

Attachment I

Chemicals delivered must be in strict conformance with the following specifications and all applicable standards. Chemicals will be ordered as needed in the following quantities:

<u>Item</u>	<u>Quantity per delivery</u>	<u>Estimated Total per year</u>
1. Aluminum Sulfate	11-12 Dry Tons	230 Dry Tons
2. 12 % Hypochlorite	20,850 lbs	240,000 lbs
3. Hydrated Lime	10,000 lbs	100,000 lbs
4. Hydrofluosilicic Acid	1,100 lbs	11,000 lbs
5. Sodium Bicarbonate	6,000 lbs	40,000 lbs
6. Corrosion Inhibitor	550 lbs	4,400 lbs
7. Potassium Permanganate	1,980 lbs	12,000 lbs
8. Powdered Activated Carbon	1,650 lbs	33,000 lbs
9. Copper Sulfate	2,000 lbs	16,000 lbs
10. Nonionic Coalagulant Polymer (Praestol 3100 TR, Superfloc N-1986 or Clarifloc R-N-6310)	550 lbs	8,250 lbs
11. Non-copper based algaecide (peroxyacetic based preferred)	2,200 lbs	15,000 lbs

ITEM 1

Aluminum Sulfate (liquid) - Approximately 48.5% dry aluminum sulfate in water and conforming to AWWA standard B-403-93 or most recent specification. The aluminum sulfate supplied under this contract shall contain no soluble mineral or organic substances in quantities capable of producing deleterious or injurious effects upon the public health or water quality. Liquid alum shall be no less than 8.0% total Al₂O₃. NSF 60 certification required. Pricing to be based on dry alum.

Delivery to the Water Treatment Plant, 816 Woodview Rd., Culpeper, VA and Wastewater Treatment Plant, 15108 Service Lane, Culpeper, VA.

ITEM 2

Hypochlorite-The hypochlorite solution shall be a > 12% strength solution with a pH greater than 11 S.U. The hypochlorite shall be hauled in a 5,000 gallon tanker truck with a standard bulkhead fitting. A maximum size of 2,500 gallons will be required per shipment. The hypochlorite solution shall contain a minimal amount of soluble mineral or organic substances in quantities capable of producing deleterious or injurious effects upon public health or water quality. NSF 60 certification required.

Delivery to the Water Treatment Plant, 816 Woodview Rd., Culpeper, VA.

ITEM 3

Hydrated Lime – The lime shall be packed in multi wall 50 pound paper bags and conform to AWWA standard B-202-93 or most recent specification. The lime needs to contain a minimum calcium concentration of 51.5%. It shall contain no mineral or organic substances in quantities capable of producing deleterious or injurious effects upon the public health or water quality. NSF 60 certification required.

Delivery to the Water Treatment Plant, 816 Woodview Rd., Culpeper, VA.

ITEM 4

Hydrofluosilicic Acid, (HFS) – HSF shall be furnished in 55 gallon drums and conform to AWWA standard B-703-94 or most recent specification. The material should be at least 23-25% hydrofluosilicic acid. NSF 60 certification required.

Delivery to the Water Treatment Plant, 816 Woodview Rd., Culpeper, VA.

ITEM 5

Sodium Bicarbonate – Technical grade. The material shall be placed in 50 lb. bags. The material shall contain 97% sodium bicarbonate and material furnished shall be free from chips or other foreign material.

Delivery to the Wastewater Treatment Plant, 15108 Service Lane, Culpeper, VA.

ITEM 6

Corrosion Inhibitor – This shall be furnished in liquid form in 55 or 30 gallon drums with a phosphate concentration of 32-38% and a density of approximately 11.1 lbs/gal. The corrosion inhibitor shall be Sweetwater CP-722, Calgon C4 or approved equal. NSF 60 certification required.

Delivery to the Water Treatment Plant, 816 Woodview Rd., Culpeper, VA.

ITEM 7

Potassium Permanganate – Potassium Permanganate shall be furnished in granular form and must conform to AWWA standard B603-88 or most recent specification. The material must be 97.5% Potassium Permanganate minimum. It must be free of insoluble material. It shall be furnished in 5 gallon pails. The potassium permanganate shall be Carus Chemical Company; CAIROX Free-Flowing Grade Potassium Permanganate or approved equal. NSF 60 certification required.
Delivery to the Water Treatment Plant, 816 Woodview Rd., Culpeper, VA.

ITEM 8

Powdered Activated Carbon – Powdered Activated Carbon shall be furnished in bags no greater than 50 pounds and shall conform to AWWA standard B600-05 or most recent specifications. This material should be 100% carbon and free from chips or other foreign matter with a real density of 2.3 g/ml and a packing density of 0.4-0.7 g/ml. It should not contain any insoluble material or organic substances in quantities capable of producing deleterious or injurious effects upon the public health or water quality. NSF 60 certification required.
Delivery to the Water Treatment Plant, 816 Woodview Rd., Culpeper, VA.

ITEM 9

Copper Sulfate Pentahydrate meeting the following specifications:
50 lb bags. Medium Granular size (4-7mm) only. Cupric Sulfate Pentahydrate — 99.0 % (min.) Copper Content — 25% (min.) Iron — 0.1 % (max.) Insolubles — 0.6 % (typical). NSF 60 certification required. Product is also required to be EPA registered and OMRI Listed. Copper Sulfate Pentahydrate to be from Chem One or approved equal.
Delivery to the Water Treatment Plant, 816 Woodview Rd., Culpeper, VA.

ITEM 10

Nonionic Coagulant Polymer (Praestol 3100 TR, Superfloc N-1986 or Clarifloc R-N-6310) – Must meet all potable water standards for the use in the coagulations and flocculation process. Delivery in 55 gallon drums. NSF 60 certification required.
Delivery to the Water Treatment Plant, 816 Woodview Rd., Culpeper, VA.

ITEM 11

Non-copper based algaecide (peroxyacetic acid/peroxide based preferred)- This shall be furnished in liquid or solid form in 250 gallon totes, 50 lb buckets or 55 gallon drums with a peroxyacetic acid concentration of 7% and a peroxide concentration of 23%. Recycling of totes is also preferred. NSF 60 certification required.
Delivery to the Water Treatment Plant, 816 Woodview Rd., Culpeper, VA.