

DOE-FIU Cooperative Agreement Annual Research Review – FIU Year 3

Lateral Gamma Scanner Deployment for Hanford's Single-Shell Tanks

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Advancing the research and academic mission of Florida International University



Background

Overall Needs:

Aging tank infrastructure at the Hanford site has resulted in waste leaks, which need to be identified expeditiously, but are not easily detected.





Objectives:

To develop a robotic inspection system that routinely and autonomously scans for radiation leakages underneath the tank farms at the Hanford Site.





Background

Lateral Gamma Scanner System:

Peristaltic Motion Crawler:



Mechanized Reel:



Integrated System:





Applied Research Center

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Lateral Gamma Scanner

FIU Year 3 Highlights:







Streamlined and strengthened mechanical design of crawler modules

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Lateral Gamma Scanner

FIU Year 3 Highlights:









Refined crawler localization and autonomous inspection.



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Lateral Gamma Scanner

FIU Year 3 Highlights:



Behavior Tree Log: Retrieving Crawler

Developed a custom user interface for operators.



FIU Applied Research Center

Lateral Gamma Scanner

Future work

- Finalize mechanical design based on Summer 2023 test-deployment results.
- Select and Integrate Gamma Sensors.
- Design final Behavior Tree based on Gamma Sensor selection.
- Deploy and test at tank farms.









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Thank You. Questions?