. Supplier certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, in receipt of a notice of proposed debarment or voluntarily excluded from participation in this transaction by any federal department or agency. This certification is made pursuant to the regulations implementing Executive Order 12549, Debarment and Suspension, 28 C.F.R. pt. 67, § 67.510, as published as pt. VII of the May 26, 1988, Federal Register (pp. 19160-19211), and any relevant program specific regulations. This provision shall be required of every subcontractor receiving any payment in whole or in part from federal funds.

**IN WITNESS WHEREOF**, the City and the Services Provider have caused this Agreement to be executed as of the day and year first above written.

City of North Las Vegas,  
a Nevada municipal corporation

[Redacted]  
a [Redacted]

By: \_\_\_\_\_  
John J. Lee, Mayor

By: \_\_\_\_\_  
[Redacted]

Attest:

By: \_\_\_\_\_  
Catherine A. Raynor, City Clerk

Approved as to Form:

By: \_\_\_\_\_  
Micaela Rustia Moore, City Attorney

Exhibit A

[Bid]

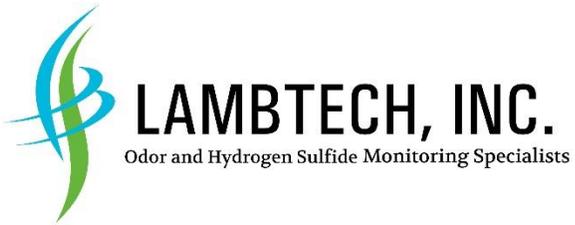
Please see attached page[s]

[Exhibit B]

[Invitation to Bid]

[Please see attached pages]

**CITY OF NORTH LAS VEGAS  
INVITATION TO BID  
BID B-1611 GRANULAR ACTIVATED CARBON CHANGEOUT  
EXHIBIT G  
Quarterly Adsorber Odor Control Systems Test Report**



## **CITY OF NORTH LAS VEGAS WATER RECLAMATION FACILITY**

### ***DANIEL COMPANY* CARBON ADSORBER ODOR CONTROL SYSTEM QUARTERLY PERFORMANCE TEST**



Prepared by:  
**LambTech, Inc.**  
316 West Perkinsville Road  
Unit 4  
Chino Valley, Arizona 86323

Prepared for:  
**City of North Las Vegas**

June 25, 2020

## General

### Introduction

At the request of the City of North Las Vegas, *LambTech, Inc.* personnel conducted the quarterly performance tests of five carbon adsorbers located at the City of North Las Vegas Water Reclamation Facility in Clark County, Nevada. The testing activities described in this report were conducted on June 24, 2020 and June 25, 2020.

### Test Information

This report includes the results of each specified two-hour carbon adsorber performance test. Table 1 (below) provides general information regarding this performance evaluation.

**Table 1. Test Information**

<b>Process Types</b>	Wastewater Treatment/Reclamation Facility (Headworks and Solids Handling Facilities)
<b>Process Control Equipment</b>	System Consisting of Five Parallel Activated Carbon Adsorbers and Four Air Extraction Fans
<b>Test Dates</b>	June 24, 2020 and June 25, 2020

### Process Control Equipment Information

The subject odor control system was manufactured by *Daniel Company* (1939 West 11th Street, Suite E, Upland, California 91786). The system includes four air extraction fans and five fiberglass vessels containing activated carbon. Figure 1 (below) depicts an example of one of the carbon vessels. Figure 2 (page 2) depicts upper and lower plan views of the parallel adsorbers and a typical cross section view of an adsorber vessel, associated ductwork, and the air extraction fans.

Two of the activated carbon adsorbers are designed to remove hydrogen sulfide (H<sub>2</sub>S) and other odorous sulfur compounds from the reclamation facility headworks. Two of the adsorbers will extract foul air from the solids handling facility. The remaining adsorber is designed to function as a back-up that will service either location. The foul air streams are collected through duct work and forced through each carbon vessel using an air extraction fan. Figure 3 (page 3) depicts a typical section of the odor control system ductwork, and Figure 4 (page 3) provides a view of the headworks facing northeast.



**Figure 1. Typical Carbon Adsorber Vessel Facing North**

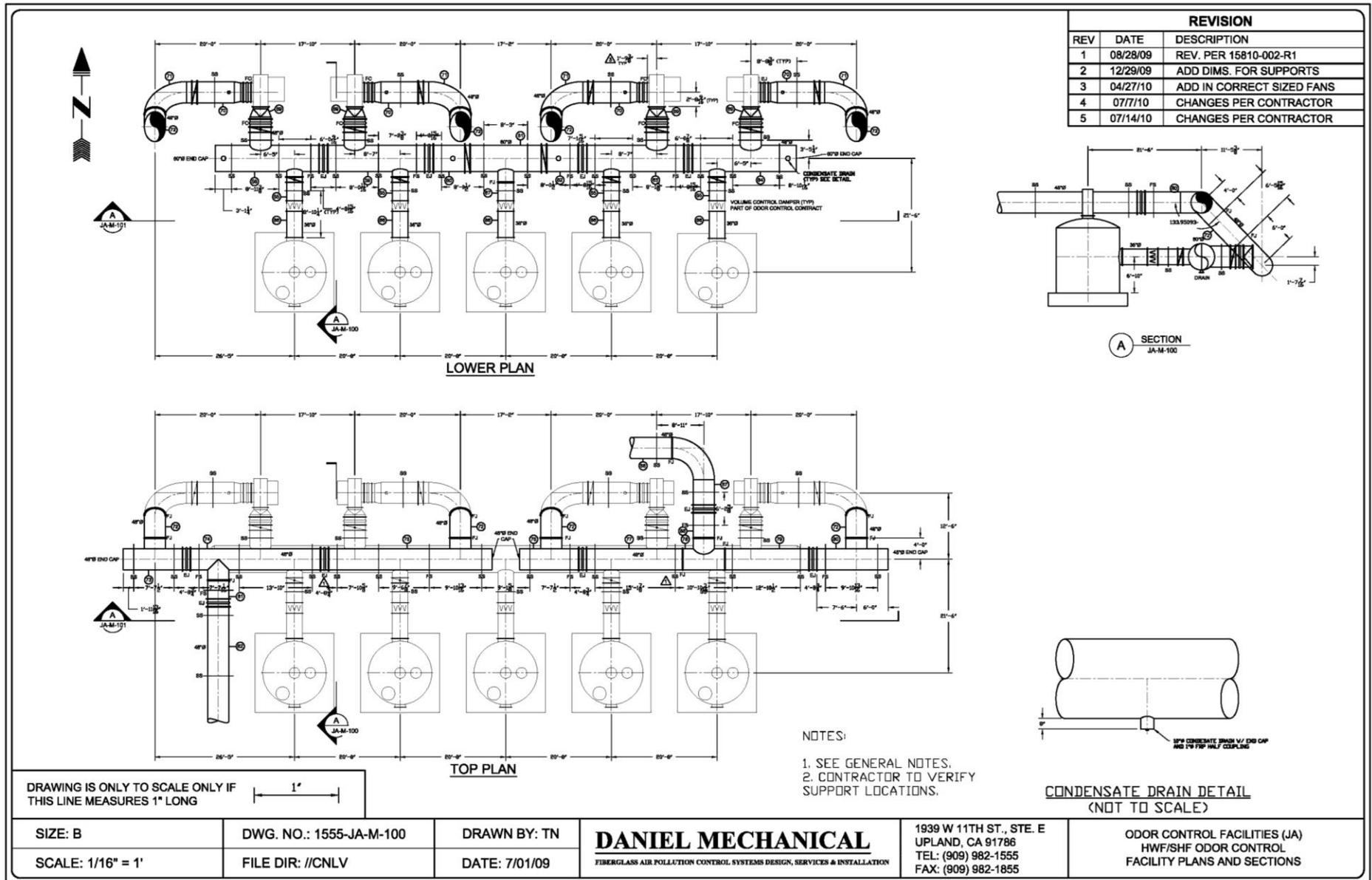


Figure 2. Odor Control System Overview



**Figure 3. Typical Section of the Odor Control System Ductwork Facing North**



**Figure 4. Headworks Facility Facing Northeast**

## Test Methods

The performance test program was conducted on June 24, 2020 and June 25, 2020. Each carbon adsorber was tested separately for two hours, which constituted an evaluation of the entire system. The adsorbers have been in service for six years. During the testing efforts described in this test, all odor control equipment was fully operational and all components were running in automatic mode. The purpose of this performance test was to verify that each carbon vessel is continuing to perform as specified.

### Test Parameters:

- Inlet H<sub>2</sub>S concentrations were not elevated using bottled gas. Naturally occurring hydrogen sulfide levels were monitored and recorded for the solids and headworks adsorbers and the variable use standby adsorber.
- *LambTech, Inc.* personnel manually measured and recorded inlet and outlet H<sub>2</sub>S concentrations every fifteen minutes during each test using a *Jerome 631X H<sub>2</sub>S Analyzer* (manufactured by *Arizona Instrument, Inc.*), which provides instant on-site data. Inlet samples were taken directly from the inlet ductwork of each adsorber. Outlet samples were taken from the manometer sample lines. The sensitivity of the *Jerome 631X Hydrogen Sulfide Analyzer* is 0.003 PPM, with a range of 0.001 PPM - 50 PPM.
- Airflow measurements were recorded at the beginning of each test using a hot-wire anemometer (manufactured by *TSI, Inc.*). *LambTech, Inc.* personnel also recorded differential pressures across the carbon media.

## Results

### Headworks Adsorber HWF-1A #1 East Carbon Adsorber

#### *Instant Monitoring*

Headworks adsorber HWF-1A #1 carbon adsorber exhibited poor removal on both beds during this evaluation. Inlet H<sub>2</sub>S concentrations were moderate and ranged between 4.9 PPM and 6.1 PPM and averaged 5.30 PPM.

Outlet concentrations on the upper bed ranged from 2.5 PPM to 3.1 PPM and averaged 2.88 PPM. H<sub>2</sub>S removal rates on the upper bed ranged from 38.78% to 54.55% and averaged 45.48%. Outlet concentrations on the lower bed ranged from 2.7 PPM to 3.5 PPM and averaged 3.14 PPM. H<sub>2</sub>S removal rates on the lower bed ranged from 30.61% to 47.27% and averaged 40.46%.

The lower-than-typical removal rates, along with the decreased airflow rates and elevated differential pressures as mentioned on page 6, indicate that the carbon media has become saturated and will need to be replaced as soon as possible.

For detailed information regarding the results of instant monitoring please refer to Table 2 (below). Figures 5 and 6 (page 5) depict inlet and outlet H<sub>2</sub>S concentrations and removal percentages in relation to time. Figure 7 (page 6) provides a view of the subject adsorber facing north.

**Table 2. Headworks Adsorber HWF-1A #1 East Carbon Adsorber Instant Monitoring, Tabular Results**

<b>HWF-1A #1 Carbon Adsorber</b>						
<b>Time</b>	<b>Date</b>	<b>H<sub>2</sub>S Inlet (PPM)</b>	<b>H<sub>2</sub>S Upper Outlet (PPM)</b>	<b>H<sub>2</sub>S Upper Removal (%)</b>	<b>H<sub>2</sub>S Lower Outlet (PPM)</b>	<b>H<sub>2</sub>S Lower Removal (%)</b>
8:00 AM	6/25/2020	5.1	2.7	47.06	3.3	35.29
8:15 AM	6/25/2020	5.7	2.9	49.12	3.1	45.61
8:30 AM	6/25/2020	6.1	3.1	49.18	3.5	42.62
8:45 AM	6/25/2020	4.9	3.0	38.78	3.4	30.61
9:00 AM	6/25/2020	5.3	3.1	41.51	3.2	39.62
9:15 AM	6/25/2020	5.1	2.7	47.06	3.2	37.25
9:30 AM	6/25/2020	4.9	2.8	42.86	3.0	38.78
9:45 AM	6/25/2020	5.5	2.5	54.55	2.9	47.27
10:00 AM	6/25/2020	5.1	3.1	39.22	2.7	47.06
	<b>Average</b>	<b>5.30</b>	<b>2.88</b>	<b>45.48</b>	<b>3.14</b>	<b>40.46</b>
	<b>Maximum</b>	<b>6.1</b>	<b>3.1</b>	<b>54.55</b>	<b>3.5</b>	<b>47.27</b>
	<b>Minimum</b>	<b>4.9</b>	<b>2.5</b>	<b>38.78</b>	<b>2.7</b>	<b>30.61</b>

Figure 5. Headworks Adsorber HWF-1A #1 East Carbon Adsorber Inlet and Outlet H<sub>2</sub>S Concentrations in Relation to Time

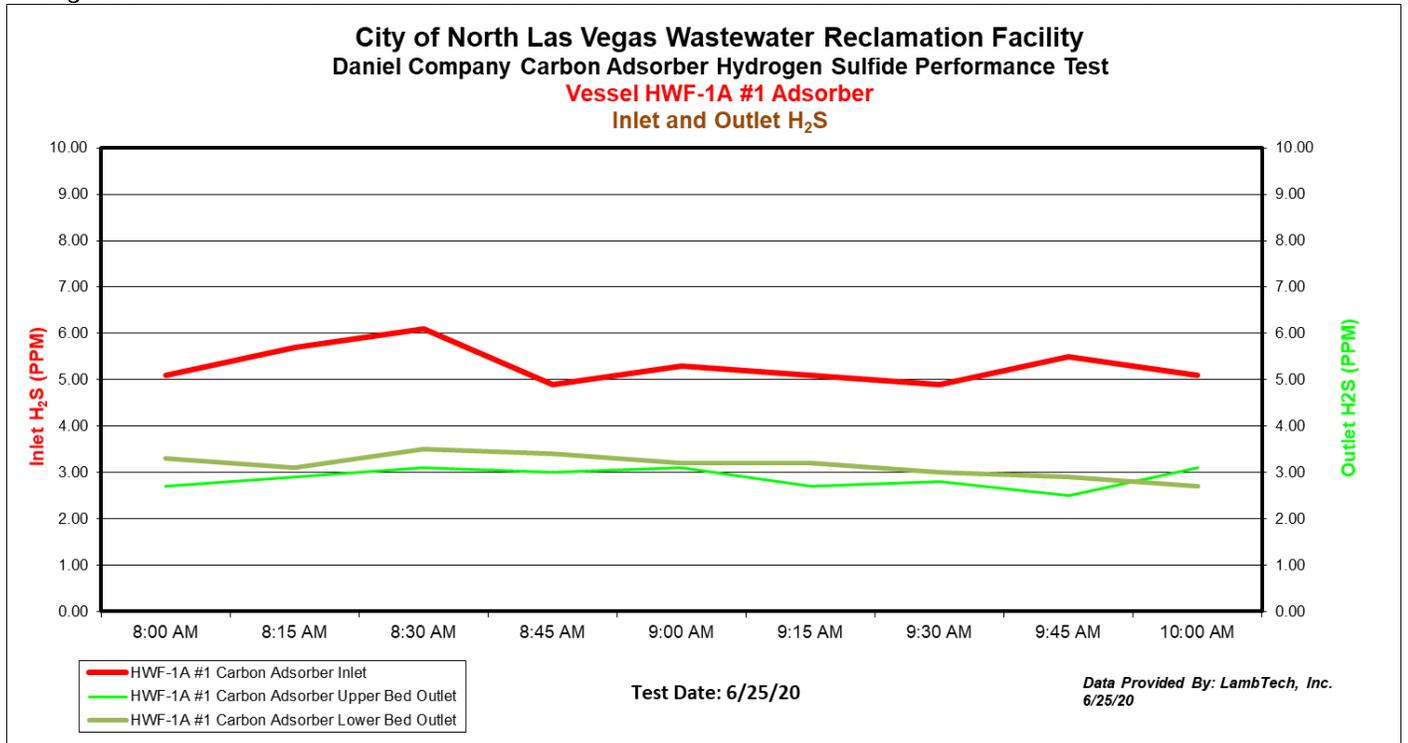
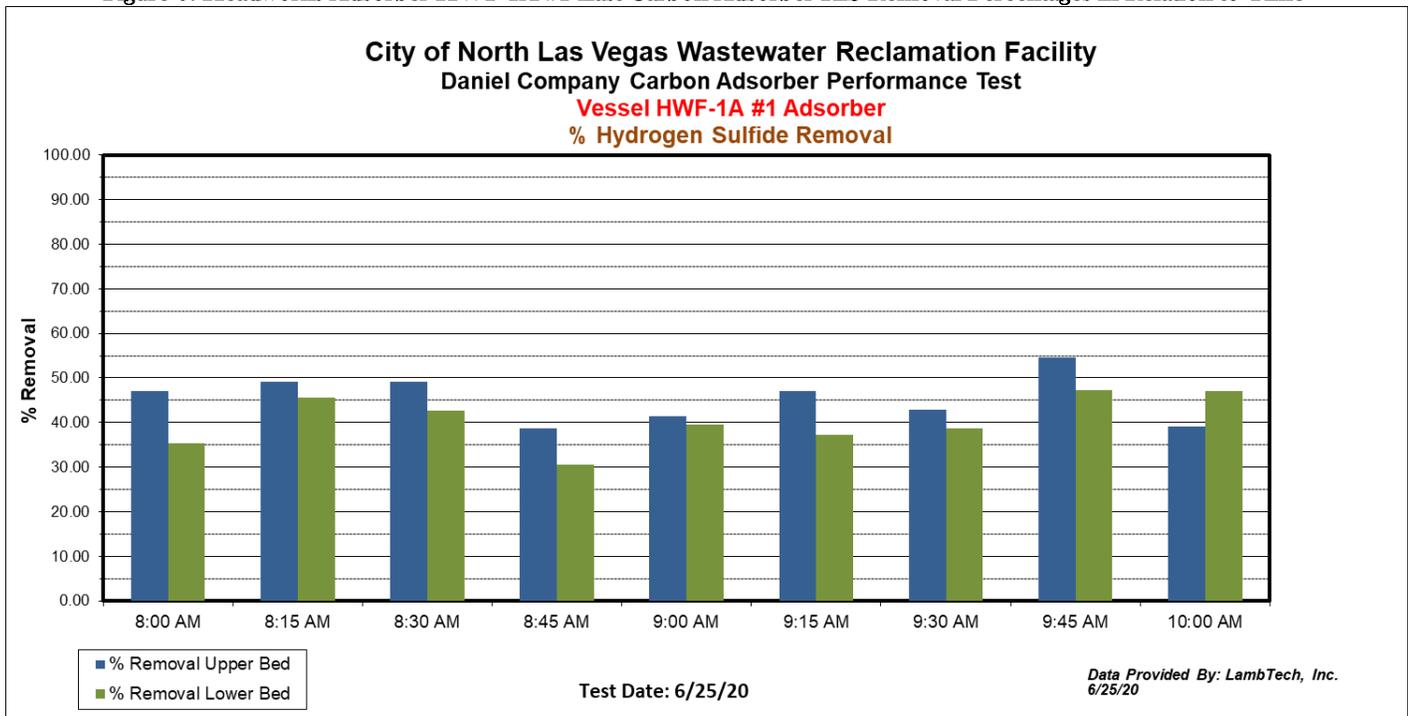


Figure 6. Headworks Adsorber HWF-1A #1 East Carbon Adsorber H<sub>2</sub>S Removal Percentages in Relation to Time





**Figure 7. Headworks Adsorber HWF-1A #1 East Carbon Adsorber Facing North**

*HWF-1A #1 East Carbon Adsorber System Parameters*

The two fan systems were in the high-speed setting at the start of the test and airflow on HWF-1A #1 carbon adsorber was recorded below the normal range at 11,600 CFM. Carbon adsorber pressure drops were recorded at a significantly elevated 8.5 in/WC on the upper bed and 8.0 in/WC on the lower bed.

**Headworks Adsorber HWF-1B #2 East Adsorber**

*Instant Monitoring*

Headworks adsorber HWF-1B #2 east carbon adsorber exhibited poor removal on both beds during this evaluation. Inlet H<sub>2</sub>S concentrations were moderate and ranged between 4.9 PPM and 6.1 PPM and averaged 5.30 PPM.

Outlet concentrations on the upper bed ranged from 2.9 PPM to 3.3 PPM and averaged 3.07 PPM. H<sub>2</sub>S removal rates on the upper bed ranged from 34.69% to 49.18% and averaged 41.82%. Outlet concentrations on the lower bed ranged from 1.2 PPM to 1.6 PPM and averaged 1.41 PPM. H<sub>2</sub>S removal rates on the lower bed ranged from 67.35% to 76.47% and averaged 73.27%.

The lower-than-typical removal rates, along with the decreased airflow rates and elevated differential pressures as mentioned on page 9, indicate that the carbon media has become saturated and will need to be replaced as soon as possible.

For detailed information regarding the results of instant monitoring please refer to Table 3 (below). Figures 8 and 9 (page 8) depict inlet and outlet H<sub>2</sub>S concentrations and removal percentages in relation to time. Figure 10 (page 9) provides a view of the subject adsorber facing north.

**Table 3. Headworks Adsorber HWF-1B #2 East Carbon Adsorber Instant Monitoring, Tabular Results**

<b>HWF-1B #2 Carbon Adsorber</b>						
<b>Time</b>	<b>Date</b>	<b>H2S Inlet (PPM)</b>	<b>H2S Upper Outlet (PPM)</b>	<b>H2S Upper Removal (%)</b>	<b>H2S Lower Outlet (PPM)</b>	<b>H2S Lower Removal (%)</b>
8:00 AM	6/25/2020	5.1	2.9	43.14	1.2	76.47
8:15 AM	6/25/2020	5.7	3.0	47.37	1.4	75.44
8:30 AM	6/25/2020	6.1	3.1	49.18	1.6	73.77
8:45 AM	6/25/2020	4.9	3.2	34.69	1.5	69.39
9:00 AM	6/25/2020	5.3	3.1	41.51	1.4	73.58
9:15 AM	6/25/2020	5.1	3.3	35.29	1.3	74.51
9:30 AM	6/25/2020	4.9	3.1	36.73	1.6	67.35
9:45 AM	6/25/2020	5.5	2.9	47.27	1.3	76.36
10:00 AM	6/25/2020	5.1	3.0	41.18	1.4	72.55
	<b>Average</b>	<b>5.30</b>	<b>3.07</b>	<b>41.82</b>	<b>1.41</b>	<b>73.27</b>
	<b>Maximum</b>	<b>6.1</b>	<b>3.3</b>	<b>49.18</b>	<b>1.6</b>	<b>76.47</b>
	<b>Minimum</b>	<b>4.9</b>	<b>2.9</b>	<b>34.69</b>	<b>1.2</b>	<b>67.35</b>

Figure 8. Headworks Adsorber HWF-1B #2 East Carbon Adsorber Inlet and Outlet H<sub>2</sub>S Concentrations in Relation to Time

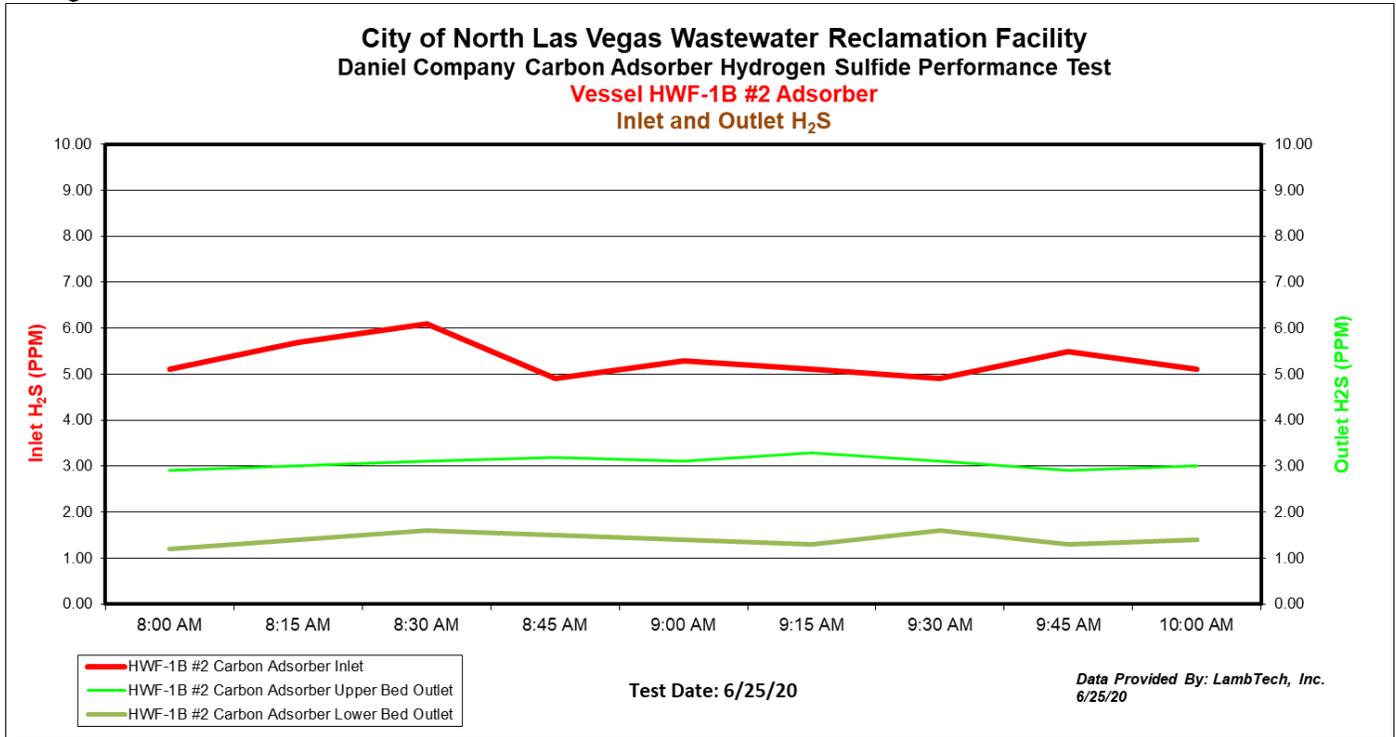


Figure 9. Headworks Adsorber HWF-1B #2 East Carbon Adsorber H<sub>2</sub>S Removal Percentages in Relation to Time

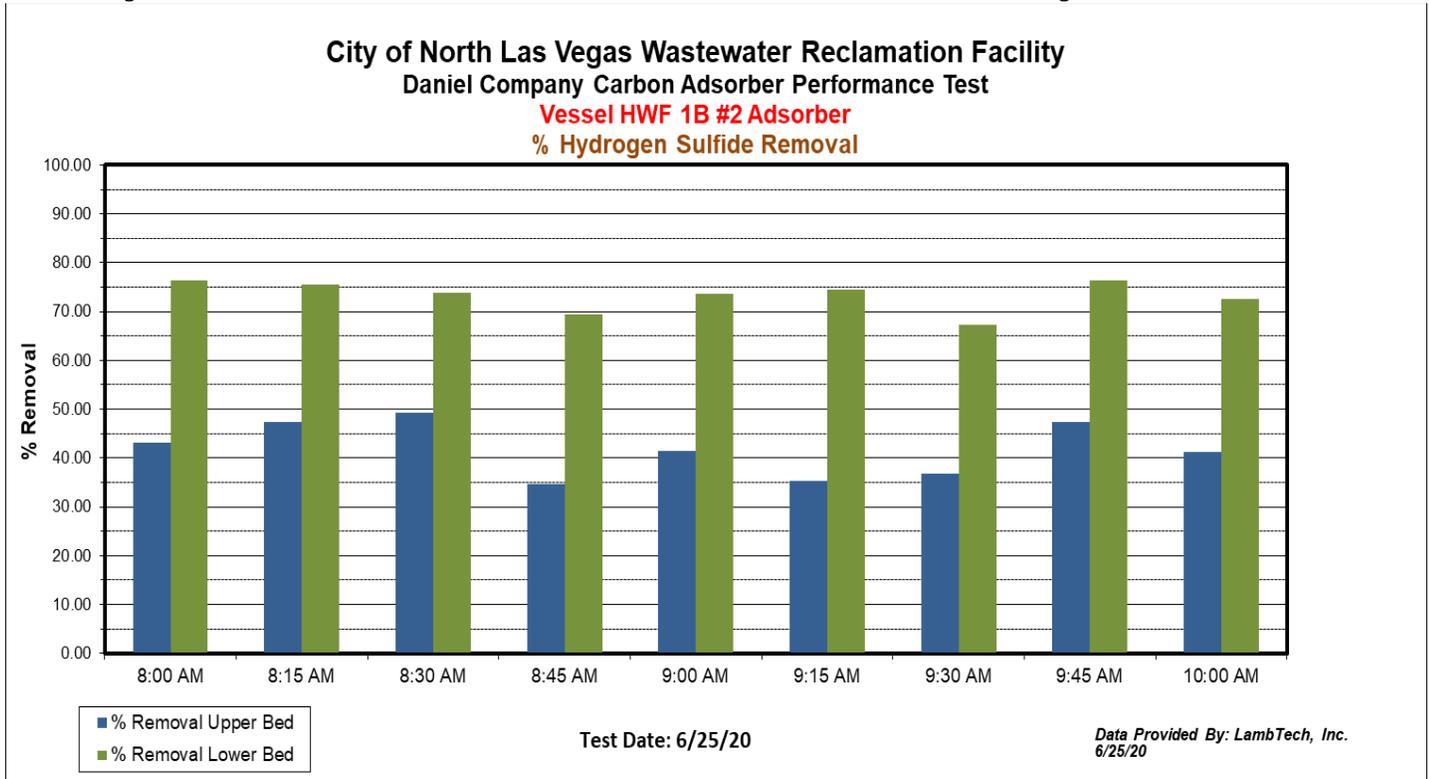




Figure 10. Headworks Adsorber HWF-1B #2 East Carbon Adsorber Facing North

*HWF-1B #2 East Carbon Adsorber System Parameters*

As stated earlier, the two fan systems were in the high-speed setting at the start of the test and airflow on HWF-1B #2 carbon adsorber was below the normal range and was recorded at 11,500 CFM. Carbon adsorber differential pressure drops were recorded at an elevated 7.5 in/WC on the upper bed and 8.5 in/WC for the lower bed.

**Standby #3 Center Carbon Adsorber**

*Instant Monitoring*

During this performance test, Standby #3 carbon adsorber was operating in place of the SHF-2A #4 carbon adsorber. Standby #3 carbon adsorber exhibited varying removal rates on both beds during this evaluation due to the varying inlet concentrations. Inlet H<sub>2</sub>S concentrations were low and were between 0.060 PPM and 3.1 PPM and averaged 0.4877 PPM.

Outlet concentrations on the upper bed ranged from 0.17 PPM to 0.20 PPM and averaged 0.187 PPM. H<sub>2</sub>S removal rates on the upper bed ranged from 0.00% to 93.87% and averaged 18.76%. Outlet concentrations on the lower bed ranged from 0.17 PPM to 0.19 PPM and averaged 0.181 PPM. H<sub>2</sub>S removal rates on the lower bed ranged from 0.00% to 93.87% and averaged 18.61%. Outlet concentrations on the Standby #3 Center carbon adsorber's upper and lower beds were higher than the inlet concentrations for much of the time. This is likely due to a phenomenon where dimethyl sulfide enters the carbon adsorber in the inlet airflow, which is then converted inside the carbon adsorber into dimethyl disulfide. This was verified several years ago at the site.

When this media-reduced sulfur conversion occurs within the odor control system the *Jerome 631X Gold Film Hydrogen Sulfide Analyzer* does not respond to concentrations of dimethyl sulfide; however, it will respond to the dimethyl disulfide once it has been converted in the carbon unit. This explains the higher outlet readings compared to the inlet readings on the lower bed of the Standby #3 carbon adsorber. Regardless of the reduced sulfur conversion it is clear that this media has become saturated and will need to be replaced soon.

For detailed information regarding the results of instant monitoring for the Standby Adsorber, please refer to Table 4 (below). Figures 11 and 12 (page 11) depict inlet and outlet H<sub>2</sub>S concentrations and removal percentages in relation to time. Figure 13 (page 12) provides a view of the subject adsorber facing north.

**Table 4. Standby #3 Center Carbon Adsorber Instant Monitoring, Tabular Results**

<b>Standby Center Adsorber #3</b>						
<b>Time</b>	<b>Date</b>	<b>H2S Inlet (PPM)</b>	<b>H2S Upper Outlet (PPM)</b>	<b>H2S Upper Removal (%)</b>	<b>H2S Lower Outlet (PPM)</b>	<b>H2S Lower Removal (%)</b>
8:00 AM	6/24/2020	0.087	0.20	0.00	0.17	0.00
8:15 AM	6/24/2020	0.079	0.19	0.00	0.18	0.00
8:30 AM	6/24/2020	0.13	0.20	0.00	0.17	0.00
8:45 AM	6/24/2020	0.068	0.18	0.00	0.19	0.00
9:00 AM	6/24/2020	0.064	0.19	0.00	0.18	0.00
9:15 AM	6/24/2020	3.1	0.19	93.87	0.19	93.87
9:30 AM	6/24/2020	0.72	0.18	75.00	0.19	73.61
9:45 AM	6/24/2020	0.060	0.17	0.00	0.19	0.00
10:00 AM	6/24/2020	0.081	0.18	0.00	0.17	0.00
	<b>Average</b>	<b>0.4877</b>	<b>0.187</b>	<b>18.76</b>	<b>0.181</b>	<b>18.61</b>
	<b>Maximum</b>	<b>3.1</b>	<b>0.20</b>	<b>93.87</b>	<b>0.19</b>	<b>93.87</b>
	<b>Minimum</b>	<b>0.060</b>	<b>0.17</b>	<b>0.00</b>	<b>0.17</b>	<b>0.00</b>

Figure 11. Standby #3 Carbon Adsorber Inlet and Outlet H<sub>2</sub>S Concentrations in Relation to Time

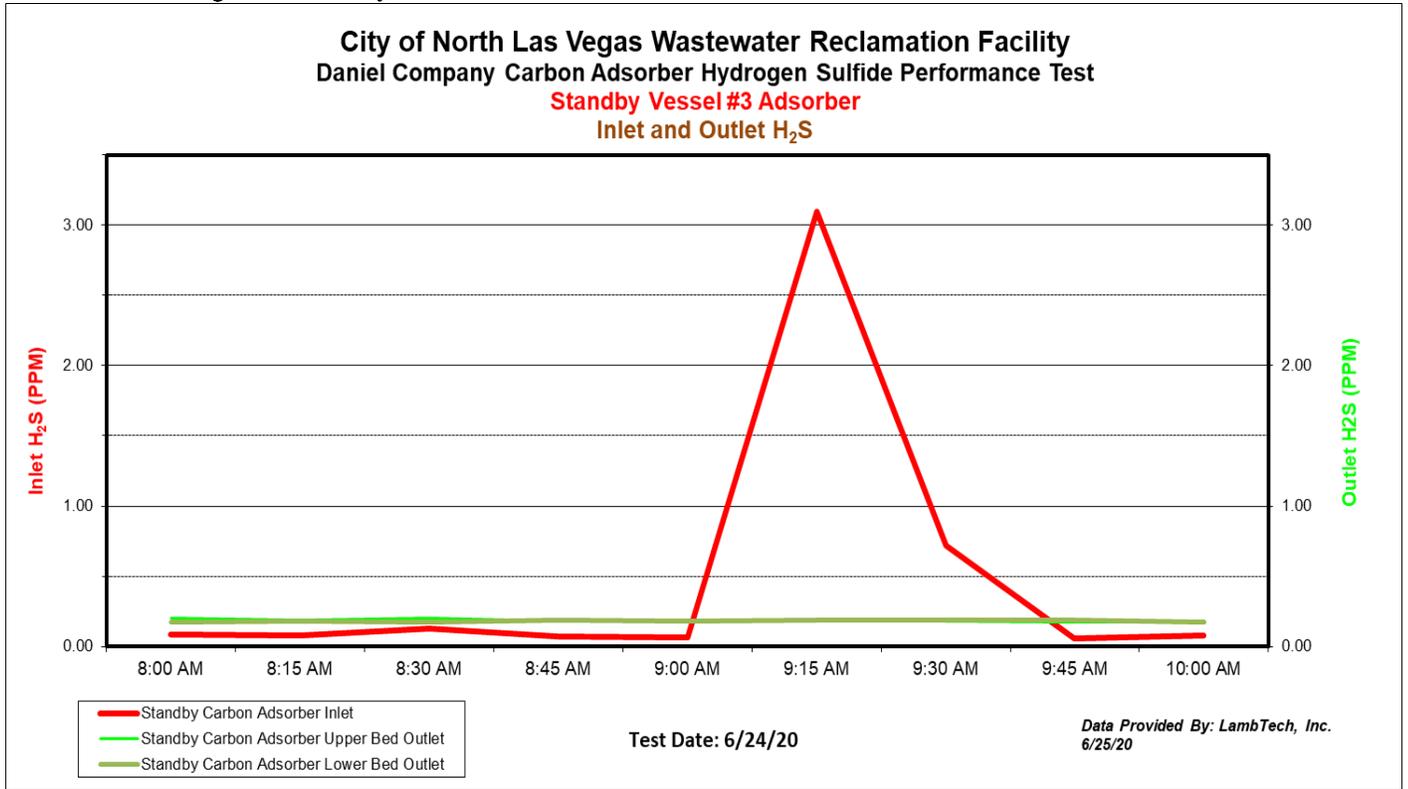
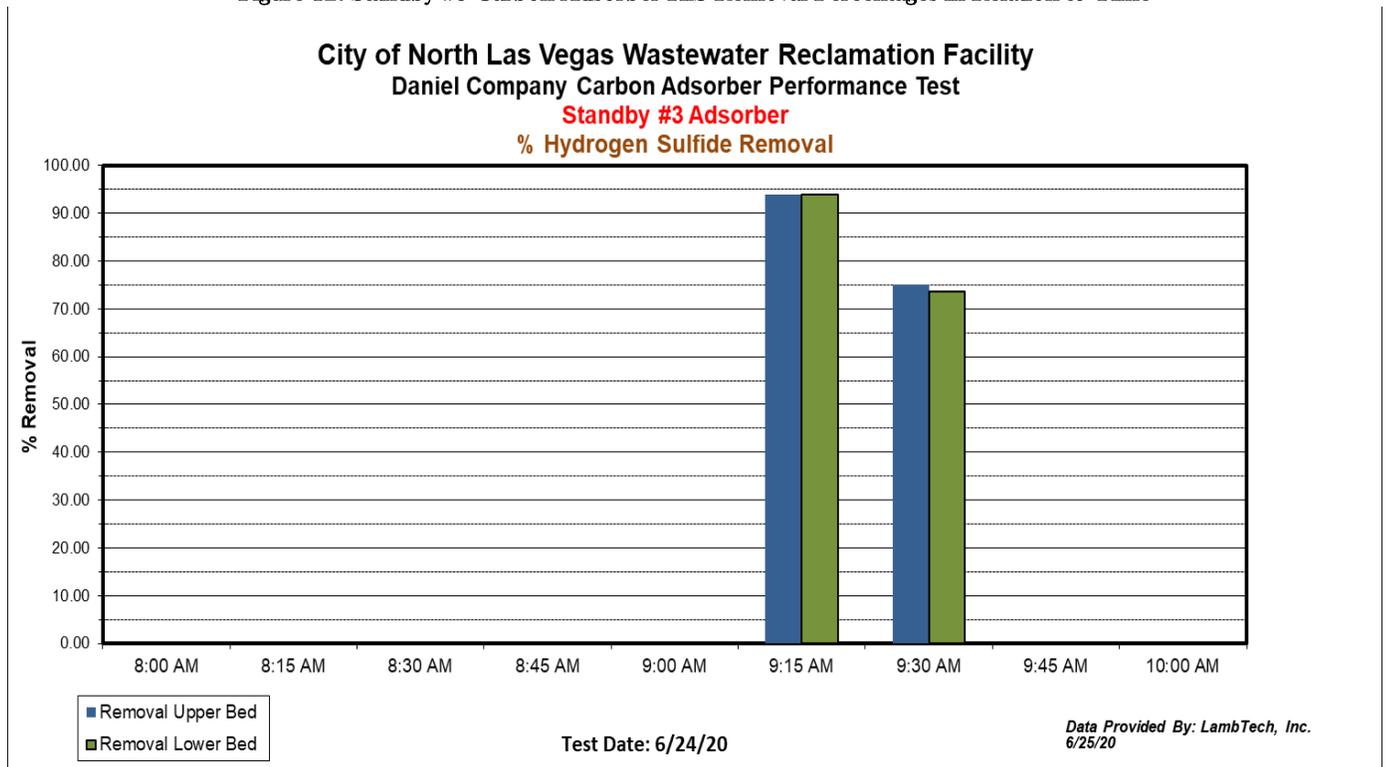


Figure 12. Standby #3 Carbon Adsorber H<sub>2</sub>S Removal Percentages in Relation to Time





**Figure 13. Standby #3 Carbon Adsorber Facing North**

*Standby #3 Carbon Adsorber System Parameters*

The two fan systems were in the high-speed setting during this test. Airflow rates on Standby #3 carbon adsorber were recorded below the normal range and was recorded at 10,300 CFM. Carbon adsorber differential pressure drops are starting to become elevated and were recorded at 4.5 in/WC on the upper bed and 6.5 in/WC on the lower bed.

**Solids Handling SHF-2A #4 West Carbon Adsorber**

*Instant Monitoring*

Solids handling adsorber SHF-2A #4 carbon adsorber was offline during this performance test. This adsorber could not be put in service to test due to a stuck inlet damper. The inlet damper to carbon adsorber #4 could not be opened by *LambTech, Inc.* personnel and was left “out of service” and unable to be tested.

**Solids Handling Adsorber SHF-2B #5 West Carbon Adsorber**

*Instant Monitoring*

Solids handling adsorber SHF-2B #5 carbon adsorber exhibited poor removal on both beds during this evaluation. Inlet H<sub>2</sub>S concentrations were low and ranged from 0.060 PPM to 3.1 PPM and averaged 0.4877 PPM.

Outlet concentrations on the upper bed ranged from 0.15 PPM to 0.21 PPM and averaged 0.177 PPM. Removal rates ranged from 0.00% to 93.55% and averaged 18.26%.

Outlet concentrations on the lower bed ranged from 0.17 PPM to 0.20 PPM and averaged 0.180 PPM. Removal rates on the lower bed ranged from 0.00% to 93.55% and averaged 18.57%. Outlet concentrations on both beds of the SHF-2B #5 carbon adsorber were higher than the inlet concentrations for much of the time.

As mentioned previously, this is likely due to a phenomenon where dimethyl sulfide enters the carbon adsorber in the inlet airflow, and is then converted inside the carbon adsorber into dimethyl disulfide. The *Jerome 631X Hydrogen Sulfide Analyzer* does not respond to concentrations of dimethyl sulfide; however, it will respond to the dimethyl disulfide once it has been converted in the carbon unit. This explains the higher outlet readings compared to the inlet readings on the lower bed of the SHF-2B #5 carbon adsorber, but this media is also in need of replacement as soon as possible.

For detailed information regarding the results of instant monitoring for solids handling adsorber SHF-2B #5 carbon adsorber, please refer to Table 6 (below). Figures 17 and 18 (page 15) depict inlet and outlet H<sub>2</sub>S concentrations and removal percentages in relation to time. Figure 19 (page 16) provides a view of the solids handling adsorber SHF-2B #5 facing north.

**Table 6. Solids Handling Adsorber SHF-2B #5 West Carbon Adsorber Instant Monitoring, Tabular Results**

<b>SHF-2B West Adsorber #5</b>						
<b>Time</b>	<b>Date</b>	<b>H2S Inlet (PPM)</b>	<b>H2S Upper Outlet (PPM)</b>	<b>H2S Upper Removal (%)</b>	<b>H2S Lower Outlet (PPM)</b>	<b>H2S Lower Removal (%)</b>
8:00 AM	6/24/2020	0.087	0.15	0.00	0.170	0.00
8:15 AM	6/24/2020	0.079	0.15	0.00	0.17	0.00
8:30 AM	6/24/2020	0.13	0.18	0.00	0.18	0.00
8:45 AM	6/24/2020	0.068	0.17	0.00	0.18	0.00
9:00 AM	6/24/2020	0.064	0.17	0.00	0.17	0.00
9:15 AM	6/24/2020	3.1	0.20	93.55	0.20	93.55
9:30 AM	6/24/2020	0.72	0.21	70.83	0.19	73.61
9:45 AM	6/24/2020	0.060	0.19	0.00	0.19	0.00
10:00 AM	6/24/2020	0.081	0.17	0.00	0.17	0.00
	<b>Average</b>	<b>0.4877</b>	<b>0.177</b>	<b>18.26</b>	<b>0.180</b>	<b>18.57</b>
	<b>Maximum</b>	<b>3.1</b>	<b>0.21</b>	<b>93.55</b>	<b>0.20</b>	<b>93.55</b>
	<b>Minimum</b>	<b>0.060</b>	<b>0.15</b>	<b>0.00</b>	<b>0.17</b>	<b>0.00</b>

Figure 17. Solids Handling Adsorber SHF-2B #5 West Carbon Adsorber Inlet and Outlet H<sub>2</sub>S Concentrations in Relation to Time

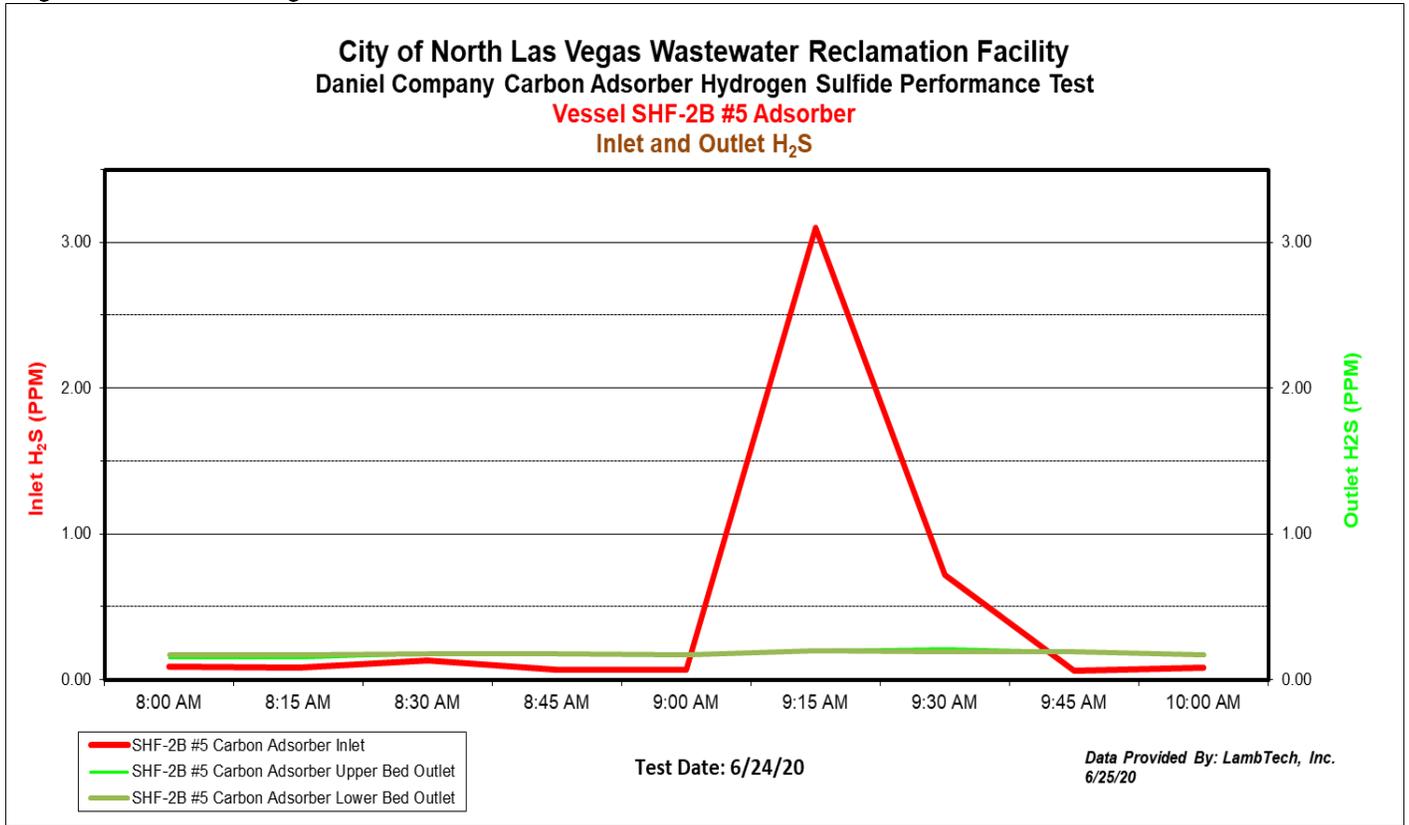


Figure 18. Solids Handling Adsorber SHF-2B #5 West Carbon Adsorber H<sub>2</sub>S Removal Percentages in Relation to Time

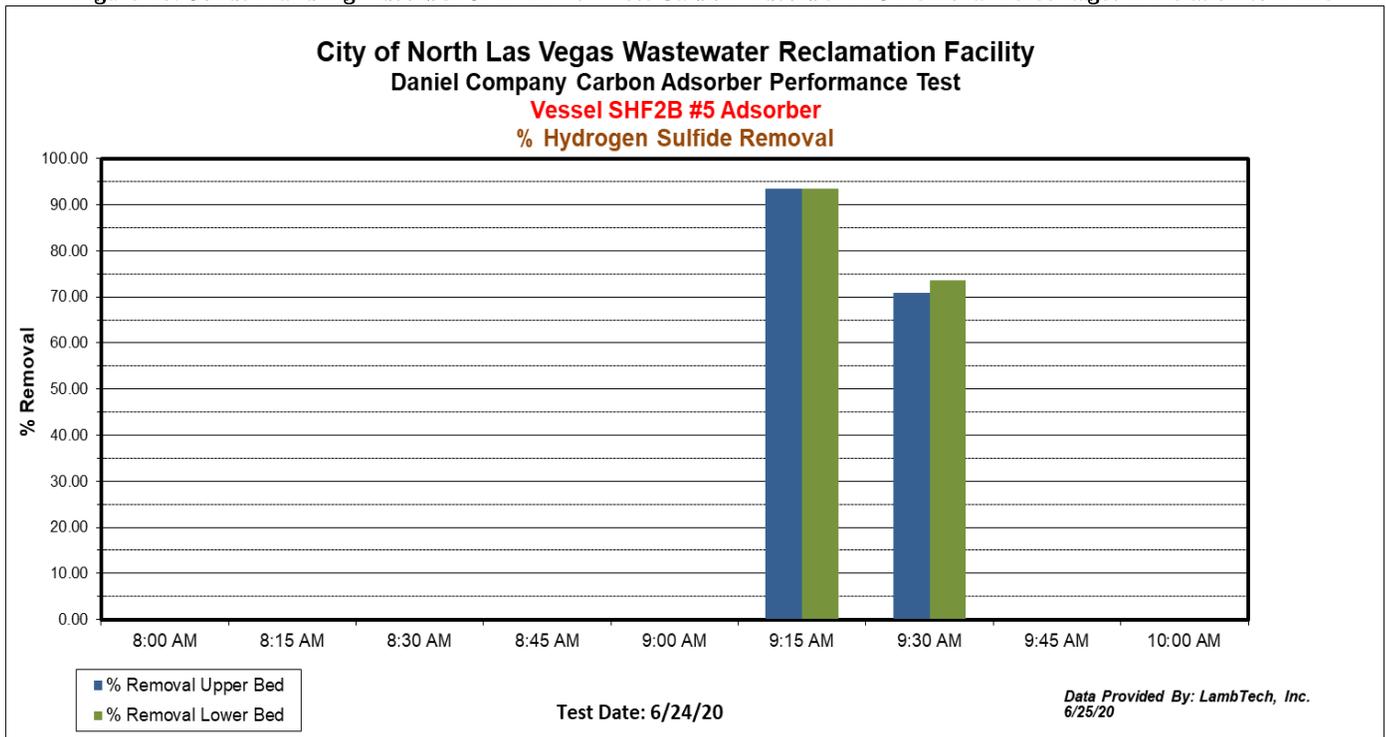




Figure 19. Solids Handling Adsorber SHF-2B #5 Carbon Adsorber Facing North

#### *SHF-2B #5 Carbon Adsorber System Parameters*

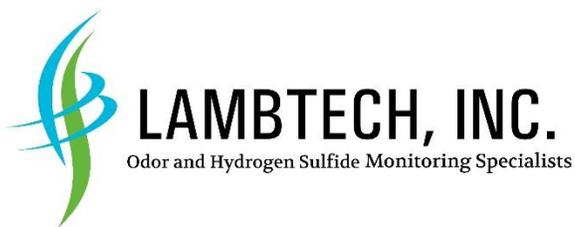
The solids fan system was in the high-speed setting and airflow on SHF-2B #5 carbon adsorber was recorded at 7,250 CFM, which is significantly below the specifications and indicates that some media clogging is occurring. Carbon adsorber differential pressure drops were elevated at 7.0 in/WC for the upper bed and 7.5 in/WC on the lower bed. The elevated pressure drops are an additional indication of media clogging.

#### **Conclusion**

Inlet concentrations were typical on the headworks carbon adsorbers #1 and #2 and were in the low-PPM range. However, removal rates were poor on carbon adsorbers #1 and #2 and outlet concentrations were significantly elevated. High differential pressures along with the lower-than-specification airflow rates indicate that the carbon media in carbon adsorbers #1 and #2 will need to be replaced as soon as possible in order to improve removal rates and decrease outlet concentrations.

Inlet concentrations were very low on the solids handling adsorbers #3 and #5 and were below 0.50 PPM throughout most of the test. Removal rates were poor, and outlet concentrations are becoming elevated on carbon adsorbers #3 and #5. Although the low removal efficiencies may be partly due to the potential readings of dimethyl disulfide by the *Jerome 631X* on the outlet, the low removal rates indicate that the carbon media has become saturated and will need to be replaced as soon as possible.

During the test in October of 2019 it was noted that the media on carbon adsorber #4 was failing. That prompted the City to switch to using the standby carbon adsorber #3. It is to be expected that carbon adsorber #4's media will also need to be replaced as it has already showed signs of degradation from last year. No other issues were recorded during this test.



## Field Test-Jerome 631X Serial Number 1722

*Ten PPM Certified Hydrogen Sulfide Gas Source*  
*Lot #: 1247878*

June 9, 2020

11.5 PPM  
12 PPM  
12 PPM  
11.5 PPM  
11.5 PPM  
Average 11.70 PPM

*Ten PPM Certified Hydrogen Sulfide Gas Source*  
*Lot #: 1247878*

July 3, 2020

10.4 PPM  
10.4 PPM  
10.7 PPM  
10.7 PPM  
10.9 PPM  
Average 10.62 PPM



3375 N. Delaware Street, Chandler, AZ 85225  
800.528.7411 | (f) 602.281.1745 | azic.com

**Certification of Instrument Calibration**

Lambtech Inc  
989 W Center St.  
Chino Valley, AZ 86323

RMA # 2697470

This is to certify that the Jerome **X631 0101** Gold Film Hydrogen Sulfide Analyzer, Serial Number **1722**, with Sensor Number **19-8-23-W4CS**, was calibrated with standard units traceable to NIST.

Calibration Status as Received: **Functionally Unable to Check**

		Actual	Calibration Gas	Allowable Range
<b>Incoming:</b>	Range 1	0.529 ppm H2S	0.500 ppm H2S	+/- 6%
	RSD %	8.26		<5%
<b>Outgoing:</b>	Range 1	0.522 ppm H2S	0.500 ppm H2S	+/- 6%
	RSD %	1.85		<5%

Calibration Status as Left: **In Calibration**

Estimated Uncertainty of Calibration System: 2.8%

Calibration Date: 23-Oct-2019      Recalibration Date: 22-Oct-2020

Temperature °F: 70.80      % Relative Humidity: 26.40

Approved By: Jackie Kreitlow  
Title: Jackie Kreitlow - Quality Control

Date Approved: 23-Oct-2019

Equipment Used:

- H2S Calibration Standard:** CC-75664 NIST#: 1467976  
**Calibration Date:** 25-Sep-2018 **Calibration Date Due:** 25-Sep-2021
- Mass Flow Controller B:** 124604 NIST#: 215457  
**Calibration Date:** 13-Dec-2018 **Calibration Date Due:** 13-Dec-2019
- Mass Flow Controller D:** 124602 NIST#: 215454  
**Calibration Date:** 13-Dec-2018 **Calibration Date Due:** 13-Dec-2019
- Digital Multimeter:** 74620505 NIST#: 7003079  
**Calibration Date:** 05-Apr-2019 **Calibration Date Due:** 05-Apr-2020
- Flowmeter:** US04I26032 NIST#: 1813; 1817; 1796  
**Calibration Date:** 12-Aug-2019 **Calibration Date Due:** 12-Aug-2020

Calibration Procedure Used: 730-0032

AMETEK Brookfield certifies that the above listed instrument meets or exceeds all published specifications and has been calibrated using standards whose accuracy are traceable to the NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY within the limitations of the Institute's calibration services, or have been derived from accepted values of natural physical constants, or have been derived by the ratio type of self-calibration techniques.

Disclaimer: Any unauthorized adjustments, removal or breaking of QC seals, or other customer modifications on your Jerome Analyzer WILL VOID this factory calibration. Because any of the above acts could affect the calibration and readings of the instrument, their certification will no longer be valid and, further, AMETEK Brookfield WILL NOT be responsible for any liabilities created as a result of using the instrument after such adjustments, seal removal, or modifications.

As long as a functional test is within range, according to the procedure outlined in the Operator's Manual, the instrument is performing correctly.

This document shall not be reproduced, except in full, without the written approval of AMETEK Brookfield.

TSI P/N 2300157



## CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA  
 Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

ENVIRONMENT CONDITIONS			MODEL	<b>9535</b>
TEMPERATURE	76.6 (24.8)	°F (°C)	SERIAL NUMBER	<b>T95351044007</b>
RELATIVE HUMIDITY	25	%RH		
BAROMETRIC PRESSURE	29.14 (986.8)	inHg (hPa)		

<input checked="" type="checkbox"/> AS LEFT	<input checked="" type="checkbox"/> IN TOLERANCE
<input type="checkbox"/> AS FOUND	<input type="checkbox"/> OUT OF TOLERANCE

- CALIBRATION VERIFICATION RESULTS -

TEMPERATURE VERIFICATION				SYSTEM T-100			Unit: °F (°C)
#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	32.0 (0.0)	32.2 (0.1)	31.5~32.5 (-0.3~0.3)	2	140.0 (60.0)	140.1 (60.1)	139.5~140.5 (59.7~60.3)

VELOCITY VERIFICATION				SYSTEM V-115			Unit: ft/min ( m/s )
#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	0 (0.00)	0 (0.00)	-3~3 (-0.02~0.02)	7	646 (3.28)	636 (3.23)	627~666 (3.19~3.38)
2	35 (0.18)	35 (0.18)	32~38 (0.16~0.19)	8	1004 (5.10)	991 (5.04)	974~1034 (4.95~5.25)
3	65 (0.33)	65 (0.33)	62~68 (0.31~0.34)	9	1485 (7.54)	1471 (7.47)	1440~1529 (7.32~7.77)
4	100 (0.51)	98 (0.50)	97~103 (0.49~0.52)	10	2512 (12.76)	2547 (12.94)	2437~2587 (12.38~13.14)
5	160 (0.81)	159 (0.81)	155~165 (0.79~0.84)	11	4500 (22.86)	4528 (23.00)	4365~4634 (22.17~23.54)
6	330 (1.68)	324 (1.64)	320~340 (1.63~1.73)	12	5895 (29.95)	5868 (29.81)	5718~6072 (29.05~30.85)

*TSI does hereby certify that the above described instrument conforms to the original manufacturer's specification (not applicable to As Found data) and has been calibrated using standards whose accuracies are traceable to the United States National Institute of Standards and Technology (NIST) or has been verified with respect to instrumentation whose accuracy is traceable to NIST, or is derived from accepted values of physical constants. TSI's calibration system is registered to ISO-9001:2015.*

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Temperature	E003617	01-10-20	07-31-20	Temperature	E003305	01-10-20	07-31-20
DC Voltage	E010587	11-10-19	11-30-20	Temperature	E001690	10-10-19	04-30-20
Pressure	E005767	01-13-20	07-31-20	Velocity	E005916	08-14-17	08-31-20
Pressure	E005765	01-13-20	07-31-20				

Dana Wang

CALIBRATED

February 27, 2020

DATE

Doc ID: CERT\_DEFAULT

### ANALYSIS CERTIFICATION

METHOD OF PREPARATION : GRAVIMETRIC / PRESSURE TRANSFILLING

METHOD OF ANALYSIS : ELECTROCHEMICAL CELL

ACCURACY : ± 10% RELATIVE

LOT NO. & QTY.	COMP. 1 H <sub>2</sub> S	COMP. 2 N <sub>2</sub>	COMP. 3	COMP. 4	COMP. 5	COMP. 6	Exp Date
1247878(1)	10PPM	BALANCE					01/17/22

Gas mixtures manufactured with balances calibrated by an ISO 17025 accredited Company using NIST traceable weights and meets or exceeds the requirements of NIST Handbook 44.

Calibration test 121088, 121097, 121091, or 121100 dated, 18th January 2019 applies.

WEIGHT SETS USED: Kit #92231, Test #2740564, Kit # 03610, Test # VA-19-1135 T3 Test # VA-19-11350B, T5 Test #VA-19-11350F, VA-19-11350E, VA-19-11350D, IM1966 Test VA-18-11340H

No affecting environmental conditions during analysis.

REQUESTED BY : DETECTION INSTRUMENTS CORP

CUSTOMER PURCHASE ORDER NUMBER : 12-45071

PACKING LIST NUMBER : 14232440

CERTIFICATION DATE : January 17, 2020

ANALYSIS BY : Sandy W. Wright  
Quality Representative

"We certify that all the cylinders for the Lot numbers identified herein are manufactured and tested within the requirements of CFR 49 part 178.65 and that physical and chemical test reports are on file and copies will be furnished upon request."

CALGAZ, a division of Airgas USA LLC  
821 Chesapeake Drive, Cambridge, MD 21613-0149  
Phone: (410)228-6400 Fax: (410)228-4251