Value Study

PRESENTATION REPORT

PROJECT:

Ashtabula Extrusion Plant Remediation - Building D & D

DATE: October 23, 1998

Conducted Under Cooperative Agreement with:

RMI Environmental Services
Department of Energy
Sandia National Laboratory
Argonne National Laboratory
Fernald Environmental Management Project
West Valley Demonstration Project
SAMI, LLC

Sponsored by: RMI Technical Services

VALUE STUDY TEAM ACKNOWLEDGMENT OF ACTIVITY TEAM AND CONSULTANTS

The value study team wishes to express thanks and appreciation to the members of the project team, who fully and cordially provided all requested information and consultation on the present concept. The success of the study team effort could not have been possible without the full cooperation shown by the activity team members.

The team wishes also to express thanks and appreciation to those listed on the Consultation Record of this report. The cooperation and helpfulness of those consulted contributed greatly to the technical foundation and support of the team's deliberations and proposals.

The aim of using the Value Method is to achieve the best worth for the cost (value) for the project. It is only with the full team effort, as shown by all involved, that this goal can be achieved. This study represents the product of such an effort.

GENERAL DISCUSSION OF THE VALUE METHOD PROCESS, ITS PURPOSE, AND THIS VALUE STUDY

The Value Method is a highly effective decision-making process. It consists of series of procedures that occur a preplanned sequence. It was originally developed in 1943 by Larry Miles. In general, it is a “systematic and organized process to creatively develop alternatives that secure essential functions at the greatest worth as opposed to their life-cycle cost (highest value).” It has many applications but is most often used as a management and problem-solving tool.

A job plan is used throughout the value study activity. In brief, the component features from a process, program, project, or activity are examined to determine pertinent functions, governing criteria, and associated costs. Then, through creativity techniques, resulting idea analysis, and development of the remaining best ideas; alternative methods that fully meet necessary requirements at a lower cost, or with an increase in the long-term values, are proposed for adoption by the parties responsible for the project.

This report is the result of a "formal" Value Study Team effort. A formal value study team is comprised of people with the desired expertise and independence. They have an understanding of the needs of the organization they represent, and can take an open and independent view of the project being studied. Ideally, they have not been notably involved in the project prior to the value study. Using the Value Method applied to the current collected data, the study team takes a "fresh look" at the project to create alternatives that fulfill the client needs at the greatest recognized attainable value.

The Value Method has many common names. These mainly relate to the historical features, the timing of its application, or type of process, program, project, or activity studied. It is often referred to as: Value Analysis (VA), Value Management (VM), Value Engineering (VE), and Value Planning (VP).

The application of the process has been highly successful for more than 50 years for both private and governmental entities. As a result, the Federal government has mandated its use in all Federally funded operations. This value study report demonstrates the required substance that quality Value Method procedures were used throughout this value study, as stipulated under the mandated governmental Value Program oversight authorities and the recommendations of the Value Method profession.

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EXECUTIVE SUMMARY

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D

General:

The value study team consisted of expertise from various professions. These professions included ppp, ppp, ppp, ppp, ppp, and ppp specializations. The team had their first group meeting for the value study on date ppp. The study team concluded their full formal team efforts on date ppp. A presentation to management of the ppp, ppp, and others, of the value study results took place at the conclusion of the ppp-day study on date ppp. Presentations to the public and general comments are expected on date ppp (if any). After the completion of the public comment period (if any), a Final Report will be issued along with the team's final recommendations.

Summary of Proposals:

The value study team made a total of **ppp** major alternative proposals. (These are alternative methods that were developed during the value study to the point that they were complete enough for decision-making and comprehensive presentation "alternative recommendation").

Through traditional Value Method procedures, the team evaluated the activity with regard to the ppp actions and available resources (time, money, equipment, etc.). In addition to the concepts established before the value study, the study team generated additional concepts. In accordance with the relative ranking, the study team developed and evaluated ppp specific proposals that were determined to have a high enough potential to meet the needs for the planned activity. The **total estimated initial expenditure savings** of the evaluations completed during the value study, if all independent monetary savings proposals are accepted, are estimated at about **$ppp million**, after reducing the gross savings by the cost of **$ppp** to perform this value study.

The process also generated several **value added** features to the concepts. (Value added features are defined as attributes that the study team believes will improve the final product in non-monetary or hard to quantify ways, e.g., time, quality, and safety. Increased initial or Life-Cycle Costs (LCC), if any, are expected to be more than offset by the apparent added non-monetary value, and/or have undetermined cost savings that will exceed the projected increased proposal cost.)

A very brief description and an estimate of the minimum potential value of the proposals are:

> **Proposal No. 1. Use the ppp Approach in Place of the ppp Approach.** The study team determined that the use of this approach would produce desired **value added** features (time, getting a solution in-place, etc.) and had the potential to reduce costs by about **$ppp**, minus the cost of the study.

Summary of Additional Items for Further Study.

ppp additional items for further study were also recommended. These are items that, due to time constraints, the lack of apparent large significant savings or value added during initial idea evaluations, complexity of idea, or scope of the idea (as compared to the study scope), make further investigation by the study team, within their limited time constraints, inadvisable. They are respectfully submitted for further consideration and development to add value for the project. They were not developed to the detail of the previous alternative proposals by the study team. Briefly, these ideas are:

!

VALUE STUDY
PROJECT:

Ashtabula Extrusion Plant Remediation - Building D & D

VALUE STUDY TEAM MEMBERS

NAME	TITLE/DISCIPLINE	ADDRESS/PHONE NO.
Sam Martin, PE, CVS	Value study team leader / facilitator, Certified Value Specialist, Professional Engineer, project management, management and decision systems	Systematic Analytic Methods and Innovations (SAMI) PO Box 1115 Evergreen, CO 80437 (303) 674-6389 FAX (303) 670-0792 sam@value-engineering.com
Doug Maynor	Co-value study team leader / facilitator, chemical engineer, innovative technologies	DOE-OH Field Office PO Box 3020 Miamisburg, OH 45343 (937) 865-3986 FAX (937) 865-4402 Doug.Maynor@EM.DOE.GOV
	Value study team member, environmental engineer, construction remediation engineer	
Larry Katonak		

GENERAL DESCRIPTION

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D

Background.
The Ashtabula Extrusion Plant Remediation, Building Demolition and Disposal (D&D) is a part of the much larger RMI Decommissioning Project (RMIDP). The primary function of the original facility was the extrusion and/or closed-die forging of metallically depleted, natural, and slightly enriched Uranium (U). This was one of the steps in the production of nuclear fuel for use in Department of Energy (DOE) plutonium reactors such as the one at the Hanford Reservation near Richland, Washington and Savannah River Site near Aiken, South Carolina

The Uranium metal extrusion was performed by the site owner under NRC license SMB-602 in the early 1960's and amended as ownership and responsibilities changed. The original owner was the Bridgeport Brass Company which sold its share to Reactive Metals Incorporated in about 1964 which subsequently changed its name to RMI Company, and later, RMI Titanium Company.

The facility consists of about 25-buildings consisting of 7-acres of covered region on a 26-acre site. Of these buildings, RMI owns thirteen and DOE owns twelve.

Location and Physical Setting.
The Ashtabula Extrusion Plant Remediation site is located in a sparsely populated, highly industrialized area of Ashtabula County, Ohio. It is about two-miles northeast of the center of the City of Ashtabula and is located near an auto crushing, lounge, a motor freight firm, and two-story wood-frame residence. Fields Brook, designed as a US-EPA Superfund Site, flows through the site to the west to Ashtabula River, which then flows onward toward Lake Erie.

The topsoil is composed of Athertone Silt Loam, Braceville Loam, Holly Silt Loam, and “Made Land.” The proportions of each type of soils are about equal. Bedrock is present about 20- to 25-feet below the ground surface. The subsoils areas are primarily wave-washed clay glacial till, interspersed with silt, loam, sand, and gravel. The bedrock is Ohio Formation Shale.

The regional hydrogeographic generally has low groundwater yields due to low hydraulic conductivity. Therefore, the regional potable and industrial water supply uses mainly other than groundwater sources.

Site Contaminant and Issues.
A variety of contaminants are present at the site. US-EPA has identified RMI and others as some of the 32 Potentially Responsible Parties (PRP’s) responsible for the clean-up of contaminated sediments in the stream that runs through the area (Field’s Brook).

The overall objective for the project to free DOE from liability and continuing to be a party to the site’s operations, and return the site to RMI ina mannor such that RMI business objectives can be met. This requires removal of the radiological and other hazardous contaminants from the site. At completion, the RMI NRC license will be terminated and the RCRA-CAMU will be closed both on- and off-site. The objective is to return the property to the full operation and ownership of RMI only.

Typical of any large scale commercial industrial operation with hazardous products of the era, various contaminants were released by error, misunderstandings, or other issues. These issues include: the one-time release of trichloroethylene (TVE) into an evaporation pond, and pond disposal of spend sodium nitrate with small quantities of Uranium, Tc-999, and TCE; stack effluents from eight stacks allowing dense Uranium to settle close to the ground near the stack source; storage of contaminated equipment along fence or other lines; extrusion press hydraulic leak locations; evaporation tank overflows with Uranium and nitric acid present; contaminated trash burner residue; fire road contamination from dust control using contaminated oils, and building contamination due to runoffs, activities, and other endeavors.

Figure 2. Location Map

DESCRIPTION OF PRESENT ACTIVITY PLAN

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D

The primary activity of this portion of the overall project is the removal and disposal of contaminated buildings and the portions of their footprints that also have contamination. The extent of the footprint involved in restoration is not fully known. Adoption of the final proposed plan for the building operations is scheduled for completion in FY99. The building D&D operation are expected to be about 10-percent of the overall costs for the complete site remediation.

The latest plan for building demolition and disposal is to remove the outlying FF-3 Building and Old Incinerator Foundation first. At the completion of the site-wide soil washing phase, remove the Northwest Storage Building. To handle the footprint soils and subsequent activities, a Waste Processing Building will be constructed. The general sequence of events after completion of this step will be east to west until all building are removed, disposed of, their footprints cleaned and/or removed and replaced with clean, as necessary. The last planed building demolition is the main plant. The sewage treatment plant will be last as it is needed for site-work until the last moment.

At the moment of building D&D, the equipment in the buildings should be removed and only the structural members and specified hoist or other equipment that may be beneficial to the building removal activities will remain. The structural walls and their facings are expected to be lightly coated with contaminants. Concrete floors and roofing is expected to contain residue of various contaminants, including Uranium and various oils or industrial components.

Due to cost and efficiency issues, it is preferred that as much as possible, demolished materials that can be, will be decontaminated and moved to a standard debris disposal facility. Procedures for handling such activities and verifying decontamination is complete would need to be generated for these operations. Altough data does not indicate that it would be necessary, should all the facility need to be removed to an approved EPA disposal site such as EnviroCare (Utah), costs for disposal and transportation would involved as much as a 50-percent increase in project costs.

RMIDP Building Release Criteria

The release criteria for buildings for both Uranium and Technetium-99 are:

- 1,000 dpm/100cm^2 for unrestricted release for removable alpha (U-235, U-238, and associated decay products) and Beta/gamma radiation.
- 5,000 dpm/100cm^2 for unrestricted release for the average value for the sum of removable and fixed alpha (U-235, U-238, and associated decay products) and the average sum of removable and fixed Beta/gamma radiation.
- 15,000 dpm/100cm^2 for unrestricted release for the maximum value for the sum of removable and fixed removable alpha (U-235, U-238, and associated decay products) and the maximum sum of removable and fixed Beta/gamma radiation.

Figure 3. Site Map

COST MODEL

COST MODEL AND ESTIMATE INFORMATION

The team's cost model was based on the conceptual estimates provided by the design (or process) team for the preferred concept that was presented to the study team. It was used to focus on features with the greatest potential for savings, and to highlight potential instances of value mismatch. (Areas that have low worth in comparison to their projected cost.)

To ensure reliability and applicability, all unit prices were reviewed by both estimators and the study team. Estimator(s) were independent from both the study team or design and process team. Value study proposal and original concept estimates are of the same general level of development. It should be recognized that unit costs and estimates may vary as final activities are pursued and refined.

ALTERNATIVE EVALUATION FOR PROPOSAL NO. 1

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D	
COMPONENT:	**FUNCTION:**
ALTERNATIVE DESCRIPTION	
PROPOSAL NO. 1. PLEASE OVERWRITE THESE LETTERS WITH YOUR OWN PROPOSAL STATEMENT (IN CAPS).	
BENEFITS	**DISADVANTAGES**
!	!
IDENTIFIED RISKS:	
!	

Figure ppp. Proposal No 1 Title

COST COMPARISON FOR PROPOSAL NO. 1

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D	
COMPONENT:	**FUNCTION:**
ORIGINAL CONCEPT	**VALUE STUDY CONCEPT**
!	!

COST ITEMS	**NONRECURRING**	**LIFE CYCLE**
ORIGINAL CONCEPT	$	$
VALUE CONCEPT (-)	$	$
SAVINGS	$	$
NUMBER OF UNITS (X)	1	1
TOTAL SAVINGS	$	$
VALUE STUDY COSTS (-)	$	$
IMPLEMENTATION COSTS(-)	$	$
NET SAVINGS	**$**	**$**

Notes:

DESCRIPTION- VALUE STUDY PROPOSAL NO. 1

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D
Background: Place background discussion here (erasing this message) **Proposal**: Place proposal discussion here (erasing this message)

IMPLEMENTATION OF PROPOSAL NO. 1

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D
CRITICAL ITEMS TO CONSIDER IN IMPLEMENTATION OF PROPOSAL:
IDENTIFIED POTENTIAL PROBLEMS AND METHODS TO OVERCOME:
RECOMMENDED PROCEDURES: (WHO DOES WHAT)

ALTERNATIVE EVALUATION FOR PROPOSAL NO. 2

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D	
COMPONENT:	**FUNCTION:**
ALTERNATIVE DESCRIPTION	
PROPOSAL NO. 2. PLEASE OVERWRITE THESE LETTERS WITH YOUR OWN PROPOSAL STATEMENT (IN CAPS).	
BENEFITS	**DISADVANTAGES**
!	!
IDENTIFIED RISKS:	
!	

Figure ppp. Proposal No 2 Title

COST COMPARISON FOR PROPOSAL NO. 2

PROJECT:	Ashtabula Extrusion Plant Remediation - Building D & D	
COMPONENT:		**FUNCTION:**
ORIGINAL CONCEPT		**VALUE STUDY CONCEPT**
!		!

COST ITEMS	**NONRECURRING**	**LIFE CYCLE**
ORIGINAL CONCEPT	$	$
VALUE CONCEPT (-)	$	$
SAVINGS	$	$
NUMBER OF UNITS (X)	1	1
TOTAL SAVINGS	$	$
VALUE STUDY COSTS (-)	$	$
IMPLEMENTATION COSTS(-)	$	$
NET SAVINGS	**$**	**$**

Notes:

DESCRIPTION- VALUE STUDY PROPOSAL NO. 2

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D

Background:
Place background discussion here (erasing this message)

Proposal:
Place proposal discussion here (erasing this message)

IMPLEMENTATION OF PROPOSAL NO. 2

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D
CRITICAL ITEMS TO CONSIDER IN IMPLEMENTATION OF PROPOSAL:
IDENTIFIED POTENTIAL PROBLEMS AND METHODS TO OVERCOME:
RECOMMENDED PROCEDURES: (WHO DOES WHAT)

ALTERNATIVE EVALUATION FOR PROPOSAL NO. 3

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D

COMPONENT: Remove Buildings

FUNCTION: Remove Facilities

ALTERNATIVE DESCRIPTION

PROPOSAL NO. 3. DISMANTLE HIGH BAY PORTIONS OF MAIN BUILDING USING SECTIONAL TIPPING TECHNIQUES.

BENEFITS	DISADVANTAGES
! Greater safety will be achieved by reducing by 25-percent the amount of labor performed at an elevated height (work that is brought down to ground level). ! Allows more mechanically-based size reduction, swing-time, and money flexibility. ! Tripping a limited number of bays at a single time will alleviate the need for large lay-down areas. ! More reliable, with less risk of failure, than implosion processes. ! Lower airborne contamination movement levels per event reduces risk of triggering action levels on monitors. ! Can use multiple crews at the same time.	! Landings of debris are less accurate than implosion processes. ! Scheduling will be less certain than other approaches. ! If hydraulic shears are used for size reduction of structural steel, it will create debris that are more difficult to free release and are less acceptable to scrap vendors.

IDENTIFIED RISKS:

! If cutting of roof sections is performed, this will generate some elevated work that entails a minor degree of risk of worker injury due to the potential of workers accidentally falling.

! A minor risk of airborne contamination generated if a rad-fixative is not applied to the tipping members or in the remote event that the fixative was not fully applied or fails. This can be relieved through use of a water mist and the need for a fixative can be removed if a mist is used exclusively.

Figure ppp. Structural Member Tipping Concept Drawing

COST COMPARISON FOR PROPOSAL NO. 3

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D	
COMPONENT: Remove Buildings	**FUNCTION:** Remove Facilities

ORIGINAL CONCEPT	VALUE STUDY CONCEPT
! Demolish building by means similar to the reverse of constructing a building. ! Reduce size to WAC using gas cutting torch. ! Load boxes with debris, dump to intermodals at sides of building upon filling boxes. ! Remove intermodals when filled.	! Apply fixative to contain contaminants. ! Use cutting or other means to sever roofing and structural member section. ! Use shears and/or cutting torch and tip section causing it to fall to the floor level. ! Cut to WAC and remove debris directly to intermodals as work progresses.

COST ITEMS	NONRECURRING	LIFE CYCLE
ORIGINAL CONCEPT	$ 598,400	$
VALUE CONCEPT (-)	$ 76,500	$
SAVINGS	$ 521,900	$
NUMBER OF UNITS (X)	1	1
TOTAL SAVINGS	$ 521,900	$
VALUE STUDY COSTS (-)	$ 62,000	$
IMPLEMENTATION COSTS(-)	$ 0	$
NET SAVINGS	**$ 459,900**	**$**

Notes:

DESCRIPTION- VALUE STUDY PROPOSAL NO. 3

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D

Background:
The high bay portion of the main building is the most structurally significant challenge to dismantle. This is due to its footprint size, its height, and the multiple-layered roof composition (steel paneling covered with insulation, roofing felt, and tar and gravel barrier). Also, the limited availability of lay-down areas makes it more difficult to perform the demolishing actions due to congestion of staff versus work areas.

Proposal:
Although numerous structural dismantlement techniques are plausible, significant advantagesfor this site are available through a technique of controlled tipping by sections (bays). Use of this approach involves starting at either the west or east end of the building, depending on availability of lay-down and size reduction area space factors. Once the siding and stacks have been remove by cutting and crane operations, the roofing steel and underlying structural support members are cut. The bay is then tipped to a specified clear area on the ground through use of a hydraulic shear (or alternatively, cutting torch and tractor or similar mechanism). The resulting downed debris would then be sized by shears or cutting torches to WAC or other criteria with the result removed from the work area to the intermodal or other transport platform. This process continues until all sections has been tipped, size reduced, containerized, and removed.

If decontamination of the steel and free-release is determined to be cost-effective, the materials could be placed in those types of transport containers for shipment to the decontamination and decontamination verification for free-release facility. However, Fernald has found that when pre-release is planned, the use of shears generates surfaces that are not as acceptable to scrap yards and that it is much more difficult to verify decontamination.

During size reduction and containerization performance, it is possible to have a different crew prepare the next section. Further, if desired, it may be possible to perform tipping operations from both east and west ends at the same time.

IMPLEMENTATION OF PROPOSAL NO. 3

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D

CRITICAL ITEMS TO CONSIDER IN IMPLEMENTATION OF PROPOSAL:

! The actual structural composition of the roof and other members will directly affect the optimum method of cutting to be performed.

! The presence of loose contamination on the roofing may require the application of a lock-down fixative prior to tipping of the bay.

! The sequence of the work will need to be based primarily on the lay-down and size reduction areas available and of sufficient size to safely perform the activity.

! All stacks and air handling equipment should be fully removed from the roof before tripping is performed. Stacks should be considered as having sufficient contamination that handling by crane is much more optimum by both safety and risk criteria.

IDENTIFIED POTENTIAL PROBLEMS AND METHODS TO OVERCOME:

! Airborne contamination generated by the shock of landing and uneven tipping is a potential risk. Reduction of this risk by wetting to prevent contamination during tipping and size reduction can be done through fire hose or other means to suppress dust generation.

RECOMMENDED PROCEDURES: (WHO DOES WHAT)

! To avoid duplication of effort and use the lessons learned at other sites, RMI Environmental Services should contract out the work using the Fernald Environmental Management Project performance-based specification for such work. Sample copies of these are located in the Supporting Documents section.

! Prior to contract award, the contamination levels on the roof, primarily potential loose and removable contaminant sources, should be assessed and fixed as needed. RMI Environmental Services should contract for or perform this work, and perform the review of the work.

ADDITIONAL ITEMS FOR FURTHER STUDY

(A LISTING OF ITEMS WITH POTENTIAL FOR COST OR OTHER VALUE IMPROVEMENT)

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D

DESCRIPTION	ESTIMATE OF DOLLARS INVOLVED	REMARKS
		!
		!
		!
		!
		!
		!
		!
		!

VALUE STUDY - DISPOSITION OF IDEAS

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D

VALUE STUDY ELEMENTS CONSIDERED AS POTENTIAL PROPOSALS AND THEIR DISPOSITION	
CONCEPTS/IDEAS PRODUCING THEM	**DISPOSITION**
! Revising work practices with the objective of improving site productivity. Change work schedule to 4-days of 10-hours per-day duration, 8-days of 9-hour duration plus 8-hour day (alt Friday off), go to shift work scheduling, increase worker-morale, increase staff security though isolating new business immediately to augment NRC closure more readily, and revise traffic patterns to reduce lag time in movements.	Selected as a concept suitable for further development and presented as an alternative proposal recommended for implementation consideration.
! General ideas for potential recommendations for work practices to generate increased productivity. Remotely characterize walls (wall-walker), use remote picture equipment to examine and decommission pipes, grout pipes in-place, use smart CH sampler, avoid characterizations entirely as being low return-on-investment and just dispose of many known contaminated materials, and keep connections with NRC open throughout activities.	Although this series were not evaluated further, the value study team does recommend the project team examine these concepts for their potential to add value for the overall project. Due to the time available within the confines of the team's activities, the team's initial and subsequent analysis phase activities indicated that using the limited value study time available to develop other concepts had much higher potential for increased value return for the client as compared to this concept series.
! Revise work practices to increase use of present sources to generate increased productivity. Use fixed price contract to outsource whole job, use functional specifications, open house for possible subcontractor and vendor opportunities, use speciality subcontractors and revise schedule to benefit from added overhead freedom, and use ice cooling system to lengthen work period and increase worker comfort.	Although this series were not evaluated further, the value study team does recommend the project team examine these concepts for their potential to add value for the overall project. Due to the time available within the confines of the team's activities, the team's initial and subsequent analysis phase activities indicated that using the limited value study time available to develop other concepts had much higher potential for increased value return for the client as compared to this concept series.
! Take advantage of work practices from others. Offer free demonstration capacity for contractors and others.	Although this series were not evaluated further, the value study team does recommend the project team examine these concepts for their potential to add value for the overall project. Due to the time available within the confines of the team's activities, the team's initial and subsequent analysis phase activities indicated that using the limited value study time available to develop other concepts had much higher potential for increased value return for the client as compared to this concept series.
! Consolidate clean areas to facilitate long-term plans and avoid rework.	Not evaluated as an independent proposal. However, some features of this concept series were consider for incorporation in some of the proposals recommended for implementation consideration.

VALUE STUDY - DISPOSITION OF IDEAS

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D

VALUE STUDY ELEMENTS CONSIDERED AS POTENTIAL PROPOSALS AND THEIR DISPOSITION	
CONCEPTS/IDEAS PRODUCING THEM	**DISPOSITION**
! Share resources Use previous and pre-existing contract and contract documents to benefit from lessons-learned and existing expertise, bring in temporary showers from other facilities, use salvaging BNFL system more, use excess property, identify idle property and borrow it as needed, plan needs in advance and post on an internal database to share needs and availability, buy the initial equipment contaminated by activities, keep and then rent back to subsequent contractors, and use Mound concrete crusher to avoid buying and generating other obligations.	Selected as a concept suitable for further development and presented as an alternative proposal recommended for implementation consideration.
! Save costs by eliminating labor Automate systems, use only heavy equipment, and remove many known contaminated debris/waste without bothering to characterize.	Not evaluated as an independent proposal. However, some of the dieas in this concept series was incorporated in some of the proposals recommended for implementation consideration.
! Oversight options Examine privatization, performance specification to use, implement a strategic plan for future use (including subsequent business use of soil washing plant), and include new cost management options.	Although this series were not evaluated further, the value study team does recommend the project team examine these concepts for their potential to add value for the overall project. Due to the time available within the confines of the team's activities, the team's initial and subsequent analysis phase activities indicated that other concepts had much higher potential for increased value return for the client as compared to this concept series.
! Configuration management options Isolate unused buildings to remove overhead costs before demolishing them, isolate waste treatment from other facilities, isolate liability zones as much as possible in central area, relocate utilities immediately to reduce present oversize, costs, and other issues, and use various temporary structures rather than strong structures that are fairly permanent in construction techniques and are higher cost.	Although this series were not evaluated further, the value study team does recommend the project team examine these concepts for their potential to add value for the overall project. Initial and subsequent analysis phase activities indicated that other concepts had much higher potential for increased value return for the client as compared to this concept series.

VALUE STUDY - DISPOSITION OF IDEAS

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D

VALUE STUDY ELEMENTS CONSIDERED AS POTENTIAL PROPOSALS AND THEIR DISPOSITION	
CONCEPTS/IDEAS PRODUCING THEM	**DISPOSITION**
! Roof options Tip building in-place using two section cut bag to contain, and use Fernald experience in this area. Additional ideas within this included: use remote machine to remove need for workers to be on an elevated level such as remote saws, use a tent and HEPA filter to protect environment and workers, use shear to cuts, and use cutting torch to cut.	Selected as a concept suitable for further development and presented as an alternative proposal recommended for implementation consideration.
! Structural steel support removal options Take structure down by using implosion or shaped charges, remove height risk by lowering roof to ground level, tip the structure over similar that done at Fernald, use sectional bracing to support and then drop structure, and remove key supports and just push it over.	Not evaluated as an independent proposal. However, this concept was incorporated in some of the proposals recommended for implementation consideration.
! Characterization issues Use new characterization techniques to minimize (MARRSIMS type) measurements, use laser induced florescence, avoid all characterization as much as possible and just dump it, directional drilling to characterize under buildings, use underground pipe inspection by camera or other remote methods, walk over surface 6+ / 6+ technique, generate a limited characterization procedure, characterize underground lines / grout in-place and leave them where possible, and characterize and cut foundation- leaving it in place when possible.	Some of these options were selected as a concept suitable for further development and presented as an alternative proposal recommended for implementation consideration. Others were dropped as not being of sufficient value enhancement or implausible in this situation.
! Galvestos options	
! Using fixative solutions	
! Using size reduction to benefit project	
! Maximize density to reduce costs of shipping	
! Avoid generation of mixed waste	
! Ground water treatment options	
! Alternative groundwater treatment options	
! Use economies of scale	

VALUE STUDY - DISPOSITION OF IDEAS

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D

VALUE STUDY ELEMENTS CONSIDERED AS POTENTIAL PROPOSALS AND THEIR DISPOSITION	
CONCEPTS/IDEAS PRODUCING THEM	**DISPOSITION**
! Optimize to reduce waste disposal cost	
!	

GENERAL DISCUSSION OF VALUE METHOD PROCEDURES USED IN THE VALUE STUDY PROCESS

General

The study team used a six-phase Value Method job plan for the value study operations. Short descriptions of these six basic Value Method phases and their operations are:

Phase 1. Information Phase

All possible information on the process and operational features within the scope of the study are collected, disseminated, and analyzed. The components making up the features, their functions, and costs are determined. The criteria and limits affecting the project or projects are identified, and if necessary, ranked and/or assigned values. A Function Analysis System Technique (FAST) diagram is generated which shows the "why" and "how" and "supporting" functions being performed. The results are categorized and assigned to functions of note. Items for potential concentration of study team effort are identified.

Phase 2. Creativity Phase

Creativity methods such as "focused brainstorming" and “affinity procedures” are used to generate the maximum quantity of ideas for consideration by the study team. This phase is also often referred to as the "speculation phase."

Phase 3. Analysis Phase

Ideas generated in the creativity phase are ordered, collected into concepts with similar features, solidified into potential alternatives for proposal, and ranked using one of a variety of techniques. The most common two techniques used for ranking are criteria weighting matrix and evaluation analysis ranking, and performance of the function determination and study team consensus ranking. The resulting ranked potential alternatives are then evaluated with regard to their benefits, advantages, and risks. This phase is also often referred to as the "evaluation phase."

Phase 4. Development Phase

Team members "champion" concepts or are assigned concepts that have the best potential for further evaluation and development into viable, efficient, and cost-effective alternative proposals. Each developed concept, that is carried to completion, is an alternative proposal that has an expectation of increasing the value for the client and/or owner of the product or process.

The development process includes, but is not limited to, using team member expertise; consultation with staff performing the project or process; experts and outside vendors; polling others by survey or other means; consultations with the client and/or owner; and review of information resources (libraries, catalogs, and other materials). Recommendations for methods to implement the proposals are identified, and methods to resolve identified potential problems are determined. During this phase, a determination to drop a process from further consideration usually requires unanimous acceptance by the study team.

Phase 5. Presentation Phase

Concepts that are fully developed by the study team which display apparent added value, by monetary or non-monetary measurements, are placed in report form for documentation and presentation as alternative proposals. Generally, these are concepts that have sufficient projected benefits that outweigh their potential disadvantages and risks. During this phase, concepts that are recommended as alternative proposals must, generally, receive unanimous acceptance by the entire team before report presentation and recommendation as an alternative value study concept.

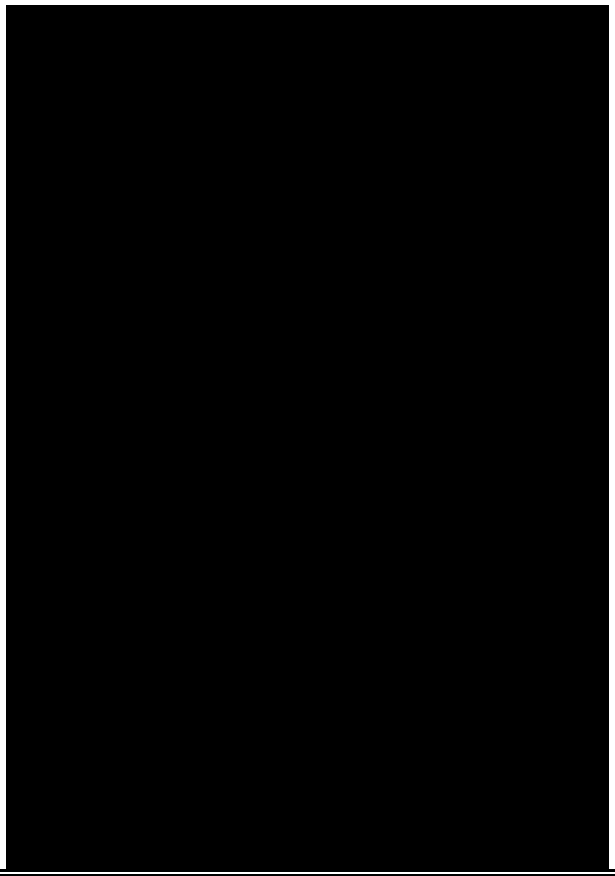
GENERAL DISCUSSION OF VALUE METHOD PROCEDURES USED IN THE VALUE STUDY PROCESS

Some study team concepts or results may be identified to be of potential benefit to the client and/or owner, but cannot be sufficiently developed within the confines of the study time available. Alternatively, some concepts were studied but were not considered to have study team consensus, or in some situations, insufficient benefits to warrant their development when compared to other potentially higher value concepts that could be developed. Such concepts, that demonstrate a potential for added value, are presented as additional items recommended for further study. These items may, on occasion, require extensive additional development activities beyond that available to the study team to determine if the items actually demonstrate the anticipated added value.

Phase 6. Implementation Phase

The owner, users, client, and other project or process parties take the value study recommendations into consideration and evaluate them for implementation. The staff coordinating the value study activity, and if needed, study team members, assist and monitor the evaluation to help all parties in implementing the added value features. An estimate for the final resolution for the value of recommendations is established. The status of the final determination of the accepted recommendations and their estimated added value are reported to the coordinating staff as: accepted, partially accepted, or "withdrawn" due to the acceptance of another preferred proposal. If a proposal is rejected, the rejection and the reason for the rejection are reported to the coordinating staff. Statistics and value study activity results are compiled and reported to organizational management and oversight authorities.

Figure 1. Value Method Decision Process



OWNERS, USERS, STAKEHOLDERS ANALYSIS

Groups and Their Desires/Criteria/Limits

Project: Ashtabula Extrusion Plant Remediation - Building D & D

Owners (Groups that own or will own item)

Source Desire or Criteria/Limits	Desire	Criteria				Comments
		Hard	Soft	Monetary Value	Time Value	
RMI RMI is the owner of about half of the buildings and all the land. Accordingly, return of the property to full unrestricted business use is specified in present DOE/RMI agreements. Now that the DOE contract is to be concluded, removal of liability from the NRC license and other permit requirements, prior operation contaminants, and their affects is needed to return the property to its prior commercial value capacity and avoid unnecessary losses for the firm.			X			Property and the surrounding facilities are a part of the firm's overall plan to maintain profitable business operations. As DOE has determined that the previous operations are no longer required, return of the property to its prior business capable conditions is needed. Criteria is "soft" due to preceived viewpoint that RMI would continue commercial operation of the plant if a profitable contract was maintained in-place.
DOE DOE owns about half of the buildings. The contract agreement generating the RMI license and permit generation contains liabilities that DOE is no longer willing to bear. Release of these liabilities are required as a part of the overall DOE program plan.		X		$4,000,000 per year of license and permit obligation		The DOE no longer requires the capabilities required of these type of contracts. Therefore, closure of these contracts is being done nationwide so that long-term cost reductions can be acquired.

OWNERS, USERS, STAKEHOLDERS ANALYSIS

Groups and Their Desires/Criteria/Limits

Project: Ashtabula Extrusion Plant Remediation - Building D & D

Users (Groups that will use item)

Source Desire or Criteria/Limits	Desire	Criteria: Hard	Criteria: Soft	Criteria: Monetary Value	Criteria: Time Value	Comments
RMI staff, visitors, and business partners Personal safety must be maintained.		X				State, Federal, and other laws and regulations are present to monitor and verify that these objectives are attained.
RMI staff and business partner staff Retention of jobs, avoidance of changing career and other goals, retention of the positions in the present general area of Ohio, etc. are of significant concern.	X					RMI and other firms have a policy of using marketable expertise in other locations where plausible in their business plans. No other programs were observed by the value study team to be in-place to meet this user objective.

Stakeholders (Groups that will have a stake in the item)

Source Desire or Criteria/Limits	Desire	Criteria: Hard	Criteria: Soft	Criteria: Monetary Value	Criteria: Time Value	Comments
US-EPA Field's Brook has been designated as a Superfund site with over 30 PRP's, including RMI, specified. Cleaning this site to specified limits is required.			X			Limited negotiation of some less significant features are allowed within the confines of the law and various responsibility limitations under their authority. Reasonable progress in the remediation work affecting this area needs to be shown.
Various PRP's Release of liability is necessary to improve business viability.			X			Progress in the remediation work affecting this area needs to be shown. Actions by other PRP's that may increase their liability and progress are of concern.
Community No net loss of jobs and no increase in demand on services without a comparable increase in tax payment to cover it is preferred.	X					Increased jobs and pay levels help the overall community.

OWNERS, USERS, STAKEHOLDERS ANALYSIS

Groups and Their Desires/Criteria/Limits

Project: Ashtabula Extrusion Plant Remediation - Building D & D						
State of Utah WAC and other requirements must be met if the Utah facility is used.		X				The State of Utah receives a fee for use of the EnviroCare facility.
State of Nevada WAC and other DOE requirements must be met.			X			The State of Nevada does not receive monetary benefits from use of the facility. The DOE and Federal government own the approved disposal facility and control most of the activities related to it. Safety of the public in the vicinity of Las Vegas and other regions is of concern by the state.
DOT, states with waste traffic passing through Weight limits and safety requirements must be met.			X			Transport of these types of material, even through they are extremely low-level and not of much risk to the public, engender reactive responses and viewpoints. Allowing overwight vehicles to use transportation arteries generates added maintanence costs. Legal enforcement of weight and other criteria to limit various types of damage is used.

DISCUSSION OF CRITERIA AND LIMITS ANALYSIS

Membership on the value study team was chosen in accordance with the multi-discipline concept and independence criteria. In general, each team member represented a specific technical, organizational, or community viewpoint. Full-time team members perform all aspects of the value study. Some team members are part-time, they represent the technical and may act during voting aspects associated with the value study effort. An effort to create a "balanced" team is usually made. (A team that is composed of people that represent several sides of the interests for the features being value studied.) Community preference and concerns were evaluated by the study team from knowledge gained at the site.

The parties and interests involved are identified and reviewed during the Owner, User, and Stakeholder (OUS) Analysis. Several approaches are common. This value study team used a listing approach to highlight the concerns and parties involved. Then a voting and free-form discussion analysis procedure was used. It was determined by the study team facilitator that the team was balanced enough to allow a one person, one vote technique for the matrix computations to determine the importance of the criteria and the selection of potential alternatives.

FUNCTION ANALYSIS

PROJECT: **Ashtabula Extrusion Plant Remediation**

STUDY ITEM: **Building D & D**

COMPONENT (% of total item cost)	VERB (ACTIVE)	NOUN (MEASURABLE)
Concrete Removal (6%-11%)	Remove	Contaminant
Demolish	Expose	Soil
Scabble	Remove	Liability
Vacuum	Prove	Removal
	Prevent	Dispersion
	Verify	Results
	Reveal	Contamination
	Enable	Measurement
	Obtain	IV
	Assure	Dependability
	Attract	OUS
	Satisfy	OUS
Building Steel Removal (8%-5%)	Remove	Facilities
	Restore	Site
	Remove	Debris
	Remove	Structures
	Open	Space
	Avoid	Risk
Size Reduction (5%-4%)	Reduce	Size
	Reduce	Cost
	Minimize	Space
	Use	Resources
	Enable	Transport
	Increase	Complexity
	Remove	Steel
	Fix	Contaminants
	Shred	Debris
	Compress	Waste
	Crush	Debris
	Cut	Materials
	Move	Debris
	Store	Debris

FUNCTION ANALYSIS

PROJECT: **Ashtabula Extrusion Plant Remediation**

STUDY ITEM: **Building D & D**

COMPONENT (% of total item cost)	VERB (ACTIVE)	NOUN (MEASURABLE)
Remove Galbestos (2%-0%)	Remove Unbolt Remove Open Protect Apply Lockup	Panel Panels Unknowns Space Outside Fixative Facility
Remove Roofing (1%-2%)	Reduce Remove Avoid Use Ensure Brief Apply	Height Contamination Complexity Tent Safety People Fixative
EnviroCare Disposal (25%)	Dispose Use Create Remove Relocate Attract	Waste WAC Support Risk Contamination OUS
Transport to EnviroCare (8%) Truck Rail SLC off-load and truck	Transport Transfer Limit Meet Satisfy Increase	Waste Debris Weight Regulations State (Utah) Costs
Site Disposal (5%)	Meet Reduce Assure Landfill Verify Prove Verify Remove Determine	Requirements Cost Convenience Site Results Clean Clean Contaminants Character
Free-release (0% at present)	Clean Remove Use Generate Contaminate Filter Avoid Generate Handle Verify	Steel Surface Grit Risk Air Air Separation Mixed-waste Unknowns Clean

FUNCTION ANALYSIS

PROJECT: **Ashtabula Extrusion Plant Remediation**

STUDY ITEM: **Building D & D**

COMPONENT (% of total item cost)	VERB (ACTIVE)	NOUN (MEASURABLE)
Site Oversight (30%)	Secure Manage Facilitate Show Ensure Brief Monitor Monitor Award Administer	Site Utilities Communication Progress Safety People Performance Contracts Contracts Project
Groundwater Management (4% of total)	Meet Pump Restore Treat Reduce Lengthen	NPDES Water Site Water Costs Schedule (closure)

FUNCTION ANALYSIS SYSTEM TECHNIQUE (FAST) DIAGRAM

The value study team used the function-analysis process to generate a function-logic diagram. It is often referred to as a Function Analysis System Technique (FAST) diagram. A FAST diagram shows the "why" and "how", and "supporting" functions being performed. Items for potential concentration of study team effort were identified through the FAST. These functional tools aided the team in identifying crucial features that are pivotal to meeting requirements that support critical issues (basic function and critical-path functions). It also highlights those functions that meet the activities less critical objectives (supporting or secondary functions). The development of the FAST assists the team in identifying any potential value mismatches and expedites the team's efforts in generating a common-understanding of the activity's purposes and applicable governing criteria.

DESCRIPTION OF SELECTED CRITERIA AND EXPLANATION OF THE WEIGHTING PROCESS

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D

General Discussion:

Using standard Value Method procedures, the value study team determined that the fundamental criteria shown in the Owner, User, Stakeholder analysis were the more crucial factors in serving the basic function. The basic function was derived by the team for the activity under study in consultation with the activity team and client. The resources used by the study team included study team discussion and evaluation of the information provided by: the activity documents; applicable laws and regulations; public meeting documents; staff expertise; staff responsible for ultimate design; study team expertise; and consultants.

EXPLANATION OF THE SELECTION FOR ALTERNATIVE DEVELOPMENT PROCESS

PROJECT: Ashtabula Extrusion Plant Remediation - Building D & D

General Discussion:

Using the identified basic function(s) shown in the FAST diagram, the value study team generated over 200 ideas for discussions and evaluations. Next, the team evaluated applicability and potential to meet the basic functions and governing criteria on a pass/fail basis. As a result, over 130 of these ideas were collected, analyzed, and evaluated further to generate concepts for analysis and further evaluation. After processing, 34 of the resulting concepts were identified for possible refinement and development through further study team investigations. The ranking procedure described below was used to guide the team's efforts on these concepts. During that process, the team decided that 9 of 28 ideas received a rating high enough to warrant team development into potential alternatives. These ideas were then combined, removed, and/or added to other additional ideas and options identified during the Development Phase (due to refinement of the initial ideas), and the results were ultimately presented as Alternative Proposals.

Determination of Concept Development and Development Priorities:

Using standard simplified analysis Value Method procedures, the value study team used a three vote per person procedure to determine which concepts, as generated from the function analysis and function-logic diagrams focus points, had the highest potential to assist the owners and their clients. Principal criteria used were: 1. the concept must be within the specified scope and not violate any hard criteria, 2. the probability that a fully developed proposal would be technologically capable of meeting the needs essential function and basic functions identified, 3. the perceived value potential of the final developed proposal results, and 4. the projected ease of implementation for the developed proposal if selected for implementation.

CONSULTATION RECORD

CONSULTANT/CONTACT INFO (Name,Title,Company,Address,Phone,e-mail)	MAIN TOPIC DISCUSSED AND INFORMATION RECEIVED

INFORMATION/DATA DOCUMENTS CONSULTED

DOCUMENT (Name, Author, Dates, etc.)	INFORMATION RECEIVED/USED
RMI Decommissioning Project Facility Remediation Plan, Revision 2, Volume I and Volume II, December 19, 1995	General history, plans, issues, and cost information.
RMI Decommissioning Project Facility Remediation Plan, Revision 3, Volume I and Volume II, September 30, 1998	Revisions to general history, plans, issues, and cost information.

GLOSSARY OF PERTINENT STANDARD VALUE METHOD TERMS

Annual Costs. The annual expenditure of funds or other resources to ensure the product's satisfactory continued functioning during its economic life.

Alternative Analysis Matrix. A process using the results of the criteria weighting to determine the apparent relative rank for various identified alternatives.

Alternative Value Increment Comparison. A comparison procedure used to evaluate the comparative incremental worth versus its incremental cost for a series of alternatives that meet the identified essential needs relatively equally.

Benefits, Disadvantages, and Risk Analysis. An assessment identifying the benefits, disadvantages, and possible associated risks related to pursuing a particular alternative to its final conclusion.

Basic Function. The main function(s) that meets the essential needs of the process, procedure, or activity that the product must achieve.

Certified Value Specialist. A person who has been certified to have all the qualifications to conduct, monitor, guide, and instruct people in the practice of the Value Method process from SAVE International.

Component. An identified portion of the process, procedure, or activity under study. These may be a physical feature or "mission" type features such as the stated purposes for the activity.

Cost Model. A illustrative diagram that shows the relationship of expenditures as they relate to the functions and components.

Criteria Weighting. A procedure applied to the governing criteria to determine the relative weight of specific criteria as it relates to the other criteria.

Criteria/Limits Analysis. An evaluation of the criteria and limits that govern the process, procedure, or activity; the cost and worth of them in time, money, or other measurement scales; and the flexibility for changing them (hard=not possible to economically change, soft=may be possible to economically change).

Final Report. Value study report with editorial, and other modifications done with respect to the feedback received during presentations, made to the Presentation Report basic results.

Functional Analysis. A process using a two word definition of the purpose or affect of a particular component. To promote understanding and facilitate value study activities, functions are limited to an active verb and measurable noun.

Function-Logic-Diagram. A diagram of the functions that lays out the purposes behind each function and its interrelationship with other functions. The most common type of diagram is the Functional Analysis System Technique (FAST).

Higher-Order Function. The function(s) that the entire product must achieve to meet the ultimate purpose for the process, procedure, or activity.

Implementation. The suggested process identified by the value study as an appropriate means to implement a specific value study proposal.

Involved Parties. The owners, users, and stakeholders that have a concern in the Program, Project, or Activity, or its final outcome product.

Life-Cycle Costs. The true economic cost of an alternative stated in present worth terms that uses a specified time value of money and economic life and includes all cost (non-recurring, recurring, annual, and any potential salvage capacity).

Non-Recurring Costs. The initial outlay of funds or other resources to obtain the product.

Presentation Report. Value study report used for presenting the results of the value study activity. The end result commodity for a process, procedure, or activity.

Proposal. An alternative means identified within the confines of the value study to achieve the purpose for the product that satisfactorily meets the specified criteria and limits.

Recurring Costs. The periodic expenditure of funds or other resources to ensure the product will satisfactory continue to function during its economic life.

Job Plan. The activity plan which is used in every value study.

Value. The worth of a product to the involved parties as it is related to its cost (monetary and non-monetary).

Value Added. A feature that does not increase the value of the product monetarily, but increases the worth of the product to the involved parties.

Value Analysis. The Value Methodology process as it is usually applied to an activity for a process, procedure, or repetitive activity.

Value Engineering. The Value Methodology process as it is typically applied to an engineering type application. Usually it is conducted during the 25 percent to 40 percent design phase (concept phase) and consists of a completely independent team.

GLOSSARY OF PERTINENT STANDARD VALUE METHOD TERMS

Value Method. An organized, systematic effort directed at analyzing functions for the purpose of achieving the essential functions at the lowest life-cycle cost.
Value Mismatch. An observed disparity identified in the function-logic-diagram, or other procedures, between the apparent worth of the function and its cost.
Value Study. An investigation of a specified process, problem, procedure, activity, or product using the Value Methodology process for the purpose of ensuring and/or improving the value of the final product for involved parties.

GLOSSARY OF OTHER TERMS AND ACRONYMS

ASAP. Adaptive Sampling and Analysis Program
Battelle. Battelle Memorial Institute
BCLDP. Battelle Columbus Decommissioning Project
BNSA. Battelle Nuclear Sciences Area
CEMP. Columbus Environmental Management Project (located in Columbus Ohio)
COC. Containment of concern
COE. United States Department of the Army, Corps of Engineers
CFR. Code of Federal Regulations
D & D. Decommissioning and decontamination
DOD. Department of Defense
DOE. United States Department of Energy
DOE-OH. United States Department of Energy, Ohio Field Office
EPA. Environmental Protection Agency
FEMP. Fernald Environmental Management Project (located in Fernald Ohio)
FUSRAP. Formerly Utilized Sites (RAP unknown)
FSS. Final Survey Sample
FTE. Full-time equivalent, a combination of hours equaling a little more than 2000 in a given year is equivalent to one person working all year.
FY. Fiscal year
GFI. Ground fault interrupter
HEPA. High efficiency particulate air (filter implied)
HPGe. High Purity Germanium
INEEL. Idaho National Environmental Engineering Lab
ITRD. Innovative Treatment Remediation Demonstration
IVC. Independent Verification Certification
JN. Jefferson (a.k.a, West Jefferson) North

GLOSSARY OF PERTINENT STANDARD VALUE METHOD TERMS

LCAM. Department of Energy's Life Cycle Asset Management program
LLW. Low Level Waste
MARSSIMS. Multiagency Radiation Survey and Site Investigation Manual
MEMP. Miamisburg Environmental Management Project (located in Maimisburg Ohio)
NRC. Nuclear Regulatory Commission
NUREG. Nuclear Regulations
NY. New York
OH. Ohio (if by itself, usually the State of Ohio, if combined with another identifier, the office in Ohio for that identifier.)
P2. Pollution Prevention
PID. Proportional Indicator Detector
PDT. Process Definitive Testing
PU-U-TH. Plutonium-Uranium-Thorium
QA. Quality assurance
QV. Quality verification
RAL. Radioanalytical Laboratory
RCRA. Resource Conservations and Recovery Act
RMI. Company name, formerly Reactive Materials Incorporated
S & M. Support and management
SGS. Segmented Gate System
SNL. Sandia National Laboratories
TEDE. Total Effective Dose Equivalent
TRU. Transuranic waste
VRC. Volumetric Release Criteria
W/Min. Waste minimization
WCS. Work Control Schedule
WCS. Waste Control Specialist
WJ. West Jefferson
WJN. West Jefferson North
WV. West Valley, located in New York
WVDP. West Valley Demonstration Project
Y2K. The year 2000

VERBAL PRESENTATION MEETING ATTENDANCE LIST

Ashtabula Extrusion Plant Remediation - Building D & D
VALUE STUDY
1:00 p.m., October 23, 1998
Location:

NAME/ORGANIZATION	OFFICE/ADDRESS	PHONE
Sam Martin, PE, CVS	P.O. Box 1115, Evergreen, CO 80437 sam@value-engineering.com	(303) 674-6389 Fax 670-0792
Doug Maynor DOE/OH	P.O. Box 3020, Miamisburg, OH 45343 Doug.Maynor@EM.DOE.GOV	(937) 865-3986 Fax -4402

INITIAL BRIEFING MEETING ATTENDANCE LIST

Ashtabula Extrusion Plant Remediation - Building D & D
VALUE STUDY
9:00 a.m., October 23, 1998
Location:

NAME/ORGANIZATION	OFFICE/ADDRESS	PHONE
Sam Martin, PE, CVS	P.O. Box 1115, Evergreen, CO 80437 sam@value-engineering.com	(303) 674-6389 Fax 670-0792
Doug Maynor DOE/OH	P.O. Box 3020, Miamisburg, OH 45343 Doug.Maynor@EM.DOE.GOV	(937) 865-3986 Fax -4402

Supporting Documentation