



75 Langley Drive • Lawrenceville, GA 30045-6900
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August 9, 2016

**INVITATION TO BID:
BL086-16**

The Gwinnett County Board of Commissioners is soliciting competitive sealed bids from qualified suppliers for the **Purchase of Water Treatment and Water Reclamation Chemicals on an Annual Contract** with Four (4) Options to Renew for the Department of Water Resources.

Bids should be typed or submitted in ink and returned in a sealed container marked on the outside with the BL# and Company Name. Bids will be received until **2:50 P.M. local time on September 9, 2016** ~~August 30, 2016~~ at the Gwinnett County Financial Services - Purchasing Division – 2nd Floor, 75 Langley Drive, Lawrenceville, Georgia 30046. Any bid received after this date and time will not be accepted. Bids will be publicly opened and read at 3:00 P.M. Apparent bid results will be available the following business day on the website www.gwinnettcountry.com.

Questions regarding bids should be directed to Shelley McWhorter, Purchasing Associate III, at 770-822-8734, no later than August 15, 2016. Bids are legal and binding upon the bidder when submitted. All bids should be submitted in duplicate.

The successful supplier will be required to meet insurance requirements. The Insurance Company should be authorized to do business in Georgia by the Georgia Insurance Department, and must have an A.M. Best rating of A-5 or higher.

Gwinnett County does not discriminate on the basis of disability in the admission or access to its programs or activities. Any requests for reasonable accommodations required by individuals to fully participate in any open meeting, program or activity of Gwinnett County Government should be directed to Michael Plonowski, Gwinnett County Justice and Administration Center, 770-822-8015.

The written bid documents supersede any verbal or written prior communications between the parties.

Award will be made to the supplier submitting the lowest responsive and responsible bid. Gwinnett County reserves the right to reject any or all bids to waive technicalities and to make an award deemed in its best interest. Bids may be split or awarded in entirety. Gwinnett County reserves the option to negotiate terms, conditions and pricing with the lowest responsive, responsible bidder(s) at its discretion.

Award notification will be posted after award on the County website, www.gwinnettcountry.com and companies submitting a bid will be notified via email.

We look forward to your bid and appreciate your interest in Gwinnett County.

Sincerely,

Shelley McWhorter

Shelley McWhorter, CPPB
Purchasing Associate III



I. SCOPE

The intent of this contract is to obtain pricing for Water Treatment and Water Reclamation Chemicals on an Annual Contract. Pricing may be submitted for a twelve-month contract with four additional one year periods. Suppliers may submit pricing for one or all of the pricing options. Suppliers may submit pricing for one, multiple, or all chemicals.

The County will evaluate each option and determine which option will provide the County with an overall low responsive bid. The County will make an award deemed in its best interest.

Existing contracts are in place for products included in this bid. At the discretion of Gwinnett County, contract orders for a given product under this contract will not commence until the existing contract or contract renewal period expire per the table below:

	Product	Description	BL#	Expiration
1	Sodium Hydroxide (Caustic Soda)	Bulk Solution	BL097-14	12/15/2016
2	Calcium Hypochlorite	Dry Product in Buckets	BL092-13	12/16/2016
3	Chlorine	Liquid in Std DOT Containers	BL092-13	12/16/2016
4	Phosphate Corrosion Inhibitor	Bulk Solution	BL069-15	12/16/2016
5	Fluorosilicic Acid	Bulk Solution	BL092-13	12/16/2016
6	Liquid Calcium Hydroxide (Lime Slurry)	Bulk Slurry	BL092-13	12/16/2016
7	Liquid Ferric Chloride	Bulk Solution	BL008-14	12/16/2016
8	Liquid Oxygen (LOX)	Bulk Liquid	BL044-15	7/19/2017
9	Liquid Nitrogen	Bulk Liquid	BL044-15	7/19/2017
10	Hydrochloric Acid (10%)	Bulk Solution	N/A	N/A
11	Calcium Nitrate	Bulk Solution	*BL012-15	3/2/2017
12A	Calcium Oxide (Quicklime)	Bulk Dry Product	BL106-15	1/17/2017
12B	Calcium Hydroxide (Hydrated Lime)	Dry Product in Bags	BL092-13	12/16/2016
13	Aluminum Sulfate (Liquid Alum)	Bulk Solution	BL092-13	12/16/2016
14	Magnesium Hydroxide	Bulk Solution	BL011-14	5/20/2017
15	Hydrochloric Acid (32%)	Solution in Drums	BL092-13	12/16/2016
16A	Sodium Hypochlorite (Bleach)	Bulk Solution	BL092-13	12/16/2016
16B	Sodium Hypochlorite (Bleach)	Solution in Drums	BL092-13	12/16/2016
17	Rock Salt	Dry Product in Bags	BL092-13	12/16/2016
18	Sulfamic Acid	Dry Product in Bags	BL092-13	12/16/2016
19A	Carbon	Dry Product in Drums	N/A	N/A
19B	Carbon	Dry Product in Super Sacks	N/A	N/A
20A	Carbon	Dry Product in Canister	N/A	N/A
20B	Carbon	Dry Product in Canister	N/A	N/A
20C	Carbon	Dry Product in Canister	N/A	N/A
21	Iron Sponge Filter Media	Dry Product Filter System	N/A	N/A
22	Siloxane Filter Media	Dry Product Filter System	N/A	N/A
23	Magnesium Oxide	Bulk Dry Product	N/A	N/A
24	Magnesium Chloride	Bulk Solution	N/A	N/A
25	Ascorbic Acid	Bulk Dry Product	N/A	N/A
26	Peracetic Acid	Solution in Totes *	N/A	N/A
27A	Citric Acid Based Cleaner	Bulk Solution	BL105-15	12/1/2016
27B	Citric Acid Based Cleaner	Solution in Totes	N/A	N/A
28	Anthracite Filter Media	Dry Product in Super Sacks	N/A	N/A

* BL012-15 includes related equipment and maintenance. Requesting pricing on chemical only.

II. REQUIREMENTS

- A. All items must meet the "Requirements for All Chemicals and All Vendors" specifications, as well as the individual specifications for that specific item.
- B. Quantities listed are estimated based on historical usage and no guarantee as to amounts to be purchased is implied.
- C. Gwinnett County will order product on an "as needed" basis.
- D. Technical services shall be provided by the supplier upon request as detailed in "Requirements for All Chemicals and All Vendors"
- E. Unit Pricing:
 - 1. Bidders are requested to enter unit cost for each item for which a bid is submitted (the unit price should only use two decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.)
 - 2. All prices shall be F.O.B. destination delivered to various county delivery addresses. See "Requirements for All Chemicals and All Vendors"
- F. Successful vendor shall be required to supply Gwinnett County with Safety Data Sheets (SDS) on chemical, as detailed in "Requirements for All Chemicals and All Vendors".
- G. Samples: When requested, vendors must supply samples of proposed products at no cost to Gwinnett County for evaluation by Gwinnett County to determine specification compliance. Costs for such analyses will be borne by Gwinnett County. During the contract period, samples may be collected and analyzed by Gwinnett County upon delivery to determine specification compliance. Shipments that do not meet specifications will be rejected, and all cost for shipment, analysis, and removal/clean out will be the responsibility of the vendor.
- H. Invoices: Successful vendor must submit invoices at the unit price bid with the signed receipt tickets showing the accurate weight received. All invoices must show date received, Gwinnett County order number and the Gwinnett County bid number.
- I. Delivery:
 - 1. Clean up of spills that occur during delivery shall be the responsibility of the supplier.
 - 2. Only quantities specifically ordered for each location will be accepted due to storage vessel size or other on-site limitations.
 - 3. Each delivery must be signed by an attendant at the delivery site. Each delivery ticket must reflect the actual amount of product delivered at that site. It is the vendor's responsibility to measure the amount being delivered to each location. Each location must be invoiced separately.
- J. Due to the extreme importance of these materials to the efficient operation of the Gwinnett County operations, each bidder must confirm with supplier that they can supply/allocate material to Gwinnett County prior to submitting a bid.
- K. **Individuals, firms and businesses seeking an award of a Gwinnett County contract may not initiate or continue any verbal or written communications regarding a solicitation with any County officer, elected official, employee or other County representative without permission of the Purchasing Associate named in the solicitation between the date of the issuance of the solicitation and the date of the final contract award by the Board of Commissioners. Violations will be reviewed by the Purchasing Director. If determined that such communication has compromised the competitive process, the offer submitted by the individual, firm or business may be disqualified from consideration for award.**
- L. Termination for Cause: The County may terminate this agreement for cause upon ten days prior written notice to the contractor of the contractor's default in the performance of any term of this agreement. Such termination shall be without prejudice to any of the County's rights or remedies by law.
- M. Termination for Convenience: The County may terminate this agreement for its convenience at any time upon 30 days written notice to the contractor. In the event of the County's termination of this agreement for

convenience, the contractor will be paid for those services actually performed. Partially completed performance of the agreement will be compensated based upon a signed statement of completion to be submitted by the contractor, which shall itemize each element of performance.

III. **SPECIFICATIONS**

See the tabular specifications on the following pages for requirements in the following categories:

- A. Standards and Certifications – This section contains references to AWWA, NSF, ASTM, and other standards and certifications required to be met for the various products.
- B. Delivery Locations and Projected Annual Quantities – This section contains the name of the facility that may order and receive the chemical, and a projected quantity that is provided for reference only. Actual quantities will differ from the quantities provided, and some chemicals may not be ordered at all. Refer to the Delivery Locations table for facility addresses and contact information.
- C. Material Specifications – This section contains requirements for chemical concentrations, purities, exceptions to standards, and other specifics of the product to be delivered.
- D. Vendor Requirements – This section contains delivery requirements, submittal requirements, and other items incumbent upon the vendor to provide.
- E. Testing, Verification & Payment – This section contains verification methods for delivered quantities, labeling requirements, sampling and testing requirements and options, payment terms, and other related information.

Each numbered specification line item contains a field for “Comply” and one for “Exception”. Check the “Comply” field if the specification WILL BE complied with, without any exceptions. Check the “Exception” field if the specification WILL NOT BE complied with, and provide an attached explanation of the requested exception. Exceptions will be evaluated by Gwinnett County staff and may be cause for rejection of the bid if the exception will cause a performance issue or other unacceptable condition in the opinion of Gwinnett County staff.

ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used in the product specifications:

Abbreviations and Acronyms	
ARV	Air Release Valve
ASTM	ASTM International (formerly American Society for Testing & Materials)
AWWA	American Water Works Association
FMCSA	Federal Motor Carrier Safety Administration
FOB	Freight On Board (prepaid and allowed)
FP	Filter Plant (Water Production)
GCDWR	Gwinnett County Department of Water Resources
NSF	NSF International (formerly National Sanitation Foundation)
ppm	Parts per Million
PS	Pump Station (Water Reclamation)
SCADA	Supervisory Controls and Data Acquisition
SDS	Safety Data Sheets (formerly Material Safety Data Sheets or MSDS)
USDOT	United States Department of Transportation
WRC	Water Resources Center
WRF	Water Reclamation Facility

DELIVERY LOCATIONS

Delivery locations for products are listed on the following page. A contact person is identified, and is current at the time of this advertisement. Obtain updates from GCDWR as necessary throughout the contract duration.

Note: Vendors qualifying their bid by requiring minimum delivery orders may be deemed non-responsive.

Facility	Street Address	City	Contact Name	Contact Phone	Contact Email
Alcovy River PS	1344 Hwy 29	Lawrenceville	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Azalea ARV	Azalea Drive and Buford Drive	Lawrenceville	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Bailey Road PS	120 Hillside Bend Crossing	Lawrenceville	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Beaver Ruin PS	3530 Cruse Rd	Lawrenceville	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Brooks Road PS	1180 Brooks Rd	Lawrenceville	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Brookwood HS PS	1330 Holly Brook Rd	Snellville	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Campbell Road PS	1245 Misty Valley Court	Dacula	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Chandler Road PS	578 Leaflet Ives Dr.	Lawrenceville	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Crooked Creek WRF	6556 Plant Drive	Norcross	Matthew Green	678 376-6859	matthew.green@gwinnettcountry.com
Dacula Road PS	1183 Dacula Rd	Dacula	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
DWR Central Warehouse	684 Winder Highway	Lawrenceville	Charles Anschutz	678 376-7014	charles.anschutz@gwinnettcountry.com
F. Wayne Hill WRC	3320 Financial Center Way	Buford	Brandon Brown	678 376-2098	brandon.brown@gwinnettcountry.com
Fairmont PS	2505 Merrion Park	Dacula	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Hebron Church PS	190 Hebron Church Rd	Dacula	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Hog Mountain PS	2910 Old Fountain Rd	Dacula	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Ivy Creek PS	3320-C Financial CTR Way	Buford	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Jim Moore Road PS	3501 Jim Moore Rd	Dacula	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Lanier Filter Plant	2601 Buford Dam Road	Buford	Bill Defino	678 376-6804	bill.defino@gwinnettcountry.com
Level Creek PS	5138 Settles Bridge Rd.	Suwanee	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Lower Big Haynes PS	2680 Centerville Rosebud Rd	Loganville	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Mulberry PS	1575 Turtle Pond Drive	Dacula	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
N F Peachtree PS	6782 Cresent Drive	Norcross	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
N F Plantation PS	1359 Hillside Drive	Snellville	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
NBC PS	2735 Springdale Rd	Snellville	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
NCI PS	4858 River Hollow Run	Norcross	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Norris Lake PS	4298 McCord Livesey Rd	Lithonia	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Parker Woods 1 PS	1761 Plucketts Drive	Lilburn	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Patterson PS	152 Arnold Rd	Lawrenceville	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Shoal Creek Filter Plant	1755 Buford Dam Road	Buford	Al Sosebee	678 376-7104	al.sosebee@gwinnettcountry.com
Suwanee Creek PS	1758 Peachtree Ind. Blvd.	Suwanee	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Trotters Ridge PS	2888 Ross Rd	Snellville	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Wolf Creek PS	4511 Jones Bridge Road	Norcross	Jason McCants	678 376-4031	jason.mccants@gwinnettcountry.com
Yellow River WRF	858 Tom Smith Road	Lilburn	Ben Bagwell	678 376-6966	ben.bagwell@gwinnettcountry.com

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00. Requirements for All Chemicals and All Vendors		Comply	Exception
1	Standards and Certifications		
1.1	Follow specific requirements included herein for each chemical.		
2	Delivery Locations and Projected Annual Quantities		
2.1	Projected quantities are for reference only and are based on historical use, where data is available. Actual quantities will vary. Facilities will order chemicals at their discretion on an as-needed basis, depending on use and storage capabilities.		
2.2	Refer to the Delivery Locations table for addresses of each facility expected to receive chemicals.		
3	Material Specifications		
3.1	Follow specific requirements included herein for each chemical. Chemicals are generally intended for use in potable water treatment and wastewater reclamation.		
3.2	If product is specified to meet NSF 60, certify proof using an accredited certification organization in accordance with NSF/ANSI 60, Drinking Water Chemicals - Health Effects. Submit certification with bid.		
4	Vendor Requirements		
4.1	All prices are FOB destination, delivered to the locations included herein for each chemical. This means shipping is included in the bid amount and will not be charged separately. Also, the goods remain in the vendor's ownership until they are off-loaded at the destination.		
4.2	Where applicable, comply with USDOT FMCSA Regulations for transport of hazardous materials.		
4.3	Deliver chemicals between 8:00 am and 5:00 pm during normal business days only (no County holidays nor weekend deliveries).		
4.4	Clean up all spills that occur during delivery of chemicals. Notify facility personnel of any spills. Notify facility personnel if any chemical reaches a storm drain or other on-site conveyance system.		
4.5	If the bulk delivery truck's prior content was a chemical other than the one to be delivered, thoroughly clean out the truck's tank(s) and verify that no cross-contamination has occurred.		

Supplier Name _____

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00. Requirements for All Chemicals and All Vendors		Comply	Exception
4.6	Upon request of GCDWR facility staff, provide technical services not to exceed 8 manhours per chemical per location per year. Include technical services in bid prices. No separate payment for technical services will be made. Additional technical services may be required for certain chemicals. Any such additional services and compensation therefor will be called out for the applicable chemicals in their respective specifications.		
4.7	Upon initial delivery and once per year thereafter if the contract is extended, provide Safety Data Sheets for each chemical to each location where it will be delivered.		
4.8	When requested, provide samples of chemicals to be tested by GCDWR. Include cost of samples in the bid cost for chemicals. No separate payment for samples will be made. GCDWR will bear the cost of testing and analysis.		
4.9	Only the quantities ordered at each site will be accepted.		
4.10	Vendors qualifying their bid by requiring minimum delivery orders will be deemed non-responsive.		
4.11	Submit a list of three (3) references where purchase of comparable size and scope has been completed, listing customer name, address, brief description of project, and contact person name, email address, and phone number.		
4.12	Individuals, firms, and businesses seeking an award of a Gwinnett County contract may not initiate nor continue any verbal or written communications regarding a solicitation with any County officer, elected official, or employee or other County representative without permission of the Purchasing Associate named in the solicitation between the date of the issuance of the solicitation and the date of the final contract award by the Board of Commissioners. Violations will be reviewed by the Purchasing Director. If it is determined that such communication has occurred and has compromised the competitive process, the offer submitted by the individual, firm, or business may be disqualified from consideration of award.		
4.13	Indicate any requested exceptions to specifications by checking the appropriate box to the right of the specification. If the bidder intends to meet the specification, indicate this in the appropriate column ("Comply") to the right. If any requested exceptions are indicated in the columns to the right ("Exception") elaborate on the nature of the exception(s). Attach additional sheets as necessary to convey the details of all requested exceptions to these specifications. At the discretion of GCDWR, exceptions to the specifications may be cause for rejection of bids.		

Supplier Name _____

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00. Requirements for All Chemicals and All Vendors		Comply	Exception
5	Testing, Verification & Payment		
5.1	Follow specific requirements included herein for each chemical.		
5.2	Samples of delivered chemicals may be taken by GCDWR and analyzed at GCDWR expense. Shipments that do not meet specifications will be rejected, and all costs for shipment, analysis, and removal/clean-out of tanks and other equipment will be charged to the vendor.		
5.3	Obtain the signature of the attendant at the delivery site on the delivery ticket. Show the actual amount of product delivered on the delivery ticket. Invoice each delivery location separately.		
5.4	Provide the delivery driver's valid commercial driver's license to the attendant upon arrival to the delivery site. Provide current contact information for the dispatcher.		
5.5	Missing or damaged seals on tankers and containers may be cause for rejection of any delivery. In some cases, seal numbers will be required to be sent to the delivery location prior to shipment. Products with seal numbers not meeting this transmittal will be rejected.		
5.6	If any discrepancy exists between the delivery ticket(s) and the measured quantity by GCDWR (change in bulk tank level or net on-site weight) the measured quantity will be used for payment.		
5.7	Submit invoices at the awarded unit price(s) with signed receipt tickets showing the quantity received. Show date received, GCDWR order number and GCDWR contract number on the invoice.		

Supplier Name _____

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01. Liquid Sodium Hydroxide (Caustic Soda)		Comply	Exception
1	Standards and Certifications		
1.1	Meet AWWA B501-13 or latest revision if newer AWWA standard has been published.		
1.2	Provide certification following AWWA B501-13 Section 4.3.2 (or latest revision if newer AWWA standard has been published).		
2	Delivery Locations and Projected Annual Quantities		
2.1	F. Wayne Hill WRC - 122,000 gallons		
2.2	Yellow River WRF - 40,000 gallons		
2.3	Crooked Creek WRF - 6,000 gallons		
2.4	Alcovy River PS - 1,440 gallons		
2.5	Ivy Creek PS - 1,000 gallons		
2.6	Level Creek PS - 6,500 gallons		
2.7	NCI PS - 7,000 gallons		
3	Material Specifications		
3.1	Deliver bulk prepared liquid solution of 25% Sodium Hydroxide in water, standard (commercial or diaphragm) grade.		
3.2	Meet purity requirements of AWWA B501-13 Section 4.3.1 (or latest revision if newer AWWA standard has been published).		
4	Vendor Requirements		
4.1	Ship in bulk by manufacturer's tanker or a certified food grade carrier.		
4.2	Deliver product within 72 hours of order placement by GCDWR		
4.3	Deliveries may be greater or less than 500 gallons, depending on location and circumstances.		
4.4	Comply with USDOT FMCSA Regulations for transport of hazardous materials.		
4.5	Submit certified analysis including: Alkalinity as NaOH (%), Alkalinity as Na ₂ O (%), Sodium Carbonate as Na ₂ CO ₃ (%), Sodium Chloride as NaCl (%), Sodium Sulfate as Na ₂ SO ₄ (%), Iron as Fe (ppm), Arsenic (ppm), Nickel (ppm), and Copper (ppm).		
5	Testing, Verification & Payment		
5.1	Payment will be for gallons of solution received at each location.		
5.2	Review of certified analysis (see 4.4 above) by GCDWR.		
5.3	GCDWR will draw two (2) samples. First sample is to be tested at GCDWR Environmental Lab per AWWA B501-13 Section 5 (or latest revision if newer AWWA standard has been published). Second sample is to be used as back-up if first sample fails. Second sample to be sent to a referee lab agreed upon by both parties.		

Supplier Name _____

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02. Calcium Hypochlorite (dry)		Comply	Exception
1	Standards and Certifications		
1.1	Meet AWWA B300-10 or latest revision if newer AWWA standard has been published.		
1.2	Meet NSF-60. Submit proof of NSF certification.		
2	Delivery Locations and Projected Annual Quantities		
2.1	Shoal Creek FP - 20 100 lb. containers		
2.2	Lanier FP - 40 100 lb. containers		
2.3	F. Wayne Hill WRC - 100 100 lb. containers		
3	Material Specifications		
3.1	In lieu of AWWA B300-10 Section 4.2.2, meet the following product specifications: Dust Index (25.0 mg per 100 grams of sample), Available Chlorine (65.0 to 71.0% by weight), Water (5.5 to 8.5% by weight), Maximum Iron as Fe (0.05%), Maximum Percent Retained on 10 Mesh (5.0), Maximum Percent Retained on 14 Mesh (25.0), Maximum Percent Passing 60 Mesh (3.0).		
4	Vendor Requirements		
4.1	Ship by truck in 100 pound containers.		
4.2	Deliver product within 72 hours of order placement by GCDWR.		
4.3	Comply with USDOT FMCSA Regulations for transport of hazardous materials.		
4.4	Bid as U.S. dollars per 100 pound container, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.5	Include a chemical-resistant scoop with each container of product.		
4.6	Submit analysis including Dust Index, Available Chlorine, Water Content, Iron Content, and Seive Analysis.		
5	Testing, Verification & Payment		
5.1	Payment will be for units of 100 pound containers received at each location.		
5.2	Review of certified analysis (see 4.6 above) by GCDWR.		

Supplier Name _____

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03. Chlorine (Liquid)		Comply	Exception
1	Standards and Certifications		
1.1	Meet AWWA B301-10 or latest revision if newer AWWA standard has been published.		
1.2	Meet NSF-60. Submit proof of NSF certification.		
1.3	Provide certification following AWWA B301-10 (or latest revision if newer AWWA standard has been published) Section 5.3.1.		
1.4	Beyond AWWA B301-10, the vaporized Chlorine must be not less than 99.9% Cl ₂ (volume/volume). This 3-log requirement is to minimize particulate matter.		
1.5	Beyond AWWA B301-10, limit lead content to not more than 1 ppm.		
1.6	Beyond AWWA B301-10, limit moisture content to not more than 100 ppm.		
1.7	Beyond AWWA B301-10, limit residue on evaporation to not more than 100 ppm.		
1.8	Meet all safety guidelines and standards of the Chlorine Institute document "Chlorine Basics" (formerly the "Chlorine Manual") available from the Chlorine Institute online bookstore.		
1.9	Meet all Federal safety guidelines administered by OSHA.		
2	Delivery Locations and Projected Annual Quantities		
2.1	Shoal Creek FP - 180 one-ton containers		
2.2	Lanier FP - 270 one-ton containers		
3	Material Specifications		
3.1	Follow AWWA B301-10 (or latest revision if newer AWWA standard has been published) for all material specifications, with the exceptions above in 1.4 through 1.7.		
4	Vendor Requirements		
4.1	Ship by truck in standard one ton containers meeting US Code of Federal Regulations (CFR) DOT Class 106A500X or DOT Class 106A500W.		
4.2	Deliver product within 72 hours of order placement by GCDWR.		
4.3	Pick up empty containers as requested by GCDWR & maintain an inventory of containers such that full containers can be supplied without needing to pick up empty containers.		
4.4	Use only containers 5 years old or less. Provide certification of container age upon delivery.		
4.5	Use only valves that are not misaligned (bent) and are fully functional.		
4.6	Torque valves to the range recommended by the Chlorine Institute		
4.7	At the end of the contract period, pick up all containers & apply contract credit for all full containers.		

Supplier Name _____

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03. Chlorine (Liquid)		Comply	Exception
4.8	For security purposes, send a FAX 24 hours before delivery to Operations staff at the plant to receive the delivery. Include driver's name, copy of driver's license, and a list of all container identification numbers for verification upon delivery. See facility address list for FAX numbers.		
4.9	Comply with USDOT FMCSA Regulations for transport of hazardous materials.		
4.10	Bid as U.S. dollars per one ton container, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.11	Submit certified analysis including Moisture Content, Total Heavy Metals Content, Lead Content, Mercury Content, Arsenic Content, Nonvolatile Residue Content, Carbon Tetrachloride Content, and Trihalomethanes Content.		
5	Testing, Verification & Payment		
5.1	Payment will be for units of one ton containers received at each location.		
5.2	Review of certified analysis (see 4.11 above) by GCDWR.		
5.3	GCDWR will inspect container valves for compliance with AWWA and will label and reject any container not in compliance.		
5.4	GCDWR will label and reject any leaking container(s) at the time of delivery and will notify the regulatory agencies having jurisdiction over hazardous materials releases.		
5.5	Containers will be weighed after offloading, to verify the total tons of chlorine liquid delivered.		

Supplier Name _____

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04. Phosphate Corrosion Inhibitor		Comply	Exception
1	Standards and Certifications		
1.1	Meet NSF-60. Submit proof of NSF certification.		
1.2	Use only NSF-60 raw ingredients manufactured in the United States. Submit proof of raw material compliance at the time of bid. This additional requirement is included in an effort to minimize the presense of heavy metals comtamination.		
2	Delivery Locations and Projected Annual Quantities		
2.1	Shoal Creek FP - 44,000 gallons		
2.2	Lanier FP - 66,000 gallons		
3	Material Specifications		
3.1	Bids must be for solution strength of 36% or greater. Products having solution strength below the specified 36% total phosphate content will be deemed non-responsive, regardless of product performance claims.		
3.2	The product selected must acheive compliance with the USEPA Lead & Copper Rule by meeting a 90th percentile lead value of less than 10 ppb, at dosages of 1.6 ppm phosphate or less, as determined from analyses of Gwinnett’s established Lead/Copper sample protocol used in the water distribution system at the time of product use and subsequent sampling. Historically, dosages of the specified product of 1.2-1.6 ppm have resulted in compliance with the USEPA Lead & Copper Rule. Sampling and testing for USEPA Lead & Copper Rule compliance is by GCDWR at its sole expense.		
3.3	Prepare product using either a thermal reaction process or a blending process using monosodium phosphate and polyphosphates to achieve the 50/50 ortho/polyphosphate blend of 36% total phosphate. Products manufactured by dilution of phosphoric acid are not acceptable. Submit a short narrative describing the manufacturing process, including source and type of raw materials. GCDWR recognizes the proprietary nature of some manufacturing processes, and intends to hold all such information as confidential.		
3.4	Meet the following product specifications: Appearance (clear liquid), Turbidity (less than 2 NTU), Color (water white), Odor (none), Viscosity (less than 2 cP), Solubility (complete), Specific Gravity (1.38 +/- 0.02), Total Phosphate (36% as PO4 +/- 1%), Ortho/Polyphosphate Ratio (50/50), Orthophosphate (18% as PO4 +/- 1%), Polyphosphate (18% as PO4 +/- 1%), Density (11.4 lbs/gallon), pH (4.5-6.2), Chlorine Demand (none).		

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04. Phosphate Corrosion Inhibitor		Comply	Exception
4	Vendor Requirements		
4.1	Ship in bulk by manufacturer's tanker or a certified food grade carrier.		
4.2	Deliver product within 72 hours of order placement by GCDWR.		
4.3	For security purposes, send a FAX 24 hours before delivery to Operations staff at the plant to receive the delivery. Include driver's name, copy of driver's license, and a list of all security tags for verification upon delivery. See facility address list for FAX numbers.		
4.4	Submit certified analysis including viscosity, specific gravity, total phosphate, ortho/polyphosphate ratio, orthophosphate content, polyphosphate content, density, pH and chlorine demand.		
4.5	Bid as dollars per gallon, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.6	Allow product manufacturing plant visits by GCDWR staff for the purpose of verification of the manufacturing process and inspection of plant hygiene.		
4.7	Notify GCDWR of any change in content of product and/or method of manufacture before any re-formulated or alternatively manufactured product is delivered to the receiving site.		
5	Testing, Verification & Payment		
5.1	Payment will be for gallon units of solution received at each location.		
5.2	Review of certified analysis (see 4.4 above) by GCDWR.		
5.3	Delivered volume will be determined by dividing net weight by density per gallon of phosphate product. Payment will be made based on cost per gallon, based on Gwinnett County's onsite weight measurement.		

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05. Fluorosilicic Acid		Comply	Exception
1	Standards and Certifications		
1.1	Meet AWWA B703-11 or latest revision if newer AWWA standard has been published.		
1.2	Meet NSF-60. Submit proof of NSF certification.		
1.3	Provide certification that product meets specifications of AWWA B703-11 (or latest revision if newer AWWA standard has been published) Section 4.		
2	Delivery Locations and Projected Annual Quantities		
2.1	Shoal Creek FP - 23,000 gallons of solution		
2.3	Lanier FP - 34,000 gallons of solution		
3	Material Specifications		
3.1	Provide product at a nominal 23% concentration. Product having higher concentration will not be compensated for by paying a higher unit price. Meet Specific Gravity of 1.23 at 75 degrees F.		
3.2	Follow AWWA B703-11 (or latest revision if newer AWWA standard has been published) for all materials specifications.		
4	Vendor Requirements		
4.1	Ship in bulk by truck by manufacturer's tanker or a certified food grade carrier.		
4.2	Deliver product within 72 hours of order placement by GCDWR.		
4.3	For security purposes, send a FAX 24 hours before delivery to Operations staff at the plant to receive the delivery. Include driver's name, copy of driver's license, and a list of all security tags for verification upon delivery. See facility address list for FAX numbers.		
4.4	Comply with USDOT FMCSA Regulations for transport of hazardous materials.		
4.5	Bid as U.S. dollars per gallon of liquid, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.6	Submit certified analysis including Fluorosilicic Acid Content by Weight, Free Acid Content, and Color.		
5	Testing, Verification & Payment		
5.1	Payment will be for gallons of liquid received at each location.		
5.2	Review of certified analysis (see 4.6 above) by GCDWR.		
5.3	Chain of custody document review by GCDWR.		
5.4	Trucks will be weighed upon arrival and after offloading, to verify the total gallons of product delivered.		

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06. Liquid Calcium Hydroxide (Lime Slurry)		Comply	Exception
1	Standards and Certifications		
1.1	Meet AWWA B202-13 or latest revision if newer AWWA standard has been published.		
1.2	Meet NSF-60. Submit proof of NSF certification.		
1.3	Provide certification following AWWA B202-13 Section 4.3.2 (or latest revision if newer AWWA standard has been published).		
2	Delivery Locations and Projected Annual Quantities		
2.1	Shoal Creek FP - 1,900 units of 100 pounds		
2.2	Lanier FP - 3,000 units of 100 pounds		
3	Material Specifications		
3.1	Provide 30% stabilized aqueous Calcium Hydroxide suspension, microparticulated under high rotary fusion. Use no quicklime in the slurry manufacturing process. Use only finely ground air-classified hydrated lime for preparation of the slurry.		
3.2	Meet the following product specifications: Percent Passing 100 Mesh Screen (99.9%), Minimum CaOH by weight (30%), Maximum Inert Ingredients (70%), Appearance (liquid, white suspension), Odor (none), Solubility in Water (0.1 g/100g), Specific Gravity (1.19-1.23), pH of Saturated Solution at 25 degrees Celsius (12.4).		
3.3	Meet requirements of AWWA B202-13 Section 4.3 (or latest revision if newer AWWA standard has been published) for impurities.		
4	Vendor Requirements		
4.1	Ship in bulk by truck by manufacturer's tanker or a certified food grade carrier.		
4.2	Deliver product within 72 hours of order placement by GCDWR.		
4.3	Upon delivery, dilute product to 22 percent CaOH by weight. Follow GCDWR guidelines provided by plant operators, and use the Lime Dilution Table to determine volume of water needed to reach a 22 percent slurry.		
4.4	Maintain on-site tank and feed system from the tank to the feed pump to ensure no blockage. If visible build-up occurs in tank, tank mixing system or feed lines, clean these systems to restore proper operations.		
4.5	For security purposes, send a FAX 24 hours before delivery to Operations staff at the plant to receive the delivery. Include driver's name, copy of driver's license, and a list of all security tags for verification upon delivery. See facility address list for FAX numbers.		
4.6	Comply with USDOT FMCSA Regulations for transport of hazardous materials.		

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06. Liquid Calcium Hydroxide (Lime Slurry)		Comply	Exception
4.7	Bid as U.S. dollars per 100 pounds of liquid, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.8	Submit certified analysis including Percent Passing 100 Mesh Screen, CaOH Content by Weight, Inert Ingredients Content by Weight, Solubility in Water, Specific Gravity and pH of Saturated Solution at 25 Degrees Celsius.		
4.9	Certify that the manufacturing process meets 3.1 above.		
4.10	Allow product manufacturing plant visits by GCDWR staff for the purpose of verification of the manufacturing process and inspection of plant hygiene.		
5	Testing, Verification & Payment		
5.1	Payment will be for units of 100 pounds of liquid received at each location.		
5.2	Review of certified analysis (see 4.8 above) by GCDWR.		
5.3	Review of certification required in 4.9 above.		
5.4	GCDWR may conduct additional sieve analysis and other analyses and may conduct manufacturing plant visits at its discretion.		
5.5	Trucks will be weighed upon arrival and after offloading, to verify the total pounds of product delivered.		

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07. Liquid Ferric Chloride		Comply	Exception
1	Standards and Certifications		
1.1	Meet AWWA B407-12 or latest revision if newer AWWA standard has been published.		
1.2	Meet NSF-60. Submit proof of NSF certification.		
1.3	Provide certification following AWWA B407-12 Section 4.3.2. (or latest revision if newer AWWA standard has been published).		
2	Delivery Locations and Projected Annual Quantities		
2.1	Shoal Creek FP - 150 units of 100 gallons		
2.2	Lanier FP - 225 units of 100 gallons		
2.3	F. Wayne Hill WRC - 5,750 units of 100 gallons		
3	Material Specifications		
3.1	Meet the following product chemical specifications in lieu of AWWA B407-12 Section 4.2: FeCl ₃ Content (37.0-42.0%), Maximum FeCl ₂ Content (0.75%), Maximum Free Acid as HCL (3.5%), Maximum Insoluble Anhydrous Basis (0.5%), Appearance (dark brown liquid), Specific Gravity (1.38-1.49), Viscosity at 44 Degrees Fahrenheit (12.1 cP for 40% solution).		
4	Vendor Requirements		
4.1	Ship in bulk by manufacturer's tanker or a certified food grade carrier.		
4.2	Deliver product within 48 hours of order placement by GCDWR.		
4.3	For security purposes, send a FAX 24 hours before delivery to Operations staff at the plant to receive the delivery. Include driver's name, copy of driver's license, and a list of all security tags for verification upon delivery. See facility address list for FAX numbers.		
4.4	Comply with USDOT FMCSA Regulations for transport of hazardous materials.		
4.5	Bid as U.S. dollars per 100 gallons of liquid, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.6	Submit certified analysis including FeCl ₃ Content, FeCl ₂ Content, Free Acid as HCL Content, Insoluble Anhydrous Basis Content, Specific Gravity, and Viscosity.		
5	Testing, Verification & Payment		
5.1	Payment will be for each 100 gallon unit of liquid received at each location.		
5.2	Review of certified analysis (see 4.6 above) by GCDWR.		
5.3	Trucks will be weighed upon arrival and after offloading, to verify the total pounds of product delivered. Pounds will be converted to units of 100 gallons for payment.		

Supplier Name _____

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08. Liquid Oxygen (LOX)		Comply	Exception
1	Standards and Certifications		
1.1	Meet AWWA B304-13 or latest revision if newer AWWA standard has been published.		
1.2	Meet NSF-60. Submit proof of NSF certification.		
2	Delivery Locations and Projected Annual Quantities		
2.1	Shoal Creek FP - 280,000 units of 100 cubic feet		
2.2	Lanier FP - 250,000 units of 100 cubic feet		
2.3	F. Wayne Hill WRC - 700,000 units of 100 cubic feet		
3	Material Specifications		
3.1	Meet the following product specifications: Purity (99.5% Oxygen by volume), Dewpoint (-80 degrees F), Hydrocarbon Content (less than 20 ppm).		
4	Vendor Requirements		
4.1	Ship in bulk by manufacturer's tanker.		
4.2	Deliver product within 48 hours of order placement by GCDWR.		
4.3	Comply with USDOT FMCSA Regulations for transport of hazardous materials.		
4.4	Bid as U.S. dollars per 100 cubic feet, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.5	Submit certified analysis including purity (Oxygen by volume), dewpoint, and hydrocarbon content.		
4.6	Provide LOX equipment (from the tanks to the ozone generators, and including filters maintenance services on a time and materials basis as defined in the bid form. Response time for routine (non-emergency) maintenance is defined as no greater than 72 hours. Response time of greater than 72 hours for a routine maintenance call will be cause for contract termination. Response time for emergency maintenance is 4 hours or less. If actual response time for an emergency maintenance call exceeds 4 hours, payment will be made at the routine maintenance rate, and will be cause for contract termination.		
4.7	Provide an annual inspection of all LOX equipment and a report detailing any deficiencies found.		
5	Testing, Verification & Payment		
5.1	Payment will be for units of hundreds of cubic feet of liquid received at each location, as verified by a certified liquid meter ticket. See the bid form for pay items related to time-and-materials charges for emergency and non-emergency maintenance services.		
5.2	Review of certified analysis (see 4.5 above) by GCDWR.		

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09. Liquid Nitrogen		Comply	Exception
1	Standards and Certifications		
1.1	Meet NSF-60. Submit proof of NSF certification.		
2	Delivery Locations and Projected Annual Quantities		
2.1	Shoal Creek FP - 5,000 liters		
2.2	Lanier FP - 10,000 liters		
2.3	F. Wayne Hill WRC - 49,000 liters		
3	Material Specifications		
3.1	Meet the following product specifications: Appearance (colorless, odorless, cryogenic liquid), Specific Volume (13.81 cubic feet per pound at 70 degrees F), Boiling Point (minus 320.44 degrees F), Purity (99.998% pure), Oxygen Content (less than or equal to 10 ppm), Water Content (less than or equal to 4 ppm), Dew Point (minus 90 degrees F).		
4	Vendor Requirements		
4.1	Ship in bulk by manufacturer's truck, with tank.		
4.2	Deliver product within 48 hours of order placement by GCDWR.		
4.3	Comply with USDOT FMCSA Regulations for transport of hazardous materials.		
4.4	Bid as U.S. dollars per liter, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.5	Submit certified analysis including specific volume, boiling point, purity, oxygen content, water content and dew point.		
4.6	Provide maintenance services on Liquid Nitrogen equipment (from the tank to the connection at the Oxygen gas line) on a time and materials basis as defined in the bid form. Response time for routine (non-emergency) maintenance is defined as no greater than 72 hours. Response time of greater than 72 hours for a routine maintenance call will be cause for contract termination. Response time for emergency maintenance is 4 hours or less. If actual response time for an emergency maintenance call exceeds 4 hours, payment will be made at the routine maintenance rate, and will be cause for contract termination.		
4.7	Provide an annual inspection of all Liquid Nitrogen equipment and a report detailing any deficiencies found.		

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09. Liquid Nitrogen		Comply	Exception
5	Testing, Verification & Payment		
5.1	Payment will be for liters of liquid received at each location, as verified by a certified liquid meter ticket. See the bid form for pay items related to time-and-materials charges for emergency and non-emergency maintenance services.		
5.2	Review of certified analysis (see 4.5 above) by GCDWR.		

10. Hydrochloric Acid 10% (bulk)		Comply	Exception
1	Standards and Certifications		
1.1	Meet ASTM Standard E 1146 or latest revision if newer ASTM standard has been published.		
2	Historic Annual Quantities and Delivery Locations		
2.1	Lanier FP - 250 gallons		
3	Material Specifications		
3.1	Deliver bulk prepared liquid solution of 10% (by weight) Hydrochloric Acid, food grade.		
3.2	Total acidity as HCl percent by mass = 10%		
4	Vendor Requirements		
4.1	Ship in bulk by manufacturer's tanker or a certified food grade carrier.		
4.2	Comply with USDOT FMCSA Regulations for transport of hazardous materials.		
4.3	Submit certified analysis including percent HCl by mass.		
5	Testing, Verification & Payment		
5.1	Payment will be for gallons of solution received at each location.		
5.2	Review of certified analysis (see 4.3 above) by GCDWR.		

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11. Calcium Nitrate		Comply	Exception
1	Standards and Certifications		
1.1	None specified.		
2	Delivery Locations and Projected Annual Quantities		
2.1	Yellow River WRF - 55,000 gallons		
2.2	Bailey Rd PS - 21,000 gallons *		
2.3	Brookwood HS PS - 12,250 gallons		
2.4	Campbell Rd PS - 6,500 gallons		
2.5	Chandler Rd PS - 21,000 gallons *		
2.6	Dacula Rd PS - 15,500 gallons		
2.7	Fairmont PS - 15,500 gallons		
2.8	Hog Mountain PS - 12,250 gallons		
2.9	Hebron Church PS - 4,000 gallons		
2.10	Jim Moore Road PS - 10,000 gallons		
2.11	Mulberry PS - 25,000 gallons		
2.12	NBC PS - 144,000 gallons		
2.13	NCI PS - 29,000 gallons		
2.14	Northforke Peachtree PS - 58,000 gallons		
2.15	Northforke Plantation PS - 4,500 gallons		
2.16	Trotters Ridge PS - 10,000 gallons		
2.17	Wolf Creek PS - 35,000 gallons *		
3	Material Specifications		
3.1	Meet the following chemical formula specification: $\text{Ca}(\text{NO}_3)_2 \cdot 4\text{H}_2\text{O}$ OR		
3.2	Meet the following chemical formula specification: $\text{NH}_4\text{NO}_3 \cdot 5\text{Ca}(\text{NO}_3)_2 \cdot 10\text{H}_2\text{O}$.		
3.3	Meet the following chemical properties specifications: Minimum Concentration (60.0%), Nitrate Oxygen ($\text{NO}_3\text{-O}$) content (3.2 pounds per gallon), pH (4.0-6.0), Freezing Point (-4 degrees F).		
4	Vendor Requirements		
4.1	Ship in bulk by truck by manufacturer's tanker or a certified food grade carrier.		
4.2	Locations indicated by an asterisk (*) above are not accessible by full size tanker truck and must be accessed by trucks with maximum length of 27 feet. Tank size and usage limitations may dictate deliveries of less than full tanker loads.		
4.3	Deliver product within 72 hours of order placement by GCDWR.		

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11. Calcium Nitrate		Comply	Exception
4.4	Manufacture in a facility that complies with ISO 9001 - Quality Management System.		
4.5	Comply with USDOT FMCSA Regulations for transport of hazardous materials.		
4.6	Bid as U.S. dollars per gallon of liquid, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.7	Submit certified analysis including chemical formula, concentration, Nitrate Oxygen content, pH, and freezing point.		
4.8	Sample and test at existing feed locations as requested by GCDWR and recommend changes to feed rate in order to optimize efficiency of chemical usage and protection of the collection system. Collect and test a minimum of two (2) samples at the dose point (typically the wet well) and two (2) samples at the control point (typically the force main discharge manhole) every month. Test for pH, temperature, nitrate residual, and total sulfide. Measure and record atmospheric hydrogen sulfide levels at 15 minute intervals at each dose and control point for a minimum of 24 hours each month. Furnish, install and uninstall an Odalog gas meter manufactured by App-Tek to comply with the above Hydrogen Sulfide testing protocol.		
4.9	Provide a monthly written report including all data collected, dosing rates, service activity and dosing rate recommendations. Submit reports in PDF format.		
4.10	If modifications to existing equipment are needed to accommodate a particular bidder, include costs to modify equipment in the bid price per pound of Calcium Nitrate.		
4.11	GCDWR will supply any required chemical containment and 480V 3-phase electrical power with minimum current of 30 amps within 100 feet of equipment locations.		
4.12	GCDWR will supply potable water with minimum pressure of 40 psi from a minimum 3/4 inch source within 100 feet of equipment locations.		
4.13	New locations will be added at the discretion of GCDWR. The number of new locations is unknown and may vary from zero to the maximum number allowed by contract and funding limitations.		
5	Testing, Verification & Payment		
5.1	Payment will be for gallons of product received at each location. Measure using EPA Method 300.		
5.2	Review of certified analysis (see 4.7 above) by GCDWR.		
5.3	Trucks tickets and tank levels will be used to verify the total gallons of product delivered.		

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12A. Calcium Oxide (Quicklime - bulk)		Comply	Exception
1	Standards and Certifications		
1.1	Meet AWWA B202-13 or latest revision if newer AWWA standard has been published.		
1.2	Provide certification following AWWA B202-13 Section 4.3.2 (or latest revision if newer AWWA standard has been published).		
2	Delivery Locations and Projected Annual Quantities		
2.1	Yellow River WRF - 1,000 tons		
3	Material Specifications		
3.1	Provide pebble quicklime in bulk form.		
3.2	Meet the following product specifications: Available CaO (90% minimum by weight), MgO (3% minimum by weight), Residue (5% maximum).		
3.3	Meet requirements of AWWA B202-13 Section 4.3 (or latest revision if newer AWWA standard has been published) for impurities.		
4	Vendor Requirements		
4.1	Ship in bulk by truck by manufacturer's tanker or a certified food grade carrier.		
4.2	Deliver product within 72 hours of order placement by GCDWR.		
4.3	Blow product into the plant silo(s) at a rate that is compatible with the silo feed system. Blowing at a rate too high or too low will result in stoppage of the feed system and will result in delay to the delivery of product.		
4.4	Bid as U.S. dollars per ton of product, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.5	Submit certified analysis including Available CaO, MgO content and residue content.		
4.6	Allow product manufacturing plant visits by GCDWR staff for the purpose of verification of the manufacturing process and inspection of plant hygiene.		
5	Testing, Verification & Payment		
5.1	Payment will be for tons of product received at each location.		
5.2	Review of certified analysis (see 4.5 above) by GCDWR.		
5.3	GCDWR may conduct additional sieve analysis and other analyses and may conduct manufacturing plant visits at its discretion.		
5.4	Trucks will be weighed upon arrival and after offloading, to verify the total tons of product delivered.		

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12B. Calcium Hydroxide (Hydrated Lime - bags)		Comply	Exception
1	Standards and Certifications		
1.1	Meet AWWA B202-13 or latest revision if newer AWWA standard has been published.		
1.2	Provide certification following AWWA B202-13 Section 4.3.2 (or latest revision if newer AWWA standard has been published).		
2	Delivery Locations and Projected Annual Quantities		
2.1	F. Wayne Hill WRC - 50 50 pound bags		
2.2	Crooked Creek WRF - 50 50 pound bags		
3	Material Specifications		
3.1	Provide hydrated lime in 50 pound bags.		
3.2	Meet the following product specifications: Available CaO (62% minimum by weight, equivalent to 62% calcium hydroxide).		
3.3	Meet requirements of AWWA B202-13 Section 4.3 (or latest revision if newer AWWA standard has been published) for impurities.		
4	Vendor Requirements		
4.1	Ship in bags by manufacturer's truck.		
4.2	Deliver product within 72 hours of order placement by GCDWR.		
4.3	Bid as U.S. dollars per 50 pound bags of product, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.4	Submit analysis including Available CaO.		
4.5	Allow product manufacturing plant visits by GCDWR staff for the purpose of verification of the manufacturing process and inspection of plant hygiene.		
5	Testing, Verification & Payment		
5.1	Payment will be for 50 pound bags of product received at each location.		
5.2	Review of certified analysis (see 4.4 above) by GCDWR.		
5.3	GCDWR may conduct additional sieve analysis and other analyses and may conduct manufacturing plant visits at its discretion.		
5.4	Chain of custody document review by GCDWR.		

Supplier Name _____

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13. Liquid Alum (Aluminum Sulfate)		Comply	Exception
1	Standards and Certifications		
1.1	Meet AWWA B403-09 or latest revision if newer AWWA standard has been published.		
1.2	Provide an affidavit of compliance following AWWA B403-09 Section 6.3 (or latest revision if newer AWWA standard has been published).		
2	Delivery Locations and Projected Annual Quantities		
2.1	F. Wayne Hill WRC - 220,000 gallons		
2.2	Yellow River WRF - 200,000 gallons		
2.3	Crooked Creek WRF - 240,000 gallons		
3	Material Specifications		
3.1	Meet all standards of AWWA B403-09 Section 4 (or latest revision if newer AWWA standard has been published) including physical requirements for liquid aluminum sulfate, chemical requirements, and limitations on impurities.		
3.2	Provide product within a pH range of 1.8 to 2.4 at 20 degrees C.		
3.3	Deliver product at a minimum of 100 degrees F.		
4	Vendor Requirements		
4.1	Ship in bulk by truck by manufacturer's tanker or a certified food grade carrier.		
4.2	Deliver product within 72 hours of order placement by GCDWR.		
4.3	Comply with USDOT FMCSA Regulations for transport of hazardous materials.		
4.4	Bid as U.S. dollars per gallons of liquid, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.5	Submit certified analysis including aluminum content, pH, water-insoluble matter content, and water-soluble iron content.		
4.6	Provide a chart showing percentage of aluminum as Al or Al ₂ O ₃ for solutions of varying specific gravity readings.		
5	Testing, Verification & Payment		
5.1	Payment will be for gallons of liquid received at each location.		
5.2	Review of certified analysis (see 4.5 above) by GCDWR.		
5.3	Sampling and testing in accordance with AWWA B403-09 (or latest revision if newer AWWA standard has been published).		
5.4	Trucks will be weighed upon arrival and after offloading, to verify the total gallons of product delivered. In some cases, tank levels or truck tickets may be used instead.		

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14. Liquid Magnesium Hydroxide		Comply	Exception
1	Standards and Certifications		
1.1	Certify that all raw materials used in the manufacture of the Magnesium Hydroxide slurry product originate in the United States.		
2	Delivery Locations and Projected Annual Quantities		
2.1	F. Wayne Hill WRC - 120,000 gallons		
2.2	Crooked Creek WRF - 150,000 gallons		
2.3	Alcovy River PS - 130,000 gallons		
2.4	Bailey Road PS - 10,000 gallons		
2.5	Beaver Ruin PS - 170,000 gallons		
2.6	Brooks Road PS - 125,000 gallons		
2.7	Level Creek PS - 105,000 gallons		
2.8	Lower Big Haynes PS - 115,000 gallons		
2.9	NF Peachtree PS - 10,000 gallons		
2.10	Patterson PS - 40,000 gallons		
2.11	Suwanee Creek PS - 60,000 gallons		
3	Material Specifications		
3.1	Provide Magnesium Hydroxide slurry in potable water with between 53% and 65% solids content. To form the slurry, use dry Magnesium Hydroxide having 98.0% Mg OH by weight with a gradation of at least 99% passing a 325 mesh US Standard sieve.		
3.2	Use only Magnesium Hydroxide raw ingredients that originate in the United States.		
4	Vendor Requirements		
4.1	Ship in bulk by truck by manufacturer's tanker or a certified food grade carrier.		
4.2	Deliver product within 48 hours of order placement by GCDWR.		
4.3	GCDWR will supply any required chemical containment and 480V 3-phase electrical power with minimum current of 30 amps within 100 feet of equipment locations.		
4.4	GCDWR will supply potable water with minimum pressure of 40 psi from a minimum 3/4 inch source within 100 feet of equipment locations.		
4.5	Comply with USDOT FMCSA Regulations for transport of hazardous materials.		
4.6	Bid as U.S. dollars per gallon of liquid, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		

Supplier Name _____

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14. Liquid Magnesium Hydroxide		Comply	Exception
4.7	Submit certified analysis including solids content, Mg OH content by weight and sieve analysis of dry material used in slurry production.		
4.8	Allow product manufacturing plant visits by GCDWR staff for the purpose of verification of the manufacturing process and inspection of plant hygiene.		
5	Testing, Verification & Payment		
5.1	Payment will be for gallons of liquid received at each location.		
5.2	Review of certified analysis (see 4.7 above) by GCDWR.		
5.3	GCDWR may conduct additional sieve analysis and other analyses and may conduct manufacturing plant visits at its discretion.		
5.5	Trucks will be weighed upon arrival and after offloading, to verify the total gallons of product delivered. In some cases, tank levels or truck tickets may be used instead.		

Supplier Name _____

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15. Hydrochloric Acid (55 gal drum)		Comply	Exception
1	Standards and Certifications		
1.1	Meet ASTM Standard E 1146 or latest revision if newer ASTM standard has been published.		
2	Delivery Locations and Projected Annual Quantities		
2.1	F. Wayne Hill WRC - 5 55 gallon drums		
2.2	Yellow River WRF - 18 55 gallon drums		
2.3	Alcovy River PS - 1 55 gallon drum		
2.4	Ivy Creek PS - 1 55 gallon drum		
2.5	Level Creek PS - 6 55 gallon drums		
2.6	NCI PS - 1 55 gallon drum		
3	Material Specifications		
3.1	Deliver prepared liquid solution of 32% by weight Hydrochloric Acid.		
3.2	Total acidity as HCl percent by mass = 32%.		
4	Vendor Requirements		
4.1	Ship by truck in 55 gallon drums.		
4.2	Deliver product within 72 hours of order placement by GCDWR.		
4.3	Comply with USDOT FMCSA Regulations for transport of hazardous materials.		
4.4	Bid as U.S. dollars per 55 gallon drum, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.5	Submit certified analysis including percent HCl by mass.		
4.6	Used drums remain the property of the vendor. Pick up all empty drums at the delivery location. Include cost of pick up and disposal in the unit price bid for product.		
5	Testing, Verification & Payment		
5.1	Payment will be for units of 55 gallon drums received at each location.		
5.2	Review of certified analysis (see 4.5 above) by GCDWR.		

Supplier Name _____

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16A. Sodium Hypochlorite (bulk liquid 12.5%)		Comply	Exception
1	Standards and Certifications		
1.1	Meet AWWA B300-10 or latest revision if newer AWWA standard has been published.		
1.2	Provide certification following AWWA B300-10 Section 4.4.2 (or latest revision if newer AWWA standard has been published).		
2	Delivery Locations and Projected Annual Quantities		
2.1	F. Wayne Hill WRC - 320,000 gallons		
2.2	Yellow River WRF - 80,000 gallons		
2.3	Crooked Creek WRF - 5,000 gallons		
2.4	Alcovy River PS - 1,500 gallons		
2.5	Ivy Creek PS - 500 gallons		
2.6	Level Creek PS - 7,500 gallons		
2.7	NCI PS - 6,500 gallons		
3	Material Specifications		
3.1	Meet the physical requirements of AWWA B300-10 Section 4.2.3 (or latest revision if newer AWWA standard has been published).		
3.2	Meet the chemical requirements of AWWA B300-10 Section 4.3.3 (or latest revision if newer AWWA standard has been published).		
3.3	Meet the impurities and product certification requirements of AWWA B300-10 Section 4.4 (or latest revision if newer AWWA standard has been published).		
4	Vendor Requirements		
4.1	Ship in bulk by truck by manufacturer's tanker or a certified food grade carrier.		
4.2	Deliver product within 72 hours of order placement by GCDWR.		
4.3	Comply with USDOT FMCSA Regulations for transport of hazardous materials.		
4.4	Bid as U.S. dollars per gallon of liquid, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.5	Submit certified analysis including insoluble matter by weight (percent), available chlorine (grams per liter), and total free alkali expressed as NaOH (percent by weight).		
4.6	At the Yellow River WRF location, delivery may be split into two locations on the plant site. No separate or additional payment will be made for split load deliveries.		

Supplier Name _____

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16A. Sodium Hypochlorite (bulk liquid 12.5%)		Comply	Exception
5	Testing, Verification & Payment		
5.1	Payment will be for gallons of liquid received at each location.		
5.2	Review of certified analysis (see 4.5 above) by GCDWR.		
5.3	Trucks will be weighed upon arrival and after offloading, to verify the total gallons of product delivered. In some cases, tank levels or truck tickets may be used instead.		

16B. Sodium Hypochlorite (55 gallon drum liquid 12.5%)		Comply	Exception
1	Standards and Certifications		
1.1	Meet AWWA B300-10 (or latest revision if newer AWWA standard has been published).		
1.2	Meet NSF-60. Submit proof of NSF certification.		
1.3	Provide certification following AWWA B300-10 Section 4.4.2 (or latest revision if newer AWWA standard has been published).		
2	Delivery Locations and Projected Annual Quantities		
2.2	DWR Central Warehouse - 10 drums		
3	Material Specifications		
3.1	Meet the physical requirements of AWWA B300-10 Section 4.2.3 (or latest revision if newer AWWA standard has been published).		
3.2	Meet the chemical requirements of AWWA B300-10 Section 4.3.3 (or latest revision if newer AWWA standard has been published).		
3.3	Meet the impurities and product certification requirements of AWWA B300-10 Section 4.4 (or latest revision if newer AWWA standard has been published).		
4	Vendor Requirements		
4.1	Ship in 55 gallon drums by truck.		
4.2	Deliver product within 48 hours of order placement by GCDWR.		
4.3	Comply with USDOT FMCSA Regulations for transport of hazardous materials.		
4.4	Bid as U.S. dollars per 55 gallon drum of liquid, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.5	Submit analysis including insoluble matter by weight (percent), available chlorine (grams per liter), and total free alkali expressed as NaOH (percent by weight).		
5	Testing, Verification & Payment		
5.1	Payment will be for each 55 gallon drum of liquid received at each location.		
5.2	Review of certified analysis (see 4.5 above) by GCDWR.		

Supplier Name _____

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17. Rock Salt (Sodium Chloride)		Comply	Exception
1	Standards and Certifications		
1.1	None Specified.		
2	Delivery Locations and Projected Annual Quantities		
2.1	DWR Central - 3,200 pounds		
3	Material Specifications		
3.1	Provide industrial grade (not food grade) sodium chloride, coarse.		
4	Vendor Requirements		
4.1	Ship by truck in 80 pound bags.		
4.2	Deliver product within 48 hours of order placement by GCDWR.		
4.3	Bid as U.S. dollars per pound, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
5	Testing, Verification & Payment		
5.1	Payment will be for pounds of product received at each location.		

18. Sulfamic Acid (dry)		Comply	Exception
1	Standards and Certifications		
1.1	None specified.		
2	Delivery Locations and Projected Annual Quantities		
2.1	F. Wayne Hill WRC - 200 50 pound bags		
2.2	Yellow River WRF - 50 50 pound bags		
3	Material Specifications		
3.1	Provide industrial grade 99.5% by weight Sulfamic Acid.		
4	Vendor Requirements		
4.1	Ship by truck in 50 pound bags.		
4.2	Deliver product within 72 hours of order placement by GCDWR.		
4.3	Bid as U.S. dollars per 50 pound bag, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
5	Testing, Verification & Payment		
5.1	Payment will be for units of 50 pound bags of product received at each location.		

Supplier Name _____

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19A. Carbon (bulk - 55 gallon drum)		Comply	Exception
1	Standards and Certifications		
1.1	None specified.		
2	Delivery Locations and Projected Annual Quantities		
2.1	DWR Central - 12 55 gallon drums		
3	Material Specifications		
3.1	Provide 4x8 pellet virgin high capacity activated carbon media, not impregnated with any caustic solution.		
3.2	Meet the following product specifications: Minimum H2S Breakthrough Capacity (0.22 g/cc), Density (0.43 - 0.52 grams per cc), Maximum Carbon Tetrachloride Activity (60%), Minimum Hardness Number (95), Maximum Ash Content (5% by weight).		
4	Vendor Requirements		
4.1	Ship by truck in containers rated for this material.		
4.2	Deliver product within 72 hours of order placement by GCDWR.		
4.3	Bid as U.S. dollars per 55 gallon drum, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
5	Testing, Verification & Payment		
5.1	Payment will be for units of 55 gallon drums of product received at each location.		

Supplier Name _____

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19B. Carbon (bulk - 1,100 lb. super sack)		Comply	Exception
1	Standards and Certifications		
1.1	None specified.		
2	Delivery Locations and Projected Annual Quantities		
2.1	Brooks Rd PS - 1 1,000 pound super sack		
2.2	Dacula Rd PS - 1 1,000 pound super sack		
2.3	Norris Lake PS - 1 1,000 pound super sack		
2.4	Suwanee Creek PS - 1 1,000 pound super sack		
2.5	Wolf Creek PS - 1 1,000 pound super sack		
3	Material Specifications		
3.1	Provide 4x8 pellet virgin high capacity activated carbon media, not impregnated with any caustic solution.		
3.2	Meet the following product specifications: Minimum H2S Breakthrough Capacity (0.22 g/cc), Density (0.43 - 0.52 grams per cc), Maximum Carbon Tetrachloride Activity (60%), Minimum Hardness Number (95), Maximum Ash Content (5% by weight).		
4	Vendor Requirements		
4.1	Ship by truck in containers rated for this material.		
4.2	Deliver product within 72 hours of order placement by GCDWR.		
4.3	Bid as U.S. dollars per pound, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
5	Testing, Verification & Payment		
5.1	Payment will be for pounds of product received at each location.		

Supplier Name _____

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20. Carbon (canister)		Comply	Exception
1	Standards and Certifications		
1.1	None specified		
2	Delivery Locations and Projected Annual Quantities		
2.1	DWR Central - 20 12 lb. canisters		
2.2	DWR Central - 32 30 lb. canisters		
2.3	DWR Central - 12 50 lb. canisters		
3	Material Specifications		
3.1	Provide canisters for Wager 1800 and Wager 2050 Vent Scrubbers (Wager Part #OCI-1800 12 lb., Wager Part #OCI-2050 30 lb., and Wager Part #OCI-2050-50 50 lb.).		
4	Vendor Requirements		
4.1	Ship by truck in containers rated for this product.		
4.2	Deliver product within 72 hours of order placement by GCDWR.		
4.3	Bid as U.S. dollars per canister of each type, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
5	Testing, Verification & Payment		
5.1	Payment will be for numbers of canisters of each type received at each location.		

Supplier Name _____

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21. Iron Sponge Filter Media		Comply	Exception
1	Standards and Certifications		
1.1	None specified.		
2	Delivery Locations and Projected Annual Quantities		
2.1	F. Wayne Hill WRC - Complete media replacement approximately once every 1 to 3 years.		
3	Material Specifications		
3.1	Provide Iron Sponge Filter Media (Fe ₂ O ₃ deposited on wood shavings) approximately 48-54 pounds per CF in place total, with 15-18 pounds per CF of Fe ₂ O ₃ in place .		
3.2	Meet the following product specifications: Moisture Content (40-50 % by weight), pH (approximately 8-10), Percent Weight of Fe ₂ O ₃ in dry (50-65%).		
4	Vendor Requirements		
4.1	Ship by truck in containers rated for this product.		
4.2	Deliver product within 48 hours of order placement by GCDWR.		
4.3	Bid as U.S. dollars per complete sponge media replacement as specified, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places. Price includes proper removal, handling and disposal of spent media.		
4.4	Provide analysis including weight per CF in place, weight per CF of Fe ₂ O ₃ in place, percent moisture by weight, pH.		
4.5	Refer to the included filter equipment vendor information for guidance on media replacement.		
4.6	Refer to the included media vendor handling and disposal information for guidance on handling and disposal of spent media.		
4.7	Refer to the attached Iron Sponge Filter Media Replacement Scope of Work for additional details on the required work.		
4.8	Be advised there are 2 filtration vessels at the filter location. Each unit is 10 feet in diameter with a 5 foot deep bed of media. There is approximately 375 CF of media in each unit, weighing approximately 19,000 pounds each unit.		
5	Testing, Verification & Payment		
5.1	Payment will be for each complete sponge media replacement at F. Wayne Hill WRC.		
5.2	Review of certified analysis (see 4.4 above).		

Supplier Name _____

MARCAB COMPANY, INC.

**OPERATIONS AND MAINTENANCE
INSTRUCTIONS**

for

MARCAB GAS SCRUBBERS

for

F. Wayne Hill WRF

Submitted to:
Crowder Construction Company

***Failure to adhere to the procedures set forth in this
manual may result in system failure or injury.**

SECTION I

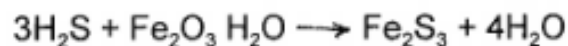
INTRODUCTION

DESCRIPTION: MARCAB Digester Gas Scrubbers are designed to remove odorous, corrosive, and harmful hydrogen sulfide and hydrogen sulfide mercaptans from an anaerobic gas stream.

The MARCAB Digester Gas Scrubber System consists of individual units containing loosely packed hydrated iron oxide impregnated wood chip substrate, known as "Iron Sponge". A catwalk with ladder has been provided between the two units to provide easier access to the top of the units. Hydrated iron oxide is found in nature as brown iron ore (limonite) and is not toxic or harmful. The media has been treated with an alkaline material such as soda ash (sodium carbonate) to hold the pH at 7.5 or above. This alkaline material can be an irritant to the skin or eyes and should be handled with proper protection.

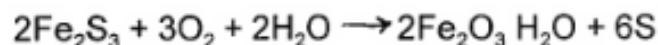
MARCAB has also provided a Drager Testing Kit for H₂S sampling, as well as Dwyer Model 1230-16 Pressure Gauges for measuring pressure drop across the system.

The MARCAB Gas Scrubber system removes hydrogen sulfide from a gas stream by reaction of the hydrogen sulfide with hydrated iron oxide in a moist alkaline environment. Hydrogen sulfide is removed from the gas stream by combining with hydrated iron oxide to form ferric sulfide. This reaction is illustrated by the formula:



Each scrubber is capable of handling the maximum flow of 400 cfm on its own, and this system has been designed for a total average gas flow of 600 scfm. At an average of 600 scfm and 300 ppm hydrogen sulfide, this system will provide a minimum of one (1) year of service prior to media replacement.

Once the media becomes spent, it can be regenerated through the introduction of air and water. This is illustrated by the formula:



After two such regenerations, the amount of elemental sulfur on the media requires that the media be replaced.

CONSTRUCTION: The MARCAB Gas Scrubber vessels are fabricated of 1/4" thick ASTM A36 steel plate. The interior of the vessel is coated with a Tnemec Epoxy to protect the vessel from corrosion(See Section IX). The exterior of the units has been primed with Tnemec Series 65 (See Section IX), and are to receive their final coat on-site by the Contractor. A 1" coupling in the lid with a spray head attached on the interior provides a port for water and buffering solution addition. The entire cover of the vessel is removable for replacement of the media. The media is supported by FRP grating covered with a high-density polyethylene screen. The manway and lid are provided with a neoprene gasket suited for exposure to hydrogen sulfide and both are fastened with stainless steel nuts, bolts and washers.

Care should be taken whenever working within the vessels to insure that the coating is not damaged as this could possibly expose the metal to a corrosive environment. If damaged during regeneration or replacement of the media, the coating should be touched-up or repaired.

SECTION II

START-UP

INSTALLATION: The scrubbers have four legs, each of which has a 12" x 12" footpad with four 5/8" bolt holes for receiving 1/2" Expansion Bolts. Place units in desired location on pad and fasten down using 1/2" Anchor Bolts.

The drainage and regeneration piping has been shipped partially assembled, and will need to be reassembled at time of installation (See drawing in Section I for description). The drain line should be piped from the continuous drain assembly to a plant drain. Any hard-piped water line brought to the lids of the vessels will have to have provision for removal of the lids (ie. unions or quick-disconnects).

The Dwyer pressure gauges will need to be attached to the tanks by the contractor and connected per the Owner's desires.

The blower (See Section VII) and NEMA 4X control panel (See Section X) will need to be mounted as shown in the plans and electrical will need to be run to and between them by the Contractor.

VESSEL PREPARATION: Remove the tank lid and place the HDPE netting over the top of the grating. Attach the length of PVC pipe (and elbow w/o weep hole), using the no-hub coupling provided, to the steel outlet pipe which penetrates the tank just above the grating. The elbow should rest on the grating. Place the lower section of the 24" diameter media popper near center of tank.

The media will be delivered to the jobsite on 18 pallets, each containing a 42cf Super Sack. Each unit will have 9 sacks emptied into it (resulting in an approximate bed-depth of 4'-10"). **At no time should the media be walked on or in anyway compacted as channeling could result, adversely affecting performance.** The media should be poured into the vessel and spread out using a rake or other such tool.

After connecting interior PVC outlet piping and lower half of media popper into vessel, pour media into vessel and distribute beneath the PVC piping, then continue adding media. When media level gets to just below the level that the next portion of the media popper will rest, place that portion of the popper. Repeat for third portion of popper. Continue filling media to level just below the inlet piping and attach the upper inlet PVC pipe and elbow (with weep hole and elbow facing upwards) with no-hub coupling, so that piping and elbow rest on the media. Continue to fill vessel around the piping.

Prior to re-attaching the lid, attach the spray head assembly to the underside of the manway, in the 1" coupling. The lid can now be placed onto the vessel and securely fastened. Attach the 1" SS ball valve to outside of the 1" coupling in the manway.

TO START THE SYSTEM: The media should be sprayed with water through the 1" line in the manway prior to operation until water exists in the horizontal clear PVC portion of the u-trap. This insures that the media is moist and that there is water in the drain line so that no gas can escape through the drain.

The unit may now be placed on-line in accordance with gas system operating parameters:

1. Determine entire gas system's readiness for operation.
-Make sure drain valves are open and that water is present in the horizontal line of the inverted u-trap.
2. Open inlet and outlet valves.
3. Check for gas tight integrity.

SECTION III

OPERATION

NORMAL GAS SCRUBBING PROCEDURE:

During the period that the scrubbers are operating to remove hydrogen sulfide from the digester gas, the gas enters the vessels through the upper 10" pipe, enters the area above the media bed, travels down through the media and collects below the grating where it enters the elbow connected to the lower 10" pipe and exits the vessel. The inlet and outlet valves are in the open position.

The condensate will exit the vessel through the 3" drain line. The drain line leads to a continuous drain assembly and sight glass and then to the plant drain system.

CHECKING OF pH and PRESSURE DROP:

It is important to maintain the pH of the system above 7.0, to this end a sample of the drain water should be tested on a weekly basis, the calibration procedure is as follows:

1. Take a sample of the drain water for pH testing. A sample port should be provided in the drain piping by the Contractor.
2. If the pH is below 7.0, **and** the hydrogen sulfide removal efficiency of the scrubber is below standard, introduce an alkaline buffering solution (soda ash or sodium bicarbonate) in liquid form through the water connection in the manway sufficient to raise the pH of the drain water to 7.5 or higher. Since the pH sampled from the drain line is often lower than the actual pH the system is operating at - should the H₂S removal be within acceptable parameters, then the pH DOES NOT need to be adjusted even if the drain pH is low.
3. MARCAB has provided a Dwyer Model 1230-16 Pressure Gauge for each vessel which will be mounted by the Contractor. These gauges have been provided to allow easy determination of the pressure drop across the media beds.

MONITORING HYDROGEN SULFIDE REMOVAL:

The scrubbers have a 1/4" coupling with a SS ball valve in the neck of the gas inlet and outlet for the monitoring of hydrogen sulfide levels. Samples should be taken on a regular basis to establish accurate bed-life and removal efficiency.

MARCAB has provided a Draeger Accuro Gas Detector and tubes per the specification. Tubes for both inlet and outlet readings have been provided.

When samples taken at the gas sampling port on the exit pipe indicates an unacceptable level of hydrogen sulfide **and** the pH of the system is above 7.5, the unit should be removed from service and the media regenerated or replaced.

SECTION IV

MAINTENANCE

MEDIA REGENERATION PROCEDURE:

Once the Iron Sponge media becomes coated with ferric sulfide (Fe_2S_3) it is time to regenerate the media. Regeneration is performed by re-oxidizing the spent media in a flooded state. The Regeneration Process is described by the following reaction:



Close outlet valve of the vessel to be regenerated. Leave inlet valve open to allow gas present in unit to escape during filling of vessel with water for regeneration. Prepare to fill vessel with water by closing-off drain line. Open valves in the sight glass line. Attach water line to spray head in manway of lid and turn on water. Vessel should fill to top of media in approximately 1 hour. This procedure should be monitored to assure that water does not start to enter inlet gas piping.

After sight tube indicates media is flooded, turn off water. Close inlet valve to fully isolate unit. Insure that handhole in lid is open to allow air to escape without causing excess back pressure on the system. Use caution, as a small amount of remaining methane will vent to atmosphere at this time. Activate air blower and then open air supply valve. Allow air flow to continue for twenty four or more hours (until exiting air has reached ambient levels).

At the conclusion of the flooded vessel aeration period, close air supply valve and secure the air blower. The vessel is then drained directly to the plant drain.

The scrubber can now be returned to the original operation mode as described in SECTION III.

MEDIA REPLACEMENT PROCEDURE:

After two complete regenerations and three bed usages, the purification media should be replaced. The replacement procedure is as follows:

1. Regenerate the iron oxide media a final time following the procedures called out in **MEDIA REGENERATION PROCEDURE** of this section.
2. Remove the tank cover.
 - Be sure that any items that are hard piped to the lid have been removed.
 - Using a crane with 3 lifting eyes, connect eyes to lifting lugs on lid and remove.
3. Remove upper portion of media popper.
4. Remove iron oxide media by suction with a Vactor-type truck - removing remaining portions of the media popper as they are exposed.
5. Clean compartment interior with water, flushing waste through compartment drain. Remove and re-install internal parts as required to accomplish cleaning.
 - Internal parts that may require removal for cleaning purposes include:
 - PVC inlet and outlet piping extensions
 - Media Support HDPE Netting
 - Media Support FRP Grating
6. Replace iron oxide media with fresh supply, fasten lid and place purifier back in service as described in **VESSEL PREPARATION** in **SECTION II**.
7. Resume maintenance and operation as per **NORMAL GAS SCRUBBING PROCEDURE** of **SECTION III**.

REGENERATION BLOWER:

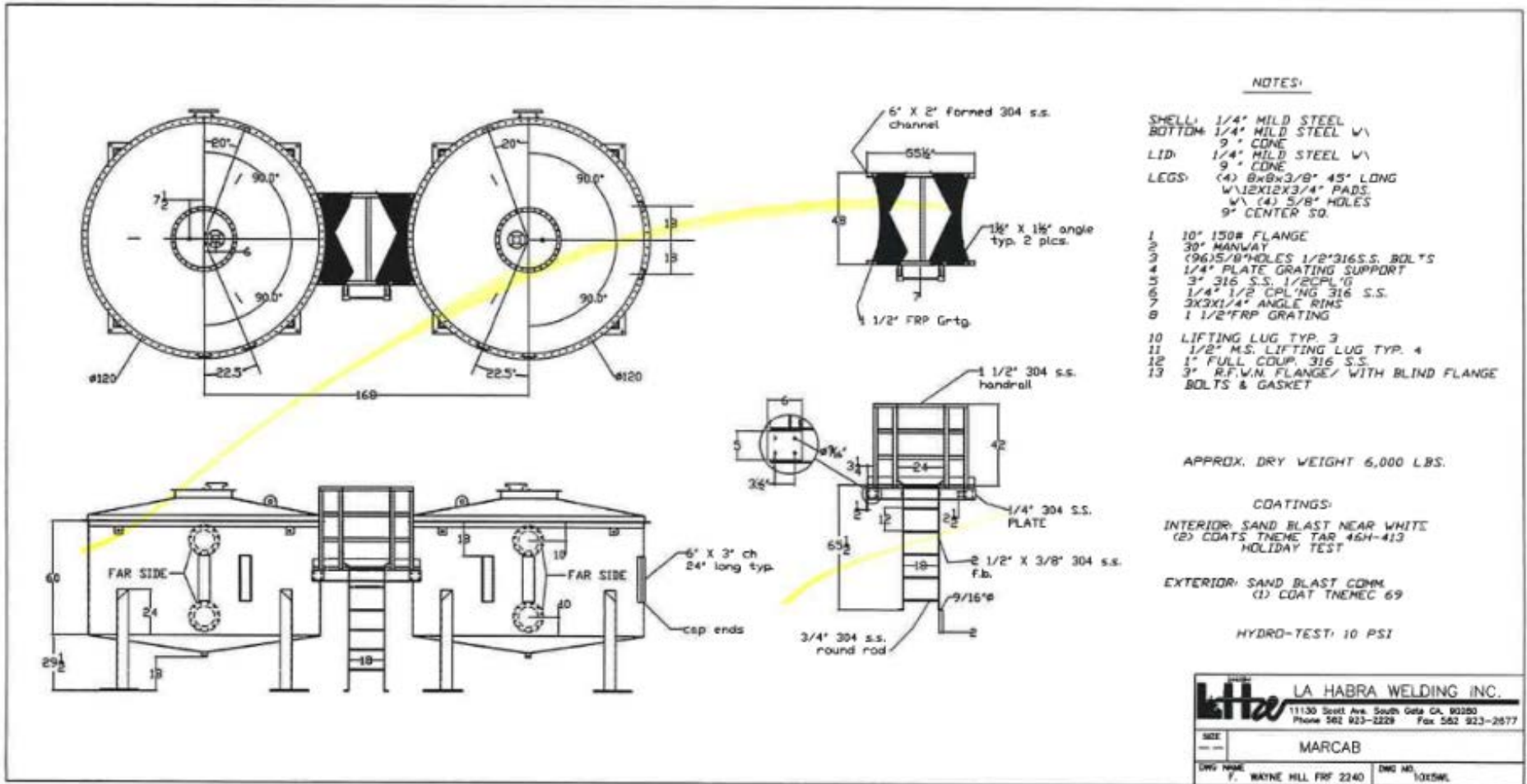
The regeneration blower will only be used infrequently for several days each time. A complete Operations and Maintenance Manual for the blower is included at the back of this manual in **SECTION VII**. The blower has a 15 HP motor and is capable of pushing 300 cfm through the water flooded media during regeneration.

NEMA 4X Control Panel:

A NEMA 4X control panel has been provided for control of the Regeneration Blower. A complete Operations and Maintenance Manual for the control panel is included at the back of this manual in **SECTION X**.

SECTION V

SHOP DRAWINGS



NOTES:

- SHELL: 1/4" MILD STEEL
 - BOTTOM: 1/4" MILD STEEL w/ 9" CONE
 - LID: 1/4" MILD STEEL w/ 9" CONE
 - LEGS: (4) 8x8x3/8" 45" LONG w/ 1/2" X 3/4" PADS w/ (4) 5/8" HOLES 9" CENTER SQ.
- 1 10" 150# FLANGE
 - 2 30" MANWAY
 - 3 (9) 5/8" HOLES 1/2" 316 S.S. BOLTS
 - 4 1/4" PLATE GRATING SUPPORT
 - 5 3" 316 S.S. 1/2" CPL'G
 - 6 1/4" 1/2" CPL'NG 316 S.S.
 - 7 3X3X1/4" ANGLE RINS
 - 8 1 1/2" FRP GRATING
 - 10 LIFTING LUG TYP. 3
 - 11 1/2" MS. LIFTING LUG TYP. 4
 - 12 1" FULL COUP. 316 S.S.
 - 13 3" R.F.W.N. FLANGE/ WITH BLIND FLANGE BOLTS & GASKET

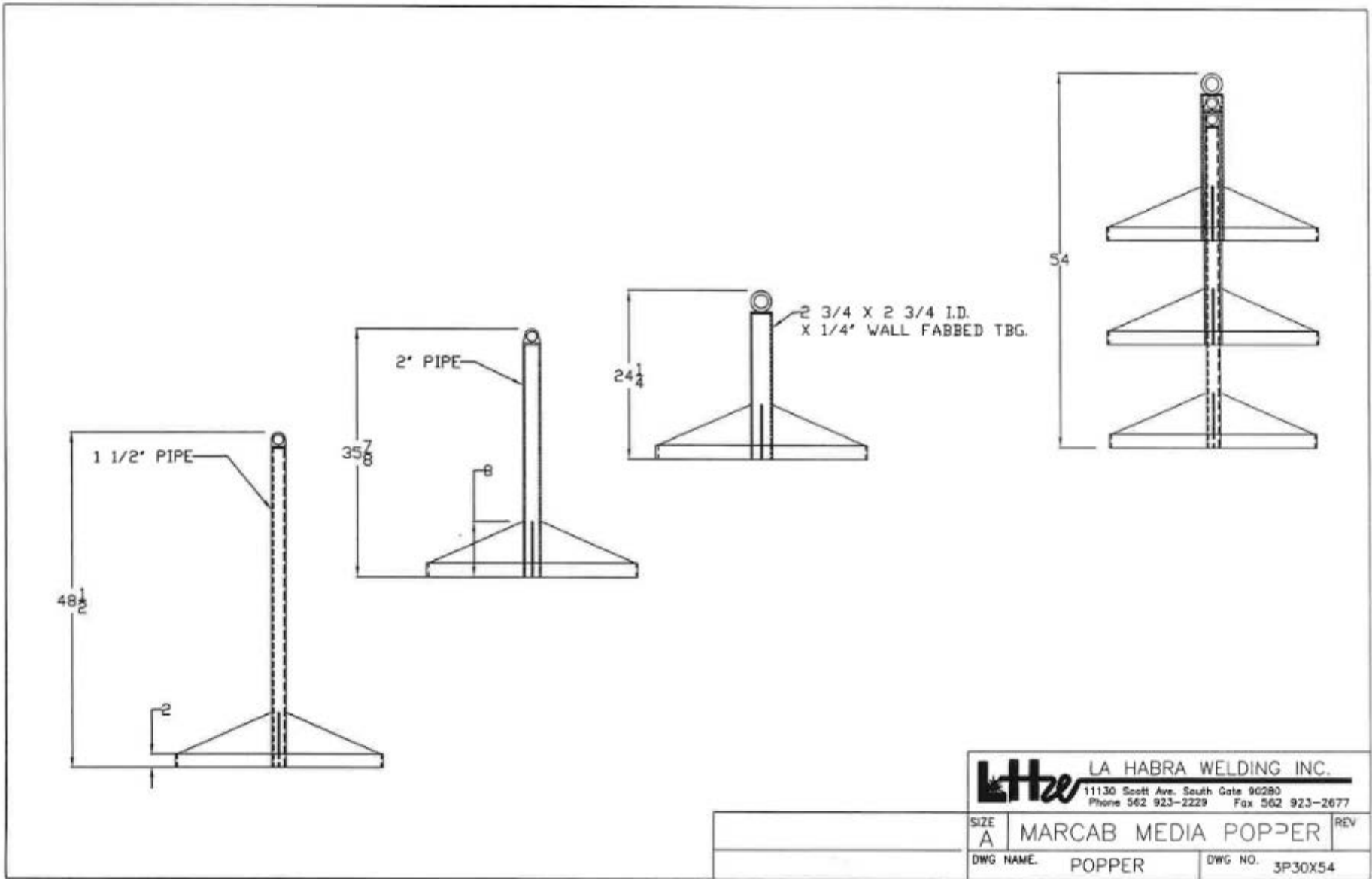
APPROX. DRY WEIGHT 6,000 LBS.

COATINGS:

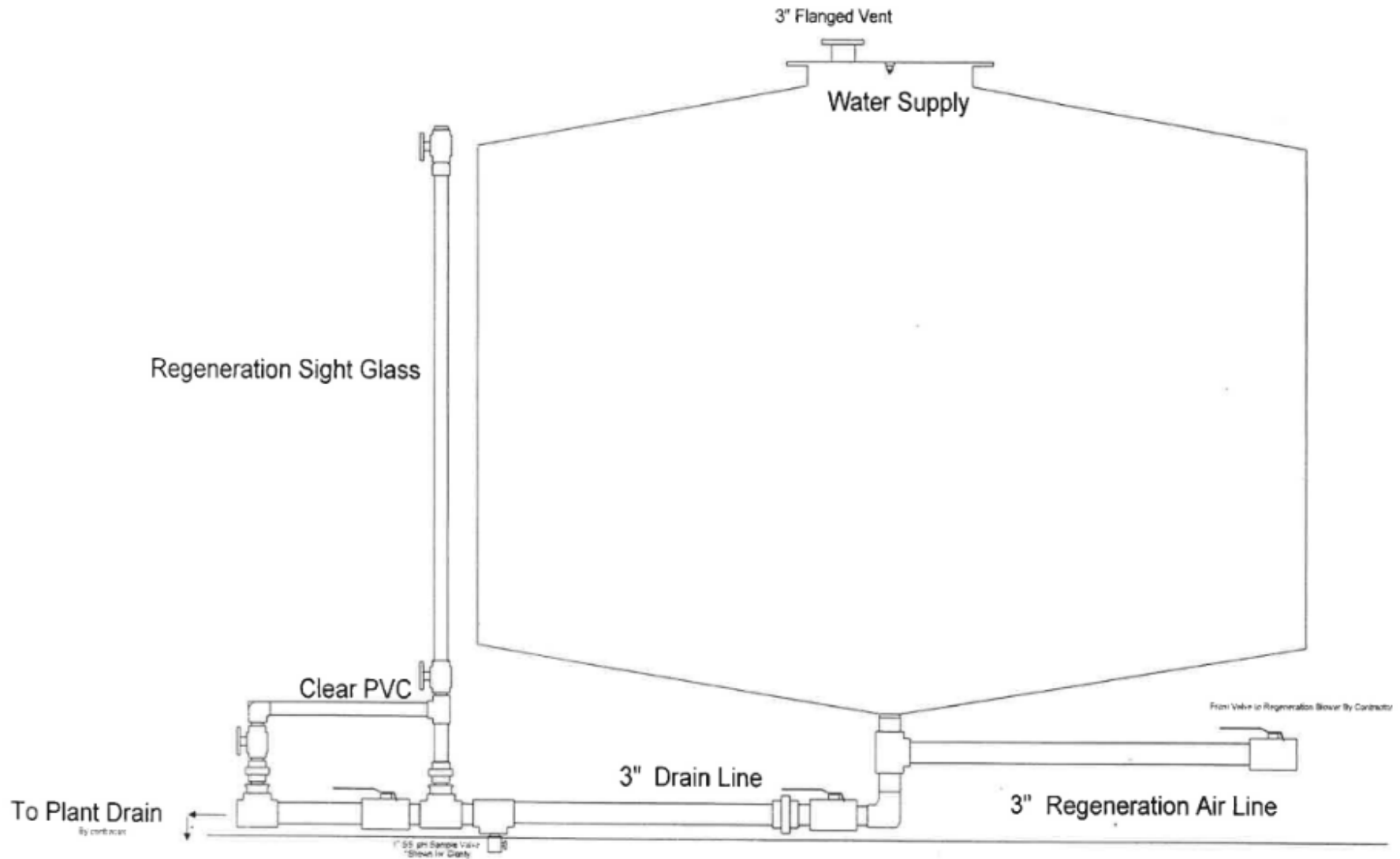
- INTERIOR: SAND BLAST NEAR WHITE
- (2) COATS TNEHC TAR 46H-413 HOLIDAY TEST
- EXTERIOR: SAND BLAST COMM.
- (1) COAT TNEHC 69

HYDRO-TEST: 10 PSI

LA HABRA WELDING INC.	
11130 Steel Ave. South Gate CA. 90250 Phone 562 923-2229 Fax 562 923-2677	
SIZE	MARCAB
DWG NAME	DWG NO.
F. WAYNE HILL FRF 2240	10X5ML



Drainage and Regeneration Parts Detail



*All Parts Either 316SS or SCH 80 PVC



CONNELLY – GPM, INC.

ESTABLISHED 1875

3154 SOUTH CALIFORNIA AVENUE CHICAGO, ILLINOIS 60608-5176
 PHONE: (773) 247-7231 • www.ConnellyGPM.com • FAX: (773) 247-7239

Connelly-GPM, INC. IRON SPONGE Handling and Disposal Procedures

New (unspent) IRON SPONGE is a non-hazardous product, however we recommend that standard nuisance-dust protection procedures be followed. These include long-sleeve shirts and long pants, gloves, eye protection, and dust masks for workers handling the material. Follow loading procedures listed on page 4 of Connelly-GPM, INC. IRON SPONGE Literature “Dear IRON SPONGE Plant Operator.”

Exhausted material from Aerobic Applications (where oxygen or air, was continually present in the treated stream) is, like unspent sponge, a non-hazardous material. However, contaminants from the gas or liquid stream being treated can vary considerably depending on the application. Any special handling procedures required for those contaminants should be observed. Absent such contaminants, landfill disposal is recommended (comply with local, state, and federal regulations).

Exhausted material from Anaerobic Applications (natural gas, petroleum and hydrocarbons, and sewage treatment or landfill gas) can, upon exposure to air, re-oxidize exothermically. This is a gradual heating process, and the United States Occupational Health and Safety Administration (OSHA) does not classify Spent IRON SPONGE as a flammable material; however, the United States Department of Transportation (DOT), because of the potential for heat generation, does regulate its shipment as a low level hazard. For that reason, and to prevent generation of SO₂, we recommend the following procedures:

REMOVABLE TOP (USUALLY LOW PRESSURE) VESSELS

1. After taking the vessel off line and depressurizing, flood the vessel from the bottom with water (this loosens the bed, cools the material, and initiates re-oxidation). Standard safety precautions should be observed in keeping with any possible venting of gas. In all cases, open flames, spark-producing procedures, smoking, etc. are NOT permitted.
2. Remove top cover.
3. Remove Spent IRON SPONGE through open top of vessel via: clamshell bucket, hand shoveling, pitchfork, water lance, ... etc.
4. Inspect vessel and repair as needed (look for pitting, corrosion, and weak bed supports)
5. See “AFTER DISCHARGE” BELOW.

VESSELS WITH LIMITED OPENING ACCESS (OFTEN HIGH PRESSURE VESSELS)

1. After taking the vessel off line and depressurizing, flood the vessel from the bottom with water (this loosens the bed, cools the material, and initiates re-oxidation). Standard safety precautions should be observed in keeping with any possible venting of gas. In all cases, open flames, spark-producing procedures, smoking, etc. are NOT permitted.

Connelly-GPM, INC.
IRON SPONGE Handling & Disposal

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2. Open vessel
3. With operator in appropriate protective gear, use high pressure "water lance" (1000-1400 psi) from the bottom or side discharge manhole and directed upward to wash out a vertical hole or "tunnel" through the bed.
4. The lance can then be employed through the top of the vessel to wash material down to the discharge opening.
5. Inspect vessel and repair as needed (look for pitting, corrosion, and weak bed supports)
6. See "AFTER DISCHARGE" BELOW.

AFTER DISCHARGE, Spent IRON SPONGE can safely be transported, but (in the U.S.) is subject to D.O.T. regulations as a low-level hazard class 4.2, group (2). We recommend eliminating those concerns with the following procedures:

1. Spread discharged material out into a layer 5-6 inches deep.
2. Make sure it is thoroughly soaked with water
3. Keep material moist as it reacts exothermically with the air for a period of ten (10) days as per D.O.T. mandated procedure (the moisture limits heating of the material which otherwise could cause a slow smoldering of the wood carrier).
4. Revivification is complete when heating ceases. The IRON SPONGE then consists of ferric oxide. The removed sulfur has been converted to elemental or "free" sulfur.
5. This revived IRON SPONGE may then be re-used after adjusting moisture and pH as described in pages 4 and 5 of Connelly-GPM, INC. IRON SPONGE Literature "Dear IRON SPONGE Plant Operator." However, as revived sponge will only give 70% or less of the materials previous bed life, most customers do not re-use the product.

DISPOSAL PROCEDURES, as previously discussed, in most places consist of dumping Spent IRON SPONGE in landfills with a light earth cover. Confirm that this complies with local regulations. Again, this does not cover contaminants resulting from contents unique to your treatment stream.

Revivified (Re-oxidized Spent) IRON SPONGE can be transported to landfills without consideration of D.O.T. Hazardous regulations.

Spent IRON SPONGE can only be transported according to guidelines spelled out in CFR 49. These regulations outline the acceptable containers and methods of shipment for a substance representing a low risk of combustion, but which their testing has identified as "not a 'readily ignitable solid'". Acceptable packaging includes steel drums (1A1 or 1A2), plastic drums (1H1 or 1H2) and a variety of bulk containers and vehicles detailed in the regulations (copies of the relevant pages available upon request). Spent material shipped in accordance with these guidelines, is also safe for landfill disposal (again check local regulations).

Connelly-GPM, Inc. makes no warranty, either express or implied, regarding the accuracy of the data reported in the accompanying papers regarding the use of IRON SPONGE for treatment of various types of gas, or the results to be obtained from their use. This information is furnished on the condition that the user of this information conducts his or her own tests to determine the suitability for that application.

I. SCOPE OF WORK

The intent of this scope of work is for the successful bidder to remove the spent iron sponge media, legally disposing of the removed material in accordance with applicable rules and regulations, and replacing with new iron sponge media.

Furnish all labor, supervision, materials, tools, equipment, as well as all trucks, containers, supplies, and all other incidentals necessary for removal, processing, transport, and disposal of the spent iron sponge media as follows:

1. Pressure wash the exterior of the filters to remove overflow residue from the surface of the steel tanks.
2. The Plant staff will remove the filters from service.
3. De-pressurize and vent the filters to atmosphere (see safety precautions below). Purge the vessel of any remaining biogas. Purging can be done with water or inert gas. Air is not to be used to purge the vessel.
4. Unbolt the dome of the vessel by removing the flange bolts around the perimeter of the unit.
5. Remove the spent iron sponge material from the top of the vessel using an appropriate method (clamshell bucket, shovels, pitchforks, etc.) in accordance with the filter manufacturer's instructions (attached). The bidder is cautioned that the spent bed material will react with atmospheric oxygen causing a regeneration reaction to take place. Sufficient heat can be generated by the reaction to ignite the wood chips. Following the manufacturer's instructions will limit the possibility of a fire and make it easier to transport.
6. Spent iron sponge material can be disposed of in a sanitary landfill. OSHA does not classify spent material as a fire hazard. However, DOT regulates the transport of the material as a low level hazard, class 4.2, group (2) due to the heat generation potential. Follow the manufacturer's recommended disposal procedures. All fees related to the disposal of the spent iron sponge media, including but not limited to, laboratory tests, application fees, review fees, fuel surcharges, and tipping fees are to be paid for by the bidder and included in the not-to-exceed price.
7. Once the old media is removed, pressure wash the interior of the vessel. Wash water is to be returned to the treatment facilities via the plant drain system.
8. Replacement media is to conform to the following specifications:
 - Form: Iron oxide deposited on wood chips/shavings
 - Iron Oxide (Fe_2O_3), hydrated form: 15 to 18 pounds per cubic foot
 - Iron Oxide (Fe_2O_3), dry basis: 50 to 65% (pounds Fe_2O_3 per pound of dry sponge)
 - Moisture: 40 to 50% (% moisture by weight)
 - pH: 8 to 10 standard units
 - Bulk Density: 770 to 865 kilograms per cubic meter
 - Weight: 48 to 54 pounds per cubic foot
 - Performance Criteria:

- Maximum Headloss: 2 in w.c. with a bed velocity of 7.6 fpm with 5 foot media depth
 - Life: 1 year when treating 600 scfm of biogas with 300 ppm of H₂S and a media volume of 756 cubic feet.
 - Typical Media Manufacturer: Connelly-GPM, Inc., or approved equal
9. Install the new iron sponge media in accordance with the manufacturer's instructions.
 10. Reinstall the dome on the vessel and reinstall all of the flange bolts (all of the bolts are to be installed in the same direction).
 11. Repaint the top dome of the vessel and all dome mounted accessories with the following paint system: 2 coats of Tnemec Series 66 at 4 to 6 mils DFT followed by 1 coat of Tnemec Series 1074 or 1075 at 3- to 5 mils DFT. Color to match existing.
 12. Performance Test: After placing the units back in service, test each unit as follows:
 - a. Measure the ΔP across the filter when it is in operation treating approximately 600 scfm of gas.
 - b. Measure the H₂S removal efficiency by measuring the inlet H₂S concentration and the outlet H₂S concentration. H₂S concentrations are to be measured with Draeger Tubes
 13. Cleanup: Remove all equipment, temporary work, trash, etc. from the work site. Clean up of the work areas must be completed to the satisfaction of the Gwinnett County project manager before final payment will be released.

II. WORK RESTRICTIONS

1. Work is to be performed within an operating wastewater treatment plant and is to be scheduled and performed to have minimal impact on plant operations. Normal plant work hours are 7 AM to 4 PM.
2. There are other contractors on site. Execution of this scope of work is not to interfere with other contractors or with plant operations.
3. Replace the media in the filters one at a time. Coordinate with Plant Staff to lockout/tag out equipment.
4. Safety Precautions:
 - a. Absolutely NO SMOKING or open flame will be allowed while working in the vicinity of the iron sponge filters.
 - b. The biogas stream typically contains carbon dioxide (30%-35%), methane (60%-65%) and trace quantities of reduced sulfur compounds such as hydrogen sulfide. The flammability/explosive limits and the exposure limits (IDLH = immediately dangerous to life and health, and PEL = permissible 8-hour exposure limit) are summarized below:

<u>Compound</u>	<u>PEL</u> (PPM)	<u>IDLH</u> (PPM)	<u>Lower</u> <u>Flammable</u> <u>Limit (%)</u>	<u>Upper</u> <u>Flammable</u> <u>Limit (%)</u>
CO ₂	5,000	40,000	-	-
H ₂ S	10	100	4.3	46
CH ₄	NSL	NSL	5	15

NSL = No specific limit – simple asphyxiant – keep oxygen concentration above 19.5%

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- c. The areas above and adjacent to the filters are classified as a Class 1, Division, 1, Group D area under NFPA 820. The Contractor shall take appropriate measures when working in these areas consistent with the hazards associated with the classified environment.
5. Daily reports during on site work are to be completed on forms supplied by GCDWR.
6. All work is to be completed in conformance with applicable OSHA safety requirements.
7. The invoice for the completed installation is to include a duly executed "Final Contractor's Affidavit" supplied by GCDWR.

III. TIME OF PERFORMANCE

All work is to be completed, including punch list items, within 45 days from the notice to proceed.

Time is of the Essence: Once the fieldwork has begun, Contractor is to work diligently and continuously until the work is completed.

Failure to return this page as part of your bid may result in rejection of bid.

22. Siloxane Filter Media (Carbon)		Comply	Exception
1	Standards and Certifications		
1.1	None specified.		
2	Delivery Locations and Projected Annual Quantities		
2.1	F. Wayne Hill WRC - Complete media replacement approximately once every 1 to 3 years.		
3	Material Specifications		
3.1	Provide Pellet Activated Carbon Filter Media for Siloxane removal.		
3.2	Meet the following product specifications: Minimum Carbon Tetrachloride content (60% by weight), Maximum Moisture Content as packaged (5% by weight), Minimum Hardness Number (90), Maximum Ash Content (14% by weight), Maximum Passing #6 US Mesh (5% by weight).		
3.3	Use Calgon Carbon AP4-60 media or approved equal.		
4	Vendor Requirements		
4.1	Ship by truck in containers rated for this product.		
4.2	Deliver product within 48 hours of order placement by GCDWR.		
4.3	Bid as U.S. dollars per complete media replacement as specified, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places. Price includes proper removal, handling and disposal of spent media.		
4.4	Provide analysis including Carbon Tetrachloride Content, Moisture Content, Hardness Number, Ash Content and Sieve Analysis.		
4.5	Refer to the included filter equipment vendor O&M Manual for guidance on media replacement.		
4.6	Refer to the attached Siloxane Filter Media Replacement Scope of Work for additional details on the required work.		
4.7	Be advised there are 2 filtration vessels at the filter location. Each unit is 5 feet in diameter with a 3 foot deep bed of media. There is approximately 60 CF of media in each unit, weighing approximately 1,650 pounds each unit.		
5	Testing, Verification & Payment		
5.1	Payment will be for each complete media replacement at F. Wayne Hill WRC.		
5.2	Review of certified analysis (see 4.4 above).		

Supplier Name _____

F. Wayne Hill WRC
Gas to Energy Project

Owner: Gwinnet County Department of Water Resources
GCDWR Project No. RP020-09

Engineer: Hazen & Sawyer

Contractor: Crowder Construction Company
Crowder Job No. 41052

Submittal Number: 11347-002

Siloxane Removal System
- O&M Manual -

Specification Section: 11347

CCC - Submittal Response / Comment Page

Crowder Construction Company

Conyers, GA

Reviewed

Reviewed as Noted

Revise and Resubmit

For Information Only

Submittal No. 11347-002

Job Name: F Wayne Hill- GTE Project

Specification Section: 11347

Approval by Crowder Construction Company does not relieve suppliers or subcontractors of responsibility to comply with requirements of plans and specification and/or other contract document under and for which this information is submitted. Nor does our approval establish compliance with the design concept of the project.

Certification Statement:

By this submittal, I hereby represent that all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data have been determined and verified, and each shop drawings has been checked and coordinated with other applicable Shop Drawings and all Contract requirements. Further, these determination, verification, check, and coordination activities have been conducted by qualified personnel under my supervision.

By: Jeremy Mullins Date: 04/11/2010

Title: Project Manager



CALGON CARBON CORPORATION

***OPERATION AND
MAINTENANCE MANUAL***

**(2) STAINLESS STEEL
VAPOR PAC ADSORBERS**

FOR

**F. WAYNE HILL
GWINNETT COUNTY, GA**

***PREPARED BY
CALGON CARBON CORPORATION
PITTSBURGH, PA***

**CALGON CARBON PROJECT NUMBER:
CUSTOMER PURCHASE ORDER NUMBER:**

**GI-10051.FWH1
41052-0008**

DATE OF PRINT: NOVEMBER, 2010

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OTHER THAN SPECIFICALLY PERMITTED IN WRITING BY CALGON CARBON CORPORATION

**VAPOR PAC SS SYSTEM
OPERATION AND MAINTENANCE MANUAL**



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SECTION 1

INTRODUCTION

*VAPOR PAC SS SYSTEM
OPERATION AND MAINTENANCE MANUAL*



SECTION 1

1.0 INTRODUCTION

This manual covers a general description and operating procedures for a Vapor Pac SS Unit. This system is designed to treat vapor streams containing organic compounds amenable to adsorption using Calgon Carbon Corporation's granular activated carbon products. If the guidelines in this manual are read and followed carefully, the system can be operated efficiently and safely with minimal operating expense.

The recommended operating practices set forth in this manual are patterned to suit normal operating conditions. Different conditions may require modifications of these operating practices. Since varying operating conditions or problems may arise over long-term operation, the skill and judgment of the operating personnel should be exercised when needed.

This manual should be available to operating personnel and engineers so that the operating instructions are followed. Record all operating data and maintenance work (overhauls, repairs, etc.) in an operator's logbook. Only trained personnel should operate the system and perform maintenance. If further information beyond what is contained in this manual is required, please contact the nearest Calgon Carbon Corporation Regional Sales Office for assistance.

**VAPOR PAC SS SYSTEM
OPERATION AND MAINTENANCE MANUAL**



VAPOR PAC SS SYSTEM -- SPECIFICATIONS AND OPERATING CONDITIONS

1. CARBON

Carbon Quantity in Vessel: 1650 lbs.

Carbon Type: AP4-60

Packaging: (Bag/Drum/Super-Sack)

2. ADSORBER VESSEL SPECIFICATIONS

Material of Construction: 304 SS (Passivated)

Tank Lining: None

Type of Heads:

Top: Dished

Bottom: Dished

Diameter (ft): 60" Overall Height: 87" (Approx.)

External Paint: Primer: None Finish: None

Internal Grating Material of Construction: 304 SS

Internal Grating Support Material of Construction: 304 SS

Internal Screen Material of Construction: 304 SS (20 mesh)

3. VESSEL CAPACITIES AND WEIGHTS

Bed Volume: 60 ft³ System Pressure Drop:

Bed Depth: 3 ft 5" W.C. at 925 cfm

Empty Vessel Weight: 960 lbs.

Operating Weight: 8,000 lbs.

**VAPOR PAC SS SYSTEM
OPERATION AND MAINTENANCE MANUAL**



1.1 VAPOR PAC SS SYSTEM

SPECIFICATIONS AND OPERATING CONDITIONS

2. ADSORBER VESSEL SPECIFICATIONS

VESSEL NOZZLES	NUMBER	SIZE	CONNECTION
Top Manway	1	20"	Quick Release
Process Inlet	1	8"	Flgd. (150#)
Process Outlet	1	8"	Flgd. (150#)
Pressure Relief	1	3"	Flgd. (150#)
Pressure Taps	3	3/4"	FNPT
Drain	1	1"	FNPT

OTHER OPTIONS/INSTRUMENTATION:

Pressure Differential Gage – Dwyer Magnehelic 2010 (0-10 psig)

Rupture Disk - BS&B Mono Bloc, 3", 15 psig

*VAPOR PAC SS SYSTEM
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1.2 GENERAL DESCRIPTION

The Industrial Air Purification (IAP) adsorption system is a single vessel adsorber which contains a fixed amount of granular activated carbon that has been specifically designed for vapor phase applications. The vessel comes complete with internal carbon support gratings, inlet and outlet duct connection points, and sample/instrument connections.

Granular activated carbon delivery to the site will be in various types of dry bulk containers (bags, drums, or Super-Sacks) for dry loading into the adsorber.

After connecting the influent and effluent ductwork to the adsorber, the system is operated in an upflow mode.

A fan draws contaminated air and forces it through the vessel to ducting provided by the customer, from which the air is discharged to the atmosphere. The air blows into the bottom plenum of the vessel, passes upward through the grating and mesh supporting the activated carbon, and then passes through the carbon bed.

Initially, the impurities in the vapor stream are adsorbed onto the lowest layer of carbon in the bed. As this layer of carbon becomes saturated, adsorption takes place higher in the bed. Eventually the contaminants will break through the carbon bed into the effluent from the adsorber. The bed may remain on-line until the carbon becomes saturated with contaminants or until the effluent concentration begins to exceed permitted levels.

When the carbon in the vessel is exhausted or effluent permit limits are exceeded, it should be removed, either manually or by vacuum truck (see Section 4.0 of this manual for details). Pending completion of carbon acceptance by Calgon Carbon, the spent carbon may be returned to one of our plant sites for thermal reactivation.

For proper operation of the Vapor Pac SS, the unit is equipped with a pressure differential indicator and a drain for discharging any liquids that may collect in the bottom of the vessel.

After startup, records should be kept of pertinent data such as flow rate, pressure drop across the bed, temperature, and influent and effluent contaminant levels.



SECTION 2

INSTALLATION



SECTION 2

2.0 INSTALLATION

2.1 UNLOADING/FOUNDATIONS

The adsorber will arrive at the site with some vessel internals and instrumentation shipped loose for installation in the field. Inspect all of the equipment for any damage that may have occurred during shipment. Check the bill of materials against the items delivered to ensure that all of the equipment is at the site.

The equipment can be set on a permanent or temporary foundation. A gravel base with timbers or railroad ties is adequate for a temporary installation on suitable soil. Any foundation, either temporary or permanent, must be adequate to support the operating weight of the unit. See the Calgon Carbon Corporation general arrangement drawing for the dimensions of the unit.

Before installation of a permanent system, the adsorber vessel should be oriented on the foundation to ensure that the inlet and outlet opening and anchor lugs are positioned properly. The outline of the adsorber, including lug positions, should be marked on the foundation.

2.2 EQUIPMENT INSTALLATION

A fork truck or crane is required to off-load the vessel. Fork tubes and lifting lugs are provided. A properly trained and experienced rigging crew should be employed to set the equipment. The vessel should be set on the foundation in a level position and be anchored as required by local codes and seismic regulations. Refer to the Appendix of this manual for additional details on shipping, rigging, and installation.

See the Specifications section (Section 1) for the weight of the adsorber vessel.

Once the vessel is set in place, internals and instrumentation may be installed. Refer to the Appendix of this manual for additional information. The adsorber is now ready to be filled with activated carbon. Refer to Section 4.2 for carbon loading procedures.



SECTION 3

OPERATION



SECTION 3

3.0 OPERATING INSTRUCTIONS

3.1 PRE-OPERATION CHECK-OUT

All equipment and systems affiliated with the granular carbon adsorption system such as blowers, duct heaters, etc. should be checked out according to the manufacturer's instructions. Specific activities to complete before operating the adsorption equipment should include the following:

1. Check all ductwork connections for proper installation and tightness.
2. Ensure that all gauges and instruments are functional and installed correctly. Re-zero or re-calibrate if necessary.
3. Close any dampers in the lines around the adsorber.
4. Install the carbon acceptance canister (if provided) after checking to ensure it is filled with carbon.
5. Carefully inspect the unit to insure that all work concerning the vessel interior is complete and clean.

3.2 FILLING AN ADSORBER WITH CARBON

After the system has been checked, the adsorber is ready to be filled with granular activated carbon. The carbon is dry loaded into the adsorber through the top manway. The detailed procedures for making the transfer are given in Section 4.2.

3.3 START-UP

Once the Vapor Pac SS is assembled, checked, and filled with carbon, startup is accomplished simply by starting the fan and opening any dampers in the ductwork around the adsorber. When in operation, the flow rate and pressure drop across the Vapor Pac SS should be checked to compare with design expectations. A damper on the inlet ductwork should then be adjusted to give the design pressure drop across the bed.

If carbon acceptance has not yet been approved by Calgon Carbon, it will be necessary to obtain a sample of the spent carbon. The sample can be obtained through the manway on the top of the adsorber, or by using a carbon acceptance canister.

*VAPOR PAC SS SYSTEM
OPERATION AND MAINTENANCE MANUAL*



3.4 STEADY STATE OPERATION

Since the adsorption system itself has no moving parts, maintenance required is minimal. Refer to the fan and damper manufacturer's literature for maintenance instructions on those pieces of equipment.

The pressure drop across the carbon bed should be checked periodically (once a day is recommended). A sudden increase in pressure drop across the bed may indicate the entrapment of some solid materials in the carbon bed. Severe solid build-up may require the carbon to be replaced.

The drain outlet should be opened periodically (once a week is recommended) when the fan is not running to check for any liquid in the bottom of the vessel. If such build-up occurs, routine draining should be done to prevent excessive levels.

3.5 MONITORING

Sampling of the carbon within the bed may be performed using a grain thief through the top manway. This can be done periodically to estimate bed life. Frequency of sampling is dictated by local regulations or customer requirements. Note that carbon samples should only be taken when the fan is not running.

3.6 SHUTDOWN

Shutdown of the adsorber system is accomplished by turning off the fan and closing any dampers in the ductwork around the adsorber. When the adsorber is shut down, the drain outlet should be opened to drain off any liquid that has built up in the bottom of the adsorber.

**VAPOR PAC SS SYSTEM
OPERATION AND MAINTENANCE MANUAL**



3.7 TROUBLESHOOTING GUIDE

PROBLEM		PROBABLE CAUSE		REMEDY
High pressure drop across adsorber.	1.	High solids loading on carbon.	1.	Replace carbon and install an external influent filter.
	2.	Improper damper setting.	2.	Open damper until design pressure drop is achieved.
Sudden decrease in pressure drop.	1.	Flow velocity is too high - carbon bed has become fluidized.	1.	Close damper until design pressure drop is achieved.
Leaking flange.	1.	Loose bolts.	1.	Tighten bolts.
Premature breakthrough of organics in the effluent.	1.	Influent concentration change.	1.	Confirm by analyzing effluent sample(s) before changing carbon.
	2.	High relative humidity in feed stream.	2.	Measure moisture content of influent. Install dehumidifier upstream of adsorber.
	3.	Flow velocity is too high - carbon bed has become fluidized.	3.	Close damper until design pressure drop is achieved.
Sudden high contaminant concentration in effluent.	1.	Carbon heel from improper transfer.	2.	Wait until contaminant increase passes through. Review transfer procedures.
	2.	Mass transfer zone has extended through bed.	2.	Replace carbon.



SECTION 4

CARBON TRANSFER PROCEDURE



SECTION 4

4.0 CARBON TRANSFER PROCEDURES

4.1 SITE REQUIREMENTS

For dry loading of fresh carbon, a cherry picker (or equivalent) will be required to unload large carbon containers, such as Super-Sacks.

4.2 FRESH CARBON TRANSFER: DRY LOADING THE ADSORBER

1. Shut down and lock out the inlet fan.
2. Open the top manway on the adsorber vessel.
3. Through the top manway pour the granular activated carbon. The possibility of generating dust with this procedure exists, and therefore, dust protection for the workmen should be provided.
4. When the last container of carbon has been added, use a rake or hoe to level the top of the bed.
5. Replace and secure top manway cover.

4.3 SPENT CARBON TRANSFER FROM ADSORBER

Spent carbon may be removed from the adsorber manually (i.e. with shovels or buckets). If a quicker changeout is required, the carbon may be vacuumed out using a vacuum truck. Simply open one of the top manways and lower the vacuum hose into the vessel. Contact Calgon Carbon for more information if vacuuming out the spent carbon is required. Again, shut down and lock out the inlet fan before performing any carbon transfers.



SECTION 5

SAFETY



SECTION 5

SAFETY

5.1 OXYGEN DEMAND CREATED BY CARBON

Studies have shown that low oxygen content exists in vessels containing wet drained granular activated carbon. Laboratory experiments conducted since that time have also revealed that commercial activated carbons in a wet or moist condition will lower the oxygen content of an isolated space.

Preliminary indications of this research are:

1. The phenomenon occurs with wet activated carbon of all carbon types.
2. The rate of oxygen uptake naturally varies with the degree of exposure of the wet carbon to the air. Thus, it is relatively rapid in a drained bed.
3. There is some indication of a limit to the carbon's capacity for oxygen, but until more is known, it would be prudent to assume that all carbons (fresh, used, reactivated) will also exhibit this characteristic. Similarly, although these tests were run with water, it should be assumed that the phenomenon will occur in other liquid and vapor systems.

5.2 VESSEL ENTRY

Based on the properties of wet activated carbon in Section 5.1 above, a confined space entry procedure should be established for any facility using carbon in confined vessels.

All confined spaces, including those containing activated carbon, should be presumed to be hazardous. Appropriate safety measures should always be taken before entering, as well as when workers are in a confined space. OSHA regulations applicable to respiratory protection in oxygen deficient atmospheres should be strictly adhered to.



Section 6

CARBON DATA

AP3-60 & AP4-60

For Air and Gas Purification



Description

AP3-60 and AP4-60 are 3 and 4 mm pellet activated carbons designed for air and gas purification applications. They are produced by high temperature steam activation of coal. This produces a porous material with a high surface area allowing it to adsorb a wide range of organic compounds.

Applications

AP3-60 and AP4-60 are suited for either regenerable or one-time use systems depending on the application. Typical applications include:

- Ventilation and air conditioning systems
- Groundwater remediation
- Paint spray booths
- Industrial odor removal
- Solvent recovery
- Volatile Organic Compound (VOC) abatement

Design Considerations

When faster adsorption kinetics are desired, AP3-60 is recommended; however, for lower pressure drop applications, AP4-60 is preferred. Pressure drop curves for both products are shown to the right.

Safety Message

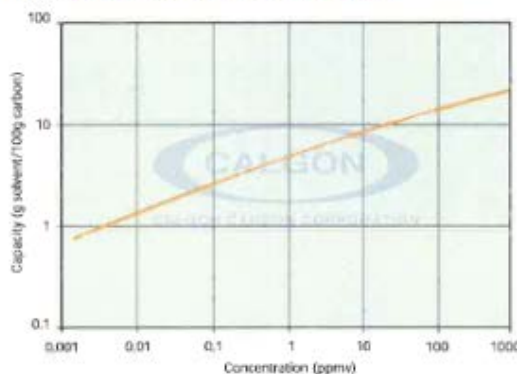
Wet activated carbon preferentially removes oxygen from air. In closed or partially closed containers and vessels, oxygen depletion may reach hazardous levels. If workers are to enter a vessel containing carbon, appropriate sampling and work procedures for potentially low oxygen spaces should be followed, including all applicable Federal and State requirements.

Specifications	AP3-60	AP4-60
CCl ₄ by weight	60% (min)	60% (min)
Hardness Number	90 (min)	90 (min)
Moisture, as packed by weight	4% (max)	5% (max)
Screen Size by weight, U.S. Sieve Series		
Through 6 mesh	—	5% (max)
Through 8 mesh	5% (max)	—

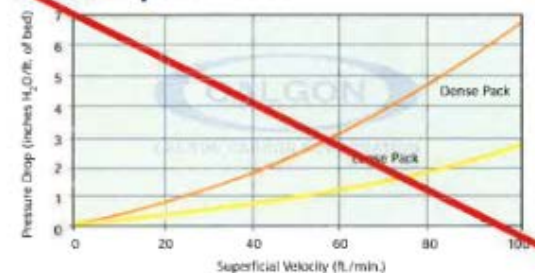
Features

Cylindrical pellets with high hardness

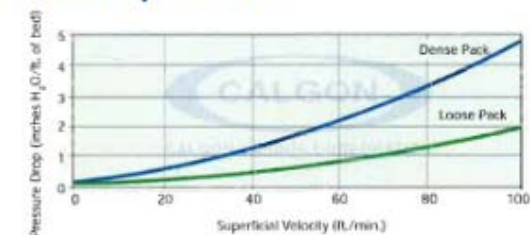
Isotherm for Benzene at 25°C and 1 atm



Pressure Drop curve AP3-60



Pressure Drop curve AP4-60



Benefits

Provides a lower pressure drop which reduces fan energy consumption as compared to granular activated carbon.
Ensures excellent resistance to mechanical and thermal stress.
Low fines generation and less dust.



Calgon Carbon Corporation
P.O. Box 717
Pittsburgh, PA USA 15230-0717
1-800-422-7266
Tel: 1-412-787-6700
Fax: 1-412-787-6713

Making Water and Air Safer and Cleaner

Chemviron Carbon
European Operations of
Calgon Carbon Corporation
Zoning Industriel C de Feluy
B-7181 Feluy, Belgium
Tel: + 32 (0) 64 51 18 11
Fax: + 32 (0) 64 54 15 91

Calgon Carbon Asia PTE LTD
9 Temasek Boulevard
#08-01A Suntec Tower Two
Singapore 038989
Tel: + 65 6 221 3500
Fax: + 65 6 221 3554

Your local representative



Material Safety Data Sheet



Date: 11-08-2007

Product: 25853340 - AP4-60

SECTION I - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Manufacturer: Calgon Carbon Corporation

P.O. Box 717

Pittsburgh, PA 15230-0717

Emergency Phone Number: (412) 787-6700

Date Prepared: 6/24/2002

Prepared By: S. Liller

Chemical Name and Synonyms: Carbon

Formula: C

SECTION II - COMPOSITION/INFORMATION ON INGREDIENTS

Nonhazardous components are listed at 3% or greater; acute hazards are listed when present at 1% or greater and chronic hazards are listed when present at 0.01% or greater. This is not intended to be a complete compositional disclosure.

<u>INGREDIENT</u>	<u>% (BY WEIGHT)</u>	<u>CAS#</u>
CARBON	100	7440-44-0

SECTION III - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Black particulate solid, pellet or powder. Contact may cause eye irritation. Dust may be slightly irritating to eyes and respiratory tract.

CAUTION!! Wet activated carbon removes oxygen from air causing a severe hazard to workers inside carbon vessels and enclosed or confined spaces. Before entering such an area, sampling and work procedures for low oxygen levels should be taken to ensure ample oxygen availability, observing all local, state and federal regulations.

POTENTIAL HEALTH EFFECTS:

Effects and Hazards of Eye Contact: The physical nature of the product may produce eye irritation.

Effects and Hazards of Skin Contact: The product is not a primary skin irritant. The primary skin irritation index (Rabbit) is 0.

Effects and Hazards of Inhalation (Breathing): The product is practically non-toxic through inhalation. The acute inhalation LC₅₀ (Rat) is >64.4 mg/l (nominal concentration) for activated carbon.

Effects and Hazards of Ingestion (Swallowing): The product is non-toxic through ingestion. The acute oral LD₅₀ (RAT) is >10g/kg.

Primary Routes of Entry: Inhalation, ingestion, skin contact, eye contact.

Chronic Effects: The effects of long-term, low-level exposures to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the avoidance of all effects from repetitive acute exposures.

CARCINOGENICITY: NTP: N/A IARC: N/A OSHA REGULATED: NO

Material Safety Data Sheet



SECTION IV - FIRST AID MEASURES

Treatment for Eye Contact: Flush with plenty of water for at least 15 minutes.

Treatment for Skin Contact: Wash with soap and water.

Treatment for Inhalation (Breathing): N/A

Treatment for Ingestion (Swallowing): N/A

SECTION V - FIRE FIGHTING MEASURES

Flash Point: N/A

Limits Lel: N/A

Uel: N/A

Extinguishing Media: FLOOD WITH PLENTY OF WATER.

Special Firefighting Procedures: NONE

Unusual Fire and Explosion Hazards: Contact with strong oxidizers such as ozone, liquid oxygen, chlorine, permanganate, etc., may result in fire.

NFPA RATING: HEALTH = 0 REACTIVITY = 0 FLAMMABILITY = 1

SECTION VI - ACCIDENTAL RELEASE MEASURES

Steps to be Taken in Case Material is Released or Spilled: Sweep up unused carbon and discard in refuse container or repackaging.

Waste Disposal Method: Dispose of unused carbon in refuse container. Dispose of in accordance with local, state, and federal regulations.

SECTION VII - HANDLING AND STORAGE

Precautions for Handling and Storage: CAUTION!! Wet activated carbon removes oxygen from air causing a severe hazard to workers inside carbon vessels and enclosed or confined spaces. Before entering such an area, sampling and work procedures for low oxygen levels should be taken to ensure ample oxygen availability, observing all local, state, and federal or national regulations.

Other Precautions: Wash thoroughly after handling. Exercise caution in the storage and handling of all chemical substances.

Material Safety Data Sheet



SECTION VIII - EXPOSURE CONTROLS, PERSONAL PROTECTION

Exposure Guidelines:

OSHA PEL* 5 mg/M³ (Respirable)

ACGIH TLV* 10 mg/M³ (Total)

*PELs and TLVs are 8-hour TWAs unless otherwise noted.

Respiratory Protection: A NIOSH approved particulate filter respirator is recommended if excessive dust is generated.

Ventilation: Local Exhaust Ventilation: Recommended

Mechanical Ventilation: Recommended

Protective Gloves: Recommended

Eye Protection: Safety Glasses or Goggles Recommended

Other Protective Equipment: Not Required

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: N/A

Specific Gravity: 2.3 g/cc real density

Vapor Pressure: N/A

Melting Point: N/A

Vapor Density: N/A

Evaporation Rate: N/A

Solubility in Water: NEGLIGIBLE

Packing Density: 0.4 to 0.7 g/cc

Appearance and Odor: Black particulate solid, pellet, or powder

SECTION X - STABILITY AND REACTIVITY

Stability: STABLE

Conditions to avoid: NONE

Incompatibility (Materials to avoid): Strong oxidizers such as ozone, liquid oxygen, chlorine, permanganate, etc.

Hazardous Decomposition Products: Carbon monoxide may be generated in the event of a fire.

Polymerizing Conditions to Avoid: NONE

SECTION XI - TOXICOLOGICAL INFORMATION

See HEALTH EFFECTS SECTION III

SECTION XII - ECOLOGICAL INFORMATION

Not determined

Material Safety Data Sheet



SECTION XIII - DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Dispose of unused carbon in refuse container. Dispose of in accordance with local, state, and federal or national regulations.

SECTION XIV - TRANSPORT INFORMATION

Proper Shipping Name: NOT REGULATED

Hazard Class: N/A

Identification Number: N/A

Packing Group: N/A

This product has been tested according to the United Nations *Transport of Dangerous Goods* test protocol for spontaneously combustible materials. It has been specifically determined that this product does not meet the definition of a self heating substance or any hazard class, and therefore is not a hazardous material and not regulated.

SECTION XV - REGULATORY INFORMATION

SARA TITLE III: N/A

TSCA: The ingredients of this product are on the TSCA Inventory List.

OSHA: Nonhazardous according to definitions of health hazard and physical hazard provided in the Hazard Communication Standard (29 CFR 1910.1200)

CANADA

WHMIS CLASSIFICATION: Not Classified

DSL#: 6798

EEC Council Directives relating to the classification, packaging and labeling of dangerous substances and preparations.

Risk (R) and Safety (S) phrases: May be irritating to eyes (R36).

SECTION XVI - OTHER INFORMATION

Intended Use: Generally used for treatment of liquids and gases.

While this information and recommendations set forth herein are believed to be accurate as of the date hereof, CALGON CARBON CORPORATION MAKES NO WARRANTY WITH RESPECT AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.

*** END OF MATERIAL SAFETY DATA SHEET ***



Section 7

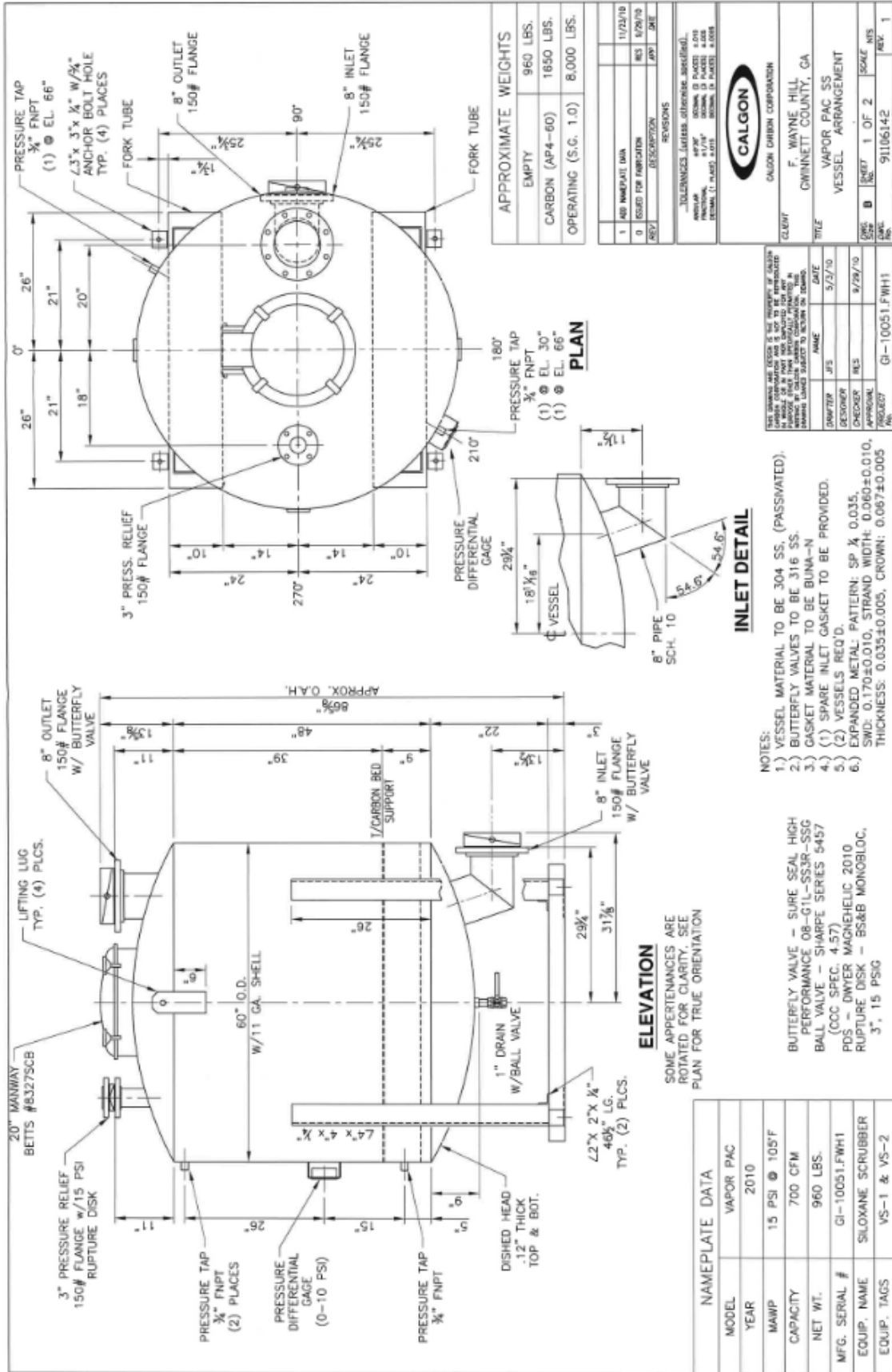
CATALOG CUT SHEETS

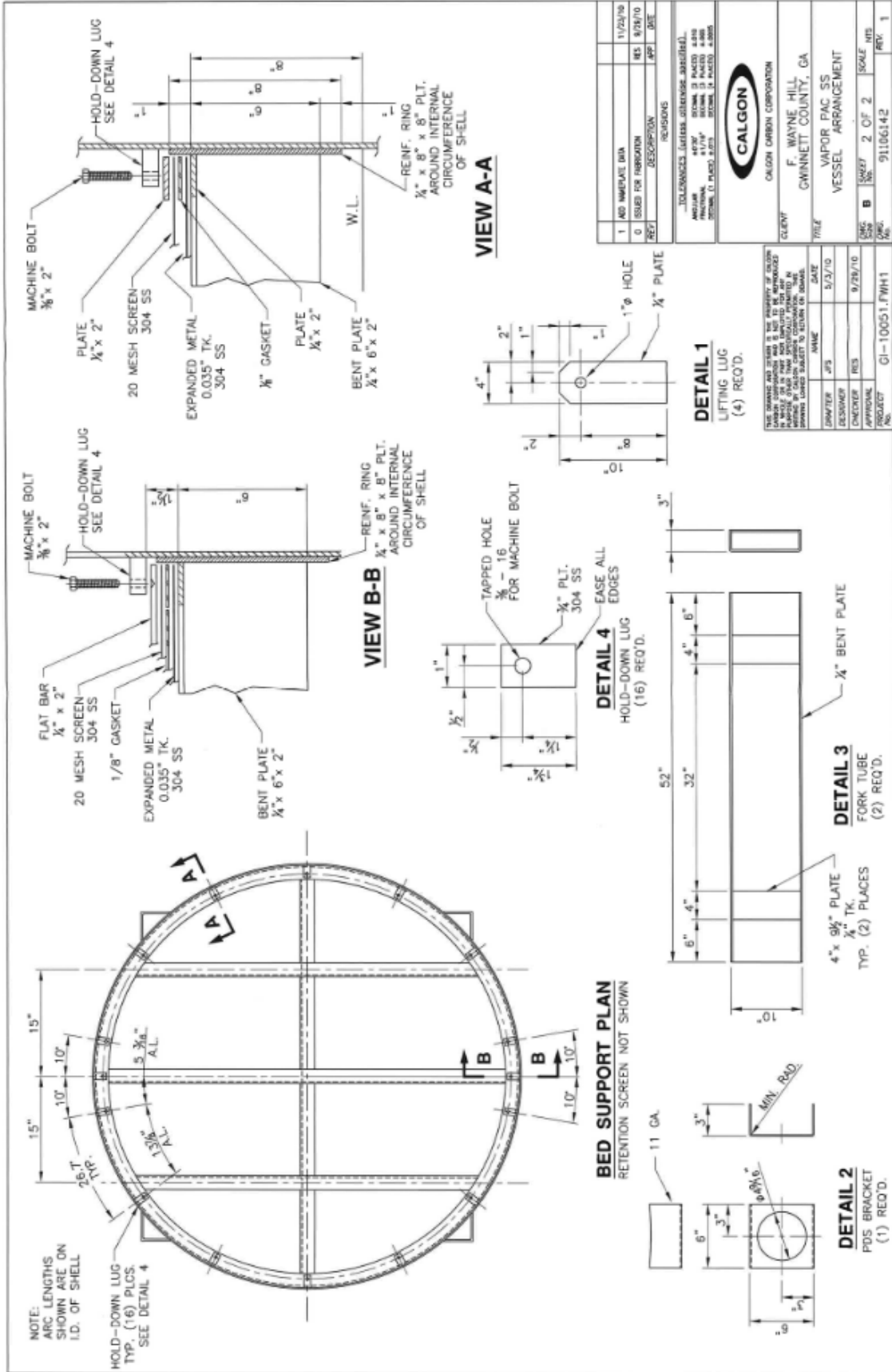
(Available upon request.)



SECTION 8

DRAWINGS





I. SCOPE OF WORK

The intent of this scope of work is for the successful bidder to remove the spent carbon media from the siloxane removal system, legally disposing of the spent carbon in accordance with applicable rules and regulations, vacuuming out the vessels, and installing new carbon media.

The successful bidder will be required to furnish all labor, supervision, materials, tools, equipment, as well as all trucks, containers, supplies, and all other incidentals necessary for removal, transport, and disposal of the spent siloxane removal system media as follows:

1. The Plant staff will remove the vessels from service. Contractor will coordinate with plant staff on removal of the vessels from service with plant operation taking precedent over contracted work. A minimum of 48 hour notice is recommended. Notification will be made to the on-site inspector.
2. De-pressurize and vent the vessels to atmosphere (see safety precautions below). Purge the vessel of any remaining biogas. Purging can be done with inert gas. Air is not to be used to purge the vessel.
3. Use the 20-inch diameter manway on the top of each vessel to access the media.
4. Remove the spent carbon media from the top of the vessel using an appropriate method (manually or vacuumed out with a vacuum truck) in accordance with the filter manufacturer's instructions (attached). Contact Calgon Carbon for more information if vacuuming out the spent carbon is the method chosen.
5. The spent carbon media is to be disposed of in accordance with all applicable rules and regulations and per the manufacturer's recommended disposal procedures. All fees related to the disposal of the spent carbon, including but not limited to, laboratory tests, application fees, review fees, fuel surcharges, and tipping fees are to be paid for by the bidder and included in the not-to-exceed price.
6. In lieu of disposal, the spent carbon media can be returned to the carbon supplier for regeneration. Contact carbon supplier for details.
7. Once the old carbon media has been removed, vacuum out any residual media.
8. Virgin carbon replacement media is to be furnished and installed. Replacement carbon media is to conform to the following specifications:
 - Form: Pellet Activated Carbon
 - Carbon Tetrachloride (CCl₄), wt%: Minimum 60%
 - Moisture (as packaged), wt%: Maximum 5%
 - Hardness Number: Minimum 90
 - Ash, wt%: Maximum 14%
 - < 6 US Mesh [3.35 mm] (Pellet), wt%: Maximum 5%
 - Performance Criteria:
 - Maximum Headloss: 5 in w.c. with a bed velocity of 47 fpm with 3 foot media depth

- Typical Media Manufacturer: Calgon Carbon AP4-60 or approved equal
9. Install the new carbon media in accordance with the manufacturer's instructions.
 10. Close and secure the 20-inch diameter manway.
 11. Prepare the siloxane filter for use. The fine carbon dust that is created during installation of the new media will clog the gas filters in the gas train for the cogeneration engine. Perform the following procedure to minimize clogging:
 - Install a 600 cfm blower on the suction side of the filter at the existing blind flange.
 - Remove the 3-inch rupture disk assembly from the top of the filter to provide an outlet stack.
 - Run the blower for a minimum of 30 minutes to force the fine dust out of the carbon bed.
 - Disconnect blower, reinstall blind flange and rupture disk assembly.
 12. Replace the polypropylene particulate filter downstream of the siloxane filters. Provide 2 filters (1 installed + 1 spare). The particulate filter is Dollinger Filtration part number 3509077 or approved equal.
 13. Performance Test: After placing the units back in service, test each unit as follows:
 - a. Measure the ΔP across the vessel when it is in operation treating approximately 600 scfm of gas.
 14. Spare Parts: Furnish the following spare parts to the plant staff. All spare parts are to be in readily stackable containers with the part description clearly labeled on the outside of the container.
 - a. Furnish two (2) Dwyer Magnehelic Series 2000 differential pressure gauges, model number 2010, or approved equal, with an operating range of 0 – 10 inches of water.
 - b. Furnish two (2) gas train filter elements, GE Jenbacher order number 267789, or approved equal. (Confirm part number with Nixon Energy Solutions at 770.448.6687.)
 15. Cleanup: Remove all equipment, temporary work, trash, etc. from the work site. Clean up of the work areas must be completed to the satisfaction of the Gwinnett County project manager before final payment will be released.

II. WORK RESTRICTIONS

1. Work is to be performed within an operating wastewater treatment plant and is to be scheduled and performed to have minimal impact on plant operations. Normal plant work hours are 7 AM to 4 PM.
2. Any "or equal" items must be submitted for approval with a letter of confirmation from the supplier that the "or equal" unit will perform in a similar manner to the originally installed equipment within the Siloxane Media Removal system at FWH.
3. There are other contractors on site. Execution of this scope of work is not to interfere with other contractors or with plant operations.
4. Replace the media in the vessels one at a time. Coordinate with Plant Staff to lockout/tag out equipment.

5. Safety Precautions:

- a. Absolutely NO SMOKING or open flame will be allowed while working in the vicinity of the siloxane removal system.
- b. The biogas stream typically contains carbon dioxide (30%-35%), methane (60%-65%) and trace quantities of reduced sulfur compounds such as hydrogen sulfide. The flammability/explosive limits and the exposure limits (IDLH = immediately dangerous to life and health, and PEL = permissible 8-hour exposure limit) are summarized below:

<u>Compound</u>	<u>PEL</u> (PPM)	<u>IDLH</u> (PPM)	<u>Lower</u> <u>Flammable</u> <u>Limit (%)</u>	<u>Upper</u> <u>Flammable</u> <u>Limit (%)</u>
CO ₂	5,000	40,000	-	-
H ₂ S	10	100	4.3	46
CH ₄	NSL	NSL	5	15
<i>NSL = No specific limit – simple asphyxiant – keep oxygen concentration above 19.5%</i>				

- c. The areas above and adjacent to the removal system are classified as a Class 1, Division, 1, Group D area under NFPA 820. The Contractor shall take appropriate measures when working in these areas consistent with the hazards associated with the classified environment.
 - d. Studies have shown that low oxygen content exists in vessels containing wet drained granular activated carbon. Establish a confined space entry procedure for dealing with wet activated carbon. All confined spaces, including those containing activated carbon, should be presumed to be hazardous. Appropriate safety measures should always be taken before entering, as well as when workers are in a confined space. OSHA regulations applicable to respiratory protection in oxygen deficient atmospheres should be strictly adhered to. The existing media MSDS can be found in **Section 6 of Attachment A**.
6. Daily reports during on site work are to be completed on the attached form (Attachment B).
 7. All work is to be completed in conformance with applicable OSHA safety requirements.
 8. The invoice for the completed installation is to include a duly executed "Final Contractor's Affidavit" that is included as Attachment C.

III. TIME OF PERFORMANCE

All work is to be completed, including punch list items, within 45 days from the notice to proceed.

Time is of the Essence: Once the fieldwork has begun, Contractor is to work diligently and continuously until the work is completed.

Failure to return this page as part of your bid may result in rejection of bid.

23. Magnesium Oxide		Comply	Exception
1	Standards and Certifications		
1.1	None specified		
2	Delivery Locations and Projected Annual Quantities		
2.1	Yellow River WRF - 1,600,000 pounds		
3	Material Specifications		
3.1	Provide 94-98 percent by weight MgO solid (powder or granules). Oxides of calcium, iron, aluminum and silicon are limited to 2-6 percent by weight.		
4	Vendor Requirements		
4.1	Ship by truck in bulk containers rated for this product		
4.2	Deliver product within 72 hours of order placement by GCDWR.		
4.3	Bid as U.S. dollars per pound, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.4	Submit certified analysis including MgO content by weight and description of manufacturing process as it relates to reactivity.		
5	Testing, Verification & Payment		
5.1	Payment will be for pounds of product received at each location.		
5.2	Review of certified analysis (see 4.4 above) by GCDWR		

Supplier Name _____

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24. Magnesium Chloride (30% solution)		Comply	Exception
1	Standards and Certifications		
1.1	None specified.		
2	Delivery Locations and Projected Annual Quantities		
2.1	F. Wayne Hill WRC - 10,000 gallons		
3	Material Specifications		
3.1	Provide Magnesium Chloride aqueous solution with MgCl ₂ content of 30%.		
4	Vendor Requirements		
4.1	Ship by truck in bulk containers rated for this product.		
4.2	Deliver product within 72 hours of order placement by GCDWR.		
4.3	Bid as U.S. dollars per gallon, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.4	Submit certified analysis including MgCl ₂ content.		
5	Testing, Verification & Payment		
5.1	Payment will be for gallons of product received at each location.		
5.2	Review of certified analysis (see 4.4 above) by GCDWR.		

Supplier Name _____

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25. Ascorbic Acid (dry)		Comply	Exception
1	Standards and Certifications		
1.1	None specified.		
2	Delivery Locations and Projected Annual Quantities		
2.1	F. Wayne Hill WRC - 44,500 pounds		
3	Material Specifications		
3.1	Provide 100% by weight ascorbic acid solid (powder).		
4	Vendor Requirements		
4.1	Ship by truck in bulk containers rated for this product.		
4.2	Deliver product within 72 hours of order placement by GCDWR.		
4.3	Bid as U.S. dollars per pound, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.4	Submit certified analysis including Ascorbic Acid content.		
5	Testing, Verification & Payment		
5.1	Payment will be for pounds of product received at each location.		
5.2	Review of certified analysis (see 4.4 above) by GCDWR.		

Supplier Name _____

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26. Peracetic Acid		Comply	Exception
1	Standards and Certifications		
1.1	None specified.		
2	Historic Annual Quantities and Delivery Locations		
2.1	F. Wayne Hill WRC - 5,000 pounds of PAA active ingredient		
2.2	Crooked Creek WRF - 13,500 pounds of PAA active ingredient		
3	Material Specifications		
3.1	Provide peracetic acid solution (PAA) at a concentration of 12% or 15% for disinfection of municipal wastewater at the locations specified above.		
3.2	Provide PAA product as a blend of PAA (CH ₃ CO ₃ H) in equilibrium with hydrogen peroxide, acetic acid, and water, with pH < 1.0.		
3.3	Product must have a USEPA registration for use as a wastewater disinfectant. Product label shall list the USEPA registration number and the USEPA establishment number.		
3.4	The calculated BOD contribution from PAA shall not exceed 1.5 mg/L for each ppm of PAA dosed.		
3.5	The product label shall include a list of physical and chemical hazards, a list of environmental hazards, a list of first aid measures, storage and disposal requirements, procedures for handling leaks and spills, and directions for use.		
3.6	The product label shall state that the product may be applied directly to the effluent wastewater discharged from primary, secondary, or tertiary treatments; and to effluent wastewater discharged from trickle bed or percolating fluidized bed filters.		
3.7	The product label shall include a dose range from 0.5 ppm to 20.0 ppm, and a contact time range from 15 to 60 minutes.		
3.8	The shelf life of the product shall not be less than 8 months.		
4	Vendor Requirements		
4.1	Ship by truck in 330 gallon IBC tote containers rated for this product. Use only totes with 11 months or more remaining service life.		
4.2	Comply with USDOT FMCA regulations for transport of hazardous materials.		
4.3	Provide feed equipment as specified for each delivery location named in Section 2 above.		
4.4	Deliver product within 48 hours of order placement by GCDWR.		

Supplier Name _____

Failure to return this page as part of your bid may result in rejection of bid.

26. Peracetic Acid		Comply	Exception
4.5	Bid as U.S. dollars per pound of PAA active ingredient, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.6	Submit certified analysis including Peracetic Acid content (% solution) and pH.		
4.7	Provide skid-mounted feed equipment capable of delivering product at locations within the delivery sites. Include cost of feed equipment rental in the price per pound of active PAA ingredient.		
4.8	Feed equipment shall include: 1. IBC spill containment with capacity to prevent spillage at each two-tote manifold pump skid. 2. Stainless steel manifold and related valves, fittings and accessories. 3. One pump skid at each delivery location, for PAA feed at the injection point. Each skid shall include one duty and one redundant peristaltic pump, PLC control panel, HMI touch screen, main disconnect switch, wiring, piping, valves, fittings and all appurtenances necessary to effectively feed PAA product at the desired rate. 4. Portable eye wash station.		
4.9	Pumps shall be peristaltic metering pumps of heavy duty modular design suitable for 24 hr/day outdoor operation. Pumps shall be model 2001V as manufactured by Flomotion Systems Inc. or approved equal.		
4.10	All wetted materials shall be passivated 316 stainless steel or teflon.		
4.11	The PAA feed pumps shall be mounted in a polypropylene enclosure with clear acrylic doors. The skid design shall be suitable for outdoor installation and shall be placed on a containment pallet.		
4.12	Skid shall be capable of pump automatic switchover and flow pacing control.		
4.13	Feed pumps shall include provisions for local or remote operation. In remote mode, the pump shall be capable of receiving a remote on/off signal as well as a 4-20 mA pacing signal representing pump speed from 0-100%. Pumps shall be capable of running in duplex mode if demand dictates such operation.		
4.14	Install pressure relief valves to avoid any potential over-pressurization points.		

Supplier Name _____

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26. Peracetic Acid		Comply	Exception
4.15	Install a flowmeter for each feed pump, and at least two PAA residual analyzers in the disinfection contact basin at each delivery location.		
4.16	Install a sight glass to provide visual verification of PAA flow on the discharge line of the pump.		
4.17	Include the following local alarms: leak detection alarm for the feed pump skid, no flow alarm for feed pumps, high & low residual PAA.		
4.18	Deliver all equipment to the delivery sites, install equipment, test and commission equipment, start up equipment, and provide training as specified in General Requirements. Commissioning shall include a report that PAA residual analyzers have been calibrated, and all alarms have been tested.		
4.19	Provide preventative and corrective maintenance services for PAA storage and feed equipment, included in the bid price for the feed equipment. Ensure reliable operation of feed equipment at all times. Failure to respond to maintenance issues within 24 hours will be cause for termination of the contract. Include sufficient spare parts expected to be replaced due to normal use during the rental period.		
4.20	Remove all feed equipment from the delivery sites no more than 30 days after the rental period has elapsed.		
4.21	Submit the location and capacity of all PAA production facilities and distribution points owned and operated by the vendor.		
4.22	Submit contact information for PAA customers to be used as references. Vendor is required to have experience supplying PAA and feed equipment to at least one permitted wastewater treatment facility in North America within the past five years.		
4.23	Submit Piping & Instrumentation Diagram (P&ID) including all equipment, process lines, instruments, valves, nozzles, safety interlocks, and control loops. Detail all components, connections, and instrumentation.		
4.24	GCDWR will provide power supply to the feed equipment, a suitable base for skid staging, a potable water source for flushing and maintenance, and a sanitary drain for flushing and maintenance.		

Supplier Name _____

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26. Peracetic Acid		Comply	Exception
5	Testing, Verification & Payment		
5.1	Payment will be for pounds of active PAA ingredient received at the delivery locations specified.		
5.2	Conversion from gallons (330 gallon totes) to pounds of PAA active ingredient will be made by GCDWR.		
5.3	Review of certified analysis (see 4.6 above) by GCDWR.		
5.4	Product may be tested for efficacy by GCDWR. Failure of this testing will be cause for termination of the contract.		

27A. Citric Acid Based Cleaner (bulk solution)		Comply	Exception
1	Standards and Certifications		
1.1	Not specified.		
2	Delivery Locations and Projected Annual Quantities		
2.1	F. Wayne Hill WRC - 100,000 gallons, tank size (1) 21,600 gallon.		
2.2	Yellow River WRF - 12,000 gallons, tank size (1) 4,500 gallon.		
3	Material Specifications		
3.1	Provide liquid industrial inhibited citric acid based cleaner solution, clear color, pH 3.5-4.0, Specific Gravity 1.15-1.25.		
4	Vendor Requirements		
4.1	Ship by truck in bulk.		
4.2	Order size is typically up to 4,500 gallons.		
4.3	Deliver product within 72 hours of order placement by GCDWR.		
4.4	Bid as U.S. dollars per gallon, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
5	Testing, Verification & Payment		
5.1	Payment will be for gallons of product received at each location.		
5.2	Trucks will be weighed upon arrival and after offloading, to verify the total gallons of product delivered. In some cases, tank levels or truck tickets may be used instead.		

Supplier Name _____

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27B. Citric Acid Based Cleaner (solution in totes)		Comply	Exception
1	Standards and Certifications		
1.1	Not specified.		
2	Delivery Locations and Projected Annual Quantities		
2.1	F. Wayne Hill WRC - 8 275 gallon totes.		
3	Material Specifications		
3.1	Provide liquid industrial inhibited citric acid based cleaner solution, clear color, pH 3.5-4.0, Specific Gravity 1.15-1.25.		
4	Vendor Requirements		
4.1	Ship by truck in IBC 275 gallon totes rated for this product.		
4.3	Deliver product within 72 hours of order placement by GCDWR.		
4.4	Bid as U.S. dollars per 275 gallon IBC tote, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
5	Testing, Verification & Payment		
5.1	Payment will be for 275 gallon totes of product received at each location.		

Supplier Name _____

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28. Anthracite Filter Media		Comply	Exception
1	Standards and Certifications		
1.1	Meet AWWA B100-09 or latest revision if newer AWWA standard has been published.		
1.2	Meet NSF-61. Submit proof of NSF certification.		
2	Delivery Locations and Projected Annual Quantities		
2.1	Shoal Creek FP - 1 1,100 pound super sack		
2.2	Lanier FP - 1 1,100 pound super sack		
3	Material Specifications		
3.1	Provide anthracite filter media meeting the following material specifications: effective size (1.45-1.55 mm), uniformity coefficient (not greater than 1.40), specific gravity (1.55-1.65), maximum acid solubility (5 percent), maximum solubility in 1% NaOH solution (2 percent at 190 degrees F), and minimum Moh's hardness (2.7).		
3.2	Provide anthracite filter media sourced in the United States of America.		
4	Vendor Requirements		
4.1	Ship by truck in 1,100 pound super sacks.		
4.2	Place filter media in filter bed(s) selected by GCDWR, in the amount needed to meet filter design criteria (nominal depth).		
4.3	Deliver product within 4 weeks of order placement by GCDWR.		
4.4	Bid as U.S. dollars per 1,100 pound super sack, rounded to two (2) decimal places. If unit price bid exceeds two (2) decimal places, the bid amount will be truncated (not rounded) to two (2) decimal places.		
4.5	Submit manufacturer's certification that the proposed media is compatible for use with the existing underdrain and IMS caps.		
4.6	Submit certification of the source of the media material and results of all analysis required to meet Item 3.1 above.		
5	Testing, Verification & Payment		
5.1	Payment will be for 1,100 pound units of product received at each location.		

Supplier Name _____

Failure to return this page as part of your bid may result in rejection of bid.

Item #	Product	Description	Approx. Annual Qty.		Unit Price Bid	* 1st	* 2nd	* 3rd	* 4th
						Renewal	Renewal	Renewal	Renewal
1	Sodium Hydroxide (Caustic Soda)	Bulk Solution	183,940	Gallon	\$	%	%	%	%
2	Calcium Hypochlorite	Dry Product in Buckets	160	100 Pound Bucket	\$	%	%	%	%
3	Chlorine	Liquid in Standard DOT Containers	450	Ton	\$	%	%	%	%
4	Phosphate Corrosion Inhibitor	Bulk Solution	1,100	100 Gallons	\$	%	%	%	%
5	Fluorosilicic Acid	Bulk Solution	57,000	Gallon	\$	%	%	%	%
6	Liquid Calcium Hydroxide (Lime Slurry)	Bulk Slurry	4,900	100 Wet Pounds	\$	%	%	%	%
7	Liquid Ferric Chloride	Bulk Solution	6,125	100 Gallons	\$	%	%	%	%
8	Liquid Oxygen (LOX)	Bulk Liquid	1,230,000	100 Cubic Feet	\$	%	%	%	%
9	Liquid Nitrogen	Bulk Liquid	64,000	Liter	\$	%	%	%	%
8 & 9	Non-Emergency Labor for LOX and LN Equipment Maintenance	Per Person During Business Hours (7am-4pm, M-F)	16	Hour	\$	%	%	%	%
8 & 9	Non-Emergency Labor for LOX and LN Equipment Maintenance	Per Person During Non-Business Hours	16	Hour	\$	%	%	%	%
8 & 9	Emergency Labor for LOX and LN Equipment Maintenance	Per Person During Business Hours (7am-4pm, M-F)	16	Hour	\$	%	%	%	%
8 & 9	Emergency Labor for LOX and LN Equipment Maintenance	Per Person During Non-Business Hours	16	Hour	\$	%	%	%	%
8 & 9	Parts, Material and Equipment for LOX and LN System Maintenance, Percentage Charge Above Cost -- Not to Exceed 15% of Actual Costs				%	%	%	%	%
10	Hydrochloric Acid (10%)	Bulk Solution	250	Gallon	\$	%	%	%	%

Supplier Name _____

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Item #	Product	Description	Approx. Annual Qty.		Unit Price Bid	* 1st	* 2nd	* 3rd	* 4th
						Renewal	Renewal	Renewal	Renewal
11	Calcium Nitrate	Bulk Solution	478,500	Gallon	\$	%	%	%	%
12A	Calcium Oxide (Quicklime)	Bulk Dry Product	1,000	Ton	\$	%	%	%	%
12B	Calcium Hydroxide (Hydrated Lime)	Dry Product in Bags	100	50 Pound Bag	\$	%	%	%	%
13	Aluminum Sulfate (Liquid Alum)	Bulk Solution	660,000	Gallon	\$	%	%	%	%
14	Magnesium Hydroxide	Bulk Solution	1,035,000	Gallons	\$	%	%	%	%
15	Hydrochloric Acid (32%)	Solution in Drums	32	55 Gallons	\$	%	%	%	%
16A	Sodium Hypochlorite (Bleach)	Bulk Solution	421,000	Gallon	\$	%	%	%	%
16B	Sodium Hypochlorite (Bleach)	Solution in Drums	10	55 Gallon Drum	\$	%	%	%	%
17	Rock Salt	Dry Product in Bags	3,200	80 Pound Bag	\$	%	%	%	%
18	Sulfamic Acid	Dry Product in Bags	250	50 Pound Bag	\$	%	%	%	%
19A	Carbon	Dry Product in Drums	12	55 Gallon Drum	\$	%	%	%	%
19B	Carbon	Dry Product in Super Sacks	5	1100 Pound Sack	\$	%	%	%	%
20A	Carbon	Dry Product in Canister	20	12 Pound Canister	\$	%	%	%	%
20B	Carbon	Dry Product in Canister	32	30 Pound Canister	\$	%	%	%	%
20C	Carbon	Dry Product in Canister	12	50 Pound Canister	\$	%	%	%	%
21	Iron Sponge Filter Media	Dry Product Filter System	1	Filter System as Specified	\$	%	%	%	%
22	Siloxane Filter Media	Dry Product Filter System	1	Filter System as Specified	\$	%	%	%	%
23	Magnesium Oxide	Bulk Dry Product	1,600,000	Pound	\$	%	%	%	%

Supplier Name _____

Failure to return this page as part of your bid may result in rejection of bid.

Item #	Product	Description	Approx. Annual Qty.		Unit Price Bid	* 1st	* 2nd	* 3rd	* 4th
						Renewal	Renewal	Renewal	Renewal
24	Magnesium Chloride	Bulk Solution	10,000	Gallon	\$	%	%	%	%
25	Ascorbic Acid	Bulk Dry Product	44,500	Pound	\$	%	%	%	%
26	Peracetic Acid	Solution in Totes (unit cost to include feed equipment and maintenance)	18,500	Pound of PAA	\$	%	%	%	%
27A	Citric Acid Based Cleaner	Bulk Solution	112,000	Gallon	\$	%	%	%	%
27B	Citric Acid Based Cleaner	Solution in Totes	8	275 Gallon Tote	\$	%	%	%	%
28	Anthracite Filter Media	Dry Product in Super Sacks	2	1100 Pound Sack	\$	%	%	%	%
BID TOTAL					\$				

* Gwinnett County requires pricing to remain firm for the duration of the initial term of the contract. Unless otherwise noted below, quoted prices will remain firm for four (4) additional one (1) year periods. If a percentage decrease or increase will be a part of this bid, note this in the space provided.

Failure to return this page as part of your bid may result in rejection of bid.

Certification Of Non-Collusion In Bid Preparation _____
Signature Date

In compliance with the attached specifications, the undersigned offers and agrees, if this quote is accepted by the Board of Commissioners within ninety (90) days of the date of quote opening, to furnish any or all of the items upon which prices are quoted, at the price set opposite each item, delivered to the designated point(s) within the time specified in the quote schedule. By submission of this bid, I understand that Gwinnett County uses Electronic Payments for remittance of goods and services. Vendors should select their preferred method of electronic payment upon notice of award. For more information on electronic payments, please refer to the [Electronic Payment](#) information in the instructions to bidders.

Legal Business Name _____

Federal Tax ID _____

Complete Address _____

Does your company currently have a location within Gwinnett County? Yes No

Representative Signature _____

Printed Name _____

Telephone Number _____ Fax Number _____

E-mail address _____

FAILURE TO RETURN THIS PAGE AS PART OF YOUR BID DOCUMENT MAY RESULT IN REJECTION OF BID.

REFERENCES

Gwinnett County requests a minimum of three, (3) references where work of a similar size and scope has been completed.

1. COMPANY NAME _____

BRIEF DESCRIPTION OF PROJECT _____

COMPLETION DATE _____

CONTACT PERSON _____

TELEPHONE _____ FACSIMILE _____

E-MAIL ADDRESS _____

2. COMPANY NAME _____

BRIEF DESCRIPTION OF PROJECT _____

COMPLETION DATE _____

CONTACT PERSON _____

TELEPHONE _____ FACSIMILE _____

E-MAIL ADDRESS _____

3. COMPANY NAME _____

BRIEF DESCRIPTION OF PROJECT _____

COMPLETION DATE _____

CONTACT PERSON _____

TELEPHONE _____ FACSIMILE _____

E-MAIL ADDRESS _____

SUPPLIER NAME _____

AUTHORIZED REPRESENTATIVE _____

(SIGNATURE)



75 Langley Drive • Lawrenceville, GA 30045-6900
(tel) 770.822.8720 • (fax) 770.822.8735

gwinnettcounty

Bid # & Description BL086-16 Purchase of Water Treatment and Water Reclamation Chemicals on an Annual Contract

CODE OF ETHICS AFFIDAVIT

(THIS FORM SHOULD BE FULLY COMPLETED AND RETURNED WITH YOUR SUBMITTAL AND WILL BE REQUIRED PRIOR TO EVALUATION)

In accordance with Section 60-33 of the Gwinnett County Code of Ordinances the undersigned bidder/proposer makes the following full and complete disclosure under oath, to the best of his/her knowledge, of the name(s) of all elected officials whom it employs or who have a direct or indirect pecuniary interest in or with the bidder/proposer, its affiliates or its subcontractors:

1. _____
(Company Submitting Bid/Proposal)

2. (Please check one box below)

No information to disclose *(complete only section 4 below)*

Disclosed information below *(complete section 3 & section 4 below)*

3. (if additional space is required, please attach list)

Gwinnett County Elected Official Name

Gwinnett County Elected Official Name

Gwinnett County Elected Official Name

Gwinnett County Elected Official Name

4. BY: _____
Authorized Officer or Agent Signature

Sworn to and subscribed before me this
_____ day of _____, 20__

Printed Name of Authorized Officer or Agent

Notary Public

Title of Authorized Officer or Agent of Contractor

(seal)

Note: See Gwinnett County Code of Ethics Ordinance EO2011, Sec. 60-33. The ordinance will be Proud Winner of the Annual *Achievement of Excellence Award* in Procurement 10 Consecutive Years (1999-2008)



STANDARD INSURANCE REQUIREMENTS

1. Statutory Workers' Compensation Insurance
 - (a) Employers Liability:
 - ✓ Bodily Injury by Accident - \$100,000 each accident
 - ✓ Bodily Injury by Disease - \$500,000 policy limit
 - ✓ Bodily Injury by Disease - \$100,000 each employee

2. Commercial General Liability Insurance
 - (a) \$1,000,000 limit of liability per occurrence for bodily injury and property damage
 - (b) The following additional coverage must apply:
 - ✓ 1986 (or later) ISO Commercial General Liability Form
 - ✓ Dedicated Limits per Project Site or Location (CG 25 03 or CG 25 04)
 - ✓ Additional Insured Endorsement (Form B CG 20 10 with a modification for completed operations or a separate endorsement covering Completed Operations)
 - ✓ Blanket Contractual Liability
 - ✓ Broad Form Property Damage
 - ✓ Severability of Interest
 - ✓ Underground, explosion, and collapse coverage
 - ✓ Personal Injury (deleting both contractual and employee exclusions)
 - ✓ Incidental Medical Malpractice
 - ✓ Hostile Fire Pollution Wording

3. Auto Liability Insurance
 - (a) \$1,000,000 limit of liability per occurrence for bodily injury and property damage
 - (b) Comprehensive form covering all owned, non-owned, leased, hired, and borrowed vehicles
 - (c) Additional Insured Endorsement
 - (d) Contractual Liability

4. Umbrella Liability Insurance - \$1,000,000 limit of liability
 - (a) The following additional coverage must apply
 - ✓ Additional Insured Endorsement
 - ✓ Concurrency of Effective Dates with Primary
 - ✓ Blanket Contractual Liability
 - ✓ Drop Down Feature
 - ✓ Care, Custody, and Control - Follow Form Primary
 - ✓ Aggregates: Apply Where Applicable in Primary
 - ✓ Umbrella Policy must be as broad as the primary policy

5. Gwinnett County Board of Commissioners should be shown as an additional insured on General Liability, Auto Liability and Umbrella Liability policies.

6. The cancellation should provide 10 days notice for nonpayment and 30 days notice of cancellation.

7. Certificate Holder should read:
 - Gwinnett County Board of Commissioners
 - 75 Langley Drive
 - Lawrenceville, GA 30046-6935

8. Insurance Company, except Worker' Compensation carrier, must have an A.M. Best Rating of A-5 or higher. Certain Workers' Comp funds may be acceptable by the approval of the Insurance Unit. European markets including those based in London and domestic surplus lines markets that operate on a non-admitted basis are exempt from this requirement provided that the contractor's broker/agent can provide financial data to establish that a market is equal to or exceeds the financial strengths associated with the A.M. Best's rating of A-5 or better.

9. Insurance Company should be licensed to do business by the Georgia Department of Insurance.
10. Certificates of Insurance, and any subsequent renewals, must reference specific bid/contract by project name and project/bid number.
11. The Contractor shall agree to provide complete certified copies of current insurance policy (ies) or a certified letter from the insurance company (ies) if requested by the County to verify the compliance with these insurance requirements.
12. All insurance coverages required to be provided by the Contractor will be primary over any insurance program carried by the County.
13. Contractor shall incorporate a copy of the insurance requirements as herein provided in each and every subcontract with each and every Subcontractor in any tier, and shall require each and every Subcontractor of any tier to comply with all such requirements. Contractor agrees that if for any reason Subcontractor fails to procure and maintain insurance as required, all such required Insurance shall be procured and maintained by Contractor at Contractor's expense.
14. No Contractor or Subcontractor shall commence any work of any kind under this Contract until all insurance requirements contained in this Contract have been complied with and until evidence of such compliance satisfactory to Gwinnett County as to form and content has been filed with Gwinnett County. **The Acord Certificate of Insurance or a preapproved substitute is the required form in all cases where reference is made to a Certificate of Insurance or an approved substitute.**
15. The Contractor shall agree to waive all rights of subrogation against the County, the Board of Commissioners, its officers, officials, employees, and volunteers from losses arising from work performed by the contractor for the County.
16. Special Form Contractors' Equipment and Contents Insurance covering owned, used, and leased equipment, tools, supplies, and contents required to perform the services called for in the Contract. The coverage must be on a replacement cost basis. The County will be included as a Loss Payee in this coverage for County owned equipment, tools, supplies, and contents.
17. The Contractor shall make available to the County, through its records or records of their insurer, information regarding a specific claim related to any County project. Any loss run information available from the contractor or their insurer relating to a County project will be made available to the County upon their request.
18. Compliance by the Contractor and all subcontractors with the foregoing requirements as to carrying insurance shall not relieve the Contractor and all Subcontractors of their liability provisions of the Contract.
19. The Contractor and all Subcontractors are to comply with the Occupational Safety and Health Act of 1970, Public Law 91-956, and any other laws that may apply to this Contract.
20. The Contractor shall at a minimum apply risk management practices accepted by the contractors' industry.

*****ATTENTION*****

FAILURE TO RETURN THE FOLLOWING DOCUMENTS MAY RESULT IN BID BEING DEEMED NON-RESPONSIVE AND AUTOMATIC REJECTION:

1. FAILURE TO USE COUNTY BID SCHEDULE.
2. FAILURE TO RETURN APPLICABLE COMPLIANCE SHEETS/SPECIFICATION SHEETS.
3. FAILURE TO RETURN APPLICABLE ADDENDA.
4. FAILURE TO PROVIDE INFORMATION ON ALTERNATES OR EQUIVALENTS.
5. THE COUNTY SHALL BE THE SOLE DETERMINANT OF TECHNICALITY VS. NON-RESPONSIVE BID.
6. FAILURE TO PROVIDE BID BOND, WHEN REQUIRED, WILL RESULT IN BID BEING DEEMED NON-RESPONSIVE AND AUTOMATIC REJECTION. BID BONDS ARE NOT REQUIRED ON ALL BIDS. BOND REQUIREMENTS ARE CLEARLY STATED ON THE INVITATION TO BID. IF YOU NEED CLARIFICATION, CONTACT THE PURCHASING ASSOCIATE. **IF BONDS ARE REQUIRED, FORMS WILL BE PROVIDED IN THIS BID DOCUMENT.**
7. FAILURE TO PROVIDE CONTRACTOR AFFIDAVIT AND AGREEMENT, WHEN REQUIRED, MAY RESULT IN BID BEING DEEMED NON-RESPONSIVE AND AUTOMATIC REJECTION. CONTRACTOR AFFIDAVIT AND AGREEMENT IS NOT REQUIRED ON ALL BIDS. IF YOU NEED CLARIFICATION, CONTACT THE PURCHASING ASSOCIATE.

GWINNETT COUNTY
DEPARTMENT OF FINANCIAL SERVICES – PURCHASING DIVISION
GENERAL INSTRUCTIONS FOR BIDDERS, TERMS AND CONDITIONS

I. PREPARATION OF BIDS

- A. Each bidder shall examine the drawings, specifications, schedule and all instructions. Failure to do so will be at the bidder's risk, as the bidder will be held accountable for their bid response.
- B. Each bidder shall furnish all information required by the bid form or document. Each bidder shall sign the bid and print or type his or her name on the schedule. The person signing the bid must initial erasures or other changes. An authorized agent of the company must sign bids.
- C. With the exception of solicitations for the sale of real property, individuals, firms and businesses seeking an award of a Gwinnett County contract may not initiate or continue any verbal or written communications regarding a solicitation with any County officer, elected official, employee or other County representative other than the Purchasing Associate named in the solicitation between the date of the issuance of the solicitation and the date of the final contract award by the Board of Commissioners. The Purchasing Director will review violations. If determined that such communication has compromised the competitive process, the offer submitted by the individual, firm or business may be disqualified from consideration for award. Solicitations for the sale of real property may allow for verbal or written communications with the appropriate Gwinnett County representative.
- D. Sample contracts (if pertinent) are attached. These do NOT have to be filled out with the bid/proposal submittal, but are contained for informational purposes only. If awarded, the successful bidder(s) will be required to complete them prior to contract execution.
- E. Effective, July 1, 2013 and in accordance with the Georgia Illegal Reform and Enforcement, an original signed, notarized and fully completed Contractor Affidavit and Agreement should be included with your bid/proposal submittal, if the solicitation is for the physical performance of services for all labor or service contract(s) that exceed \$2,499.99 (except for services performed by an individual who is licensed pursuant to Title 26, Title 43, or the State Bar of Georgia). Failure to provide the Contractor Affidavit and Agreement with your bid/proposal submittal may result in bid/proposal being deemed non-responsive and automatic rejection.

II. DELIVERY

- A. Each bidder should state time of proposed delivery of goods or services.
- B. Words such as "immediate," "as soon as possible," etc. shall not be used. The known earliest date or the minimum number of calendar days required after receipt of order (delivery A.R.O.) shall be stated (if calendar days are used, include Saturday, Sunday and holidays in the number).

III. EXPLANATION TO BIDDERS

Any explanation desired by a bidder regarding the meaning or interpretation of the invitation for bids, drawings, specifications, etc. must be requested by the question cutoff deadline stated in the solicitation in order for a reply to reach all bidders before the close of bid. Any information given to a prospective bidder concerning an invitation for bid will be furnished to all prospective bidders as an addendum to the invitation if such information is necessary or if the lack of such information would be prejudicial to uninformed bidders. The written bid documents supersede any verbal or written communications between parties. Receipt of addendum should be acknowledged in the bid. **It is the bidder's responsibility to ensure that they have all applicable addenda prior to bid submittal.** This may be accomplished via contact with the assigned Procurement Agent prior to bid submittal.

IV. SUBMISSION OF BIDS

- A. Bids shall be enclosed in sealed envelopes, addressed to the Gwinnett County Purchasing Office with the name of the bidder, the date and hour of opening and the invitation to bid number on the face of the envelope. Telegraphic/faxed bids will not be considered. Any addenda should be enclosed in the sealed envelopes as well.

- B. ADD/DEDUCT: Add or deduct amounts indicated on the outside of the envelope are allowed and will be applied to the lump sum amount. Amount shall be clearly stated and should be initialed by an authorized company representative.
- C. Samples of items, when required, must be submitted within the time specified and, unless otherwise specified by the County, at no expense to the County. Unless otherwise specified, samples will be returned at the bidder's request and expense if items are not destroyed by testing.
- D. Items offered must meet required specifications and must be of a quality, which will adequately serve the use and purpose for which intended.
- E. Full identification of each item bid upon, including brand name, model, catalog number, etc. must be furnished to identify exactly what the bidder is offering. Manufacturer's literature may be furnished.
- F. The bidder must certify that items to be furnished are new and that the quality has not deteriorated so as to impair its usefulness.
- G. Unsigned bids will not be considered except in cases where bid is enclosed with other documents, which have been signed. The County will determine this.
- H. Gwinnett County is exempt from federal excise tax and Georgia sales tax with regard to goods and services purchased directly by Gwinnett County. Suppliers and contractors are responsible for federal excise tax and sales tax, including taxes for materials incorporated in county construction projects. Suppliers and contractors should contact the State of Georgia Sales Tax Division for additional information.
- I. Information submitted by a bidder in the bidding process shall be subject to disclosure after the public opening in accordance with the Georgia Open Records Act.

V. WITHDRAWAL OF BID DUE TO ERRORS

The bidder shall give notice in writing of his claim of right to withdraw his bid without penalty due to an error within two (2) business days after the conclusion of the bid opening procedure. Bids may be withdrawn from consideration if the price was substantially lower than the other bids due solely to a mistake therein, provided the bid was submitted in good faith, and the mistake was a clerical mistake as opposed to a judgment mistake, and was actually due to an unintentional arithmetic error or an unintentional omission of a quantity of work, labor or material made directly in the compilation of the bid, which unintentional arithmetic error or unintentional omission can be clearly shown by objective evidence drawn from inspection of original work papers, documents and material used in the preparation of the bid sought to be withdrawn. The bidder's original work papers shall be the sole acceptable evidence of error and mistake if he elects to withdraw his bid. If a bid is withdrawn under the authority of this provision, the lowest remaining responsive bid shall be deemed to be low bid.

No bidder who is permitted to withdraw a bid shall, for compensation, supply any material or labor or perform any subcontract or other work agreement for the person or firm to whom the contract is awarded or otherwise benefit, directly or indirectly, from the performance of the project for which the withdrawn bid was submitted.

Supplier has up to forty-eight (48) hours to notify the Gwinnett County Purchasing Office of an obvious clerical error made in calculation of bid in order to withdraw a bid after bid opening. Withdrawal of bid for this reason must be done in writing within the forty-eight (48) hour period. Suppliers who fail to request withdrawal of bid by the required forty-eight (48) hours shall automatically forfeit bid bond. Bid may not be withdrawn otherwise.

Bid withdrawal is not automatically granted and will be allowed solely at Gwinnett County's discretion.

VI. TESTING AND INSPECTION

Since tests may require several days for completion, the County reserves the right to use a portion of any supplies before the results of the tests are determined. Cost of inspections and tests of any item, which fails to meet the specifications, shall be borne by the bidder.

VII. F.O.B. POINT

Unless otherwise stated in the invitation to bid and any resulting contract, or unless qualified by the bidder, items shall be shipped F.O.B. Destination. The seller shall retain title for the risk of transportation, including the filing for loss or damages. The invoice covering the items is not payable until items are delivered and the contract of carriage has been completed. Unless the F.O.B. clause states otherwise, the seller assumes transportation and related charges either by payment or allowance.

VIII. PATENT INDEMNITY

The contractor guarantees to hold the County, its agents, officers or employees harmless from liability of any nature or kind for use of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, articles or appliances furnished or used in the performance of the contract, for which the contractor is not the patentee, assignee or licensee.

**IX. BID BONDS AND PAYMENT AND PERFORMANCE BONDS
(IF REQUIRED, FORMS WILL BE PROVIDED IN THIS DOCUMENT)**

A five percent (5%) bid bond, a one hundred percent (100%) performance bond, and a one hundred percent (100%) payment bond must be furnished to Gwinnett County for any bid as required in bid package or document. **Failure to submit a bid bond with the proper rating will result in the bid being deemed non-responsive.** Bonding company must be authorized to do business in Georgia by the Georgia Insurance Commission, listed in the Department of the Treasury's publication of companies holding certificates of authority as acceptable surety on Federal bonds and as acceptable reinsuring companies, and have an A.M. Best rating as stated in the insurance requirement of the solicitation. **The bid bond, payment bond, and performance bond must have the proper an A.M. Best rating as stated in the bid when required in the bid package or document.**

X. DISCOUNTS

- A. Time payment discounts will be considered in arriving at net prices and in award of bids. Offers of discounts for payment within ten (10) days following the end of the month are preferred.
- B. In connection with any discount offered, time will be computed from the date of delivery and acceptance at destination, or from the date correct invoice or voucher is received, whichever is the later date. Payment is deemed to be made for the purpose of earning the discount, on the date of the County check.

XI. AWARD

- A. Award will be made to the lowest responsive and responsible bidder. The quality of the articles to be supplied, their conformity with the specifications, their suitability to the requirements of the County, and the delivery terms will be taken into consideration in making the award. The County may make such investigations as it deems necessary to determine the ability of the bidder to perform, and the bidder shall furnish to the County all such information and data for this purpose as the County may request. The County reserves the right to reject any bid if the evidence submitted by, or investigation of such bidder fails to satisfy the County that such bidder is properly qualified to carry out the obligations of the contract.
- B. The County reserves the right to reject or accept any or all bids and to waive technicalities, informalities and minor irregularities in bids received.
- C. The County reserves the right to make an award as deemed in its best interest, which may include awarding a bid to a single bidder or multiple bidders; or to award the whole bid, only part of the bid, or none of the bid to single or multiple bidders, based on its sole discretion of its best interest.

XII. DELIVERY FAILURES

Failure of a contractor to deliver within the time specified or within reasonable time as interpreted by the Purchasing Director, or failure to make replacement of rejected articles/services when so requested, immediately or as directed by the Purchasing Director, shall constitute authority for the Purchasing Director to purchase in the open market articles/services of comparable grade to replace the articles/services rejected or not delivered. On all such purchases, the contractor shall reimburse the County within a reasonable time specified by the Purchasing Director for any expense incurred in excess of contract prices, or the County shall have the right to deduct such amount from monies owed the defaulting contractor. Alternatively, the County may penalize the contractor one percent (1%) per day for a period of up to ten (10) days for each

day that delivery or replacement is late. Should public necessity demand it, the County reserves the right to use or consume articles delivered which are substandard in quality, subject to an adjustment in price to be determined by the Purchasing Director.

XIII. COUNTY FURNISHED PROPERTY

No material, labor or facilities will be furnished by the County unless so provided in the invitation to bid.

XIV. REJECTION AND WITHDRAWAL OF BIDS

Failure to observe any of the instructions or conditions in this invitation to bid may constitute grounds for rejection of bid.

XVII. CONTRACT

Each bid is received with the understanding that the acceptance in writing by the County of the offer to furnish any or all of the commodities or services described therein shall constitute a contract between the bidder and the County which shall bind the bidder on his part to furnish and deliver the articles quoted at the prices stated in accordance with the conditions of said accepted bid. The County, on its part, may order from such contractor, except for cause beyond reasonable control, and to pay for, at the agreed prices, all articles specified and delivered.

Upon receipt of a bid package containing a Gwinnett County "Sample Contract" as part of the requirements, it is understood that the bidder has reviewed the documents with the understanding that Gwinnett County requires that all agreements between the parties must be entered into via this document. If any exceptions are taken to any part, each must be stated in detail and submitted as part of the bid. If no exceptions are stated, it is assumed that the bidder fully agrees to the provisions contained in the "Sample Contract" in its entirety.

When the contractor has performed in accordance with the provisions of this agreement, Gwinnett County shall pay to the contractor, within thirty (30) days of receipt of any department approved payment request and based upon work completed or service provided pursuant to the contract, the sum so requested, less the retainage stated in this agreement, if any. In the event that Gwinnett County fails to pay the contractor within sixty (60) days of receipt of a pay requested based upon work completed or service provided pursuant to the contract, the County shall pay the contractor interest at the rate of ½% per month or pro rata fraction thereof, beginning the sixty-first (61st) day following receipt of pay requests. The contractor's acceptance of progress payments or final payment shall release all claims for interest on said payment.

XVI. NON-COLLUSION

Bidder declares that the bid is not made in connection with any other bidder submitting a bid for the same commodity or commodities, and that the bid is bona fide and is in all respects fair and without collusion or fraud. An affidavit of non-collusion shall be executed by each bidder. Collusion and fraud in bid preparation shall be reported to the State of Georgia Attorney General and the United States Justice Department.

XVII. DEFAULT

The contract may be canceled or annulled by the Purchasing Director in whole or in part by written notice of default to the contractor upon non-performance or violation of contract terms. An award may be made to the next low responsive and responsible bidder, or articles specified may be purchased on the open market similar to those so terminated. In either event, the defaulting contractor (or his surety) shall be liable to the County for costs to the County in excess of the defaulted contract prices; provided, however, that the contractor shall continue the performance of this contract to the extent not terminated under the provisions of this clause. Failure of the contractor to deliver materials or services within the time stipulated on his bid, unless extended in writing by the Purchasing Director, shall constitute contract default.

XVIII. TERMINATION FOR CAUSE

The County may terminate this agreement for cause upon ten days prior written notice to the contractor of the contractor's default in the performance of any term of this agreement. Such termination shall be without prejudice to any of the County's rights or remedies by law.

XIX. TERMINATION FOR CONVENIENCE

The County may terminate this agreement for its convenience at any time upon 30 days written notice to the contractor. In the event of the County's termination of this agreement for convenience, the contractor will be paid for those services actually performed. Partially completed performance of the agreement will be compensated based upon a signed statement of completion to be submitted by the contractor, which shall itemize each element of performance.

XX. DISPUTES

Except as otherwise provided in the contract documents, any dispute concerning a question of fact arising under the contract which is not disposed of shall be decided after a hearing by the Purchasing Director, who shall reduce his/her decision to writing and mail or otherwise furnish a copy thereof to the contractor. The decision of the procurement agent shall be final and binding; however, the contractor shall have the right to appeal said decision to a court of competent jurisdiction.

XXI. SUBSTITUTIONS

Bidders offering and quoting on substitutions or who are deviating from the attached specifications shall list such deviations on a separate sheet to be submitted with their bid. The absence of such a substitution list shall indicate that the bidder has taken no exception to the specifications contained herein.

XXII. INELIGIBLE BIDDERS

The County may choose not to accept the bid of a bidder who is in default on the payment of taxes, licenses or other monies due to the County. Failure to respond to three (3) consecutive times for any given commodity/service may result in removal from the supplier list under that commodity/service.

XXIII. OCCUPATION TAX CERTIFICATE

Each successful bidder shall provide evidence of a valid Gwinnett County occupation tax certificate if the bidder maintains an office within the unincorporated area of Gwinnett County. Incorporated, out of County, and out of State bidders are required to provide evidence of a certificate to do business in any town, County or municipality in the State of Georgia, or as otherwise required by County ordinance or resolution.

XXIV. PURCHASING POLICY AND REVIEW COMMITTEE

The Purchasing Policy and Review Committee has been established to review purchasing procedures and make recommendations for changes; resolve problems regarding the purchasing process; make recommendations for standardization of commodities, schedule buying, qualified products list, annual contracts, supplier performance (Ineligible Source List), and other problems or requirements related to Purchasing. The Purchasing Policy & Review Committee has authority to place suppliers and contractors on the Ineligible Source List for reasons listed in Part 6, Section II of the Gwinnett County Purchasing Ordinance.

XXV. AMERICANS WITH DISABILITIES ACT

All contractors for Gwinnett County are required to comply with all applicable sections of the Americans with Disabilities Act (ADA) as an equal opportunity employer. In compliance with the Americans with Disabilities Act (ADA), Gwinnett County provides reasonable accommodations to permit a qualified applicant with a disability to enjoy the privileges of employment equal to those employees with disabilities. Disabled individuals must satisfy job requirements for education background, employment experience, and must be able to perform those tasks that are essential to the job with or without reasonable accommodations. Any requests for the reasonable accommodations required by individuals to fully participate in any open meeting, program or activity of Gwinnett County should be directed to Michael Plonowski, Human Relations Coordinator, 75 Langley Drive, Lawrenceville, Georgia 30046, 770-822-8015.

XXVI. ALTERATIONS OF SOLICITATION AND ASSOCIATED DOCUMENTS

Alterations of County documents are strictly prohibited and will result in automatic disqualification of the firm's solicitation response. If there are "exceptions" or comments to any of the solicitation requirements or other language, then the firm may make notes to those areas, but may not materially alter any document language.

XXVII. TAX LIABILITY

Local and state governmental entities must notify contractors of their use tax liability on public works projects. Under Georgia law, private contractors are responsible for paying a use tax equal to the sales tax rate on material and equipment purchased under a governmental exemption that is incorporated into a government construction project: excluding material and equipment provided for the installation, repair, or expansion of a public water, gas or sewer system when the property is installed for general distribution purposes. To the extent the tangible personal property maintains its character (for example the installation of a kitchen stove), it remains tax-exempt. However, if the installation incorporates the tangible personal property into realty, e.g., the installation of sheetrock, it becomes taxable to the private contractor. See O.C.G.A. 48-8-3(2) and O.C.G.A. 48-8-63

XVIII. STATE LAW REGARDING WORKER VERIFICATION

Effective July 1, 2013 State Law requires that all who enter into a contract for the physical performance of services for all labor or service contract(s) that exceed \$2,499.99 (except for services performed by an individual who is licensed pursuant to Title 26, Title 43, or the State Bar of Georgia) for the County, must satisfy the Illegal Immigration Reform and Enforcement Act, in all manner, and such are conditions of the contract.

The Purchasing Division Director with the assistance of the Performance Analysis Division shall be authorized to conduct random audits of a contractor's or subcontractors' compliance with the Illegal Immigration Reform and Enforcement Act and the rules and regulations of the Georgia Department of Labor. The contractor and subcontractors shall retain all documents and records of its compliance for a period of five (5) years following completion of the contract. This requirement shall apply to all contracts for all labor or service contracts that exceed \$2,499.99 except for services performed by an individual who is licensed pursuant to Title 26, Title 43, or the State Bar of Georgia.

Whenever it appears that a contractor's or subcontractor's records are not sufficient to verify the work eligibility of any individual in the employ of such contractor or subcontractor, the Purchasing Director shall report same to the Department of Homeland Security and may result in termination of the contract if it is determined at any time during the work that the contractor/or subcontractor is no longer in compliance with the Illegal Immigration Reform and Enforcement Act.

State Law requires that all who enter into a contract for public works as defined by O.C.G.A. 36-91-2(10) for the County must satisfy the Illegal Immigration Reform and Enforcement Act of 2011, in all manner, and such are conditions of the contract.

By submitting a bid to the County, contractor agrees that, in the event the contractor employs or contracts with any subcontractor(s) in connection with the covered contract, the contractor will secure from the subcontractor(s) such subcontractor(s)' indication of the employee-number category applicable to the subcontractor, as well as attestation(s) from such subcontractor(s) that they are in compliance with the Illegal Immigration Reform and Enforcement Act of 2011. Original signed, notarized Subcontractor Affidavits and Agreements must be submitted to the County.

The Purchasing Division Director with the assistance of the Performance Analysis Division shall be authorized to conduct random audits of a contractor's or subcontractors' compliance with the Illegal Immigration Reform and Enforcement Act of 2011 and the rules and regulations of the Georgia Department of Labor. The contractor and subcontractors shall retain all documents and records of its compliance for a period of three (3) years following completion of the contract. This requirement shall apply to all contracts for the public works as defined by O.C.G.A. 36-91-2(10) where any persons are employed on the County contract.

Whenever it appears that a contractor's or subcontractor's records are not sufficient to verify the work eligibility of any individual in the employ of such contractor or subcontractor, the Purchasing Director shall report same to the Department of Homeland Security.

A contractor's failure to participate in the federal work authorization program as defined by the Illegal Immigration Reform and Enforcement Act of 2011 shall be sanctioned by termination of the contract. If it is determined that a subcontractor is not participating in the federal work authorization program as defined by the Illegal Immigration Reform and Enforcement Act of 2011, Gwinnett County may direct the contractor to terminate that subcontractor. A contractor's failure to follow Gwinnett County's instruction to terminate a subcontractor that is not participating in the federal work authorization program as defined by the Illegal Immigration Reform and Enforcement Act of 2011 may be sanctioned by termination of the contract.

XXIX. SOLID WASTE ORDINANCE

No individual, partnership, corporation or other entity shall engage in solid waste handling except in such a manner as to conform to and comply with the current Gwinnett County Solid Waste Ordinance and all other applicable local, state and federal legislation, rules, regulation and orders.

XXX. GENERAL CONTRACTORS LICENSE

Effective July 1, 2008: **All General Contractors must have a current valid license from the State Licensing Board for Residential and General Contractors, unless specifically exempted from holding such license pursuant to Georgia law (O.C.G.A. Section 43-41-17).**

XXXI. INDEMNIFICATION

To the fullest extent permitted by law, the Contractor shall, at his sole cost and expense, indemnify, defend, satisfy all judgments, and hold harmless the County, the engineer, and their agents and employees from and against all claims, damages, actions, judgments, costs, penalties, liabilities, losses and expenses, including, but not limited to, attorney's fees arising out of or resulting from the performance of the work, provided that any such claim, damage, action, judgment, cost, penalty, liability, loss or expense (1) is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the work itself) including the loss of use resulting therefrom, and (2) is caused in whole or in part by any act or omission of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless whether such claim is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge or otherwise reduce any of the rights or obligations of indemnity which would otherwise exist as to any party or person described in this agreement. In any and all claims against the County, the engineer, or any of their agents or employees by any employee of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation contained herein shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any subcontractor under Worker's Compensation Acts, disability benefit acts, or other employee benefit acts.

XXXII. CODE OF ETHICS:

"Proposer/Bidder" shall disclose under oath the name of all elected officials whom it employs or who have a direct or indirect pecuniary interest in the business entity, its affiliates, or its subcontractors. The "Proposer/Bidder" shall execute a Code of Ethics affidavit. Failure to submit the affidavit during the bid or proposal process shall render the bid or proposal non-responsive.

The act of submitting false information or omitting material information shall be referred to the Purchasing Policy & Review Committee for action pursuant to the Purchasing Ordinance or to the District Attorney for possible criminal prosecution.

Any business entity holding a contract with Gwinnett County that subsequent to execution of the contract or issuance of the purchase order employs, subcontracts with, or transfers a direct or indirect pecuniary interest in the business entity to an elected official shall within five (5) days disclose such fact in writing under oath to the Clerk of the Board of Commissioners. Failure to comply shall be referred to the Purchasing Policy & Review Committee for action pursuant to the Purchasing Ordinance or to the District Attorney for possible criminal prosecution.

Note: See Gwinnett County Code of Ethics Ordinance EO2011, Sec. 60-33. The ordinance will be available to view in its entirety at www.gwinnettcountry.com.

XXXIII. PENDING LITIGATION:

A bid submitted by an individual, firm or business who has litigation pending against the County, or anyone representing a firm or business in litigation against the County, not arising out of the procurement process, will be disqualified.

XXXIV. ELECTRONIC PAYMENT

Vendors accepting procurements should select one of Gwinnett County's electronic payment options.

- A. A vendor may select ePayables payment process which allows acceptance of Gwinnett County's virtual credit card as payment for outstanding invoices. The authorized vendor representative must send an email to: vendorelectronicpayment@gwinnettcountry.com and indicate the desire to enroll in Gwinnett County's virtual credit card payment process.
- B. A vendor may select Direct Deposit payment process and the payment will be deposited directly into an account at their designated financial institution. To securely enroll in Direct Deposit, either access your online [Vendor Login and Registration](#) on the County's web site and update the requested information on the Direct Deposit tab or mail a Direct Deposit Authorization Agreement form.

The County will send a Payment Advice notification via email for both payment types. For more information about Electronic Payments, please go to the Treasury Division page on the County's Web Site or click here -> [Gwinnett County Electronic Payments](#).

FAILURE TO RETURN THIS PAGE MAY RESULT IN REMOVAL OF YOUR COMPANY FROM COMMODITY LISTING.

Buyer Initials: SM

IF YOU DESIRE TO SUBMIT A "NO BID" IN RESPONSE TO THIS PACKAGE, PLEASE INDICATE BY CHECKING ONE OR MORE OF THE REASONS LISTED BELOW AND EXPLAIN.

- Do not offer this product or service; remove us from your bidder's list for this item only.
- Specifications too "tight"; geared toward one brand or manufacturer only.
- Specifications are unclear.
- Unable to meet specifications
- Unable to meet bond requirements
- Unable to meet insurance requirements
- Our schedule would not permit us to perform.
- Insufficient time to respond.
- Other

SUPPLIER NAME _____

AUTHORIZED REPRESENTATIVE _____

SIGNATURE