

Standard Operating Procedure – XRay

Nov. 2003

I. PORT CALL

- Cross-over with off-going crew. Read all tech reports and crossover notes. Ask if/when/how counterpart will be available while traveling or at home in case questions arise.
- Assist as needed with on/off loading cores, freight, etc. Get rid of all trash, etc. Make sure the glass disposal boxes are emptied and that waste acid (if any) is disposed of in port if possible.
- Unpack items from the shipment for X-ray and Paleo. Make sure spare parts are the right ones.
- Calibrate the balance unless you are absolutely sure you will not be needing it for the cruise.
- Begin verifying operation of XRD and all ICP preparation equipment. Familiarize yourself with the Leg Prospectus and ascertain a probable number of ICP and XRD samples to be analyzed. Discuss any sampling issues or analysis techniques as necessary with Curator, Staff Scientist, and any interested scientists.
- Make sure supplies are adequate and equipment and instruments are operational and notify Lab Officer of any problems.
- Report to LO/ALO for other port call duties.

II. SITE PREPARATION

III. ON SITE ACTIVITIES

- Receive core and assist as needed in the core lab
- Prepare and analyze XRD samples.
- Prepare ICP samples for analysis.
- Understand how the ICP analysis procedure works, the idea and theory behind it, and be prepared to answer questions or at least point a scientist or tech in the right direction.
- Provide information early in the cruise about how many XRD and ICP samples the lab can reasonably be expected to handle. **Remember, the core lab is your primary duty and x-ray must come secondary to that unless arrangements are made with the Lab Officer to meet special objectives.** Scientists should be made aware of this and that it is not reasonable to expect high resolution on a high recovery Leg.
- Provide a place for paleontologists to request supplies. Fill requests promptly.
- Keep X-ray lab, paleo lab, and hallway clean. Mop if necessary. Remove any dishes promptly.

Data Curation

- Make XRD data readily available to scientists during the cruise. Save XRD files in MacDiff format. Save UDI, UDF, and MacDiff on DATA1 until the final backup.
- Download UDI and UDF data into Janus. Verify that all samples have been analyzed and run by running a Netscape query.

IV. EQUIPMENT MAINTENANCE

- Maintain the Siman inventory sheet. Do physical counts of supplies each cruise and other parts and supplies as time allows.
- If the equipment is not operating properly, learn how to fix it. Use techs and E.T.'s as a resource but you should eventually be the expert in the X-Ray lab, calling only on E.T.'s occasionally to resolve electrical problems.
- Check the alignment and calibrate the XRD instrument each batch run.
- Monitor oil levels in vacuum pumps. Refill or change as necessary.
- Monitor water level in Haskris water pump.
- Make sure desiccant in boxes is dry and ready for use. Oven treat if necessary.
- Clean freeze-drier valves, vials, and the desiccators. Replace filters. Drain water from the unit and dry inside. Remove front cover and vacuum the electronics and radiator surface.
- Put shipping or other important papers in the Leg Notebook. Record and date any maintenance.

V. END OF CRUISE

- Remove all personal items from drawers, walls, and shelves.
- Clean everything from top to bottom and scrub the floor.
- Empty sediment traps in paleo lab
- Empty glass discard box in Paleo lab. Consult LO on how to dispose of glass.
- Wash all glassware and reorganize in cabinets. Discard damaged glassware.
- Clean all cabinets, in particular the chemical and acid cabinets. Dispose of unlabeled or out of date bottles.
- Sort sieves and put in proper drawers.

VI. PORT CALL—OFF GOING

- Find the oncoming Marine Lab Specialist(s) for your lab and cross over. Make sure the technicians that are replacing you are aware of any changes made to the lab, procedures, current equipment status, and port purchases if necessary.
- Attend the port call meeting.
- Unload off going airfreight and frozen shipment, or any freight as required. Load on coming freight if time permits.

On Shore

- Weigh fusion flux as necessary to insure that adequate supplies are available for each Leg. Bottles should be taped closed and taken to shipping. Bottles should remain upright during shipment.
- Follow up on all requisitions from the ship or items returned for repair.