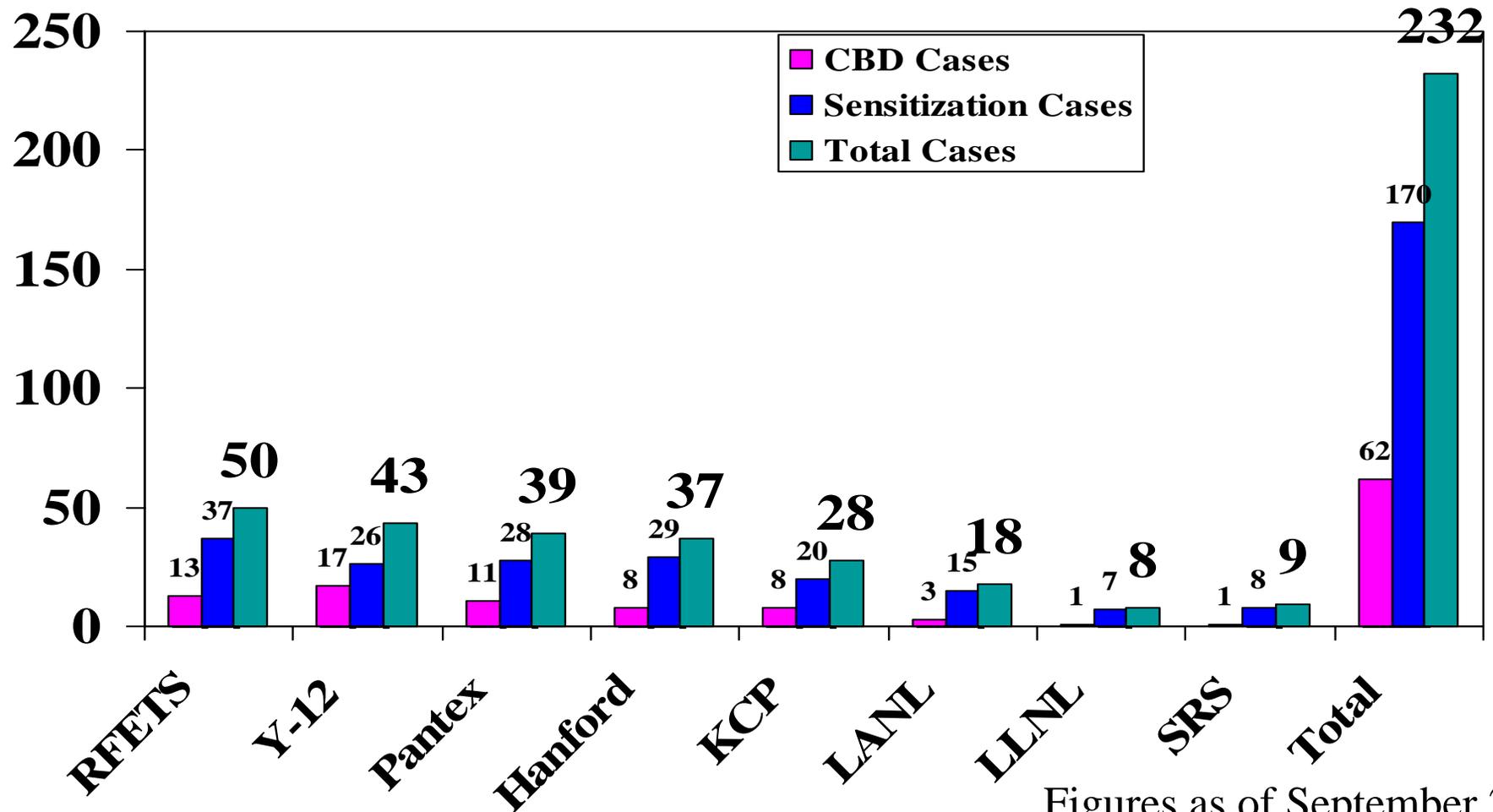


Beryllium Health Research Agenda

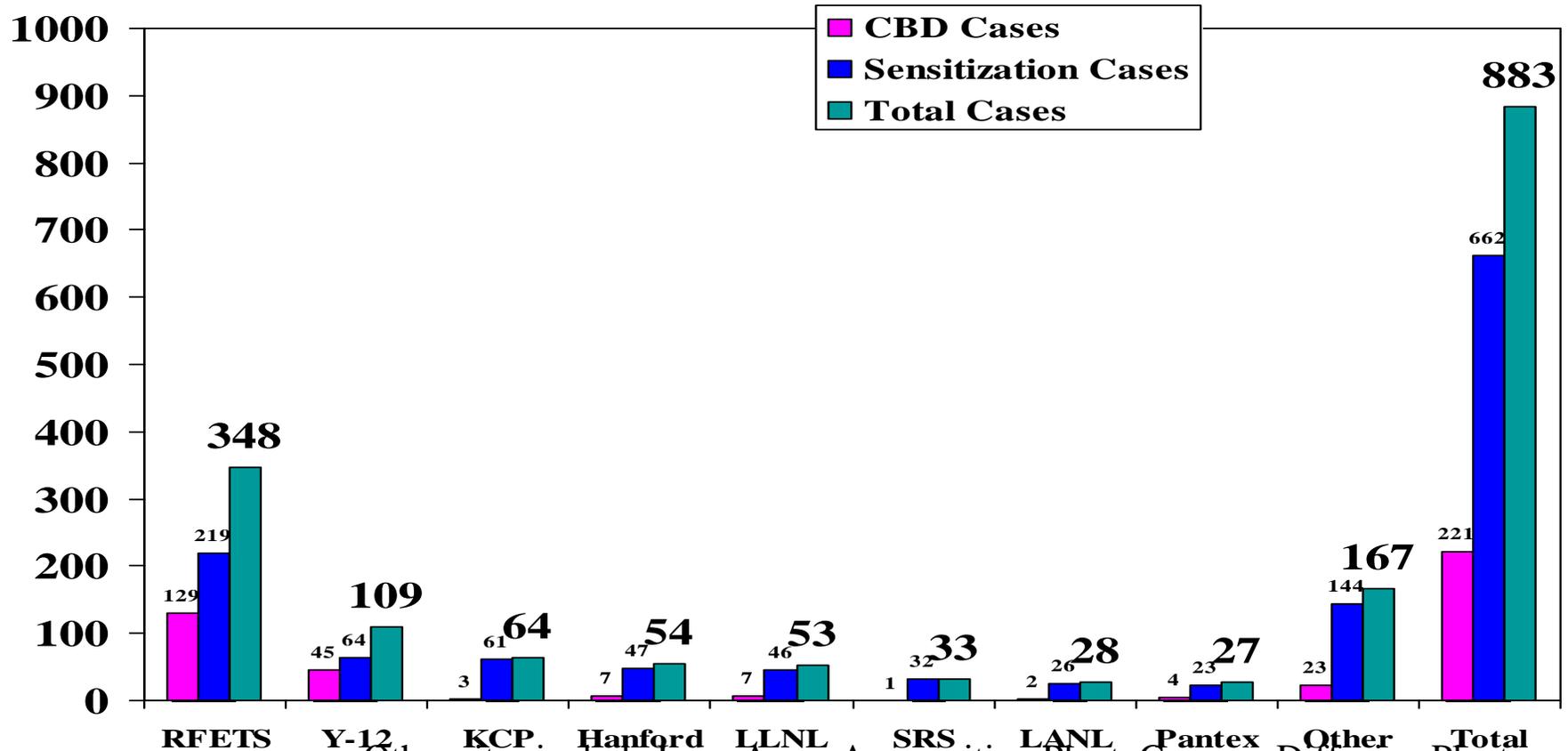
Enhancing Worker Protection by Increasing Our
Knowledge Base

DOE Statistics—Current Workers



Figures as of September 2004

DOE statistics—Former Workers



Other sites include Iowa Army Ammunition Plant, Gaseous Diffusion Plants, INEEL, Nevada Test Site Tunnel Workers, Oak Ridge Construction, Ames Laboratory Argonne East & West, Argonne National Laboratory Site B, Oak Ridge X-10 Chicago Operations, Knolls Atomic Power Plant, LBNL

R&D Goals

1. Real-time monitor development
2. Address legacy issues
3. Manage risks

Projected Costs and Timeline

**Projected cost of \$2 to \$4M for 4 to 5 years
for total of \$12.45M**

| | |
|--|------------------|
| Objective 1—Protective Limits | \$850k |
| Objective 2—Beryllium detection/identification | \$6,550k |
| Objective 3—Controls | \$1,900k |
| Objective 4—Validation of program effectiveness | \$ 2,000k |
| Objective 5—Tests for sensitization& disease tests * | \$1,150k |
| TOTAL | \$12,450k |

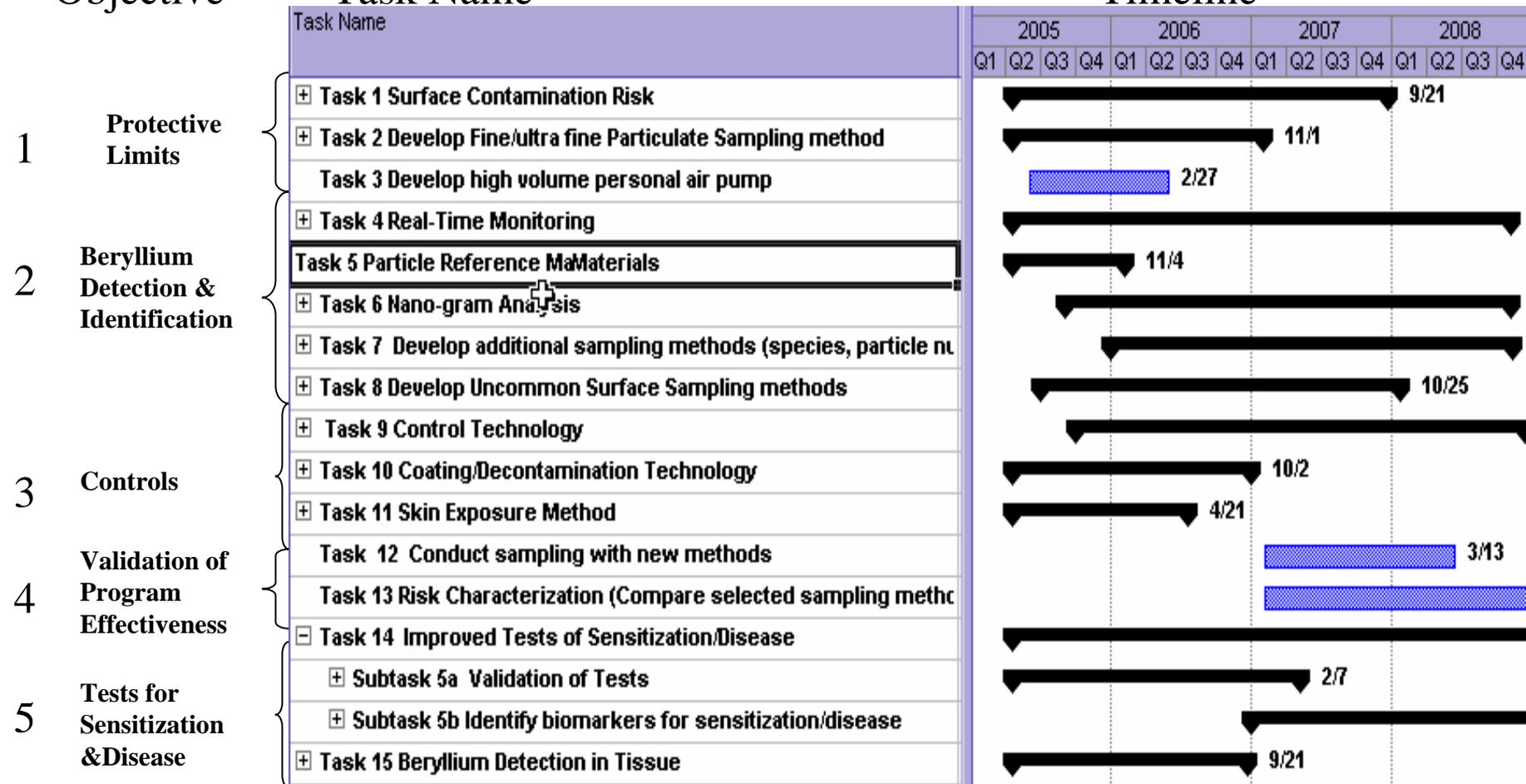
*Options on objective 5 an addition \$2,250k

Proposed Project Plan

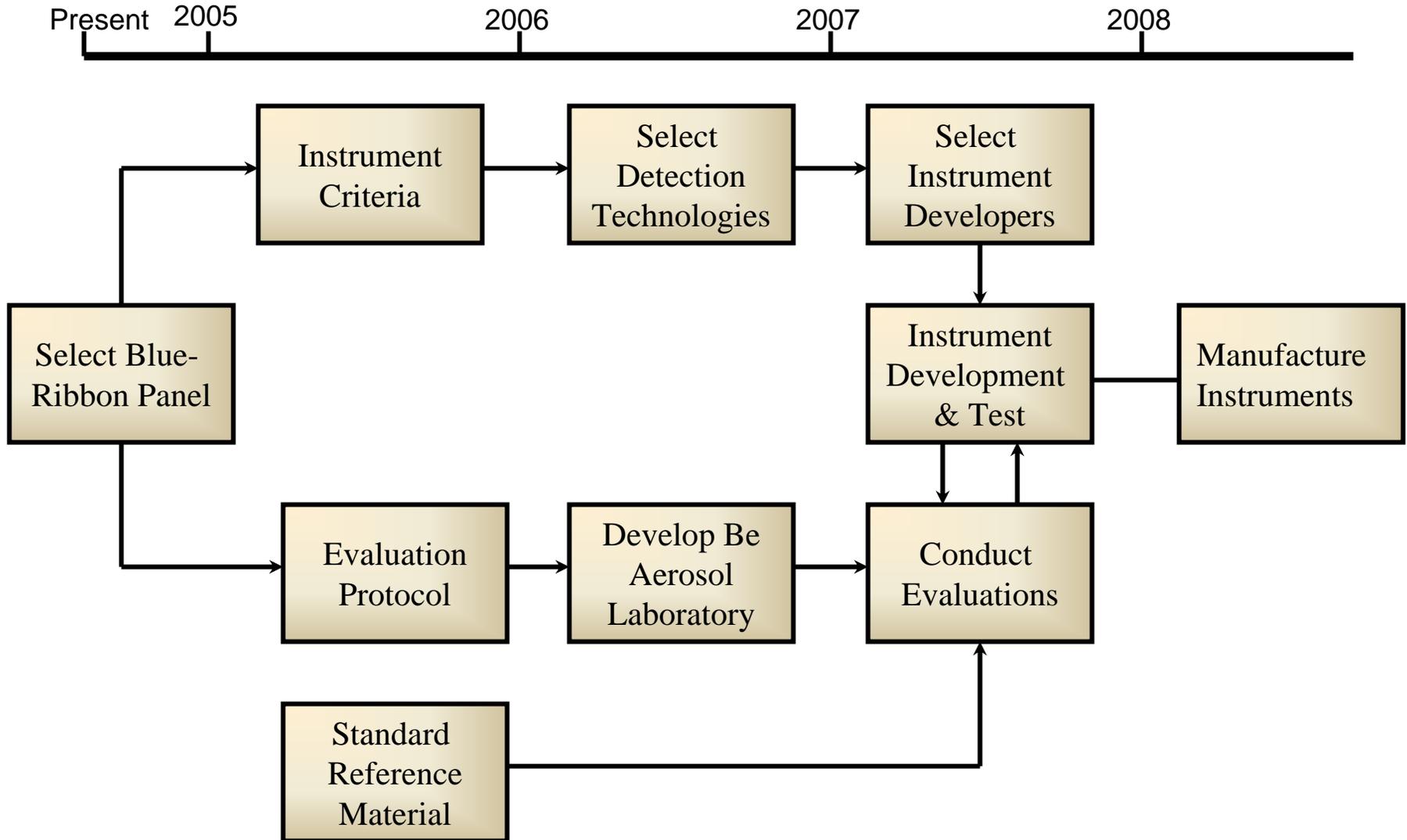
Objective

Task Name

Timeline



Realizing a Real Time Be Monitor



| | | FY2005 | FY2006 | FY2007 | FY2008 |
|---|---|--------|--------|--------|--------|
| 1 Beryllium Aerosol Laboratory | | | | | |
| Location: | LANL | | | | |
| Scope: | Develop project plan and complete initial design to 20% | | | | |
| Schedule: | Complete above scope by June 30, 2005 | | | | |
| Cost (\$K): | \$200 | 200 | 900 | 900 | 0 |
| Cost to complete (\$K): | \$2,000 | | | | |
| Time to Complete (years): | 3 | | | | |
| Justification: | A beryllium aerosol laboratory is necessary to evaluate real-time beryllium aerosol monitors. A laboratory of this type does not currently exist that is an area of | | | | |
| + | | | | | |
| 2 High Flow Deposited Submicrometer Sampler | | | | | |
| Location: | LANL | | | | |
| Scope: | | | | | |
| Schedule: | Start in late 2005 or early 2006 | | | | |
| Cost (\$K): | \$300 | 0 | 300 | 200 | 0 |
| Cost to complete (\$K): | \$500 | | | | |
| Time to Complete (years): | 2 | | | | |
| Justification: | Effective method to assess workplace risk is necessary. Current methods have proven to be ineffective at assessing workplace risk. | | | | |
| 3 Standard reference materials | | | | | |
| Location: | Y12 | | | | |
| Scope: | | | | | |
| Schedule: | | | | | |
| Cost (\$K): | \$300 | 300 | 0 | 0 | 0 |
| Cost to complete (\$K): | \$300 | | | | |
| Time to Complete (years): | 1 | | | | |
| Justification: | Prerequisite for Real Time Ex Monitor development. Standard reference materials are needed to provide consistent and adequate laboratory analysis. | | | | |
| 4 Criteria for real-time beryllium detection instrumentation | | | | | |
| Location: | SRS NL | | | | |
| Scope: | | | | | |
| Schedule: | | | | | |
| Cost (\$K): | \$300 | 300 | 0 | 0 | 0 |
| Cost to complete (\$K): | \$200 | | | | |
| Time to Complete (years): | 1 | | | | |
| Justification: | development. Specifications to real-time beryllium detection instruments must be developed in advance of developing instruments so that the instruments will provide what is needed in the field. | | | | |
| 5 Evaluate Wet vs. Dry Sampling methods | | | | | |
| Location: | LLNL & Y12 | | | | |
| Scope: | Determine conditions when wet or dry is best | | | | |
| Schedule: | Complete by January 31, 2005 | | | | |
| Cost (\$K): | \$0 | 0 | 0 | 0 | 0 |
| Cost to complete (\$K): | \$0 | | | | |
| Time to Complete (years): | 1 | | | | |
| Justification: | evaluation. Allow for a collection efficiency weighting factor for comparison of results to surface contamination limits. | | | | |

| | | FY2005 | FY2006 | FY2007 | FY2008 |
|---------------------------|--|----------------|----------------|----------------|--------------|
| 6 | Validate Improved Lymphocyte Proliferation Test (iLPT) | | | | |
| Location: | LANL through contract with a certified laboratory | | | | |
| Scope: | Conduct testing on volunteers to validate renitization tests (4 total) | | | | |
| Schedule: | Complete by April 2006 | | | | |
| Cost (\$K): | \$300 300 | 300 | 300 | 0 | 0 |
| Cost to complete (\$K): | \$500 | | | | |
| Time to Complete (years): | 2 | | | | |
| Justification: | Resolve inconsistencies in test results to enable accurate determination of renitization Possibly identify tests for renitization that are more accurate than the current test for renitization | | | | |
| 7 | Develop Vacuum Sampling Method | | | | |
| Location: | LANL | | | | |
| Scope: | Develop and validate vacuum sampling method | | | | |
| Schedule: | Complete validation by April 2006 | | | | |
| Cost (\$K): | 150 | 150 | 100 | 0 | 0 |
| Cost to complete (\$K): | \$250 | | | | |
| Time to Complete (years): | 2 | | | | |
| Justification: | Vacuum method will allow for consistent sampling of surfaces that are common to legacy areas | | | | |
| 8 | Develop Skin Sampling Method | | | | |
| Location: | LANL | | | | |
| Scope: | Develop and validate skin sampling method | | | | |
| Schedule: | Complete validation by April 2006 | | | | |
| Cost (\$K): | 100 | 100 | 150 | 0 | 0 |
| Cost to complete (\$K): | \$250 | | | | |
| Time to Complete (years): | 2 | | | | |
| Justification: | Skin surface sampling method will provide a tool for better understanding of skin exposure risk in the workplace | | | | |
| 9 | Develop Evaluation Protocol for Instrument Validation | | | | |
| Location: | LANL through contract with LRRI and SRS NL | | | | |
| Scope: | Develop protocol that will be used to test and validate real-time beryllium monitors | | | | |
| Schedule: | Complete protocol by June 2005 | | | | |
| Cost (\$K): | 200 | 200 | 0 | 0 | 0 |
| Cost to complete (\$K): | \$200 | | | | |
| Time to Complete (years): | 1 | | | | |
| Justification: | An evaluation protocol is necessary to provide an objective and definitive evaluation and validation of real-time airborne beryllium monitors | | | | |
| 10 | Develop Real-time Beryllium Monitors | | | | |
| Location: | LANL through competitive contracts at instrument developers | | | | |
| Scope: | Select and test several real-time detection technologies to finalize order of development | | | | |
| Schedule: | Complete selection of technology by December 2005 | | | | |
| Cost (\$K): | 200 | 200 | 300 | 400 | 300 |
| Cost to complete (\$K): | \$1,200 | | | | |
| Time to Complete (years): | 4 | | | | |
| Justification: | Real-time beryllium detection is necessary to improve worker and public protection, improve productivity, characterize contamination migration, and evaluate | | | | |
| Subtotals: | | \$1,750 | \$2,050 | \$1,500 | \$300 |
| TOTAL: | | | \$5,600 | | |