

SUCCESSFUL PRIVATIZATION OF HANFORD SITE FABRICATION SERVICES

G. J. Jackson, D. S. Kelly, T. L. Ostrander
Fluor Hanford, Inc.
PO Box 1000, Richland, WA 99352

ABSTRACT

This paper describes the elements of Fluor Hanford's successful privatization of a major support services function. The privatization has accelerated the closure of the Department of Energy's Hanford Site by streamlining operations and using the realized cost savings to maintain the accelerated schedules set by the Department of Energy (DOE) and other regulatory stakeholders. Issues with worker demographics, future workload forecasting, budget optimization, and long-term community economic development were key components to Fluor Hanford's decision to choose the controversial and difficult pathway of outsourcing a Cold War legacy function to a private company. Many privatization efforts are abandoned in the preliminary planning stages due to extreme risk; frequently the final return on investment is less than anticipated. In this case, Fluor Hanford has successfully leveraged onsite assets to support the ongoing clean-up mission, provide potential long-term employment for the displaced workforce as site closure progresses, and establish a manufacturing base supporting the local economy. Based on several factors, which are described in this paper, the privatization of the Hanford Site Fabrication Services to an offsite vendor operating a large local business unit has been successful for virtually all of the stakeholders.

INTRODUCTION

Fluor Hanford is responsible for over \$500M per year of scope under its Project Hanford Management Contract with the DOE to close several nuclear facilities and provide support services and infrastructure management for the entire Site. The support services scope included operating full-service, 5,202 m² (56,000 ft²) of site fabrication facilities (SFS) constructed in the 1940s to support plutonium production and site fabrication needs. These facilities continued to support the ongoing mission of closure, cleanup and decommissioning activities with full-service machine, pipe and sheet metal shops including boilermakers and millwrights. In 2003, SFS produced approximately \$11M in fabricated items, supporting projects for both Fluor Hanford and another major Hanford Site contractor, CH2M-Hill. Fabrication activities ranged from tank waste mixing and removal hardware, electronic control platforms, glove boxes, containers used in the stabilization of 2,100 metric tons (2,300 American tons) of spent nuclear fuel, pumps, skid mount equipment, and other specialized tooling, and items required to execute site and facility closure, cleanup, and decommissioning activities.

In late 2002, long-range planning for the closure of the Hanford Site indicated a significant future decline in demand for fabrication services. Estimates generated during this review for facility upgrades and maintenance also clarified the need to reduce the overhead associated with operating the site services and infrastructure. With ongoing budget reduction challenges, it has

become increasingly important to focus limited resources on Site closure work. Fluor Hanford management assessed the feasibility of outsourcing many support functions. Several characteristics revealed by further review indicated SFS would be a prime candidate for privatization:

- ***Shop Degradation Issues.*** The SFS shop, built in the 1940s, was antiquated and not meeting current building codes and standards. A cost of millions of dollars was estimated for Extensive remodeling of the existing shop or construction of a new shop necessary to continue operations.
- ***Worker Demographics.*** Difficulties in hiring and training new workers for the diminishing shop function posed a high risk to all Fluor Hanford projects. Many of the highly skilled SFS workers were at or nearing retirement age. Significant logical and financial challenges are posed by the requirement of most Fluor Hanford projects for substantive and facility-specific training and administrative support. Moving craft workers between functions and projects required waiting periods of up to six months for obtaining security clearances and completing the facility-specific training. These issues posed a significant challenge to the company.
- ***Existence of Local Capability.*** Under the terms of the collective bargaining agreement, Hanford fabrication work must be performed by members of the Hanford Atomic Metal Trades Council (HAMTC). Several local businesses were performing similar fabrication and specialty machining work, providing options to privatize locally and transfer existing Hanford workers to perform the work.
- ***Strong, Stable Management Team.*** SFS had been operated for several years by a stable group of managers who had very good working relationships with the bargaining unit personnel and internal project customers. The level of trust was high enough between the SFS management, the affected workers and clients that privatization efforts could be accepted and embraced by all stakeholders.

SUBCONTRACTING PROCESS/STRATEGY

Fluor Hanford organized a team of subject-matter experts to determine the best strategy for outsourcing the Hanford site fabrication activities performed by SFS. Members from all stakeholder groups were brought together to find win-win solutions to the myriad of issues arising from the largest transition of a Hanford work scope to a private company in the Site's history. Preliminary discussions and concurrence from HAMTC senior leadership, representing the bargaining unit personnel, was essential to the ultimate success of this effort. The product of these sessions was issuance of the Request for Proposal emphasizing the following necessary characteristics for a prospective subcontractor:

- **Management & Technical Approach:** Identification and description of the key inputs/outputs and proposed strategies to meet the Hanford Site's ongoing nuclear-grade customer requirements was essential to assure success. Prospective firms were required to

provide viable plans establishing their fabrication facility in the local community, and to utilize small and disadvantaged businesses as part of their execution team. This kept the revenue generated by the existing customer base in the area, fostered competition and growth among local small businesses to help maintain and possibly grow the local economy despite the drop in Hanford fabrication scope. This process would potentially lead to cost savings associated with small businesses providing cheaper niche materials and services than non-local vendors.

- **Transition Plan:** Transition of equipment and people were two enormous challenges for Fluor Hanford, HAMTC, and the prospective subcontractor. Relocation of the 5,202 m² (56,000 ft²) shops, including equipment and personnel, would be required without impacting ongoing fabrication schedules and commitments to existing Hanford customers. This transition posed significant logistical and ultimately regulatory challenges. Seamless transfer of bargaining unit personnel was essential because without acceptance by HAMTC leadership, the process would not have been successful. A unique human resources challenge was to have a private firm employ HAMTC workers from fifteen different unions, which had been done only on a small scale and for a single union discipline in the past.

It was imperative that all task orders assigned to SFS from the various Hanford clients were successfully completed within budget, schedule, and quality constraints. As part of the plan prior to award, subcontractors had to demonstrate compliance to the stringent nuclear quality requirements of Nuclear Quality Assurance-1 (NQA-1), have a qualified welding program meeting the minimum requirements to support ongoing fabrication needs and a signed memorandum of understanding to negotiate the labor agreement in good faith with the HAMTC.

- **Business Development:** Privatization of SFS to a business in the local area provided a great deal of potential benefits for all stakeholders. As Hanford fabrication orders ramped down, it was expected a private fabrication shop could utilize this existing backlog of Hanford work to leverage capability and capacity in an effort to establish a local fabrication facility providing global fabrication needs.

The company's existing workload would provide fill-in work for the HAMTC workforce, allowing the workers to branch into non-Hanford fabrication work. This non-Hanford work would keep the highly talented labor pool in the community, provide continued employment, and productively utilize their skills gained as a part of more than 50 years of highly skilled and specialized manufacturing and fabricating activities supporting Hanford missions. The acquisition of the SFS business, including all equipment and personnel, was expected to allow a local business to compete for other fabrication work by expanding their resource pool and capabilities. It was expected the integration of SFS into an existing business would create growth and be a fixture in the local area's post-Hanford economy. Impact to local economies near DOE closure sites is a subject of regional and national discussion across the nation. This plan provided tremendous positives to all stakeholders--the local economy, the workers, the Hanford contractors, and the DOE.

- **Safety Program:** Integrated Safety Management is a cultural pillar for the Hanford Site as evidenced by the numerous Voluntary Protection Program Star awards earned since 2002. One of the major considerations of management and workforce was the commitment to safety by any private subcontractor acquiring SFS. Stringent and objective safety statistical criteria were used to qualify potential bidders. Site visits to each potential subcontractor were used to evaluate implementation of their written safety programs. Paramount to making the best selection were proposed facility layouts, ergonomics, implementation of their safety plan in ongoing activities, and spatial considerations to verify safety of the workers.

SELECTION OF THE SUBCONTRACTOR

Four firms were considered for award, based on a Best Value procurement process. The Best Value process allowed for a team to perform a technical review of the proposals against the weighted RFP criteria, and then consider price differences with respect to the rated differences in the technical ratings. Each proposal was evaluated by a team comprised of representatives from the projects currently using these fabrication services. Based on the technical ratings and cost estimates, Fluor Hanford rated Parsons Hanford Fabricators Inc. (PHFI) as the top choice. The Parsons proposal had several key strengths evaluated as essential to executing a successful privatization effort for SFS:

- **Strong Management.** During several reviews, interviews, and site visits, the senior management of the existing fabrication facilities demonstrated expertise, knowledge, and a thorough understanding of the numerous technical, logistical, personnel, and financial challenges needed to assure a successful transition, start up, and business planning for future growth. The proposed program manager for PHFI had extensive experience in safely running a large fabrication shop for government clients having complex quality and technical requirements. The combination of these individuals with the existing Fluor Hanford staff planned to be transitioned to PHFI, left no doubt the transition and subsequent operations of the PHFI function would be successful.
- **Facilities.** Located in Washington state's Port of Pasco, Parsons has an existing 18,580 m² (200,000 ft²) shop providing fabrication services support for their existing customers including the Department of Defense for chemical demilitarization. PHFI had the ability to transition the equipment from Hanford to their location, allowing for all fabrication operations to be conducted in a single location. This single business location was an important aspect, as it was envisioned HAMTC labor would be utilized on non-Hanford work as the demands for Site support shrank. As non-Hanford demand increased, it would provide continued employment for the HAMTC employees and help PHFI build their local fabrication business.
- **Integrated Team.** Parsons had all support functions available onsite, including engineering, design capability, materials management, and quality assurance. This one-

stop, multi-function ability provided maximum benefit to the Hanford clients, as well as opportunities for increased efficiency.

- **Safety Program.** Parsons' safety program was recognized as being equal to those of both Fluor and CH2M-Hill, which was extremely important to the HAMTC workers, Fluor Hanford, CH2M Hill Hanford, and the Department of Energy.

TRANSITION OF THE FABRICATION OPERATIONS

In early February 2004, Fluor Hanford put the contract in place with PHFI to start a 90-day transition of the SFS function to the PHFI facility, located approximately 30 miles from the existing Hanford fabrication shops. A detailed scope and schedule were developed by a core transition team comprised of employees of Fluor Hanford, CH2M-Hill, and Parsons to ensure ongoing work would not be interrupted while meeting the transition schedule. Employees and equipment began to be transferred during March 2004. Final equipment transfer and turnover was completed in August 2004, three months behind schedule. SFS continued to function during the elongated transition with no adverse impacts to the existing Hanford customers or associated project schedules.

Many factors contributed to the transition delays, the primary one being the issue of potential worker exposure to beryllium. Beryllium, formerly used and machined as part of the nuclear weapons industry, is a naturally-occurring metal which creates potential adverse health effects to workers exposed to beryllium dust via inhalation. On the basis that the fabrication shop and its equipment may have been used in the past to perform work with beryllium, Fluor Hanford conducted conduct sampling and analyses of each piece of equipment being transferred to assure that no beryllium contamination existed prior to the equipment being approved for release. A number of important and useful lessons learned were generated, which will be applicable to other privatization efforts or future demolition activities on any DOE weapons complex site.

Worker Transition

As the SFS privatization progressed from an idea to completion, one of the biggest hurdles that faced the Fluor team was acceptance of the transfer by affected workers. As with any organization, changes are often met with resistance. Change moves workers outside of their comfort zones, daily routines and stable situations. Generations of workers spent entire careers supporting the Hanford missions. Many SFS workers had been working at the Hanford shop for over 30 years. These workers assumed they could and would finish their careers working for a DOE contractor at the Site's SFS facility. The mere suggestion of privatizing SFS presented uncertainty and a major change.

The most important part of any significant change is regular, ongoing, and honest communications. Starting with the RFP planning process, both exempt and bargaining unit workers were included and involved with the privatization planning and implementation processes. Fluor Hanford ensured the HAMTC leadership was brought into the process at the beginning, providing critical input in order to shape the Request for Proposal, subcontract, and transition agreement. By informing and educating the SFS workforce on the forecasted decline

in demand from Hanford clients and the opportunities available to maintain local employment with a subcontracted firm performing non-Hanford work, the fears of layoffs and unstable employment as an outsourced employee were minimized.

After transition, an overwhelming majority of the affected workers who were reassigned to the PHFI were surprised and pleased with the change. They are finding that non-Hanford work is available to them. They have an opportunity for long-term employment with Parsons, supporting both Hanford and Department of Defense clients. They have also enjoyed their new environment and in assisting PHFI lay out the “new” fabrication shop in the Pasco facility. This successful transition could not have been achieved without Fluor Hanford and PHFI management recognizing the needs of these workers, and actively working to mitigate the associated issues through effective, honest, and open two-way communications.

Logistical Challenges

Transition of the SFS function from Fluor Hanford to PHFI presented several substantial logistical challenges to the team. Over 200 major pieces of fabrication shop equipment and a substantial amount of raw materials had to be shipped over 40.3 km (30 miles) to the PHFI facility. Some of the pieces of equipment were quite large—weighing as much as 49,000 kg (54 tons) for a vertical lathe.

The starting point was to inventory the government-furnished equipment (GFE) being transferred to PHFI from the DOE. Under the SFS function, fabrication equipment at the Hanford shop was being used by Fluor Hanford to perform work for the Site, but the DOE retained ownership. As part of the contracting process, it was decided to transfer the GFE accountability and eventually the ownership of the equipment to the selected subcontractor, to support the growth of the local private fabrication business and foster the long-term viability of that unit in the Tri-Cities economy. To identify this equipment accurately was also important, with respect to screening for beryllium and radiological contamination so records for the disposition of the equipment and the Hanford shop could be properly completed.

Once the inventory of equipment to be transferred was established, roles and responsibilities for transition were defined jointly by PHFI and Fluor Hanford. Fluor Hanford was responsible for removal and preparation of equipment and materials; PHFI was responsible once the equipment was loaded onto their trucks for transport, unload, and installation. Over 90 trucks were loaded with equipment and materials during the transition period for transportation to the PHFI facility.

As with any large-scale move, physical challenges were common. Much of the shop equipment was located in tight, low-bay areas at the Hanford shop. Crane access to these areas was not always optimal, and many of the pieces of major equipment did not have well-defined lift points or easily determined centers of mass. Creative use of air pallets and rollers was frequently employed to move heavier pieces of equipment out of the Hanford shop, relying on the technical abilities from the Fluor Hanford crane and rigging experts and craft workers to ensure it was done safely and without damaging the equipment. For the 49,000 kg (54 ton) vertical lathe, the unit was dismantled into two pieces, in order to lift and remove the lathe, then later reassemble it at the PHFI facility.



Fig. 1. Typical Equipment Move – 40,000 kg (44 ton) Shear Being “Walked” out of Shop

Administrative Challenges

From the start of transition in March until completion in August, the Hanford SFS function continued to receive work orders from projects. As with any support function, some of these work orders were planned and expected; others were the result of project contingencies or unplanned and immediate needs. There were several challenges to maintaining the capabilities of SFS during transition—sequencing and scheduling of equipment transfers, ownership of work control, and tracking work-in-progress.

As major equipment was removed from the Hanford shop, it was unavailable for a period of time. Accurate forecasting of future demand for each machine was required to ensure that production and delivery delays for products were not impacted by these equipment availability gaps during transition. In addition, as contingent work arrived, Fluor Hanford and PHFI personnel had to make quick decisions as to whether the work could be completed - at the Hanford or PHFI shops, or in a combination. Adding to the complexity were extraordinary control measures due to frequent nuclear-grade quality assurance requirements placed in the work orders for the Hanford clients and the availability and locations of materials, inspectors, and niche specialists. To address these issues, a Hanford program manager assigned to Fluor Hanford was tasked with establishing an integrated production control process, working with the Hanford clients, the workers, and PHFI personnel to optimize these decisions on a daily basis. This process, though difficult, provided an important bridge that prevented Hanford clients from losing progress on important closure projects due to transition-induced delays with SFS. The function has also been retained after the transition to maintain effective communications and service between PHFI and its Hanford clients.

It should also be noted that the contract vehicle between the Hanford clients and PHFI allowed for a firm fixed-price in addition to time and materials for each work order submitted. SFS had always operated on a full cost recovery basis for internal Hanford clients. This change, combined with the organized and effective administrative efforts during transition, allowed for value to be created for Fluor Hanford and CH2M-Hill in the form of better, contracted pricing. PHFI's willingness to utilize this fixed-price model, even during the transition period when time-and-materials may have been more profitable, underscored the total team commitment of all companies involved with this privatization effort.

Health and Safety Issues--Beryllium

DOE Sites, including Hanford, place a strong emphasis on Integrated Safety Management (ISM), resulting in increased awareness, worker involvement, and substantially improved safety culture. This safety management especially involves Beryllium health issues. Concerns over the privatization effort, and impact to the Hanford health and safety culture imprinted on the SFS managers and HAMTC workforce, were of foremost importance. During the proposal evaluations, observers were sent to each prospective facility to see work environments first-hand, and subject-matter experts were dispatched to ensure these concerns would be alleviated. The proposal evaluation team was fully convinced the Parsons shop would offer the same level of health and safety protection as similar Hanford programs associated with SFS.

During the planning stages, the Fluor Hanford team identified the potential for beryllium contamination of equipment in two of the facilities. It is known that beryllium dust residuals from machining processes during the 1950s and 1960s could result in beryllium skin sensitivity or other health issues. Over the past several years, the DOE realized the health issues caused by beryllium exposure in their facilities, and started programs to test for beryllium-induced illness and provide medical assistance to those workers affected by such exposure. In one SFS facility it was believed there were no beryllium risks based on a test to determine exposures in the 1960's. Another of the facilities had at one time been used to perform some work on items containing beryllium. Both facilities are posted with "Potential Beryllium Contamination" signs.

Extensive sampling and monitoring were performed with negative results prior to the decision to release the equipment from these facilities.

During equipment transition, an SFS worker raised concerns stating sampling / monitoring performed may not have been sufficient. As some equipment had been in place since the 1950s, he was concerned that in the process of disassembling and moving the equipment to the PHFI facility, the worker concern cited the potential for residual beryllium dust under the footprints and along the bottom of the pieces, posing an unacceptable health and safety risk. Fluor Hanford, with the sponsorship of DOE, undertook a more comprehensive sampling and analysis program to determine whether the equipment being transferred or the flooring underneath the removed equipment was contaminated with beryllium, and whether this posed a risk to the workers. An innovative Statistical Sampling Program was established to ensure a high statistical confidence in the sample results. Multiple pictures were taken of each piece of suspect equipment, with graphical grids overlaid over the pictures (See Figure 2). Sample locations were mathematically selected using a random number generator program, this sampling methodology proved valuable in ensuring worker confidence that samples were truly in random locations.

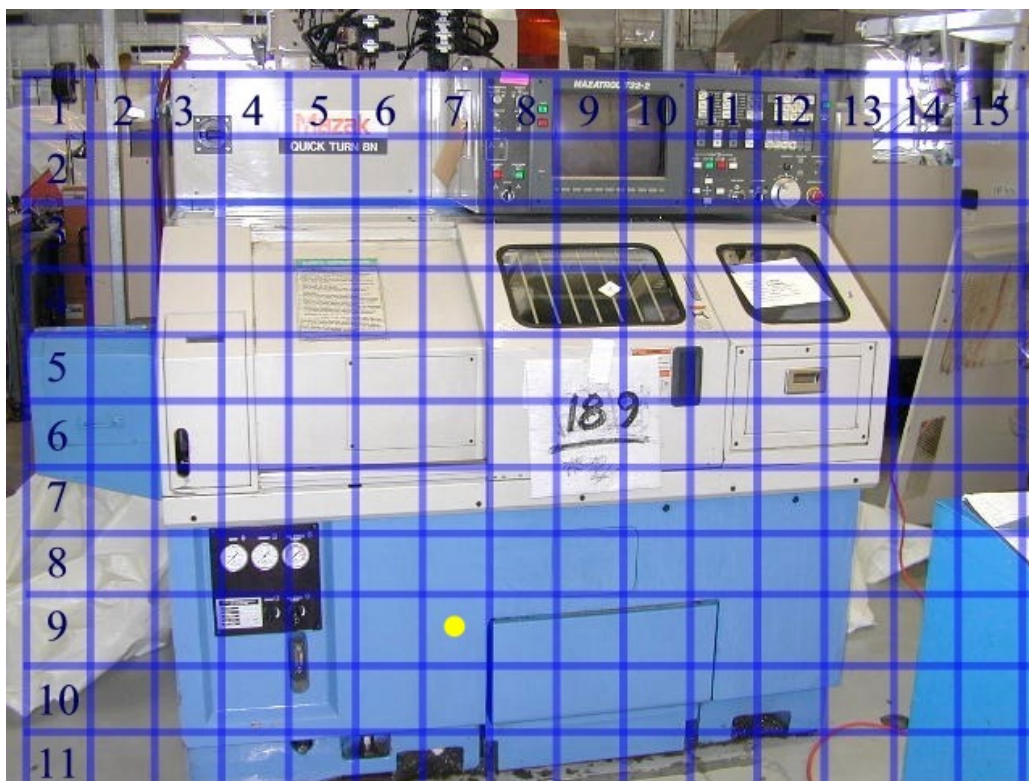


Fig. 2. Example Grid Overlay and Sample Locations Identified

In addition, workers were monitored during their activities in the Hanford SFS shop to determine beryllium exposure levels. After taking over 700 samples, no actionable contamination or exposures were indicated. This data was provided to the workers, the public, and PHFI, where this equipment was installed. The extensive sampling resolved the employees' safety concern and the issue closed.

LESSONS LEARNED

Along with the overall success of the Hanford SFS privatization process, lessons were learned in many areas. Some of the lessons learned would be applicable to any privatization effort:

- **Communications:** Throughout any privatization process, effective communication is paramount to success. Communication goes beyond management and decision-makers providing details, soliciting input, and addressing concerns of the stakeholders:
 - **Timely and accurate dissemination of developments.** Rumors about the process and potential outcomes were prevalent throughout the process. Most rumors had no grounding in fact. Honest and open information provided as often as possible helps minimize anxiety among affected workers. As a byproduct, trust develops, allowing for a much easier transition. Strict confidentiality agreements during procurement processes enhance its integrity. While confidentiality agreements were required for all personnel supporting the development of the RFP and evaluating the proposals, leaks unfortunately occurred, putting the integrity of the procurement process into question and creating legal risk for Fluor and CH2M-Hill. Almost 100 people from both Fluor and CH2M-Hill signed agreements; it is strongly suggested that teams performing these functions be much more limited.
 - **Partnership with the bargaining unit and full-time workers is required.** Enlisting the support of the workers is essential. They can wield tremendous power during privatization efforts. “Hostile takeovers” do not work in the DOE arena. In our case, HAMTC leadership was critical to getting the commitment of their constituents and helping all parties structure the contract to meet everyone’s needs.
- **Planning Details:** As with any complex endeavor, unplanned events pose risk. Development of the equipment inventory—making the final decisions on which equipment went to Parsons and what stayed at Hanford- changed after the issuance of the request for proposal, making the final transition much more arduous and difficult. In addition, advance planning regarding the actual physical movement of the equipment may have overshadowed the beryllium concerns and crane and rigging issues which arose and caused delays.
- **RFP/Evaluation Criteria Development:** Several issues arose and delayed the procurement process. Requesting labor and material estimates for sample fabrication scenarios—in this case asking for a technical description and associated detailed cost and resource estimate to complete a hypothetical fabrication task—for support functions must be substantially defined using a common set of assumptions. In this case, varying vendor productivity assumptions and formats of responses made evaluation very difficult. In addition, cost estimate information for the program as a whole was similarly not delineated consistently and clearly, leading to the same issues to a lesser degree. Interpretation of the final cost estimates was extremely difficult.

APPLICABILITY

Work was officially transferred to the PHFI shop in August 2004. All feedback from the projects has been positive; no disruptions to scheduled delivery of products or abnormally high levels of quality issues have been reported by Fluor Hanford or CH2M-Hill. The HAMTC and exempt workers who transferred from Fluor Hanford to PHFI have been energized by the transition, excited to be part of this new privatized function and anticipate possible future opportunities it could bring them. The process was difficult, but upon completion, most people recognize the decision was the correct one, and it was executed well.

As Fluor Hanford moves forward, continued challenges with respect to shrinking overhead to meet closure project requirements will be posed by the DOE. As part of optimizing that business, Fluor Hanford must continue to look for the right opportunities to decrease the funding required to maintain infrastructure and support services, and constantly evaluate whether to self-perform these functions or privatize them. It is expected that the experiences gained from the privatization of the Site Fabrication Services will serve as a model for making and executing similar decisions in the future.

Other DOE and Department of Defense site contractors face the similar issues and challenges. The path of privatization is a difficult one, fraught with risks from many expected and unexpected fronts. Many of these risks can kill a privatization plan in the initial stages—lack of bargaining unit support, legal risk, political risk, and inability to delineate work scope. The successful privatization of the Hanford SFS function in 2003/2004 provides evidence that a solid return on investment can be expected by striving to support the current mission, local economic development, worker protection, and operational success. Privatization can be an effective tool for sites that are downsizing and closing.

LEARN MORE:

(The following links are provided for information only; viewers should validate accuracy of the information and applicability on their own. No association or certification of accuracy is expressed or implied:

Beryllium:

- DOE's Chronic Beryllium Disease Prevention Program <http://www.eh.doe.gov/be/>
- Facts about Beryllium and Beryllium Related Disease
http://www.nationaljewish.org/medfacts/beryllium_medfact.html

Hanford:

- Public web site on Hanford Information
<http://www.hanford.gov/>

Contact Points for Further Information:

- Fluor Project Manager -- Fabrication Services Subcontract:
Terry L. Ostrander
509-372-1640
Terry_L_Ostrander@RL.gov
- Contract Specialist:
Daniel L. Suter
509-376-8663
Daniel_L_Suter@RL.GOV

Note: Approved for public release, Further dissemination Unlimited. Release documents on file with author. Contact David_S_Kelly@RL.gov for electronic copies of release documents.