

3 February 2023

Mr. Scott Sokolowski Remedial Project Manager Naval Facilities Engineering Systems Command, Mid-Atlantic 9324 Virginia Avenue, Building Z-144 Norfolk, VA 23511-3095

Subject: January 2023 Monthly Operating Report

Full Scale Liquid-Phase Granular Activated Carbon Treatment System

Liberty New York Water, Seamans Neck Road Water Plant

NWIRP Bethpage, New York

Contract No. N40085-16-D-2288, Task Order N4008518F5125

Dear Mr. Sokolowski,

The Full Scale Liquid-Phase Granulated Activated Carbon (GAC) Treatment System is located at the Liberty New York Water (LNYW) Seamans Neck Road Water Plant in Levittown, NY. The GAC System was installed at the effluent of the potable water plant and consists of six GAC vessels operating in parallel to remove low levels of trichloroethene (TCE) from Well No. 3S and Well No. 4S. After processing through the GAC units, the water is treated with sodium hypochlorite and sodium tripolyphosphate before distribution. Startup of the GAC Treatment System occurred on 8 January 2015 by CH2MHill. KOMAN Government Solutions, LLC (KGS) began operation and maintenance (O&M) activities in March 2015.

In May 2018, production Well No. 3S was decommissioned and has been replaced with a new production well designated as Well No. 3A. Well No. 4S is normally in operation during the entire month, while well No. 3A is operated infrequently, typically during the periods of higher water demand.

This report documents the routine operation and maintenance of the GAC System performed during the month of January 2023. **Attachment 1** presents the field logs detailing system operating data as recorded during the month. These readings include flow rate and total flows of the overall GAC System and each GAC unit, pressures across the GAC System, effluent chlorine residual and pH values, chemical usage levels of sodium hypochlorite and sodium tripolyphosphate for each chemical tank, and chemical metering pump settings and pressures.

Electricity use is not monitored and recorded using the on-site Leviton Series 2000 Multiple Meter Unit. Summary energy consumption reports are provided separately to the Navy Remedial Project Manager.

A summary of the system operating data recorded in January 2023 is presented below in **Table 1**.

Table 1 - System Operating Data for January 2023

Date	Total Flow	Flow Rate	Influent Pressure	Effluent Pressure	Differential Pressure	Effluent Chlorine Residual	Effluent pH
	(Gallons)	(GPM)	(PSI)	(PSI)	(PSI)	$(mg/L)^{(1)}$	(SU) ⁽¹⁾
1/2/2023	8,381,002,000	1,950	72	67	5.3	1.46 read 1.52 manual	6.70 read
1/3/2023	8,383,511,000	1,950	73	67	5.5	1.63 read 1.65 manual	6.80 read
1/4/2023	8,386,609,000	2,000	77	71	5.6	1.44 read 1.49 manual	6.65 read
1/5/2023	8,389,407,000	2,000	68	63	5.5	1.45 read 1.49 manual	6.59 read
1/6/2023	8,392,503,000	1,900	82	77	5.5	1.73 read 1.79 manual	6.60 read
1/9/2023	8,400,187,000	2,050	67	62	5.7	1.52 read 1.60 manual	6.70 read
1/10/2023	8,403,379,000	2,000	74	68	5.7	1.53 read 1.62 manual	6.70 read
1/11/2023	8,405,522,000	1,900	74	69	5.5	1.67 read 1.73 manual	6.70 read
1/12/2023	8,408,880,000	1,800	78	72	5.4	1.57 read 1.63 manual	
1/13/2023	8,411,326,000	1,950	66	60	6.0	1.56 read 1.61 manual	6.80 read
1/16/2023	8,419,808,000	2,050	63	57	6.5	1.50 read 1.63 manual	6.50 read
1/17/2023	8,422,424,000	1,850	80	74	6.8	1.72 read 1.81 manual	6.80 read
1/18/2023	8,425,262,000	1,900	77	71	6.4	1.68 read 1.74 manual	6.90 read
1/19/2023	8,428,299,000	2,050	69	62	6.5	1.48 read 1.58 manual	6.90 read
1/20/2023	8,430,545,000	1,850	88	82	6.1	1.44 read 1.52 manual	6.90 read
1/23/2023	8,439,179,000	1,850	78	72	6.2	1.52 read 1.60 manual	6.80 read
1/24/2023	8,441,855,000	1,800	81	72	9.0	1.54 read 1.62 manual	6.60 read
1/25/2023	8,444,722,000	1,850	82	73	9.1	1.47 read 1.55 manual	6.60 read
1/26/2023	8,447,403,000	1,800	61	55	6.1	2.00 read 2.21 manual	6.20 read
1/27/2023	8,449,131,000	2,050	57	50	6.5	1.80 read 1.94 manual	6.70 read
1/30/2023	8,458,375,000		9	9	0.6	1.60 read 	6.60 read

⁽¹⁾ Effluent pH and chlorine residual readings are recorded by the in-line pH meter and chlorine analyzer. Chlorine is also checked with a manual chlorine residual meter for comparison, while manual pH is only checked occasionally. Both in-line and manual readings are presented, if collected, as noted above.

Figure 1, below, illustrates the volume of water treated by the GAC System since system startup, with the increment for the month of January 2023. Over 82.7 million gallons of water were treated in January 2023, bringing the total cumulative volume of water treated since startup to over 8. 45 billion gallons.

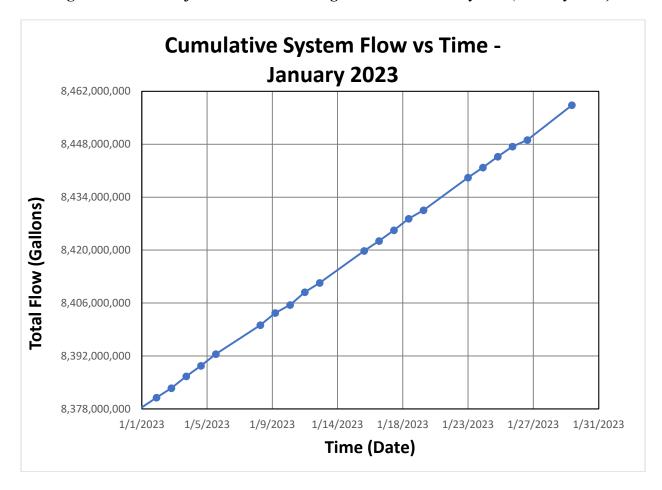


Figure 1 - Volume of Water Treated through Full Scale GAC System (January 2023)

In general, differential pressure increases as the system continues to operate, and decreases after a backwashing event. The increasing trend then continues until the next backwashing event is performed. Also, lower differential pressures are observed during times of low water demand (e.g., typically over the winter months). **Figure 2**, below, depicts the pressure loss across the GAC System and subsequent backwashing dates, from February 2022 through the current reporting period.

Backwashing events during the summer and fall are performed more often because of the higher demand during that time of year. The exchange of carbon in each of the six GAC vessels with virgin coconut shell carbon was completed in August 2020 and the Seamans Neck Road facility is able to operate at full capacity. In support of the 2020 Fourth Quarter microbiological (MIC) sampling conducted in December 2020, it was identified that each vessel required additional backwashing and/or flushing prior to returning to service to address a colored water issue

attributable to the remobilization of iron-impacted materials released when flow through the vessels was stopped for a mandatory 12-hour period prior to bacteria sampling, per Nassau County Department of Health (NCDH) requirements. The additional backwashing/flushing events have been incorporated into the standard process for bacteria sampling.

The facility is operating at full design capacity and pressure loss across the overall GAC System is monitored regularly, and it is expected that backwashing events will occur on a periodic basis as needed. In addition, it is expected that backwashing of each vessel will be conducted following each quarterly bacteria sampling event to address potential colored water issues and to ensure the timely return to service for each vessel.

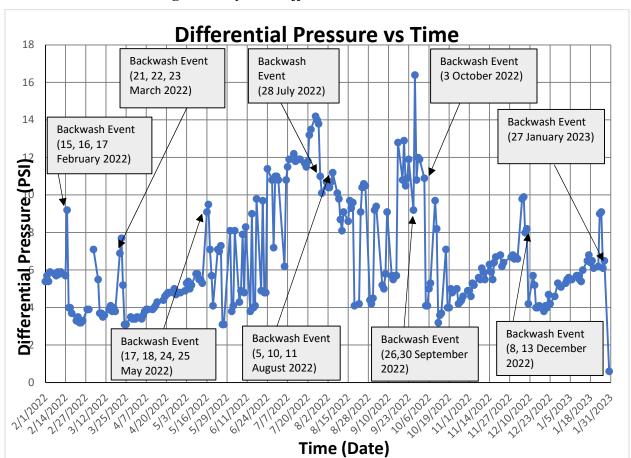


Figure 2 - System Differential Pressure vs. Time

System Maintenance

Routine maintenance of the GAC System during this reporting period consisted of:

- General monitoring of the system flow rates, totalized flows, influent and effluent pressures, differential pressure, chlorine residual, and pH readings.
- Changing paper for the chlorine/pH chart recorder and flow/differential pressure chart recorder on a weekly basis.

- Calibration of the pH meter on a weekly basis.
- Periodic running of Well 3A in place of or concurrently with Well 4S had previously been initiated; Well 3A was operated in place of Well 4S on 25 -27 January.

In addition, the following non-routine activities or operation issues occurred during the January 2023 reporting period:

- On 25 January, GACs #100 and #200 were backwashed following the 2023 First Quarter microbiological (MIC) sampling.
- On 26 January, GACs #500 and #600 were backwashed following the 2023 First Quarter microbiological (MIC) sampling.
- On 27 January, GACs #300 and #400 were backwashed following the 2023 First Quarter microbiological (MIC) sampling.
- On 30 January, the plant was taken offline to facilitate upgrading of the LNYW iron filtration plant.

Please contact me at 610-400-0636 or <u>rgregory@komangs.com</u> with any questions or concerns regarding this report.

Sincerely,

KOMAN Government Solutions, LLC

Robert G. Gregory Project Manager

Cc: C. Shukis - NAVFAC

V. Varricchio - NWIRP Bethpage Facilities Management

R. Kern - LNYW

N. Niola – LNYW

J. Palmer - LNYW

P. Schauble - KGS

R. Hoffmaster – KGS

D. Brayack - Tetra Tech

J. Pelton – NYSDEC

K. Granzen – NYSDEC

M. Travis – NYSDEC

ATTACHMENT 1 O&M LOGS – JANUARY 2023

		Granul	Dally R ar Activeted Car		System		iya argangiin dhadhi samalaanaa ay an argana ay an daaqaa
Description	Date	1.2.2022	1.3.2023	1.41.2023	1.5.2023	1.6.202	3 1.9.2023
Byotom Plow Rate	oras	1950	1950	2000	2000	1906	2050
Total Oyoton Flore	Callone	8464874	8467383	the and a second se	8473279	8476375	8484059
Wed 3 Chas	CROR	OFF	OFF	OFF	OFF	OFF	OFF
Well 4 Status	CHICK	ON	ON	00	010	02	ON
Tent: 160 Flow Rate	erm	250	250	<i>350</i>	a50	225	250
Tank 200 Floor Robo	GFW	225	225	250	250	225	250
Tank 360 Flow Rade	GP81	350	350	350	350	300	350
Tunk 496 Flow Rate	@PW	350	350	350	350	350	400
Tenk 650 Flow Rate	95-38	350	350	350	. 350	350	356
Test 000 Flow Rate	GP20	300	300 :	. 300 .	. 300	300	300
Tenk 100 Total Play	Callens	60,809,000	61108 00p	61 433000	61,830,000	62 214 000	63 175000
Tank 200 Yotal Floor	Online	99876,000	00098 100	0.597.000	00 711,006		03 039 000
Tank 300 Total Flow	College	11.083,000	11328000	11861000	12. 497,000	, , , , , , , , , , , , , , , , , , , ,	14 385 000
Tork 400 Total Flow	Callena	97265,000	97573 000	98275,000	98,950,000	99572,000	01,111,006
Tank 898 Total Plow	@cBono	35385,000	25409 000	36 041,000	36 820,000		38,923,000
Tank 960 Total Flow	Gallens	76,881,000	76,989,000	17,502,000	38 119,000	80 507,000	Secretary &
Gyalem Influent Procure	P-80	72	7_3	77	68	82	67
System Efficient Proceure	Pat	G7	67	71	63	77	62
Byoken Differential Precents	P80	53	5.5	56.	55	55	.5.7
Circumino Annipuor: Proo Chlorino Roaldani - Inlino	FPM	1.46	1.63	1.0,0	1.45	1.73	1.52
(Efficient Weter pH - Inline	Units	6.7	68	6.65	6.59	66.	6.70
Elemnel Chierino Reading (et: Heelt KS)	PPM	1.52	1.65	1.49	149	1.79	1.60
Menuel pH eksek (sv: Hente)	Units				and the second		

ž.

		Granuk	Doilly R or Activated Car		Sentana		
Occuption	Date	12.2.2023				7.6.2023	1.9.202
Visit 888A Diseaschladha Laud	Ochop	66	150	//3	80	60	140
Homesoful add a Lexical	Quilianno	41	145	140	130	110	50
Humanidestin Level Track 0000 Humanidestin Level	- Calletta	65	150	150	150	150	105
Track BBBA Principles Lovel Track Billin	Octoor	82	140	118	100	50	51
Printegation Law	College	140	150	150	150	140	140
United by Princip 800A: Paliferths Ordered Principles	Pel		*				
Market Street Charten State St.	Pal			**************************************			<u> </u>
	640			COMMENT OF PROPERTY AND A PROPERTY AND ADMINISTRATION OF PROPERTY ADMINISTRATION OF PROPERTY AND ADMINISTRATION OF PROPERTY ADMINISTRATION OF			
publishe Culturi Promuse Betering Pump 199A: publishe Count Progresso Interthy Pump 1995: maketo Culturi Promuse	Pal	and the state of t	77				-
Salaring Pump 000A:	Unitio					1	
Estadog Parriy (1886)	Unitte	9148	•				A CONTRACTOR OF THE PARTY OF TH
Interior Princip (42A)	Units						
	Unites	An age	•		THE PROPERTY OF THE PROPERTY O	***************************************	
orator Operating Hours	Фбоция	187.8	187.5	187.8	187.8	1882	1882
in Facility Blooks bloke R	ading .						
and the second			ch Delu Phos. Delu		Monthly Sampling	Vanc z	
A			Phos Delo		Samplin	Cow IPh	
y water project					Tempa"	tocate	
Consuments Israel techn performed, mak					te Samplay	JR. 13	
acided, continuations on citic,							
					E COLOR DE SANCIO DE MUNICIPA		
				1.5	2.54		

. .

, (**)

	ta et est est est est est est est est est	Granuk	Dally R ar Activated Car	edins bon Treatment :	System	r	
Description	Date	1.10.2023	1.11.2023	1-12 2023	1.13-2023	1.16.2023	1.17 2023
System Plow Rate	eru.	2000	1900	1800	1956	2050	1850
Total System Floor	Collone	8487251	8489394	8492752	84954198	9503680	8506296
Wed 3 Grane	ON OR	OFF.	off	OFF	OFF	OFF	OFF
Well 4 Status	OFF	OW.	OU	ON	ON	کرن ا	ON
Tent: 100 Plour Ruse	era	250	250	250	250	300	250
Tank 200 Floor Rate	QF01	250	225	250	250	250	250
Tonk 300 Flow Rate	Open .	350	325	325	350	350	325
Tunk 400 Flow Rote	QP20	400	350	350	400	400	350
Tenk 989 Flow Rote	9749	350	- 350.	350	.350	350	350
Test: 680 Flow Rule	GP8I	300	300 :	· 250.	250	300	250
Tank 100 Total Flow	Gallens	63581,000	63807.00	Gel 276 000	64 620,00c	65632,000	15964,000
Tent 300 Yold Flow	Gallens	. /	03517000	03,797,000		06 28-1,000	06,511,000
Tank 500 Total Flow	College	14935,000	15 301,000	15815,000	16344,000	17735000	18,175,000
Tenk 400 Telef Flow	Gellerto	01751000	02,179,000	2848,000	03 298,000	05133,000	05 559,000
Tenk (III) Total Flow	College	79519 000	39,915,000	40498000	40 979,000	42585,000	43,041,000
Tank 600 Total Flow	Gellens	81620,000	80812,00	80 99 7,000	31,402,000	62 605,000	82,989,00
Gyatem Induced Processo	P84	74	74	. 78	66	c.3	80
System Efficient Pressure	Pat	68	69	72	60	57.	74
System Differential Pressure	P@I	.5.7	5.5	5.4.	6.0.	6.5	.68
Cinterimo Amalyssor: Proe Cinterimo Roeldesi - Islino	PPM	6.7	6.7	157	1.56	1.50	1.72
Efficient Water pH - billion	Units	1.53	167	17	6.8	65.	6.8
Edonwel Cidarino Receiling (att: Haels 1916) Manual pH abook	PPM	1,62	1.73	1.G.3	161	1.63	1.81
(ou: Hones)	Unites						

Daily Readings Granular Activated Carbon Treatment System											
Constitution	Date	7.10.2023	1-11-2023	1.12 2023	THE RESIDENCE OF THE PARTY OF T	1-16-2023	1.17.202				
Track MOA	College	13%	105	150	145	141	85				
Tent total	Gullenn	117	107	146	107	55	160				
Thomas Market	Collons	10	10	144	143	80	50				
throughteeths Lovel Frank Malak Polysphonological Lovel	Ostrono	34	131	111	94	4//	30				
Principle Land Principle Land	College	140	151	151	157	151	151				
Minutes From \$604:	POI	- A we write to	1								
Madesalana Panten Billia:	POI	A serve that i									
ochlectic Ordenst Pressure Beterlag Panep 1960/c applicate Opens d Pressure	Pas	244 m ² 2					-				
Metering Pump Mes;	POI										
Battering Fromp 000%:	Unitio										
	Unite	18.00			ţ						
Databay Famp Code:	Units										
Motorlag Pump 0005: Occidefficated	Unite		•								
merater Operating Heart	House	188.2	186.2	188.2	188.4	188.4	188:4				
win Pacifity Bloomb Malor R	ooding -										
	T		Phos Delu	al Delu.		Andrew Andrews					
			1,703. Pc. 10-	•							
Сельцева	Brother course at the	The second second			•						
dilend techn perfermed, me gooded, contrastors on elic	(del)										
			s in the state of		ears.						

		Granu	Dally I lar Activeted Ce	leadings orbon Treatmen	it System		
Description	Cate	1.18.2023	1.19.2023	and harmon and a second	parting the same of the same o	1.24.202	3 1.25.202
System Flour (testo	oran	1906	2050	1850	1850		And the second name of the secon
Total System Place	Cellono	8509134	8512171	8514417	And the second name of the secon	1800	1850
Well 3 Chine	CHOR	OFF.	OFF	OFF	OFF	9525727 OFF	8528594
Well 4 Status	ON GR	0.0	ON	ON	0.7	017	OFF
Tent 100 Play Rose	eru	250	250	225		OL	
Tank 200 Flow Rate	GPW	250	250	250	850	olc	0/2
Tank 300 Plow Rule	Ore s	350	350	325	325	parameter after a for toning of party and or to respect to the	ok
Tunk 400 Plans Rate	QFM	350	400	350	325	450	450
Tesk 989 Flow Rate	9292	350	350	350	350	450	500
Test 000 Flow Rate	GPM	250	250	250	350	500	500
Tends 100 Total Plays	Gations	66,308.000	66.658 000			408	400
Tent 200 Yetal Plear			07,131,000	,	14	69876,000	engana engangan
Tank 300 Total Flow						01 475,000	And the second
Tent 400 Total Flow	@allows	7	- Pro-	C7 037 868	21/016/000 =	21,475,006	22,118,000
Tenk 800 Total Play		13564,000	414 080 000	01,011,000	OR 886, 000 C	14.423,000	,
Tank 600 Total Flow	The state of the s		8381400)	34 169 com	46,158,000 4 85,459,000 4		47, 4122,000
Gyetem Influent Pronoure	Pai	ל ל	69			35, 358,000	
System Eliterat Pressure	Pat	7/	62	58 82	18	31	82
Opoloia Differential Processo	Par	6.4	65	82	72	7.2	7.3
Chiterino Assigner: Proc Chierino Wooldest - Indino	PPM	1.68	148	6	6.3.	9.0	. 5.1
Efficient Wester pill - Inline	Unika	6.9	69	1.44	1.52	1.54	1.47
liferuel Chierine Reeding (ex: Heek Kit)	Pau	1.74	-53-/	6.9	6.8	6.6	6.6
Manual pH sheek (sec Homes)	Units	1.19	1.858	152	1.60	1-52	1.55

3

. .

		Daily Readings Granular Activated Carbon Treatment System							
Constitution	Date	1-18-20.23	1.19.2023	1:20:23	1-23 2027	1:24223	1.25.202		
Table State	Calleno	90	143	193	142	1411	140		
- Proposition -	Outlant	134	145	112	5	120	90		
throughlette Level time take throughlette Level	Callens	50	1214	1414	144				
Task Billiak	College	15							
Tank Stills Palentheestynie Lenni	College	150	150	150	117	103	90		
Married Proper MAX	PGH					Commence of the second			
Retaring Primp (668): Metaring Primp (668): mathletic Ordent Fressor	P01								
Paragraphy Paragraphy	Pa	The state of the s		A CONTRACTOR OF THE STATE OF TH		to the second se			
Securitate Outrest Processo Betaring Penny 9888: Securitate Outrest Processo	Par			seeds and the seed of the seed					
Batering Penny Other Openy Street	Unitio								
	Unite								
Specification of the specific	Units								
Statuted Famp 6663: Statuted Famp 6663:	Unites								
Generalor Operating Haara	\$600,000	188.4	14841	188.9	1889	188.9	1889		
Main Facility Montrie Mater (tsading .								
		*	cl Della			Clos-d OAC 112	Samplia GAC 100 Well 3		
Commission additional tentio performed, we manded, accordinations on elli							Month 17 Sampline 1, 4 Diex Poc'z		

19

X

Dally Readings Granular Activated Carbon Treatment System											
Duterlydon	Date	1.26.2023	1.272023	3 1.30.2023	3						
System Plow Rote	QP 88	1890	2050	0/4							
Total Byotem Pleas	Callone	8531275	8523003	8542247							
Well 3 Status	CH CR	ON.	ON	OFF							
Well 4 Status	ON OR OFF	OFT	OF	OFF		*************************************					
Tenk 160 Play Rate	era	350	400	0							
Tank 200 Flour Rate	QPHI	350	400	0			57 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
Tank 300 Flow Rade	Gru	400	olc.	0							
Tunk 498 Flow Rote	GP10	350	ole								
Tonk 900 Flow Rate	63769	0/6	500.	0	•						
Test 000 Flow Rose	69-24	ole	400								
Test: 100 Total Play	Gallens	69984.000	69 988 006	70 415,000							
Test 200 Total Floor	Gallerie		02.03 V.ca	03 645000							
Tank 900 Total Floor	Gellens	22.860 000	23224.000	A4 038 000							
Tenti 400 Tetal Place	Cellens		11210,000	12023000		***************************************					
Took 600 Total Ploor	Gellene		48 135,006								
Tork 600 Total Flow	Gellens	To 736,000	87.815000								
(Byslem kelteset Pressure	PBI	61	57	9							
System Elifuent Pressure	Pal	55	50	9		1 4 4					
System Differential Pressure	Per	6.1	6.5	,6.							
lderino Assigner: Free Cinterino Beeldesi - Islimo	PPM	2.0	18	1.6 oh							
EMbrent Water pål - kaline	Unito	6.2	6-7	6.6	The second secon						
Efformed Chilorino Reading (ex: Heels 10th	PPM	221	1.94								
(ex: Heels 10th fileward pH about (ex: Hemse)	Unite	•		<u> </u>							



31

	Dolly Readings Granular Activated Carbon Treatment System										
Gessiption	Dete	1.26.2023	1.27.8023	1.30.2023							
Year Max — Margalitati Lord	College	143	111	80							
Venil (USA Wassidadha Lasa)	Oullean	145	145	145							
Homographic Loyed Touck Wells Homographic Loyed Track Wells Polyeless Stells Track Stells	Calleno	140	140	143							
Principal Page Principal Page Principal Page Page	College	-	-								
Tank 2018 Pokabezakate Level	College	110	90	64							
Minimizer Princip (P.O.A.)	Per	Ansanan &									
Broaddarin Carnet Presson Bataring Pump (656)	Per	grant the state of									
Honosharko Quin et Processo Betering Penny Bible: Phonoshark Quins d Processo Botoning Penny Stell:	P01										
Motoring Pennjo 1908: Phombate Calend Processe	Pel										
(Astoring Pump (SSA: Organization	Unitio	* 2.1	er en								
Moduling Purin (1848);	Units	1979	•								
Open Ground Chatering Famp (1954): Obstating Famp (1954): Obstating Famp (1955):	Units										
Balance Famp (ASA) Contacting ped	Unite	and ag	•								
Concreter Operating Hours	(Newtone)	1889	188.9								
Main Facility Montale Mains R	poding										
Commission (additional tentro perfection), water perfect on ethe,		Sampling LGAC 506 Took 324	Sampled Bactic GAC 304 Backwashing 304								