TRIUMF Memo

Date: April 23, 2012

To: ISAC Ops **Cc:**

From: John Wong **File:**

RE: Procedures for shutting off the ISAC-I Evaporators in the event of EF14 failure

---

1. Evaporators Overview:

There are two evaporators in the Actinide Chemistry Laboratory in ISAC-I, room 06 (See Fig. 1). The evaporators are vacuum chambers, and are used for difference processes:

- Sintering of target materials;
- Sintering of TaC coating onto target ovens;
- Fins diffusion bonding for high power target ovens;
- Carbonizing oxide materials;
- Conditioning of targets;

Fig. 1: Evaporator 1 (left) and Evaporator 2 (right)

EPICS software is used for controlling and monitoring the operation of the hardware, such as the power supplies, pumps, and water cooling system (See Fig. 2). For further information, see *ISAC Evaporator Requirements and Specifications [Docushare: Document – 28803 (for Evaporator 1) and 43951 (for Evaporator 2).*

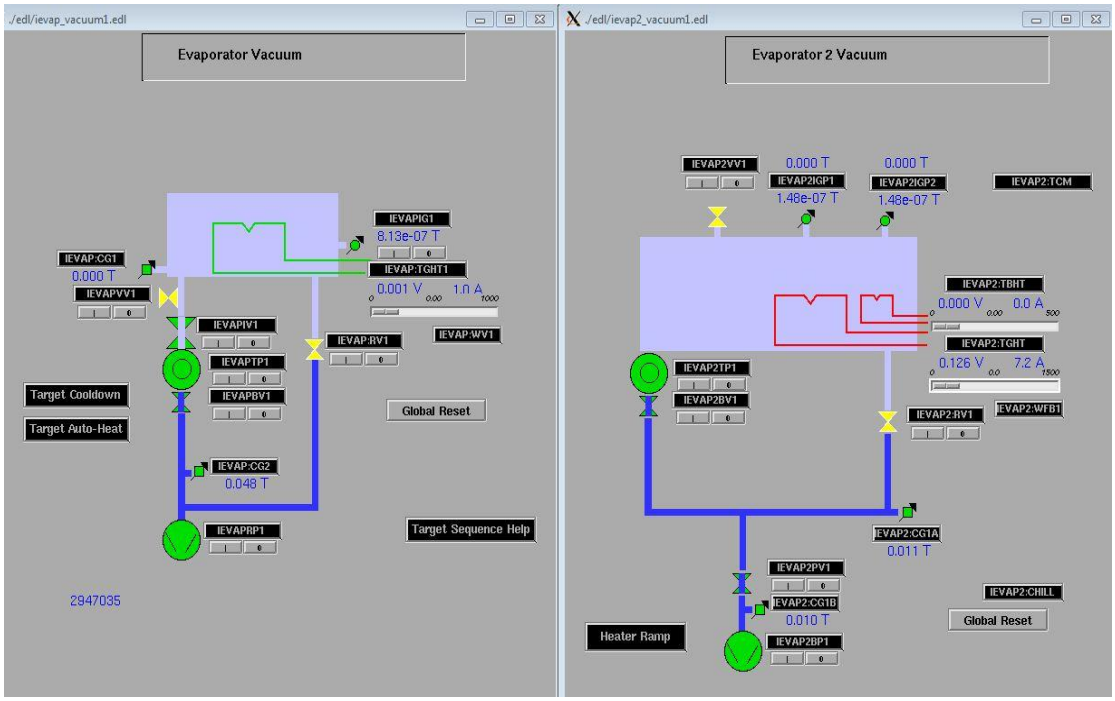


Fig. 2: EPICS system for Evaporator 1 (left) and Evaporator 2 (right)

There are two fume hoods in the Actinide Chemistry Laboratory; the ventilation system is running on EF14. The exhaust pipes from both the evaporators are connected to the fume-hood duct, (See Fig. 3). Therefore, the evaporators should only be used for processes if and only if the fume-hood air flow is satisfied. In the event of the poor air flow or the EF14 failure, the local fume hood monitor in the laboratory and the Alarm Handler (CRITICAL ALARMS) in the ISAC-II Control Room will sound, (See Fig. 4).

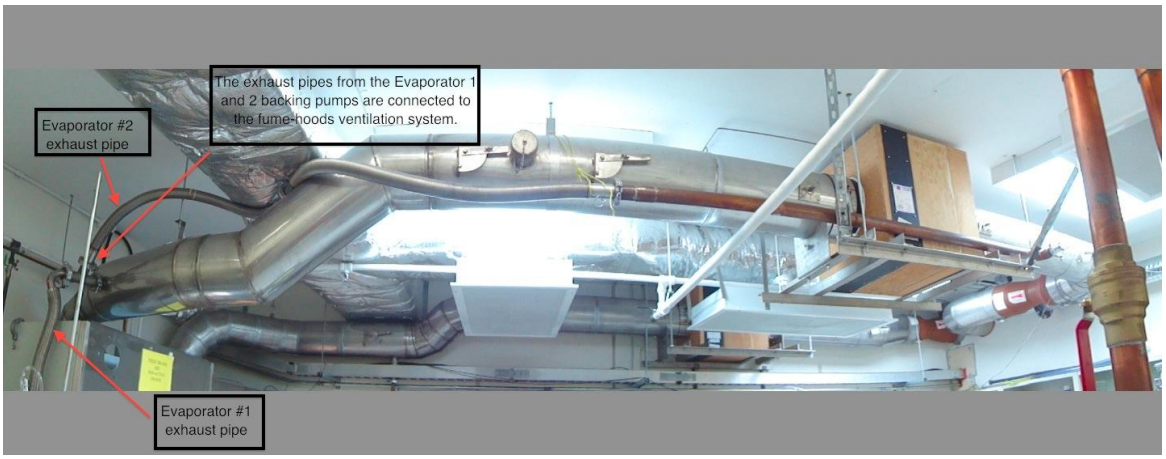


Fig. 3: The exhaust pipes from the Evaporator 1 and 2 backing pumps are connected to the ventilation system.

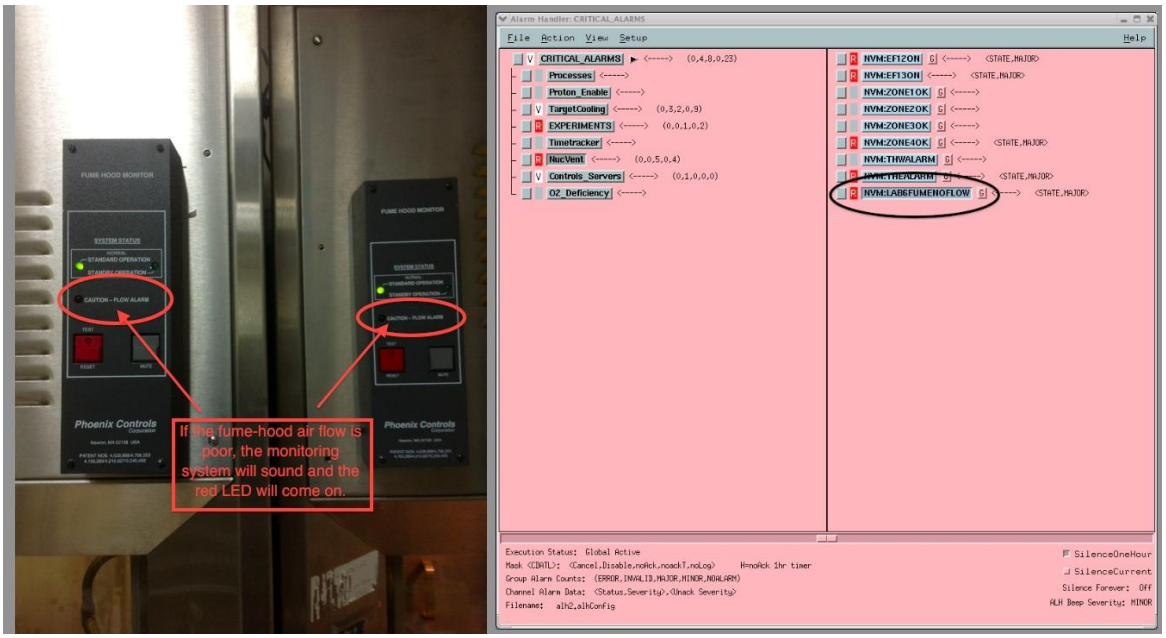


Fig. 4: Fume hood Monitoring system (left) and Alarm Handler System (right)

2. Procedures for Shutting Off the Evaporators:

In the event of EF14 failure, DO NOT Enter the lab! The evaporators should be shut off immediately through the EPICS Control System to prevent any gas from flowing out from the fume hoods. In the present time, the evaporators are not interlocked to the fume hood flow, so they must be turned off manually. Below are the procedures for the Evaporator #1 and Evaporator #2:

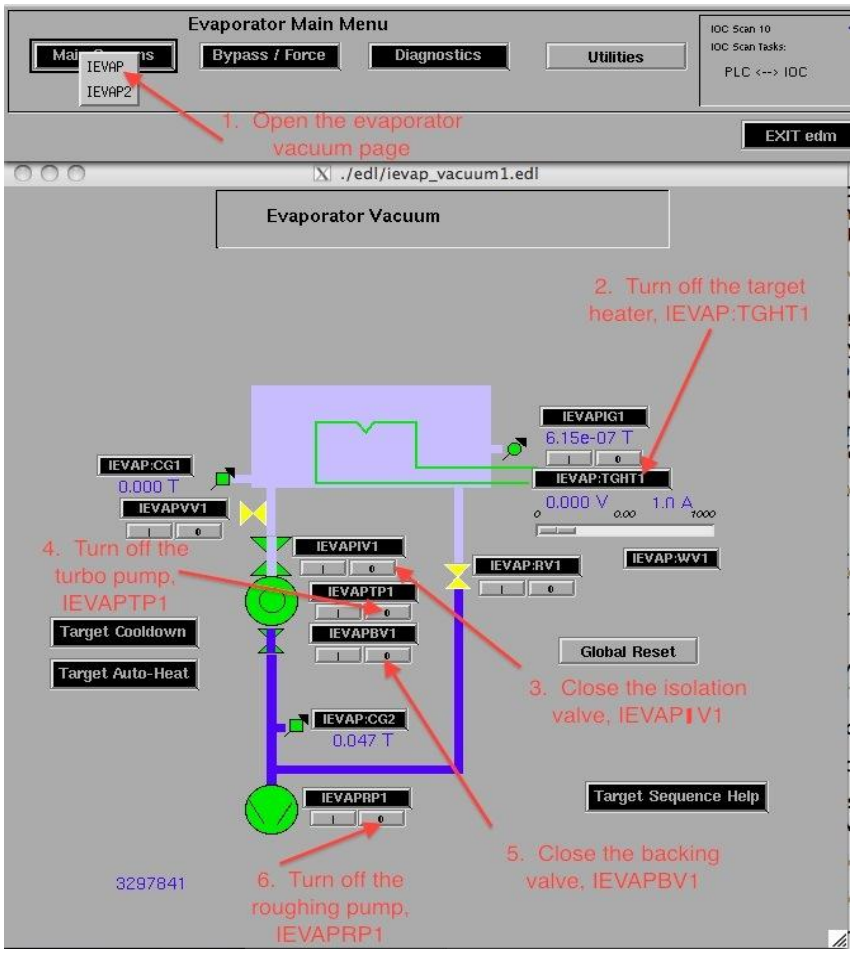
Evaporator #1:

1. Access to the Evaporator EPICS control system:
   ssh –X evpr@sundance.triumf.ca (password required – It is included in the ISAC Control Room password list)

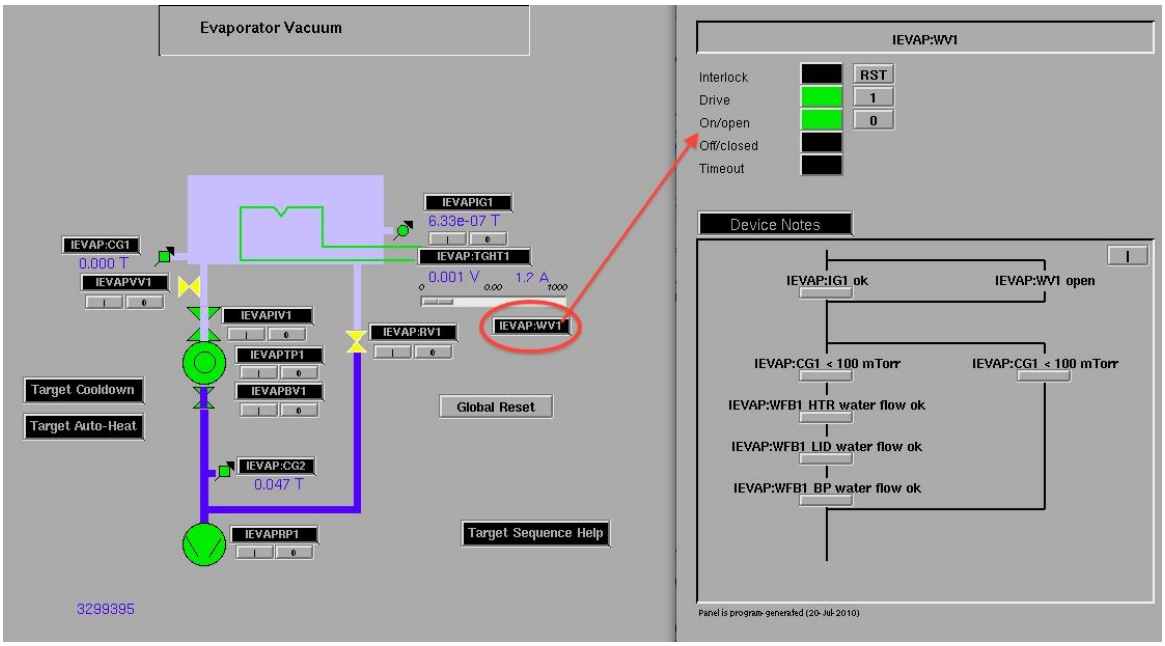
2. Click on the "Main Screens" and select IEVAP.

3. Turn off the following devices:

   - IEVAP:TGHT1 (Target Heater) OFF
   - IEVAP:IV1 (Isolation Valve) CLOSE
   - IEVAP:TP1 (Turbo Pump) OFF
   - IEVAP:BV1 (Backing Valve) CLOSE
   - IEVAP:RP1 (Roughing Pump) OFF



4. Make sure the water valve (IEVAP:WV1) remain OPEN. The target inside the chamber may still be very hot. Turning off the water valve will damage the target!



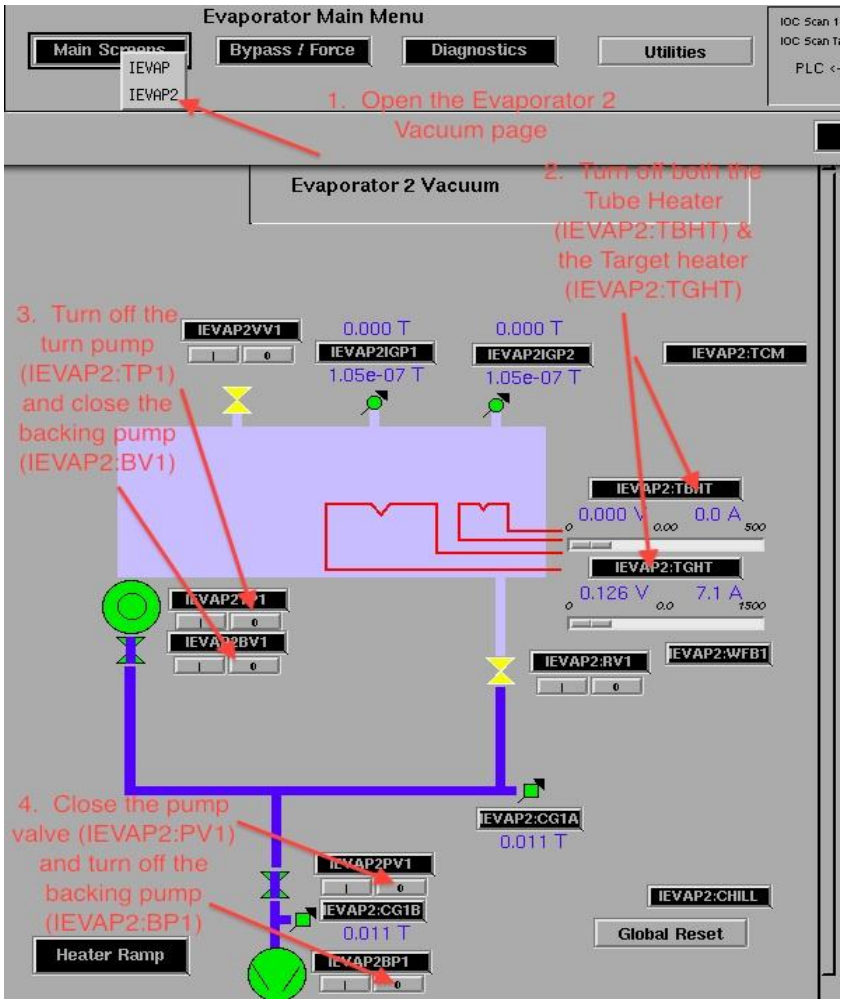
Evaporator #2:

1. Access to the Evaporator EPICS control system:
   ssh –X evpr@sundance.triumf.ca (password required – It is in the ISAC-II Safe Box)

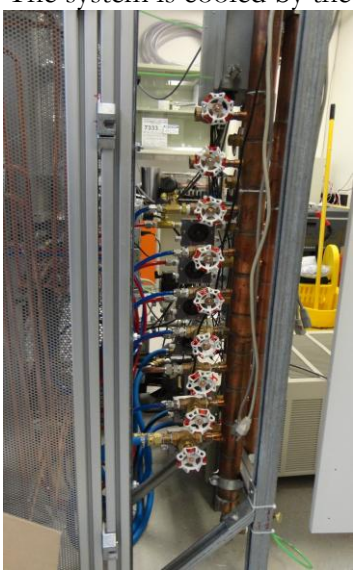
2. Click on the "Main Screens" and select IEVAP.

3. Turn off the following devices:

   - IEVAP2:TBHT (Tube Heater) OFF
   - IEVAP2:TGHT (Target Heater) OFF
   - IEVAP2:TP1 (Turbo Pump) OFF
   - IEVAP2:BV1 (Backing Valve) CLOSE
   - IEVAP:PV1 (Pump Valve) OFF
   - IEVAP2:BP1 (Backing Pump) OFF



The system is cooled by the NALCW, and the valves are not controlled by EPICS.



So, do not worry about this.

3. Contact Information:

	Local	Pager	Phone	Email
John Wong	6724	604-205-8048	604-306-8983	johnwong@triumf.ca
Friedhelm Ames	7581	604-641-0439	604-221-4129	ames@triumf.ca
Peter Kunz	7690		778-318-3881	pkunz@triumf.ca
Marik Dombsky	7371		604-251-5007	marik@triumf.ca
Anders Mjos	6915		604-725-9459	anders@triumf.ca
Pierre Bricault	7417		640-325-5045	bricault@triumf.ca