Volpentest Hazardous Materials Management and Emergency Response (HAMMER) Training and Education Center Facility Master Plan

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

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P.O. Box 1000
Richland, Washington

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P. J. Vandervert
Fluor Hanford

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Volpentest
Hazardous Materials Management
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Facility Master Plan

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EXECUTIVE SUMMARY

The key objective of the Facility Master Plan is to detail the facility upgrades development necessary to support the implementation of the Volpentest Hazardous Materials Management and Emergency Response (HAMMER) Training and Education Center mission and vision. The plan identifies facility modifications, infrastructure expansion, and new facilities and training props that are needed to support HAMMER’s customers. Program growth will require the addition of classrooms, offices, and specialized props. These initiatives will position HAMMER to support: Hanford Site contractors, Department of Energy, National Guard Bureau Civil Support Teams, Federal Law Enforcement Training Center, Department of State, regional Homeland Security training, research and technology deployment.

1.0 INTRODUCTION

To complete the cleanup mission and support other DOE programs, the Hanford Site must have a compliant, reliable, safe and customer oriented infrastructure. One of the key elements of the Hanford Site infrastructure is the Volpentest HAMMER Training and Education Center.

HAMMER began as a local community initiative based on the concept that one training center could service both the Hanford Site and the region. From that beginning, HAMMER has grown to an international training resource and is well known for its training facility, with realistic props and simulations, its unique partnering approach and professional customer oriented staff. HAMMER is located within the Hanford Nuclear Reservation and is mandated by Congress to serve the training needs of the Hanford Site as a first priority.

HAMMER must be capable of supporting the delivery of performance-based, comprehensive, standardized training programs for Hanford worker health and safety. Training facilities at HAMMER optimize the training programs which will be needed until the end of the Hanford clean-up mission. In addition, HAMMER’s external customer base of government clients is anticipated to continue to expand and require additional classrooms, training props and supporting infrastructure. This infrastructure includes offices for subject matter experts and support staff for new programs.

Construction of HAMMER’s original 120 acre site (including an 80 acre main campus and a 40 acre expansion area) was completed in June and dedicated in September, 1997. Facilities management, construction project management, and maintenance of the 10,000 acre Hanford Patrol Training Academy was transferred to HAMMER in September, 1998. In October, 2000, HAMMER was granted an additional 210 acres on which to further develop its training facilities and capabilities. Of the 210 acres, approximately 15 acres has been set aside for the Cold Test Facility, operated by the CH2M Hill Hanford Group, and another 77 acres has been transferred by DOE to the National Utility Training Services for the development of the National Utility Training and Education Center (NUTEC). Approximately 70 acres was transferred to the Hanford Patrol Training Academy for construction of the Emergency Vehicle Operations Course (EVEC). Figure 1, HAMMER Site Map and Figure 3, Patrol Training Academy Map are provided as reference.

1.1 Development and Maintenance of the Facility Master Plan

The Facility Master Plan was created to prioritize the projects identified for HAMMER’s expansion. The Plan encompasses new construction, facility modification, props, infrastructure and equipment. Specific details of each project are identified in Appendix A. Priority will be given to projects that address safety concerns or bring their own funding and support the overall mission of HAMMER.
2.0 SITE DEVELOPMENT

The Facility Master Plan provides a guide for the physical development of the HAMMER Site by the following:

- Establishment of a zoning system
- Establishment of guidelines to encourage cost effective development, minimize conflicts, and provide versatility to meet multiple customer needs
- Establishment of a simple process to plan and prioritize future development
- Identification of issues that require further analysis

2.1 ZONING CATEGORIES

Each of the land use categories has been identified in Figure 2: HAMMER Site Development Zones are labeled with colors for ease and ability to develop the land.

2.1.1 Classroom Development Zones

Areas that have been identified as ideal for building classroom/office space have been colored in Figure 2 with yellow. These areas are close to existing utilities and parking lots.

2.1.2 Prop Development Zones

Areas that have been identified as ideal for building training props have been colored in Figure 2 with blue. These areas are near existing props on the HAMMER campus, but are not as close to utilities as the areas marked in green.

2.1.3 No Development Zones

Certain areas of the HAMMER campus are less than ideal areas for building props and/or classrooms. These areas have been colored in Figure 2 with red. This designation was made for areas set aside for revegetation and the cultural test bed area.

2.2 PROJECT PLANNING

The training programs and other Health and Safety related initiatives held at HAMMER have varying needs when it comes to facilities and props. A list of proposed projects can be seen in Appendix A.

Additional facility upgrades and maintenance projects have been identified and compiled into a Small Project List in Appendix B.

2.3 PRIORITIZATION AND DEVELOPMENT GUIDELINES

Future development of the campus will be prioritized based upon the following:

1. Projects addressing safety or health concerns.
2. Projects supporting the Department of Energy and the Hanford Site.
3. Projects funded from other federal agencies that will benefit Hanford training programs.
4. Projects funded from other federal agencies that have a long term mission and do not interfere with ongoing Hanford support.
5. Non-federal funded projects that have a long term mission and do not interfere with ongoing Hanford support.
Future development shall follow the subsequent guidelines:

- As a Voluntary Protection Program Star Site, HAMMER design reviews will include a focus on safety and health to ensure any site addition or modification will identify and address these potential issues.
- New props, classrooms, and training areas will be versatile and allow for simple reconfiguration to meet the needs of other training programs.
- New permanent buildings will be architecturally similar to the HAMMER Administration Building.
- Landscaping will be provided around new props and buildings to include lawn areas, shrubbery, and trees where appropriate.
- Revegetation will be performed in open areas with native species.
- In accordance with the Federal Energy Management Program, energy efficiency measures will be included in new buildings and plant systems.
- Facility modification and additions will include the extension and upgrade of the communications infrastructure on the campus to ensure current technology is extended with ample room for bandwidth growth (WIFI, fiber optics, VOIP, Trango AP) as well as anticipating future technology needs.
- Classrooms and learning areas will be designed to ensure an environment conducive to learning through blended formats and active student participation.

2.4 ISSUES REQUIRING RESOLUTION

In compiling the Facility Master Plan, major planning issues were identified which, if not resolved, could significantly reduce the ability to move forward on many projects. These issues include:

- Securing capital funding for construction projects.
- The lack of funding to perform detailed design and estimates for proposed projects.
- Challenges associated with multi-agency funding of proposed projects.

3.0 NATIONAL ENVIRONMENTAL POLICY ACT COMPLIANCE

Throughout the evaluation of a project, particular attention is given to the identification and integration of relevant environmental requirements and values. The National Environmental Policy Act (NEPA) applies to federal agencies and is designed to ensure environmental factors are considered in the decision making process. It requires NEPA documentation to be completed prior to any alternative selection.

3.1 HAMMER ENVIRONMENTAL ASSESSMENT

A NEPA Categorical Exclusion (CX) was granted for the original 120 acre HAMMER Site. The CX cited B1.2 (training exercises and simulations) and B1.15 (siting, construction, and operation of small-scale support buildings and support structures for education and training). Throughout the development of the 120 acres, the CX has been used for all construction projects. However, with the addition of the 210 acre expansion area, DOE-RL determined that an Environmental Assessment (EA) would be necessary to guide any future construction taking place on the expansion area, with the exception of the Cold Test Facility which was constructed under a separate CX.

The EA process was completed on November 6, 2002, and a Finding of No Significant Impact (FONSI) was issued DOE-RL. As a part of the EA process, a Mitigation Action Plan was developed for the biological resources found on the expansion area. All new construction on the expansion area will require implementing the mitigation actions listed in Appendix C.
3.2 PROJECT DOCUMENTATION

All construction projects require an evaluation by the HAMMER Environmental Compliance Officer for potential NEPA requirements. New construction involving excavations or clearing and grubbing must have ecological surveys performed by the Pacific Northwest National Laboratories’ (PNNL) Environmental Characterization and Risk Assessment organization to identify relevant requirements and to assist with possible mitigation actions. Ecological reviews require approximately five workdays for completion. All NEPA documentation is to be maintained in the project file.

In addition to NEPA, each project will have to be reviewed to identify any other permit requirements, which may apply, i.e., Washington State Department of Ecology, City of Richland, Benton County, etc.
FIGURE 1 HAMMER Site Map

Volpentest HAMMER Training & Education Center

Training Complex

80 Acres
FIGURE 2 HAMMER Development Zones

Volpenteast HAMMER Development Zones

Classroom Development Zones
Prop Development Zones
No Development Zones
FIGURE 3 Patrol Training Academy Map
APPENDIX A: HAMMER Projects

EXISTING OR FUNDED PROJECTS

Volpente test Annex Building
Construction of the 6,578 square-foot building will be completed in July, 2007. When finished, the annex, which will be located on the east side of the Administration Building, will provide much needed space for the mission-critical Hanford radiation safety training. The building also includes a 3,100 sq-ft. practical exercise training room. The training room is designed to accommodate hands-on training activities not only for Hanford training, but also for emerging/new HAMMER radiation safety training.

Construct Three Classrooms in the Alm Building High Bay
Construct three classrooms within the Alm Building High Bay to accommodate a shortage of classrooms at HAMMER. The scoping, design, and preparation of the fair cost estimate is funded and will be completed by September 30, 2007.

Preliminary Estimated Cost: $450K
Funding Source: DOE
Basis of Estimate: ROM based upon estimate prepared in FY 2006 for similar modification.

NEAR TERM PROJECTS WITH FUNDS ALLOCATED WITHIN AGENCY

International Border Security Training Building
The International Border Security Training building to include the following:

- A single classroom that is approximately 3400 square feet. The classroom will display story boards and desk top displays. A permanent 10 ft. by 8 ft. simultaneous translation booth will be included along with table top counters for all the displays and story boards.
- A rear projection screen room (approximately 20 ft. deep and 25 ft. wide) centered at the front of the classroom and containing a projector that is operated from the front of the classroom.
- A multi-purpose room used as a second classroom, instructor office and storage area for the large amount of RADACAD training material and sensitive electronic field equipment.
- A set of men and women’s restrooms.

The building will be used for International Border Guard Training, Mega-Port Training, Customs and Border Protection Training and various other WMD Training courses.

Proposed project would be funded by the Department of State. In 2005 the construction cost was estimated at $2,254,000 to construct this space as a wing extension to the Administration Building. Construction costs have increased significantly since 2005. The project is now being considered as a stand-alone pre-engineered meta building. Funds are needed to complete the design and prepare a new project cost estimate.

Anticipated Funding Source: Department of State
NEAR TERM PROJECTS WITH SIGNIFICANT INTEREST FROM CUSTOMER

Hydrogen Fueling Station

A suitably trained emergency response workforce is an essential component for safe implementation of any type of fuel infrastructure. Because of the relative newness of hydrogen as a fuel, however, appropriate emergency response procedures are not yet well understood by first responders across the United States and around the world. A significant near-term training effort is needed to ensure that the future hydrogen infrastructure can be developed and operated with acceptable incident risk.

This project will involve retrofitting HAMMER’s existing vehicle burn prop to include the unique components of a hydrogen fuel cell vehicle (FCV). In addition, the project will construct a mock hydrogen fueling station adjacent to the existing vehicle burn prop.

The new prop configuration will provide a significant asset to the Hydrogen Safety Program, as well as enhance HAMMER’s current live-fire training capabilities.

Preliminary Estimated Cost: $475K
Funding Source: DOE/EERE/Hydrogen, Fuel Cells, and Infrastructure Technologies
Basis of Estimate: Derived from Budgetary ROM from Kidde Fire Trainers

OTHER PROJECTS

Military/National Guard CST Building/Garage

Construct a large Annex Building/Garage to include ten offices, two training bay areas for practical exercises, one large classroom to accommodate classes and permanent displays and a garage for vehicle and secure equipment storage. Secure storage would consist of lockable, fire safe cabinets and shelves within cage(s).

Preliminary Estimated Cost: $3.5M
Funding Source: National Guard Bureau

Additional Volpentest Annex Buildings

Construct up to three additional Annex Buildings adjacent to the Volpentest Annex Building. These buildings could be designed to accommodate additional classrooms, bay areas, laboratories, or offices depending on the needs of new or expanded training programs. The existing design of the Volpentest Annex building could be easily modified to meet the needs of the customer. Preliminary cost estimate would be between $1.3 and $1.8M depending on configuration, equipment, and infrastructure requirements.

Anticipated Funding Source: DOE or other federal Agency

International Border Security Field Exercise Training Building

A dedicated field exercise training building 120 ft. by 140 ft. and should include the following:

- A steel metal building with electronic roll-up doors (4) 16 ft. wide and 16 ft. high to accommodate tractor trailers loaded with single 40 foot containers to traverse through the building in two directions. (This permits portal monitor training exercises independent of wind direction).
- Additionally there are to be 5 additional mechanical role-up doors to permit placement of tractor trailers loaded with single 40 foot containers loaded with training props and other vehicles to be placed within the structure and moved when necessary.
- A 40 ft. by 20 foot cage for an ALCM (Air Launch Cruise Missile) and SCUD along with the Missile Technology Control story board.
- Adequate space for placing radiation portal monitors along a vehicle drive path through the building in two directions.
- Adequate space for table top discussions using Special Nuclear Material (SNM).

The building will be used for International Border Guard Training, Mega-Port Training, Customs and Border Protection Training and various other WMD Training Courses.

In 2005 the cost of construction was estimated at $2,250,000 with annual operation and maintenance costs at $50,000. Construction costs have increased significantly since 2005 which will result in a project cost increase or scope reduction to stay within existing estimate.

Anticipated Funding Source: Department of State

Clandestine Tunnels between Search and Rescue Building and Confined Space Prop
This prop would simulate a clandestine hand dug tunnel. The reinforced tunnels would be treated to look like typical hand dug tunnels. A part of the tunnel would include a 400 square foot room for a mock storage area or laboratory. This prop holds unlimited value and applications including border enforcement, law enforcement, SWAT, HAZMAT, and National Guard Civil Support Teams.

Preliminary Estimated Cost: TBD
Funding Source: Other Federal Agency

MOUT - Military Operations in Urban Terrain
Construct a collection of buildings and “store fronts” to create a realistic urban environment.

Preliminary Estimated Cost: The cost can range between $1M to $10M depending on the detail of the prop and type of construction.
Funding Source: Other Federal Agency

Aircraft /Aviation Training Prop
An airplane fuselage may be available to HAMMER at no cost. However, HAMMER would have to provide funding to have the fuselage moved and emplaced on the campus. This prop could be used for Customs, Border Inspection, Law Enforcement, Fire and Military training.

Preliminary Estimated Cost: TBD
Funding Source: Other Federal Agency

Enclose Hoisting and Rigging Prop
Enclose the Hoisting and Rigging pad with a structure such as a large quonset hut. Large doors will be placed in both ends to enable forklift and aerial lift access.

Enclosing this training area will allow classes to continue during inclement weather and provide adequate shelter for training equipment and materials.

Preliminary Estimated Cost: $250K
Funding Source: DOE or Other Federal Agency
Basis of Estimate: ROM based upon estimate for similar modification.
Explosives Range:
A three acre area would be dedicated to an explosives range. This project would include adding all necessary safety features such as a safe distance from buildings and berms. An explosives range would be used for testing, training and demonstrations. This project would benefit multiple off-site customers.

Preliminary Estimated Cost: $750K
Funding Source: DOE or Other Federal Agency
Basis of Estimate: ROM based upon estimate for similar modification.
APPENDIX B: HAMMER Small Project List

Miscellaneous Paving

- Construct and pave overflow parking lot west of MO-260 $45K
- Pave administration building overflow parking lot $80K
- Pave restaurant parking lot $15K
- Pave warehouse parking lot and lay down yard $25K
- Pave around tactical maze building $15K

Paving these areas will provide additional and improved parking for students and staff.

Parking Lot Lighting

Additional lighting needs to be installed at each of the overflow parking lots to improve safety and security. Preliminary estimate for each parking lot are as follows:

- Administration building overflow parking lot $60K
- Al Alm building overflow parking lot $60K

Tactical Maze Building Modifications

Modifications to the Tactical Maze Building will include insulating the facility, upgrading the electrical service and installing an HVAC system. Preliminary estimate is $280K.

Reconfigure HAMMER Cafeteria

Replace the tables in the HAMMER cafeteria to increase seating capacity. The current seating capacity of 96 students can be increased to 152 by replacing the existing furniture with a combination of 37 booths and cluster type seating units.

Preliminary Estimated Cost: $35K
Funding Source: DOE or Other Federal Agency
Basis of Estimate: GSA pricing plus overhead and shipping
APPENDIX C: MITIGATING ACTIONS

Sagebrush Habitat

HAMMER will maintain responsibility for compensatory sagebrush mitigation for the areas within the HAMMER expansion. In the event HAMMER would need to remove sagebrush from either of the identified residual islands, then the sagebrush will be replaced at a replacement ratio of 1.5:1. The planting effort will be based on the recommended replacement units in the Hanford Site Biological Resources Mitigation Strategy (DOE/RL 1996), presently defined as 1000 turlings or bareroot/ha + structural components such as perch sites. Therefore, 1500 plants, spread out over 1.5 ha (3.7 ac) will be planted for each ha (2.5 ac) of sagebrush steppe that is disturbed.

If such mitigation is required, it will be performed at a location adjacent or near the HAMMER facility; or further from HAMMER if such a location would provide for better long term protection of the mitigation site (the area surrounding HAMMER is within a designated industrial development zone within the HCP-EIS [DOE 1999]). The specific location will be selected based on the current development plans for the region, and in conjunction with Hanford Site biologists.

Migratory Birds

To the extent possible, ground disturbing construction activities will be performed outside of the nesting season (assumed to be April through July). In the event that ground clearing activities must occur during the nesting season, additional surveys will be performed to identify possible nesting sites, and plans to mitigate the disturbance of identified nests will be evaluated and carried out on a case-by-case basis in cooperation with Hanford Site biologists.

Revegetation

Areas disturbed by the construction activities will be re-vegetated using species native to the Hanford Site. All disturbed areas will be revegetated with a grass seed mix approved by Hanford Site biologists. Grass species will include Indian ricegrass, big bluegrass and Sandberg's bluegrass, bluebunch wheatgrass, and Needle-and-thread grass.

In addition, native forbs species will be planted in selected portions of the site to increase the overall species diversity within the revegetated areas. Forbs will be broadcast planted with the grass seed. Forb species may include stalk-pod, crouching, and buckwheat milkvetch, Balsamroot, hawksbeard, turpentine spring parsley, Fleabanes, wallflower, sand beardtongue, prairie clover, Longleaf phlox, scorpionweed, globe mallow, and mariposa lily. Hanford Site derived seed of species currently in storage at Pacific Northwest National Laboratory will be used for this planting of native forb species.