 **Change Request Form**

**2020-21 Long SAD**

**Project Name**

**Identification**

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| **Change Request #** | **Title**  **UITF Wastewater Irradiation Experiment (LDRD supported)** | | |
| **WBS #** | **Date (m/d/yy) 3/8/21** | | **Date Required (m/d/yy) 3/31/21** |
| **Originator Name: Michael McCaughan** | | **Priority: Should** | |

**Status**

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| **Change Request Status: Open/Closed** |

**Description and Justification**

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| **Description of Proposed Change**  Installation of an LDRD Experiment (with Fay Hannon & Gigi Ciovati as PI) to examine that accelerator driven transmutation of a compound of of interest to Hampton Roads Sanitation Department [HRSD]. The goal of the experiment is to quantify the effect of an electron beam on various concentrations of 1,4-Dioxane in a solution of secondary wastewater effluent. The experiment would be scheduled for July 2021 (exact dates negotiable with SRF/Cryo) with the preceding period used for the installation and hot check-out of beam line component and supporting infrastructure.  The installation group is removal of existing dump shadow shield wall, and reconstruction of a new one following experiment installation, the addition of 2 racks to the UITF mezzanine, and routing of LCW and instrument air lines to newly installed or moved hardware.  DC power needed to support the installation of the former PEPPo solenoid and an associated power supply. This is the only work which has presently shown it may be in some conflict with the CEBAF start up schedule. They have requested a delay from early July to mid-July in order to accommodate things. UITF is amiable to that as long as there is no SRF conflict.  EGG, I&C, DC Power, RF groups, Cryo required to support operation of facility, beam all the way to HDIce  SRF will assist with the slow bleed-up of the vacuum girder immediately downstream of the Booster for vacuum work with appropriate particulate controls so as to prevent the creation of field emission generation sites.  All engineering work and support is understood to be secondary to CEBAF in terms of priority and as such must be carefully coordinated.  RadCon required to certify placement of concrete credited controls as well as verification of new shielding.  Matt Poelker, Mike McCaughan, Xi Li, and John Vennekate will drive beam. Max Bruker, YanWang, and  additional Ops staff can intermittently support this run if available with the understanding that staffing CEBAF for start-up and physics is the priority. | |
| **Justification of Proposed Change**  This project is in support of an experiment which was deemed a priority by the Laboratory Directed Research and Development Program. The result of this experiment is primary research to examine the possibility of the use of particle accelerators as part of the water remediation program in the United States and abroad and if successful would lead to significant research and technology transfer possibilities for the laboratory, potentially also resulting in new funding streams available.  The experiment will investigate the e- beam catalyzed degradation of a compound of interest – 1,4-Dioxane – which is now present in wastewater as part of the water treatment process. | |
| **Impact if Change Request not Approved**  The second year application of this LDRD proposal would be inconclusive. Potentially a third year application could be submitted, but it would delay graduation for the graduate student assigned to the project. Research of the corresponding material would also of course be delayed, or potentially not investigated if the application is not approved for a third year. | |
| **Change Control Board Member Concurrence** | **Impact Assessment Assigned To** |

**Change Impact Assessment**

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| **Technical Impacts** |
| **Name(s)** |
| **Schedule Impacts (e.g. Change in final activity Finish Dates, Float)** |
| **Name(s)** |
| **Resource Impacts** |
| **Name(s)** |
| **Quality/Safety Impacts** |
| **Name(s)** |

**Recommendation and Disposition**

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**Change Control Board Review**

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| **CCB** | **Date (m/d/yy)** |

**Final Approval**

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| **Project Manager** | **Date (m/d/yy)** |

**OR**

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| **Deputy Project Manager** | **Date (m/d/yy)** |

**Continuation Page**

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