#1 CONTACT INFORMATION:

<table>
<thead>
<tr>
<th>Procedure Title</th>
<th>Isothermal Titration Calorimetry (ITC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedure Author</td>
<td>Joy Blain</td>
</tr>
<tr>
<td>Date of Creation/Revision</td>
<td>January 16, 2014</td>
</tr>
<tr>
<td>Name of Responsible Person</td>
<td>James R. Horn</td>
</tr>
<tr>
<td>Location of Procedure</td>
<td>FW431</td>
</tr>
</tbody>
</table>

#2 THIS STANDARD OPERATING PROCEDURE (SOP) IS FOR A:

- [ ] Specific laboratory procedure or experiment
- [x] Generic laboratory procedure that covers several chemicals
- [ ] Generic use of specific chemical or class of chemicals with similar hazards

#3 PROCESS OR EXPERIMENT DESCRIPTION

Analysis of protein-protein and protein-small molecule binding.

Frequency:  
- [ ] one time  
- [ ] daily X weekly  
- [ ] monthly  
- [ ] other: ____________

Duration per Expt:  
- ________ minutes; or 3 hours

For assistance with this form contact NIU Environmental Health and Safety, 815-753-0404.
#4 SAFETY LITERATURE REVIEW & HAZARD SUMMARY

Instrument Manual
SDS of any required chemicals, such as DMSO.
This is an electronic instrument.
Be sure liquid does not come in contact with electronic components of instrument

#5 STORAGE REQUIREMENTS

Clean instrument with 10% ammonia followed by water. Clean syringe with water and methanol then dry with nitrogen. Store sample cell with water.

#6 STEP-BY-STEP OPERATING PROCEDURE

Degas samples in fume hood and keep in designated work space.

1. Don personal protective equipment.
   x appropriate street clothing (long pants, close-toed shoes)
   x gloves; indicate type: Nitrile
   x safety goggles  □ safety glasses  □ face shield
   □ lab coats
   □ other:____________________________________

2. Check the location and accessibility of the safety equipment that serves your lab:

<table>
<thead>
<tr>
<th>ITEM</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory Fume Hood/Glove Box or other Ventilation Control</td>
<td>Location: FW431 East Wall</td>
</tr>
<tr>
<td>Eyewash/Safety Shower</td>
<td>Location: FW431 East Wall</td>
</tr>
</tbody>
</table>

3. Dialyze protein into correct buffer overnight. Prepare the appropriate concentrations for experiment then degas for 10-15 min in degasser located within the fume hood. Add samples to ITC.

For assistance with this form contact NIU Environmental Health and Safety, 815-753-0404.
4. Equilibrate sample in cell before inserting syringe. When equilibrated, insert syringe and start run. Begin (titrations) once the baseline has stabilized (auto or manual).

5. Dispose of hazardous solvents, solutions, mixtures, and reaction residues as hazardous waste. See EH&S Hazardous Waste Program
   http://www.ehs.niu.edu/ehs/chemical/waste.shtml

6. Clean up work area and lab equipment.

7. Remove PPE and wash hands.

#7 WASTE DISPOSAL

Organic waste container if DMSO is required.
All other waste can go down the drain with water.

#8 TRAINING REQUIREMENTS

General Training (check all that apply):
   X General Safety & Emergency Preparedness
   X Chemical Safety for Laboratories
     □ Radiation Safety
     □ Biosafety training
     □ Other: __________________________

Location Where Records Maintained: Stockroom

For assistance with this form contact NIU Environmental Health and Safety, 815-753-0404.
Laboratory-specific training (check all that apply):

- X Review of SDS for other chemicals involved in process/experiment
- X Review of this SOP
- X Other: Instrument Manual

| Location Where Records Maintained: | Stockroom |

#9 PRIOR APPROVALS

Prior approvals are required by the following University Committees:

- Radiation Safety Committee: Radioactive material,
  
  http://www.ehs.niu.edu/ehs/lasersafety/RAM/index.shtml

- Radiation Safety Committee: X-Ray machines
  
  http://www.ehs.niu.edu/ehs/lasersafety/XRay/index.shtml

- Laser safety: Laser producing equipment Class 3b or above.
  
  http://www.ehs.niu.edu/ehs/lasersafety/Laser/index.shtml

- IACUC: Animal use in research
  
  http://www orc.niu.edu/orc/animal_research/index.shtml

- IBC: Recombinant DNA, potential pathogens, human tissue/body fluids
  
  http://www orc.niu.edu/orc/biosafety/niupolicy.shtml

For assistance with this form contact NIU Environmental Health and Safety, 815-753-0404.