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# **OPERATION OF THE POTABLE WATER SYSTEMS**

PR	PROCEDURE USAGE REQUIREMENTS-				
Continuous Use:	Procedure must be open and readily available at the work location. Follow procedure step by step unless otherwise directed.	All Checklists			
Reference Use:	Procedure or applicable section(s) available at the work location for ready reference by person performing steps.	4.0 To End (Except all Checklists)			
Information Use:	Available on plant site for reference as needed.	1.0 To 3.4			

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### INFORMATION USE

### 1.0 <u>PURPOSE</u>

This procedure provides specific instructions for the operation and chemical surveillance of the potable water systems:

### 4.0 OPERATION OF THE PLANT POTABLE WATER SYSTEM

- 4.5 PHOSPHATE BASE UNIT REFILL
- 4.6 ADDING SODIUM HYPOCHLORITE (NaOCI) TO NaOCL CHEMICAL INJECTION TANK VIA 55 GALLON DRUMS
- 5.0 <u>SURVEILLANCE</u>
- 5.1 PLANT POTABLE WATER
- 6.0 TRAINING CENTER POTABLE WATER
- 7.0 RECREATION AREA POTABLE WATER

### 2.0 PRECAUTIONS AND LIMITATIONS

- 2.1 Sodium hypochlorite causes severe burns. Avoid contact to eyes, skin, or clothing. Do not breathe vapors. Vacate poorly ventilated areas as soon as possible and do not return until odors have dissipated. Always wear safety glasses or goggles and rubber gloves or equivalent when handling sodium hypochlorite.
- 2.2 Potassium permanganate is a strong oxidizer. Contact with other material may cause fire. It is harmful if swallowed or inhaled. Keep from contact with clothing and other combustible material. Avoid contact with eyes, skin, and clothing. Keep container tightly closed and away from heat. Always wear safety glasses or goggles and rubber gloves or equivalent when handling potassium permanganate.
- 2.3 Sodium phosphate may be irritating on contact with skin, eyes or mucous membranes. Contact with eyes may cause burns and it may be harmful if swallowed. Safety glasses and gloves should be worn at all times.
- 2.4 The Chemistry Manager is responsible for potable water treatment system permit implementation and control, ensuring site compliance with state rules and regulations, reporting requirements, and qualification and certification of personnel who operate and analyze potable water systems.
- 2.5 Microbiological samples must be received by EPD's water laboratory within 24 hours of collection. Any sample that is over 30 hours old will not be analyzed by the EPD. Replacement samples must also be less than 30 hours old. A "Failure to Monitor" violation will be issued if a replacement sample is not received.

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	2.6	Mol cont fron basi	bile or portable chemical product storage tanks, 55-gallon drums, and c tainers should be positioned or located so as to prevent spilled chemics n reaching drainage structures. A secondary means of containment, suc ins, or spill pallets, should be provided as needed.	other small al products ch as dikes,	
1	3.0	<u>MA</u>	TERIALS		
	3.1	Sod	ium hypochlorite (NaOCl)		
	3.2	Ligł	at Soda Ash (Na <sub>2</sub> C0 <sub>3</sub> ) - C.P. grade.		
	3.3	Pota	assium Permanganate (KMnO <sub>4</sub> ) - Filter Oxidizing chemical		
	3.4	Sod	ium phosphate, tribasic		
			<b>REFERENCE USE</b>		
	4.0	<u>OPI</u>	ERATION OF THE PLANT POTABLE WATER SYSTEM		
الانها	1		<b>NOTE</b> Subsections of section 4.0 may be performed concurrently or in ar required	iy order as	
	4.1	NO	RMAL CHLORINATION METHOD		
	4.1.1	Ensu galle	ure an adequate supply of sodium hypochlorite (NaOC1) is available i on chemical addition tank. If not, proceed to section 4.6 of this procedur	in the 250- re.	
			NOTE		
			It may be necessary to dilute the concentrated sodium hypochl (NaOC1) to a concentration that will prevent the need to prime chemical injection pumps frequently and allow for uninterru automatic operation.	lorite e the upted	
	4.1.2	Sodi C-24	ium hypochlorite injection into the Potable Water System us 417-P4-507.	ing pump	
	4.1.2.1	Enst	are OPEN/Open C-2417-U4-615 hypochlorite tank outlet isolation.		
	4.1.2.2	Ensu isola	re OPEN/Open C-2417-U4-612, hypochlorite pump C-2417-P4-507 ation.	discharge	
	4.1.3	The posit	pump can be primed by placing handswitch C-HS-17422B in th tion.	ne HAND	

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لويم	4.1.4	Ens des chl	ure the pump is primed and set pump stroke to appropriate setting t ired residual $Cl_2$ . Adjust pump stroke as needed to maintain desire orine.	o maintain ed residual	
			NOTE		
			If adding NaOCl with pump in HAND (manual), sample eye residual while pump is running. Once desired concentration in residual chlorine is noted handswitch C-HS17422B can be plac OFF to stop addition or AUTO to maintain desired concentration.	wash i free ed in	
	4.1.5	Plac the	e the handswitch C-HS17422B in the HAND position for manual operation for normal operation.	ration or in	
			NOTE		
			A free residual chlorine of at least 0.2 ppm should be maintained a visitor center. If analysis results indicate a free residual of $<0.2$ adjust Cl <sub>2</sub> feed. If after four hours chlorine residual does not a within the required concentration range, immediately notify Cher supervision.	at the ppm return nistry	
19°	4.1.6	Afte ensi	r the $Cl_2$ feed rate has been adjusted, sample the potable water peri are the free residual $Cl_2$ is 0.2-3.0 ppm.	odically to	
		a.	Make further adjustments as analysis results indicate.		
	4.2	AL	FERNATE CHEMICAL ADDITION METHODS		
			NOTES		
			a. Ensure appropriate safety measures are taken while pe alternate method of chemical addition.	rforming	
ĺ			b. Inject as necessary to maintain free residual chlorine 0.2 - and phosphate total concentration 2-6 ppm.	- 3.0 ppm	
			c. If addition of chemicals is necessary thru potable water state tank manway, notify Chemistry Manager or designee.	orage	
			d. When adding chemicals through the manway the present another person may be necessary.	ce of	
J	4.2.1	Che	mical addition to potable water storage tank.		

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للو ي الم	4.2.1.1	Add Pota	l sodium hypochlorite and/or sodium phosphate through the many able Water Storage Tank.	way of the						
	4.3	PH	HOSPHATE ADDITION							
	4.3.1	Ens	ure an adequate supply of phosphate is available in the chemical addition	on tank.						
	4.3.2	To i C-14	inject phosphate into the Potable Water System, Ensure OPEN/Open va 408-U4-579, phosphate skid to potable water isolation.	lve						
	4.3.3	Plug	g the pump in the dedicated receptacle.							
	4.3.4	Set cone	pump stroke/speed to appropriate setting to maintain desired centration.	phosphate						
	4.4	NA	NAOCL SYSTEM SHUTDOWN FOR PLANT POTABLE WATER SYSTEM							
	4.4.1	Place handswitch C-HS 17422B in the OFF position.								
<b>t</b> "	4.4.2	CLC	DSE valve C-2417-U4-615, hypochlorite tank outlet.							
	4.4.3	CLC isola	DSE valve C-2417-U4-612, hypochlorite pump C-2417-P4-507 ation.	discharge						
	4.5	PHO	OSPHATE BASE UNIT REFILL							
			NOTES							
			a. The following steps require two chemistry-qualified personr	iel.						
			b. Checklist 1 shall be performed when performing section 4.5							
	4.5.1	Mov	ve a phosphate refill container to the phosphate tote base unit location.							
	4.5.2	Veri (Nal	fy and Independently verify contents of the refill container is phosphate co Product # 7399)	>						
	4.5.3	Veri	fy the transfer hose is connected to the top bung of the phosphate tote b	oase unit						
		a.	Place empty bucket below the connection of the bottom outlet and h	ose connection	•					
		b.	Remove the transfer hose cap							
4		c.	Complete the connection by connecting the opposite end of the tran hose to the bottom outlet of the refill phosphate container.	ısfer						

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Í	NOTE	
	Vent paths may be established by removing a cap or plug on top of unit.	either
4.5.4	Ensure open and/or OPEN as necessary the phosphate tote base unit vent, is pressurize the tank.	n order not to
4.5.5	Open a vent on the phosphate refill container to prevent vacuum.	
4.5.6	Carefully open the bottom outlet valve on the phosphate refill container and desired amount to the phosphate tote base unit.	l transfer the
4.5.7	Observe phosphate tote base unit level as tank is refilled. Do not allow tank	k to over flow.
4.5.8	When desired amount has been added, close the refill phosphate container l valve.	pottom outlet
4.5.9	Disconnect the transfer hose from the bottom outlet valve, containing any s bucket.	pillage in
4.5.10	Replace transfer hose cap	
4.6	ADDING SODIUM HYPOCHLORITE (NaOCI) TO NaOCL CH INJECTION TANK VIA 55 GALLON DRUMS	IEMICAL
	<b>NOTE</b> Checklist 2 shall be performed in conjunction when performing se 4.6	ection
4.6.1	Verify and Independently verify that the content of the drum to be added Hypochlorite.	is Sodium
4.6.2	Open drum and install drum pump.	
4.6.3	Ensure transfer hose is placed within the Injection tank. If necessary, secu hose.	ire the transfer
4.6.4	Connect power to the drum pump.	
4.6.5	Start the drum pump and transfer the desired amount of sodium hypochlorit	te.
4.6.6	Once transfer is completed, stop and then remove the drum pump.	
4.6.7	If necessary, replace drum plugs.	

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### SURVEILLANCE

5.0

The Recreation Area and Training Center potable water systems may be left unattended for up to four consecutive days during periods of low usage (i.e. weekends and holidays), provided that the hypochlorite containers are filled to ensure that there will be an adequate supply of hypochlorite. Plant Potable Water shall be analyzed and results recorded every day including weekends and holidays.

Most surveillances are performed daily. Samples should be taken at approximately the same time daily if possible. Data should be recorded on the appropriate Work Sheet and entered in the chemistry Open CDM database. It is permissible and desired to log routine data on the same line of the Work Sheet as long as the times are approximately (within about four hours) the same. Out of specification samples will be tracked on Open CDM or the appropriate work sheet and additional samples will be taken and logged until their subsequent return to specification. If system does not meet specifications within a 24-hour period, the initial out of specification sample result will be logged on the state well water report.

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<b>Ve</b> ue	5.1	PLA	NT POT	ABLE WATER	L	<u> </u>
				NOTE		
	5.1.1	Daily	All apj if avai	propriate data points should be entered into Open CDM, lable, on a timely basis.		
		a.	Distrił	oution System		
			(1)	Collect a sample from the maintenance shop break room analyze for free chlorine and pH. Log results on Work and/or tickler card.	daily and Sheet 1A	
			(2)	Collect a sample from a tap at the Visitor Center (not fountain) daily and analyze for free chlorine and pH. Lo Work Sheet 1 and/ or the tickler card.	a drinking g results on	
			(3)	If any of the results are out of limits, notify Laboratory super	vision.	
	1	b.	Chlori	nation Building		
~-			(1)	Record the date and time on the Data Sheet and/or the tickler	card.	
			(2)	Observe "gallons" reading on the totalizing meter and rafigure in the "Meter Reading" column on Work Sheet 1A tickler card. To determine gallons of water processed per da the previous day's reading from the current reading, and rafigure in the "Water treated" column of Work Sheet 1 and/or card.	ecord this and/or the ly, subtract record this the tickler	
			(3)	Observe gallons of sodium hypochlorite remaining in the record this figure in the appropriate place on Work Sheet 1A tickler card. Tank level should not be allowed to go below to ensure pump does not pump dry unless needed for m activity.	tank and and/or the 25 gallons aintenance	
			(4)	If Sodium Hypochlorite was added to the NaOCL chemica tank via 55 gallon drum per section 4.6, record the gallons added on Work Sheet 1 and of the tickler card.	l injection of bleach	
الل			(5)	If Phosphate was added to the Phosphate base unit via a refill container per section 4.5, record the gallons of phosph on Work Sheet 1 and/or the tickler card.	phosphate nate added	

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Ver P	5.1.2	We	ekly	k	
		a.	Collect a sample from the in-service well at C-1408-U4-537 (v C-1408-U4-538 (well 2) and analyze for pH and turbidity.	well 1) or	
		b.	Record the pH analysis results on Work Sheet 1 and/or the tic Record the turbidity results on Work Sheet 1A and or the tickler care	ckler card. d.	Ì
	5.1.3	Twi	ice Weekly		ł
		a.	Collect a sample from a tap at the Visitor Center (not a drinking Sample at maintenance shop break room when directed by lab super	fountain). vision.	
		b.	Analyze for total phosphate, ortho phosphate, and alkalinity.		
		c.	Record distribution results on Work Sheet 1 and/or the tickler can break room total phosphate results on Work Sheet 1A or tickler card	rd. Record I.	
	5.1.4	Mor	nthly		
		a.	Forward a copy of completed Work Sheets if utilized, to the chemist specialist who prepares the State of Georgia Well Water Plant Report example on Figure 2).	ry nuclear rt (see	
	5.1.5	Qua	urterly		
	l		NOTE		ļ
			Total Coliform bacteria analysis samples should be collected after hrs. The samples must be received by the Georgia Department of Na Resources within 24 hours and they must begin analysis within 30 h from the time that the site obtained the sample.	1100 itural nours	
		a.	Collect one sample from the Visitor Center (not a drinking fountain coliform bacteria analysis.	n) for total	
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		Ь.	Collect this sample on the third Wednesday of March, June, Septe December. A treated bottle accompanied by directions for co- packaging, and return to the state will be provided by the Georgia D of Natural Resources. This sample is to be sent by Fedex, UPS overnight carrier to: Georgia Department of Natural Resources	mber, and ollections, epartment , or other	
			Water Laboratory		
			455 14° St., N.W. Atlanta Georgia 30318-7900		
	5.1.6	REF	PEAT MONITORING FOR TOTAL COLIFORM		
	5.1.6.1	If th time samj colle	e Division notifies the site that it has received a sample after 24 hours from the sample was obtained or if the Division notifies the site that it analyze ple after 30 hours from the time that the sample was obtained, the site m ect additional samples as directed by the Division.	om the zed a ust	
	5.1.6.2	If a f set o Envi one for e limit repe take	routine sample is total coliform-positive, the public water system must c of repeat samples within 24 hours of being notified of the positive result. ironmental Affairs for assistance as needed. A system which normally c routine sample per month or fewer must collect no fewer than four repeat each total coliform-positive sample found. The Division may extend the t on a case-by-case basis if the system has a logistical problem in collect at samples within 24 hours that is beyond its control. Repeat samples sin n as follows:	ollect a Contact ollects at samples. 24-hour ing the hould be	
			• One sample at original coliform-positive sample point		
		•	• One sample downstream of original point		
		•	• One sample upstream of original point		ļ
		•	• One sample from any other location in the system.		
			If the original sample point was an endpoint or one point away from then sample the required downstream sample elsewhere in the and note where appropriate.	n the end, he systern	

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	5.1.7	Ann	iually			I
				NOTE		
			Each witho the ur	room containing a sample point for lead and copper samplin out water flow (i.e., a bathroom with a sink to be sampled mu- cinal or toilet flushed or sink used) for at least 6 hours prior to s	ig must be st not have sampling.	
		a.	Collec Water	ct one (1) sample each of treated water from any tap in the Pla r Distribution System for the following analyses:	ant Potable	
			-	One sample for nitrate analysis.		
			-	One sample for nitrite analysis.		
		b.	After	samples are collected send to:		
			Georg 455 14 Atlan	yia EPD Metals Lab 4 <sup>th</sup> St., N.W. ta, Georgia 30318-7900		I
( العما	5.1.8	Onc	e Every T	Three Years		
		a.	When OUT	preparing to collect samples for lead and copper, obtain copie. OF SERVICE sign (see Figure 5).	s of the	
			(1)	Flush each sample line for at least 30 minutes prior to iso lead and copper sample location.	olating the	
			(2)	After flushing is complete, post the OUT OF SERVICE s entrance of the room.	sign at the	
			(3)	After six hours, in accordance with EPD directions containe sample bottles provided by Georgia EPD, collect ten (10) sar of treated water from designated taps (see Table 1) in the PI Distribution System for lead/copper analysis.	d with the mples each lant Vogtle	
		b.	After :	samples are collected send to:		
			Georg	gia EPD Metals Lab		
	1		455 14	4 <sup>th</sup> St., N.W.		
4×)			Ananu	a, Georgia 50518-7900		

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<b>1</b>	5.1.9	Oth	er Frequency	
	5.1.9.1	Usi	ng bottles provided by Georgia EPD,	
		a.	Collect one (1) sample, in accordance with EPD instructions according bottles, of treated water for the following analyses:	ompanying
			1. Inorganic contaminants (IOCs) once every three years or as re EPD,	equired by
ļ			<ol> <li>Volatile organic contaminants (VOC) analysis once every three required by EPD,</li> </ol>	years or as
			3. Total Trihalomethanes (TTHMs) once every three years or as r EPD, and	equired by
			4. Haloacetic Acids (HAA5) once every three years or as required b	by EPD.
		b.	After samples are collected, send in accordance with EPD instruction	ns to:
6	<b>)</b> 		Georgia Department of Natural Resources Water Laboratory 455 14 <sup>th</sup> St. N.W.	
	1		Atlanta, Georgia 30318-7900	
	5.1.10	Upc	on Request for placing well #2 in service	
		a.	Collect samples from makeup well 2 at valve C-1408-U4-538.	,
		b.	Analyze for turbidity per procedure 32018-C "Determination of Tu support Operations return to service.	rbidity" to
	l l	c.	Turbidity limit to return the well to service is $\leq$ 3.5 NTU.	
	I	d.	Log turbidity results on Work Sheet 1A and/or tickler card.	
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### 5.2 GUIDELINES FOR TREATMENT CHEMICALS (PLANT POTABLE WATER SYSTEM)

Guidelines for Drinking Water Parameters

Parameter	Units	Target	Specification
pH		7.1-8.4	7.0 - 8.5
Free Chlorine	ine $ppm - Cl_2 \ge 0.2$		0.2 - 3.0
Total phosphate	ppm	3.2-4.8	2-6

The targets for pH and free chlorine are met in the Plant Potable Water Distribution System.

5.2.1 If either of the parameters is out of limits, take corrective actions to return them to the normal range. If they do not return to the normal range within four hours, notify laboratory supervision.

#### 6.0 TRAINING CENTER POTABLE WATER

### NOTE

All appropriate data points should be entered into Open CDM, if available, on a timely basis.

### 6.1 DAILY

- 6.1.1 Pump House
  - Observe "gallons" reading on the totalizing meter and record this figure in the a. "Meter Reading" column on Work Sheet 2A and/or tickler card. To determine gallons of water processed per day, subtract the previous day's reading form the current reading, and record this figure in the "Water treated" column of Work Sheet 2 and/or tickler card A and/or tickler card.
  - Measure free Chlorine and pH at TC-V-1 located on the Sand Filter discharge. b. Log results on Work Sheet 2A and/or the tickler card.

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ζ.	612 Dist		<u>1</u> <u>14 01 42</u>						
	0.1.2	Dist	nounon 5	ystem		-			
I		a.	Measu located tickler	re free chlorine and pH of a water sample collected from I in the distribution system. Record results on Work Shee card.	n any tap t 2 and/or				
	2 	b. If nee adjust		led adjust the chlorine concentration in the chemical solution the chlorine pump stroke to meet the specifications.	on tank or				
	6.1.3	Che	mical Add	nical Addition Tank <b>NOTE</b>					
			a.	The applicable step(s) of Checklist 3 shall be performe conjunction with performing applicable step 6.1.3.1.a 6.1.3.1.e. On the initial opening of chemicals perfor verification and independent verification of chemical, after only a verification is needed.	ed in thru m a ward				
			b.	If necessary, chemical ratios may be lowered or increase maintain the desired concentration with lab supervision appro-	ed to oval.				
	6.1.3.1	Fill	chemical a	addition tanks when level decreases to about 1/2 full or less.					
		a.	NaOCI	pretreatment containers					
			(1)	Verify the refill container is that of sodium hypochlorite label container.	and				
			(2)	Fill the two (2) NaOCl pretreatment containers at a rati approximately 2 liters/50 gallons.	o of				
			(3)	Record mls of NaOC1 on Work Sheet 2 and/or tickler card.					
		b.	NaOCI	post-treatment container.					
			(1)	Verify the refill container is that of sodium hypochlorite label container.	and				
			(2)	Fill the NaOCl post-treatment container at a ratio of approx liters/50 gallons.	cimately 9				
<b>N</b>			(3)	Record mls of NaOC1 on Work Sheet 2 and/or tickler card.					
}									

Date Approved       OPERATION OF THE POTABLE WATER SYSTEMS       Page         11/18/2006       c.       Phosphate post-treatment container       (1)       Verify the refill container is that of Nalco 7399 phosphate and label container.       (2)       Fill the phosphate post-treatment container at a ratio o approximately 3 liters/50 gallons.       (3)       Record mls of phosphate on Work Sheet 2 and/or tickler card.       (4)       Potassium permanganate container       (1)       Verify the refill container is that of Potassium permanganate and label container.       (2)       Fill the Potassium permanganate container at a ratio of 100 grams/50 gallons.       (3)       Record grams potassium permanganate added into Potassium permanganate container on Work Sheet 2A and/or tickler card.       (2)       Fill the Potassium permanganate container at a ratio of 100 grams/50 gallons.       (3)         (3)       Record grams potassium permanganate added into Potassium permanganate container on Work Sheet 2A and/or tickler card.       (2)       Fill the Potassium permanganate container on Work Sheet 2 and/or tickler card.         (4)       e.       Record grams of soda ash added to the tank on Work Sheet 2 and/or tickler card.         (5.2)       WEEKLY       NOTE         To perform 6.2.1 and 6.2.2, it is preferred the well pump be running. To accomplish this, the tank blowdown valve TC-V-12 can be opence slightly until the tank level lowers enough to start the automatic makeup.       (2.1)         (2.2)       Collect a sample of the well water at TC-V-2. Analyze this sa		n		1	Vogtle Electric Generating Plant	Procedure Number 35570-C	Rev 47
<ul> <li>c. Phosphate post-treatment container         <ol> <li>Verify the refill container is that of Nalco 7399 phosphate and label container.</li> <li>Fill the phosphate post-treatment container at a ratio o approximately 3 liters/50 gallons.</li> <li>Record mls of phosphate on Work Sheet 2 and/or tickler card.</li> <li>d. Potassium permanganate container                 <ol></ol></li></ol></li></ul>	l				OPERATION OF THE POTABLE WATER SYSTEMS	Page Number 15 of 4	2
<ul> <li>(1) Verify the refill container is that of Nalco 7399 phosphate and label container.</li> <li>(2) Fill the phosphate post-treatment container at a ratio or approximately 3 liters/50 gallons.</li> <li>(3) Record mls of phosphate on Work Sheet 2 and/or tickler card.</li> <li>d. Potassium permanganate container</li> <li>(1) Verify the refill container is that of Potassium permanganate and label container.</li> <li>(2) Fill the Potassium permanganate container at a ratio of 100 grams/50 gallons.</li> <li>(3) Record grams potassium permanganate added into Potassium permanganate container on Work Sheet 2 and/or tickler card.</li> <li>(3) Record grams potassium permanganate added into Potassium permanganate container on Work Sheet 2 and/or tickler card.</li> <li>(4) Record grams of soda ash added to the tank on Work Sheet 2 and/or card.</li> <li>(5.2) WEEKLY NOTE To perform 6.2.1 and 6.2.2, it is preferred the well pump be running. To accomplish this, the tank lovel lowers enough to start the automatic makeup. 6.2.1 Collect a sample of the well water at TC-V-2. Analyze this sample for pH ar results on Work Sheet 2 and or the tickler card. 6.2.2 Measure free chlorine at TC-V-5. This chlorine concentration is determin chemistry supervision based on vendor recommendations. This chlorine value logged.</li></ul>	Ĭ	•		Phospl	hate post-treatment container		
<ul> <li>(2) Fill the phosphate post-treatment container at a ratio o approximately 3 liters/50 gallons.</li> <li>(3) Record mls of phosphate on Work Sheet 2 and/or tickler card.</li> <li>(4) Potassium permanganate container</li> <li>(1) Verify the refill container is that of Potassium permanganate and label container.</li> <li>(2) Fill the Potassium permanganate container at a ratio of 100 grams/50 gallons.</li> <li>(3) Record grams potassium permanganate added into Potassiun permanganate container on Work Sheet 2A and/or tickler card.</li> <li>(3) Record grams potassium permanganate added into Potassium permanganate container on Work Sheet 2A and/or tickler card.</li> <li>(4) Record grams of soda ash added to the tank on Work Sheet 2 and/or card.</li> <li>(5.2) WEEKLY NOTE</li> <li>To perform 6.2.1 and 6.2.2, it is preferred the well pump be running. To accomplish this, the tank blowdown valve TC-V-12 can be opened slightly until the tank level lowers enough to start the automatic makeup.</li> <li>(5.2.1) Collect a sample of the well water at TC-V-2. Analyze this sample for pH ar results on Work Sheet 2 and or the tickler card.</li> <li>(5.2.2) Measure free chlorine at TC-V-5. This chlorine concentration is determin chemistry supervision based on vendor recommendations. This chlorine value logged.</li> </ul>				(1)	Verify the refill container is that of Nalco 7399 phosphate label container.	e and	
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<ul> <li>d. Potassium permanganate container <ol> <li>Verify the refill container is that of Potassium permanganate and label container.</li> <li>Fill the Potassium permanganate container at a ratio of 100 grams/50 gallons.</li> <li>Record grams potassium permanganate added into Potassium permanganate container on Work Sheet 2A and/or tickler card.</li> <li>Record grams of soda ash added to the tank on Work Sheet 2 and/or card.</li> </ol> </li> <li>WEEKLY NOTE To perform 6.2.1 and 6.2.2, it is preferred the well pump be running. To accomplish this, the tank blowdown valve TC-V-12 can be opener slightly until the tank level lowers enough to start the automatic makeup. </li> <li>Collect a sample of the well water at TC-V-2. Analyze this sample for pH at results on Work Sheet 2 and or the tickler card.</li> <li>Measure free chlorine at TC-V-5. This chlorine concentration is determin chemistry supervision based on vendor recommendations. This chlorine value logged.</li> </ul>				(3)	Record mls of phosphate on Work Sheet 2 and/or tickler car	d.	
<ol> <li>Verify the refill container is that of Potassium permanganate and label container.</li> <li>Fill the Potassium permanganate container at a ratio of 100 grams/50 gallons.</li> <li>Record grams potassium permanganate added into Potassium permanganate container on Work Sheet 2A and/or tickler card.</li> <li>Record grams of soda ash added to the tank on Work Sheet 2 and/or card.</li> <li>WEEKLY NOTE         <ul> <li>To perform 6.2.1 and 6.2.2, it is preferred the well pump be running. To accomplish this, the tank blowdown valve TC-V-12 can be opened slightly until the tank level lowers enough to start the automatic makeup.</li> <li>Collect a sample of the well water at TC-V-2. Analyze this sample for pH ar results on Work Sheet 2 and or the tickler card.</li> </ul> </li> <li>Measure free chlorine at TC-V-5. This chlorine concentration is determin chemistry supervision based on vendor recommendations. This chlorine value logged.</li> </ol>		•		Potass	ium permanganate container		
<ul> <li>(2) Fill the Potassium permanganate container at a ratio of 100 grams/50 gallons.</li> <li>(3) Record grams potassium permanganate added into Potassium permanganate container on Work Sheet 2A and/or tickler card.</li> <li>c. Record grams of soda ash added to the tank on Work Sheet 2 and/or card.</li> <li>6.2 WEEKLY NOTE To perform 6.2.1 and 6.2.2, it is preferred the well pump be running. To accomplish this, the tank blowdown valve TC-V-12 can be opener slightly until the tank level lowers enough to start the automatic makeup. 6.2.1 Collect a sample of the well water at TC-V-2. Analyze this sample for pH ar results on Work Sheet 2 and or the tickler card. 6.2.2 Measure free chlorine at TC-V-5. This chlorine concentration is determin chemistry supervision based on vendor recommendations. This chlorine value logged.</li></ul>				(1)	Verify the refill container is that of Potassium permanganate label container.	e and	
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<ul> <li>e. Record grams of soda ash added to the tank on Work Sheet 2 and/or card.</li> <li>6.2 WEEKLY NOTE To perform 6.2.1 and 6.2.2, it is preferred the well pump be running. To accomplish this, the tank blowdown valve TC-V-12 can be opened slightly until the tank level lowers enough to start the automatic makeup. 6.2.1 Collect a sample of the well water at TC-V-2. Analyze this sample for pH as results on Work Sheet 2 and or the tickler card. 6.2.2 Measure free chlorine at TC-V-5. This chlorine concentration is determin chemistry supervision based on vendor recommendations. This chlorine value logged.</li></ul>				(3)	Record grams potassium permanganate added into Potas permanganate container on Work Sheet 2A and/or tickler car	rd.	
<ul> <li>6.2 WEEKLY NOTE</li> <li>6.2 To perform 6.2.1 and 6.2.2, it is preferred the well pump be running. To accomplish this, the tank blowdown valve TC-V-12 can be opened slightly until the tank level lowers enough to start the automatic makeup.</li> <li>6.2.1 Collect a sample of the well water at TC-V-2. Analyze this sample for pH arresults on Work Sheet 2 and or the tickler card.</li> <li>6.2.2 Measure free chlorine at TC-V-5. This chlorine concentration is determin chemistry supervision based on vendor recommendations. This chlorine value logged.</li> </ul>	(I) 	ı		Record card.	i grams of soda ash added to the tank on Work Sheet 2 and	l/or tickler	
<ul> <li>To perform 6.2.1 and 6.2.2, it is preferred the well pump be running. To accomplish this, the tank blowdown valve TC-V-12 can be opened slightly until the tank level lowers enough to start the automatic makeup.</li> <li>6.2.1 Collect a sample of the well water at TC-V-2. Analyze this sample for pH at results on Work Sheet 2 and or the tickler card.</li> <li>6.2.2 Measure free chlorine at TC-V-5. This chlorine concentration is determin chemistry supervision based on vendor recommendations. This chlorine value logged.</li> </ul>		VEEI	EEK	KLY	NOTE		
<ul> <li>To perform 6.2.1 and 6.2.2, it is preferred the well pump be running. To accomplish this, the tank blowdown valve TC-V-12 can be opened slightly until the tank level lowers enough to start the automatic makeup.</li> <li>6.2.1 Collect a sample of the well water at TC-V-2. Analyze this sample for pH at results on Work Sheet 2 and or the tickler card.</li> <li>6.2.2 Measure free chlorine at TC-V-5. This chlorine concentration is determin chemistry supervision based on vendor recommendations. This chlorine value logged.</li> </ul>	ļ				noib		
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6.2.2 Measure free chlorine at TC-V-5. This chlorine concentration is determin chemistry supervision based on vendor recommendations. This chlorine value logged.		ollec sults	ollect sults	t a samj on Woi	ple of the well water at TC-V-2. Analyze this sample for p rk Sheet 2 and or the tickler card.	H and log	
		leasu iemis ogged	easur emis gged.	re free stry supe	chlorine at TC-V-5. This chlorine concentration is deter ervision based on vendor recommendations. This chlorine v	rmined by alue is not	

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<b>*</b> *	6.2.3	Che perf TC∙	Check the water in the tank to verify that there is a slight pink color. This check is performed to determine potassium permanganate presence. This can be checked at TC-V-4, or the tank blowdown.							
		a.	a. If presence of potassium permanganate is excessive and/or is present distribution perform the following;							
			(1)	Secure the potassium permanganate pump						
			(2)	If necessary, feed and bleed the tank by manipulating TC-V-	-4					
			(3)	If necessary, flush the distribution system to remove all j potassium permanganate.	presence of					
			(4)	If necessary, dilute the contents of the potassium per container	rmanganate					
			(5)	Once conditions are satisfactory per 6.2.3, set the pump approximately 50% of the previous setting.	p stroke to					
	6.3	TW	<b>TWICE WEEKLY</b>							
	6.3.1	Coll alka	Collect a sample from any tap in the training center and analyze for phosphate and lkalinity. Record analysis on Work Sheet 2 and/or tickler card.							
	6.4	MO	NTHLY							
	6.4.1	Con chei Rep	aplete Wo nistry nu ort (see e:	ork Sheet 2 and Work Sheet 2A if utilized, and forward the clear specialist who prepares the State of Georgia Well V xample Figure 3).	hem to the Vater Plant					
	6.5	QUARTERLY NOTE								
			Total Coliform bacteria analysis samples should be collected after 1100 hrs. The samples must be received by the Georgia Department of Natural Resources within 24 hours and they must begin analysis within 30 hours from the time that the site obtained the sample.							
	6.5.1	Coll colif	ect a sam	nple from any tap in the Training Center Distribution Syste eria analysis.	m for total					
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	6.5.2	Coll A tr state is to	<ul> <li>lect this sample on third Wednesday of March, June, September, and I reated bottle accompanied by directions for collection, packaging, and re e will be provided by the Georgia Department of Natural Resources. The be sent by Fedex, UPS, or other overnight carrier to:</li> <li>Georgia Department of Natural Resources</li> <li>Water Laboratory</li> <li>455 14th Street, N.W.</li> </ul>	December. turn to the his sample					
	6.6	RE	PEAT MONITORING FOR TOTAL COLIFORM						
	6.6.1	If the Division notifies the site that it has received a sample after 24 hours from the time the sample was obtained or if the Division notifies the site that it analyzed a sample after 30 hours from the time that the sample was obtained, the site must collect additional samples as directed by the Division.							
الم ومان الم ومان	6.6.2	<ul> <li>6.6.2 If a routine sample is total coliform-positive, the public water system must set of repeat samples within 24 hours of being notified of the positive result Environmental Affairs for assistance as needed. A system which normall one routine sample per month or fewer must collect no fewer than four repeat for each total coliform-positive sample found. The Division may extend th limit on a case-by-case basis if the system has a logistical problem in coll repeat samples within 24 hours that is beyond its control. Repeat samples taken as follows:</li> </ul>							
	l	,	• One sample at original coliform-positive sample point						
	1	ı	• One sample downstream of original point						
		(	• One sample upstream of original point						
	I	(	• One sample from any other location in the system.						
			If the original sample point was an endpoint or one point away from then sample the required downstream sample elsewhere in the systen where appropriate.	n the end, n and note					
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<b>`</b>	6.7	AN	NUALLY		
			<b>NOTE</b> Bottles are to be provided by the Georgia Department of Natural Res	sources.	
	6.7.1	Coll Dist	lect one (1) sample each of treated water from any tap in the Trainitribution System for the following analysis:	ing Center	
		-	One sample for nitrate analysis.		
		-	One sample for nitrite analysis.		
			NOTE		
			Each room containing a sample point for lead and copper samplin without water flow (i.e., a bathroom with a sink to be sampled mus the urinal or toilet flushed or sink used) for at least 6 hours prior to s	ng must be: st not have: campling.	
	6.7.2	Pb a	and Cu Sampling		
   +=	6.7.2.1	Whe SER	en preparing to collect samples for lead and copper, obtain copies of the RVICE sign (see Figure 5).	OUT OF	
	6.7.2.2	Flus sam	sh each sample line for at least 30 minutes prior to isolating the lead a ple location.	and copper	
	6.7.2.3	Afte roon	er flushing is complete, post the OUT OF SERVICE sign at the entra n.	nce of the	
	6.7.2.4	Afte prov from the locat	er six hours, in accordance with EPD directions contained with the same rided by Georgia EPD, collect the required number of samples of trees in any designated taps (see Table 2) in the Training Center Distribution S lead/copper analyses. Only one sample can be taken from any of tion.	ple bottles ated water System for designated	
	6.7.3	Senc	d all samples to:		
			Georgia EPD Metals Lab 455 14 <sup>th</sup> St., N. W. Atlanta, Georgia 30318-7900		
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6.8	ОТН	IER FREQUENCY								
6.8.1	Using EPD	g bottles provided by Ge instructions accompanyi	eorgia EPD, on ng bottles, of	ollect one (1) treated water	) sample, in accor for the following a	dance with malyses:				
	• Ir	norganic contaminants (I	OCs) once ev	ery three years	s or as required by	EPD,				
	• V E	Volatile organic contamin PD,	nants (VOCs)	once every f	hree years or as r	equired by				
	• Total Trihalomethanes (TTHMs) once every three years or as required by EPD, and									
	• H	(aloacetic Acids (HAA5)	once every th	ree years or a	s required by EPD	•				
6.8.2	After	samples are collected, so	end in accord	nce with EPI	) instructions to:					
		Georgia Department o Water Laboratory 455 14 <sup>th</sup> St., N.W. Atlanta, Georgia 3031	f Natural Res 8-7900	ources						
6.9	GUII POTA	GUIDELINES FOR TREATMENT CHEMICALS (TRAINING CENTER POTABLE WATER SYSTEM)								
6.9.1	Conce	entration Guidelines for	Treatment Ch	emicals						
		Parameter pH Free Chlorine Total Phosphate	Units ppm Cl <sub>2</sub> ppm	Target         7.0-8.4         ≥0.2         3.8-5.5	<b>Specification</b> 7.0 - 8.5 0.2 - 3.0 2-6					
	The t Distri	The targets for pH, free chlorine, total phosphate are met in the Training Center Distribution System.								
6.9.2	If the the no labora	above parameter(s) is/ar ormal range. If they do r atory supervision.	re out of limit not return to t	s, take correc he normal rai	tive actions to retung nge within four ho	urn them to ours, notify				

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	6.10	ALTERNATE CHEMICAL INJECTION METHOD FOR THE TRAINING CENTER SYSTEM											
			NOTE										
			This means of chemical injection is intended for periods of time the installed ratio feeder is out of service or unavailable.	when									
	6.10.1	SEC swit	SECURE the KMnO4 injection pump power supply by turning the designated switch north wall to the OFF position.										
	6.10.2	CLOSE TC-V-30 Chemical injection line isolation valve.											
	6.10.3	To f tank	To flush residual KMnO4 from system, THROTTLE OPEN TC-V-12 pressurized tank blowdown valve.										
	6.10.4	Whe CLC	Vhen no more pink coloration is evident at sample valve TC-V-4, CLOSE TC-V-12 Pressurized tank blowdown valve.										
	6.10.5	OPE	DPEN TC-V-20 Carbon sand filter bypass valve.										
<u>مان</u>	6.10.6	ADI dilu ratic	ADD sufficient NSF grade NaOCl to the two pre-treatment tanks to achieve a dilution of approximately 3 gallons NaOCl to 50 gallons of water or to a dilution ratio approved by chemistry supervision.										
	6.10.7	Veri distr flusl	Verify desired free chlorine residual at TC-V-1 and within the Training Center istribution system. The Training Center sample may require a couple of hours to lush the distribution lines.										
	6.11	SEC	CURING ALTERNATE INJECTION METHOD										
	6.11.1	DRA	AIN and REFILL the pre-treatment tanks to achieve normal dilution leve	els.									
	6.11.2	CLC	DSE TC-V-20 Sand filter bypass valve.										
	6.11.3	OPE	'EN TC-V-30 Chemical injection line isolation valve.										
	6.11.4	ENERGIZE KMnO4 injection pump by returning pump switch to the ON position.											
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<b>~</b> ,	7.0	RE	CREATION AREA POTABLE WATER	· · · · · · · · · · · · · · · · · · ·
			NOTE	
			All appropriate data points should be entered into Open CDM, if available, on a timely basis.	
	7.1	DA	ILY	
	7.1.1	Pun	np House	
		a.	Observe "gallons" reading on the totalizing meter and record this f "Meter Reading" column on Work Sheet 3A and/or tickler card. To gallons of water processed per day, subtract the previous day's re the current reading, and record this figure in the "Water treated" Work Sheet 3 and/or tickler card.	igure in the o determine eading from column of
لعظ	•	b.	Measure free chlorine and pH of water sample collected from the The outlet is located at the left end of the pressure tank. Log resul Sheet 3A and/or tickler card.	tank outlet. ts on Work
	7.1.2	Dist	ribution System	
		a.	Measure free chlorine and pH of a water sample collected from located in the distribution system. Record pH and chlorine result card and/or Work Sheet 3 with pH in the treated column.	om any tap s on tickler
		<b>b.</b>	If needed adjust the chlorine concentration in the chemical solut adjust the chlorine pump stroke to meet the specifications in Step 7 chlorine level is low, raise the pump stroke $1\% - 3\%$ . If the level lower the stroke $1\% - 3\%$ .	ion tank or 7.8.1. If the vel is high,
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7.2	WE	EKLY			
7.2.1	.2.1 Measure the pH of the raw water sample. The sample is collected from the the right corner of the pumphouse. Record pH on Work Sheet 3 and/or tickle				
	a.	If the p	pump is not running, it can be turned on by:		
		(1)	Shutting circuit breaker #13 OFF at the breaker panel.		
		(2)	Collect the raw water sample.		
		(3)	After collecting the sample, turn the circuit breaker #13 <u>ON</u> .		
7.3	AS	NEEDED	NOTES		
		a.	Monitor NaOCl level to ensure adequate lead time for reorde	ring.	
		b.	Checklist 4 shall be performed in conjunction with perform step 7.3.2. On the initial opening of the below chemical per a verification and independent verification of chemical, after only a verification is needed.	ming form ward	
7.3.1	Che	mical Add	lition Tanks (NaOCl pretreatment containers)		
	a.	Verify	the refill or supply container is that of sodium hypochlorite		
	b.	Fill two gallons concen	o (2) NaOCl pretreatment containers at a ratio of approximate 5/50 gallons, or if pump specifications permit his strations may be used.	ely 2 igher	
	c.	Record	gallons of NaOC1 added on Work Sheet 3 and/or tickler card	1.	
			NOTE		
			Soda Ash should not be added to undiluted NaOCl containers.		
7.3.2	Whe Wor	en pH is le k Sheet 3	ow, add soda ash and record grams of soda ash added to th and/or tickler card.	ie tank on	
7.3.3	Do ł	nousekeep	ing inside pump house.		
	Approved By Shan Sunda Date Approved 7.2 7.2.1 7.3.1 7.3.2 7.3.2 7.3.3	Approved By         Shan Sundaram         Date Approved         91/18/2006         7.2       WE         7.2       WE         7.2       WE         7.2       WE         7.3       AS         7.3       AS         7.3.1       Che         a.       b.         7.3.2       Whe         7.3.3       Do H	Approved By Shan SundaramDate Approved 91/18/20067.2WEEKLY7.2.1Measure the p the right corner a.a.If the p (1) (2) (3)7.3AS NEEDED7.3.1Chemical Add a.7.3.1Chemical Add a.7.3.2When pH is I Work Sheet 37.3.3Do housekeep	Approved by Shan Sundaram         Vogtle Electric Generating Plant         A           Date Approved         OPERATION OF THE POTABLE WATER SYSTEMS         0)118/2006           7.2         WEEKLY         7.2.1         Measure the pH of the raw water sample. The sample is collected from the the right corner of the pumphouse. Record pH on Work Sheet 3 and/or tick           a.         If the pump is not running, it can be turned on by:         (1)         Shutting circuit breaker #13 OFF at the breaker panel.           (2)         Collect the raw water sample.         (3)         After collecting the sample, turn the circuit breaker #13 ON.           7.3         AS NEEDED         NOTES         a.         Monitor NaOCI level to ensure adequate lead time for reorde           b.         Checklist 4 shall be performed in conjunction with perfor step 7.3.2. On the initial opening of the below chemical, after only a verification is needed.           7.3.1         Chemical Addition Tanks (NaOCI pretreatment containers)         a.         Verify the refill or supply container is that of sodium hypochlorite           b.         Fill two (2) NaOCI pretreatment containers at a ratio of approximat gallons/50 gallons, or if pump specifications permit hi concentrations may be used.         c.         Record gallons of NaOCI added on Work Sheet 3 and/or tickler carc           7.3.2         When pH is low, add soda ash and record grams of soda ash added to the Work Sheet 3 and/or tickler card.         7.3.3         Do housekeeping inside p	

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1	7.4	MO	DNTHLY	-						
		Con CDI Geo	omplete Work Sheets 3 and Work Sheet 3A if utilized and not entered into Open DM, and forward them to the chemistry nuclear specialist who prepares the State of eorgia Well Water Plant Report (see example Figure 4).							
	7.5	QU	ARTERLY NOTE							
	Total Coliform bacteria analysis samples should be collected after 1100 hrs. The samples must be received by the Georgia Department of Natural Resources within 24 hours and they must begin analysis within 30 hours from the time that the site obtained the sample.									
	7.5.1	7.5.1 Collect a sample from any tap in the Recreation Area Distribution system for total coliform bacteria analysis.								
	7.5.2 Collecting sample on the third Wednesday of March, June, September, a December. A treated bottle accompanied by directions for collections, packaging, a return to the state will be provided by the Georgia Department of Natural Resource This sample is to be sent to:									
			Georgia Department of Natural Resources Water Laboratory 455 14th Street, N.W. Atlanta, Georgia 30318-7900							
	7.6	REI	PEAT MONITORING FOR TOTAL COLIFORM							
	7.6.1	If th	e Division notifies the site that it has received a sample after 24 hours	s from the						

7.6.1 If the Division notifies the site that it has received a sample after 24 hours from the time the sample was obtained or if the Division notifies the site that it analyzed a sample after 30 hours from the time that the sample was obtained, the site must collect additional samples as directed by the Division.

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ć	Date Approved 71/18/2006	OPERATION OF THE POTABLE WATER SYSTEMS	Page Number 24 of 42								
	7.6.2	If a routine sample is total coliform-positive, the public water system muset of repeat samples within 24 hours of being notified of the positive resu Environmental Affairs for assistance as needed. A system which normation one routine sample per month or fewer must collect no fewer than four rep- for each total coliform-positive sample found. The Division may extend the limit on a case-by-case basis if the system has a logistical problem in co- repeat samples within 24 hours that is beyond its control. Repeat sample taken as follows: • One sample at original coliform-positive sample point	ist collect a ilt. Contact ally collects eat samples the 24-hour ollecting the es should be								
ļ		• One sample downstream of original point									
		• One sample upstream of original point									
		• One sample from any other location in the system.									
		If the original sample point was an endpoint or one point away from the sample the required downstream sample elsewhere in the system and appropriate.	e end, then note where								
	7.7	ANNUALLY									
ہ ایل کا	7.7.1	Collect a sample each of treated water from any tap in the Recreation Distribution System for nitrite and nitrate analysis. Bottles are furnist Georgia Department of Natural Resources.	ation Area hed by the								
	7.7.2	Send nitrite and nitrate samples to:									
		Georgia Department of Natural Resources Water Laboratory 455 14th St., N.W. Atlanta, Georgia 30318-7900									
	7.8	GUIDELINES FOR TREATMENT CHEMICALS (RECREATIC POTABLE WATER SYSTEM)	)N AREA								
	7.8.1	Guidelines for Drinking Water Parameters									
		ParameterUnitsTargetRangepH $8.0$ $7.0 - 8.5$ Free Chlorineppm Cl <sub>2</sub> $\geq 0.2$ $0.2 - 3.0$ The targets for pH and chlorine are met at the Recreation Area Distribution	ı System.								
	7.8.2	If either of the parameters is out of limits, take corrective actions to return a normal range. If they do not return to the normal range within four he laboratory supervision.	them to the ours, notify								

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Date Approved 91/18/2006		OPERATION OF THE POTABLE WATER SYSTEMS	Page Number 25 of 42
8.0	<u>RE</u>	PORTING	
8.1	Afte CD Rep	er receipt of completed Work Sheets 1, 2, and 3, if utilized and not en M, the Chemistry Nuclear Specialist prepares the State of Georgia Wo port (see examples on Figures 2, 3, and 4).	ntered into Open ell Water Plant
8.2	er approval by the Chemistry Manager, the State of Georgia Well port should be forwarded to the SNC Environmental Affairs. SNC E airs will forward this report to the Georgia Environmental Protection tenth day of the month. Also, Chemistry will transmit the origorgia Well Water Plant Report to document control. A copy will also Chemistry and NSAC.	Water Plant Invironmental In Division by ginal State of o be provided	
8.3	Data rete	a entered into Open CDM is to be considered a plant record with a ention time and are maintained by Document Control.	a twelve-year
8.4	The mai	e Work Sheets are not a plant record. These Work Sheets, if use intained in the Chemistry department files as desired to aid in troubles	ed, should be shooting.
9.0	<u>RE</u>	FERENCES	
9.1	Stat - Pe No.	te of Georgia Department of Natural Resources Environmental Protectermit to Operate a Non-Transient Non-Community Public Water Sy PG0330017 (Plant Vogtle Makeup Wells #1 and #2A).	ction Division ystem, Permit
9.2	Stat - Pe No.	e of Georgia Department of Natural Resources Environmental Protec ermit to Operate a Non-Transient Non-Community Public Water Sy PG0330035 (Plant Vogtle Simulator Building).	ction Division ystem, Permit
9.3	State - Pe NG(	e of Georgia Department of Natural Resources Environmental Protec ermit to Operate a Public Transient Non-community Water System 0330036 (Recreation Area Potable Water).	tion Division n, Permit No.
9.4	Geo 391-	orgia State Drinking Water Act of 1977, Ga. Laws 1977, and the R -3-5 adopted pursuant to the Act, 1983.	ules, Chapter

9.5 Georgia Certification of Water and Wastewater Treatment Plant Operators and Laboratory Analysts Act, as amended and the Rules adopted pursuant to the Act, November 1982.

	Approved By Shan Sundar	am		Vogtle Electric Generating Plant	Procedure Number 35570-C	Rev 47
Ĺ	Date Approved )1/18/2006			OPERATION OF THE POTABLE WATER SYSTEMS	Page Number 26 of 4	12
~	9.6	PRO	OCEDUR	ES		
	9.6.1	001	52-C,	"Federal and State Reporting Requirements"		
	9.6.2	300	25-C,	"Periodic Analysis Scheduling Program"		
	9.6.3	323	14-C	"Determination of Residual Chlorine"		
	9.6.4	320	14-C	"Determination of pH"		
	9.6.5	320	18-C	"Determination of Turbidity"		
	9.6.6	3202	22-C	"Determination of Alkalinity"		
	9.6.7	3242	21-C	"Determination of Phosphate"		
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### END OF PROCEDURE TEXT

WORK SHEET 1 PLANT POTABLE WATER SYSTEM         Treatment Treated       Analysis         Water Treated       Blaech Added       Phosphate Added       Ortho Phosphate       Ortho Phosphate         Date/Time       Gallons       Gallons       Untreated       Treated       0.2 - 3.0       Monitor       2 - 6       Monitor       1	Date Approved )1/18/2006	5		OPERATI	ON OF TH	E POTABL	E WATER S	YSTEMS	<u> </u>	Page Number 27 of 42		
Treatment         Analysis           Water         Bleach         Phosphate         Price         Chloric         Akaliniy         Protal         Ortho           Date/Time         Gallons         Gallons         Gallons         Untreated         Treated $0.2 - 3.0$ Monitor $2 - 6$ Monitor $1$ Charles         Gallons         Gallons         Untreated         Treated $0.2 - 3.0$ Monitor $2 - 6$ Monitor $1$ Charles         Gallons         Gallons         Untreated         Treated $0.2 - 3.0$ Monitor $2 - 6$ Monitor $1$ Charles         Gallons         Gallons         Gallons         Intreated         Treated $0.2 - 3.0$ Monitor $2 - 6$ Monitor $1$ Charles         Gallons         Gallons         Intreated         Treated $0.2 - 3.0$ Monitor $2 - 6$ Monitor $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$	<b></b>	, <b></b> , <b></b>	·····	рі а NT р	WORK	SHEET	1 'D SVSTE	 אז		<b></b>		
Water         Bleach         Phosphate $Added$ $Added$ $PH$ $Chlorine$ $Alkalinity$ $Phosphate$ $Phosphate$ Date/Time         Gallons         Gallons         Gallons         Untreated         Treated $0.2 - 3.0$ Monitor $2 - 6$ Monitor $I$ Image: Second S	Г		Treatment			UMAIL	<u>A 61611</u>	alveic	<u></u>	<u> </u>		
Treated         Added $pH$ Chlorine         Alkalinity         Phosphate         Phosphate           Date/Time         Gallons         Gallons         Gallons         Gallons         Untreated         Treated $0.2 - 3.0$ Monitor $2.6$ Monitor         I           Image: I	·	Water	Rleach	Phosphate			Free		Total	Ortho	{	
Date/Time         Gallons         Gallons         Gallons         Untreated         Treated         0.2 - 3.0         Monitor         2 - 6         Monitor         1           Image: Solution of the state		Treated	Added	Added	n	н	Chlorine	Alkalinity	Phosphate	Phosphate		
	Date/Time	Gallons	Gallons	Gallons	Untreated	Treated	0.2 - 3.0	Monitor	2-6	Monitor	Initi	
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	WORK SHEET 1APLANT POTABLE WATER SYSTEM												
			Maintenanc	e Shop Bro	ak Room			Raw	Water				
			Free		Total	Meter	Bleach	1					
			Chlorine	рН	phosphate	Reading	Level	Well #	Turbidity				
Γ	Date	Time	0.2 - 3.0	Monitor	2-6	Gallons		(in service)	Monitor *	Initia			
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*	Turbidit	y must be	e below 3.5 1	NTU to val	ve Well #2	into the dis	tribution h	eader.					
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	Date Approved	OPERATION OF THE POTABLE WATER SYSTEMS	Page Number	
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	WORK SHEET 2 TRAINING CENTER POTABLE WATER SYSTEM											
	7	reatment	t				Analysis					
	Water Treated	Bleach Added	Na <sub>2</sub> CO <sub>3</sub> Added	Phosphate Added	pI	ł	Free Chlorine	Alkalinity	Total Phosphate	Ortho Phosphate		
Date/Time	Gallons	ml	Grams	ml	Untreated	Treated	0.2 - 3.0	Monitor	2-6	Monitor	Initials	
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	TRAI	WO NING CENTER Tank (	ORK SHEET 2 R POTABLE V Outlet	A VATER SYST 	<b>`EM</b>	
		Free Chlorine	рH	Meter Reading	KMnO4 Added	
Date	Time	0.2 - 3.0	7.0 - 8.5	Gallons	Grams	Initials
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WORK SHEET 3 RECREATION CENTER POTABLE WATER SYSTEM											
[		Treatment		T		Ar	nalysis			]	
	Water	Bleach	Na <sub>2</sub> CO <sub>3</sub>			Free				]	
	Treated	Added	Added	pl	H	Chlorine				ļ	
Date/Time	Gallons	Gallons	grams	Untreated	Treated	0.2 - 3.0		ļ	<u> </u>	Initia	
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			RECREAT	W ION CEN	ORK SHE FER POTA	ET 3A ABLE WA	TER SYST	ſEM		
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Printed March 16, 2006 at 11:42

Approved By
Shan Sundara
Date Approved
01/18/2006

### TABLE 1

### Plant Makeup System Pb & Cu Tier I Sampling Sites (Primary)\_

Sample No.	Location
Sample Point #2	Production Warehouse Kitchen Sink
Sample Point #3	Water Treatment Bldg Restroom Sink
Sample Point #4	Main PESB Janitor's Sink
Sample Point #5	Service Bldg Janitor's Sink
Sample Point #6	Maint. Bldg 2nd Floor Men's Room Sink
Sample Point #17	Admin. Bldg Kitchen Sink
Sample Point #18	Visitor's Center Men's Room Sink
Sample Point #19	U1 NSCW Chemical Control Bldg. Sink
Sample Point #21	Production Warehouse Janitor's Sink
Sample Point #24	Water Treatment Plant Janitor's Sink

### TABLE 2

Simulator System Pb & Cu Tier I Sampling Sites (Primary)\_

Sample No.	Location
Sample Point #1	South Wing Kitchen Sink
Sample Point #2	South Wing HP Lab Sinks
Sample Point #3	South Wing Chemistry Lab Sinks
Sample Point #4	East Wing Men's Restroom Sink
Sample Point #6	West Wing Janitor's Sink
Sample Point #7	West Wing Test Shop Sink
Sample Point #8	West Wing Mechanical Skills Sink
Sample Point #9	West Wing Electrical Skills Sink
Sample Point #10	Basement Men's Restroom Sink
Sample Point #12	West Wing Women's Restroom Sink

Notes applicable to Table 1 & Table 2.

Note 1 – No lead and copper sampling is required for the Recreation Area system.

Note 2 – Should any of the sample sites listed above become unfeasible, contact Chemistry Supervision for alternate sampling sites.



Aj S	Shan Sundaram Vogtle Electric Generating Plant						1	Procedure Nun 35570-C	nber			
Da L)	Date Approved OPERATION OF THE POTABLE WATER SYSTEMS								Page Number 35	of 42		
FIGURE 2 Water Supply Section ENVIRONMENT PROTECTION DIVISION BURKE DEPARTMENT OF NATURAL RESOURCES MONTH OF20_												
	Operati	on of the <u>Plan</u>	<u>t Vogti</u>	e Makeu	p Wells ;	<u>#1 &amp; #2A</u>	Water	Plant	Water F	Plant <u>PG0</u>	330017	
ſ	Dav	Thousands	Gal	Pounds	Pounds of Other	Hydrog	en lon tration	Residual	Labor	atory Test I	ng/i	
	of	of Gal ons	Na0Cl	of Fluoride	Chemical	(pH v	alue)	Free	Fluor	ride	Iron	Treat
	Month 1	Water Treated	Used	Used	Used	Untreated	Treated	Chlorine	Untreated	Treated	Untreated	Treat
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	(EXAMPLE)Chemistry Manager								<u> </u>			

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1					$\mathbf{F}$	IGURE 3						
					Wate	r Supply Se	ction					
				ENVIRO	NMENT	PROTEC		IVISION	1			
	BURK	Œ	D	EPARTN	IENT OF	NATUR	AL RES	SOURCE	S	MONTH	OF	20
-	COUNTY		W	ELL OR	SPRING			<b>REPOI</b>	RT			
		Opera	tion of the	Plant Vo	gtle Sim	ulator Bu	ilding		Water Plan	t <u>PG0330</u>	0035	
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11	Day of	Thousands of Ga lons	mls Na0Cl	Pounds of Fluoride	of Other Chemical	Concen (pH v	tration alue)	Residual Free	Fluor	ide	iroi	11
╞	Month 1	Water Treated	Used	Used	Used	Untreated	Treated	Chlorine	Untreated	Treated	Untreated	Treated
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	FIGURE 4 Water Supply Section ENVIRONMENT PROTECTION DIVISION DEPARTMENT OF NATURAL RESOURCES WELL OR SPRING WATER PLANT REPORT Operation of the Plant Vogtle Employee Recreational Area Water Plant NG0330036											
	<u></u>				Pounds	Hydrog	en Ion		Labora	atory Test n	ng/l	
	Day of	Thousands of Gallons	mis Na0Cl	Pounds of Fluoride	of Other Chemical	Concen (pH va	tration alue)	Residual Free	Fluor	ide	Iron	
	Month	Water l'reate	d Used	Used	Used	Untreated	Treated	Chlorine	Untreated	Treated	Untreated	Treated
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	30						·····-					
	31											
	TOTAL					FLUORIDE	COMPOUN	DUSED	·	N/A	·	
	AVG.					CHLORINE	COMPOUN	D USED		Na0CI		
	MAX.					OTHER CH	EMICALS U	SED		N/A		
		L						·				]
				(EXAMPI	_E)	Chemis	stry Mana	ger				
							·					

Printed March 16, 2006 at 11:42

FIGURE 5

**Vogtle Electric Generating Plant** 

**OPERATION OF THE POTABLE WATER SYSTEMS** 

# OUT OF SERVICE

This room's potable water is out of service for lead/copper sampling of the drinking water system. There must be no water flow in this room for at least 6 hours prior to sampling.

IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT CHEMISTRY AT EXT.

Approved By
Shan Sundaram
Date Approved
01/18/2006

### Vogtle Electric Generating Plant -2 **OPERATION OF THE POTABLE WATER SYSTEMS**

Procedure Number

35570-С

Rev

47

)01/18/2006

## **CHECK LIST 1**

### PLANT POTABLE WATER PHOSPHATE BASE UNIT REFILL

### NOTE

The following steps require two qualified chemistry personnel

Steps	Actions	Verified by	Independently Verified by
4.5.1	Move a phosphate refill container to the phosphate tote base: unit location.		NA
4.5.2	Verify and independently verify contents of the refill container is phosphate (Nalco Product # 7399)		
4.5.3	Verify the transfer hose is connected to the top bung of the phosphate tote base unit		NA
}	a. Place a empty bucket below the connection of the bottom outlet and hose connection.		NA
	b. Remove the transfer hose cap		NA
	c. Complete the connection by connecting the opposite end of the transfer hose to the bottom outlet of the refill phosphate container.		NA
4.5.4	Ensure Open and/or OPEN as necessary the phosphate tote base unit vent, in order not to pressurize the tank.		NA
4.5.5	Open a vent on the phosphate tote unit to prevent vacuum.		NA
4.5.6	Carefully open the bottom outlet valve on the phosphate refill container and transfer the desired amount to the phosphate tote base unit.		NA
4.5.7	Observe phosphate tote base unit level as tank is refilled. Do not allow tank to over flow.		NA
4.5.8	When desired amount has been added, close the refill phosphate container bottom outlet valve.		NA
4.5.9	Disconnect the transfer hose from the bottom outlet valve, containing any spillage in bucket.		NA
4.5.10	Replace the transfer hose cap.		NA

Approved By Shan Su	Speroved By Vogtle Electric Generating Plant 🔬					
Date Approv 01/18/20	Date Approved         OPERATION OF THE POTABLE WATER SYSTEMS           01/18/2006					
		CHECK LIST 2				
PLAI	NT POTA	BLE WATER SODIUM HYPOCHLORITE INJE	CTION TANK ]	REFILL		
Steps	Actions		Verified by	Independently Verified by		
4.6.1	Verify a drum to	nd Independently verify that the content of the be added is Sodium Hypochlorite				
4.6.2	Open dr	um and install drum pump.		NA		
4.6.3	Ensure t	ransfer hose is placed within the Injection tank. If y, secure the transfer hose.		NA		
4.6.4	Cornect	power to the drum pump.		NA		
4.6.5	Start the sod um I	drum pump and transfer the desire amount of hypochlorite.		NA		
4.6.6	Once tra remove.	nsfer is completed, stop the drum pump and		NA		
4.6.7	If necess	ary, replace drum plugs.		NA		

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# Vogtle Electric Generating PlantProcedure NumberRevOPERATION OF THE POTABLE WATER SYSTEMS35570-C47Page Number41 of 42

### **CHECK LIST 3**

### TRAINING CENTER POTABLE WATER CHEMICAL INJECTION TANK REFILL

### NOTE

On the initial opening of the below chemical perform a verification and independent verification of chemical, afterward only a verification is needed.

Steps	Actions	Verified	Independently
		by	Verified by
6.1.3.1.a	NaOCI pretreatment containers	<u>NA</u>	NA
	(1) Verify the refill container is that of sodium		
	hypochlorite and label container.		
	(2) Fill the two (2) NaOCl pretreatment containers at		NA
	a ratio of approximately 2 liters/50 gallons.		
	(3) Record mls of NaOC1 on Data Sheet 2.		NA
6.1.3.1.b	NaOCl post-treatment container.	<u>NA</u>	NA
	(1) Verify the refill container is that of sodium		
	hypochlorite and label container.		
	(2) Fill the NaOCl post-treatment container at a ratio		NA
	of approximately 9 liters/50 gallons.		
	(3) Record mls of NaOC1 on Data Sheet 2.		NA
6.1.3.1.c	Phosphate post-treatment container	NĀ	NA
	(1) Verify the refill container is that of Nalco 7399		
	phosphate and label container.		
	(2) Fill the phosphate post-treatment container at a	i i	NA
	ratio of approximately 2 liters/50 gallons.		
	(3) Record mls of phosphate on Data Sheet 2.		NA
	· · · · · · · · · · · · · · · · · · ·	<u></u>	
6.1.3.1.d	Potassium permanganate container	NA	NA
	(1) Verify the refill container is that of Potassium		
	permanganate and label container.		
	(2) Fill the Potassium permanganate container at a		NA
	ratio of 100 grams/50 gallons.		
	(3) Record grams potassium permanganate added		NA
	into Potassium permanganate container on Work		
	sheet 2		
6.1.3.1.e	When needed for pH control, record grams of		NA
	Na2CO3 added on Work sheet 2.		

# Vogtle Electric Generating Plant 🔬

**OPERATION OF THE POTABLE WATER SYSTEMS** 

# 01/18/2006

### **CHECK LIST 4**

### **RECREATION AREA POTABLE WATER** CHEMICAL INJECTION TANK REFILL

### NOTE

On the initial opening of the below chemical perform a verification and independent verification of chemical, afterward only a verification is needed.

Steps	Actions	Verified	Independently
		by	Verified by
7.3.1	NaOCI pretreatment containers	NA	NA
	(a) Verify the refill container is that of sodium		
	hypochlorite and label container.		
	(b) If necessary, fill the two (2) NaOCl pretreatment		NA
	containers at a ratio of approximately 2 gallons/50		
	gallons.		
	(c) Record volume of NaOC1 on Data Sheet 3.		NA
7.3.2	When needed for pH control, record grams of		NA
	Na2CO3 added on Data Sheet 3.		