

Exceptional service in the national interest



FRMAC

Laboratory Analysis Division

What Every Laboratory Needs to Know



Laboratory Analysis Working Group

Sandia National Laboratories

SAND-2013-XXXXX



Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under Contract DE-AC04-94AL85000.

Who are we?

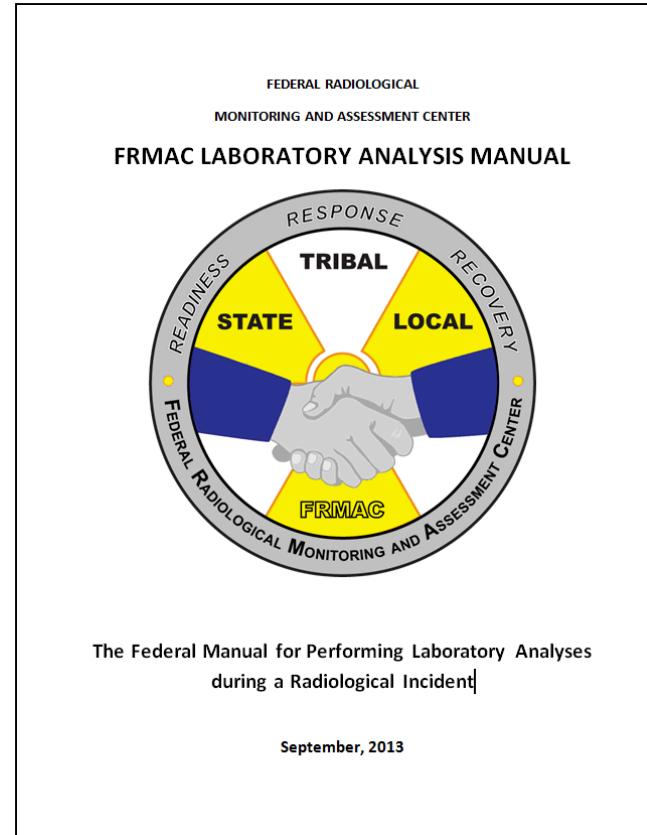


- Federal Radiological Monitoring and Assessment Center (FRMAC) –Laboratory Analysis Division
- Responsibilities
 - Begin
 - When FRMAC responds
 - Sample is dropped off at the hotline
 - End
 - Recovery phase – turned over to EPA with reduced FRMAC presence
 - Sample results are V&V'd from laboratory and uploaded into FRMAC database (RAMS)
 - Data utilized by FRMAC Assessment Division for dose assessments



FRMAC

Laboratory Analysis Manual



Available at:

<http://www.nv.doe.gov/nationalsecurity/homelandsecurity/frmac>



Lab Analysis Manual



- Describes LA Division and Operations
- Responsibilities
- Laboratory Selection Methods and Procedures
- Sample Control Processes
- Laboratory Data Quality Control
- Logistical Requirements



Recent Manual Updates

Appendices



2 Appendices  8 Appendices

- Detailed Position Description & Training
- **Data Quality Objectives**
 - Assessment DRL → AAL → Lc
- Electronic Data Deliverable (EDD)
- RAMS Operations
- Added Forms
 - Data Verification Review Form
 - Analysis Request Form
 - Initial Laboratory Questionnaire
 - Non Conformance Form

SAMPLE CONTROL FORM & CHAIN OF CUSTODY		SCF -
<input type="checkbox"/> TABLET - Sample information entered on Tablet		
Sampling Information (to be filled out by the Field Team)		
Field Team: ALPHA Collector's Name: E. Fermi Home Org: DOE Longitude: 106.620271 Location Description: PopoJoy Hall Latitude: 35.082266		
Date: 3/11/14 0900 Collection Time (24hr): 0900 Area Exposure: 20 μR/h Contact Dose Rate: 25 μR/h Collection Comments: Soil in Standard geometry		
Sample Type (use only one)		
Air: Sampler ID #: 1 Type: <input type="checkbox"/> Filter size & type: <input type="checkbox"/> House <input type="checkbox"/> Carriage <input type="checkbox"/> x <input type="checkbox"/> e <input type="checkbox"/> Other Date/Time: 3/11/14 0900 Date/Time Off: <input type="checkbox"/> OR Total Volume: Collection Start Flow: 0.000 Rate & units: Rate & units Additional Air Filter Media, None Sample Size #: 1		
Milk: <input type="checkbox"/> Rawed Fresh <input type="checkbox"/> Pasteur. <input type="checkbox"/> Other: None Milking Date: 3/11/14 Milking Time: 0900 Number of Animals: 1 Depth of soil sample: 2 cm Vegetation collected with soil sample? <input type="checkbox"/> YES <input type="checkbox"/> NO <small>check box if "NO" leave blank</small>		
Soil: Sample surface area: 200 cm² Water: <input type="checkbox"/> Surface <input type="checkbox"/> Ground / soil <input type="checkbox"/> Rock / Tap <input type="checkbox"/> Other: None <input type="checkbox"/> Vegetation <input type="checkbox"/> Food <input type="checkbox"/> Instrument <input type="checkbox"/> Other: None		
Job Aid - Analysis Request Forms (ARFs)		
Logging on the RAMS v.2 1. Go to the FRMAC website: http://frmac.sns.gov.doe.ac 2. Select the appropriate Group, and type in your user name and password. 3. Select the event underneath the FRMAC logo as shown below: 		
Adding SCFs to an ARF 5. Under the tab Sample , select Sample Request Information 6. Select Sample 7. Assign the ARF to ARF # (The ARF # is obtained from the Handbooks ARF Logbook) 8. Select the laboratory, (the Laboratory POC information) should auto-populate, (make changes if necessary) 9. In Sample Headers/Comments/Additional Information , type any hazards pertaining to the samples as a whole 10. For Samples submitted are associated with a signed S.O.W., if instructed place a checkmark in the Comments box below 11. If instructed to, place a checkmark in the Comments box below 12. Select Submit 13. Save the file, the sample is now all the samples that are to be submitted to the ARF. Click lab manager , (NOTE: A warning may appear, if this is not expected contact the depur) with a sample type file. Place a checkmark in for the samples you wish to attach to the ARF and then click Submit 14. A warning message indicating that the sample's dose rate exceeds the maximum contact dose rate for the detector or that the SCF is already attached to another ARF. Click OK if this is the case 15. A warning message indicating that the sample's dose rate exceeds the maximum contact dose rate for the detector or that the SCF is already attached to another ARF. Click OK if this is the case 		
Sample Control Sample control & hotline technician: <input type="checkbox"/> Split <input type="checkbox"/> Composite <input type="checkbox"/> Blank Pick Forms and Weight of Sample GRANITE Refrigerator (Signatures) Received By: None Date/Time: None Received By: None Date/Time: None Received By: None Date/Time: None Received By: None Date/Time: None Copy to Sample Control None October 2011		

Appendix B

Data Quality Objectives



	Air ($\mu\text{Ci}/\text{m}^3$)	Food ($\mu\text{Ci}/\text{kg}_{\text{wet}}$)	Forage ($\mu\text{Ci}/\text{kg}_{\text{wet}}$)	Milk ($\mu\text{Ci}/\text{kg}_{\text{wet}}$)	ST Soil ($\mu\text{Ci}/\text{Sample}$)	LT Soil ($\mu\text{Ci}/\text{Sample}$)	Water ($\mu\text{Ci}/\text{L}$)	Tap Water (pCi/L)
DRL Type APPLIED	Dp_DRL "Short Term"	DIL	Milk_DRL _{max}	DIL	Dp_DRL "Short Term"	Dp_DRL "Long Term"	Milk_DRL _{water}	EPA guidelines
Am-241	1.8E-06	5.4E-05	7.5E-01	5.4E-05	1.8E-02	1.0E-02	6.2E-01	Contact FRMAC Assessment for appropriate value
Ba-140	1.6E-04	1.9E-01	9.0E+00	1.9E-01	1.6E+00	1.2E-01	7.5E+00	
Ce-141	2.3E-03	1.9E-01	1.4E+02	1.9E-01	2.3E+01	2.0E+00	1.2E+02	
Ce-144	1.8E-04	1.3E-02	9.4E+00	1.3E-02	1.8E+00	1.3E-01	7.8E+00	

* Soil – Critical Levels will be expressed in concentration on the Analysis Request Form

Determining Measurement Quality Objectives (MQOs)



July, 2013

Section 4: Laboratory Selection Methods and Procedures

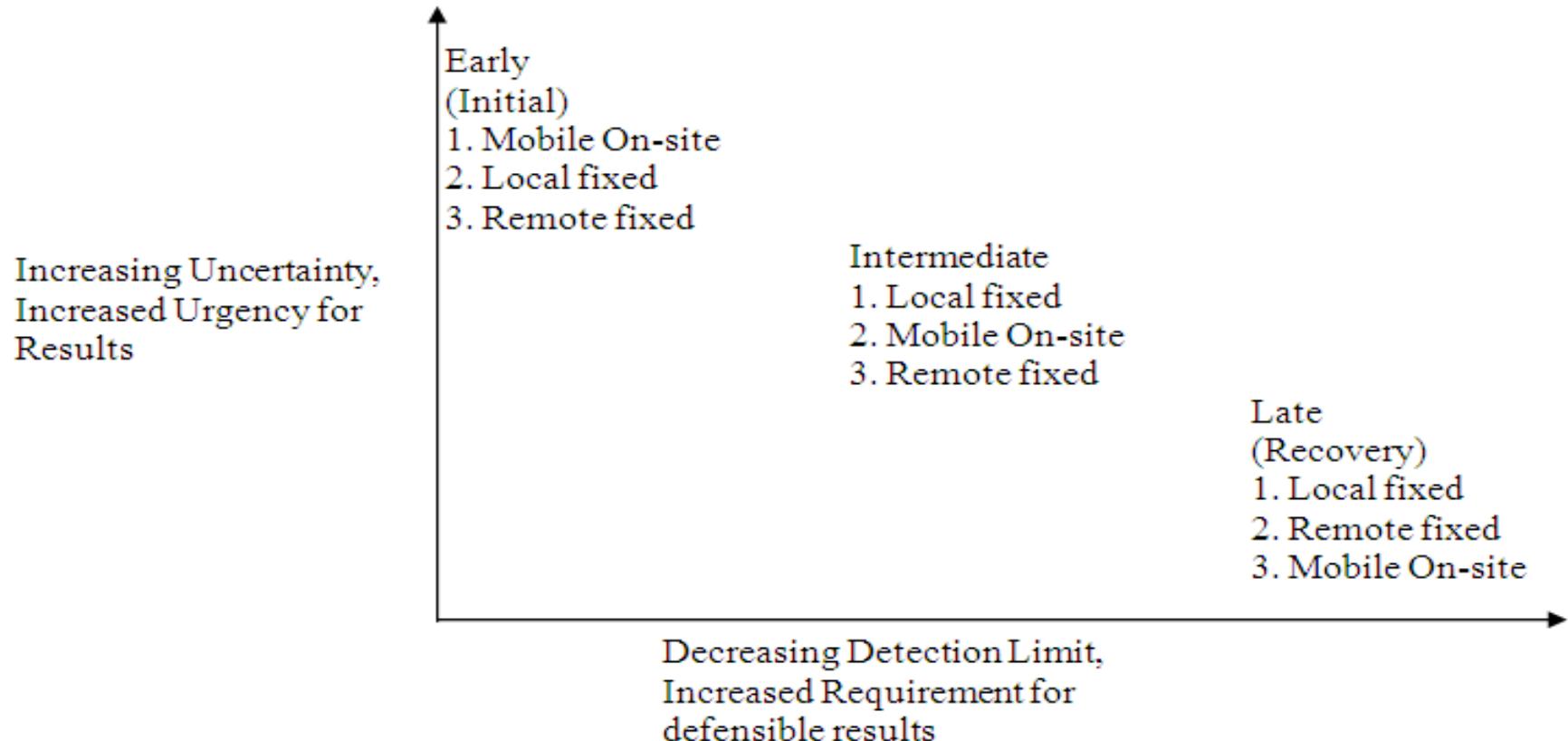


Figure 4-2. Phase-related MQOs & Laboratory Asset Role



Laboratory Selection Guidelines

- FRMAC Experience
- FRMAC LAWG member lab or contractor
- Member of ICLN Laboratory Network?
- Proficiency Test Performance
- Permits, accreditations, certifications
- Matrices
- Meet DQO's and Turn-Around-Times
- Throughput

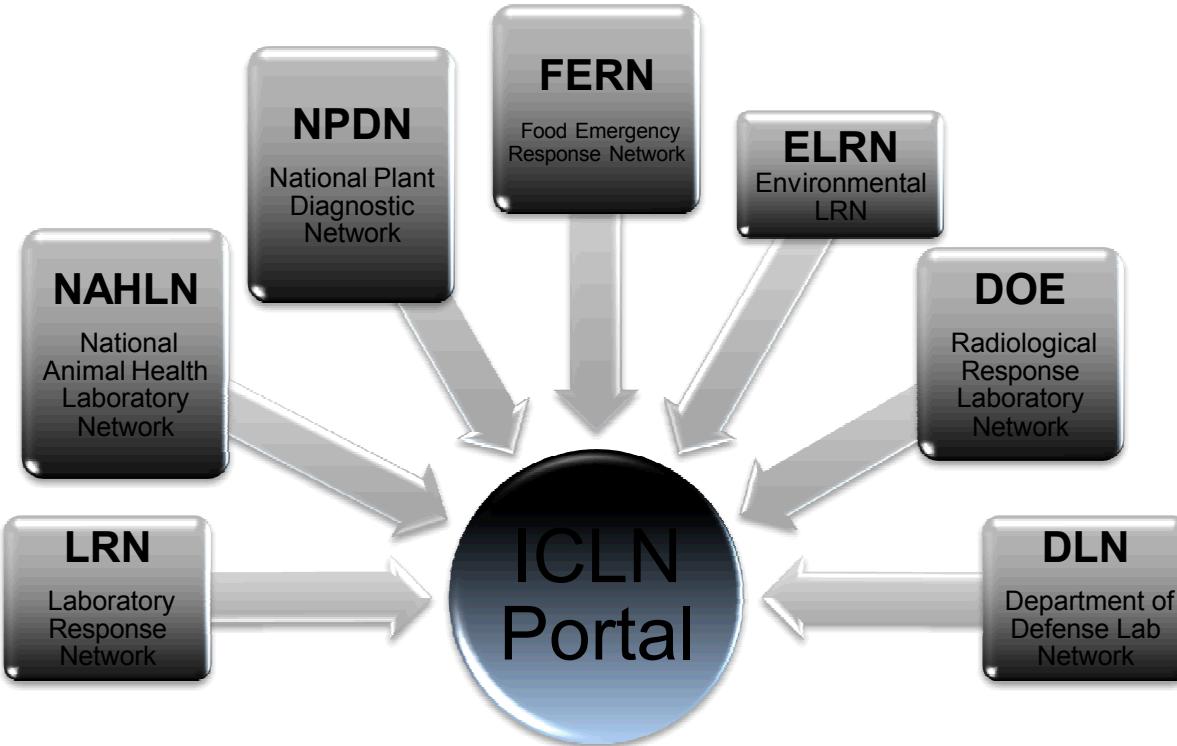




Integrated Consortium of Laboratory Networks (ICLN)

Headed by Department of Homeland Security (DHS)

Comprised of laboratory networks from all federal agencies





Laboratory Analysis Goal

- We only want what every laboratory customer wants;
 - ✓ the **HIGHEST** quality data...
 - ✓ in the **LEAST** amount of time
 - ✓ for the **CHEAPEST** price...



BETTER – CHEAPER – FASTER !



Be Flexible
!!

Lessons Learned from Fukushima

How can you prepare your laboratory?

- Plan for MQOs in Lab Analysis Manual
- Can you provide FRMAC Requirements
- Do you have the required USDA permits if needed?
- 24/7 Staffing
- Be prepared to provide:
 - Total Propagated Uncertainty
 - Validation Packages
 - Qualifications and Training
 - Procedures
 - Level 4 data package



How Do I Get Involved or Prepare?



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THE END

Questions, Comments, Complaints?

