

**Back from the Brink with Something for Everyone – The Final Executed Memorandum of Agreement for Interpretation of the East Tennessee Technology Park and the K-25 Building - 13370**

Lesley T. Cusick, Restoration Services, Inc.

**ABSTRACT**

When the Environmental Management (EM) Program at the Oak Ridge Office of the Department of Energy (DOE) began its major decontamination and decommissioning (D&D) program activities in the mid-1990s, it was understood that the work to demolish the gaseous diffusion process buildings at the K-25 Site, as it was then known, would be challenging. Nothing of that size and breadth had ever been done within the DOE complex and the job brought about a full menu of unique attributes: radiological contamination with enriched materials entrained in certain areas of the system, a facility that was never designed not to operate but had been shut down since 1964, and a loyal following of individuals and organizations who were committed to the physical preservation of at least some portion of the historic Manhattan Project property. DOE was able to solve and resolve the issues related to nuclear materials management, contamination control, and determining the best way to safely and efficiently deconstruct the massive building. However, for a variety of reasons, resolution of the historic preservation questions – what and how much to preserve, how to preserve it, where to preserve it, how to interpret it, how much to spend on preservation, and by and for whom preservation should occur – remained open to debate for over a decade.

After a dozen years, countless meetings, phone calls, discussions and other exchanges, and four National Historic Preservation Act (NHPA) [1] Memoranda of Agreement (MOA), a final MOA [2] has been executed. The final executed MOA's measures are robust, creative, substantive, and will be effective. They include a multi-story replica of a portion of the K-25 Building, the dedication of the K-25 Building footprint for preservation purposes, an equipment building to house authentic Manhattan Project and Cold War equipment, a virtual museum, an on-site history center, a grant to preserve a historically-significant Manhattan Project-era hotel in Oak Ridge, and *more*. The MOA was designed to offer something for everyone. The MOA for the K-25 Building and interpretation of the East Tennessee Technology Park (ETTP; formerly the K-25 Site) was executed by all of the signatory parties on August 7, 2012 – almost 67 years to-the-day after the “product” of the K-25 process building became known to more than just a small group of scientists and engineers working on a secret project for the Army Corps of Engineers Manhattan District.

**INTRODUCTION**

The most significant D&D project at the DOE Oak Ridge Office (ORO) has been, and continues to be, the D&D of the K-25 Building at ETTP. The massive K-25 Building is definitely significant and not just historically; the “U” shaped building once had 44 acres under roof and the legs of the “U” were one-half mile long on each side and 65 ft high from basement to roof. It had 1.64 million sq ft and contained miles of wiring and piping, hundreds of tons of equipment, thousands of gallons of oils, an estimated 4 million square feet of asbestos-containing cement siding, and more than 50 miles of steam and condensate pipe covered with asbestos-containing insulation. D&D of such a building, which also happens to be an historic

property, had never occurred before. Whatever regulatory path was to be followed for the D&D, NHPA would be a part of it.

Evaluation of the D&D of the gaseous diffusion complex at ETTP began in the 1980's; early estimates had project duration in the decades and price tags in the tens of billions [3, 4]. Opportunities for efficiencies were sought and developed as it was clear to all that appropriations in the amount of the initial estimates would simply not be forthcoming. During the Department's planning phases, a reconsideration of the authority under which the D&D would occur had also come about; rather than taking the action under the Atomic Energy Act with a separate National Environmental Policy Act (NEPA) [5] review (an Environmental Impact Statement), the action would be taken under the Comprehensive Environmental Compensation Liability Act (CERCLA) [6], and NEPA values would be incorporated. The ability to take the action under CERCLA was a result of two particular federal policies [7, 8] designed to accelerate clean-up at federal facilities, evidencing the focus on addressing risks and hazards as expeditiously as possible. Integration of NEPA values would occur pursuant to the 1994 DOE Secretarial Policy on NEPA [9]. This Departmental policy included a series of measures aimed at streamlined decision-making to make the agency's review processes more effective. All of these methods working together sought efficiencies, cost savings, and accelerated clean-up to address public health risks.

The benefit of an integrated NEPA values approach through the use of the CERCLA process to facilitate review of agency actions appears to have been well understood and embraced. The CERCLA documents that were prepared for the D&D of the K-25 and K-27 Buildings included well-considered NEPA values and analyses. However, the design and benefit of the CERCLA process for addressing other laws such as NHPA via the applicable or relevant and appropriate requirements (ARAR) [10] process itself may not have been as understood, or possibly not known at all. This is not a criticism, merely an observation and one that can be made even today when reviewing the methods by which NHPA is typically addressed when conducting CERCLA actions throughout the Department. It is possible that there is an assumption that the treatment of NHPA is an ARAR directly in the CERCLA documentation is short circuiting the NHPA Section 106 process or eliminating discourse. However, direct integration of NHPA into CERCLA [11] is a means for the larger public (of which consulting parties are a part) to work more effectively to communicate their ideas to the lead agency for consideration. A larger chorus of consistent voices have greater potential to effect a meaningful outcome where historic properties are concerned, instead of a small group of consulting parties working on the outside of the CERCLA evaluation and decision process.

Although the CERCLA ARAR process was available, DOE conducted the NHPA review using the standard consultation approach as found in the NHPA Section 106 process. The only thing standard about the consultation process is that there is nothing standard about it; it is shaped by its participants and each consultation is unique. The K-25/ETTP NHPA Section 106 process is an example of an ultimately positive result but only after a long and uniquely painful process.

### **Adverse Effects to DOE's Historic Properties - A Program of Change**

The EM program was established by DOE in 1989 to address the decades of chemical and radiological operations and their legacy of contamination. The industrial landscapes of the Manhattan Project and the Cold War, where countless scientific, engineering and technological breakthroughs were born, were going to be changing from the tangible to the recollective. The change would be extraordinarily costly, take years

to plan and even longer to execute. The end result would be a significant change to the DOE-built environment; sites would be notably different and in some cases, largely vacant. The history and advancements made at these sites would not be taken away, but the legacy contamination and the buildings associated with them would be. There would clearly be adverse effects to historic properties throughout the DOE complex.

Accompanying the recognized need to address the legacy of contamination, a need to address the historic legacy of the contaminated buildings and sites was also called for. In 2001 a panel of distinguished historic preservation experts was convened by the Department to assess the impacts of the clean-up needs and the impacts upon the Department's historic properties. In 2004, the "Manhattan Project National Historical Park Study Act," [12] was passed by Congress, to study the three major "atomic cities" (Oak Ridge, Los Alamos, and Hanford and their surrounding communities) "to assess the national significance, suitability, and feasibility of designating one or more sites within the study area as a unit of the National Park System." At the time of its conclusion in 2011, the Secretary of Interior made a recommendation to Congress that a three-site unit Manhattan Project National Historical Park be created [13]. Management was proposed to be a partnership between the National Park Service (NPS) and the DOE [14]. (The legislation was brought before the House in 2012 [H.R. 5987], received wide support, but as of this writing has not yet passed [15].)

The conversations, the meetings, the studies, the plans, all of these activities have been running in the background for years. Because of the national importance of K-25 to the history of the Manhattan Project, what might have otherwise been a conversation between DOE ORO and its consulting parties (the Advisory Council on Historic Preservation [ACHP], the Tennessee State Historic Preservation Office [TN SHPO], the City of Oak Ridge [COR], and the Oak Ridge Heritage and Preservation Association [ORHPA]), became a national conversation. This was evidenced by the fact that the number of consulting parties involved in the K-25 NHPA review doubled, from six at the beginning to 12 by the conclusion.



*Figure 1. View during construction of the enormous U-shaped K-25 Building, looking Southeast - April, 1944*

### **Adverse Effects Closer to Home – The EM Program at the ETTP**

A number of facility demolitions began at ETTP in the mid-1990's – the shut-down banks of cooling and out-of-use utility systems for the process buildings, miscellaneous small structures, and a pilot demolition of 30 stages of process equipment were completed. Although only a small part of a much larger clean-up, these early projects helped refine and focus the D&D clean-up vision. The demolished facilities were also a part of the larger ETTP site whose uranium enrichment mission could be understood by interpreting the function of the various buildings and their interrelationships in function and in spatial organization. All of the demolition projects were receiving NEPA reviews and Section 106 reviews, but a type of “unanswered change” was occurring. A member of the preservation community offered that the history of the ETTP Site was being chipped away from the corners.

At the time a great deal of NHPA consideration, planning and focus was being placed on the K-25 Building because of its significance. However, K-25 was one building among hundreds at the site and all, save those that would be adaptively reused under DOE's Reindustrialization program, were slated for demolition. A look through a wider lens, one for the site, was recommended. It was agreed that DOE could proceed with its demolition projects and program as it had been, but not without considering the bigger picture. The need for DOE to conduct some measure of overall site interpretation was rising at the same time many of its buildings were being hauled away in trucks. There was definite urgency to the task. New interstate signs had appeared that directed visitors to the other Oak Ridge facilities with no mention of ETTP. To some, ETTP was irrelevant and already gone.

## **DOE'S CERCLA DECISION REGARDING THE D&D OF THE K-25 AND K-27 BUILDINGS AND THE NHPA**

The CERCLA documentation for the D&D of the K-25 and K-27 Buildings at the ETTP [16] laid out a clear path through the removal action project for these significant structures. DOE would execute the work in three main phases: (1) remove asbestos and other hazardous materials, (2) remove excess materials, gaseous diffusion process equipment, cell equipment and piping, and (3) demolish the structural and architectural components of the building, down to the slab.

The NHPA was identified as an applicable requirement under the ARARs process followed pursuant to CERCLA and so noted in the CERCLA Action Memorandum [17]. Although the ARARs process requires that only the substantive aspects of applicable requirements are completed for CERCLA actions, DOE chose to perform both the administrative and the substantive aspects of NHPA. A substantive requirement is one that pertains to the action or conditions in the environment, e.g., quantitative risk or health-based standards, air or water quality discharge limits. Administrative requirements are those that facilitate the substantive requirements, e.g., permits, licenses, documentation, etc. To that end, DOE worked with its NHPA signatory parties, namely the ACHP and the TNSHPO, as well as the COR and the ORHPA, both consulting parties under NHPA. As a group they executed the first of four NHPA MOA involving the K-25 Building.

### **The K-25 D&D Project and Section 106 – let the conversation begin**

A NHPA process referred to as “consultation” on the demolition of K-25 began in 2000. Consultation, as defined by the NHPA “is the process of seeking, discussing, and considering the views of other participants, and, where feasible, seeking agreement with them regarding matters arising in the Section 106 process.” Avoidance of adverse effects to historic properties in the implementation of a federal agency’s actions is the primary goal. Where avoidance is not possible, minimization of adverse effects is sought. Where avoidance or minimization is not possible, mitigation to address the adverse effects to historic properties is called for. As the proposed action to address contamination in K-25 was demolition, this was an adverse effect to a historic property that could not be avoided. In these situations, separate documentation (a MOA) to memorialize the consultation process and agreements reached during the process is developed.

Between 2000 and 2012 DOE entered into four MOAs for K-25. Although the span of time was great and involved a series of proposals by the consulting parties and their consideration by DOE, their proposed action was unchanged; the demolition of the K-25 building was needed to address risks and hazards and meet their CERCLA clean-up objectives. All of the consulting parties’ proposals needed to take both the EM mission and the specific CERCLA decision into consideration as the NHPA objective is to enable federal agencies to carry out their missions in a way that is protective of historic properties. Some proposals appeared to understand the primacy of the mission while others sought alternatives to the CERCLA decision already made, or in the process of being made so that DOE could carry out its clean-up mission. A review of the first MOA, executed in 2003, shows the apparent misunderstanding and provides the greatest insight into what the consulting parties were seeking as mitigation for the adverse effects.



Figure 2. View during demolition of the enormous U-shaped K-25 Building, looking Southeast - July, 2012

### THE 2003 MOA

Work on what was to become the 2003 MOA [18] began in 2001. The MOA had several major objectives the primary one was to study the preservation options for the K-25 and K-27 Buildings and their contributions to both the Manhattan Project and the Cold War. The professionally performed study was to consider equipment selection and salvage of gaseous diffusion process equipment for illustration and possible display and interpretation; consider the potential of and need for retention of a portion of the facility for interpretive use; and to look at the impact on potential heritage tourism for all options. Further, and most critically, the MOA stipulated that *prior to implementation of the third phase of the agreed-upon CERCLA demolition*, DOE would work with its consulting parties to identify the best and most cost-effective mitigation to permanently commemorate, interpret and preserve the significance of these two historic, scientific and technological facilities.

The mitigation desired and agreed to by the parties was clearly intended to be thorough, detailed, and considerate of the building and the site's importance to national and technological history as well as to personal experiences. It is that last stipulation that placed the DOE EM Program's clean-up mission in direct opposition to the historic preservation objectives of the NHPA. In retrospect, although the parties were engaged in extensive conversations, it appears that the D&D project managers and CERCLA practitioners did not understand NHPA and what an executed memorandum meant to the NHPA community, nor did the NHPA community understand what an executed CERCLA decision meant to the DOE, the U.S. Environmental Protection Agency - Region 4, and the Tennessee Department of Environment and Conservation (TDEC). It also appears that DOE wanted to reach consensus among its consulting parties; a laudable goal. The NHPA however, does not require consensus.

## **STRIVING FOR THE AUTHENTIC VISITOR EXPERIENCE VIA THE SERIES OF MEMORANDA OF AGREEMENT**

Each of the MOA's that followed the initial 2003 MOA served to further emphasize and enhance the original MOA and its premises. Namely that the experience of the heritage visitor was paramount; the most authentic experience, using the greatest quantity and most effective array of historic items, objects and artifacts as possible, including a recapturing of the mood of the times (World War II and the later Cold War) and the worker experience through a collection of oral histories, was desired. While DOE had an unwavering requirement to comply with the CERCLA clean-up decision, they also continued to work with their consulting parties on their desire to physically preserve the history of the K-25 Building. Those objectives are not necessarily mutually exclusive save for one measure to actually preserve a portion of the building and another to preserve a foundation wall that was included in the 2005 executed MOA [19].

With those two preservation measures as exceptions, all of the other measures reflected the objective of the best visitor experience. Over time these measures included, but were not limited to, a mitigation strategy for the ETTP site, the K-25 and K-27 buildings [20], the diffusion mission, and the individuals involved in the overall story. Other measures included saving a series of authentic pieces of equipment and materials from both the Manhattan Project and the Cold War eras, preservation of a specific cell within the building, the use of visual indicators to be placed at each corner of the building's footprint to show the height and scale of the structure, and the retention of a nearby entry portal (Portal 4).





*Figure 3. A glimpse into size, scale and proportion within the K-25 Building*

### **A Step Back Due to Safety Considerations**

In 2006 a serious safety incident occurred during demolition activities inside K-25 that rendered the preservation stipulations of the 2005 K-25 MOA – retention of the North End of the K-25 Building, salvaging and preserving portions of the Roosevelt Cell, and retaining 10 feet of the interior walls of the U-shaped K-25 Building – unfeasible. After many reviews and analyses, DOE formally communicated their findings to the consulting parties in 2009 [21]. The 2005 MOA was terminated. Termination, defined as a “failure to resolve adverse effects,” is a very serious situation under NHPA essentially rendering an agency in non-compliance.

DOE was open about the challenge of this situation and readily sought ideas for alternative preservation options from the consulting parties. Proposals were wide-ranging in size, scale and scope, even including preservation of a portion of the original K-25 Building (which had been determined by engineering studies and communicated by DOE to be unfeasible due to safety issues and cost). The proposals were very similar in nature to those that had been identified before; the message was clear – the authentic visitor experience was the goal.

In 2010 DOE entered into a “Bridge” MOA [22], which enabled the Department to remain in compliance with the NHPA until the parties could reach agreement on a Final MOA. The Bridge MOA stipulated that DOE continue to implement all of the measures from the 2005 MOA that were still feasible, which DOE had been aggressively doing. The Bridge MOA also called for two feasibility studies [23, 24] which were prepared and shared with the consulting parties. Although DOE had determined that preservation of the building was not feasible, one of the feasibility studies conducted pursuant to the “Bridge” MOA evaluated the structural condition of the North End of the K-25 Building under a variety of preservation scenarios. The other evaluated commemorative and interpretive options. A “hub and spoke” approach to interpretation arose from one of the studies and it was met with great enthusiasm among all of the parties. The “hub and spoke” approach involved a “hub” at a central location in Oak Ridge to learn the broader context of the Oak Ridge Manhattan Project experience, with “spokes” at each site, accompanied by visual or physical access to facilitate learning.

At the conclusion of the studies undertaken per the stipulations in the Bridge MOA there were a set of very familiar equipment preservation measures that could be agreed-upon and that were feasible. There also remained a number of building preservation scenarios that were also now re-determined to be feasible, provided DOE could direct enough money and time to the task. Asking an engineering firm if something could be done was asking a question that laid an even larger question at DOE’s feet – just because something could be done, does it mean it *should* be done?

### **Getting to the Other Side of the Bridge**

Pursuant to the stipulations in the Bridge MOA, following the consulting parties’ review of the feasibility studies, DOE considered the comments. In many ways, nothing had changed but things had to change so that the regulatory-driven D&D mission at the site could proceed, along with a to-be-agreed-upon preservation effort. Frustration and concern were rising for the Department; after all, the centerpiece of the D&D program in Oak Ridge appeared to be “stuck” and the clock was ticking. Jobs, funding, and clean-up progress were all at stake. The impasse had to be broken.

The support of professional architectural historians was retained. The historians, including a mechanical engineer versed in technological processes, delved deeply and objectively into the consultation process that had occurred to date and the historical materials, documents and photographs of record associated with the K-25 Building and the site. Building tours were conducted and many discussions took place. As a result of the efforts of the preservation professionals, existing mitigation measures were refined and several new mitigation measures were developed. At that point draft documentation (a preferred mitigation plan and a draft MOA) that attended to the comments of the consulting parties and at the same time drew attention back to DOE’s mission needs was able to be prepared. Over the years of the consultation process the conversation appeared to have evolved into something dedicated to preservation. It’s as though the agency need to carry out their clean-up mission, where preservation and comments of the consulting parties were important considerations, was secondary to preservation. In October 2011, DOE shared the draft plan and draft final MOA with the consulting parties and scheduled a consulting parties meeting for November 2011.

**Seek, Discuss, and Consider. Repeat as Needed.**

The November meeting was well attended. It provided an opportunity for new EM leadership to present status on the implementation of the proposed action, remind people of its regulatory drivers and purpose, its schedule, and the project's overall place in the EM program in Oak Ridge. Another key aspect of the EM message to those in attendance was their clear commitment to completing the consultation process in a manner that would enable clean-up milestones to be met without the economic impacts (loss of funding and resultant loss of jobs) that could result if an executed MOA were not reached in a timely fashion. Mention was also made about the critical need to be fiscally responsible in implementation of any agreed-upon mitigation measures. Several "themes" appeared in the commentary after the November 2011 meeting and not surprisingly, many were an echo of the comments received throughout the consultation process, going back to the first meetings over a decade earlier. The themes were:

1. The "hub and spoke" concept and consultation with the NPS,
2. Demarcation of the K-25 Building footprint,
3. Retention of a remnant of the K-25 Building,
4. Preservation of equipment,
5. Display of authentic equipment and other artifacts at a history center, and
6. The restoration of the Alexander Inn.

The last item regarded the Alexander Inn, formerly the "Guest House," in the City of Oak Ridge built during the Manhattan Project to house visiting dignitaries and scientists. This measure had been proposed in the draft MOA intended to partially mitigate for the demolition of the ETTP Buildings, which could no longer be mitigated for *in situ*, as preservation of an actual portion of the K-25 Building was determined to be unfeasible. This new measure generated a clear difference of opinion, some parties embraced it and others thought it had no place in the discussion. DOE supported the measure, which entailed a grant towards the restoration of the Inn; it was an actual preservation effort involving a historic property, one associated with not only K-25 but with all Oak Ridge facilities. The fact that there was a new measure to generate engagement and enthusiasm was encouraging.

**The Voice of the Park Service**

During the later stages of the consultation process the NPS was engaged by the ACHP to review DOE's proposed MOA and mitigation plan and render an opinion on its sufficiency, in particular with regard to interpretation and the visitor experience. This input was important since, in 2011, the Department of Interior had recommended the creation of a Manhattan Project National Historical Park which would include representation for Oak Ridge. In a "Section 213" report [25] (of the NHPA), the NPS weighed in strongly in favor of retaining the maximum portion of the original building and the maximum quantity of authentic equipment, ideally in a configuration that would most accurately replicate the worker experience. The Park Service was echoing the input provided by many others over the decade-long process.

The NPS also advocated for formal completion of Historic American Engineering Record (HAER) documentation for the K-25 Building and two other ETTP facilities. In consideration of the comments of the NPS and their importance to future interpretive options, especially if a Manhattan Project National Historical Park involving Oak Ridge was approved by Congress, an additional consulting parties meeting was held in May 2012.

The meeting was narrowly focused on resolving the remaining issues not already addressed and resolved. Granted, there were major stipulations to be discussed, specifically the facility preservation option, facility documentation (the HAER recordation), and equipment preservation raised by the Park Service's report. DOE presented its thoughts on a preservation option which was a modification of a NPS concept recommended to DOE in the Park Service Section 213 report. DOE also spoke of the economic consequences of not reaching agreement on the MOA post-haste, namely that there would be adverse effects to the contract with the DOE D&D prime contractor, and that large numbers of the skilled and trained workforce involved in the D&D would need to be laid off.

At this juncture, as much as could be said and written and listened to and considered had been said and written and listened to and considered. It was time for DOE to issue its final MOA for execution and to gain the necessary signatures of its signatory and consulting parties.

### **Dealing with Intangibles**

DOE, as the lead agency, had the responsibility to complete the Section 106 process. As a part of that, DOE had to regain trust that had been lost or damaged over the long consultation process where commitments had been made that DOE had to move away from or adjust for a number of reasons. To some, DOE's reasons for not implementing certain measures were "excuses." Reminders of what DOE had promised in prior MOAs but not carried through with were ready fodder for those whose trust had waned or in some cases, evaporated. The added concern of a potential loss of jobs if an agreement could not be reached played on the emotions of many involved. This was not an excuse but a reality; if the money wasn't spent on what it was intended to be used for, it could be reprogrammed. This also applied to funds that DOE had set aside for implementation of some of the planned mitigation measures. It also seemed that many of the parties had wearied of the process to some degree, yet the fact that the building demolition was only able to proceed *up to a point*, created anxiety all around. When the process continues for as long as it did in the matter of K-25 and the ETTP, it begs for a revisit of status and priorities by the lead agency. DOE took positive steps towards reinvigorating the process and demonstrating their commitment to it in both the November 2011 and the May 2012 meetings.

The other aspect at play in the Section 106 process is that of emotion. Laws addressing locations and environments have intrinsically human connections. Typically the protective requirements associated with environments, wetlands for example, are guided by regulatory prescription. The protective requirements for historic properties aren't found in a regulation but in an interactive and often iterative process where the protections are determined based on consideration of other people's ideas and suggestions in a recipe for mitigation. People can form attachments to the environments and to their ideas; it can become very personal.

Where does the emotion come from where these historic environments are involved? To find that, you need look no farther than to the individuals who worked to construct the site, or worked in the

buildings, and in particular, those who had these experiences while it was operating. Those individuals, many of them who played a dedicated and committed leading role in reaching the four MOAs, are a source of some of the emotion. They are also the strongest force towards keeping attention on the need to take the proportionate steps to protect the historic properties in some way, all the while knowing that the buildings are going to be demolished. Each MOA that was entered into has had emotional components for *all* parties.



*Figure 4. Workers performing maintenance on a cell housing in the K-25 uranium enrichment facility*

## **TWELVE SIGNATURES**

In June 2012, after resolving all of the comments offered at the May 2012 meeting, DOE issued the final MOA for signature and concurrence. DOE engaged frequently with the signatory parties to provide or gain clarification, ask questions, review comments and revise draft wording, etc. prior to obtaining their approvals. As of August 7, 2012 all signatory parties had signed and all of the consulting parties had signed by October 9, 2012. The end of the long and emotional consultation process had arrived. The time for DOE to work to further restore the trust of the consulting parties had also arrived. The words of the final MOA needed to be backed up by the actions to implement its many stipulations.

## THE MENU OF STIPULATIONS

When considering what DOE and the invited signatories agreed to implement, it may be best understood when it is thought of as how a mitigation measure (found as a stipulation or aspects of several stipulations in an MOA) meets a need or an objective. The clearest objective was that held by the consulting parties since the outset – to enable the optimal heritage visitor experience. Virtually everything sprang from that goal. DOE did not have any type of “directive” criteria for the design and development of their mitigation measures, rather they evolved almost intuitively. Looking back many of the measures meet “unstated” objectives after the fact. Granted, that evolution made it difficult to provide a rationale for *not* doing something that the consulting parties sought as the process progressed, nevertheless DOE made their case as needs arose.

If you seek to find the requirements for the design and/or development of mitigation measures you will need to be prepared for a long look as there aren't any. Mitigation measures need only be agreed to by the consulting parties. Each consultation process is unique to the proposed undertaking (project), the adverse effects it will cause, the type of historic property to which the adverse effects will occur, and the consulting parties. A broad range of other factors can also affect consultation, such as fiscal considerations, how the federal agency has performed in the past with regard to implementation of the Section 106 process and their follow-through in meeting their commitments, the number of historic properties already adversely affected and the number of properties that remain, the amount of interest or controversy of the proposed action, as well as the degree to which members of the public feel that they can contribute to shaping a mitigation measure or a consultation process. Trust of the agency is also an important consideration, which is why follow-through of prior commitments is critical to the agency's ability to satisfactorily complete a consultation in the future.









Due to the scope and scale of the proposed CERCLA action to address the contamination in the K-25 and K-27 buildings, namely that the end result would be the demolition of these important Manhattan Project historic properties, the mitigation measures to address that array of adverse effects would need to be similarly robust, comprehensive and thorough. In the case of the K-25 Building and its sister K-27 Building, and the ETTP site which will also be interpreted via this final MOA, the factors to consider are the National Register Criterion for Eligibility (NRCE) [26] under which these sites and structures are historic. When the NRCE were applied by DOE in the 1990s, it was determined that the ETTP properties are eligible for the National Register due to their association with an event, namely the Manhattan Project. For certain measures or portions of measures, commemoration due to the association with the later Cold War was the criterion.

In designing mitigation measures, consideration of the integrity of the historic property is necessary. The aspects of historic properties to be considered in mitigation planning are: location, design, setting, materials, workmanship, feeling, and association. It is worth noting that not a few of those aspects are emotional, and evocative. A property may have integrity for any or all of the aspects of integrity and the more aspects a property has, the more its historic value is in evidence. Coming to agreement on mitigation measures for the historic properties at the ETTP, properties of such importance, was a lengthy, iterative, and not surprisingly emotional, process.

A series of carefully crafted stipulated mitigation measures were developed for the adverse effects to K-25, K-27 and the ETTP. Again, the objectives were identified deductively; the identification of preservation objectives was not defined at the outset. Almost every measure included more than one mitigation objective where the objectives included meaningful interpretation by the heritage visitor, preservation of authentic aspects (e.g., attributes, equipment), and recordation for educational and research purposes. One example of such a stipulation includes the Equipment Building. It does not preserve an original structure, but rather will build a new facility to house preserved authentic equipment, which is a preservation measure, and also provides interpretive value for the heritage visitor.

<b>Key Stipulations</b>	<b>Preservation</b>	<b>Interpretation for the Heritage Visitor</b>	<b>Research or Education</b>	<b>Documentation or Recordation</b>	<b>Other</b>
Naming a K-25 Historic Preservation Coordinator					Commitment to leadership and accountability
Engagement of a Professional Site Design Team					Commitment to a professional outcome
Engagement of a Museum Professional					Commitment to a professional outcome
Dedication of the K-25 Preservation Footprint	✓	✓			Demonstrates a public commitment to preservation
Preserve/retain the original building slab	✓	✓			
Construct an Equipment Building		✓			
Construct a Viewing Tower		✓			
Inventory and review Equipment			✓	✓	
Equipment/preservation/artifact management	✓	✓		✓	
History Center at the Fire Station	✓	✓			Engages a preservation partner (City of Oak Ridge), adaptive reuse, volunteer staffing will further engage the community
Web-based Virtual Museum		✓	✓	✓	Can reach the most people and be especially interesting to young people; adaptive to future technologies
Maintenance of continued oral history collections		✓	✓	✓	Engages a preservation partner (City of Oak Ridge)
NPS-type Wayside markers that may include the use of salvaged equipment/materials	✓	✓	✓		A recognizable feature



Informational self-guided tour brochure				Will implement “QR” (quick reference) technology	
Grant to restore the Alexander Inn				Engages two preservation partners (City of Oak Ridge, East TN Preservation Alliance); adaptive reuse of a historic property	
HAER documentation of K-25, K-1028-54 and K-1037					A “first” for Oak Ridge and an extraordinary opportunity to understand K-1037
Reference list of unclassified documents					

## CONCLUSIONS

Although the clean-up decision that involved the two buildings at the heart of this discussion was a CERCLA decision, DOE chose to conduct the administrative aspects in addition to the required substantive aspects of the NHPA and was committed to its completion. Many people labored for the success of the process for over a decade; no one ever gave up although at times the next step may not have been very clear. Unique challenges were brought about by this diversity of process which essentially resulted in two separate decisions for the K-25 building – a CERCLA decision that called for demolition and an NHPA agreement that called for preservation of at least a portion of the building. And although DOE and its consulting parties engaged in depth for an extended period, its possible that neither side knew what the other understood to be their “bottom line”, the expectation from which they could not waver. These challenges were further enhanced because DOE sought consensus in the consultation process; admirable yes, but not required. The pursuit of consensus is expensive if for no other reason than reaching consensus is typically a lengthy process and time is very expensive for a federal agency. The reliance on consensus to reach the best decision also essentially rendered DOE’s lead agency role moot and made the mission need of clean-up secondary to the process.

Ultimately, however, DOE and its four signatory and eight consulting parties were able to reach consensus on a series of measures that, once implemented, will meet the primary desired objectives of the consulting parties: an optimum heritage visitor experience. This is also the objective of the National Park Service who may yet have a “nation’s storyteller” role in Oak Ridge. The measures DOE agreed to include many tangible features including new structures, adaptive reuse of existing facilities, preservation of authentic equipment, technological interpretation, significant and historically important recordation, and a wide range of educational measures that will speak to a broad range of age groups and interests. Taken together the individual measures will create a larger whole that will impart integrity to the historic property that is K-25 and ETTP – the characteristics of location, design, setting, workmanship, feeling, and association.

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