5. Field Lab Set-Up, Equipment & Record Keeping

5.1. Field Laboratory

The field laboratory is set up at approximately the same time as the project office. As is the case with the field office, the contractor, the Department or a consulting engineer fir may provide the lab. In the first two situations, all laboratory test equipment and most or all of the furnishings are the responsibility of the Department; in the latter case, the terms of the professional services agreement detail what the consultant provides. The Department should have on hand all of the materials test equipment that it is responsible for providing. Any expendable supplies or additional equipment will have to be purchased by stock request. Information on this process is shown in Section 4.1.

The field laboratory may be located adjacent to the field office, or at any site that is close to the contractor's materials production operations. Once the field lab is set up, the regional quality assurance/materials unit should inspect it. The field laboratory should have an industrial first aid kit, tailored to the particular chemicals and hazards that the project materials staff could be exposed to. If hazardous materials are present in the field lab in quantities equal to those specified in AS 29.35.500(c), appropriate placards must be prominently displayed on the lab building (13 AAC 54.020). Materials Safety Data Sheets (MSDS)/Safety Data Sheets (SDS), OSHA Form 20, (AS 18.60.067) should be available for distribution for each applicable substance.

5.2. Nuclear Testing Equipment and Materials Testing

The extent to which a field laboratory is equipped depends entirely on the scope and size of the contract. A small rural project, with only a few pay items that require testing, does not require a laboratory equipped to the degree that a major urban project's laboratory is equipped. As an aid to the Project Engineer in equipping the field lab, Table VI in the Appendix contains three lists of testing equipment for various types of projects (an earthwork project, an asphalt paving project, and a project with concrete work). These lists are guides only, and the Project Engineer and Group Chief/PM may modify them to suit the needs of the particular project. If the Department is unable to provide the needed supplies and equipment on the lists, the Project Engineer should obtain them through the stock request procedures outlined in Section 4.1.

Most projects containing earthwork or asphalt involve the use of nuclear testing equipment. The SRSO has overall responsibility for the safety and security of the nuclear testing equipment, in accordance with the U.S. Nuclear Regulatory Commission (NRC) license. Nuclear testing equipment is issued only to project staff members who have received required training and have been approved by the RRSO. Each project staff member who will work with nuclear moisture/density gauges or nuclear asphalt content equipment must receive training /certification (AS 18.60.066 and 10 CFR 19.12) in the safe use, care, and storage of this equipment, and be authorized by the Regional Radiation Safety Officer (RRSO), before they will be permitted to use it.

Nuclear testing equipment must be handled in a manner that will prevent project staff and members of the public from radiation exposure in excess of regulatory requirements (10 CFR 20.1301). Dosimeters must be worn at all times by staff members who are transporting, operating, or working with any nuclear testing equipment. The Radiation Protection Program governs the availability and control of dosimeters. The RRSO is responsible for implementing the Alaska Radiation Protection Program in their region.

Personnel who are not wearing a dosimeter should stay 5 feet or farther away from the nuclear testing equipment.

Nuclear testing equipment must be kept locked when not in use, and kept in a qualified locked storage area, that has a detailed radiation survey (10 CFR 20.1302) posted, and approved by the SRSO. Nuclear testing equipment must be stored in a weatherproof, heated, and ventilated storage shed. The building must be located and approved by the RRSO and should be at least 15 feet away from occupied areas. The shed shall be installed before a nuclear gage is allowed on the

project. The storage unit must be secure, have a lockable entrance door (3' x 6'8") and all keys shall be surrendered to an authorized nuclear gauge user to control access.

The nuclear testing equipment storage area must have postings that are visible to the employees as they go about their licensed activities. Postings must include:

1. The license, license conditions, or documents incorporated into a license by reference, and amendments thereto
2. Any notice of violation involving radiological working conditions, proposed imposition of civil penalty, or order issued, and any response from the licensee
3. NRC Form 3
4. A notice describing 10 CFR 19, CFR 20 and the Radiation Protection Program Manual and where they may be examined (10 CFR 19.11).
5. SCWE/ECP Poster

When nuclear testing equipment is being transported, including within the project site, documentation required by the NRC must accompany the equipment. Further information on NRC regulations can be obtained from the RRSO.

See the Alaska Radiation Protection Program Manual, published by Statewide Materials and located on their website, for additional guidance on the Radiation Protection Program. The Statewide Radiation Safety Officer (SRSO) is responsible for maintenance and control of the Radiation Protection Program and updating and maintaining the manual.

5.3. Toxic and Hazardous Substances

Some materials test procedures require the use of toxic and hazardous substances. Hazardous substances include the propane used to fuel field stoves and ovens. If you use any such substance on the project, you must properly label, store, transport, and handle it. You may need to mark buildings that contain minimum quantities of hazardous materials with placards (AS 29.35.500(c) and 13AAC.54.020). Each project staff member who will work with a toxic or hazardous substance must receive training (AS 18.60.066) in the safe use, care, transport, and storage of the particular substance before they work with that substance. Employees responsible for the transport of hazardous substances should familiarize themselves with the Shipping and Transporting Requirements of the US Department of Transportation.

The Project Engineer must maintain a supply of Material Safety Data Sheets (MSDS)/Safety Data Sheets (SDS), OSHA Form 20, for each classified substance used on the project and must provide them to project staff members on request (AS 18.60.067), or must maintain a list of those classified substances and the location where the MSDS/SDS sheets may be obtained. The Project Engineer must also post the Alaska Department of Labor's "It's Your Right to Know" poster on toxic/hazardous substances (AS 18.60.068 and 8 AAC 61.950) in both the field office and the field laboratory. If there is a spill of a classified substance, the Project Engineer must notify the Group Chief/PM or the environmental unit immediately so that the spill may be properly reported. Further information on classified substances that are still used on construction projects is available from the regional safety officer.

5.4. Materials Tests, Record Keeping, & Reference Material

Materials to be incorporated into the project must meet the quality standards that are established in the contract. Some materials are accepted based on manufacturer's certifications and the results of tests performed off-site. The contract also establishes tests that are to be performed on other materials on-site to demonstrate that they also meet quality standards. The Materials Testing Summary outlines, by pay item, the tests that are to be performed and the approximate numbers of each type of test (Section 11.2). This summary serves as a guide in establishing the project's materials staff testing workload and record keeping requirements. A materials sample identification system has been established to aid the record keeping effort; the system is shown in Table VII in the Appendix.

The project materials staff should set up a filing system for the results of all materials tests taken on-site; staff should set up files for each pay item requiring testing. Section 4.2 and Section 18, Table IV in the Appendix, contain more information on setting up the filing system and its structure. Complete a final Materials Testing Summary by the end of the project. This summary contains a list of all the materials tests taken as required for each pay item and designates passing and failing tests. Prepare the summary in outline form before construction starts so that as you complete each type of test on a particular item, you can enter the results on the summary and keep the summary current.

Certain materials test procedures require you to ship all or a portion of a sample to the regional laboratory for testing. Since the regional laboratory receives materials samples as well as materials test results from many different projects, it's important for the project staff to properly identify samples and test results from their project. Identify samples by: project name, number and materials source; the reason the sample was taken; the purpose for which the material will be used; the type of test to be run; and the number of the sample. Records should be kept of all samples sent off the project for testing.

The field laboratory should be equipped with all applicable test methods and reference materials that are needed for the project materials staff to fully perform their duties. Table V in the Appendix contains a list of both required and recommended reference books and related materials information.

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