

**2010 USTUR Scientific Advisory
Committee Meeting
July 28, On-line Meeting**

FY10 Radiochemistry Program: Plan for FY11

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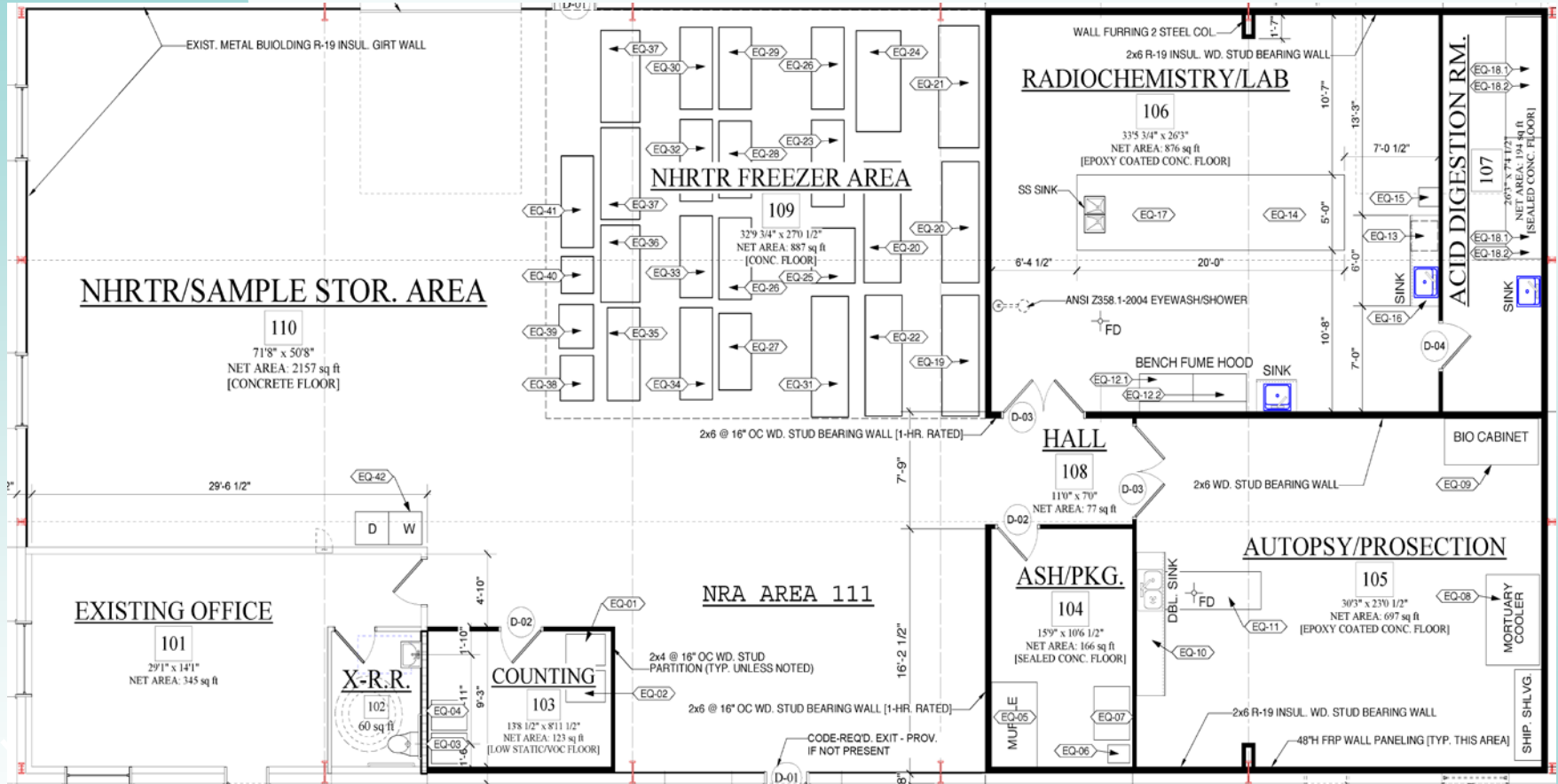


***“Learning from Plutonium and Uranium
Workers”***

Outline

- **USTUR Radiochemistry Facility**
- **Revision of Radiochemical Results**
- **Scientific Collaborations/Publications**
- **Plan for FY 2011**

USTUR Laboratory Facilities



2340 Lindberg Loop, Richland WA



Laboratories Facility: Main Activities

- **Building Licensing for RAM use
(Approval expected: Sept 2010)**
- **Autopsy Equipment Installation**
- **Demonstration of Microwave
Techniques for Ashing/Tissue Digestion**
- **Shelving Installation for Storage of Acid
Digested Samples**

Laboratories Facility



Laboratories Facility



Radiochemistry: Data Summary

- **Whole Body Cases (4):**
 - ✓ **0102 (Am) 0213(U) 242 (U) 0425(U)**
- **Partial Body Cases (20):**
 - ✓ **0011, 0084, 0161, 0202, 0209, 0648, 0677, 0817, 1015, 1016, 1019, 1027, 1030, 1036, 1040, 1046, 1048, 1052, 1057, 1065**

Data Summary: Mesothelioma Study

- **Lung (295) and Lymph Node (190)**
 - ✓ **All available radiochemistry results from 332 USTUR cases were revised and summarized for ALL measured radionuclides**

Collaborations: ICP-MS Analysis

- **Northern Arizona University**

- ✓ $^{234,235,236,238}\text{U}$: 88 samples from 15 cases

- ✓ $^{240}\text{Pu}/^{239}\text{Pu}$ (4) ^{241}Pu (2): Case 262

- ✓ ^{241}Am : Case 846 (formalin)

- **Health Canada**

- ✓ $^{235,236}\text{U}$: 20 samples from Case 1028

- **Laval University**

- ✓ ^9Be : 115 (706) + 13 (262, 425, 720, 744, 1002)

Presentations/Publications (I)

- **USTUR Radiochemistry Program Overview**

- ✓ **Asian Pacific Symposium on Radiochemistry (Napa, CA)**

http://www.ustur.wsu.edu/Conferences/2009/2009_APSORC.html

S. Y. Tolmachev, M. E. Ketterer, D. Hare, P. Doble, A. C. James. *The U.S. Transuranium and Uranium Registries forty years' experience and new directions in the analysis of actinides in human tissues. Radiochimica Acta* (2010, submitted)

- ✓ **Joint Symposium between Kyushu Environmental Evaluation Association (KEEA) and Kyushu University Radioisotope Center (Fukuoka, Japan)**

http://www.ustur.wsu.edu/Presentations/2010/KEEA_KURC.html

Presentations/Publications (II)

• Collaborative Research in Advance Analytical Techniques

✓ University of Technology, Sydney (Australia): LA-ICP-MS

D. Hare, S. Y. Tolmachev, A. C. James, D. Bishop, C. Austin, F. Fryer, P. Doble. *Elemental bioimaging of thorium, uranium and plutonium in tissues from occupationally exposed former nuclear workers. Anal. Chem.* (2010) 82 (8): 3176 - 3182. **Featured Article.**

S. Webb. *MS maps actinides in exposed workers. Anal. Chem.* (2010) 82 (9): 3409 – 3410. <http://pubs.acs.org/doi/abs/10.1021/ac100626p>

✓ Health Canada (Ottawa): SF-ICP-MS

C. Li, K. Benkhedda, S. Tolmachev, L. Carty, R. Ko, D. Moir, J. Cornett, G. Kramer. *Measurement of ^{236}U in human tissue samples using solid phase extraction coupled to ICPMS. J. Anal. At. Spectrom.* (2010) 25 (5): 730-734.



Plan for FY 2011



Radiochemistry Status: WB (1992 -2010)

	Number of Cases			
	^{241}Am	$^{238,239,240}\text{Pu}$	$^{234,235,238}\text{U}$	^{232}Th
Incomplete	--	2	--	--
Intact	1	7	2	2
Total	1	9	2	2

Radiochemistry Status: PB (1992- 2010)

	Number of Cases	
	$^{241}\text{Am}/^{238,239,240}\text{Pu}$	$^{234,235,238}\text{U}$
'Survey'	30	7
Intact	17	1
Total	47	8

FY2011: Radiochemistry

- **Hiring Laboratory Technician III/IV**
- **Complete 'survey' analysis for all 'intact' whole body (10) and partial body (18) donations**
- **Report results to the families**