

Track Mounted Shear/Crusher

(OST/TMS ID: 2303/ TMS Application ID: 1329)

The Track-Mounted Shear/Crusher is an automated demolition system capable of performing multiple dismantlement and demolition operations using a variety of end-effector tools. The Track-Mounted Shear/Crusher was used for a variety of demolition activities during the D&D of five structures at Fernald in FY98. These activities included demolition of building 24B Railroad Engine House and segmentation of the steel superstructure at building 3G, Refrigeration Building, following removal of the transite siding.

DESCRIPTION OF THE DEPLOYMENT

Location:	Fernald Environmental Management Project, Plant 8F, Drum Washer Facility (Fernald, OH, United States)		
PBS Name:	Facility Shutdown [OH-FN-01, 0522] Facility D & D [OH-FN-02, 0523]		
Date of Deployment:	November 1998	Technology User:	Fluor Daniel Fernald and FEMP D&D subcontractors
Deployment Value/Impact: The Track-Mounted Shear/Crusher supported D&D of the Plant 8F complex (specifically 8F, the Drum Washer Facility), primarily for segmenting steel. This remote-controlled system resulted in cost and schedule savings, as well as increased safety to workers.			
Vendor Name for this Technology:		Same as primary Technology Title	
Point of Contact:			
User Program POC(s): Robert F. Danner (DOE-FN) - Cincinnati, OH. Tel. 513-648-3167		OST Program POC(s): Harold D. Shoemaker (DOE-National Energy Technology Laboratory) - Morgantown, WV. Tel. 304-285-4715	
Technology User POC(s): Martin Prochaska (Fluor Daniel Fernald) - Cincinnati, OH. Tel. 513-648-4089		Vendor Company POC(s): No Points of Contact are listed.	

Major Developers:

- John Deere
- Pemberton & Tiger Mfg.

Vendor Company:

Vendor Not Applicable

Other Deployments:

- Deployed (type: DOE) in FY 1998 at Fernald (Buildings 38A, 38B, 24B) in Fernald, OH
- Deployed (type: DOE) in FY 1998 at Fernald (Complex 25; Sewage Treatment Plant and Incinerator) in Fernald, OH
- Deployed (type: DOE) in FY 1998 at Fernald (Buildings 3F,3G) in Fernald, OH
- Deployed (type: DOE) in FY 1998 at Fernald (Waste Management Operating Unit) in Fernald, OH

Barometrically Enhanced Remediation Technology (BERT)(TM)

(OST/TMS ID: 2307/ TMS Application ID: 1391)

BERT is a surface treatment design which capitalizes on naturally occurring barometric pressure oscillations to remediate near surface volatile contamination in the vadose zone. By applying a surface seal, collection plenum, and one way relief valve to the soil surface above the contaminant plume, this system induces a net upward soil gas velocity in the contaminated soil. The process is accomplished without the use of boreholes, off-gas treatment, or site power. Barometric pumping is the cyclic movement experienced by soil gas due to oscillations in atmospheric pressure. Daily variations of 5 mbars are typical, while changes of 25 to 50 mbars can occur due to major weather front passage. Since the bulk gas movement is cyclic, under natural conditions no net movement occurs over time. However, if the earth's surface is modified with a sealing and vent valve, the soil gas flow can be 'ratcheted' to cause a net upward flow over time.

DESCRIPTION OF THE DEPLOYMENT

Location:	Idaho National Engineering and Environmental Laboratory, Radioactive Waste Management Complex (Idaho Falls, ID, United States)		
PBS Name:	Radioactive Waste Management Complex Remediation [ID-ER-106, 0563]		
Date of Deployment:	March 1999	Technology User:	INEEL
Deployment Value/Impact:	Following a successful demonstration at the Radioactive Waste Management Complex, BERT has been deployed to passively remediate the organic contamination in the vadose zone at OU-7.		
Vendor Name for this Technology:	Same as primary Technology Title		
Point of Contact:			
User Program POC(s):	Betsy S. Jonker (DOE-ID) - Idaho Falls, ID. Tel. 208-526-9855	OST Program POC(s):	Robert C. Bedick (National Energy Technology Laboratory) - Morgantown, WV. Tel. 304-285-4505
Technology User POC(s):	No Points of Contact are listed.	Vendor Company POC(s):	William Lowry (Science Engineering Associates, Inc.) - Santa Fe, NM. Tel. 505-424-6955

Major Developers:
Science and Engineering Associates, Inc.

Vendor Company:
Science and Engineering Associates, Inc. (www.seabase.com)

Other Deployments:
This is the first deployment of this technology.

Excel Automatic Locking Scaffold

(OST/TMS ID: 2320/ TMS Application ID: 1504)

The Excel Automatic Locking Scaffold is a positive locking system scaffold. Trigger release horizontal bearers are attached to vertical legs without the use of hand tools. This reduces the need for tedious, repetitive clamp tightening associated with baseline scaffold. The pre-manufactured snap together attachments offers increased safety and utility: swing gates, floor hatches, ladders, trusses, cantilevers, lifting devices and trolley system. The Excel design has been shown to dramatically lower total scaffold man-hrs and the associated labor expenditures for maintenance and D&D work activities in many areas including: drywell, reactor building, containment, auxiliary building, turbine building, condensers, etc. Like tube and clamp, Excel scaffolding can be erected for light, medium, and heavy duty use as per OSHA requirements. [Text Continued in TMS]

DESCRIPTION OF THE DEPLOYMENT

Location: Idaho National Engineering and Environmental Laboratory, CFA 691 Sewage Treatment Plant (Idaho Falls, ID, United States)

PBS Name: Decontamination and Decommissioning [ID-ER-110, 0564]

Date of Deployment: April 1999

Technology User: INEEL

Deployment Value/Impact: The Excel Modular Scaffolding was used during the D&D of CFA 691 Sewage Treatment Plant. The scaffolding was used in the control building to remove materials from the top of the building (pipe demolition, etc.). The Excel Modular Scaffolding takes approximately 15 minutes to set-up or dismantle versus two hours for set-up or dismantlement using the baseline tube and clamp scaffolding.

Vendor Name for this Technology:

Same as primary Technology Title

Point of Contact:

User Program POC(s):

Chelsea D. Hubbard (DOE-ID) - Idaho Falls, ID.
Tel. 208-526-0645

OST Program POC(s):

Steven J. Bossart (US Department of Energy,
National Energy Technology Laboratory) -
Morgantown, WV. Tel. 304-285-4643

Technology User POC(s):

Tom Thiel (LMITCO) - Idaho Falls, ID. Tel. 208-
526-9876

Vendor Company POC(s):

James E. Elkins (Bartlett Services, Inc./Excel
Modular Scaffold and Leasing Corp.) - Plymouth,
MA. Tel. 800-225-0385

Major Developers:

Bartlett Services, Inc.

Vendor Company:

Bartlett Services, Inc. www.bartlettinc.com

Other Deployments:

- Deployed (type: DOE) in FY 1999 at Idaho National Engineering and Environmental Laboratory (Security Training Facility) in Idaho Falls, ID
- Deployed (type: DOE) in FY 1999 at Idaho National Engineering and Environmental Laboratory (Test Area North Process Experimental Pilot Plant) in Idaho Falls, ID

Excel Automatic Locking Scaffold

(OST/TMS ID: 2320/ TMS Application ID: 1562)

The Excel Automatic Locking Scaffold is a positive locking system scaffold. Trigger release horizontal bearers are attached to vertical legs without the use of hand tools. This reduces the need for tedious, repetitive clamp tightening associated with baseline scaffold. The pre-manufactured snap together attachments offers increased safety and utility: swing gates, floor hatches, ladders, trusses, cantilevers, lifting devices and trolley system. The Excel design has been shown to dramatically lower total scaffold man-hrs and the associated labor expenditures for maintenance and D&D work activities in many areas including: drywell, reactor building, containment, auxiliary building, turbine building, condensers, etc. Like tube and clamp, Excel scaffolding can be erected for light, medium, and heavy duty use as per OSHA requirements. [Text Continued in TMS]

DESCRIPTION OF THE DEPLOYMENT

Location: Idaho National Engineering and Environmental Laboratory, Security Training Facility (Idaho Falls, ID, United States)

PBS Name: Decontamination and Decommissioning [ID-ER-110, 0564]

Date of Deployment: May 1999

Technology User: INEEL

Deployment Value/Impact: The Excel Modular Scaffolding was used in the sub-basement in a circular configuration around the reactor to remove asbestos. The Excel Modular Scaffolding was easier and faster to install than the baseline tube and clamp scaffolding.

Vendor Name for this Technology:

Excel Modular System Scaffold

Point of Contact:

User Program POC(s):

Chelsea D. Hubbard (DOE-ID) - Idaho Falls, ID.
Tel. 208-526-0645

OST Program POC(s):

Harold D. Shoemaker (DOE-National Energy
Technology Laboratory) - Morgantown, WV. Tel.
304-285-4715

Technology User POC(s):

Ann Marie Smith (LMITCO) - Idaho Falls, ID. Tel.
208-526-6877

Vendor Company POC(s):

James E. Elkins (Bartlett Services, Inc./Excel
Modular Scaffold and Leasing Corp.) - Plymouth,
MA. Tel. 800-225-0385

Major Developers:

Bartlett Services, Inc.

Vendor Company:

Bartlett Services, Inc. www.bartlettinc.com

Other Deployments:

- Deployed (type: DOE) in FY 1999 at Idaho National Engineering and Environmental Laboratory (CFA 691 Sewage Treatment Plant) in Idaho Falls, ID
- Deployed (type: DOE) in FY 1999 at Idaho National Engineering and Environmental Laboratory (Test Area North Process Experimental Pilot Plant) in Idaho Falls, ID

Excel Automatic Locking Scaffold

(OST/TMS ID: 2320/ TMS Application ID: 1578)

The Excel Automatic Locking Scaffold is a positive locking system scaffold. Trigger release horizontal bearers are attached to vertical legs without the use of hand tools. This reduces the need for tedious, repetitive clamp tightening associated with baseline scaffold. The pre-manufactured snap together attachments offers increased safety and utility: swing gates, floor hatches, ladders, trusses, cantilevers, lifting devices and trolley system. The Excel design has been shown to dramatically lower total scaffold man-hrs and the associated labor expenditures for maintenance and D&D work activities in many areas including: drywell, reactor building, containment, auxiliary building, turbine building, condensers, etc. Like tube and clamp, Excel scaffolding can be erected for light, medium, and heavy duty use as per OSHA requirements. [Text Continued in TMS]

DESCRIPTION OF THE DEPLOYMENT

Location: Idaho National Engineering and Environmental Laboratory, Test Area North Process Experimental Pilot Plant (Idaho Falls, ID, United States)

PBS Name: Decontamination and Decommissioning [ID-ER-110, 0564]

Date of Deployment: June 1999

Technology User: INEEL

Deployment Value/Impact: The Excel Modular Scaffolding was deployed at the Test Area North Process Experimental Pilot Plant in the furnace to reach the top of the furnace to complete pipe demolition activities. The scaffolding was easier to use and faster to install than the baseline tube and clamp scaffolding.

Vendor Name for this Technology:

Same as primary Technology Title

Point of Contact:

User Program POC(s):

Chelsea D. Hubbard (DOE-ID) - Idaho Falls, ID.
Tel. 208-526-0645

OST Program POC(s):

Harold D. Shoemaker (DOE-National Energy
Technology Laboratory) - Morgantown, WV. Tel.
304-285-4715

Technology User POC(s):

Ann Marie Smith (LMITCO) - Idaho Falls, ID. Tel.
208-526-6877

Vendor Company POC(s):

James E. Elkins (Bartlett Services, Inc./Excel
Modular Scaffold and Leasing Corp.) - Plymouth,
MA. Tel. 800-225-0385

Major Developers:

Bartlett Services, Inc.

Vendor Company:

Bartlett Services, Inc. www.bartlettinc.com

Other Deployments:

- Deployed (type: DOE) in FY 1999 at Idaho National Engineering and Environmental Laboratory (CFA 691 Sewage Treatment Plant) in Idaho Falls, ID
- Deployed (type: DOE) in FY 1999 at Idaho National Engineering and Environmental Laboratory (Security Training Facility) in Idaho Falls, ID

D&D and Remediation Optimal Planning System (DDROPS)

(OST/TMS ID: 2322/ TMS Application ID: 1505)

The Decontamination, Decommissioning, and Remediation Optimal Planning System (DDROPS) is a special computer interface that provides a size reduction and packaging plan for tanks, piping, and other dismantled equipment. From facility drawings, photographs, and video images, engineers create a 3-dimensional model using ProEngineer. This 3-D model can be made to visualize the area with colors representing different characteristics for individual components within the structure, such as the level of radiation or the material composition. Next, the optimal number and location of cuts (with respect to length, mass properties, and radiation) is determined using an optimization program. This system also shows how to package segmented items into waste containers and keeps an inventory of waste box contents. Modeling, cutting, and packaging can all be videotaped for later viewing.

DESCRIPTION OF THE DEPLOYMENT

Location: Idaho National Engineering and Environmental Laboratory, TRA 660 Advanced Reactivity Measurement Facility, Coupled Reactivity Measurement Facility (Idaho Falls, ID, United States)

PBS Name: Decontamination and Decommissioning [ID-ER-110, 0564]

Date of Deployment: April 1999

Technology User: INEEL

Deployment Value/Impact: The model created by DDROPS helped operators determine a better procedure for removing a reactor inside the TRA 660 ARMF/CFRMF. Instead of cutting the reactor underwater, the reactor was moved as a whole prior to segmenting. Engineers used the model to calculate the location of the center of gravity, and place brackets required to lift the reactor. DDROPS can also be utilized to determine packaging routines, resulting in improved packing densities and reduced waste volumes, reducing disposal costs and filling less storage space. DDROPS can also reduce the risk of radiation exposure to workers by letting workers know where to do cuts before entering a job site, and where the 'hot spots' are located.

Vendor Name for this Technology:

Same as primary Technology Title

Point of Contact:

User Program POC(s):

Chelsea D. Hubbard (DOE-ID) - Idaho Falls, ID.
Tel. 208-526-0645

OST Program POC(s):

Harold D. Shoemaker (DOE-National Energy
Technology Laboratory) - Morgantown, WV. Tel.
304-285-4715

Technology User POC(s):

Richard H. Meservey (Lockheed Martin Idaho
Technologies Co.) - Idaho Falls, ID. Tel. 208-526-
1834

Vendor Company POC(s):

No Points of Contact are listed.

Major Developers:

Idaho National Engineering and Environmental Laboratory, Environmental Restoration Technologies

Vendor Company:

Vendor Not Applicable

Other Deployments:

- Deployed (type: DOE) in FY 1999 at Idaho National Engineering and Environmental Laboratory (Sewage Treatment Plant (CFA-691)) in Idaho Falls, ID

D&D and Remediation Optimal Planning System (DDROPS)

(OST/TMS ID: 2322/ TMS Application ID: 1823)

The Decontamination, Decommissioning, and Remediation Optimal Planning System (DDROPS) is a special computer interface that provides a size reduction and packaging plan for tanks, piping, and other dismantled equipment. From facility drawings, photographs, and video images, engineers create a 3-dimensional (3D) model using ProEngineer. This 3-D model can be made to visualize the area with colors representing different characteristics for individual components within the structure, such as the level of radiation or the material composition. Next, the optimal number and location of cuts (with respect to length, mass properties, and radiation) is determined using an optimization program. This system also shows how to package segmented items into waste containers and keeps an inventory of waste box contents. Modeling, cutting, and packaging can all be videotaped for later viewing.

DESCRIPTION OF THE DEPLOYMENT

Location: Idaho National Engineering and Environmental Laboratory, Sewage Treatment Plant (CFA-691) (Idaho Falls, ID, United States)

PBS Name: Decontamination and Decommissioning [ID-ER-110, 0564]

Date of Deployment: March 1999

Technology User: INEEL

Deployment Value/Impact: The Decontamination, Decommissioning and Remediation Optimal Planning System was used to create a 3-D model of the Central Facilities Area Sewage Treatment Facility (CFA-691). The model was created in Pro-Engineer using blueprints of the facility. It shows all of the piping, pumps, valves, tanks, and other possibly contaminated materials in the facility. The DDROPS cutting optimization program was then used to determine the optimal cutting/segmentation locations in the existing piping. The resulting "cut pieces" were then virtually packaged into waste boxes. A total of between one and two 4' X 4' X 8' virtual waste boxes (144 ft³) were required to contain the material in CFA-691. The CFA-691 facility was dismantled with normal D&D operational techniques (without the benefit of the optimal cutting locations). The dismantlement resulted in filling between five and six 4' X 4' X 8' waste boxes (700 ft³). This indicates potential savings of four to five waste boxes (556 ft³) at a cost of approximately \$700 each for a \$3500 saving. In addition, although at the INEEL the cost of LLW disposal is not charged to the D&D projects, at commercial sites the cost ranges from \$100/ft³ to \$700/ft³. The potential savings for a 556 ft³ waste reduction is between \$56K and \$389K.

Vendor Name for this Technology:

Same as primary Technology Title

Point of Contact:

User Program POC(s):

Chelsea D. Hubbard (DOE-ID) - Idaho Falls, ID.
Tel. 208-526-0645

OST Program POC(s):

Harold D. Shoemaker (DOE-National Energy
Technology Laboratory) - Morgantown, WV. Tel.
304-285-4715

Technology User POC(s):

Richard H. Meservey (Lockheed Martin Idaho
Technologies Co.) - Idaho Falls, ID. Tel. 208-526-
1834

Vendor Company POC(s):

Mark Landon (INEEL) - Idaho Falls, ID. Tel. 208-
526-0221

Ann Marie Smith (LMITCO) - Idaho Falls, ID. Tel.
208-526-6877

Major Developers:

Idaho National Engineering and Environmental Laboratory, Environmental Restoration Technologies

Vendor Company:

Vendor Not Applicable

Other Deployments:

- Deployed (type: DOE) in FY 1999 at Idaho National Engineering and Environmental Laboratory (TRA 660 Advanced Reactivity Measurement Facility, Coupled Reactivity Measurement Facility) in Idaho Falls, ID

Oceaneering Space Systems Tank Sampling Tool

(OST/TMS ID: 2359/ TMS Application ID: 1487)

Oceaneering Space Systems, funded by OST Industry Programs under contract with the Federal Energy Technology Center, developed a sampling system capable of retrieving liquid and salt samples from difficult locations within a tank. The Oceaneering Space Systems Tank Sampling and Inspection Tool uses a lightweight, segmented mast equipped with a sample cylinder. The mast design allows the sampler to be assembled, then lowered to the proper depth inside the tank. The sample cylinders are designed to scrape and vacuum (the Vacuum Scarifying Sampling Tool Assembly, VSSTA), or cut core samples (Core Sampling tool) from the salt waste surface. The sampler provides samples and data for performance assessment of contaminant transport to the environment.

DESCRIPTION OF THE DEPLOYMENT

Location: Idaho National Engineering and Environmental Laboratory, Tank WM-188 (Idaho Falls, ID, United States)

PBS Name: HLW Treatment and Storage [ID-HLW-103, 0565]

Date of Deployment: February 1999

Technology User: INEEL

Deployment Value/Impact: The Oceaneering Space Systems Tank Sampling and Inspection Tool was deployed in Idaho Nuclear Technology Engineering Center (INTEC) high-level waste tank WM-188 in February 1999. The end effector was modified to allow coupling to or de-coupling from the Light Duty Utility Arm (TMS ID 85) arm using the INEEL-developed Remote End Effector Exchange System (TMS ID 2393). No weld or corrosion defects were identified during the February 1999 INTEC deployment.

Vendor Name for this Technology:

Same as primary Technology Title

Point of Contact:

User Program POC(s):

Cal Christensen (Lockheed Martin Idaho Technologies Company) - Idaho Falls, ID. Tel. 208-526-6802

Keith A. Lockie (DOE-ID) - Idaho Falls, ID. Tel. 208-526-0118

James H. Valentine (Lockheed Martin Idaho Technologies Company) - Idaho Falls, ID. Tel. 208-526-0118

Technology User POC(s):

No Points of Contact are listed.

OST Program POC(s):

Robert C. Bedick (National Energy Technology Laboratory) - Morgantown, WV. Tel. 304-285-4505
Ted P. Pietrok (DOE-RL) - Richland, WA. Tel. 509-372-4546

Vendor Company POC(s):

No Points of Contact are listed.

Major Developers:

- Idaho National Engineering and Environmental Laboratory (INEEL), Remote, Robotic, and Automated Systems
- Oceaneering Space Systems

Vendor Company:

Oceaneering Space Systems (www.oceaneering.com)

Other Deployments:

Deployed (type: DOE) in FY 1998 at Savannah River Site (Tank 16H) in Aiken, SC

BNL ASTD: Deployment of Innovative Characterization Technologies and Implementation of the MARSSIM Process at Radiologically Contaminated Sites

(OST/TMS ID: 2374/ TMS Application ID: 1615)

Characterization of the Brookhaven Graphite Research Reactor (BGRR), using the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) process has substantial advantage over conventional approaches for radiological characterization of contaminated facilities that requires collecting and analyzing a large number of physical samples. Implementation of MARSSIM yields a statistically-defensible characterization plan that has fewer sampling locations. This approach saves time and money and reduces exposure of workers to radiation.

DESCRIPTION OF THE DEPLOYMENT	
Location:	Brookhaven National Laboratory, Brookhaven Graphite Research Reactor (Brookhaven, NY, United States)
PBS Name:	BNL Decontamination and Decommissioning Actions [CH-BRNLDD, 0007]
Date of Deployment:	March 1999
Technology User:	Dames and Moore
Deployment Value/Impact: Implementation of the MARSSIM process coupled with deployment of innovative characterization technologies such as the In Situ Object Counting System (ISOCS; TMS# 2098) at the BGRR is projected to save almost \$1.1 million over the estimated cost for BGRR characterization using the baseline approach of \$4.8 million. The MARSSIM process at BNL was implemented beginning late March 1999 and is expected to continue throughout FY00. Actual deployment of the innovative ISOCS began in July 1999 (see separate Deployment Fact Sheet).	
Vendor Name for this Technology:	Multi Agency Site Survey and Investigation Manual (MARSSIM)
Point of Contact:	
User Program POC(s): Paul Kalb (BNL - Principal Investigator) - Upton, NY. Tel. 516-344-7644	OST Program POC(s): Steven J. Bossart (US Department of Energy, National Energy Technology Laboratory) - Morgantown, WV. Tel. 304-285-4643
Technology User POC(s): No Points of Contact are listed.	Vendor Company POC(s): No Points of Contact are listed.

Major Developers:

MARSSIM was developed as a collaborative effort between DoD, DOE, NRC and EPA.

Vendor Company:

Vendor Not Applicable

Other Deployments:

This is the first deployment of this technology.

NWCF Offgas Sampling

(OST/TMS ID: 2381/ TMS Application ID: 1410)

The New Waste Calcining Facility at the INEEL operates with an air permit that limits the amount of nitrogen oxide discharges. The project accomplished this technical job in a hazardous environment by overcoming difficult issues to achieve the first ever NWCF offgas physical measurements. The National Technical Workgroup for Mixed Waste Thermal Treatment provided expertise and held workshops to discuss modifications to EPA sampling methods. The MWFA organized the workshops and provided vital assistance in developing the improved EPA sampling methods. The NTW workshops were crucial to obtaining consensus on the alternative EPA sampling method improvements. Furthermore, the NWCF offgas emissions project will provide information to the High-Level Waste and Facilities Disposition Environmental Impact Statement and Record of Decision.

DESCRIPTION OF THE DEPLOYMENT

Location: Idaho National Engineering and Environmental Laboratory, New Waste Calcining Facility (Idaho Falls, ID, United States)

PBS Name: HLW Treatment and Storage [ID-HLW-103, 0565]

Date of Deployment: January 1999

Technology User: INEEL

Deployment Value/Impact: The implementation of this solution allowed the INEEL officials to have more detailed knowledge of levels of certain EPA and state regulated hazardous metals and organic compounds in the plume coming from the main stack at the Idaho Nuclear Technology and Engineering Center.

Vendor Name for this Technology: Same as primary Technology Title

Point of Contact:

User Program POC(s):

Richard Boardman (INEEL) - Idaho Falls, ID. Tel. 208-526-3732

George Schneider (U.S. Department of Energy, Idaho) - Idaho Falls, ID. Tel. 208-526-6789

Technology User POC(s):

No Points of Contact are listed.

OST Program POC(s):

Dave Eaton (LMITCO-MWFA) - Idaho Falls, ID. Tel. 208-526-7002

Bill Owca (Department of Energy - Idaho) - Idaho Falls, ID. Tel. 208-526-1983

Vendor Company POC(s):

No Points of Contact are listed.

Major Developers:

Idaho National Engineering and Environmental Laboratory (INEEL), Remote, Robotic, and Automated Systems

Vendor Company:

Vendor Not Applicable

Other Deployments:

This is the first deployment of this technology.

Vitrification Expended Material Processing System

(OST/TMS ID: 2383/ TMS Application ID: 1822)

The West Valley Demonstration Project (WVDP) is located on New York States' Allegheny Plateau. It is the site of the only commercial spent nuclear fuel reprocessing plant ever operated in the United States. The WVDP is currently removing the bulk of liquid high-level waste from large underground storage tanks for vitrification. The performance of this activity will result in the generation of radioactive waste material which has come into contact with vitrification process materials of high level waste slurry and molten high level waste glass. Radiological waste material in the form of used equipment and instruments is referred to as expended material and equipment. A Vitrification Expended Material Processing System will be utilized to segregate, reduce, chemically and radiologically decontaminate, and package all materials and equipment which have been declared waste.

DESCRIPTION OF THE DEPLOYMENT			
Location:	West Valley Demonstration Project (West Valley, NY, United States)		
PBS Name:	Project Management/Site Support [OH-WV-04, 0252]		
Date of Deployment:	September 1999	Technology User:	No Technology User has been defined
Deployment Value/Impact: Vitrification Expended Material Processing System was used to segregate, condense, decontaminate, and package materials taken from the vitrification facility declared as waste.			
Vendor Name for this Technology:		Same as primary Technology Title	
Point of Contact:			
User Program POC(s): John Drake (West Valley Demonstration Project) - West Valley, NY. Tel. 716-942-4993		OST Program POC(s): Ted P. Pietrok (DOE-RL) - Richland, WA. Tel. 509- 372-4546	
Technology User POC(s): No Points of Contact are listed.		Vendor Company POC(s): No Points of Contact are listed.	

Major Developers:
No Major Developers are listed.

Vendor Company:
Vendor Not Applicable

Other Deployments:
This is the first deployment of this technology.

Heel Sampling End Effector

(OST/TMS ID: 2386/ TMS Application ID: 1485)

The Heel Sampling End Effector consists of a light source, video camera, radiation detector to identify suspect 'hot spots' and a sample capture tube and detachable sample chamber. The sample capture tube can be immersed to a depth of 16 inches, and up to 800 ml of liquid or slurry can be drawn into the evacuated sample chamber. Samples were retrieved from positions up to 10 feet off the tank riser axis. The Heel Sampling End Effector is coupled to or de-coupled from the Light Duty Utility Arm (TMS ID 85) using the INEEL-developed Remote End Effector Exchange System (TMS ID 2393). The Remote End Effector Exchange System is also used to detach the sample chamber and place it into the shielded sample transfer cart.

DESCRIPTION OF THE DEPLOYMENT

Location: Idaho National Engineering and Environmental Laboratory, Tank WM-188 (Idaho Falls, ID, United States)

PBS Name: HLW Treatment and Storage [ID-HLW-103, 0565]

Date of Deployment: February 1999

Technology User: INEEL

Deployment Value/Impact: The Heel Sampling End Effector retrieved four (4) samples from Idaho Nuclear Technology Engineering Center (INTEC) high-level radioactive waste tank WM-188 between February 12 and March 3, 1999. Samples retrieved during the February/March deployment ranged from 300 to 800 cc in volume, with the sample chamber having contact gamma radiation fields of 0.4 to 3 rad/hr. Samples were retrieved from positions up to 10 feet off the tank riser axis. The Heel Sampling End Effector is coupled to or de-coupled from the LDUA (TMS ID 85) using the INEEL-developed Remote End Effector Exchange System (TMS ID 2393). The Remote End Effector Exchange System is also used to detach the sample chamber and place it into the shielded sample transfer cart. All samples were transported to INEEL's Remote Analytical Laboratory for evaluation.

Vendor Name for this Technology: Same as primary Technology Title

Point of Contact:

User Program POC(s):

Cal Christensen (Lockheed Martin Idaho Technologies Company) - Idaho Falls, ID. Tel. 208-526-6802

Keith A. Lockie (DOE-ID) - Idaho Falls, ID. Tel. 208-526-0118

James H. Valentine (Lockheed Martin Idaho Technologies Company) - Idaho Falls, ID. Tel. 208-526-0118

Technology User POC(s):

No Points of Contact are listed.

OST Program POC(s):

Ted P. Pietrok (DOE-RL) - Richland, WA. Tel. 509-372-4546

Vendor Company POC(s):

No Points of Contact are listed.

Major Developers:

Idaho National Engineering and Environmental Laboratory (INEEL), Remote, Robotic, and Automated Systems

Vendor Company:

Vendor Not Applicable

Other Deployments:

This is the first deployment of this technology.

Chemical De-Nitrification Process

(OST/TMS ID: 2391/ TMS Application ID: 1516)

The chemical denitrification process that operates at ambient temperature and pressure, uses simple inexpensive chemicals, does not require sophisticated equipment and is easy to operate. The 20 gallon nitrate reducing process uses zinc metal as a reducer. After the reduction to nitrite, further reduction to nitrogen gas is accomplished with amide additions. The oxidized zinc is recovered for reuse through an electrochemical cell. Nitrates in waters discharged to the environment are of primary concern due to potential human health impact. The toxicity of nitrate to humans is due to the body's reduction of nitrate to nitrite.

DESCRIPTION OF THE DEPLOYMENT	
Location:	Los Alamos National Laboratory, Radioactive Wastewater Treatment Plant (Los Alamos, NM, United States)
PBS Name:	LANL Waste Management - Legacy Waste [AL013, 0472]
Date of Deployment:	July 1999
Technology User:	Los Alamos National Laboratory
Deployment Value/Impact: By deploying the technology, Los Alamos met a state environmental regulatory commitment milestone to mitigate nitrate discharges to the environment. Presently the batch system treats waste upstream of the main Los Alamos mixed wastewater treatment system and has process over 1,000 gallons of wastewater containing over 600 lbs. of nitrates.	
Vendor Name for this Technology:	Same as primary Technology Title
Point of Contact:	
User Program POC(s): Bruce Erdal (Los Alamos National Laboratories) - Los Alamos, NM. Tel. 505-667-5338 Pam Saxman (DOE-AL) - Albuquerque, NM. Tel. 505-845-6101	OST Program POC(s): Jacek Dziewinski (Los Alamos National Laboratory) - Los Alamos, NM. Tel. 505-667-9792 Vince C. Maio (INEEL-MWFA) - Idaho Falls, ID. Tel. 208-526-3696 Bill Owca (Department of Energy - Idaho) - Idaho Falls, ID. Tel. 208-526-1983
Technology User POC(s): No Points of Contact are listed.	Vendor Company POC(s): No Points of Contact are listed.

Major Developers:

Los Alamos National Laboratory

Vendor Company:

Vendor Not Applicable

Other Deployments:

This is the first deployment of this technology.

Remote End Effector Exchange System

(OST/TMS ID: 2393/ TMS Application ID: 1448)

Robotic entry of Idaho Nuclear Technology Engineering Center (INTEC) high-level radioactive waste tanks for assessment of tank integrity and characterization of tank residues requires total remote operations, including repeated coupling and de-coupling of multiple end effectors. Several LDUA (TMS 85) end effectors were and will be deployed at the INTEC Tank Farm including the Laser Alignment End Effector, High Resolution Stereo Video End Effector, Heel Sampling End Effector, OSS (Robotic) Tank Inspection End Effector, Eddy Current Non-Destructive Examination End Effector, Stereo Photographic End Effector, and Gripper End Effector. The INEEL-designed Remote End Effector Exchange System allows remote coupling and de-coupling of end effectors and transfer of hazardous samples without direct personnel exposure to contaminated hardware. [Text Continued in TMS]

DESCRIPTION OF THE DEPLOYMENT

Location: Idaho National Engineering and Environmental Laboratory, Tank WM-188 (Idaho Falls, ID, United States)

PBS Name: HLW Treatment and Storage [ID-HLW-103, 0565]

Date of Deployment: February 1999 **Technology User:** INEEL

Deployment Value/Impact: The Remote End Effector Exchange System was deployed at Idaho Nuclear Technology Engineering Center (INTEC) high-level waste tank WM-188 in February 1999 (Ref: INEEL EM Technology Catalog, <http://techcatalog.inel.gov/searchreportresults.asp?id=80>) to facilitate installation and removal of LDUA end effectors remotely to preclude personnel exposure to contaminated hardware.

Vendor Name for this Technology: Same as primary Technology Title

Point of Contact:

User Program POC(s):
Keith A. Lockie (DOE-ID) - Idaho Falls, ID. Tel. 208-526-0118

OST Program POC(s):
Ted P. Pietrok (DOE-RL) - Richland, WA. Tel. 509-372-4546

Technology User POC(s):
Jim H. Valentine (Lockheed Martin Idaho Technologies Company) - Idaho Falls, ID. Tel. 208-526-3267

Vendor Company POC(s):
No Points of Contact are listed.

Major Developers:

Idaho National Engineering and Environmental Laboratory (INEEL), Remote, Robotic, and Automated Systems

Vendor Company:

Vendor Not Applicable

Other Deployments:

This is the first deployment of this technology.

Remote End Effector Tool Plate

(OST/TMS ID: 2394/ TMS Application ID: 1449)

Robotic entry of Idaho Nuclear Technology Engineering Center (INTEC) high-level radioactive waste tanks for assessment of tank integrity and characterization of tank residues requires total remote operations, including repeated coupling and de-coupling of multiple end effectors. The INEEL-designed Remote End Effector Exchange System allows remote coupling and de-coupling of end effectors and transfer of hazardous samples without direct personnel exposure to contaminated hardware. The enabling feature of the Remote End Effector Exchange System is the Remote End Effector Tool Plate.

DESCRIPTION OF THE DEPLOYMENT

Location: Idaho National Engineering and Environmental Laboratory, Tank WM-188 (Idaho Falls, ID, United States)

PBS Name: HLW Treatment and Storage [ID-HLW-103, 0565]

Date of Deployment: February 1999

Technology User: INEEL

Deployment Value/Impact: The Remote End Effector Tool Plate was deployed at Idaho Nuclear Technology Engineering Center (INTEC) high-level waste tank WM-188 in February 1999 (Ref: INEEL EM Technology Catalog, <http://techcatalog.inel.gov/searchreportresults.asp?id=100>) to facilitate installation and removal of LDUA end effectors remotely to preclude personnel exposure to contaminated hardware.

Vendor Name for this Technology: Same as primary Technology Title

Point of Contact:

User Program POC(s):

Cal Christensen (Lockheed Martin Idaho Technologies Company) - Idaho Falls, ID. Tel. 208-526-6802

Keith A. Lockie (DOE-ID) - Idaho Falls, ID. Tel. 208-526-0118

James H. Valentine (Lockheed Martin Idaho Technologies Company) - Idaho Falls, ID. Tel. 208-526-0118

Technology User POC(s):

No Points of Contact are listed.

OST Program POC(s):

Ted P. Pietrok (DOE-RL) - Richland, WA. Tel. 509-372-4546

Vendor Company POC(s):

No Points of Contact are listed.

Major Developers:

Idaho National Engineering and Environmental Laboratory (INEEL), Remote, Robotic, and Automated Systems

Vendor Company:

Vendor Not Applicable

Other Deployments:

This is the first deployment of this technology.

GeoVis Video Camera System for CPT

(OST/TMS ID: 2399/ TMS Application ID: 1400)

GeoVis is a video camera system designed to work with the cone penetrometer system.

DESCRIPTION OF THE DEPLOYMENT			
Location:	Kennedy Space Center, Cape Canaveral Air Station/Launch Complex 34 (Cape Canaveral, FL, United States)		
PBS Name:	Not Specified		
Date of Deployment:	June 1999	Technology User:	Westinghouse Savannah River Company
Deployment Value/Impact: The technology was successfully used to delineate depth-discrete DNAPL contamination.			
Vendor Name for this Technology:		In-Situ Video Microscope	
Point of Contact:			
User Program POC(s): Jacqueline Quinn (NASA Environmental Program Office) - Cape Canaveral, FL. Tel. 407-867-4265		OST Program POC(s): Joe Ginanni (DOE-NV) - N. Las Vegas, NV. Tel. 702-295-0209	
Technology User POC(s): Carol A. Eddy-Dilek (Westinghouse Savannah River Company) - Aiken, SC. Tel. 513-529-3218		Vendor Company POC(s): No Points of Contact are listed.	

Major Developers:
SPAWAR (DoD)

Vendor Company:
Vendor Not Applicable

Other Deployments:
Deployed (type: DOE) in FY 1999 at Savannah River Site (R-Reactor Seepage Basins) in Aiken, SC

GeoVis Video Camera System for CPT

(OST/TMS ID: 2399/ TMS Application ID: 1401)

GeoVis is a video camera system designed to work with the cone penetrometer system.

DESCRIPTION OF THE DEPLOYMENT	
Location:	Savannah River Site, R-Reactor Seepage Basins (Aiken, SC, United States)
PBS Name:	Not Specified
Date of Deployment:	November 1998
Technology User:	Westinghouse Savannah River Company
Deployment Value/Impact:	Technology was successfully deployed and identified elevation of perched water unit.
Vendor Name for this Technology:	In-Situ Video Microscope
Point of Contact:	
User Program POC(s): Gerald Blount (BSRI) - Aiken, SC. Tel. 803-952-6470	OST Program POC(s): Joe Ginanni (DOE-NV) - N. Las Vegas, NV. Tel. 702-295-0209
Technology User POC(s): Carol A. Eddy-Dilek (Westinghouse Savannah River Company) - Aiken, SC. Tel. 513-529-3218	Vendor Company POC(s): No Points of Contact are listed.

Major Developers:
SPAWAR (DoD)

Vendor Company:
Vendor Not Applicable

Other Deployments:
Deployed (type: Non-DOE) in FY 1999 at Kennedy Space Center (Cape Canaveral Air Station/Launch Complex 34) in Cape Canaveral, FL

3-D Visual and Gamma Ray Imaging System

(OST/TMS ID: 2402/ TMS Application ID: 1638)

The Canyon Disposition Initiative (CDI) is a jointly funded project at DOE's Hanford site. EM-30, -40, -50, and -60 support the activity, which is evaluating the feasibility of utilizing the massive fuel reprocessing facilities as waste repositories, among other disposition alternatives. The 221-U Facility is the 'pilot' project for the CDI. The CERCLA Remedial Investigation/Feasibility Study (RI/FS) process is being employed. As part of the RI/FS, extensive characterization of the 221-U Facility is underway. The characterization data collected, measured, derived, etc. are required to support a Performance Assessment (PA), which will lead to a Record of Decision (ROD). The subject effort will demonstrate an improved 3-D Visual and Gamma Imaging System. The 3-D Visual and Gamma Imaging System will be used to provide images and radiation measurements of equipment, tanks, etc., on the canyon deck and in other areas of the Facility.

DESCRIPTION OF THE DEPLOYMENT			
Location:	Hanford Site, Hanford U-Plant (Richland, WA, United States)		
PBS Name:	Facility Surveillance & Maintenance - ADS 3500 [RL-ER05, 0419]		
Date of Deployment:	August 1999	Technology User:	Bechtel Hanford Inc.
Deployment Value/Impact: Located contamination on the deck in three dimensions. Found small amounts of radiation in a piece of equipment located on the deck ranging from between 50 mr/hr to 80 mr/hr.			
Vendor Name for this Technology:		Same as primary Technology Title	
Point of Contact:			
User Program POC(s): Shannon N. Saget (DOE-RL) - Richland, WA. Tel. 509-372-4029		OST Program POC(s): Robert C. Bedick (National Energy Technology Laboratory) - Morgantown, WV. Tel. 304-285-4505	
Technology User POC(s): Kim Koegler (Bechtel Hanford Inc.) - Richland, WA. Tel. 509-372-9294		Vendor Company POC(s): Al Henneborn (AIL Systems, Inc.) - Deer Park, NY. Tel. 516-595-5595	

Major Developers:
AIL Systems, Inc.

Vendor Company:
AIL Systems, Inc.

Other Deployments:
This is the first deployment of this technology.

Non-Intrusive Liquid Level Detection System

(OST/TMS ID: 2403/ TMS Application ID: 1639)

The Infrared-based Liquid Level Detection (LLD) technology will be utilized to detect liquid levels in tanks and piping systems throughout the 'canyon.' At Hanford, the baseline technology to determine whether liquids are present in tanks and piping systems, including traps, is to physically tap the equipment/component. The liquid, if present, would be sampled and assayed. Detection of liquid levels in various equipment/components located throughout the facility, i.e., on the facility deck, in process cells, etc. is required at the 221-U Facility. Using the passive and non-intrusive technology (IR) to detect liquid levels is expected to accelerate the characterization schedule, reduce costs, and reduce exposure to workers.

DESCRIPTION OF THE DEPLOYMENT

Location:	Hanford Site, Hanford U-Plant (Richland, WA, United States)		
PBS Name:	Facility Surveillance & Maintenance - ADS 3500 [RL-ER05, 0419]		
Date of Deployment:	August 1999	Technology User:	Bechtel Hanford Inc.
Deployment Value/Impact:	The LLD system was deployed in galleries and in the canyon deck area. It did not detect any residual liquids as expected. However, one anomaly was found. Further investigation revealed corrosion in a section of a pipe.		
Vendor Name for this Technology:	Same as primary Technology Title		
Point of Contact:			
User Program POC(s):	OST Program POC(s):		
Shannon N. Saget (DOE-RL) - Richland, WA. Tel. 509-372-4029	Robert C. Bedick (National Energy Technology Laboratory) - Morgantown, WV. Tel. 304-285-4505		
Technology User POC(s):	Vendor Company POC(s):		
Kim Koegler (Bechtel Hanford Inc.) - Richland, WA. Tel. 509-372-9294	Jerry Gamroth (Infrared, Inc.) - VA. Tel. 757-827-2440		

Major Developers:
Infrared, Inc.

Vendor Company:
Infrared, Inc.

Other Deployments:
This is the first deployment of this technology.

SRS Pump Tank Mixer

(OST/TMS ID: 2408/ TMS Application ID: 1520)

The SRS Pump Tank Mixer is a blending technology which will be used in combining radioactive sludge contents while ensuring homogeneous consistency of waste materials prior to transfer from tanks across the site. To accomplish this, the agitation process is designed to mix the sludge with liquid supernate to enable transfer using mechanical pumps. The pulse jet pump system mixes the sludge and supernate using a three phase mixing process as detailed below: a suction phase; a drive phase; and a vent phase. During the suction phase, the jet pumps are used to create a partial vacuum in the charge vessel which in turn draws liquid up from the storage tank into the vessel. Once the charge vessels have been filled with the liquor, the jet pumps pressurize the charge vessels which drives the liquor back into the storage tank, agitating the contents of the tank and resuspending settled solid particulates into the supernate. This is known as the drive phase. [Text Continued in TMS]

DESCRIPTION OF THE DEPLOYMENT	
Location:	Savannah River Site, FPT-1 (Aiken, SC, United States)
PBS Name:	H-Tank Farm [SR-HL01, 0036] F-Tank Farm [SR-HL02, 0037] Waste Removal Operations and Tank Closure [SR-HL03, 0038]
Date of Deployment:	August 1999
Technology User:	Westinghouse Savannah River Company
Deployment Value/Impact:	AEA Technologies, Inc.'s fluidic pulse jet mixing pump is attached in a pump pit using existing tank infrastructure. Using a syringe-like action, the pump drew waste out of the tank and forced it back in under pressure. With the waste mixed, it then pumped from the original holding tank and is stored until ready for treatment and disposal.
Vendor Name for this Technology:	Same as primary Technology Title
Point of Contact:	
User Program POC(s): Thomas S. Gutmann (DOE-SR) - Aiken, SC. Tel. 803-208-7408	OST Program POC(s): Ted P. Pietrok (DOE-RL) - Richland, WA. Tel. 509-372-4546
Technology User POC(s): Jerry Morin (Westinghouse Savannah River Corporation) - Aiken, SC. Tel. 803-725-7669	Vendor Company POC(s): Laurie Judd (AEA Technologies Consultancy Services, Inc.) - Vienna, VA. Tel. 703-433-0720

Major Developers:

- AEA Technology Inc.
- Westinghouse Savannah River Company

Vendor Company:

AEA Technology (ps-erquiry@aeat.co.uk)

Other Deployments:

This is the first deployment of this technology.

Enhanced In Situ Bioremediation (ISB)

(OST/TMS ID: 2410/ TMS Application ID: 1862)

Enhanced In-Situ Bioremediation (ISB) provides increased degradation of contaminants in the subsurface by indigenous microorganisms present in the soil by manipulating this natural process. Bioremediation via in situ stimulation of indigenous microorganisms is an efficient and effective long-term means of obtaining ultimate groundwater restoration. Injection systems at a depth of 20-30 ft below the water table will provide a sparge zone that will biotreat all current and future leachate.

DESCRIPTION OF THE DEPLOYMENT			
Location:	Savannah River Site, Sanitary Landfill (Aiken, SC, United States)		
PBS Name:	Upper Three Runs Project [SR-ER06, 0056]		
Date of Deployment:	April 1999	Technology User:	WSRC-SRTC
Deployment Value/Impact: Bioremediation has been found to be among the least costly technologies in applications where it is feasible.			
Vendor Name for this Technology:		Same as primary Technology Title	
Point of Contact:			
User Program POC(s):		OST Program POC(s):	
Bob Blundy (WSRC-ER) - Aiken, SC. Tel. 803-952-6788		Elizabeth Phillips (DOE-OR) - Oak Ridge, TN. Tel. 423-241-6172	
Les Germany (DOE-SR) - Aiken, SC. Tel. 803-725-8033		Sharon Robinson (DOE-SR) - Aiken, SC. Tel. 803-725-5793	
Technology User POC(s):		Vendor Company POC(s):	
Denis J. Altman (WSRC-SRTC) - Aiken, SC. Tel. 803-557-7637		Joette Sonnenberg (Westinghouse Savannah River Company) - Aiken, SC. Tel. 803-725-5190	

Major Developers:

- Beak International
- Dow Chemical Company
- DuPont
- Environmental Protection Agency
- General Electric
- ICI Americas
- Novartis
- U.S. Department of Energy
- United States Air Force
- William Power Corporation

Vendor Company:

Vendor Not Applicable

Other Deployments:

This is the first deployment of this technology.

Improved Surface Water Monitoring for Radionuclide Discharges

(OST/TMS ID: 2913/ TMS Application ID: 1436)

Thousands of surface water samples are collected and analyzed each year by the Department of Energy (DOE) and contractors at the individual sites to provide supporting data for Annual Environmental Reports. This technology, with the support of the 3M Company and ISCO, Inc., has been developed and demonstrates an improved in-situ processing method for monitoring radionuclide concentrations in surface streams. This method is equally applicable to monitoring radionuclide discharges from different points.

DESCRIPTION OF THE DEPLOYMENT			
Location:	Savannah River Site, Four Mile Creek (Aiken, SC, United States)		
PBS Name:	Four Mile Branch Project [SR-ER02, 0052]		
Date of Deployment:	April 1999	Technology User:	WSRC-SRTC
Deployment Value/Impact: This technology assists in the collection and analyses of water samples. When placed at effluent monitoring points for remediation activities, the use of this in-situ sample processing can reduce programmatic risks for cleanup activities by providing for rapid sample analyses, thereby allowing quicker response to process starts or upsets.			
Vendor Name for this Technology:		Same as primary Technology Title	
Point of Contact:			
User Program POC(s):		OST Program POC(s):	
Bob Blundy (WSRC-ER) - Aiken, SC. Tel. 803-952-6788		Scott McMullin (DOE-SR) - Aiken, SC. Tel. 803-725-9596	
Les Germany (DOE-SR) - Aiken, SC. Tel. 803-725-8033		Sharon Robinson (DOE-SR) - Aiken, SC. Tel. 803-725-5793	
Technology User POC(s):		Vendor Company POC(s):	
Donna Beal (WSRC-SRTC) - Aiken, SC. Tel. 803-725-0847		Keith Hoffman (3M) - St Paul, MN. Tel. 651-575-1795	

Major Developers:

- 3M Corporation
- ISCO, Inc.
- Westinghouse Savannah River Company

Vendor Company:

3M Company

Other Deployments:

- Deployed (type: DOE) in FY 1999 at Hanford Site (300 Area) in Richland, WA
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Upper Three Runs) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Brookhaven National Laboratory (Sewage Treatment Plant) in Brookhaven, NY
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Steel Creek, 2-A Site) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Pen Branch, 3 Site) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Lower Three Runs) in Aiken, SC

Improved Surface Water Monitoring for Radionuclide Discharges

(OST/TMS ID: 2913/ TMS Application ID: 1539)

Thousands of surface water samples are collected and analyzed each year by the Department of Energy (DOE) and contractors at the individual sites to provide supporting data for Annual Environmental Reports. This technology, with the support of the 3M Company and ISCO, Inc., has been developed and demonstrates an improved in-situ processing method for monitoring radionuclide concentrations in surface streams. This method is equally applicable to monitoring radionuclide discharges from different points.

DESCRIPTION OF THE DEPLOYMENT	
Location:	Hanford Site, 300 Area (Richland, WA, United States)
PBS Name:	Site-Wide Groundwater/Vadose Zone Integration Project [RL-VZ01, 0084]
Date of Deployment:	July 1999
Technology User:	Battelle
Deployment Value/Impact: This technology assists in the collection and analyses of water samples. When placed at effluent monitoring points for remediation activities, the use of this in-situ sample processing can reduce programmatic risks for cleanup activities by providing for rapid sample analyses, thereby allowing quicker response to process starts or upsets.	
Vendor Name for this Technology:	Same as primary Technology Title
Point of Contact:	
User Program POC(s):	OST Program POC(s):
John Neath (DOE-RL) - Richland, WA. Tel. 509-372-4876	Scott McMullin (DOE-SR) - Aiken, SC. Tel. 803-725-9596
Salvatore Scarpitta (LMITCO) - Richland, WA. Tel. 516-344-3830	James A. Wright (SCFA) - Aiken, SC. Tel. 803-725-5608
Technology User POC(s):	Vendor Company POC(s):
Donna Beal (WSRC-SRTC) - Aiken, SC. Tel. 803-725-0847	Keith Hoffman (3M) - St Paul, MN. Tel. 651-575-1795
Greg Patton (Battelle) - Richland, WA. Tel. 509-376-2027	

Major Developers:

- 3M Corporation
- ISCO, Inc.
- Westinghouse Savannah River Company

Vendor Company:

3M Company

Other Deployments:

- Deployed (type: DOE) in FY 1999 at Savannah River Site (Four Mile Creek) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Upper Three Runs) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Brookhaven National Laboratory (Sewage Treatment Plant) in Brookhaven, NY
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Steel Creek, 2-A Site) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Pen Branch, 3 Site) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Lower Three Runs) in Aiken, SC

Improved Surface Water Monitoring for Radionuclide Discharges

(OST/TMS ID: 2913/ TMS Application ID: 1558)

Thousands of surface water samples are collected and analyzed each year by the Department of Energy (DOE) and contractors at the individual sites to provide supporting data for Annual Environmental Reports. This technology, with the support of the 3M Company and ISCO, Inc., has been developed and demonstrates an improved in-situ processing method for monitoring radionuclide concentrations in surface streams. This method is equally applicable to monitoring radionuclide discharges from different points.

DESCRIPTION OF THE DEPLOYMENT			
Location:	Savannah River Site, Upper Three Runs (Aiken, SC, United States)		
PBS Name:	Upper Three Runs Project [SR-ER06, 0056]		
Date of Deployment:	April 1999	Technology User:	WSRC-SRTC
Deployment Value/Impact: This technology assists in the collection and analyses of water samples. When placed at effluent monitoring points for remediation activities, the use of this in-situ sample processing can reduce programmatic risks for cleanup activities by providing for rapid sample analyses, thereby allowing quicker response to process starts or upsets.			
Vendor Name for this Technology:		Same as primary Technology Title	
Point of Contact:			
User Program POC(s):		OST Program POC(s):	
Bob Blundy (WSRC-ER) - Aiken, SC. Tel. 803-952-6788		Scott McMullin (DOE-SR) - Aiken, SC. Tel. 803-725-9596	
Les Germany (DOE-SR) - Aiken, SC. Tel. 803-725-8033		Sharon Robinson (DOE-SR) - Aiken, SC. Tel. 803-725-5793	
Technology User POC(s):		Vendor Company POC(s):	
Donna Beal (WSRC-SRTC) - Aiken, SC. Tel. 803-725-0847		Keith Hoffman (3M) - St Paul, MN. Tel. 651-575-1795	

Major Developers:

- 3M Corporation
- ISCO, Inc.
- Westinghouse Savannah River Company

Vendor Company:

3M Company

Other Deployments:

- Deployed (type: DOE) in FY 1999 at Savannah River Site (Four Mile Creek) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Hanford Site (300 Area) in Richland, WA
- Deployed (type: DOE) in FY 1999 at Brookhaven National Laboratory (Sewage Treatment Plant) in Brookhaven, NY
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Steel Creek, 2-A Site) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Pen Branch, 3 Site) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Lower Three Runs) in Aiken, SC

Improved Surface Water Monitoring for Radionuclide Discharges

(OST/TMS ID: 2913/ TMS Application ID: 1743)

Thousands of surface water samples are collected and analyzed each year by the Department of Energy (DOE) and contractors at the individual sites to provide supporting data for Annual Environmental Reports. This technology, with the support of the 3M Company and ISCO, Inc., has been developed and demonstrates an improved in-situ processing method for monitoring radionuclide concentrations in surface streams. This method is equally applicable to monitoring radionuclide discharges from different points.

DESCRIPTION OF THE DEPLOYMENT	
Location:	Brookhaven National Laboratory, Sewage Treatment Plant (Brookhaven, NY, United States)
PBS Name:	BNL Remedial Actions [CH-BRNLRA, 0006]
Date of Deployment:	June 1999
Technology User:	Brookhaven National Laboratory
Deployment Value/Impact: Real-time measurements of Sr-90 and Cs-137 in environmental waters are being utilized at inlet and exit streams of the BNL Sewage Treatment Plant. In addition, several permanent wells containing Sr-90 in excess of the US EPA drinking water standard are being monitored. The 3M disks will be measured for retained Sr-90 and Cs-137 radionuclides at the Analytical Services Lab (ASL) located within BNL; acquired data will be compiled in next year's BNL Site Environmental Report (per Sal Scarpitta).	
Vendor Name for this Technology:	Same as primary Technology Title
<u>Point of Contact:</u>	
User Program POC(s): Les Germany (DOE-SR) - Aiken, SC. Tel. 803-725-8033 Salvatore Scarpitta (LMITCO) - Richland, WA. Tel. 516-344-3830	OST Program POC(s): Scott McMullin (DOE-SR) - Aiken, SC. Tel. 803-725-9596
Technology User POC(s): Donna Beal (WSRC-SRTC) - Aiken, SC. Tel. 803-725-0847	Vendor Company POC(s): Keith Hoffman (3M) - St Paul, MN. Tel. 651-575-1795

Major Developers:

- 3M Corporation
- ISCO, Inc.
- Westinghouse Savannah River Company

Vendor Company:

3M

Other Deployments:

- Deployed (type: DOE) in FY 1999 at Savannah River Site (Four Mile Creek) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Hanford Site (300 Area) in Richland, WA
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Upper Three Runs) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Steel Creek, 2-A Site) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Pen Branch, 3 Site) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Lower Three Runs) in Aiken, SC

Improved Surface Water Monitoring for Radionuclide Discharges

(OST/TMS ID: 2913/ TMS Application ID: 1744)

Thousands of surface water samples are collected and analyzed each year by the Department of Energy (DOE) and contractors at the individual sites to provide supporting data for Annual Environmental Reports. This technology, with the support of the 3M Company and ISCO, Inc., has been developed and demonstrates an improved in-situ processing method for monitoring radionuclide concentrations in surface streams. This method is equally applicable to monitoring radionuclide discharges from different points.

DESCRIPTION OF THE DEPLOYMENT			
Location:	Savannah River Site, Steel Creek, 2-A Site (Aiken, SC, United States)		
PBS Name:	Steel Creek Project [SR-ER05, 0055]		
Date of Deployment:	April 1999	Technology User:	WSRC-SRTC
Deployment Value/Impact: Thousands of surface water samples are collected and analyzed each year by the Department of Energy (DOE) and contractors at the individual sites to provide supporting data for Annual Environmental Reports. This technology, with the support of the 3M Company and ISCO, Inc., has been developed and demonstrates an improved in-situ processing method for monitoring radionuclide concentrations in surface streams. This method is equally applicable to monitoring radionuclide discharges from different points.			
Vendor Name for this Technology:		Same as primary Technology Title	
Point of Contact:			
User Program POC(s):		OST Program POC(s):	
Bob Blundy (WSRC-ER) - Aiken, SC. Tel. 803-952-6788		Scott McMullin (DOE-SR) - Aiken, SC. Tel. 803-725-9596	
Les Germany (DOE-SR) - Aiken, SC. Tel. 803-725-8033		Sharon Robinson (DOE-SR) - Aiken, SC. Tel. 803-725-5793	
Technology User POC(s):		Vendor Company POC(s):	
Donna Beal (WSRC-SRTC) - Aiken, SC. Tel. 803-725-0847		Keith Hoffman (3M) - St Paul, MN. Tel. 651-575-1795	

Major Developers:

- 3M Corporation
- ISCO, Inc.
- Westinghouse Savannah River Company

Vendor Company:

3M Company

Other Deployments:

- Deployed (type: DOE) in FY 1999 at Savannah River Site (Four Mile Creek) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Hanford Site (300 Area) in Richland, WA
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Upper Three Runs) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Brookhaven National Laboratory (Sewage Treatment Plant) in Brookhaven, NY
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Pen Branch, 3 Site) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Lower Three Runs) in Aiken, SC

Improved Surface Water Monitoring for Radionuclide Discharges

(OST/TMS ID: 2913/ TMS Application ID: 1745)

Thousands of surface water samples are collected and analyzed each year by the Department of Energy (DOE) and contractors at the individual sites to provide supporting data for Annual Environmental Reports. This technology, with the support of the 3M Company and ISCO, Inc., has been developed and demonstrates an improved in-situ processing method for monitoring radionuclide concentrations in surface streams. This method is equally applicable to monitoring radionuclide discharges from different points.

DESCRIPTION OF THE DEPLOYMENT			
Location:	Savannah River Site, Pen Branch, 3 Site (Aiken, SC, United States)		
PBS Name:	Pen Branch Project [SR-ER04, 0054]		
Date of Deployment:	April 1999	Technology User:	WSRC-SRTC
Deployment Value/Impact: This technology assists in the collection and analyses of water samples. When placed at effluent monitoring points for remediation activities, the use of this in-situ sample processing can reduce programmatic risks for cleanup activities by providing for rapid sample analyses, thereby allowing quicker response to process starts or upsets.			
Vendor Name for this Technology:		Same as primary Technology Title	
Point of Contact:			
User Program POC(s):		OST Program POC(s):	
Bob Blundy (WSRC-ER) - Aiken, SC. Tel. 803-952-6788		Scott McMullin (DOE-SR) - Aiken, SC. Tel. 803-725-9596	
Les Germany (DOE-SR) - Aiken, SC. Tel. 803-725-8033		Sharon Robinson (DOE-SR) - Aiken, SC. Tel. 803-725-5793	
Technology User POC(s):		Vendor Company POC(s):	
Donna Beal (WSRC-SRTC) - Aiken, SC. Tel. 803-725-0847		Keith Hoffman (3M) - St Paul, MN. Tel. 651-575-1795	

Major Developers:

- 3M Corporation
- ISCO, Inc.
- Westinghouse Savannah River Company

Vendor Company:

3M Company

Other Deployments:

- Deployed (type: DOE) in FY 1999 at Savannah River Site (Four Mile Creek) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Hanford Site (300 Area) in Richland, WA
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Upper Three Runs) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Brookhaven National Laboratory (Sewage Treatment Plant) in Brookhaven, NY
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Steel Creek, 2-A Site) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Lower Three Runs) in Aiken, SC

Improved Surface Water Monitoring for Radionuclide Discharges

(OST/TMS ID: 2913/ TMS Application ID: 1854)

Thousands of surface water samples are collected and analyzed each year by the Department of Energy (DOE) and contractors at the individual sites to provide supporting data for Annual Environmental Reports. This technology, with the support of the 3M Company and ISCO, Inc., has been developed and demonstrates an improved in-situ processing method for monitoring radionuclide concentrations in surface streams. This method is equally applicable to monitoring radionuclide discharges from different points.

DESCRIPTION OF THE DEPLOYMENT			
Location:	Savannah River Site, Lower Three Runs (Aiken, SC, United States)		
PBS Name:	Lower Three Runs & Operations Project [SR-ER03, 0053]		
Date of Deployment:	April 1999	Technology User:	WSRC-SRTC
Deployment Value/Impact: This technology assists in the collection and analyses of water samples. When placed at effluent monitoring points for remediation activities, the use of this in-situ sample processing can reduce programmatic risks for cleanup activities by providing for rapid sample analyses, thereby allowing quicker response starts or upsets.			
Vendor Name for this Technology:		Same as primary Technology Title	
Point of Contact:			
User Program POC(s):		OST Program POC(s):	
Bob Blundy (WSRC-ER) - Aiken, SC. Tel. 803-952-6788		Scott McMullin (DOE-SR) - Aiken, SC. Tel. 803-725-9596	
Les Germany (DOE-SR) - Aiken, SC. Tel. 803-725-8033		Sharon Robinson (DOE-SR) - Aiken, SC. Tel. 803-725-5793	
Technology User POC(s):		Vendor Company POC(s):	
Donna Beal (WSRC-SRTC) - Aiken, SC. Tel. 803-725-0847		Keith Hoffman (3M) - St Paul, MN. Tel. 651-575-1795	

Major Developers:

- 3M Corporation
- ISCO, Inc.
- Westinghouse Savannah River Company

Vendor Company:

3M Company

Other Deployments:

- Deployed (type: DOE) in FY 1999 at Savannah River Site (Four Mile Creek) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Hanford Site (300 Area) in Richland, WA
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Upper Three Runs) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Brookhaven National Laboratory (Sewage Treatment Plant) in Brookhaven, NY
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Steel Creek, 2-A Site) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Savannah River Site (Pen Branch, 3 Site) in Aiken, SC

Enhanced Site Characterization System

(OST/TMS ID: 2922/ TMS Application ID: 1676)

The Enhanced Site Characterization System uses geostatistical techniques to integrate multiple environmental data sets (e.g., geophysical data, chemical and radiological characterization data), and produces an integrated 3D conceptual model of the distribution of various waste types in the burial ground. The resulting map aids planning of excavation. Improved planning reduces economic and health and safety risks during excavation, and reduces remediation costs.

DESCRIPTION OF THE DEPLOYMENT

Location: Hanford Site, 300 Area, 300-FF-1 OU (Richland, WA, United States)

PBS Name: 300 Area Remedial Action [RL-ER03, 0417]

Date of Deployment: May 1999 **Technology User:** Bechtel Hanford Inc.

Deployment Value/Impact: This technology will better delineate the boundaries and contents of burial grounds, leading to cost savings associated with better planning, risk avoidance, and waste minimization.

Vendor Name for this Technology: Same as primary Technology Title

Point of Contact:

User Program POC(s):
Bob McLeod (DOE-RL) - Richland, WA. Tel. 509-372-0096

OST Program POC(s):
Scott McMullin (DOE-SR) - Aiken, SC. Tel. 803-725-9596

Technology User POC(s):
Scott Peterson (Bechtel Hanford, Inc.) - Richland, WA. Tel. 509-372-9126

Vendor Company POC(s):
George V. Last (Pacific Northwest National Laboratory) - Richland, WA. Tel. 509-376-3961

Major Developers:
Pacific Northwest National Laboratory

Vendor Company:
Pacific Northwest National Laboratory

Other Deployments:
This is the first deployment of this technology.

In Situ Sampling of Trichloroethylene at Test Area North

(OST/TMS ID: 2930/ TMS Application ID: 1541)

One of the greatest challenges in dealing with DNAPLs is locating them. In many cases, DNAPLs below the water table exist as thin ganglia and/or small droplets within the aquifer. In fractured rock aquifers, they can occur in specific fractures or fracture zones. Traditional DNAPL sampling techniques provide presence/absence and gross concentration indicators over a thick zone, but cannot target the exact amount and location of the DNAPLs. Remedial processes are most effective when focused on the precise amount and location of the DNAPL. INEEL has developed a sampler technology that can delineate the vertical profile of DNAPLs within the aquifer. This probe uses a permeable membrane to absorb volatile organic compounds and by deploying these membranes in a vertical sequence have defined the vertical DNAPL profile. This tool enables site owners to precisely define the concentration profiles and location of free phase DNAPLs (concentration above the solubility limit).

DESCRIPTION OF THE DEPLOYMENT

Location: Idaho National Engineering and Environmental Laboratory, Test Area North (Idaho Falls, ID, United States)

PBS Name: Test Area North Remediation [ID-ER-101, 0164]

Date of Deployment: August 1999

Technology User: INEEL Environmental Restoration

Deployment Value/Impact: For a fracture flow system like the aquifer beneath TAN, the identification of the contaminant transmitting fractures enables effective remediation in this type of aquifer. Precise contaminant delineation also allows the end users to focus the remedial effort to the precise location of the DNAPLs. This focusing will minimize the material and effort needed for remediation, increase its efficiency, and reduce the total time required to clean up the contamination.

Vendor Name for this Technology: In-Situ Sampler (ISS)

Point of Contact:

User Program POC(s):

Patrick Trudel (DOE - Idaho) - Idaho Falls, ID. Tel. 208-526-0169

Technology User POC(s):

Kirk Dooley (INEEL) - Idaho Falls, ID. Tel. 208-526-2068

OST Program POC(s):

James A. Wright (SCFA) - Aiken, SC. Tel. 803-725-5608

Vendor Company POC(s):

No Points of Contact are listed.

Major Developers:

Idaho National Engineering and Environmental Laboratory

Vendor Company:

Vendor Not Applicable

Other Deployments:

This is the first deployment of this technology.

Remote-Handled Transuranic Waste Surrogates

(OST/TMS ID: 2934/ TMS Application ID: 1519)

Surrogate waste matrices are essential in the demonstration of Non-Destructive Assay technique's uncertainties and precision. This data is required to evaluate the method's potential to meet the Carlsbad Area Office's Draft Characterization Quality Assurance Objectives for remote-handled wastes. The remote-handled waste surrogates are based on an INEEL waste matrix with content code 104/107, which is an RH-TRU heterogeneous hot cell waste generated from the examination of nuclear fuels.

DESCRIPTION OF THE DEPLOYMENT	
Location:	Idaho National Engineering and Environmental Laboratory, TREAT (Idaho Falls, ID, United States)
PBS Name:	INEEL Transuranic Waste [ID-WM-103, 0187]
Date of Deployment:	August 1999
Technology User:	INEEL
Deployment Value/Impact:	These surrogate waste containers support the Gamma Spectroscopy with Acceptable Knowledge and Multi Detector Assay System demonstration projects at the INEEL. The uncertainty and precision data collected through the surrogate demonstrations will support the INEEL in obtaining CAO certification for characterizing the 104/107 RH-TRU wastes for disposal at WIPP.
Vendor Name for this Technology:	Same as primary Technology Title
Point of Contact:	
User Program POC(s): George Schneider (U.S. Department of Energy, Idaho) - Idaho Falls, ID. Tel. 208-526-6789 Craig R. Tyler (INEEL) - Idaho Falls, ID. Tel. 208-526-1132	OST Program POC(s): Mike McIlwain (Lockheed Martin Idaho Technologies Company) - Idaho Falls, ID. Tel. 208-526-8130 Bill Owca (Department of Energy - Idaho) - Idaho Falls, ID. Tel. 208-526-1983 Whitney St. Michel (INEEL-MWFA) - Idaho Falls, ID. Tel. 208-526-3206
Technology User POC(s): No Points of Contact are listed.	Vendor Company POC(s): No Points of Contact are listed.

Major Developers:

- Argonne National Laboratory - West
- Idaho National Engineering and Environmental Laboratory
- Idaho National Engineering Laboratory

Vendor Company:

Vendor Not Applicable

Other Deployments:

This is the first deployment of this technology.

Particle Size Distribution Monitor for Tank Waste Slurry

(OST/TMS ID: 2935/ TMS Application ID: 1577)

The Lasentec M600P uses a technique known as focused-beam reflectance measurement (FBRM), which involves focusing a laser to a fine point. The Lasentec FBRM provides a continuous, high-speed count of particle population by dimension, making it possible to track the rate and degree of change of solids composition in waste slurry on the basis of both particle count and particle dimension. FBRM is a real-time, in-process measure of particle count and dimension by chord length distribution. The chord length distribution is a function of the shape and dimension of the particles and particle structures as they exist in the process.

DESCRIPTION OF THE DEPLOYMENT

Location:	Oak Ridge Reservation (Y-12, ORR, K-25, ORNL), GAAT tank W-9 (Oak Ridge, TN, United States)		
PBS Name:	ORNL Remedial Action - Def [OR-321, 0095]		
Date of Deployment:	February 1999	Technology User:	Gunite and Associated Tanks Remediation Project
Deployment Value/Impact: During testing, the innovative in-line slurry monitors outperformed the baseline technology by (1) providing real-time data on the density and particle distribution of the slurry material throughout the transport process, starting at the source tank, then along the pipeline and at destination location; (2) eliminating unnecessary personnel exposure to radiation during grab sampling; and (3) reducing the potential for pipeline blockages that negatively impact project costs and schedules by providing timely data.			
Slurry monitoring provides an additional value beyond replacing grab sampling by eliminating the need for unnecessary radiation exposure of workers collecting samples or repairing or replacing blocked pipelines. In addition, slurry monitor deployment potentially can save almost \$1million from avoiding downtime during sampling events and preventing pipeline blockages.			
Vendor Name for this Technology:	Particle Characterization Monitor		
Point of Contact:			
User Program POC(s):	OST Program POC(s):		
Sherry M. Gibson (Oak Ridge National Laboratory) - Oak Ridge, TN. Tel. 624-6603	Joe Ginanni (DOE-NV) - N. Las Vegas, NV. Tel. 702-295-0209 Ted P. Pietrok (DOE-RL) - Richland, WA. Tel. 509-372-4546		
Technology User POC(s):	Vendor Company POC(s):		
Benjamin E. Lewis (Lockheed Martin Energy Research Corporation) - Oak Ridge, TN. Tel. 423-574-4091	Jim Jernigan (Laser Sensor Technology, Inc. (Lasentech) - Redmond, WA. Tel. 425-881-7117		

Major Developers:

Oak Ridge National Laboratory, Chemical Technology Division

Vendor Company:

Vendor Not Applicable

Other Deployments:

This is the first deployment of this technology.

Density Monitor for Tank Waste Slurry

(OST/TMS ID: 2936/ TMS Application ID: 1580)

The Endress+Hauser Promass 63M Coriolis meter measures the mass flow, density, and temperature of fluids or slurries simultaneously. Once mass flow and density are determined, other functions can be calculated (e.g., volumetric flow, suspended solids concentration). The suspended solids concentration-as determined from the slurry density, supernatant density, and dry solids density-can also be assessed. The measuring principle of the Promass 63M is based on the controlled generation of Coriolis forces, which are always present when translational (straight-line) and angular (rotational) movements occur simultaneously (see Figure 3). The amplitude of the Coriolis force depends on the moving mass, its velocity in the system, and, therefore, its mass flow. Two slightly curved measuring pipes are made to oscillate at their resonant frequency like a tuning fork. [Text Continued in TMS]

DESCRIPTION OF THE DEPLOYMENT			
Location:	Oak Ridge Reservation (Y-12, ORR, K-25, ORNL), GAAT Tank W-9 (Oak Ridge, TN, United States)		
PBS Name:	ORNL Remedial Action - Def [OR-321, 0095]		
Date of Deployment:	February 1999	Technology User:	Gunite and Associated Tanks Remediation Project
Deployment Value/Impact: During testing, the innovative in-line slurry monitors outperformed the baseline technology by: Providing real-time data on the density and particle distribution of the slurry material throughout the Transport process, starting at the source tank, then along the pipeline and at destination location; Eliminating unnecessary personnel exposure to radiation during grab sampling; and reducing the potential for pipeline blockages that negatively impact project costs and schedules by providing timely data. Slurry monitoring provides an additional value beyond replacing grab sampling by eliminating the need for unnecessary radiation exposure of workers collecting samples or repairing or replacing blocked pipelines. In addition, slurry monitor deployment potentially can save almost \$1million from avoiding downtime during sampling events and preventing pipeline blockages.			
Vendor Name for this Technology:		Promass 63M Coriolis meter	
Point of Contact:			
User Program POC(s): Sherry M. Gibson (Oak Ridge National Laboratory) - Oak Ridge, TN. Tel. 624-6603		OST Program POC(s): Joe Ginanni (DOE-NV) - N. Las Vegas, NV. Tel. 702-295-0209 Ted P. Pietrok (DOE-RL) - Richland, WA. Tel. 509-372-4546	
Technology User POC(s): Benjamin E. Lewis (Lockheed Martin Energy Research Corporation) - Oak Ridge, TN. Tel. 423-574-4091		Vendor Company POC(s): Marcel Woitan (Endress+Hauser) - Greenwood, IN. Tel. 317-535-7138	

Major Developers:

Oak Ridge National Laboratory, Chemical Technology Division

Vendor Company:

Endress+Hauser, Inc. (<http://www.us.endress.com/>)

Other Deployments:

This is the first deployment of this technology.

Adaptive Sampling and Analysis Programs (ASAPs)

(OST/TMS ID: 2946/ TMS Application ID: 1728)

The Adaptive Sampling and Analysis Programs (ASAPs) approach makes use of real-time data collection techniques and in-field decision-making methodologies to guide the progress of data collection activities. The advantages of this approach include reduced analytical costs per sample, a reduction in the number of samples and data collected, and a better characterization survey. Three technologies developed to support ASAPs include (1) SitePlanner and SiteView, object-oriented geographic information systems customized for characterization work, (2) the MaD browser for dynamic display of maps and data over the Web, and (3) Plume, a Bayesian geostatistical package for designing ASAPs to delineate the extent of contamination. The most recent developments have focused on integrating these technologies into soil remediation actions to make those actions more precise.

DESCRIPTION OF THE DEPLOYMENT			
Location:	FUSRAP Ashland 1 Site (Tonowanda, NY, United States)		
PBS Name:	Not Specified		
Date of Deployment:	June 1999	Technology User:	U.S. Army Corps of Engineers, Buffalo District
Deployment Value/Impact: Argonne National Laboratory collaborated with the U.S. Army Corps of Engineers (USA COE) to incorporate the ASAPs approach into the excavation process to allow precise excavation of surface and subsurface radionuclide contamination, including Th-230, Ra-226 and U-238. This approach replaced the baseline 'block excavation' process. Data collection was performed in real time using gamma walkover combined with a global positioning system and on-site gamma spectroscopy. The Plume software was used for volume estimation. USA COE estimated that the ASAPs approach saved them \$10M, primarily through increased precision in excavation and a corresponding decrease in off-site disposal of contaminated soils.			
Vendor Name for this Technology:		Same as primary Technology Title	
Point of Contact:			
User Program POC(s): David Conboy (U.S. Army Corps of Engineers, Buffalo District) - NY. Tel. 716-879-4436		OST Program POC(s): Joe Ginanni (DOE-NV) - N. Las Vegas, NV. Tel. 702-295-0209 John B. Jones (DOE-NV) - Las Vegas, NV. Tel. 702-295-0532	
Technology User POC(s): No Points of Contact are listed.		Vendor Company POC(s): No Points of Contact are listed.	

Major Developers:

- Argonne National Laboratory – East
- ConSolve, Inc. (defunct)

Vendor Company:

Vendor Not Applicable

Other Deployments:

This is the first deployment of this technology.

Color Recognition Sensor for Direct Push Systems

(OST/TMS ID: 2949/ TMS Application ID: 1592)

The Color Recognition Sensor is deployed using the Cone Penetrometer Technology (CPT). It provides a continuous quantitative record of subsurface color.

DESCRIPTION OF THE DEPLOYMENT	
Location:	Savannah River Site, M-Basin (Aiken, SC, United States)
PBS Name:	M Area Deactivation Project [SR-FA15, 0512]
Date of Deployment:	March 1999
Technology User:	Westinghouse Savannah River Company
Deployment Value/Impact:	The Color Recognition Sensor provided high resolution delineation of critical sedimentary interfaces.
Vendor Name for this Technology:	Same as primary Technology Title
Point of Contact:	
User Program POC(s): Chris Bergren (BSRI) - Aiken, SC. Tel. 803-952-6530	OST Program POC(s): Joe Ginanni (DOE-NV) - N. Las Vegas, NV. Tel. 702-295-0209
Technology User POC(s): Joseph Rossabi (WSRC-SRTC) - Aiken, SC. Tel. 803-557-7808	Vendor Company POC(s): No Points of Contact are listed.

Major Developers:
Dakota Technologies, Inc.

Vendor Company:
Vendor Not Applicable

Other Deployments:
This is the first deployment of this technology.

Membrane Interface Probe System for Direct Push System

(OST/TMS ID: 2950/ TMS Application ID: 1594)

The Membrane Interface Probe System is a Cone Penetrometer-deployed probe which allows field screening of high concentration dissolved Volatile Organic Compounds (VOCs).

DESCRIPTION OF THE DEPLOYMENT	
Location:	Savannah River Site, M-Basin (Aiken, SC, United States)
PBS Name:	M Area Deactivation Project [SR-FA15, 0512]
Date of Deployment:	August 1999
Technology User:	Westinghouse Savannah River Company
Deployment Value/Impact: The Membrane Interface Probe System was successfully used to provide in-situ measurements of VOCs, which were then used to refine characterization and remediation planning.	
Vendor Name for this Technology:	Membrane Interface Probe
Point of Contact:	
User Program POC(s): Chris Bergren (BSRI) - Aiken, SC. Tel. 803-952-6530	OST Program POC(s): Joe Ginanni (DOE-NV) - N. Las Vegas, NV. Tel. 702-295-0209
Technology User POC(s): Joseph Rossabi (WSRC-SRTC) - Aiken, SC. Tel. 803-557-7808	Vendor Company POC(s): Thomas Christy (GeoProbe Systems) - Salina, KS. Tel. 785-825-1842

Major Developers:

- GeoProbe Systems
- U.S. Army Corp of Engineers, Waterways Experimental Station

Vendor Company:

GeoProbe Systems (www.geoprobesystems.com)

Other Deployments:

- Deployed (type: DOE) in FY 1999 at Savannah River Site (A-014 Outfall) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Savannah River Site (C-Area Burning Rubble Pit) in Aiken, SC

Membrane Interface Probe System for Direct Push System

(OST/TMS ID: 2950/ TMS Application ID: 1695)

The Membrane Interface Probe System is a Cone Penetrometer-deployed probe which allows field screening of high concentration dissolved Volatile Organic Compounds (VOCs).

DESCRIPTION OF THE DEPLOYMENT

Location:	Savannah River Site, A-014 Outfall (Aiken, SC, United States)		
PBS Name:	Upper Three Runs Project [SR-ER06, 0056]		
Date of Deployment:	August 1999	Technology User:	Westinghouse Savannah River Company
Deployment Value/Impact: The Membrane Interface Probe was successfully used to provide in-situ measurements of VOCs, which were then used to refine characterization and remediation planning.			
Vendor Name for this Technology:		Same as primary Technology Title	
Point of Contact:			
User Program POC(s): Chris Bergren (BSRI) - Aiken, SC. Tel. 803-952-6530		OST Program POC(s): John B. Jones (DOE-NV) - Las Vegas, NV. Tel. 702-295-0532	
Technology User POC(s): Joseph Rossabi (WSRC-SRTC) - Aiken, SC. Tel. 803-557-7808		Vendor Company POC(s): Thomas Christy (GeoProbe Systems) - Salina, KS. Tel. 785-825-1842	

Major Developers:

- GeoProbe Systems
- U.S. Army Corp of Engineers, Waterways Experimental Station

Vendor Company:

GeoProbe Systems(www.geoprobeystem.com)

Other Deployments:

- Deployed (type: DOE) in FY 1999 at Savannah River Site (M-Basin) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Savannah River Site (C-Area Burning Rubble Pit) in Aiken, SC

Membrane Interface Probe System for Direct Push System

(OST/TMS ID: 2950/ TMS Application ID: 1696)

The Membrane Interface Probe System is a Cone Penetrometer-deployed probe which allows field screening of high concentration dissolved Volatile Organic Compounds (VOCs).

DESCRIPTION OF THE DEPLOYMENT			
Location:	Savannah River Site, C-Area Burning Rubble Pit (Aiken, SC, United States)		
PBS Name:	Four Mile Branch Project [SR-ER02, 0052]		
Date of Deployment:	August 1999	Technology User:	Westinghouse Savannah River Company
Deployment Value/Impact: The Membrane Interface Probe was successfully used to provide in-situ measurements of VOCs, which were then used to refine characterization and remediation planning.			
Vendor Name for this Technology:		Same as primary Technology Title	
Point of Contact:			
User Program POC(s): Chris Bergren (BSRI) - Aiken, SC. Tel. 803-952-6530		OST Program POC(s): John B. Jones (DOE-NV) - Las Vegas, NV. Tel. 702-295-0532	
Technology User POC(s): Joseph Rossabi (WSRC-SRTC) - Aiken, SC. Tel. 803-557-7808		Vendor Company POC(s): Thomas Christy (GeoProbe Systems) - Salina, KS. Tel. 785-825-1842	

Major Developers:

- GeoProbe Systems
- U.S. Army Corp of Engineers, Waterways Experimental Station

Vendor Company:

GeoProbe Systems (www.geoprobesystems.com)

Other Deployments:

- Deployed (type: DOE) in FY 1999 at Savannah River Site (M-Basin) in Aiken, SC
- Deployed (type: DOE) in FY 1999 at Savannah River Site (A-014 Outfall) in Aiken, SC

Quantrad Scout Gamma Spectroscopy System

(OST/TMS ID: 2960/ TMS Application ID: 1667)

The Scout system used two separate sensors to measure high- and low-energy gamma emissions in the 221-U Facility ventilation tunnel. The commercially available Scout system is usually deployed manually, but for the 221-U deployment the Scout was deployed in conjunction with the Andros robot deployment platform.

DESCRIPTION OF THE DEPLOYMENT	
Location:	Hanford Site, 221-U facility (ventilation tunnel) (Richland, WA, United States)
PBS Name:	Facility Surveillance & Maintenance - ADS 3500 [RL-ER05, 0419]
Date of Deployment:	September 1999
Technology User:	Bechtel Hanford, Inc.
Deployment Value/Impact: The combine remote characterization system (Quantrad Scout and Andros robot deployment platform) were considered an enabling technology system, which provided a means for gamma spectroscopy in remote locations. The system provided enhanced radiological characterization data in an area where personnel access is prohibited.	
Vendor Name for this Technology:	Gamma Scout
Point of Contact:	
User Program POC(s): Shannon N. Saget (DOE-RL) - Richland, WA. Tel. 509-372-4029	OST Program POC(s): John Duda (DOE/NETL) - Morgantown, WV. Tel. 304-285-4217
Technology User POC(s): Kim Koegler (Bechtel Hanford Inc.) - Richland, WA. Tel. 509-372-9294	Vendor Company POC(s): Ed Browning (Quantrad Sensor, Inc.) - Santa Clara, CA. Tel. 408-727-7827

Major Developers:
Quantrad Sensor, Inc.

Vendor Company:
Quantrad Sensor, Inc. (www.quantrad.com)

Other Deployments:
This is the first deployment of this technology.

In-Situ Air Sparging & Soil Vapor Extraction

(OST/TMS ID: 2966/ TMS Application ID: 1858)

This technology combines aspects of two Subsurface Contaminants Focus Area (SCFA) technologies, namely In Situ Air Stripping (Sparging) Horizontal Wells and Passive Soil Vapor Extraction (Barometric Pumping). The basic technique involves blowing air into the groundwater to help remove the dissolved volatile constituents using soil vapor extraction to remove the soil vapors that have stripped the volatile contaminants from the groundwater, effectively simulating an in situ, saturated zone air stripping system.

DESCRIPTION OF THE DEPLOYMENT			
Location:	Savannah River Site, C-Area Burning Rubble Pit (Aiken, SC, United States)		
PBS Name:	Steel Creek Project [SR-ER05, 0055]		
Date of Deployment:	May 1999	Technology User:	WSRC-SRTC
Deployment Value/Impact: This system remediates volatile contaminants in the vadose zone and is expected to significantly lower risks by stopping contaminant spread. This is a low cost and low maintenance solution to shallow diffuse plume remediation.			
Vendor Name for this Technology:		Same as primary Technology Title	
Point of Contact:			
User Program POC(s): Bob Blundy (WSRC-ER) - Aiken, SC. Tel. 803-952-6788 Les Germany (DOE-SR) - Aiken, SC. Tel. 803-725-8033		OST Program POC(s): Elizabeth Phillips (DOE-OR) - Oak Ridge, TN. Tel. 423-241-6172 Sharon Robinson (DOE-SR) - Aiken, SC. Tel. 803-725-5793	
Technology User POC(s): Brian Looney (WSRC-SRTC) - Aiken, SC. Tel. 803-725-3692		Vendor Company POC(s): Carol A. Eddy-Dilek (Westinghouse Savannah River Company) - Aiken, SC. Tel. 513-529-3218	

Major Developers:

- Groundwater Technologies
- Itasca Partners
- Westinghouse Savannah River Company

Vendor Company:

Vendor Not Applicable

Other Deployments:

This is the first deployment of this technology.