



U.S. DEPARTMENT OF  
**ENERGY**

**CH2MHILL**



# **VESTED**<sup>®</sup> For Success Case Study

How the *U.S. Department of Energy* Transformed a  
Weapons Wasteland into a Wildlife Refuge

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## Executive Summary

In 1952 the Atomic Energy Commission<sup>1</sup> established a highly secretive site outside of Denver to fabricate triggers<sup>2</sup> that contained plutonium and uranium fuels for nuclear weapons. By 1989 the site had become one of the most dangerously contaminated locations in the world. The Environmental Protection Agency (EPA) designated the Rocky Flats plant and surrounding 6,262 acre site as a hazardous waste site and the President eventually ordered the Rocky Flats site to be permanently closed and cleaned up.

Total closure and clean-up of a nuclear production facility had never been accomplished anywhere in the world; many deemed success to be improbable. Cost estimates developed for Rocky Flats Closure Project included a 1995 Baseline Environmental Management Report that estimated the project could require up to 75 years and \$37 billion.

Faced with this daunting challenge, the United States Department of Energy (DOE) decided to try a different strategy: implement an innovative approach for working with a commercial contractor based on incentives to radically reduce the time and cost to close and clean up Rocky Flats. In 1995, DOE signed a contract with Kaiser-Hill Company LLC, a joint venture of CH2M Hill and Kaiser Engineers, to complete the Rocky Flats Closure Project. This first phase contract for \$3.75 billion represented what they believed at the time to be the highly aggressive goal of completion by the year 2020. Due to excellent performance, Kaiser-Hill was awarded a six-year extension for \$3.94 billion and a revised completion date of December 15, 2006. The result was nothing short of transformational. Kaiser-Hill transformed the world's most dangerous plutonium site to a prairie 60 years ahead of schedule and \$30 billion under budget. Today the Rocky Flats site is host to a 6,550 acre<sup>3</sup> wildlife environmental refuge visited by thousands of schoolchildren and nature lovers each year.

This case study tells the remarkable story of how the DOE and Kaiser-Hill closely followed what the University of Tennessee has coined as a Vested Outsourcing approach.<sup>4</sup> Vested Outsourcing is a revolutionary way for organizations and service providers to contract for outcomes or results instead of paying for tasks or activities. This case study reveals how the DOE and Kaiser-Hill applied the Fives Rules of Vested Outsourcing to achieve what some called the impossible.

## Laying the Foundation

From its inception, Rocky Flats was shrouded in secrecy due to the top-secret nature of its work. Because of the secrecy required, employees were a closely-knit society with married couples and generations working side-by-side in what they believed to be jobs that would last forever. The Rocky Flats workforce was patriotic and proud of its role to “keep the country safe.” In fact, RF never missed a production quota and enjoyed the highest production quality of any DOE facility.

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<sup>2</sup> Carefully fabricated spheres of metal and high explosives that implode to create fission for nuclear bombs; they have a life expectancy of a century or more.

<sup>3</sup> Federal property of 6262 acres + adjoining contaminated land.

<sup>4</sup> Author, educator and business consultant Kate Vitasek is a nationally recognized innovator in the practice of supply chain management and outsourcing.



However, the level of secrecy led to ongoing tension between federal and state agencies. Distrust built to the point that in 1989, the Federal Bureau of Investigation (FBI), Justice Department and EPA launched a surprise raid, “Operation Desert Glow,” to investigate allegations of environmental crimes. Hazardous conditions were apparent and Rocky Flats was immediately shut down.

The FBI raid/shut-down shook the RF collective confidence. A General Accounting Office (GAO) report to Congress described the Rocky Flats plant like this:

The site’s weapons production activities left high-risk radioactive and hazardous materials and wastes, severely contaminated buildings, and large areas of contaminated soil—all in close proximity to the 2.5 million residents of Denver and its surrounding communities. The job at hand is huge. For example, the total amount of radioactive waste that the contractor is required to package and ship off-site is enough to fill a 19-story building the size of a football field.

The final blow was delivered by President George H. W. Bush when he announced the W-88 warhead program was discontinued. The RF workforce was demoralized, angry and afraid.

To make matters worse, the Denver citizenry was outraged about documented instances of hazardous waste expelled into the atmosphere. Public protests began in 1969 when a plant fire ignited awareness about contaminant release. In the 1980s peace activists joined in. On one occasion, protesters encircled the entire 17-mile buffer zone perimeter hand-in-hand. Anger intensified after the FBI raid/shut-down of the program when evidence of the environmental hazard was certain. The public wanted assurances that air, ground, and water quality would be safe.

The DOE was faced with the impossible: total closure and clean-up of a nuclear production facility. This had never been accomplished anywhere in the world. No one was certain how it could even be done. Cost estimates developed for Rocky Flats Closure Project included a 1995 Baseline Environmental Management Report (BEMR) that estimated the project could require up to 75 years and \$37 billion.

The DOE believed it would need to dramatically improve its contracting process if it was going to succeed. Historically, outsourcing took the form of Management and Operating Contracts (M&O) on a cost-plus reimbursement base. Many contracts were subject to rules in the Department of Energy Acquisition Requirements (DEAR) that established non-competitive extensions of contracts with incumbent contractors as the norm. This traditional model had serious weaknesses, and cost savings were not realized as anticipated. There was a lack of motivation for contractors to go beyond established norms and performance measures were not clearly defined. In addition, contractors were relieved of most financial risk due to the secrecy of the work. The secrecy also inhibited effective oversight by DOE.

The DOE determined it was time to try a different approach. It believed the key would be to develop an approach that would allow the supplier to have a vested interest in achieving the DOE’s vision. They needed to create a contract and governance structure that would enable them to reward the supplier heavily when the supplier achieved their vision.



Since a closure like this had never been done, required tasks had to be developed. By definition, there were aspects to the process that could be classified as “learn-as-you-go” or “experiment and conquer.” Defining a contract (with multiple government oversights within a highly hazardous environment) that allowed for the requisite open and innovative approach was daunting.

For Kaiser-Hill and parent company CH2M Hill, winning the Rocky Flats Closure Project was not just for the profit potential. It would also give them an impressive accomplishment that would provide recognizable industry expertise and attract an expanded customer base.

## WIIFWe

Creating a true win-win mentality meant changing the rules of the game whereby parties share in the risk and rewards associated with transformation efforts. Vested Outsourcing suggests: *Instead of thinking about “What’s In It for Me” (WIIFMe), it’s time to think about “What’s In It for We” (WIIFWe).*

Faced with the Rocky Flats Closure Project’s formidable challenge, DOE set forward to create a vision that would become a beacon of what the future looked like. To stimulate buy-in, the public was engaged in the process. The idea to create a wildlife refuge emerged from public meetings. Certainly, if the DOE could turn the most toxic site in the world into a wildlife refuge, they would succeed.

The DOE established the following vision: “Be the model site for environmental clean-up and economic conversion with community recognition and support.”

A myriad of government agencies including the AEC, CDPHE, EPA, NAEC,<sup>5</sup> agreed with the DOE: public safety was paramount and saving money was important as well. To honor the vision, focus on the future instead of the past, and get community input, a contest was held to rename the project. Thus, the Rocky Flats Environmental Technology Site (RFETS) was born.

*Any Vested Outsourcing relationship flourishes best in a culture in which participants work together to ensure their mutual success. In essence, Vested Outsourcing buys desired outcomes, not individual transactions. The service provider is paid based on its ability to achieve the mutually agreed desired outcomes.*

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<sup>5</sup> Atomic Energy Commission; Colorado Department of Health and Environment; Environmental Protection Agency; National Atomic Energy Commission



*Vested Outsourcing demands a willingness to transcend the conventional win-lose approach and move to WIN-WIN for everyone.*

What emerged was an overarching vision—something bigger than any individual or group. They would be doing what had never been done before—successful decontamination, demolition and disposal of dangerous buildings and hazardous waste, contributing to the eventual transformation of the land back to prairie as a wildlife environmental refuge. The stakes were huge, and so was the pride.

## Playing by the Rules

For the DOE and Kaiser-Hill to succeed, they knew they had to change the rules of the game. A true vested partnership yields significant potential benefits for both parties. Success was the ultimate result because both DOE and Kaiser-Hill rigorously adhered to an outsourcing business model that follows five key rules.

These rules are:

1. Focus on outcomes, not transactions.
2. Focus on the WHAT, not the HOW.
3. Incorporate clearly defined and measurable desired outcomes.
4. Use a pricing model with incentives to optimize cost/service trade-off.
5. Establish a governance structure based on insight, not oversight.

This case study captures the essence of how the DOE and Kaiser-Hill “played by the rules” when developing their outsourcing agreement. The rules are discussed to demonstrate how the DOE- Kaiser-Hill agreement applied each rule.

## Rule #1: Focus on Outcomes, Not Transactions

A fun fact about this entire endeavor is that Vested Outsourcing principles were used by more than DOE and Kaiser-Hill. It started with the multiple government units having some piece of jurisdiction over the Rocky Flats Closure Project and coming together in the Final Rocky Flats Cleanup Agreement (FRFCA) on July 19, 1996. The FRFCA was signed by the State of Colorado, EPA and DOE. It recognized the guidance of the United States Office of Management and Budget Policy (OMB) and included a Memorandum of Understanding with the Defense Nuclear Facility Safety Board (DNFSB).

The agreement established the regulatory framework for achieving the ultimate cleanup of the site and defined the vision:

- To achieve accelerated cleanup and closure of Rocky Flats in a safe, environmentally protective manner and in compliance with applicable state and federal environmental laws;
- To ensure that Rocky Flats does not pose an unacceptable risk to the citizens of Colorado or to the site's workers from either contamination or an accident; and



- To work toward the disposition of contamination, wastes, buildings, facilities and infrastructure from Rocky Flats consistent with community preference and national goals.

The vision was deliberately composed of general parameters, designed to guide individual cleanup decisions, without predetermining those decisions. Recognizing that bureaucracy's normal procedures would be an obstacle to the compressed time frame and vow to save billions of dollars, specific language was included in the agreement to break long practiced paradigms:

- "Seek ways to accelerate cleanup actions and eliminate unnecessary tasks and reviews, by requiring that the Parties to the Agreement work together."
- "Provide the flexibility to modify the work scope and schedules, recognizing that priorities of specific tasks and schedules may change as the cleanup progresses due to emerging information on Site conditions, risk priorities, and available resources."

Needless to say, this was not the standard operating procedure for government work.

DOE was granted authority to enter into an outcome-based management contract with Kaiser-Hill. Multiple specific goals were identified with individual objectives, performance measures and assigned fees for incentives. However, the means to achieve the goals were not mandated. While clear benchmarks and priorities were established, contract language remained sufficiently general; flexibility was built-in and innovation was expected.

Upon assuming responsibility, the Kaiser-Hill team simplified the vision so it could be shared clearly across all stakeholders, developing the mantra "not a day late, not a dollar more." This became the unified shared vision that would align not only the DOE and Kaiser-Hill management but would also be the vision that all employees involved in the cleanup would embrace.

Kaiser-Hill's Internal Vision sums it up nicely:

**Accelerated Closure—Not a Day Later, Not a Dollar More.**

## Rule #2: Focus on the WHAT, Not the HOW

A sound Vested Outsourcing strategy limits the number of yearly goals. The most important WHAT to identify were the primary objectives. The FRFCA identified these objectives:

1. Disposition of Weapons Useable Fissile Materials and Transuranic Wastes
2. On-Site and Off-Site Waste Management
3. Water Quality
4. Cleanup Guidelines
5. Land Use
6. Environmental Monitoring
7. Building Disposition
8. Mortgage Reduction
9. Definition of Terms



DOE set overall cost and time requirements as well as refining objectives into bite-sized goals. An example of what this looks like is included later in this study.

Kaiser-Hill then published its own Project Control System Description (PCSD). The Project Control System (PCS) incorporated DOE and other regulatory agency requirements as well as Project Management Institute's (PMI) best practices in order to achieve a value-added, streamlined approach. Kaiser-Hill asserted its right to use value-added process improvements that did not impact the PCS functionality, appropriate to state-of-the-art project management industry standards.

Within this document, Kaiser-Hill reviewed strategies they would use to actively support proactive management. Kaiser-Hill elected to utilize Work Breakdown Structures (WBS), a mechanism to align schedule, cost estimate, and work scope. PMI defines that "...A Work Breakdown Structure is a deliverable-oriented grouping of project elements that organize and define the total scope of the project." A separate Project Management Plan (PMP) was developed for each of the nine (9) Rocky Flats Closure Project projects.<sup>6</sup>

Dealing with nuclear production and hazardous waste, much of the work, by rule of law, had to be done within specific requirements and risk rankings. Although DOE established risk rankings, the contract gave Kaiser-Hill flexibility in **HOW** they met the requirements as long as they adhered to the law and the stated requirements.

For example, for their first demolition, Kaiser-Hill chose to remove the Administration Building—a DOE lower priority site. They did so to make the point that "we're all in this together," moving senior management to a shared workspace in the middle of the action. Demolishing the building built trust as it also demolished the historical separation between "us" and "them."

It is also important to remember that a closure like this had never been done; it required tasks that literally had to be invented. By definition, there were aspects to the process that could be classified as "learn-as-you-go" and "experiment and conquer." Kaiser-Hill adopted the principle that advancement came from "doing things right the first time," not speed.

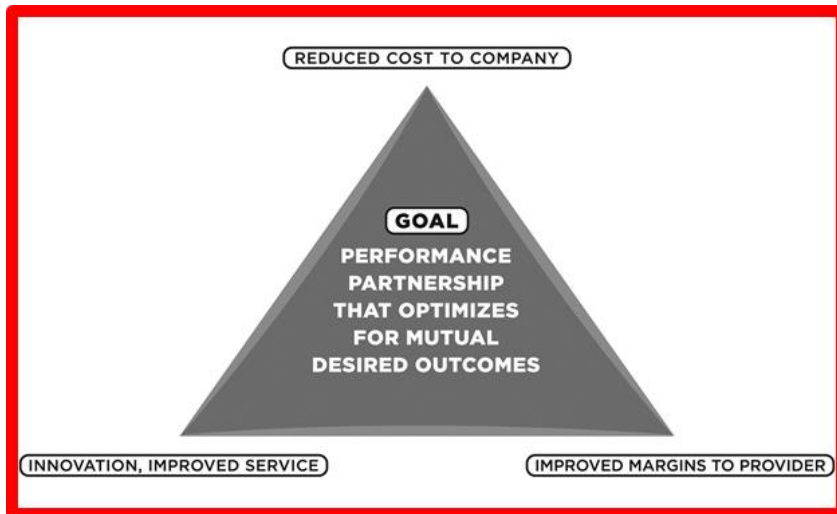
In some cases, Kaiser-Hill was challenged to find solutions for objectives that had never been attempted. Kaiser-Hill embraced experimentation. When something failed, they learned from it and tried something new. Being unafraid to fail and determined to win paid off.

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<sup>6</sup> 371 Complex; 707 Complex; 771 Complex; 776 Complex; Industrial and Site Services; Material Stewardship; Remediation; Engineering, Environment, Safety, Health and Quality (EESH&Q); Support and Non-project services



## Vested Outsourcing Pyramid—Everyone Wins!



Kaiser-Hill used innovative thinking and technology to come up with the best way to achieve the DOE's stated requirements. For example, to clean up plutonium buildings, a GAO report cites the following Kaiser-Hill innovative approaches:

Kaiser-Hill used a fine aerosol sugar fog to clean some of the most contaminated rooms at the site. The sugar fog is created by a machine using sound waves to make the droplets very small. The fog is then pumped into the room through a flexible duct. Airborne radioactive particles adhere to the fog, which settles onto the walls and floor and is allowed to dry. The contaminated surfaces can then be more safely removed.

Another innovative approach, developed through experience Kaiser-Hill gained cleaning up the first Plutonium building, used a plasma arc torch instead of conventional tools to cut up large pieces of contaminated equipment. The plasma arc torch – a device that electrically heats the gas to form a plasma for high-temperature operations such as melting metal – is much faster, and it distances workers from sharp edges on tools and contaminated metal parts. To further enhance worker safety, Kaiser-Hill pursued the use of robotic arms to operate the torch.

Kaiser-Hill's "out-of-the-box" mindset is documented in a list of unique tactics.<sup>7</sup> Here are a few of them that provide a glimpse of how to keep imagination alive:

- Take financial risk to create mandatory drivers for improved performance.
- Tell the truth early—it's the right thing to do.
- Challenge/question everything – constantly ask "Why?" "Why not?" and "What if?"

<sup>7</sup> Nancy Tuor, Vice Chair & Vice President, Federal Client Group. CH2MHill "Rocky Flats Closure Project: Making the Impossible Possible."





- The answer is never “it can’t be done.” What are the costs; is it worth it?
- Be flexible — there’s almost always another way.
- Keep your sense of outrage alive.
- Identify and cultivate the stars and believers.
- New blood can be a critical asset in continuous improvement.

Overall, this flexibility drove Kaiser-Hill to develop over 200 innovations.

## Rule #3: Agree on Clearly Defined and Measurable Outcomes

Establishing the baseline helps establish desired outcomes and the associated target metrics used to define what success looks like. Establishing the desired outcomes and how success will be defined and measured is the single most important part of Vested Outsourcing. As such, it was important that both the DOE and Kaiser-Hill understood the current state of the program.

The DOE used an approach known as the Organization Diagnosis Survey (ODS)<sup>8</sup> to establish the baseline. The tool measured Kaiser-Hill senior managers’ influence on the productivity of RFETS workers. These performance factors then became a key part of the contract with Kaiser-Hill being required to close the gap (DIFFERENCE).

<b>PERFORMANCE FACTOR (1)</b>	<b>ROCKY FLATS 1995 (2)</b>	<b>30% THRESHOLD Score to be in Top of Industry (3)</b>	<b>BASELINE DIFFERENCE (3) – (2) Base of Comparison</b>
Accountability	4.27	5.14	0.87
Productivity	3.91	4.88	0.97
Quality	3.61	4.93	1.32
Safety	5.0	6.10	1.10

The Baseline Difference remained as the constant for the life of the measure.

Within each of the DOE Goals, a general description, performance measure and incentive were identified. Below is an example directly from the contract.

<sup>8</sup> Work Systems Associates, Inc. (WSA) developed the ODS and maintains an extensive database of organization’s scores. Sixteen safety questions were added to tailor it to RFETS.



*“Getting it wrong can result in hundreds of thousands, and possibly millions, of dollars wasted in an outsource solution... The company will have procured a subcontracting assignment that delivers what it asked for, but may not necessarily be what it wants or needs.”*

## —VESTED OUTSOURCING

All good Vested Outsourcing agreements tie incentives to achieving outcome-related metrics. The Rocky Flats Closure Project was no exception to applying this critical Vested Outsourcing rule. The DOE created a Performance-Based Incentive Fee Structure<sup>9</sup> that would reward Kaiser-Hill for achieving the DOE’s desired outcomes and meeting stated and defined performance measures. The following is the Performance Measure (PM) Description as outlined in the contract:

### The Basics

- The structure will consist of objectives,<sup>10</sup> goals,<sup>11</sup> and performance measures.<sup>12</sup>
- Performance incentive fees are paid for the achievement of individual PM.
- There will be relatively few, meaningful PM – no more than 30 – 50 per fiscal year.
- “Out-year” PM (without identifying associated fees) may be established for planning purposes.

Under the model, financial rewards were identified and shared for reaching the DOE’s objectives. Penalties were enforced if results were not achieved.

### How It Works

- Performance measures (PMs) are severable and flexible.
- Incentive payments for each PM will (with some exceptions) operate independently of each other. (Thus, enabling reward for results and penalty for non-completion.)
- PMs and incentive fee distribution may be negotiated for each FY.
- Individual PMs will be divided into standard and stretch measures.<sup>13</sup> A standard measure will generate an incentive fee only for total completion – all or nothing. Stretch measures can earn incentive fees for partial completion if the corresponding standard measurement is met.

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<sup>9</sup> Section J, Attachment J to Contract DE-AC34-95RF00825, title Performance Based Incentive Fee Structure.

<sup>10</sup> General areas of performance specifically identified in the RFSP.

<sup>11</sup> Actions, described in general terms that further objectives within the contract performance period.

<sup>12</sup> Very specifically defined actions that are intended to achieve the goals.

<sup>13</sup> It is interesting to note, when the contract was renewed in 1999, a 3rd “super stretch measure” was added. When USDOE realized Kaiser-Hill would reach maximum fee levels, they added another 20-cent reward for each dollar under target goal to preserve “urgency.”



## Rules for Partial Completion

- For stretch measures, e.g., each drum vented, each item repackaged, each container shipped will earn an equal increment of the fee.
- On a case-by-case basis, fees may be tied to the value of each increment of performance, i.e., the earliest increment may earn more or less than later ones.
- The default condition for standard measures is all or nothing. Deviation will be extraordinary.

## Deciding the PM “Weight”

- Fees for objectives will be first established by associating a percentage of total incentive fees available for that objective in the FY.
- The parties then negotiate specific dollar amounts.
- If parties can't agree, a contracting officer will decide.

Referring to Rocky Flats Closure Project, here's an example of how a PM and stretch incentive fee potential work:

## Rule Number 4: Optimize Pricing Model Incentives for Cost/Service Trade-offs

*Vested Outsourcing: Five Rules That Will Transform Outsourcing* states the importance of properly structuring incentives to drive the right behaviors:

It motivates the outsource provider to strive for outstanding results and process innovation to bring costs down. Incentives should be balanced to ensure perverse incentives are not created, and compel the outsource provider to make trade-off decisions among the incentive areas that are consistent with desired outcomes.

The Rocky Flats Closure Project contract fully embraced this concept. It had many attributes that made it very Vested in nature. A few are explored below.

### Cost-Plus Fee-at-Risk

The basic Kaiser-Hill fee was structured as a cost-plus fee-at-risk with incentives. This meant that the contract was cost-plus, but that Kaiser-Hill's fee (or profit for doing the work) would be connected to the final cost, which the DOE paid. The lower the DOE's costs, the higher the fee for Kaiser-Hill. This tied Kaiser-Hill financial incentives directly to the DOE's goal of trying to keep the costs of the cleanup to a minimum.

Using a fee-at-risk approach was critical in a Vested Outsourcing contract such as the Rocky Flats Closure Project because the true scope and costs of the work were truly unknown – they would, at best, be guess estimates. Under a conventional cost-plus contract, a supplier would achieve a set markup (say 10%) to be charged on top of the costs, or they would set a fixed management fee regardless of the



costs of the project. Either way, a conventional cost-plus pricing model does not incentivize the supplier to reduce the costs of the project.

Creating an incentive fee tied to Kaiser-Hill's ability to contain (or even beat) the budget aligned Kaiser-Hill's interests with the DOE's interest. For example, the original 1999 contract stated that if total costs were between \$3,963 billion and \$4,163 billion, Kaiser-Hill would earn the target fee. If the actual costs were less than the target cost, the Kaiser-Hill would earn an additional 30 cents for every dollar of < \$3,963 (DOE share = 70 cents). If costs went over the Target cost, Kaiser-Hill's fee was reduced by 30 cents. \$150 million was listed as the minimum fee; \$460 million was the maximum. A 2004 contract revision increased the risk/reward by dropping the minimum to \$75 million and raised the maximum to \$560 million.

Using a fee-at-risk with incentives pricing model allowed Kaiser-Hill to earn a substantial amount of additional profit if they exceeded the targets. Likewise, they risked losing a substantial amount of fee if they did not perform. The table below shows the profit fee.

	Minimum Fee	Target Fee	Maximum Fee
Profit Percentages	3.77%	9%	11.6%

Kaiser-Hill ultimately earned the maximum fee of 11.6%. While many, including the Government Accountabilities Office (GAO), argued these fees were too high (the DOE average fee was 4.1 percent at the time), Kaiser-Hill faced a significant risk if they did not perform. The critical point here is that the pricing model was structured such that when Kaiser-Hill "won" with more profit, the DOE "won" with lowered costs.

Why try to cap a contractor's fee when it's in your best interest to pay them to exceed and achieve further cost reductions? It is the authors' opinion that not capping the incentives is a critical component to a good Vested Outsourcing deal because it creates economics whereby the contractor has a vested interest in meeting and achieving the DOE's goals.

### **Mutual Accountability**

Another unique feature was the commitment by DOE to provide essential services efficiently. Kaiser-Hill could request adjustments to cover the true cost of DOE delays to the project. This brought DOE performance into the light and assured accountability because now both DOE and Kaiser-Hill had visibility to the end-to-end effect of not working together. This also greatly helped to eliminate the finger-pointing often seen in outsourcing agreements where the buying company does not provide the inputs needed for the supplier to achieve the proper outcomes. Now the DOE and Kaiser-Hill were in the cleanup together.

### **Skin in the Game Investment**

Historically, if projects had an express level of danger, DOE would allow the contractor to have an equitable adjustment in target cost under the standard contracting methodology. Also, in traditional cost-plus contracts, DOE provided a "line of credit" of advance financing for contractors (with limited DOE supervision) to cover expenses as incurred.



Under the new contract, Kaiser-Hill assumed programmatic and fiduciary responsibility for Rocky Flats Closure Project assumptions. The RF contract—the first-ever performance-based, risk-sharing contract—established rules that put Kaiser-Hill operating capital in the mix. Kaiser-Hill financed its own performance and submitted vouchers for payment. Kaiser-Hill agreed to accept significant risk. *Owning* the risk as well as the reward was a critical piece to creating the win-win relationship that prevailed.

## **Stability of Funding**

Kaiser-Hill was taking on a sizable risk with the Rocky Flats Closure Project. They not only had a portion of their fee-at-risk tied to costs, but they were also putting up their own money to drive innovations hoping to achieve the incentive payouts if they performed well. As such, it was important to have a long-term contract. The DOE, Colorado, and EPA went to work internally to reach an agreement of their own, codifying inner agency collaboration and pledging consistent project funding.

Provision was made to allow grants or other funding to reimburse CDPHE for expenses incurred for administration costs or environmental fees. But, if no grant was available, DOE was required to pay Colorado for any work done.

While the contract was originally for four years, extended to a six-year “long term” contract, and the agencies pledged consistent funding, all government agencies have a huge obstacle to overcome in terms of funding; it’s extraordinarily difficult to commit public funds against a long-term contract more than one year in advance. In stark language, the FRFCA stated, “This agreement does not constitute any decision or preauthorization of funds under section 111(a) (2) of CERCLA, 42 U.S.C. {9611(a) (2).” Ouch! This means that while Kaiser-Hill had a long-term contract, in reality they only had funding for one year at a time.

As such, this was one aspect of the contract that did not follow Vested Outsourcing parameters: long-term contracts are preferable because the provider is forced to think and act for the contractor’s long-term interest. This posed a threat to Kaiser-Hill, but it was a bet that Kaiser-Hill chose to take.

Kaiser-Hill knew since its inception RF always had funding, even in the period between 1989 and 1995 when RF operated without a mission. Public outcry was in their favor and they deemed it was likely the agencies involved with funding would find a way to get RF cleanup to the top of their lists. Not doing so was too risky for the DOE, EPA and the State of Colorado. What’s more, as they moved ahead, saving money as they went, FY funding projections were adjusted downward, assuring full funding would be available for the coming year.

## **Shared Savings**

Project funding was expected from multiple governmental sources. If significant savings were realized, assurances were needed that monies saved would be used for Rocky Flats Closure Project, not added to any Department’s general ledger. Clarification was essential about how recovered money would be allocated. The FRFCA provided the clarification: A percentage of cost savings would be retained at RFETS in order to fund additional activities in future years. The first year, 60% was allocated to RFETS, 75% the second year and 90% in every year thereafter. This would change only in the event of imminent danger or significant threat to public health. In that case, DOE could reallocate monies to a different project after collaboration with EPA and the State of Colorado.



## Valuation of Risk

With much at stake, Kaiser-Hill developed sophisticated strategies to effectively recognize and manage risk, helping them to negotiate proper incentive levels as they determined the risk/reward benefits. The following language is found in the Kaiser-Hill Project Control System (PCS) section of the contract:

The Kaiser-Hill project planning process at RFETS classifies cost and schedule uncertainty as 'programmatic risk' and develops a range of uncertainty for each of the relevant activities. Analysis of the uncertainties within a project's critical path and cost estimate is conducted to provide insight into how each uncertainty influences the overall project cost and schedule. Sensitivity analysis is also conducted to understand how each uncertainty drives the total project cost and completion date. This information provides the analytical basis for ranking project uncertainties in order of their influence on a project's overall cost and schedule and to calculate the expected value cost for each activity.

Contingency is calculated and is defined as the difference between the activity cost estimate and the expected value for that activity at a predetermined confidence level. Contingency can be "rolled up" through the WBS to the project level. Allocation of cost contingency is administered by Kaiser-Hill.

There are five components to Kaiser-Hill's risk management process. They are:

1. Identify the potential risk events with the greatest probability of impacting the Rocky Flats Closure Project. This process is called *programmatic risk analysis*.
2. Identify uncertainty within the Rocky Flats Closure Project to manage the activities with the greatest potential impact on the project. This process is called *programmatic uncertainty analysis*.
3. Synthesize the information from the programmatic risk analysis and the programmatic uncertainty analysis to present a clear picture of the threats to and opportunities for the Rocky Flats Closure Project and identify where formal risk mitigation plans need to be developed and managed.
4. Develop and manage the resulting risk mitigation plans to increase the probability of a successful completion of the Rocky Flats Closure Project on schedule and within budget. This requires updating the programmatic risk and uncertainty analyses as the Rocky Flats Closure Project progresses.
5. Enhance Kaiser-Hill's ability to manage the Rocky Flats Closure Project using a best business practices approach to decision-making.

Implementation of the system provided for a graded application of project controls <sup>14</sup> commensurate with technical complexity, risk, cost, schedule impact, and overall project importance at the Cost Account CA)

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<sup>14</sup> Graded approach is defined as applying the correct level of sophistication for project controls and project management determined primarily by the risk (technical or business).



level. The Kaiser-Hill process had to meet multiple DOE guidance<sup>15</sup> and was approved prior to implementation.

The Project Control System provided an important tool to Kaiser-Hill –the ability to determine cost contingency requirements through the use of simulation techniques. At the activity level, schedule duration and cost estimate uncertainty were assessed. A simulation was used to calculate expected duration and cost values. Any difference between the initial cost estimate and the simulation-produced projected value was used to establish the necessary cost contingency for each activity.

## Roll Down Incentives

To get things moving on the ground level, the philosophical vision needed to relate to people’s daily lives —specifically, their pocketbooks. Even while making an aggressive effort to save taxpayer money, the decision-makers agreed there could be a greater reward for everyone.

Vested Outsourcing suggests the best partnerships are made when avoiding the “zero-sum game,” that is, if something is good for one party, it must be bad for the other guy. “The sum of the parts can actually be better when they are combined effectively.”

In Rocky Flats Closure Project, DOE led by investing in a contract that offered huge rewards for early completion and cost reduction. Kaiser-Hill voluntarily continued the practice, offering performance incentive contracts for all subcontracting work and pledging 20% of their profits to RF workers at the project end. Carrying through the incentive modality helped boost morale and motivated subcontractors to innovate and work efficiently. Even with everyone receiving bonus payments, the taxpayer also wins with a dramatically reduced total cost. This is *abundance mentality*<sup>16</sup>at its best.

*In an effective Vested Outsourcing partnership, a company contracts with providers who are real experts. Such partnerships should be managed to create a culture of insight, not oversight.*

## Rule #5: Establish a Governance Structure That Provides Insight, Not Oversight

We all know the government is fraught with regulations. This was no exception for the DOE contract. In fact, FAR, DEAR, CERCLA, RCRA<sup>17</sup> and others had mandated rules that Rocky Flats Closure Project

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<sup>15</sup> • DOE Order 430.1, Life Cycle Asset Management (LCAM), October 14, 1999;  
• Integrated Planning, Accountability, and Budgeting System – Information Systems (IPABS-IS) Data Requirements, December 18, 1998;  
• Integrated Planning, Accountability, and Budgeting System (IPABS) Handbook, February 16, 1999; and,  
• HQ Baseline Change Control Charter, Office of Environmental Management, Rev. 0, June 23, 1999.

<sup>16</sup> A term coined by Stephen Covey’s book, *7 Habits of Highly Successful People*; the basic idea is: “there is enough for all.”

<sup>17</sup> Federal Acquisition Regulation; Department of Energy Regulation; Comprehensive Environmental Response, Compensation, and Liability Act, otherwise known as Superfund; The Resource Conservation and Recovery Act



had to followed. For example, public safety standards had to be rigorously maintained. Accidents at any construction site are bad; accidents at nuclear facilities are disastrous. Careful, extensive supervision of safety practices was conducted by multiple agencies as well as Kaiser-Hill itself. RF unions and the public played a significant role to keep safety a top priority.

The Rocky Flats Closure Project governance structure applied several sound governance principles often seen in a Vested Outsourcing relationship. Included in these were:

- Aligned Governance Structure (management structure, governance framework)
- Encouraging Communication at the Lowest Levels
- Governance Framework
- Use of a Flexible Contract Framework
- Balanced Scorecard
- Use of Third-Party Neutral Reviews

### **Relationship Management Framework**

The extensive effort and agreements between government agencies have previously been reviewed in this document. But, by no means, has a complete listing been made. Meaningful partnerships were essential to cut through historical hostilities, heal old wounds, and bring disparate parties to the common vision.

Contract language required participation by the public, but common sense shaped the belief that, without public support, chances were not good for a positive result. Community meetings were held at the very beginning of the project and continued throughout. This was a difficult process; Kaiser-Hill executives reported going home with tears in their eyes and deflated spirits more than once. However, slowly but surely trust was gained and buy-in was achieved.

An independent, broad-based organization, The Rocky Flats Citizens Advisory Board (RFCAB), was formed in 1993. At the request of DOE, EPA and CDPHE selected the first six board members from a field of 200 applicants. The original six members then selected the rest of the board members in compliance with categories set by EPA/CDPHE. RFCAB members represented:

- Academic institutions
- Administrative/business
- Community/neighbors
- Local government
- Health care providers
- Public interest groups and environmental organizations
- Rocky Flats employees





- Technical disciplines
- Students

The RFCAB mission was “dedicated to public involvement, awareness and education.” They followed Rocky Flats Closure Project closely, offering recommendations and opinions. They published a newsletter and formed a Speaker’s Bureau to help reach the public at large. Their annual budget of approximately \$200,000 was funded by DOE.

DOE also funded another important group of citizens—the Rocky Flats Coalition of Local Governments (RFCOG). This group included the town of Superior, cities of Arvada, Boulder, Broomfield, Golden and Westminster, as well as Boulder and Jefferson Counties. Additionally, elected officials, citizens, union workers, and the press attended and participated in these meetings.

RFCOG facilitated communication between RF and local businesses. It was actively involved in lobby efforts in Washington regarding environmental regulation, land use, workforce transition, and medical claims. Members were frequently on-site, observing building demolition, checking safety records and, all-in-all, staying as informed as possible. The Board was considered the link between RF clean-up and the future. Upon the 2005 project completion, RFCOG transitioned to become Rocky Flats Stewardship Board and continued its citizen role for post-closure activity.

A citizen group that was not funded by the DOE was the Rocky Mountains Peace and Justice Center (RMPJC). This activist group had involved itself in the Rocky Flats site since the 1970s. They continued to monitor and critique RF activity, and it was in the project’s best interest to keep RMPJC as informed and involved as possible.

As the clean-up progressed, the group offered support to the concept of a Rocky Flats Cold War Museum to be erected on the site. In 2006, a “resistance teepee,” originally erected in 1978 over railroad tracks on Rocky Flats, was given to the Museum board along with a pledge to raise \$1.5 million for the project. Patrick Malone of the Rocky Flats Truth Force said displaying artifacts of the plant’s history is “a powerful way to show people the importance of taking a strong but passive stand for what they believe.” Malone explained, “This will be a local museum where we can show our children how to live in a place where they’re not scared to death.”

### **Encouraging Communication at the Lowest Levels**

Then, there were the unions. There were three, including steelworkers, building trades, and security guards. All were firmly entrenched with antagonistic relationships with past management contractors. When Kaiser-Hill came on board, there were 900 unresolved grievances and highly skeptical employees about prospects of yet another new management to be anything but “more of the same.” It took some time and a few symbolic actions to convince the employees things were different this time.

Kaiser-Hill, using the Vested Outsourcing principle WIIFWE, was determined to gain worker confidence. Pledging to share 20 % of profits with workers at project end and making arrangements for retirement packages went a long way to convince workers things would be different this time. The pledge was made in such a way that there would be no playing favorites. The top 100 performers got \$35,000 in bonuses. The mid group got \$15,000 and the low group got \$5,000 to \$10,000.



A performance incentive system was employed awarding annual bonuses to workers. Instead of the traditional ham for Christmas, folks got cold, hard cash. The benefit to working quickly and coming up with good ideas was evident and people responded.

The symbolic gesture of tearing down the Administration Building helped build morale as well. Union leaders sat in the same area as project management, sharing responsibilities and communicating spontaneously and often. Managers donned hazard suits to work alongside workers. A commitment was made to use the union employees to complete the work, retraining them as needed for the next phase with which they were involved.

To promote employees' work focus, instead of them worrying about uncertain employment futures, a \$5 million on-site Worker Transition Program provided an online job bank, advertised workers' skills in local newspapers and funded grants for entrepreneurs. Perhaps most important, Kaiser-Hill focused laser beam attention to the area about which the Unions felt most strongly: safety. They consulted with the Unions regarding the safest methods to address problems and respected the advice the Unions provided. Kaiser-Hill tapped into the values of the workers and with this leverage motivated workers to finish their jobs quickly while continuing to showcase their trademark pride.

## **Governance Framework**

Within the very complicated network of contractors, subcontractors, employees, citizens and alphabet soup government agencies, some areas wove their ways throughout. All provisions within the Kaiser-Hill PCS conformed to applicable regulation and industry standards. Once each quarter, Kaiser-Hill prepared and submitted a comprehensive report critically analyzing the overall status of the closure project to DOE. Key metrics included, but were not limited to, financial accountability and project performance.

Effective and consistent reporting were the keys to the Kaiser-Hill PCS, which was an integrated system of project databases. The project data it held was created from the planning of the contract scope of work within the established WBS. Reporting generated from these integrated databases, ensuring data provided from the PCS:

- Provided consistency regardless of format;
- Provided timely incorporation of contract changes;
- Provided for reconciliation of estimated target costs vs. authorized work and internal replanning;
- Provided accurate reporting of costs including correction of errors and routine accounting adjustments; and,
- Provided for revisions to Kaiser-Hill estimated costs for DOE-directed changes.

Typically by electronic means, Kaiser-Hill included graded reporting requirements for subcontracts to fairly evaluate subcontractor performance. Kaiser-Hill project personnel validated subcontractors reporting before entry into the system. Specifically, when the value of the subcontract was greater than \$12.5 M per year and/or the Contracting Officer determined that the subcontract effort was, or involved, a critical task related to the contract, Kaiser-Hill ensured all subcontracts were required to comply with the terms and conditions of the contract.



The proposed Project Controls System was implemented through a collection of databases that held the Rocky Flats Closure Project Baseline. The databases were implemented on legacy systems from the original Kaiser-Hill contract that had existed since May 1996. Data sharing information was integrated and shared through automated interfaces.

Only one database in the PCS contained the master data. Master data was then shared with other databases to satisfy speed, convenience, and system design tradeoffs. Updating of shared data was performed quickly to ensure that published reports were consistent.

Project performance was reported monthly. Industry-standard Earned Value (EV) techniques were used to report the previously identified EV activities and methodology selected for each individual scope of work. The EV method provided a quantitative dollar value of work scope completed to facilitate an assessment of project progress.

Actual start dates, finish dates, and remaining duration for initiated Cost Accounting (CA) activities were posted to the project schedule. Actual costs were calculated by using Budgeted Cost of Work Scheduled (BCWS), Budgeted Cost of Work Performed (BCWP or EV BCWP), and Actual Cost of Work Performed (ACWP). Cost and schedule variances were calculated by the formula:  $BCWP - ACWP$ . Here's how it worked:

- Kaiser-Hill Executive management team selected a set of mission activities as part of the Rocky Flats Closure Project baseline submittal.
- EV was only earned when the mission activity was 100% complete.
- Schedule variance compared the dollar amount of the mission activities
- Planned to be 100% complete vs. the actual value of mission activities that were
- 100% complete each quarter.

### **Use of a Flexible Contract Framework**

While the complicated nature of the project regulatory framework mandated significant levels of specific goals and project parameters, Kaiser-Hill and DOE made certain to use language that would enable the project to move ahead expeditiously. For example, while project time estimates were included in the Baseline, Kaiser-Hill explicitly asserted its right to “expedite activities using best business practices.”

As required by contract DOE had access to pertinent records, data, and plans to allow approval of proposed changes. But, again explicitly, Kaiser-Hill reserved “the right to change the PCS as required satisfying business purposes while staying committed to providing the level of control.”

Vested Outsourcing only works within relationships of candor and trust. Proof of the level of trust Kaiser-Hill earned was apparent as the government wrote high change thresholds into the contract:

- > than a \$40 million change, DOE-HQ approval
- > than a \$20 million change, local Rocky Flats Field Office (RFFO) approval
- < than a \$20 million change, Kaiser-Hill approval



- ✓ Addition of non-Closure funded work
- ✓ Any other changes up to the Contracting Officer level

Changes to target cost, target fee, target date or target schedule incentive fee required a contract modification. Within Kaiser-Hill, the change control thresholds were further delineated between the executive team and the project managers. In the event of an emergency, each change level had the authority to take the corrective action necessary to sustain operations consistent within critical environmental, safety and health regulations/processes.

As spending variances occurred, authority to make appropriate funding adjustments was given to the project manager within the Project's CAs. This allowed work to continue with fewer interruptions.

This authorization of work change order to the different levels did not connote changes to the baseline target cost and schedule but was a means to facilitate flexibility in work elements.

Kaiser-Hill was able to respond nimbly to new ideas, cost savings or overruns, and other challenges regarding elements within the baseline.

## **Balanced Scorecard**

Comprehensive reporting, offered with regularity to DOE and shared with their governmental partners was important. But Vested Outsourcing standards require more than the compilation of metrics; it requires that action be associated with the data. Kaiser-Hill organized internally to assure the work process proceeded deftly. The WBS approach created Project Managers for each of the nine major identified projects. As such, timely and sufficient supervision was applied to all deviance and work shortfall. The sophisticated data collection technology provided automatic checks to ensure accurate progress was continually assessed.

The many citizens' groups also provided urgency for project completion. They enthusiastically accepted the invitation to be part of the process and irrevocably set a community standard for success that did not tolerate inertia.

Protecting the workers' health and safety, as well as avoiding the major catastrophe an accident would produce, was the only factor that provided occasional breaks. In fact, if the workload proved too intense and stress was apparent, work would be called to a halt for a day so employees could regain calm. Unions that experienced what they considered egregious lack of safety concern from previous managers actively monitored and drove safety as normal daily procedure. DOE wrote severe penalties for safety infractions into the contract, so pressure came from multiple sources to move ahead with care.

The human factor drove the intensity of safety precaution; regulation drove dominance. The following excerpt from Version 5 of the PCP illustrates the nature of regulatory compliance:

Kaiser-Hill has established and implemented an Integrated Safety Management (ISM) program in response to DNFSB Recommendation 95-2. The ISM Department of Energy Acquisition Regulation (DEAR) clause was negotiated into the closure contract and requires ISM to be implemented for RFETS work activities. The program meets the contractual requirements of the Federal Rules 48 CFR 970.1002 and 970.5204, DEAR, and DNFSB Recommendation 95-2. Kaiser-Hill has proactively led ISM program



development and sitewide implementation through the Integrated Work Control Program (IWCP) (1-MAN-071-IWCP). Chapter One of the Kaiser-Hill ISM Manual and the IWCP have incorporated the policy and infrastructure for the ISM program to be clearly implemented across the site and among facilities, work activities, and subcontractors. The use of IWCP for all site work incorporates ISM into all work activities, including planning and hazard analysis.

It is an understatement to say adhering to government mandate was no easy task. In addition, Rocky Flats Closure Project encased a vision that transcended individual transactions. Environmental protection and enhancement were core principles. Implementation of the site environmental stewardship program balanced work activity with adequate management systems and tools that ensured compliance with environmental laws and regulations, nuclear safety and management requirements, applicable agency agreements, milestones, and approved compliance schedules.

Upholding quality assurance was also a Kaiser-Hill priority. The site Quality Assurance Program (QAP) Manual defined the quality management system for the Rocky Flats Closure Project. The system was a performance-based program ensuring that in the case of activities with the potential to cause radiological harm, the criteria of the Nuclear Safety Management Rule 10 CFR Part 830.120 were followed. For non-nuclear facilities, activities and services DOE Order 414.1A applied.

Of course, the need for secrecy had not been eliminated. All activity, reporting and operations conformed to a Safeguards and Security (S&S) program that protected special and other nuclear material, classified matter, government property, and employees in accordance with Federal statutes, DOE Policies and Orders, and site policies and procedures. All personnel, from the Kaiser-Hill president to individual contributors, were required to adhere to S&S program policies and procedures. If it were determined that Site Nuclear Materials (SNM) or classified matter were not adequately protected or if sufficient cause existed to believe theft or diversion of SNM or classified matter had occurred, Kaiser-Hill suspended operations.

### **Use of Third-Party Neutral Reviews**

As negotiations progressed, the DOE's Accelerated Closure Project scope was being refined and Kaiser-Hill was developing schedules and cost estimates. DOE commissioned the U.S. Army Corps of Engineers (USACE), Price Waterhouse Coopers (PWC), and Ernst & Young (EY) to perform external credibility reviews. These reviews were done in addition to contractor and DOE reviews and strengthened confidence by major stakeholders (i.e., Congress) and promoted willingness by Kaiser-Hill and DOE to enter into a long-term relationship, confident that Kaiser-Hill and DOE could be trusted, competent partners.



## The Results: Achieving the Impossible

The Rocky Flats Closure Project was and continues to be the largest, most complex environmental cleanup project in United States' history. It transformed an environmental liability into a community asset, and did so nearly fifty years and \$30 billion below initial estimates. It improved soil contamination from 651 cPi/g to 50 cPi/g.<sup>18</sup> It reduced a backlog of 900 employee grievances to a mere handful by the end of the contract. In safety measures, it improved the Total Recordable Case (TRC) rate from 5.0 to 1.0. Rocky Flats Closure Project actually received a \$300,000 worker's compensation insurance rebate in 2006.

Under their performance-based agreement, the DOE and Kaiser-Hill partnered in a 10-year effort to complete the RFETS, whereby Kaiser-Hill had a vested interest and their financial success was directly tied to the desired outcomes of the DOE and the public's desire to turn RF from a site of "weapons to wildlife." The duo negotiated a first-ever incentive-driven contract that rewarded schedule and cost savings while maintaining outstanding safety and protection of human health and the environment.

In 2006, The Project Management Institute (PMI) named Kaiser-Hill winner of the "Project of the Year" award. The following accomplishments were listed by PMI when they awarded RFETS this distinction:

- Removed over 21 tons of weapons-useable nuclear materials.
- Decontaminated and demolished 800 structures, comprising over 3 million square feet.
- Drained 30,000 liters of plutonium solutions
- Dismantled and removed over 1,450 contaminated production glove boxes and 700 tanks.
- Stabilized and packaged 100 tons of high-content plutonium residue.
- Performed environmental cleanup actions at 130 sites.
- Dispositioned millions of classified items and excess property.
- Safely shipped over 600,000 cubic meters of radioactive waste—enough to fill a string of railcars 90 miles long

However, even more rewarding than the awards and accolades is seeing the eagles nesting regally in protected areas, wildlife scampering through mature prairie grass, and people wandering nature paths. What once inspired anger and angst now provides enjoyment for nature lovers and education for schoolchildren.

For Colorado natives who had been on the site prior to the cleanup, it's strange to recall that a decade ago; they were required to go through personal background investigations and as many as four checkpoints, complete with burly guards carrying loaded machine guns, to stand on the same ground.

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<sup>18</sup> cPi/gm is Picocuries per Gram = a unit of measurement for radium atoms giving off radiation in an object.



It is important to understand that the DOE's and Kaiser-Hill's efforts were not easy, nor were they always pretty. There were stops and starts, depressing backslides and magnificent breakthroughs. Moving from a projection of 70 years to 10 years took fearlessness, commitment, and a leap of faith. It took a fresh way of thinking and a Vested Outsourcing strategy whereby the DOE and Kaiser-Hill's objectives became tightly aligned, and the two were vested in each other's mutual success.

Across the board, the Rocky Flats Closure Project effort applied the *Five Rules of Vested Outsourcing*, which started with a *WIIFWe* approach practiced with every stakeholder group from the very top all the way down to the lowest level employee working within Kaiser-Hill and RF.

The results?

Kaiser Hill's PMI application dubbed it "getting to closure."

CH2MHill's Nancy Tuor and book authors Kim Cameron and Marc Lavine call it "making the impossible, possible."

The DOE officially called the project completion "weapons to wildlife."

Whatever it's called, it's amazing.

While innovation and breakthrough results are often key focus areas of an organization's strategy, most organizations fail to embrace the fact that often they need to rely on the expertise of their outsourced service providers to help them. Peter Drucker challenged companies to "do what you do best and outsource the rest," yet most companies fail to create agreements with their suppliers aimed at innovation. Today's outsourced agreements are typically structured around a provider doing a task and getting paid a fee. The DOE challenged that approach and by applying the Vested Outsourcing Five Rules they were able to drive transformational results.

The Rocky Flats Closure Project inherited an atmosphere of hopelessness, skepticism and distrust. Vested principles were applied deeply and thoroughly, reaching beyond philosophical consensus to requiring active responsibility at all levels. Everyone involved was assigned genuine responsibility, activities to be performed. Buildings were demolished, speakers' bureaus formed, and lobbying accomplished. Moving from vision buy-in to individual energy expended created momentum that could not fail.

Unfortunately, Vested Outsourcing relationships are not the norm. We hope sharing this case study and demonstrating how the DOE and Kaiser-Hill approached their outsourcing agreement can help your organization understand the power of Vested Outsourcing. We challenge you to invest in Vested Outsourcing and move beyond saying "partnership" to creating an agreement and contract that truly vests in each other's successes.

*A Vested Outsourcing approach helped the USDOE and Kaiser-Hill make the impossible possible!*



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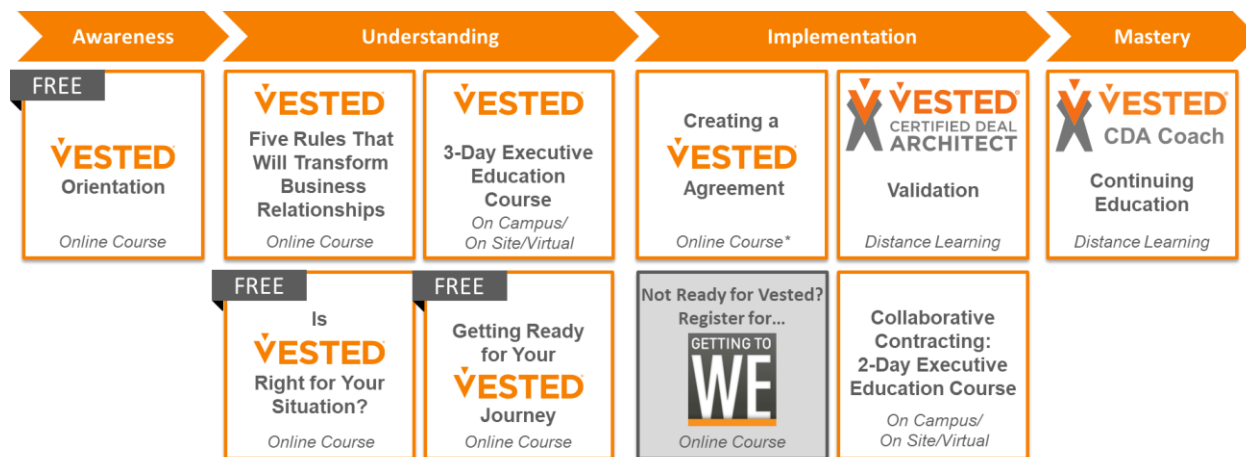
## FOR MORE INFORMATION

**The University of Tennessee** is highly regarded for its Graduate and Executive Education programs. Ranked #1 in the world in supply chain management research, researchers have authored seven books on the Vested business model and its application in strategic sourcing.



We encourage you to read the books on Vested, which can be found at most online book retailers (e.g., Amazon, Barnes and Noble) or at [www.vestedway.com/books](http://www.vestedway.com/books).

For those wanting to dig deeper, UT offers a blend of onsite and online courses including a capstone course where individuals get a chance to put the Vested theory into practice. Course content is designed to align to where you are in your journey ranging from Awareness to Mastery. For additional information, visit the University of Tennessee's website dedicated to the Vested business model at <http://www.vestedway.com/> where you can learn more about our Executive Education courses in the Certified Deal Architect program. You can also visit our research library and download case studies, white papers and resources. For more information, contact [kvitasek@utk.edu](mailto:kvitasek@utk.edu).



\* Prerequisites for **Creating a Vested Agreement** class are:

*Five Rules, Is Vested Right?, Getting Ready, and the Vested 3-Day Executive Education Course*



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## List of Acronyms

ACWP	Actual Cost of Work Performed
AEC	Atomic Energy Commission
BCWP	Budgeted Cost of Work Performed (or EV)
BCWS	Budgeted Cost of Work Scheduled
BEMR	Baseline Environmental Management Report
CA	Cost Account
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DEAR	Department of Energy Acquisition Regulation
DNFSB	Defense Nuclear Facility Safety Board
DOE	United States Department of Energy
EESH & Q	Engineering, Environment, Safety, Health and Quality
EM	Office of Energy Management
EPA	Environmental Protection Agency
EV	Earned Value
EY	Ernst & Young
FAR	Federal Acquisition Regulation
FBI	Federal Bureau of Investigation
FRFCA	Final Rocky Flats Clean-up Agreement
GAO	General Accounting Office
Kaiser-Hill	Kaiser Hill Company, LLC
MAD	Mutual Assured Destruction
M & O	Management and Operating (Contract)
NAEC	National Atomic Energy Commission
ODS	Organization Diagnosis Survey
OMB	United States Office of Management and Budget Policy
PBM	Performance-Based Management (Contract)
PCS	Project Control System (Kaiser Hill)
PM	Performance Measure
PWC	Price Waterhouse Coopers
RCRA	Resource Conservation and Recovery Act
RF	Rocky Flats



RFCAB	Rocky Flats Community Advisory Board
RFCOG	Rocky Flats Council of Governments
RFCP	Rocky Flats Closure Project
RFETS	Rocky Flats Environmental Technology Site
RMPJC	Rocky Mountain Peace and Justice Center
S & S	Safeguard and Security
SNM	Site Nuclear Materials
TRC	Total Recordable Case Rate
USACE	United States Army Corps of Engineers
WIIFME	What's In It for ME
WIIFWE	What's In It for WE

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