

ROHN TOWER EQUIPMENT LIST				
Item	Description	Manufacturer	Model	Qty
1	Tower, Antenna, ROHN RSL, Section, XX'	Rohn Products LLC	Height Dependent	1
2	Tower, Antenna, ROHN RSL, Top Plate Kit, w/ Hardware	Rohn Products LLC	RTP12	1
3	Tower, Antenna, ROHN RSL, Short Base Selection	Rohn Products LLC	Height Dependent	1
4	Tower, Antenna, ROHN RSL, Grounding Kit (Tessco 582201)	Rohn Products LLC	RGKG	1
5	Tower, Antenna, ROHN RSL, Antenna Mast Stabilization Plate	Rohn Products LLC	Custom-RSLAMSP	1
6	Tower, Antenna, Mast, 1-1/4" Schedule 40 SS	Rohn Products LLC	Height Dependent	1
7	Antenna, Yagi, 450-470 10dBd, N Female connector, Wind rating 150MPH	Telewave, Inc.	ANT450Y10-WR	1
8	Cable, Coax, LMR400, xx'	ANY	Height Dependent	A/R
9	Connectors, N Male Crimp	ANY	ANY	2
10	Misc, Installation Hardware	MISC	MISC	A/R

CONCRETE TOWER EQUIPMENT LIST				
Item	Description	Manufacturer	Model	Qty
1	Tower, Antenna, Concrete Pole, xx' - xx' AG	ANY	Height Dependent	1
2	Antenna, Yagi, 450-470 10dBd, N Female connector, Wind rating 150MPH	Telewave, Inc.	ANT450Y10-WR	1
3	Connectors, N Male Crimp	ANY	ANY	1
4	Connectors, TNC Male Crimp-9913, LMR400	ANY	ANY	1
5	Cable, Coax, LMR400, xx'	ANY	Height Dependent	A/R
6	Wire, Ground Wire, #6 AWG, 19-Strand, GRN	ANY	Height Dependent	A/R
7	Wire, Ground Wire, #2 AWG, Solid Tinned, Bare	ANY	Height Dependent	A/R
8	Wire, Ground Wire, #2 AWG, 19-Strand, GRN	ANY	Height Dependent	A/R
9	Ground Rod, 5/8" x 10'	ANY	ANY	2
10	Misc, Installation Hardware	MISC	MISC	A/R

TIGHTENING TORQUE VALUES			
ITEM ID	Cu/Al	TEMP.	TORQUE VALUE
TB1	Cu	75° C	6.2 in/lbs (0.7 Nm)

Instructions:
Select appropriate tower equipment list based on provided tower.

Instructions:
Select for VFD only.

Instructions:
Select for VFD only.

Instructions:
Select for RVSS only.

PLC CONTROL PANEL EQUIPMENT LIST					
Item	Tag	Description	Manufacturer	Model	Qty
1	ENCL1	Enclosure, 60"H x 24"W x 18"D, Free-Stand Single Access; 3-Point Latch; 12 Gauge 304 SS, Type 3R, 4, 4X, 12	Hoffman	A602418SSFSN4	1
2	BNPL1	Enclosure, 60"H x 24"W, Back Panel w/ Mounting Channel, Painted Steel	Hoffman	A60P24F1	1
3	SPNL2	Enclosure, Side Mounted Panel, 24"H x 12"W, Aluminum	EWS	Custom-AL-24x12	2
4	DFNT	Enclosure, Dead Front, 60"hx24"w, Aluminum	EWS	Custom-AL-60x24	1
5	DFNT	Enclosure, Dead Front, Swing-Out Panel Kit	Hoffman	ANADFK	1
6	DRAIN	Enclosure, Drain Vent, H2OMIT, 2" L x 1.25" OD, 1/2" NPT/NPS, Corrosion-Resistant Poly., Type 4, 4x	Hoffman	AVDR4NM	1
7	PNLLT-PLC	Enclosure, LED Light Kit, 20-60VDC 5W, Manual Switch, Screw Mount	Hoffman	LEDD1S35	1
8	GND	Ground, Bar 5 Points	Square D	PK5GTA	1
9	BAT1, BAT2	Battery, 12VDC 12.0 AH, w/ Quick Disconnect	Power Sonic	PS12120-F2	2
10	PS3	Converter, DC-DC, 24VDC Input, 12-15VDC, 50W Output	Vicor	VI-J12-EY-B1	1
11	RADIO	Radio, Ethernet, 400MHz Transceiver, freq. band 450-512MHz, 10-30VDC 2.5A, 5W Output Power 50Ω Impedance	GE	SD04MD-CES-NNSNN	1
12	RADIO	Connector, Mini Gender Adapter, DB9 (Office Depot 946660)	Cables to Go	709954	1
13	RADIO/SS	Antenna, Jumper, Cable Type: LMR400UF, 3', N Male / TNC Male	Tessco	324503	1
14	SS	Bulkhead Arrestor, Coaxial, Freq Range 100MHz - 512MHz, Turn On V 600VDC +/-20%, Loss 0.1dB, RF Power VHF, Connector N Female x N Female (Tessco 433721)	Polyphaser	VHF50HN	1
15	PLC	PLC, CompactLogix, Processor, 2MB, w/Supercap Backup, 16 1769 I/O Modules, 32 EtherNet/IP and 120 TCP Connections	Allen Bradley	1769-L33ER	1
16	DI1-DI3	PLC, CompactLogix, DC Input Module, 24VDC 16-Pt	Allen Bradley	1769-IQ16	3
17	PLC-PS	PLC, CompactLogix, 24VDC Power Supply	Allen Bradley	1769-PB4	1
18	DO1	PLC, CompactLogix, DC Relay Output Module, 16-Pt	Allen Bradley	1769-OW16	1
19	AI1	PLC, CompactLogix, Analog Input Module, 4-Ch, Isolated	Allen Bradley	1769-IF4I	1
20	AO1	PLC, CompactLogix, Analog Output Module, 2-Ch	Allen Bradley	1769-OF2	1
21	ECR	PLC, CompactLogix, Right End Cap	Allen Bradley	1769-ECR	1
22	COM	Modbus Gateway, 1 Port Advanced Modbus Gateway, 10/100 Mbps, Auto MDI/MDIX, 12-48VDC 435 mA @ 12 VDC	MOXA	MB3170	1
23	ENET	Network Switch, Unmanaged, Stratix 2000 Switch, 10/100BaseTX, 5 RJ45 Ports, 10-35 VDC 4W, 10-24VAC 6VA	Allen Bradley	1783-US05T	1
24	HMI	Operator Interface Unit, PanelView Plus 7 Terminal, Standard, Color TFT LCD, Touch Screen, 6.5", Ethernet, 24VDC 50W	Allen Bradley	2711P-T7C21D8S	1
25	LT	Process Transmitter, 24VDC & One 4-20mA Input & Output, UL Listed	Endress & Hauser	RMA42-AAAH2	1
26	SP2	Surge Protection Device, PT 2X1-24DC-ST, Discrete Signal Protection, 2 Conductors of Signal Circuits, Vn=24VDC In=300mA Rs=4.7 Ω, Prot. L-L, L-G	Phoenix Contact	2856087	1
27	SP2	Surge Protection Device Base, PT 2x1-BE	Phoenix Contact	2856139	1
28	SP1,SP3,SP4	Surge Protection Device, PT 4X1-24DC-ST, Discrete Signal Protection, 4 Conductors of Signal Circuits, Vn=24VDC In=300mA Rs=4.7 Ω, Prot. L-L, L-G	Phoenix Contact	2838322	3
29	SP1,SP3,SP4	Surge Protection Device Base, PT 4x1-BE	Phoenix Contact	2839363	3
30	SI1	Signal Isolator, MINI MCR-SL-RPSS-I-I, Repeater, Hart, Imax = 28mA; Vmax=50V, #26-12AWG	Phoenix Contact	2864079	1
31	SI2,SI3	Signal Isolator, MINI MCR-SL-2CP-I-I, 2-Channel Loop-Powered Isolator, Input Current 0mA - 20mA; Vmax=18V; Vdissipation=1.7V@20mA; #26-12AWG	Phoenix Contact	2864655	2
32	ISR1	Intrinsically Safe Barrier, Relay, MACX MCR-EX-SL-2NAM-RO, Isolation Amplifier 2 Channel, Power Supply 24VDC 35mA, Input Uo = 9.6V Io = 10mA	Phoenix Contact	2865476	1
33	R1-R13	Relay, 11-Pin Tubular, General Purpose Relay w/ Ind Light, Coil 24VDC 1.4W, 120/240VAC 10/6.5A, 3PDT	Square D	8501KPD13P14V53	13
34	R1-R13	Relay, 11-Pin Tubular Socket, 300V 10A	Custom Connector	ES11	13
35	TD1	Relay, 8-Pin Tubular, Zelio® On Delay, Coil 24-240VAC 1.1-4.8VA / 24-110VDC 0.5-1.7W, Contact 250V 5A, Universal Time 0-300s,min,hr, DPDT	Square D	RE48ATM12MW	1
36	TD1	Relay, 8-Pin Tubular Socket, 300V 10A	Custom Connector	ES8	1
37	D1, D2	Diode, Rectifier, 10A, 50V, Axial, (Semikron p/n-P1000A)	Newark	51R7094	2
38	SS1,SS2,SS5,SS6	Selector Switch, 30mm, 3 Position Maintained, Black Standard Handle, 600V 10A, 2-SPDT, NEMA Type 4/4X/13	Square D	9001SKS43BH2	4
39	SS3, SS4	Selector Switch, 30mm, 2 Position Maintained, Black Standard Handle, 600V 10A, 2-SPDT, NEMA Type 4/4X/13	Square D	9001SKS11BH2	2
40	PB1, PB2, PB3	Push Button, Black 30mm, Momentary, 1 N.O / N.C., 600V 10A, NEMA Type 4/4X/3R/3/2/12/13/1	Square D	9001SKR1BH13	3
41	VR1, VR2	Potentiometer, 30mm, 2K Ohm 2W, Type 4/4X/13	Square D	9001SK2139	2
42	CB1-CB29	Circuit Breaker, Thermomagnetic Base, CB 1/10-1/10 UT-BE, 277VAC/50VDC 16A, Line/Load #14-#10 AWG, 1.5-1.8 lb-in	Phoenix Contact	2800929	29
43	CB1-CB4, CB12	Circuit Breaker, Thermomagnetic, CB TM1 10A SFB P, 277VAC/50VDC 10A 300AIR(AC)/600AIR(DC)	Phoenix Contact	2800843	5
44	CB5-CB10, CB14, CB20, CB21, CB22	Circuit Breaker, Thermomagnetic, CB TM1 2A SFB P, 277VAC/50VDC 2A 300AIR(AC)/600AIR(DC)	Phoenix Contact	2800837	10
45	CB13, CB15-CB19, CB23, CB28	Circuit Breaker, Thermomagnetic, CB TM1 1A SFB P, 277VAC/50VDC 1A 300AIR(AC)/600AIR(DC)	Phoenix Contact	2800836	8
46	CB24-CB27	Circuit Breaker, Thermomagnetic, CB TM1 0.5A SFB P, 277VAC/50VDC 0.5A 300AIR(AC)/600AIR(DC)	Phoenix Contact	2800835	4
47	CB29, CB30	Circuit Breaker, Thermomagnetic, CB TM1 1A SFB P, 277VAC/50VDC 1A 300AIR(AC)/600AIR(DC)	Phoenix Contact	2800836	2
48	TB2	Terminal Block, UT 4, Feed Through Terminal, 600V 30A 26-10AWG, Blue	Phoenix Contact	3044115	4
49	TB2	Terminal Block, D-UT 2,5/10 BU, End Cover, Blue	Phoenix Contact	3047235	2
50	TB1, TB2	Terminal Block, UT 4-PE, 26-10AWG, Green/Yellow	Phoenix Contact	3044128	7
51	TB1, TBDC	Terminal Block, UT 4, Feed Through Terminal, 600V 30A 26-10AWG, Grey	Phoenix Contact	3044102	130
52	TB1, TBDC	Terminal Block, D-UT 2,5/10, End Cover, Grey	Phoenix Contact	3047028	2
53	TB1, TBDC	Terminal Block, End Clamp, E/NS 35 N	Phoenix Contact	800886	11
54	VFD-P1, VFD-P2	Variable Frequency Drive, Remote Operator Kit for Yaskawa P1000 VFD	Yaskawa	UUX000527	2
55	IMF1, IMF2	Interface Connector, FLKM-D37 SUB/B, 37 Socket, 125V 2.5A/pin or 1.5A even loading	Phoenix Contact	2281212	2
56	CBL1, CBL2	Cable, Serial Data, RS-449, 3', DB37 Male/Female	GC Electronics	45-463	2
57	SPNL1	Enclosure, Side Panel, X" h x Y" w, Aluminum	EWS	Custom-AL-SP-XXY	1

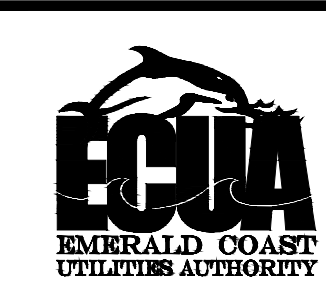
SHIP LOOSE EQUIPMENT LIST					
Item	Tag	Description	Manufacturer	Model	Qty
1	Meter Socket	Meter Socket, Ringless Meter Socket	Milbank	See PPNL HP Table	1
2	Service Disconnect	Circuit Breaker, 3 Pole, 600V	Square D	See PPNL HP Table	1
3	Service Disconnect	Enclosure, Disconnect, H and J Frame Breakers, 250A, 32.26"H x 9.72"W x 7.94"D, SS, Type 3/3R/4/4X/5/12	Square D	J250DS	1
4	Service Disconnect	Enclosure, Neutral Assembly, 400A, GND #4 - 300kcmil, NEU #1 - 600kcmil or (2) #1 - 300kcmil, NEMA 1/3R/4/4X/5/12/12K	Square D	SN400LA	1
5	Service Disconnect	Enclosure, Equipment Ground Assembly, (2) Lugs, #6 - 300 kcmil, Torque 85 lb-in	Square D	PKOGTJ250	1
6	FLT1, FLT2	Float Switch, Pipe Mount, NO Switch 20A/120V 10A/230V, 60' Cable, Stainless Steel, Teflon, 1" Pipe Clamp	Anchor Scientific Inc.	P60NO-SST	2
7	LE	Transducer, Level, Waterplot FMX21, 4-20mA, 60ft Cable, 0-20ft, Submersible, 316 SS, C.I Div.1 Gr.A-D, AEX ia, zone 1 (Ship Loose)	Endress & Hauser	FMX21-FE221HGE21A	1
8	PT	Transducer, Pressure, Cerabar S PMP71, 4-20mA, 0-150 PSI, Aluminum T14	Endress & Hauser	PMP71-AAC1P61RAAAA	1
9	FT	Flow Meter, To Be Sized by EOR	Endress & Hauser	Project Specific	1

NOTES:

- THE COMPLETED CONTROL PANEL SHALL BE LABELED AND MANUFACTURED TO MEET U.L. 508A AND 698A CERTIFICATION.
- CONTROL PANEL WIRING SHALL BE STRANDED COPPER, MINIMUM SIZE #16 AWG WITH 600V 90DEGREE C TYPE THHN INSULATION.
- CONTROL PANEL WIRING SHALL BE NUMBERED AT BOTH ENDS WITH TYPE WRITTEN, HEAT SHRINKABLE WIRE MARKERS.
- ALL WIRING WITHIN THE CONTROL PANEL SHALL BE COLOR CODED OR CODED USING ELECTRICAL TAPE IN SIZES WHERE COLORED INSULATION IS NOT AVAILABLE. THE FOLLOWING CODING SHALL BE USED:
 - UNGROUND AC CONDUCTORS AT SUPPLY VOLTAGE - BLACK
 - GROUND AC CURRENT CARRYING CONDUCTORS - WHITE
 - UNGROUND AC CONDUCTORS BELOW SUPPLY VOLTAGE - RED
 - UNGROUND AC CONTROL CONDUCTORS & CONDUCTORS THAT REMAIN ENERGIZED WHEN THE MAIN DISCONNECT IS OFF - YELLOW
 - UNGROUND DC CONTROL CONDUCTORS - ORANGE
 - GROUND DC CURRENT CARRYING CONDUCTORS - BROWN
 - INTRINSICALLY SAFE WIRING - BLUE
 - GROUND CONDUCTORS - GREEN
- SEE TERMINAL BLOCK DESIGNATIONS AND DESCRIPTIONS.

SEE NOTE #10 ON SHEET DS-0.1

Control Panel - Equipment List and Schedules.dwg



SHEET NO.
DS-29

DATE: 9/01/2016