horace@uswca.com
(908) 232-3473
2004

www.uswca.com

CORBIN Consulting

Water Analysis Format

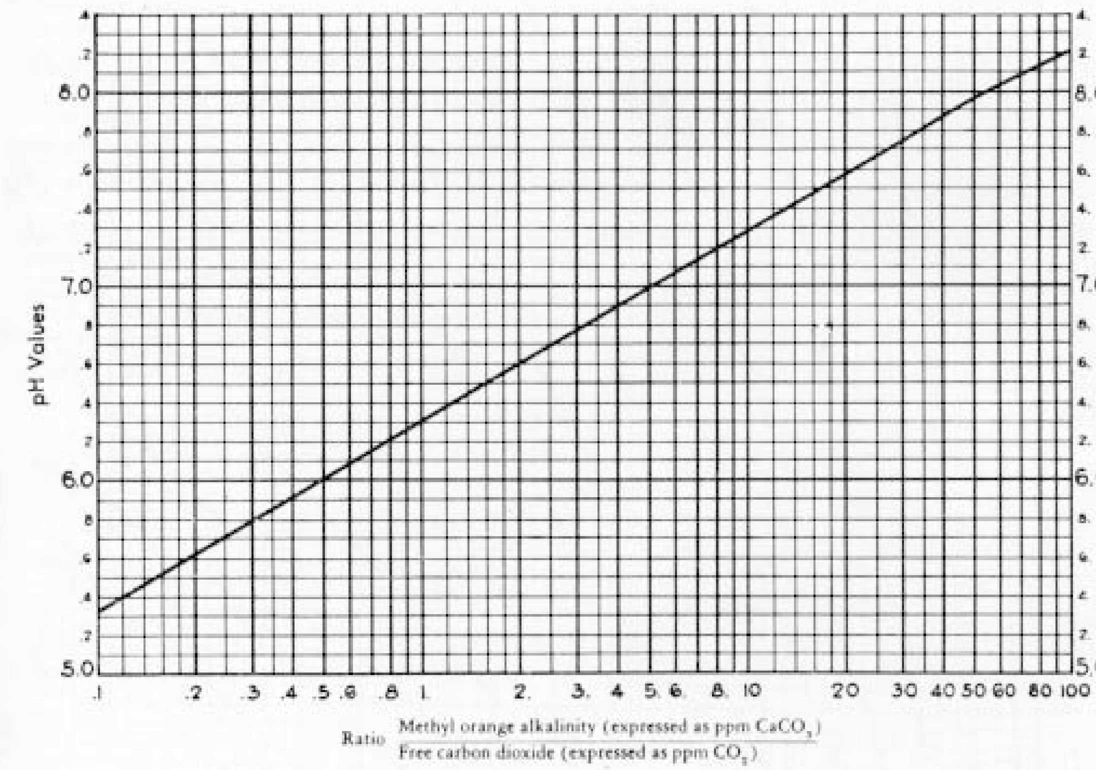
Subject: Example Water Data

Parameter	Units	Adjusted as Ion	Factor	Adjusted as CaCO3	Raw Data	
Turbidty	NTU	0.5			0.5	
pH	S.U.	9.2			9.2	
Cond	mmhos	331			331	
TDS	mg/l	280			283	
Ca	mg/l	2	2.5	4	4.425	CaCO3
Mg	mg/l	0	4.12	0	0.412	CaCO3
Na	mg/l	70.2	2.18	153	70.2	as ion
K	mg/l	8.6	1.28	11	8.6	as ion
Cl	mg/l	20.1	1.41	28	20.1	as ion
SO4	mg/l	24	1.04	25	0.8	as ion
HCO3	mg/l	77	0.82	63	77	CaCO3
CO3	mg/l	31	1.67	52	31	as ion
F	mg/l	3.5	2.66	9	3.5	as ion
PO4	mg/l	0.03	1.53	0	0.03	as ion
Mn	mg/l	0	1.82	0	0	as ion
HSiO2	mg/l	43.6	n/a		43.6	as ion
As	mg/l	0	n/a		0	as ion
Fe	mg/l	0	n/a		0	as ion
NH3-N	mg/l	0	2.78	0	0	as ion
NO2/NO3	mg/l	0.1	0.81	0	0.1	as ion
OH	mg/l	0	2.94	0	n/r	as ion
CO2	mg/l	0	1.14	0	n/r	as ion
Ion Bal.	%Err	0%	n/a	0%		
SDI	index	low			low	
Cations	CaCO3	169		169		
Anions	CaCO3	169		169		
TSS	mg/l	0	n/a		0	
BOD5	mg/l	12	n/a		12	
TOC	mg/l	0	n/a		0	
Cu	mg/l	0	1.57	0.00	0	as ion
Zn	mg/l	0	1.54	0.00	0	as ion
Ba	mg/l	0.1			0.1	
Cd	mg/l	0			0	
Cr	mg/l	0			0	
Cyanide	mg/l	0			0	
Pb	mg/l	0			0	
Hg	mg/l	0			0	
Ni	mg/l	0			0	
Phenols	mg/l	0			0	
Selenium	mg/l	0			0	
Silver	mg/l	0			0	

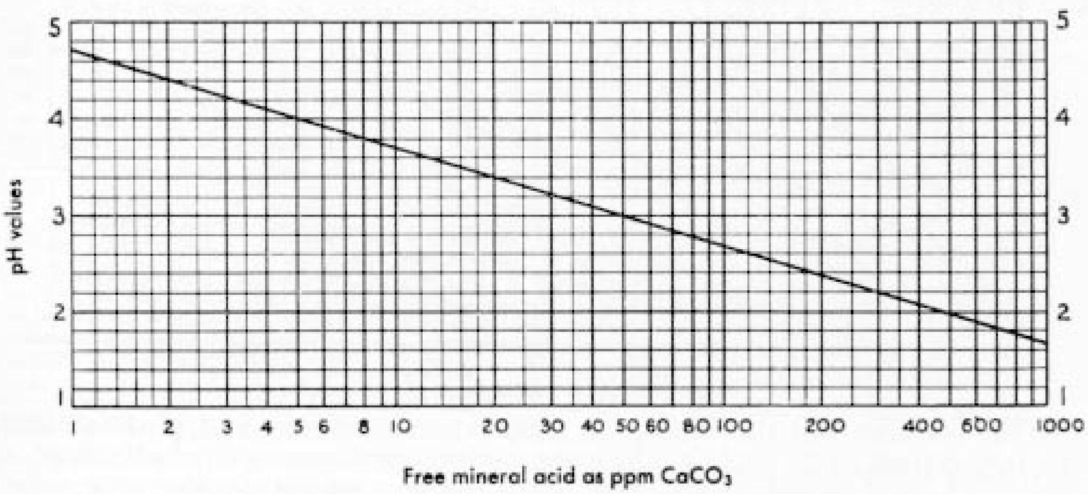
horace@uswca.com
(908) 232-3473
2004

www.uswca.com
CORBIN
Consulting

SECTION 72. EFFECT OF BICARBONATE ALKALINITY AND CO_2 ON pH



SECTION 73. EFFECT OF MINERAL ACIDITY ON pH

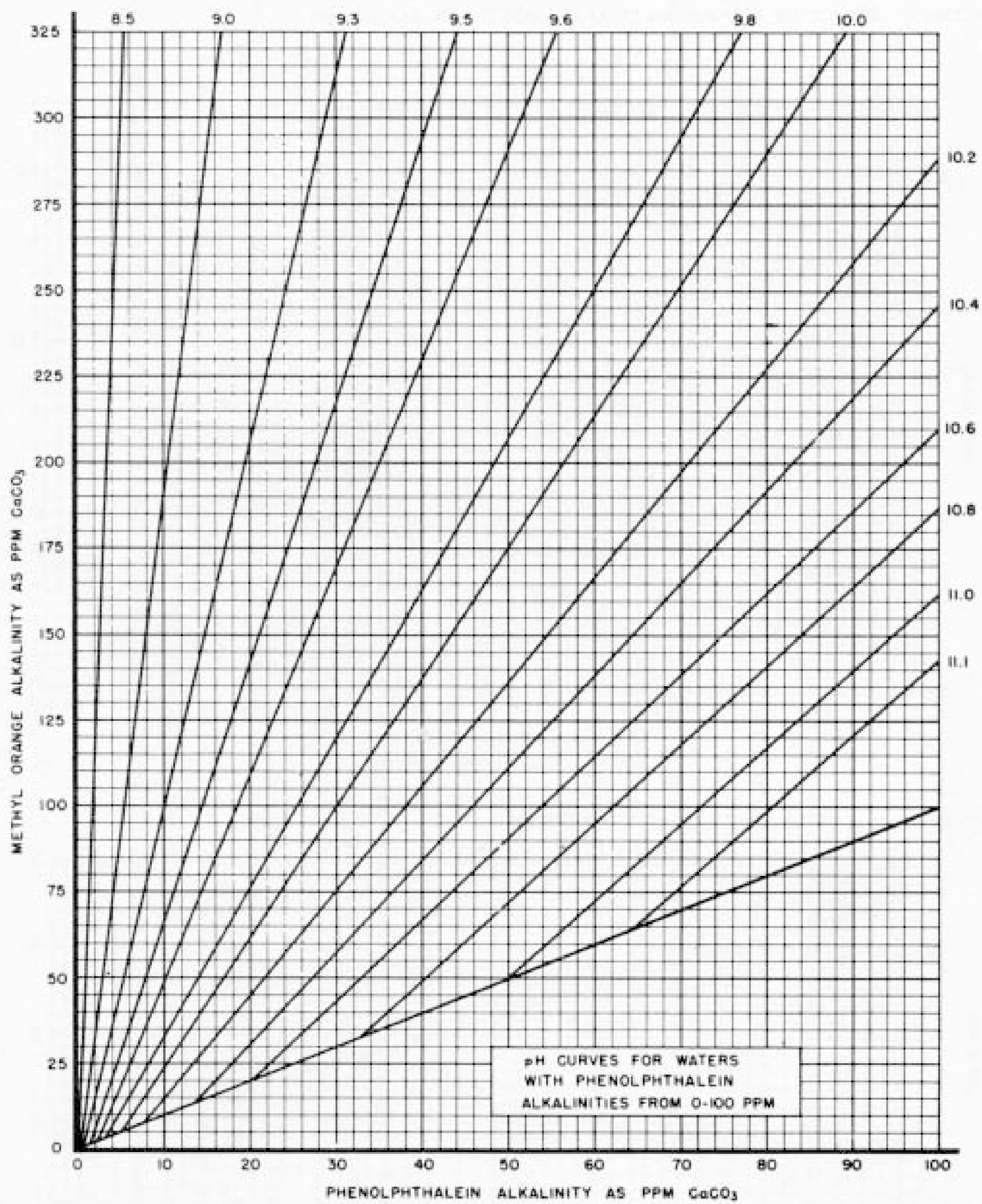


horace@uswca.com
(908) 232-3473
2004

www.uswca.com

CORBIN
Consulting

SECTION 74. EFFECT OF CARBONATE AND BICARBONATE ALKALINITY ON pH



NOTE: pH value will also depend on temperature of water. Chart above is based on temperature of 20 to 25°C. As water temperature decreases, the pH value for any given combination of alkalinity forms will increase slightly above the value indicated on the chart. For example, at 5°C. actual pH will be about 0.2 units higher in 8.5 to 9.0 pH range; about 0.3 units higher in 9.0 to 10.0 pH range; and above pH 10 actual pH will be 0.4 to 0.6 pH units higher than indicated by chart.

* Data from Permutit Handbook

horace@uswca.com
(908) 232-3473
2004

www.uswca.com

CORBIN
Consulting

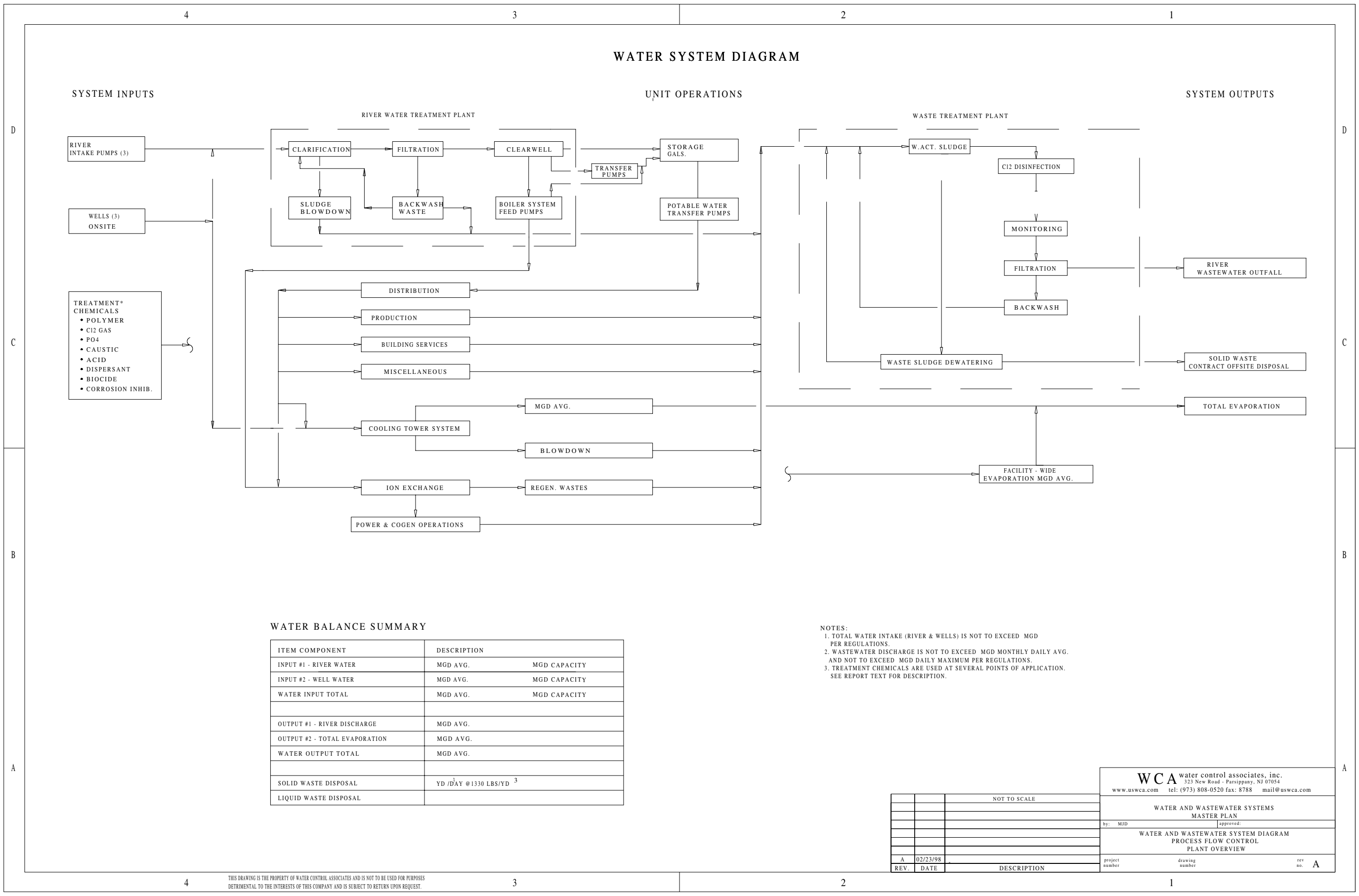
 **Anaerobic Reactors**	Many wastewaters are purified of soluble organic contamination by utilizing the metabolic functions of microorganisms. Machines maintain precise conditions so that special cultures thrive. These cultures feed on the wastes and purify the water.
 **Small System**	Treatment plants are custom designed for each specific application. Some systems are modest in size and scope.
 **Clarification**	Treatment plants are composed of multiple unit operations, arranged in a coordinated manner to ensure performance and to minimize costs. A complete instrumentation and control system is required in modern day facilities.
 **Digestion**	With attention to design detail and with proper training of personnel, the facilities can be easy to operate and to maintain.
 **Aeration**	To protect the environment and to achieve regulatory compliance for wastewater discharge, many tools and considerable experience are available.

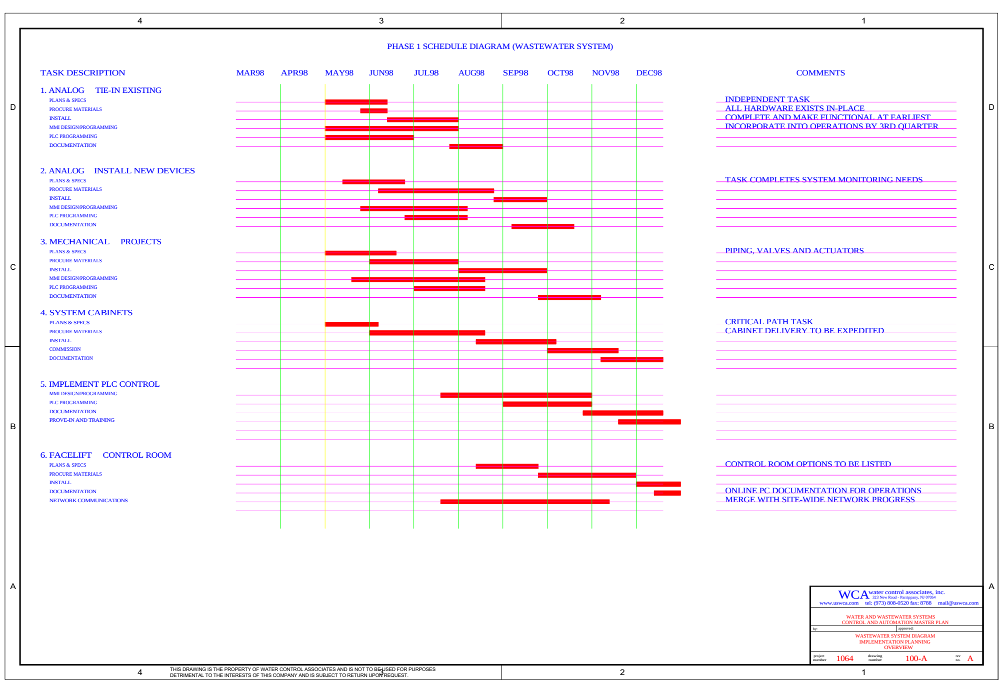
horace@uswca.com
(908) 232-3473

2004

www.uswca.com

CORBIN
Consulting



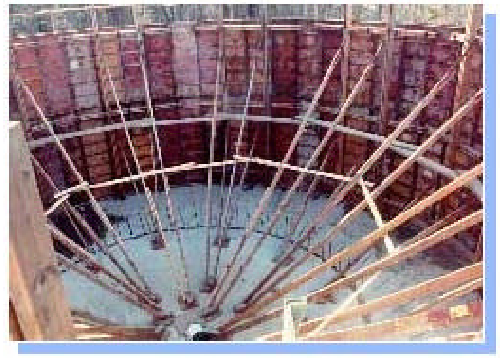


horace@uswca.com
(908) 232-3473
2004

www.uswca.com

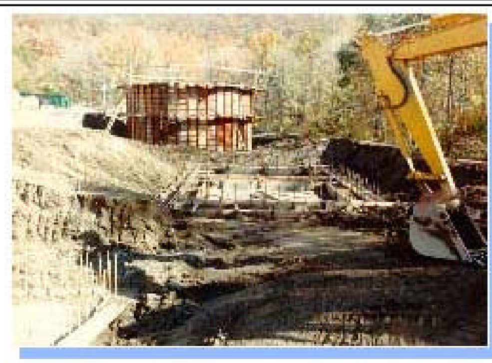
CORBIN
Consulting

Reactor Clarifier Foundation



Concrete Shell Forms

Clarifier Shell



Aeration Basin

Nutrient Feed

Coagulation Pumps

horace@uswca.com
(908) 232-3473
2004

www.uswca.com

CORBIN
Consulting

Drinking Water Production Using Ozonation & Filtration

300 million gallons of drinking water are produced each day at this modern facility for a large city in the United States. Ozone gas reagent is generated on site and applied to the raw water. This removes organics from the water while minimizing chlorine use. Before distribution, the water is finished by filtration. The process produces the highest quality drinking water with the best taste for the public.

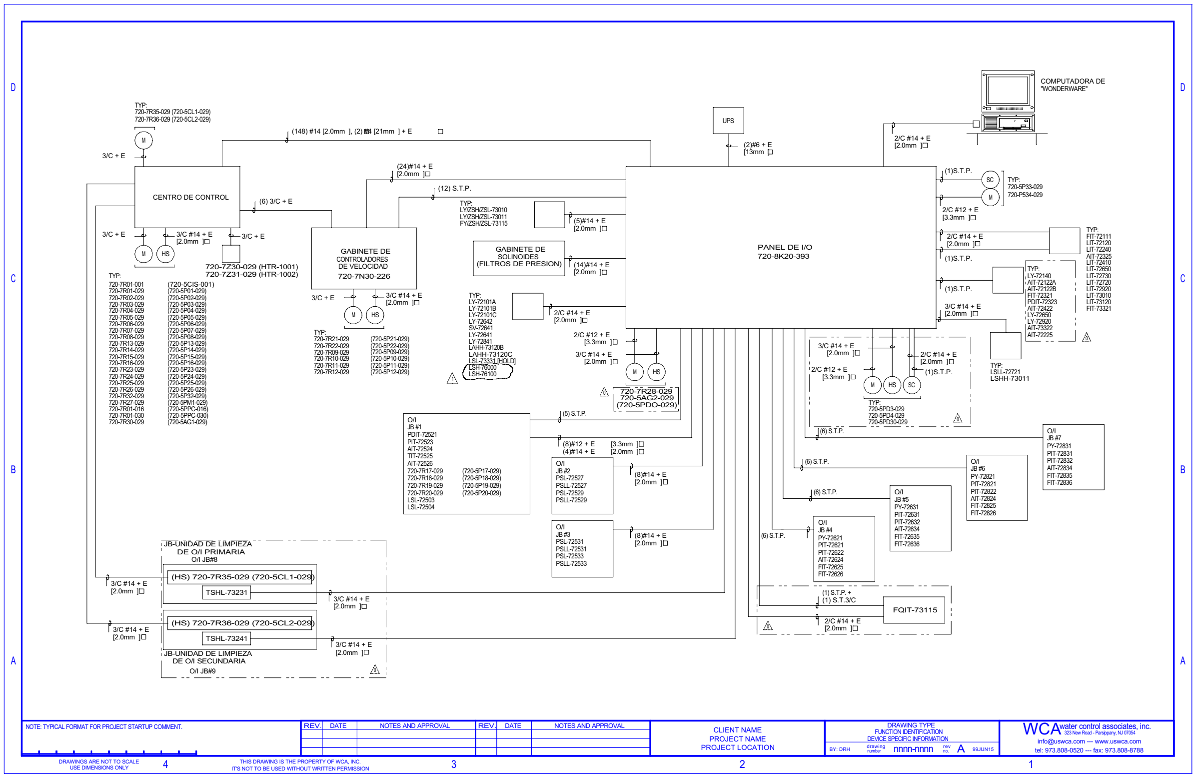
Filter Washing

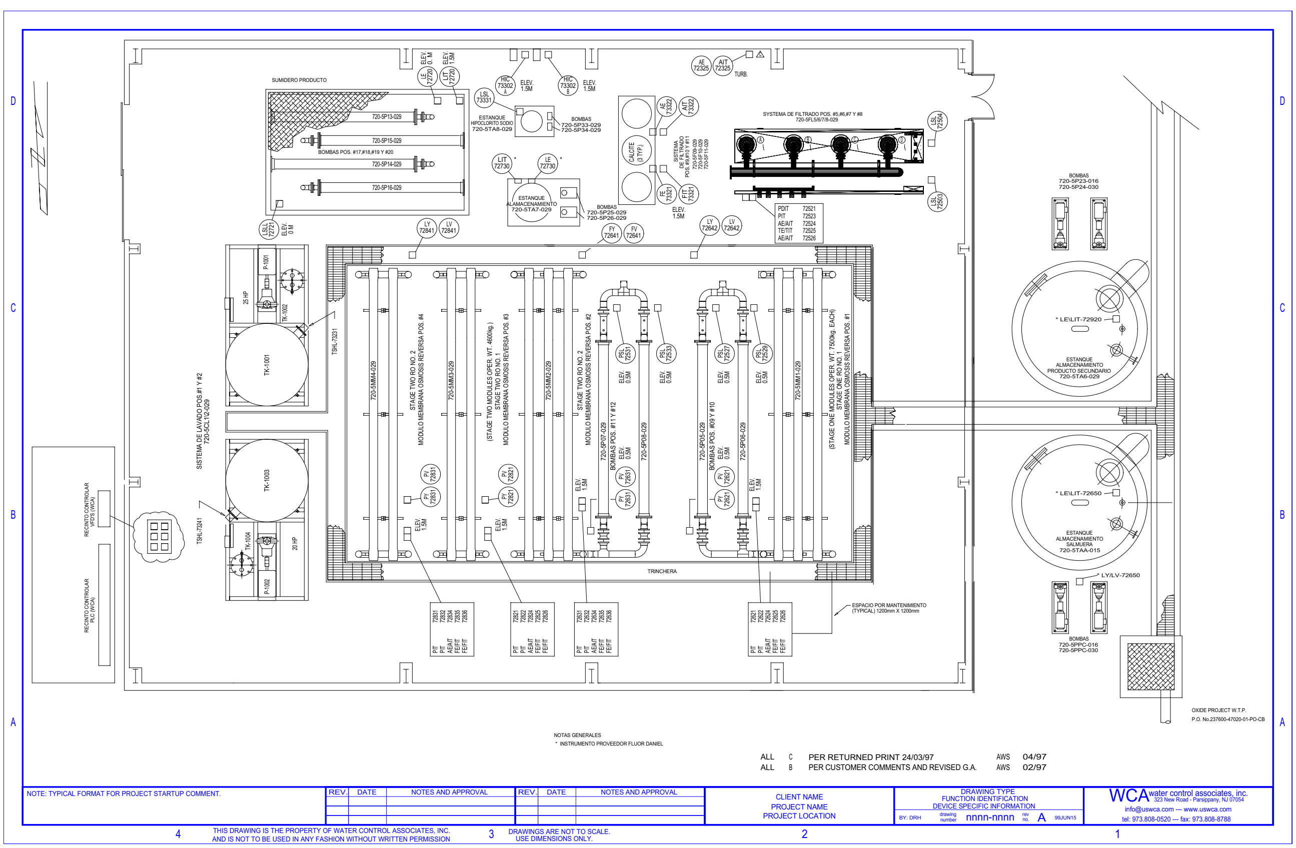
Filter washing (shown right) employs the simultaneous use of air and water during backwashing. This creates a vigorous scrubbing action of the filter media during the cleaning phase. It drives accumulated impurities from the system.

horace@uswca.com
(908) 232-3473
2004

www.uswca.com

CORBIN
Consulting

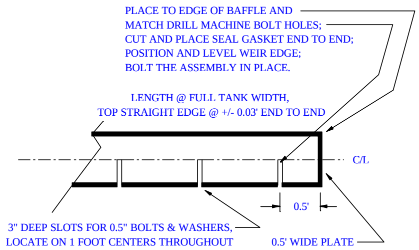




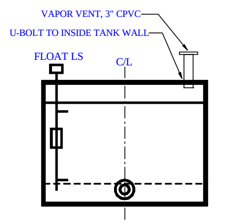
horace@uswca.com
(908) 232-3473
2004

www.uswca.com

CORBIN
Consulting

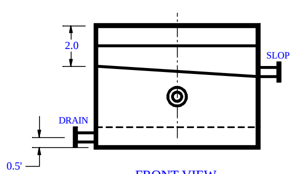


WEIR DETAIL
(TYPICAL FOR ALL)

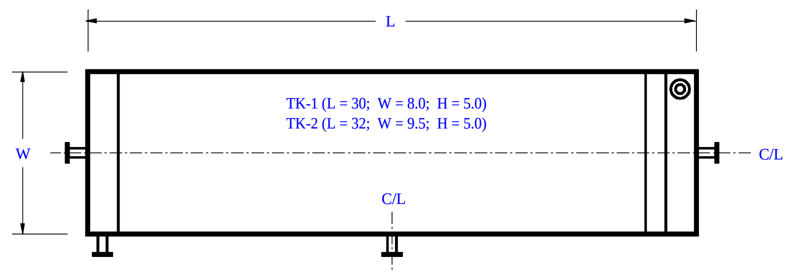


NOTE: MAKE EACH UNIT
LEFT OR RIGHT HANDED
DEPENDING ON FIELD
SITE ARRANGEMENT.

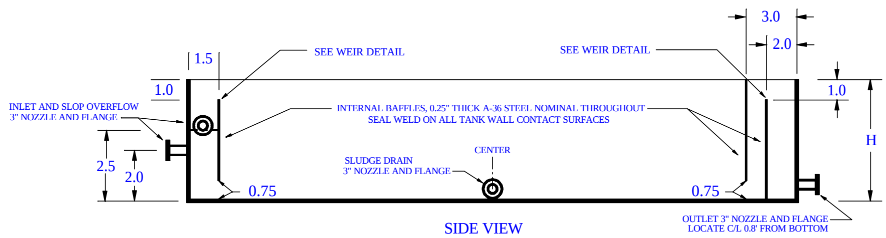
BACK VIEW



FRONT VIEW



PLAN VIEW



SIDE VIEW

TK-1 AND TK-2
API SEPARATOR, GILLETTE, WY
H. CORBIN, WCA, 5/18/98

H. CORBIN, P.E. - MAY, 1998
TEMPORARY SYSTEM IN OPERATION