

# TRIUMF



# Document

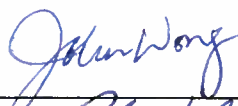



# 43321

## Commissioning Report for Evaporator 2

**Document Type:** Commissioning Report

**Release:** 1 **Release Date**

**Author(s):** Peter Kunz / John Wong

	<b>Name:</b>	<b>Signature:</b>	<b>Date:</b>
<b>Commissioning Team:</b>	John Wong		Feb 08, 2012
	Peter Kunz		2012/02/12
	Friedhelm Ames		Feb. 08, 2012
<b>Approved By:</b>	Pierre Bricault		10/02/2012

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# 1 PURPOSE AND SCOPE

This document describes the outcome of the commissioning activities regarding the evaporator (EPICS designation: IEVAP2) in the actinide target laboratory (ISAC-I, Rm. 106).

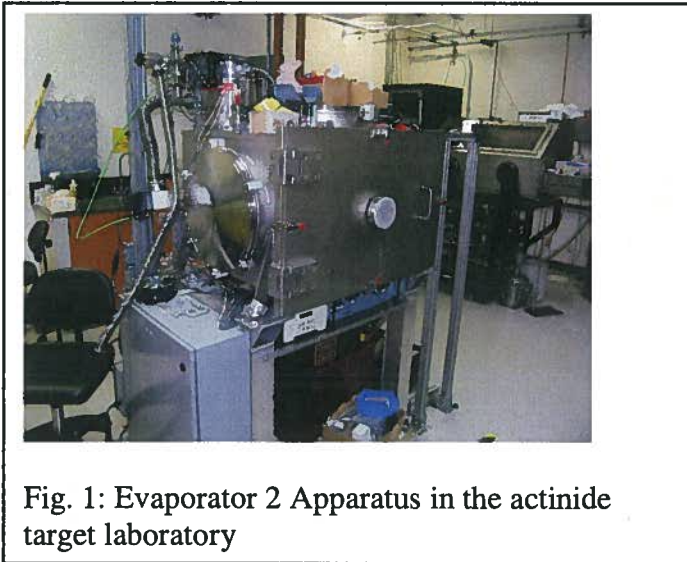


Fig. 1: Evaporator 2 Apparatus in the actinide target laboratory

This vacuum chamber was developed for offline preparation, conditioning and testing of targets before installation into the online target modules. It contains a water cooled target tray, where a completely assembled target (including heat shield) can be brought up to nominal operation temperature with a 1500A power supply. EPICS software for controlling and monitoring the operation of the hardware was implemented. For further information, see *ISAC Evaporator 2 – Requirements and Specifications* (Docushare: Document-43951).

In order to guarantee a safe and flawless operation of the system in has to be tested under realistic conditions.

# 2 COMMISSIONING PROCEDURE

The commissioning of the evaporator will be performed by the commissioning team. The system will be started up and all the interlocks will be triggered to verify that they work as intended (see table below). During this operation the relevant system parameters (pressure, heating current, water flow, valve settings, pump status) will be observed.

Device	Interlock to turn ON	Interlock to turn OFF	Trip
IEVAP2:BP1	none	none	none

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IEVAP2:BV1		(IEVAP2:CG1A < IEVAP2:IGP1 OR IEVAP2:CG1A < 50 mTorr)	✓	none	✓	none	✓
	AND	IEVAP2:IGP1 < 150 mTorr	✓		✓		✓
	AND	IEVAP2:RV1 closed	✓				
IEVAP2:PV1		(IEVAP2:CG1B < IEVAP2:CG1A OR IEVAP2:CG1B < 50 mTorr)	✓	none		NOT	IEVAP2:BP1 ON
	AND	IEVAP2:BP1 on	✓				
IEVAP2:RV1		(IEVAP2:CG1A < IEVAP2:IGP1 OR IEVAP2:CG1A < 50 mTorr)	✓	none	✓	close if IEVAP2:IGP1 < 100mTorr	✓
	AND	IEVAP2:BV1 closed	✓				
	AND	IEVAP2:TP1 off	✓				
	AND	IEVAP2:VV1 closed	✓				
IEVAP2:IGP1		none	✓	none	✓	none	✓
IEVAP2:IGP2		none	✓	none	✓	none	✓
IEVAP2:TP1		IEVAP2:BP1 on	✓	none	✓	NOT	IEVAP2:IGP1 < 500mTorr
	AND	IEVAP2:BV1 open	✓				
	AND	IEVAP2:CG2 < 500 mTorr	✓				
IEVAP2:VV1		IEVAP2:TP1 off	✓	none	✓	none	✓
	AND	IEVAP2:BV1 closed	✓				
	AND	IEVAP2:RV1 closed	✓				
IEVAP2:WCHILL		none	✓	none	✓	none	✓
IEVAP2:TGHT		IEVAP2:IGP1 OK (< 8e-5 Torr)	✓	none	✓	NOT	IEVAP2:IGP1 OK (< 8e-5 Torr)

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	AND	IEVAP2:WFB1 TBHT1 OK	✓			OR NOT	IEVAP2: WFB1 TBHT1 OK	✓
	AND	IEVAP2:WFB1 TBHT2 OK	✓			OR NOT	IEVAP2: WFB1 TBHT2 OK	✓
	AND	IEVAP2:WFB1 TGHT1 OK	✓			OR NOT	IEVAP2: WFB1 TGHT1 OK	✓
	AND	IEVAP2:WFB1 TGHT2 OK	✓			OR NOT	IEVAP2: WFB1 TGHT2 OK	✓
	AND	IEVAP2:WFB1 HS OK	✓			OR NOT	IEVAP2: WFB1 HS OK	✓
	AND	IEVAP2:CHILL OK	✓			OR NOT	IEVAP2:CHILL OK	✓
IEVAP2:TBHT		IEVAP2:IGP1 OK (< 8e-5 Torr)	✓	none	✓	NOT	IEVAP2:IGP1 OK (< 8e-5 Torr)	✓
	AND	IEVAP2:WFB1 TBHT1 OK	✓			OR NOT	IEVAP2: WFB1 TBHT1 OK	✓
	AND	IEVAP2:WFB1 TBHT2 OK	✓			OR NOT	IEVAP2: WFB1 TBHT2 OK	✓
	AND	IEVAP2:WFB1 TGHT1 OK	✓			OR NOT	IEVAP2: WFB1 TGHT1 OK	✓
	AND	IEVAP2:WFB1 TGHT2 OK	✓			OR NOT	IEVAP2: WFB1 TGHT2 OK	✓
	AND	IEVAP2:WFB1 HS OK	✓			OR NOT	IEVAP2: WFB1 HS OK	✓
	AND	IEVAP2:CHILL OK	✓			OR NOT	IEVAP2:CHILL OK	✓
IEVAP2:WFB1		none	✓	none	✓		none	✓

### 3 COMMISSIONING

It was checked whether all interlocks worked as defined in the table above. For each device connected to the interlock system the “trip” and “turn on” conditions were tested while the evaporator was operated under typical conditions. This has been documented in the attached pass/fail checklist. During this procedure the above mentioned system parameters were monitored to verify that they stayed within reasonable limits.