U.S. Army Corps of Engineers
WASHINGTON, D.C. 20314-1000

REPLY TO
ATTENTION OF:

16 SEP 1994

CEMP-RT (200-1a)

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: USACE HTRW Innovative Technology Action Plan - Innovative Technology Advocates

1. Reference: USACE HTRW Innovative Technology Action Plan, July 1994

2. USACE has developed an HTRW Innovative Technology Action Plan. This strategy allows USACE to address the development and application of innovative technologies in a cohesive and committed manner. The management of this program is described in the attached Action Plan (Encl 1). The success of this program will be evaluated in two years.

3. The Action Plan covers eight important areas:

- Innovative Technology Advocates at HTRW Design Districts
- Formal Process for Innovate Technology Selection -- Priority in funding projects that implement innovative technologies
- Training, Education, and Sharing Lessons Learned
- Standard Format for Collecting Cost and Performance Data
- Appropriate Contracting Tools
- Regulator Flexibility Through Partnering
- Risk Sharing and Indemnification
- Incentives to Accelerate Commercialization to R&D Efforts

4. I am hereby authorizing the establishment of Innovative Technology Advocates (ITAs) at HTRW Design Districts with more than 100 HTRW FTEs (Enclosure 2). We will provide 50% funding for this position (beginning in FY95) from our respective HTRW Management and Supports funds. The remaining 50% funding will come from your project generated accounts.

CEMP-RT (200-1a)
SUBJECT: USACE HTRW Innovative Technology Action Plan - Innovative Technology Advocates

5. Request you designate a full time ITA and develop an ITA Program. Report your designee to CEMP-RT NLT 30 days from the date on this memorandum. Our POC is Dr. Donna Kuroda, CEMP-RT, 202/504-4335. Typical ITA responsibilities are in enclosure 3.

Encls

PAT M. STEVENS IV
Major General, USA
Director, Military Programs

DISTRIBUTION:

COMMANDER
MISSOURI RIVER DIVISION
NEW ENGLAND DIVISION
NORTH ATLANTIC DIVISION
NORTH PACIFIC DIVISION
SOUTH PACIFIC DIVISION
SOUTHWESTERN DIVISION

CF:

COMMANDER
OMAHA DISTRICT
KANSAS CITY DISTRICT
BALTIMORE DISTRICT
TULSA DISTRICT
SACRAMENTO DISTRICT
ALASKA DISTRICT

CEMRD-ED-E

CEMP-RT/HTRW MCX

U.S. Army Corps of Engineers

HTRW
Innovative Technology Action Plan

July 1994

CEMP-RT/HTRW MCX July 1994

U.S. Army Corps of Engineers

HTRW Innovative Technology Action Plan

I. Purpose

A. The Department of Defense (DOD) is placing a renewed emphasis on innovative technologies. In the response to this initiative, the Army and Army Corps of Engineers (USACE) must adopt a coordinated strategy addressing enhanced development and application of innovative technologies. Potential benefits include reduced risk, more permanent solutions, lower cost, and greater community acceptance.

B. This Action Plan provides information regarding Army and USACE innovative technoloigy responsibilities and presents issues and strategies for several topics requiring action or increased awareness. Although the plan focuses on the USACE program, it should be noted that proposed strategies involve Army as well as USACE elements.

II. Background

A. Development and application of hazardous, toxic, and radioactive waste (HTRW) innovative technologies are currently addressed by both the Army and USACE in a fragmented manner. As described below, various elements have primary responsibility during the development process.

B. Specific elements mentioned in this plan include USACE labs, the Army Environmental Center (AEC), USACE HTRW design districts and design division, and the USACE Mandatory Center of Expertise (MCX) under Missouri River Division (MRD) command. Additionally, a program for innovative technology advocacy was initiated by headquarters (HQ) USACE in 1989.

1. USACE labs, including the Waterways Experiment Station (WES), Contruction Engineering Research Laboratory, and Cold Regions Research & Engineering Laboratory, have extensive technical and personnel resources committed to evaluation of emerging and developing innovative technologies. Of particular note is the WES Hazardous Waste Research and Development Center.

2. The AEC has been charged with technology demonstration and transfer. Efforts include evaluation of commercially available technologies as well as demonstration of USACE developed technologies. Typically, AEC activities emphasize military-unique compounds.

3. USACE HTRW project execution responsibilities historically assigned to the Kansas City (MRK) and Omaha (MRO) districts, within MRD, have been decentralized to designated design districts and design divisions. These offices are at the forefront relative to evaluating, contracting, and actually implementing innovative technologies. Efforts often include conducting treatability studies to ensure that technologies under consideration are viable for specific sites.

4. The HTRW MCX, under MRD, has been tasked with nationwide responsibilities regarding USACE HTRW programs. Several innovative technology issues, including review aspects and guidance development, fall under the umbrella of the HTRW MCX.

5. In 1989, Innovative Technology Advocate (ITA) positions were established at HQUSACE, MRD, MRO, and MRK to facilitate and encourage consideration and evaluation of new or innovative technologies in HTRW applications. The MRO position was filled for only a short time. The Tulsa District (SWT) very recently established an ITA position, resulting in a total of only four ITAs nationwide.

III. Implementation

A. The HTRW MCX will manage implementation of the USACE Innovative Technology Action Plan, with oversight and direction from HQUSACE (CEMP-RT). HTRW MCX responsibilities will include coordination with appropriate entities.

B. Primary roles and responsibilities of appropriate Army elements, including USACE and AEC, have been identified by the HTRW MCX and are presented in Appendix A.

C. HQUSACE is responsible for authorizing and financing sufficient resources to enable USACE elements to execute respective roles and responsibilities.

IV. Issues and Strategies

A. Innovative Technology Advocates at Design Districts

1. Issues

a. Project execution, including technology evaluation and selection, takes place at the district level. Given the increased emphasis being placed on innovative technologies, design districts/divisions must ensure that innovative technologies are consistently considered in a

structured manner. Lack of a focused effort in this area reflects the weakest but most important link in the USACE innovative technology program.

b. Currently, the only design district ITA positions are located at MRK and SWT. The MRK ITA is often assigned other full-time responsibilities. The SWT ITA position has only recently been created. ITA positions have not been established at other design districts/divisions to complement decentralization of the HTRW program, leaving a most critical void which remains unfilled. In lieu of ITAs, a relatively ineffective network of points of contact (POCs) has been established to partially accommodate technical transfer. However, because POCs have full-time responsibilities in other areas, innovative technologies are not consistently promoted in a focused, active, and efficient manner.

2. Strategies

a. As the critical first step, HQUSACE should expand the ITA program to complement decentralization of HTRW responsibilities and increase the focus on innovative technology applications in design districts/divisions. To accomplish this objective, ITA responsibilities must be formally assigned to appropriate individuals at HTRW executing offices. It should be noted that ITA duties may not currently demand a full-time effort at executing offices carrying smaller HTRW workloads. A list of typical executing office ITA responsibilities is provided in Appendix B.

b. Given the visibility and increasing importance of innovative technologies, HQUSACE should authorize positions and provide at least partial funding (minimum of half-time) for the executing office ITAs. If ITA funding is left to executing office overhead and individual projects, ITAs will not receive effective local support, and will be given temporary assignments in other areas for which funding is available.

B. Formal Process for Innovative Technology Selection

1. Issues

a. Formalized processes currently exist and are utilized for technology selection. For example, nine evaluation criteria have been developed for selection of remedial alternatives at Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites. CERCLA guidance indicates that innovative technologies "would normally be carried through the screening process if there were reason to believe

that the innovative technology would offer significant advantages." Treatability testing is typically required to better evaluate an innovative technology.

b. Innovative technologies lack cost and performance data. Because of inherent risks associated with innovative technologies due to the lack of performance information, project managers are understandably reluctant to use their projects as "guinea pigs" for unproven technologies. This reluctancy tends to result in a natural bias toward tried and true technologies. A more structured process specifically addressing innovative technologies should be implemented to facilitate consideration and selection of innovative technologies.

2. Strategies

a. Innovative technologies should receive valid consideration during the alternative evaluation process. To ensure consistency throughout USACE, all feasibility study reports (or other technology evaluation/selection documents) and respective scopes of work should be submitted to and reviewed by the HTRW MCX.

b. Innovative technology considerations should be incorporated into existing programs such as IRP, Formerly Used Defense Sites (FUDS), and Base Realignment and Closure (BRAC). Objectives include increased awareness and application of innovative technologies, risk sharing, and modification or replacement priority.

1) All proposed remedial design and remedial action innovative technology projects should receive higher funding priority than similar conventional technology projects.

2) If innovative technology projects do not perform successfully and negligence is not a factor, modification or replacement projects will receive top funding priority.

c. Select innovative technology pilots should be implemented on a small scale at larger project sites. Project funds could be programmed and utilized to fund the pilots. Potential benefits include:

1) Perceived risks would be minimal due to the relative areas affected. If unsuccessful, an innovative technology pilot effort could be incorporated into the overall project.

2) Following innovative technology pilot efforts, further subsite cleanup may not be necessary.

3) Information obtained would be useful for future full-scale applications of respective innovative technologies.

4) Active roles by the local district/division ITAs would be enhanced. The local ITAs could manage the pilot work, with little impact on the respective USACE technical and project managers.

d. As a corresponding effort, an annual review of all pending USACE projects in the IRP, FUDS, and BRAC workplans (current and five-year) will be conducted to match and prioritize innovative technologies with potential project applications. Resulting lists of potential innovative technology projects will be presented to and discussed with affected entities.

e. To identify candidate innovative technologies, coordination with EPA, the Department of Energy (DOE), AEC, DOD, and other agencies must occur. The objective of such efforts is recognition of an innovative technology subset with solid potential for full-scale application on USACE projects.

C. Training, Education, and Sharing Lessons Learned

1. Issues

a. Continued training and education of HTRW personnel should be a high priority. The need is especially critical relative to innovative techologies because new information is constantly becoming available. On a related note, sharing valuable lessons learned with other HTRW personnel is necessary to increase project execution efficiency.

b. Information regarding innovative technology development and application originates with many sources, including USACE labs, other DOD agencies, EPA, DOE, and the private sector. Existing technology transfer vehicles include site visits, conferences, committees, newsletters, journals, published documents, and databases. Examples of specific mechanisms include the EPA Superfund Innovative Technology Evaluation (SITE) Program, EPA Vendor Information System for Innovative Treatment Technologies (VISITT), EPA Alternative Treatment Technology Information Center (ATTIC), EPA Cleanup Information Bulletin Board (CLU-IN), DOD Environmental Technology Transfer Committee (ETTC), and Federal Remediation Technologies Roundtable (FRTR). Technical transfer methods need to become

more structured. Focal points at executing offices are required to ensure that HTRW personnel are aware of the many opportunities available to them.

2. Strategies

a. Activities are ongoing. The HTRW MCX newsletter contains up-to-date innovative technology information which is widely distributed. An annual conference exclusively addressing innovative technologies is sponsored by the ITAs. Coordinated site visits of innovative technology projects are initiated by the ITAs. The HTRW MCX conducts an annual course for district HTRW process engineers. Technical project planning guidance and topic specific guidance documents have been and are being developed by the HTRW MCX.

b. Technical transfer methods between AEC and USACE should be improved. Information must be disseminated more effectively to enhance working knowledge at the project execution level. A 20 August 1993 Memorandum of Agreement (MOA) between AEC and HQUSACE should be reviewed and updated as appropriate to facilitate the process.

c. Executing office ITAs will be responsible for utilizing and internally disseminating innovative technology information regarding training, educational opportunities, development, and application.

d. The HTRW MCX manages the USACE HTRW Lessons Learned System. Initial implementation efforts have primarily focused on project executing offices. However, all USACE elements, including labs, are encouraged to participate. Each executing office has a HTRW lessons learned POC responsible for collecting and distributing lessons learned. ITAs must coordinate with lessons learned POCs to ensure that innovative technology project lessons learned are documented and distributed for future use. Although the HTRW MCX manages the lessons learned system, executing offices must be responsible for proactively sharing and utilizing lessons learned.

e. The HTRW MCX will assemble a final report for each innovative technology application. The report will include cost and performance information and lessons learned. These reports will be widely distributed. Report data will be maintained at the HTRW MCX.

f. The HTRW MCX will develop and maintain a tracking system for USACE innovative technology projects. The

system will follow the format of the EPA "Innovative Treatment Technologies: Semi-Annual Status Report."

D. Standard Format for Collecting Cost and Performance Data

1. Issues

a. At this time, only a handful of USACE innovative technology projects have been completed. Therefore, little cost and performance data are available.

b. A systematic approach for collecting and sharing cost and performance data should be initiated to ensure that critical information is obtained for future use as projects are completed.

2. Strategies

a. Final development of an interagency cost database for HTRW remedial action projects is near completion. The automated system is entitled Historical Cost Analysis System (HCAS). The HTRW MCX will be the USACE central office for remedial action cost collection. Individual district cost personnel will be responsible for obtaining and entering cost information for all projects.

b. ITAs will be able to extract innovative technology project cost estimates, award figures, and actual costs from HCAS. Specific project performance data can be obtained and documented by executing office ITAs.

c. Ultimately, the HTRW MCX will be responsible for collection of standardized cost and performance data for USACE innovative technology projects. This effort must be coordinated with corresponding FRTR activities to ensure that a standardized database results. It should be noted that accumulation of standardized cost and performance data may require periodic onsite presence by the HTRW MCX.

E. Appropriate Contracting Tools

1. Issues

a. Traditional methods, such as architect-engineer (A-E) fixed-price, negotiated design contracting followed by competitive, fixed price sealed bidding, are not always appropriate for innovative technologies. By definition, cost and

performance data for innovative technologies is incomplete, hindering routine contracting at HTRW sites.

b. Procurement complexities can be encountered when contracting innovative technologies. For example, sole source procurement requirements are substantial, although sole source procurement may be necessary because an innovative technology is available from only one responsible source.

2. Strategies

a. The complexities experienced in contracting for HTRW projects have spurred the development of more flexible and responsive contractual instruments. The more prevalent use of site specific cost reimbursement contracts and the expanded use of indefinite delivery type cost reimbursement contracts have provided contractual flexibilities which more readily accommodate the risks and uncertainties experienced on HTRW projects. Consequently, the emergence of these more flexible contractual instruments has impacted beneficially on the development of innovative technologies.

b. A prime example of the benefits gained through implementation of this contracting philosophy is demonstrated in the new Total Environmental Restoration Contract (TERC). TERC provides USACE with a cost reimbursement indefinite delivery contract that includes the capability to take a remediation process from the start of development through implementation.

c. TERCs may be utilized to enhance the development of innovative technologies by reducing both contractor and Government risks and alleviating regulator anxieties. TERCs have the capability to implement initial innovative technology concepts and efforts such as treatability studies at the same time and location that conventional treatment processes are being employed. This provides USACE with the capability to directly compare treatment methods, costs, and efficiencies. Contractor cost and performance risks are greatly reduced because work is implemented on a cost reimbursement basis. Government risk is reduced because ineffective processes may be discontinued prior to incurring significant financial losses. This strategy can also alleviate regulator anxieties because projects may continue to move forward through use of conventional technologies at the same time new technologies are being tested. As an added benefit, the Government could potentially assume partial ownership or direct access of new successful treatment processes as consideration for funding a significant portion of the contractors development expense. The realization of such benefit, however, would depend entirely upon

the specific contractual terms and conditions negotiated in the contractual agreement.

d. Executing office ITAs must be responsible for interfacing with local contracting activities and other USACE personnel to ensure that contracting methods correspond to innovative technology project requirements.

e. When possible, executing offices will contract competitively for innovative technology applications.

F. Regulator Flexibility Through Partnering

1. Issues

a. The ultimate responsibility of an environmental regulator is protection of public health and welfare. Regulators by nature are often resistant to new and innovative approaches, especially if conventional alternatives are available.

b. Regulatory obstacles often create unnecessary inflexibility and uncertainty regarding development and application of innovative technologies.

2. Strategies

a. Regulators, state and federal, must be included in the innovative technology development process as soon as possible, ideally at the conceptual stage. This partnering relationship must continue through implementation to ensure smooth and efficient transitioning. Memorandums of Understanding (MOUs) should be established to facilitate the process.

b. With regard to the Army and USACE, the standard developmental process starts with USACE laboratories. The labs are typically responsible for technology development from concept through pilot testing. Following this stage, AEC is responsible for field demonstrations.

1) Regulatory involvement during developmental stages must be increased to promote understanding and flexibility during implementation.

2) For example, the Air Force has taken great care to involve regulators in research and development of the "bioventing" technology. As a result, it appears that regulator misunderstanding and inflexibility will not be significant barriers to implementation of this technology. The Air Force is

also utilizing the same partnering techniques regarding other technologies such as the "natural attenuation" concept.

c. To minimize unnecessary project delays, USACE executing offices must also partner with regulators and other interested parties throughout project execution. This requirement is especially critical when considering innovative technologies. Executing office ITAs will enhance the partnering process by representing a technology rather than project perspective. In any event, successful execution of innovative technology projects must reflect increased coordination with regulators as well as other entities ranging from customers to local community leaders.

G. Risk Sharing and Indemnification

1. Issues

a. The HTRW contractor faces many risks, including liability, financial, and market. Risk factors can be significant with respect to innovative technologies. Permitting delays, varying site conditions, false starts, and process failures represent typical contractor concerns.

b. From a contractor perspective, inherent risks are significant. These risks are accentuated by the DOD position that formal contractor indemnification not be provided.

2. Strategies

a. To alleviate contractor concerns regarding risk, the Army and USACE must be willing to assume a greater share of the risks associated with innovative technologies. Implementation of the concepts proposed in Section IV.B will significantly facilitate risk sharing. However, the Government must not lose sight of the fact that reducing contractor risk by shouldering more of the burden of risk should also result in reciprocating benefit to the Government. Contractors assuming all the risks are entitled to the higher profits and benefits of success. As in any partnership arrangement, contractors sharing significant risk with the Government must also be willing to share, in a significant manner, those higher profits and benefits with the Government.

b. Risk sharing is further enhanced by selective application of relatively new contracting mechanisms (addressed in Section IV.E).

H. Incentives to Accelerate Commercialization of R&D Efforts

1. Issues

a. Innovative technologies and services developed by private enterprise currently follow a difficult path to the marketplace.

b. Reference Section IV.G for a brief discussion addressing private industry risks relative to innovative technologies.

2. Strategies

a. To promote investment and commercialization by private research and development interests, the Army must be willing to absorb more of the financial risks associated with innovative technologies. In addition to methods addressed previously, public-private partnerships should be initiated to demonstrate innovative technologies at federal facility test bed sites. All elements, especially AEC, should be proactive in this area.

b. Federal facilities offer a great opportunity to test innovative technologies with minimized risk to private industry. An example is McClellan Air Force Base, Sacramento, California. The Air Force, EPA, and State of California have recently entered into a voluntary partnership to create the Environmental Process Improvement Center in an effort to improve, test, and demonstrate new cleanup technologies interactively with private industry.

Appendix A

U.S. Army Corps of Engineers
HTRW Innovative Technology Action Plan

Primary Roles and Responsibilities of USACE and AEC Elements

Overall Implementation of Action Plan

Strategies	HQ USACE	HTRW MCX	HTRW Design Districts	USACE Labs	AEC
1. Implementation of the action plan must be managed to ensure that the entire process is coordinated and consistent	Oversight	Program management (a)			
2. Sufficient resources must be made available to enable individual elements to execute respective roles and responsibilities	Provision of adequate resources				

(a) HTRW MCX ITA will be responsible for overall program management of action plan implementation

U.S. Army Corps of Engineers
HTRW Innovative Technology Action Plan

Primary Roles and Responsibilities of USACE and AEC Elements

A. Innovative Technology Advocates at Design Districts

Strategies	HQ USACE	HTRW MCX	HTRW Design Districts	USACE Labs	AEC
Formally establish active ITA positions at HTRW design districts (critical first step)	Authorize and fund positions	Act as information resource for districts (a)	Fill and support positions		

(a) ITA will be primary HTRW MCX information resource for districts

U.S. Army Corps of Engineers
HTRW Innovative Technology Action Plan

Primary Roles and Responsibilities of USACE and AEC Elements

B. Formal Process for Innovative Technology Selection

Strategies	HQ USACE	HTRW MCX	HTRW Design Districts	USACE Labs	AEC
1. Ensure innovative technologies receive valid consideration in the alternative evaluation process	Oversight	Review documents (a)	Execute projects	Technical assistance	Technical assistance
2. Incorporate innovative technology aspects into existing project funding programs	Funding authority	Establish criteria and manage (b)	Propose and execute	Technical assistance	Technical assistance
3. Implement innovative technology pilots on small scale at larger project sites	Funding authority	Establish criteria and manage (b)	Propose and execute	Technical assistance	Technical assistance
4. Annually review all USACE projects in the IRP, FUDS, and BRAC workplans to match and prioritize innovative technologies with potential project applications	Oversight	Manage and consolidate (a)	Execute	Technical assistance	Technical assistance

(a) ITA
(b) ED-E/ED-H/ED-T

U.S. Army Corps of Engineers
HTRW Innovative Technology Action Plan

Primary Roles and Responsibilities of USACE and AEC Elements

C. Training, Education, and Sharing Lessons Learned

Strategies	HQ USACE	HTRW MCX	HTRW Design Districts	USACE Labs	AEC
1. Innovative technology information is currently available from many sources and must be transferred and applied during project level activities	Oversight	Execute technical transfer & training (a)	Obtain and utilize technical information	Transfer technical R&D information	Transfer technical demo information
2. Technical transfer between AEC and USACE should be enhanced	Oversight & establish dialogue (MOA)	Support HQ & transfer information (b)	Share and utilize information	Transfer technical R&D information	MOA and transfer technical information
3. Lessons learned must be documented and shared	Oversight	Manage/use (b)	Execute	Execute	Execute
4. Final reports should be prepared and distributed upon completion of innovative technology projects	Oversight	Generate reports (c)	Provide project data	Provide project data	Provide project data
5. A database should be developed to track innovative technology projects	Oversight	Develop and manage (c)	Provide project data		

(a) ED-E/ED-T
(b) ED-E/ED-H/ED-T
(c) ITA/ED-HS/Contract Support

U.S. Army Corps of Engineers
HTRW Innovative Technology Action Plan

Primary Roles and Responsibilities of USACE and AEC Elements

D. Standard Format for Collecting Cost and Performance Data

Strategies	HQ USACE	HTRW MCX	HTRW Design Districts	USACE Labs	AEC
Innovative technology project cost and performance data must be collected, documented, and distributed in a standardized manner	Oversight	Collect & transfer data (a)	Provide project specific data	Support design districts	Provide project specific data

(a) ITA/ED-HC/ED-HS/Contract Support

U.S. Army Corps of Engineers
HTRW Innovative Technology Action Plan

Primary Roles and Responsibilities of USACE and AEC Elements

E. Appropriate Contracting Tools

Strategies	HQ USACE	HTRW MCX	HTRW Design Districts	USACE Labs	AEC
1. Contracting mechanisms such as site specific and indefinite delivery type cost reimbursement contracts are available and should be utilized as appropriate for innovative technology projects (TERC is an example of a specific tool)	Approval and/or oversight	Support HQUSACE & review and comment (a)	Execute		
2. When possible, innovative technology applications should be competitively contracted	Oversight	Review (b)	Execute		

(a) CT/OC/RM/ED-E/ED-T/ED-H
(b) CT/ED-E/ED-T

U.S. Army Corps of Engineers
HTRW Innovative Technology Action Plan

Primary Roles and Responsibilities of USACE and AEC Elements

F. Regulator Flexibility Through Partnering

Strategies	HQ USACE	HTRW MCX	HTRW Design Districts	USACE Labs	AEC
Regulators must be included in the technology development process as soon as possible, and must remain involved as partners throughout project execution	Establish dialogue (MOU)	Support HQUSACE and facilitate (a)	Execute	Execute	Execute

(a) ED-E/ED-HS/OC

U.S. Army Corps of Engineers
HTRW Innovative Technology Action Plan

Primary Roles and Responsibilities of USACE and AEC Elements

G. Risk Sharing and Indemnification

Strategies	HQ USACE	HTRW MCX	HTRW Design Districts	USACE Labs	AEC
1. Incorporation of innovative technology aspects into existing project funding programs will facilitate risk sharing (addressed previously)	Funding authority	Establish criteria and manage (a)	Propose and execute		
2. Application of appropriate contracting tools as described previously will promote risk sharing	Approval and/or oversight	Support HQUSACE & review and comment (b)	Execute		

(a) ED-E/ED-H/ED-T
(b) CT/OC/RM/ED-E/ED-T/ED-H

U.S. Army Corps of Engineers
HTRW Innovative Technology Action Plan

Primary Roles and Responsibilities of USACE and AEC Elements

H. Incentives to Accelerate Commercialization of R&D Efforts

Strategies	HQ USACE	HTRW MCX	HTRW Design Districts	USACE Labs	AEC
Partnerships similar to the McClellan AFB effort should be developed between public and private entities at federal facilities to demonstrate innovative technologies	Joint approval and oversight	Support HQUSACE and design districts (a)	Execute	Technical assistance	Joint approval and program manager

(a) ED-E/ED-T

Note: Coordination with MACOMs and installations will be especially critical for this activity

Appendix B

TYPICAL INNOVATIVE TECHNOLOGY ADVOCATE HTRW EXECUTING OFFICE RESPONSIBILITIES

The ITA should be of sufficient grade level to effectively cross branch and division boundaries within the HTRW executing office. The ITA should have adequate technical expertise. It is recommended that the ITA at the executing level have a Chemical, Environmental, or Civil (Geotechnical) Engineering background.

Typical responsibilities follow:

1. Participate in development of project documents, including scopes of work, for investigations, feasibility studies, and designs, to incorporate appropriate innovative technologies (enhanced by initiating and coordinating internal peer reviews and project team meetings).

2. Actively participate in treatability study efforts.

3. Track innovative technology projects from conception through construction completion to ensure innovative technologies are appropriately applied and to obtain lessons learned and cost and performance data for sharing with USACE personnel on future applications.

4. Act as executing office focal point to establish and maintain innovative technology training and education resource database and disseminate useful investigation and design information regarding innovative technologies to executing personnel and contractors.

5. Interface with contracting personnel regarding appropriate contracting methods to facilitate application of innovative technologies.

6. Interface with USACE and non-USACE elements, including the research and development community, to obtain information, identify needs to higher authorities, and promote the use of innovative technologies.

7. Coordinate innovative technology issues and respond as appropriate to other USACE ITAs, the USACE HTRW MCX, and higher headquarters.

8. Initiate and/or participate in local and national workshops, seminars, site demonstrations, and conferences addressing innovative technology issues.

HTRW DESIGN DISTRICT WITH HTRW FTE's GREATER THAN 100
(BASED ON PROPOSED FY 95 PROGRAM)

DISTRICT	FTE
Omaha	258
Tulsa	183
Sacramento	155
Kansas City	148
Alaska	128
New England (Division)	126
Baltimore	112

Encl 2