

INSTALLATION OF NEW AIRNET STATIONS

Purpose This Meteorology and Air Quality Group (MAQ) procedure describes the procedure for installing new AIRNET stations.

Scope This procedure applies to the individual assigned to install and set up a new sampling station for the Meteorology and Air Quality Group ambient air sampling network (AIRNET) system.

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02/09/05

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General information about this procedure

Attachments This procedure has the following attachments:

Number	Attachment Title	No. of pages
1	Hazard Review	2

History of revision

This table lists the revision history and effective dates of this procedure.

Revision	Date	Description Of Changes
0	2/5/97	New document.
1	04/23/98	Remove reference to procedure ESH-17-220; add bullet in “Adding the new station to the system.”
2	2/2/99	Added requirements for wearing safety shoes when moving pumps, station housings, or timbers.
3	2/22/00	Added steps for installation of ground rods and silica gel holders. Other minor editorial changes.
4	7/30/01	Added reference to study of particle collection efficiency and made other minor changes.
5	7/2/02	Quick-change revision to address soil disturbance requirements.
6	9/10/03	Added requirement for ESH-ID reviews of new station installations.
7	2/8/05	Changed steps to coordinate with KSL on need for excavation permit and PR-ID, and made other edits.

Who requires training to this procedure?

The following personnel require training before implementing this procedure:

- MAQ AIRNET personnel assigned to install a new station
- All MAQ project leaders responsible for AIRNET

Training method

The training method for this procedure is on-the-job training by a previously trained individual and is documented in accordance with the procedure for training (MAQ-024).

Prerequisites
(continued on next page)

In addition to training to this procedure, the following training is also required prior to performing this procedure:

- MAQ-202, “Environmental Sampling of Airborne Particulate Radionuclides”
- MAQ-204, “Sampling of Ambient Airborne Tritium”

General information about this procedure, continued

Prerequisites, *continued*

- MAQ-205, “Calibration of Air Sampling Stations”
- Rad Worker training
- CPR and First Aid
- PS-13 training “Electrical Safe Work Practices for Nonelectrical Crafts Workers” (course #12175)
- Applicable site-specific training

Periodically review the field safety information in the New Employee Handbook (see MAQ-032).

References

The following documents are referenced in this procedure:

- MAQ-011, “Logbook Use and Control”
 - MAQ-024, “Personnel Training”
 - MAQ-032, “Orienting New Employees”
 - MAQ-202, “Environmental Sampling of Airborne Particulate Radionuclides”
 - MAQ-204, “Sampling of Ambient Airborne Tritium”
 - MAQ-205, “Calibration of Air Sampling Stations”
 - MAQ-207, “Evaluation of AIRNET Sampler Sites Against Siting Criteria”
 - LA-UR-00-3091, “Performance Evaluation of LANL Environmental Radiological Air Monitoring Inlets At High Wind Velocities Associated With Resuspension”
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Note

Actions specified within this procedure, unless preceded with “should” or “may,” are to be considered mandatory guidance (i.e., “shall”).

Installing a new AIRNET station

Identify a new station A group **project leader** may request AIRNET personnel to install a new station. The **project leader** will take AIRNET personnel to the site of the planned installation.

Siting evaluation

Ensure the station

- has been sited according to MAQ-207.
 - the PR-ID has been submitted (by either KSL or project leader) and completed (if new station is on LANL property).
 - an excavation permit has been obtained, if required as a result of the PR-ID evaluation.
 - given a name, a master site number, and a 2-digit local station number.
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Getting electricity to the new site

Work with the appropriate project leader as necessary for this step. To request an electrical connection to the new station, contact the following people to request electricity. Electricians will install the wires, connect the outlet inside the housing, and install the ground rods (an excavation permit is required for the ground rods).

Location	Contact
On Lab property	Facility manager
On County property	Los Alamos County
On Indian pueblo land	Appropriate pueblo contact
On private land	KSL, Inc.

PR-ID review of proposed location

For stations on LANL property, the **project leader** coordinates with KSL electricians to ensure a LANL PR-ID review is conducted as required and whether an excavation permit is required (for any digging deeper than 6 inches).

For stations on private property

Contact the appropriate **project leader** and ensure negotiations are completed with private land owners, if applicable, on the location of the station, color of the housing, etc.

Installing a new AIRNET station, continued

Equipment and materials needed

Collect the materials and tools listed below:

- 4 x 4 timbers (from Ace Hardware on DP Road)
 - lag bolts (size 5/16", 3" long) and flat washers
 - ratchet set and hammer
 - AIRNET housing with the SAIC module (kept at TA-54)
 - air sampling pump
 - calibrators (for silica gel and air filter flows; see MAQ-205)
 - level
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Required safety equipment

Wear steel-toed shoes anytime you are carrying or lifting pumps, station housings, timbers, or any other heavy equipment or supplies.

Safety in the field

Review the field safety concerns in the block about Performing Work Safely in procedure MAQ-202. This reminds you about hazards of thunderstorms, working alone, falling, and electricity.

Setting up the housing

- The orientation of the station is not critical, though it is preferable that the front access panel faces the source of interest (LA-UR-00-3091).
 - Bolt the 4 x 4 timbers to the legs of the housing by using the ratchet set (start bolt with hammer).
 - Check the level of the ground surface; if needed, use shovel to level the ground (excavation permit is required).
 - Do not install the pump until the electricity has been connected.
 - Ensure the height of the access door is in the breathing zone (about 5 to 6 feet).
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Equipment and materials needed

After the electricity has been installed to the station housing, collect the materials and tools listed below:

- air sampling pump
- stainless steel exhaust tubing
- filter holder (prepared according to MAQ-202)
- silica gel cartridge (prepared according to MAQ-204)
- calibrators (for silica gel and air filter flows)
- 2 padlocks with same key core as other station locks
- level
- station number label and disconnect notice

Installing a new AIRNET station, continued

Set up the station and pump

After the electricity has been connected, collect the materials and supplies listed above and complete the installation.

NOTE: The sampler housings located at TA-54 may already contain the control panel and some fittings and hoses.

Step	Action
1	Check the proper wiring of the newly-installed electrical outlet with a circuit polarity tester.
2	If necessary, install the PVC holder for the silica gel cartridge in the floor of the housing.
3	Put the pump inside the housing, to the left of the control panel.
4	Connect the silica gel vacuum hose from the module (already attached to front of module) to the silica gel cartridge and install the silica gel cartridge in its holder on the floor of the housing.
5	Install the filter head.
6	Attach stainless steel exhaust hose from the outlet on the vac pump to the outlet on the floor to the rear of the housing.
7	Attach the vacuum hose coming from the back of the module to the pump inlet.
8	Plug in the pump to the outlet inside the housing.
9	Calibrate the silica gel and filter flow according to procedure MAQ-205.
10	Lock both sides of the housing with a padlock cored the same as the other housing locks.
11	Label the housing with its unique station number and the power-off notice label with the group phone number.
12	Document the housing installation, calibration, and start-up time and date in the field logbook.
13	Recheck the housing with the level.
14	Determine the coordinates of the new location, using either map techniques or a GPS unit.

Installing a new AIRNET station, continued

**Adding the
new station to
the system**

The new station's identification number and location name must be added to the appropriate records:

- Request a revision to MAQ-202 to reflect the new location.
- Request the AIRNET data manager to add the new station (and the coordinates determined in step 13 above) to the Access database of locations.
- Request that the Project Manager and the Chemistry Data Coordinator revise the clumping paperwork and the shipping documents for filters, tritium, and composites.

Records resulting from this procedure

Records

The following records are generated as a result of this procedure:

- entries in the field log book (made according to MAQ-011)
- new or edited records in the AIRNET station location database

HAZARD REVIEW FOR INSTALLATION OF NEW AIRNET STATIONS

Work tasks/Steps	Hazards, Concerns, and Potential accidents; Likelihood/ Severity	Controls, Preventive Measures (e.g., safety equipment, administrative controls, etc.)	Hazard Level from IMP 300-00-00 Hazard Grading Matrix
Step: For sites on LANL property, ensure PR-ID evaluation was completed and excavation permit obtained, if needed.	Failure to comply with requirements before disturbing site. Occasional / moderate = low	None.	Minimal
Task: Set up new stations samplers according to steps in this procedure.	Handling awkward objects, strains from lifting (loading/ unloading/ transporting/ positioning) – awkward equipment is hard to handle Occasional / Moderate = Minimal	Use proper lifting techniques. Two people are required for moving station houses and timbers. Request help if you are uncomfortable moving other equipment by yourself.	Low
Move, transport, load, and unload station housings, timbers, sampler pumps, and other heavy equipment according to steps in this procedure.	Dropping materials on feet. Critical / Improbable = Low	Wear steel-toed shoes whenever carrying or moving pumps, station houses, timbers, or other heavy equipment.	Low
As part of work, may enter radiation areas and explosives testing areas.	Site-specific hazards such as high explosives testing (TA-15, TA-16, TA-49) or radiation Areas (TA-54- Area-G, TA-16) Remote / Negligible = Minimal	Comply with all site-specific access requirements. Existing facility access controls include site-specific training, sign-in/sign-out, and scheduling procedures. Area-G and TA-15 require entry through manned access control gates.	Low

Work tasks/Steps	Hazards, Concerns, and Potential accidents; Likelihood/ Severity	Controls, Preventive Measures (e.g., safety equipment, administrative controls, etc.)	Hazard Level from IMP 300-00-00 Hazard Grading Matrix
As part of station setup and sample collection at sampling locations, work around electrical equipment.	<p>Electrical shock in wet conditions Remote / Catastrophic = Low</p> <p>Electrical shock from electrical conduit improperly wired by electrician or damaged by vehicle or large animal Improbable / Catastrophic = Medium</p>	<p>Only use extension cords with GFCI or GFCI-equipped circuits. Mark location of extension cords for others (such as mowers) with cones or other visible markings.</p> <p>If damaged station is found with potential for electrical contact in damaged conduit, contact electrician to shut off power prior to any further work.</p>	Low

Wastes or residual materials resulting from process

None.

Emergency actions to take in event of control failure

For all injuries, provide first aid and see that injured person is taken to Occupational Medicine (only if immediate medical attention is not required) or the hospital. Notify supervisor and group office as soon as possible. For any exposed, energized electrical wires, contact an electrician or the appropriate authority to turn off the power. Follow all site-specific emergency plans for any radiation or explosives emergencies.