SER-CAT HAZARD ASSESSMENT FORM

ESAF Serial No. _____

Institution Name_____ Experiment Date_____

Instructions

1. Submit these forms, User Registration Form, and APS Experimental Safety Approval Form 2-3 weeks prior to your group's visit (required to avoid possible delays in your start of beamtime).
2. Complete the questionnaire and appropriate appendixes.
3. Enter name and signature of the Experimental Team Leader. The Experimental Team Leader is responsible for all members and information provided.

QUESTIONS	YES	NO	If Yes, Complete Appendix
1. Will any of your group's samples be:			
a. A virus or virus component, infectious agent, or a biologically-derived toxin?	☐	☐	C-2
b. Other health or agricultural hazard?	☐	☐	C-2
c. Derivatized with a heavy atom compound?	☐	☐	C-1
d. Radioactive?	☐	☐	C-1
e. Derived from human tissue/blood or cells?	☐	☐	C-3
2. Will you use other chemicals or solutions?	☐	☐	A
3. Are you transporting samples and/or other materials?	☐	☐	B
4. Will your experiment require special/unusual safety precautions or pre-arrival safety planning?	☐	☐	If yes, explain on separate page
5. Will any of your group's experiments use:			
a. Cryogenic liquid (e.g., propane, freon, ethane) other than liquid nitrogen?	☐	☐	
b. Pressurized systems or gases?	☐	☐	
c. Radioactive source, laser/uv; microwave, RF, or magnetic fields, or any other non-standard equipment?	☐	☐	

EXPERIMENTAL TEAM VERIFICATI0N

Experimental Team Leader: _____ _____ _____
Printed Signature Date

SER-CAT REVIEW AND APPROVAL

Proposal Review: _____ _____

Arrival Review: _____ _____
Signature Date

Experimental Team Leader		ESAF Serial No.	

APPENDIX A. CHEMICAL MATERIALS OTHER THAN SAMPLE

Instructions

1. Describe all solids, liquids, solutions, and gases required to conduct your experiment at SER-CAT.
2. For solutions, describe the major components and any minor components that are themselves hazardous.
3. Contact SER-CAT personnel if proprietary information must be protected.
4. Avoid bringing organic solvents because they are available at Argonne.
5. Minimize the quantities of chemicals transferred to Argonne.
6. If feasible, plan to leave excess materials at SER-CAT for disposal or use by others.
7. Include a Material Safety Data Sheet for each hazardous material.

				Quantities (approximate)			
No.	**Chemical Name or Description of Solution (include sample buffers**	**CAS Number**	**Hazard1**	**Transfer To ANL**	**From ANL Stock**	**Dispose at ANL**	**Return to home lab**
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							

□ **Check here if continuation page is used**

[1]Enter one or more hazard codes from definitions below (Based on Department of Transformation regulations)

Flammable Liquid(FL) Flash point ≤ 60°C
Combustible liquid(CL) Flash point 60-90°C
Heavy atom compound(HA)
Corrosive to skin, steel, or aluminum (CO)
Carcinogen, mutagen, or teratogen(CA)
Radioactive (R), (>2nCi/gram;includes compounds of U, Th, Lu, Sm, Tc
Poisonous
Acute oral toxicity $LD_{50} \leq 500$mg/kg for liquid; $LD_{50} \leq 200$ mg/kg for solid
Acute inhalation toxicity $LD_{50} \leq 10$mg/L, dust/mist
Acute dermal toxicity $LD_{50} \leq 1000$mg/kg
Other (O) including organic peroxide,oxidizer, explosive, pyrophoric,noxious flammable gas or solid, infectious, toxin
None of these codes (N

Experimental Team Leader		ESAF Serial No.	

Appendix B: Packaging and Transportation of Samples and Materials

1. **Samples Transported to ANL** (Check all that apply)

Crystal pre-frozen in your lab? ☐ YES ☐ NO

Crystals in suspension? ☐ YES ☐ NO

If pre-frozen

- ☐ Packaged in DOT-approved "dry shipper"
- ☐ Crystals frozen in Propane, Freon, Ethane
  Must abide with all DOT and IATA regulations
  (See information for samples frozen in propane)
- ☐ Other packaging, explain _____
- ☐ Ship via commercial carrier (e.g., FedEx)
- ☐ Transport from home via road in a passenger vehicle
- ☐ Transport as airline baggage, then via road in a passenger vehicle
- ☐ Other transport mode, explain _____

If in suspension

- ☐ Packaged per 49 CFR 173.4
- ☐ Other packaging, explain _____
- ☐ Ship via FedEx
- ☐ Transport from home in passenger vehicle
- ☐ Airline baggage, then by car
- ☐ Carry-on airline baggage; then by car
- ☐ Other transport mode, explain _____

2. Other Chemicals and Solutions Transported to ANL

For yes responses, enter line numbers from table in Appendix A ☐

☐YES ☐NO Items shipped directly from a vendor to ANL.

_____

☐YES ☐NO Items shipped from your institution to Argonne via commercial carrier.

_____

☐YES ☐NO Items you will bring with you as checked or carry-on airline baggage.

_____

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APPENDIX C: Sample Characteristics

C1. Heavy Atom Derivatives and Radioactive Samples

☐ None (If None, go to C-2)

☐ YES ☐ NO Sample(s) will be derivatized with a heavy atom compound before or after your arrival.
If yes, identify the heavy atom compounds

_____

Note: Naturally occurring radioactive elements include: U, Th, Lu, Sm, Tc

☐ YES ☐ NO You will pre-derivatize the sample(s) (in your lab) with a radioactive (> 2 nano Curie/gram) heavy atom compound. If yes, what is the compound and its approximate specific activity?

_____

☐ YES ☐ NO You will derivatize the sample(s) at the APS with a radioactive (> 2 nano Curie/gram) heavy atom compound. If yes, what is the compound, its approximate specific activity , and its approximate concentration in the stock solution?

_____

☐ YES ☐ NO Sample(s) will be otherwise radioactive. If yes, explain.

_____

C2. POTENTIAL HEALTH HAZARDS

☐ NONE (If none, go to C-3.)

Check all applicable characteristics:

NOTE: Only BSL-I biohazards are allowed at SER-CAT without additional review

☐ Virus, intact
☐ Virus, molecular component
☐ Virus structural fragment
☐ Infectious, non-viral
☐ Molecular component of non-viral infectious agent

Complete: Appendix C-2a Questionnaire for Viruses

☐ Prion
☐ Biologically-derived toxin
☐ Other
Requires certification/permit for use or shipping

Complete: Appendix C-2b Virus/Biohazard Information

C3. HUMAN-DERIVED MATERIALS

☐ YES ☐ NO
1. The sample is from an established human cell line.
If yes, cite published description.
Continue to question 2.

☐ YES ☐ NO
3. The funding agency determined that the project involves research with human subjects.
If yes, provide documentation.
If no, explain.

☐ YES ☐ NO
2. The sample is directly from human tissue, blood, or primary cell culture.
If yes, answer 3. and 4. If no, STOP.

☐ YES ☐ NO
4. Your Institutional Review Board reviewed and approved the project.
If yes, provide documentation.
If no, explain.

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Appendix C-2A Questionnaire For Viruses and Their Components

Please provide a separate sheet for each sample.

Name of virus: _____

Host: _____

Material to be examined (i.e. whole virus, assembled particle, capsid, viral protein, etc.):

Yes NO

☐ ☐ Is the material infectious?

If no, how do you know?

A. Process by which made, explain _____

B. Tested for infectivity, explain _____

C. Other, explain _____

☐ ☐ Is there any viral DNA/RNA in the material?

If no, how do you know?

A. Process by which made, explain _____

B. Tested for sequences, explain _____

C. Other, explain _____

☐ ☐ Are there toxins in the preparation (i.e. do not include common reagents in the salts and buffers?

If the response is YES for any of the questions, additional information will be required to complete the review (complete information requested on Appendix C-2b Virus/Biohazard Information)

Experimental Team Leader _____

Signature (To be signed upon arrival) _____

Date _____

Experimental Team Leader		ESAF Serial No.	

Appendix C- 2B Virus/Biohazard Information

Please provide the following information with an emphasis on providing objective information to support an evaluation of the potential that the presence of the virus/biohazard at ANL could affect (directly or indirectly) human health, or the health of animals (feral, domestic, farm), or economically important crops.

Please Note: Only Virus/Biohazards meeting BSL-l requirements will be accepted without further review. Projects requiring BSL-2 facilities will not be accepted during the commissioning phase but may be accepted during the Operations phase with sufficient reviews and approval.. Projects requiring BSL-3 or BSL-4 facilities cannot be conducted at the SER-CAT facilities.

Host

Host specificity

Effect of virus infection on host; pathology

Effect on host's ability as a disease vector

Relationship of host to health of humans and animals (domestic, farm)

Relationship of host to economically important crops

Information about attenuation of infectivity

Cite books, articles, chapters, etc. that summarize the above

Type of activities to be conducted at the APS (e.g.) growing crystals, mount crystals, mount pre-frozen crystals only, etc.)

Control measures used or required at your institution

Results of safety review at your institution (protection of humans, animals, and crops)

List permits required for the use or transport of the Virus/BioHazard