Katie Cooper, 05/25/07

HLP Station Building Directions

The three sections can be followed concurrently with tasks divided amongst team. Upon arrival to station, begin by determining station layout.

Piping & Solar Panel Assembly

(1) Drill hole in action packer. Put the male thread to female PVC in the hole with the male side facing into the box. Connect to the female thread to female PVC. Use two black gaskets on the outside and the white gasket from the vault lid on the inside.
(2) Drive in fence posts for solar panels.
(3) Install Carlson frame "L"'s & rebar onto fence posts. Secure with cable ties.
(4) Prime & glue reducer and GPS adapter onto the side of the Carlson frame from which cables will be run to the action packer.
(5) Thread GPS cable through GPS adapter. Run the cable through the side port of the adapter. Cover the connector ends of the GPS & solar panel cables with baggies & rubberbands to keep dirt out.
(6) Thread GPS & solar panel cables through, in order:
    a. Street "L" – female side 1st
    b. 90º standard "L"
    c. ~2.5 ft PVC pipe
    d. 90º standard "L"
(7) Prime & glue all PVC connections – note: bottom "L" should orient 180º from top "L" – this constructed shape will be referred to as the "gooseneck".
(8) Run GPS & power cables through 5 ft section of PVC.
(9) Prime & glue 5ft section to previously constructed "gooseneck".
(10) Set action packer in its hole.
(11) Cut a PVC section the measured length from the action packer to the "T" (the "T" marks the intersection between the line from the action packer to the vault with the line from the solar panel).
(12) Prime & glue the PVC section to action packer & "T". Make sure "T" points to solar panel.
(13) Thread the "glue joint couple/union" onto the GPS & solar panel cables
(14) Prime & glue the "glue joint couple/union" to the 5 ft PVC pipe from solar panel.
(15) Carefully measure & cut a section of PVC pipe the length between the "glue union" and the "T".
(16) Thread GPS & power cable through the PVC section & "T" & into the action packer. Coil GPS cable into action packer.
(17) *Critical step! Prime & glue the PVC section to the "T". Then with assistance at the "gooseneck" end, prime & glue the PVC pipe union from gooseneck while rotating into position (i.e. "vertical").
(18) Dress cables into place with ties and place "drip loop" in cables @ entrance to gooseneck. Plug the entrance.

(19) Place equipment into action packer and began install procedure.

Sensor & Vault Assembly

(1) Dry out vault if necessary.
(2) Put male thread to male PVC adapter & black gasket onto the vault lid. (Note: give the original white gasket to the crew working on the pipe construction to use in the action packer). Cover end with baggie & rubberband.
(3) Cover holes on sensor hut with waterproof duct-tape. Cut a notch into the bottom of the sensor hut for the sensor connector (for STS-2, notch size is ~1" in width and 3.5" high).
(4) Once vault is dry, place Brunton compass in bottom (make sure the Brunton has been corrected for the magnetic declination - ~15º 40mins East).
    a. If STS-2 – use Brunton to draw E-W line with arrow pointing to east and label with "E".
    b. If Guralp – draw a N-S line with "N" arrow towards north.
(5) On vault bottom, also write station name & magnetic declination.
(6) Using assistance (having the sensor handed to you), place sensor very gently into the vault.
(7) Insert the orienting rod (STS-2 only). Make sure that the sensor is placed such that once leveled, the orienting rod can be removed.
(8) Level the sensor and ensure that the alignment is still correct.
(9) Take picture of the sensor in the vault.
(10) Connect the cable to the sensor.
(11) Remove the orienting rod & unlock sensor.
(12) Place sensor hut over sensor.
(13) Arrange cable ~2/3 of a coil around the hut.
(14) Tape cable to vault wall, going straight up.
(15) Place 2 pink cookies on top of the sensor hut.
(16) Thread cable through, in order:
    i. the hole in the vault lid.
    ii. 90º standard elbow
    iii. 45º street elbow (male side 1st)
    iv. short length of PVC (length depends on depth positioning from vault to action packer).
    v. 45º standard elbow
(17) Prime & glue all fittings making sure you have correct alignment with the "T".
(18) Cut a section of PVC approximately half the length from the lower 45º to the "T". Prime both ends, and glue one half of the disconnect to the PVC.
(19) Thread the cable through the PVC section and disconnect from the pipe end.
(20) Glue the PVC and disconnect half to the lower 45º fitting.
(21) Carefully measure & cut a piece of PVC of appropriate length so that the PVC and the other half of the disconnect fit between the disconnect and the "T". Prime and glue the other half of the disconnect to the piece of PVC.

(22) Run the cable through the new piece of PVC and disconnect – make sure that the nut for the disconnect is on the PVC! Prime and glue the PVC to the "T".

(23) Adjust the fitting of the disconnect by slightly moving the action packer as necessary. Apply Teflon tape to the disconnect threads, and tighten the nut to seal the disconnect.

Dig Directions

(1) Dig hole for action packer.
(2) Dig trench from vault to action packer.
(3) Perpendicular from this line, dig a trench to the Carlson frame leg that contains the GPS adapter and cables.

Finishing

(1) Follow installation sheet instructions.
(2) Fill in trenches, holes and cover vault with mound of dirt.
(3) Tape the warning/contact info sign to top of action packer.
(4) Cover action packer with tarp and secure with rocks or fence posts.