

Table 2.5-14 Marsland Onsite Meteorological Station Description

Equipment	Description																		
10-meter town <u>tower</u>	Free-standing 10-meter (or 33-foot) aluminum town, which is self supporting with typical sets of instruments at wind levels up to 110 miles per hour (mph).																		
Model 034B wind sensor	<p>Model 034B wind sensor combines wind speed and direction measurements into a single sensing unit. The sensor is constructed of aluminum and stainless steel.</p> <p>Specifications:</p> <ol style="list-style-type: none">1. Wind Speed<ul style="list-style-type: none">• Range: 0 to 167 mph (0 to 75 meters/second [m/s])• Starting threshold: 0.9 mph (0.4 m/s)• Accuracy : <22.7 mph (0.25 mph [0.1 m/s])• Accuracy: >22.7 mph (<u>±</u> 1.1 percent of true)2. Wind Direction<ul style="list-style-type: none">• Range: Mechanical: 0 to 360° Electrical: 0 to 356°• Starting threshold: 0.9 mph (0.4 m/s)• Accuracy: 0.4°• Damping ratio: 0.25 standard (0.4 to 0.6 optional)• Resolution: <0.5°3. Temperature Range<ul style="list-style-type: none">• -30 °C to +70 °C (minimal icing conditions)4. Output Signal<ul style="list-style-type: none">• Wind speed: Pulsed contact closure• <u>Wind direction: Potentiometer output (0 to 10 kohms)</u><u>5. Height</u><ul style="list-style-type: none">• <u>10 meters</u>																		
Air temperature sensor	<p>Met One Model 062 MP</p> <p>Specifications:</p> <ol style="list-style-type: none">1. General<ul style="list-style-type: none">• Sensing element: Multi-stage state thermistor, highly linearized• Time constant: Less than 10 seconds in still air• Self-heating: None2. Housing: 3/8 in (9.5 mm) x 6 in (152.4 mm)3. Range: -50 °C to +50 °C4. Accuracy: <u>+0.05 °C, PSD compliant</u>5. <u>For a system range of:</u> <table><thead><tr><th></th><th><u>differential temperature:</u></th><th><u>over range:</u></th></tr></thead><tbody><tr><td>-5 °F to +5 °F</td><td>0.02 °F</td><td>0.05 °F</td></tr><tr><td>-5 °C to +5 °C</td><td>0.02 °C</td><td>0.05 °C</td></tr><tr><td>-5 °F to +10 °F</td><td>0.02 °F</td><td>0.1 °F</td></tr><tr><td>-5 °C to +10 °C</td><td>0.02 °C</td><td>0.1 °C</td></tr><tr><td>-10 °F to +20 °F</td><td>0.02 °F</td><td>0.2 °F</td></tr></tbody></table><u>6. Height</u><ul style="list-style-type: none">• <u>2 meters</u>• <u>10 meters</u>		<u>differential temperature:</u>	<u>over range:</u>	-5 °F to +5 °F	0.02 °F	0.05 °F	-5 °C to +5 °C	0.02 °C	0.05 °C	-5 °F to +10 °F	0.02 °F	0.1 °F	-5 °C to +10 °C	0.02 °C	0.1 °C	-10 °F to +20 °F	0.02 °F	0.2 °F
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Relative humidity and temperature probes; solar radiation shield	<p>Model HMP45AC</p> <p>Specifications:</p> <ul style="list-style-type: none"> • Operating temperature range: -40 to $+60$ °C (-40 to $+140$ °F) • Storage temperature range: -40 to $+80$ °C (-40 to $+176$ °F) • Supply voltage: 7 to 35 VDC • Settling time: 500 m/s • Power consumption: <4 milliamperes (mA) • Relative humidity: • Measuring range: 0.8 to 100% RH • Output scale: 0 to 100% RH equals 0.1 VDC • Accuracy at $+20$ °C ($+68$ °F) (including nonlinearity and hysteresis) against calibration against references: $\pm 1\%$ RH <p>field calibration against references: $\pm 2\%$ RH (0 to 90% RH) $\pm 3\%$ RH (90 to 100% RH)</p> <ul style="list-style-type: none"> • Typical long-term stability: <1% RH/year • Temperature dependence: $\pm 0.05\%$ RH/°C ($\pm 0.03\%$ RH/°F) • Response time (90% at $+20$ °C): 10 seconds with membrane filter • Humidity sensor: HUMICAP 180 <p>7. Temperature</p> <ul style="list-style-type: none"> • Measurement range: -39.2 to $+60$ °C (-32 to $+140$ °F) • Output scale: -40 to $+60$ °C (-40 to $+140$ °F) equals 0 to 1 VDC • Accuracy at $+20$ °C ($+68$ °F) <p><u>8. Height</u></p> <ul style="list-style-type: none"> • <u>2 meters</u>
Solar radiation	<p>LiCor 200 Pyranometer</p> <p>Designed for field measurement of global solar radiation.</p> <p>Specifications:</p> <ol style="list-style-type: none"> 1. Sensitivity: Typically 90 microamperes (μA) per 1000 W m^{-2} 2. Linearity: maximum deviation of 1% up to 3000 W m^{-2} 3. Stability: $<\pm 2\%$ change over a 1-year period 4. Response time: 10 microseconds (μs) 5. Temperature dependence: 0.15% per °C maximum 6. Cosine correction: cosine corrected up to 80° angle of incidence 7. Azimuth: $<\pm 1\%$ error over 360° at 45° elevation 8. Operating temperature: -40 to 65 °C 9. Relative humidity: 0 to 100% <p><u>9-10. Height: 1.3 meters</u></p>
Datalogger	<p>Campbell Scientific CR 1000 programmable control and data acquisition system</p> <p>Provides direct communications and telecommunications, reduces data, controls external devices, and stores data and programs in on-board, non-volatile storage. Sensor data can be directly downloaded from the datalogger.</p>

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	<p>Specifications:</p> <ol style="list-style-type: none"> 1. Analog inputs: 16 single-ended or 8 differential, individually configured 2. Pulse counters: 2 3. Switched voltage excitations: 3 4. Control/digital ports: 8 5. RS-232 port: 1 6. CS I/O port: 1 7. Scan rate: 100 Hz 8. Burst mode: 1500 HZ 9. Programming: CR Basic 10. Data storage: Table
Tipping bucket rain gage	<p>Texas Electronics TE525WS tipping bucket rain gage</p> <p>Specifications:</p> <ol style="list-style-type: none"> 1. Orifice diameter: 8 inches (20.3 cm) 2. Rainfall per tip: 0.01 inch (0.254 mm) 3. Accuracy: <ul style="list-style-type: none"> • Up to 1 inch/hr: $\pm 1\%$ • 1 to 2 inches/hr: $+0, -2.5\%$ • 2 to 3 inches/hr: $+0, -3.5\%$ 4. Temperature: 0 °C to +50 °C 5. Resolution: 1 tip 6. Magnetic reed switch 6-7. Height: .91 meters

Source: Cameco Resources, Inc.

Source: Application for Amendment of USNRC Source Materials License SUA-1534 , Marsland Expansion Area, Crow Butte Resources, Inc., Technical Report, Appendix B.