

## Site Info – Dorado

Dorado Apartments  
160 Warburton Ave  
Yonkers, NY 10701



### Site Contact

Sean Pringle  
Project Engineer  
Aegis Energy Services Inc.  
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- CDH was on site April 14, 2016 to install a datalogger, terminate meter wiring, setup communications, and verify sensor readings. Data collection begins.
- Site is missing gas pulser
- Total parasitic panel measured as WPAR
- IVFD just for dump confirmation

### Summary

CDH provided the data logger. Aegis provided and installed the gas, power, and BTU meters. Aegis performed all of the necessary wire pulls and CDH terminated wiring to the data logger and sensors.

### Monitored Data Points

Logger Channel	Data Point	Description	Eng Units	Instrument / Transducer	Output
MB-001	WT	Gross Generator Power Output	kWh	Veris H-8035-300	Modbus RS-485
MB-002	WF1	Total Facility Power 1	kWh	Veris E50C2	Modbus RS-485
MB-003	WF2	Total Facility Power 2	kWh	Veris E51C2	Modbus RS-485
MB-004	WP	Parasitic Loads	kWh	Veris H-8035-100	Modbus RS-485
-	WG	Net Power Output	kWh	-	Calculated
1	FG	Cogen Gas Consumption	cf	ConEd Meter w/ Pulse	Pulse
MB-005	FHW	Recovered Heat loop Flow	gpm	Badger Series 380	Modbus RS-485
MB-005	THW1	Recovered Heat Loop - Supply Temp.	°F	Badger Series 380	Modbus RS-485
MB-005	THW2	Recovered Heat Loop - Temp. After HX1 (Space Heating)	°F	Badger Series 380	Modbus RS-485
2	THW3	Recovered Heat Loop - Temp. After Dump Radiator	°F	MAMAC 10k Type II Thermistor	Resistance
3	IVFD	Dump Radiator Fan Current	amps	H921	4-20 ma
-	QR	Rejected Heat Recovery - New Cogen	Mbtu/h		Calculated
-	QU	Total Useful Heat Recovery	Mbtu/h	-	Calculated

**IP Info**

IP Address (External):	47.23.163.27:4081
IP Address:	10.0.16.141
Subnet Mask:	255.255.255.0
Gateway:	10.0.16.1
Primary DNS:	8.8.8.8
Secondary DNS:	8.8.4.4

**Procedure**

- Power was verified with Fluke 39
- Hot water flow verified by Portaflow
- Temperatures reported reasonably close to manual gages
- No gas meter installed yet

**Verification Data – April 14, 2016**Power:

<b>WT</b>		<b>WPAR</b>	
(kW)		(kW)	
Obvius	Fluke	Obvius	Fluke
39.7	39.3	1.9	2.18

Gas:

n/a

Flow:

<b>FHW</b>	
(gpm)	
Obvius	Portaflow
22.3	22.9

Site Photos



One (1) Aegen Powerverter (PV-75) cogen units located in cogen room in sub-basement level parking garage.



Veris H8035-300 power meter (WT) located in generator disconnect in cogen room (BOTTOM).

Veris H8035-100 power meter (WP) (TOP)



CDH panel containing Obvius data logger and CDH network switch located next to CCP1.



Single heat recovery HX and dump HX skid



Badger 380 Btu Meter (THW1, THW2, FHW, QU)



Portaflow ultrasonic flowmeter.

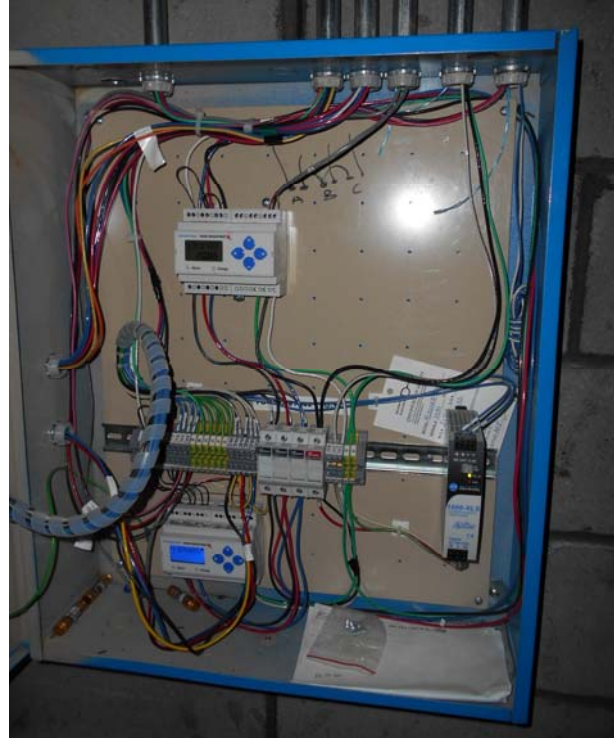


THW1 CHP Supply (BTU is on QU)





Veris 10k Type II sensors leaving dump HX (THW3)



WF1 (E50 top) and WF2 (E51 Bottom) in Beckwith panel located in electrical room.



Beckwith Panel



Cogen utility gas meter (no pulser) and wire run



Dump Fan Current (IVFD)



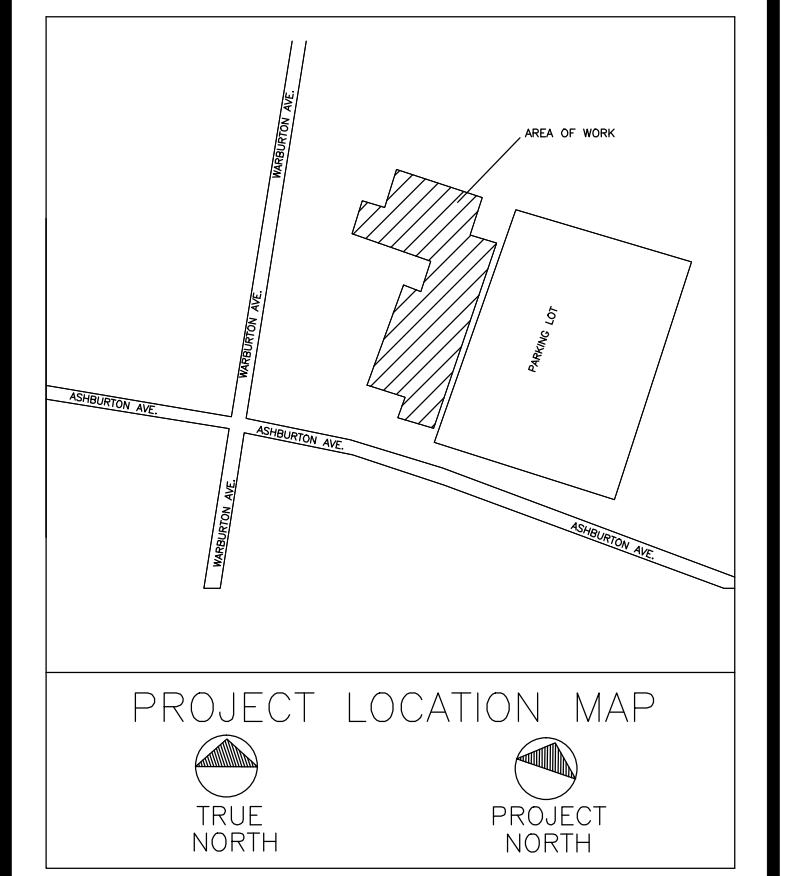
Dump Radiator



Portaflow reading during verification



NO.	DATE	REVISION DESCRIPTION
1	1-17-14	COORDINATED PERFORMANCE DATA
2	1-29-15	REVISED EQUIPMENT LOCATIONS
3	3-05-15	MINOR CHANGES
4,5,6	9-25-15	ELEC CONTROLS CHANGES



CLIENT:  
**AEGIS ENERGY SERVICES, INC.**  
 55 JACKSON STREET  
 HOLYOKE, MA 01040  
 TEL.: 413-536-1156  
 FAX: 413-536-1104  
 ATTN: SEAN PRINGLE

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PREPARED BY:

PROJECT  
**DORADO APARTMENTS  
 COGENERATION PROJECT  
 160 WARBURTON AVE  
 YONKERS, NY 10701**

DRAWING TITLE:  
**MECHANICAL  
 SCHEDULE & FLOW  
 DIAGRAM**

DESIGN BY:	SP	DATE:	09/12/14
DRN BY:	SP	DATE:	09/12/14
CKD BY:	AD	DATE:	
FINAL CKD BY:	JB	DATE:	
SCALE:	AS NOTED	DATE:	

DWG No. PAGE 2 OF 7

M-001.06

PROJECT NO.  
**60-131**  
 B-SCAN:

PUMP SCHEDULE						
PUMP NO.	SERVICE	FLOW	HEAD	H.P.	PHASE	MODEL
P-1	COGEN MODULE	25 GPM	70 FT	3/4	3	BELL & GOSSETT SERIES 1535 353T
P-2	BUILDING LOOP	30 GPM	33 FT	3/4	3	BELL & GOSSETT SERIES 60 613T
P-3	GLYCOL LOOP	30 GPM	33 FT	3/4	3	BELL & GOSSETT SERIES 60 613T

CONTROL VALVE SCHEDULE						
VALVE NO.	SERVICE	FLOW TYPE	SIZE	VOLTAGE	VALVE MODEL	ACTUATOR
V-1	BUILDING HEAT	MIXING	1 1/2"	24 V	SCHNEIDER VS2313-526-9-54	MS40-7043M MODULATING

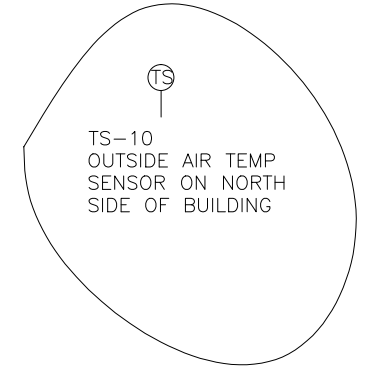
HEAT EXCHANGER HX-1		
DESIGN MANUFACTURER	API HEAT TRANSFER	
MODEL	SBM7M-40	
TYPE	BRAZED PLATE	
MATERIAL	COPPER	
SERVICE	BOILER HEAT	
SIDE	HOT	COLD
FLUID TYPE	WATER	WATER
FLUID FLOW	22 GPM	30 GPM
TEMPERATURE IN	225 DEG F	165 DEG F
TEMPERATURE OUT	176 DEG F	190 DEG F
PRESSURE DROP	0.77 PSI	2.71 PSI
INLET SIZE	2" NPT	2" NPT

HEAT EXCHANGER HX-2		
DESIGN MANUFACTURER	API HEAT TRANSFER	
MODEL	SBM7M-40	
TYPE	BRAZED PLATE	
MATERIAL	COPPER	
SERVICE	DUMP RADIATOR	
SIDE	HOT	COLD
FLUID TYPE	WATER	WATER
FLUID FLOW	22 GPM	30 GPM
TEMPERATURE IN	225 DEG F	172 DEG F
TEMPERATURE OUT	179 DEG F	207 DEG F
PRESSURE DROP	0.91 PSI	1.71 PSI
INLET SIZE	2" NPT	2" NPT

TEMPERATURE SENSOR SCHEDULE			
TS NO.	SERVICE	MODEL	WELL TYPE
TS-1	COGEN SUPPLY	MAMAC TE-703-C-5-A	AT-225
TS-2	SPACE TO DUMP	MAMAC TE-703-C-5-A	AT-225
TS-3	COGEN RETURN	MAMAC TE-703-C-5-A	AT-225
TS-11	SPACE TO HX1	MAMAC TE-703-C-5-A	AT-225
TS-12	HX1 TO SPACE	MAMAC TE-703-C-5-A	AT-225
TS-21	RADIATOR TO HX3	MAMAC TE-703-C-5-A	AT-225
TS-22	HX3 TO RADIATOR	MAMAC TE-703-C-5-A	AT-225
TS-10	OUTSIDE AIR	MAMAC TE-703-C-5-A	
TS-1N	NYSERDA COGEN SUPPLY	BADGER 380	AT-225
TS-2N	NYSERDA RADIATOR SUPPLY	BADGER 380	AT-225
TS-3N	NYSERDA COGEN RETURN	VERIS T1DB10	AT-225

DUMP RADIATOR HX-3	
DESIGN MANUFACTURER	IEA OR EQUAL
FLOW RATE	30 GPM
GROSS HEAT LOAD	523,000 BTU/HR
INLET LIQUID TEMP	196 DEG F
OUTLET LIQUID TEMP	160 DEG F
BLOWER FAN POWER	2 HP PER MOTOR
NUMBER FANS	1
MODEL NUMBER	HCR-M-14-02-08-S02
FAN SPEED	1160 RPM
LIQUID MEDIUM	40% PROP. GLYCOL
DRY WEIGHT	575 LBS

COGENERATION SCHEDULE	
DESIGN MANUFACTURER	AEGENCO
FUEL	NATURAL GAS
FUEL INPUT	930 SCFH
GAS PRESSURE	10-14" WC
THERMAL OUTPUT	523 MBH
ELECTRICAL OUTPUT	75 KW
POWER GENERATOR	SYNCHRONOUS/INVERTER
VOLTAGE	277/480 3PH
ACOUSTIC LEVEL	70dba @ 20ft
VIBRATION ISOLATION	YES
CONTROLS	MICROPROCESSOR BASED
UNIT WEIGHT	3050 LBS
MODEL	POWERVERTER 75
AVG INLET TEMP	170 DEG F
AVG OUTLET TEMP	220 DEG F
DIMENSIONS	46"W x 96"L x 49"H



WB1/2  
WPAR

