

**Long-Term Care Cost Estimate**  
**Gas Hills East, WY, Site**

This page estimates long-term (LT) care cost using the methods in NUREG 0706, Appendix R. Scenario II is most applicable to the LT care program at this site. LT cost estimates are compared below alongside the NRC guidance. The estimates in the columns labeled "NRC 1978" and "NRC 2010" are from NUREG 0706, Appendix R, Scenario II, as excerpted; the 2010 costs are escalated using the calculation below, an escalation of 222 percent. The estimates in the column labeled "DOE LCB" are from the life-cycle baseline (LCB) that correspond to the estimating methods used by NRC in NUREG 0706, Appendix R, Scenario II. The DOE costs are escalated from 2007 to 2010 dollars, an escalation of 8.0 percent.

NRC cost estimate escalation using CPI-urban:  
 CPI Dec 1978 67.7  
 CPI June 2010 217.965  
 Escalation (percent change): 2.219572 Escalation factor calculated as a percent difference: (2010 CPI - 1978 CPI) / (1978 CPI)

	Lower bound	Upper bound	Lower and upper bound estimates are at the bottom of Page R-4 and top of page R-5.
NRC LT cost range, 1978 dollars:	\$5,000	\$7,000	
NRC LT cost range, 2010 dollars	\$16,098	\$22,537	

DOE life-cycle baseline costs escalation using CPI-urban:

CPI - Oct 2006 (start of FY07): 201.8  
 CPI - June 2010: 217.965  
 Escalation (percent change): 0.080 Escalation factor calculated as a percent difference: (2010 CPI - 2006 CPI) / (2006 CPI)

**3. SCENARIO II - INSPECTION PLUS GROUNDWATER MONITORING**

For Scenario II the primary component again is annual inspections; however, this scenario includes an increased level of groundwater monitoring. While the cost for the inspector's time remains as the major element of the total surveillance costs under Scenario II, equipment costs (including a vehicle for transporting the monitoring equipment) and sample analysis costs increase considerably. Establishment of a groundwater sampling program involving frequent sampling is expected to be required, if at all, at only some sites where particular problems or concerns are identified during the preoperational and operational monitoring periods and during the compliance determination period. (See Section 14.1.)

While it is not expected that it be warranted, an increased level of groundwater monitoring can be postulated for all sites to provide a potential upper bound of site surveillance costs. This scenario assumes that monitoring wells at all sites would be checked using dynamic as opposed to simple static (bailer lowered into monitoring well) samples. More specifically, submersible pumps powered by gasoline generators mounted on four-wheel drive vehicles are postulated for driving between sites to draw samples and perform visual inspections. It is likely that the frequency of this mode of inspection could be reduced considerably by taking most samples using portable bailing equipment (which could be carried by inspectors flying to sites). The results of these static samples would be checked every several years by the more sophisticated dynamic sample taking procedures.

**3.1 Inspection**

Again, the amount of time required for travel and inspection depends on the location of all sites, with respect to the home base and with respect to each other. The location of all sites is assumed to follow the pattern described under Scenario I. If it is assumed that Grand Junction, Colorado is the inspector's home base, the distances to the four other mill clusters are as follows:

Grants, New Mexico	~350 miles	or 700 miles round trip
Casper, Wyoming	~500 miles	or 1,000 miles round trip
Spokane, Washington	~1,000 miles	or 2,000 miles round trip
Falls City, Texas	~1,500 miles	or 3,000 miles round trip
		6,700 miles

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For this scenario, the situation 25-50 years into the future is covered; that is, after a large number of sites have been decommissioned. More specifically, it is assumed that there are 25 decommissioned sites. This figure was somewhat arbitrarily selected. It is expected that only a few sites will be decommissioned between now and the year 2000. Therefore, when this is added to the number of currently inactive sites, the round figure of 25 sites seems reasonable to use for purposes of this analysis.

The location of current peripheral sites indicates that a good estimate of total mileage traveled per year for the 25 sites, a figure which we have somewhat arbitrarily selected as a likely estimate of the total number of decommissioned sites by the year 2000, is double this figure or about 13,000 miles. While this distance is assumed for this illustrative scenario, it is possible that sample taking and inspection could be performed through regional DOE operations, such as at the Richland/Hanford site, in which case costs could be somewhat less.

A more complete description of assumptions for travel and inspection costs under Scenario II are:

- Each site is inspected approximately once a year by the mobile inspectors unit.
- Total time of travel assumed to cover the 25 or so sites = 13,000 miles ÷ 350 mi/day = 37 days. This is equivalent to about 1.5 days per site.
- Average time in inspection and sample taking at sites where about 5 wells are sampled - 1 to 2 days.
- Ratio of in-office time to the time in travel and in field - 2:1 to 3:1.
- Two persons would go to sites to do inspection and sampling. These would be senior and junior technicians. (\$30,000 to \$20,000 for salary and overhead assumed respectively.) Supervision and office followup might be done by a project manager (\$50,000 for salary and overhead assumed) in conjunction with the two field workers.

Based on these assumptions, costs for travel and inspection compute as follows:

<b>Lower bound:</b>		
2.5 days (travel and inspection) x 2 inspectors		
2.5 x \$125 (\$30,000 per year)		
+ 2.5 x \$ 83 (\$20,000 per year)		
2.5 x \$208 ~\$200	2.5 days x \$200 = \$500	\$500
per diem = \$35/day	5 x \$35 = \$175	\$175
travel - \$ .17/mile	\$ .17 x 13,000 miles = \$2,210	\$100
\$2,210 ÷ 25 = \$88 ~\$100		
10 days (office) x \$200 = \$2,000		\$2,000
		\$2,775/year or ~\$3,000/year
<b>Upper bound:</b>		
3.5 days (travel and inspection) x 2 inspectors		
3.5 x \$125		
+ 3.5 x \$ 83		
3.5 x \$208 ~\$200	3.5 days x \$200 = \$700	\$700
per diem = \$35/day	7 x \$35 = \$245	\$245
travel - \$ .17/mile	\$ .17 x 13,000 miles = \$2,210	\$100
\$2,210 ÷ 25 = \$88 or ~\$100		
21 days (office) x \$200 = \$4,200		\$4,200
		\$5,245 or ~\$5,000/year

For this scenario, the situation 25-50 years into the future is covered; that is, after a large number of sites have been decommissioned. More specifically, it is assumed that there are 25 decommissioned sites. This figure was somewhat arbitrarily selected. It is expected that only a few sites will be decommissioned between now and the year 2000. Therefore, when this is added to the number of currently inactive sites, the round figure of 25 sites seems reasonable to use for purposes of this analysis.

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 + 2.5 x \$ 83 (\$20,000 per year)  
 2.5 x \$208 ~\$200      2.5 days x \$200 = \$500      \$500  
 per diem = \$35/day      5 x \$35 = \$175      \$175  
 travel - \$ .17/mile      \$ .17 x 13,000 miles = \$2,210      \$100  
 \$2,210 ÷ 25 = \$88 ~\$100  
 10 days (office) x \$200 = \$2,000      \$2,000  
 \$2,775/year or ~\$3,000/year

Upper bound:

3.5 days (travel and inspection) x 2 inspectors  
 3.5 x \$125  
 + 3.5 x \$ 83  
 3.5 x \$208 ~\$200      3.5 days x \$200 = \$700      \$700  
 per diem = \$35/day      7 x \$35 = \$245      \$245  
 travel - \$ .17/mile      \$ .17 x 13,000 miles = \$2,210      \$100  
 \$2,210 ÷ 25 = \$88 or ~\$100  
 21 days (office) x \$200 = \$4,200      \$4,200  
 \$5,245 or ~\$5,000/year

3.2 Equipment

Equipment would include the following:

a. Capital Costs

- 2 submersible pumps (operating pump and spare). Capacity of 6.6 gpm @ 480 feet. Sized to permit very deep well sampling. Unit price - \$335      \$670
- 2 generators - (one for spare), 7 hp. units at \$580 each.      \$1,160
- 4-wheel drive vehicle with A-frame sampler hoist and power winch.      \$12,000
- Hose - 500 ft. 1" hose @ \$1.50 lineal foot      \$750
- Total costs for above      \$14,580
- Monitoring wells are assumed to be in place from operational monitoring period. Each assumed to be replaced every 50 years, 5 at each site. 4-inch PVC and concrete-cased well with padlocked manhole, \$7,000 each<sup>2</sup> 5 x 7000 ÷ 50 years = \$700 at each site per year.

b. Annual Capital Costs and Supplies

- Assume equipment is amortized over 5 year period -  $\frac{\$14,580}{5} = \$2,916 \sim \$3,000$       \$3,000
- Maintenance costs and repair supplies. 10% capital costs assumed.      \$1,500
- Supplies and miscellaneous sampling equipment such as sample bottles, reagents, fuel for generator, etc. covered. (Sampling analysis costs below.)      \$4,000
- Total costs      \$8,500

c. Average Annual Capital Cost per Site

- \$8,500 ÷ 25 = \$340 ~\$350      \$350
- \$700 per site for monitoring well replacement      \$700  
 \$1,050  
 ~\$1,000/site

3.3 Sample Analysis

The specific kind of water sample analysis that must be performed will be a function of site specific concerns. During the periods of preoperational and operational monitoring, selected species such as sulfate ion may be identified as effective indicators of potential groundwater problems. Therefore, analysis procedures could be simplified to isolate indicator elements. Assumptions that have been made with respect to sample analysis for this cost estimate are:

- The kinds of analysis and costs outlined on the following table are assumed to bound the situation.
- Five samples are drawn at each site - two upstream and three downstream.
- On the average a fairly comprehensive analysis could be performed for approximately \$750 - 1000 per site.

Therefore, the lower and upper bound cost estimates for Scenario II are:

Lower bound:  
 \$3,000 (travel and inspection) + \$1,000 (sampling equipment) +  
 \$1,000 (sample analysis) = \$5,000

Upper bound:  
 \$5,000 (travel and inspection) + \$1,000 (sampling equipment) +  
 \$1,000 (sample analysis) = \$7,000.

COST OF WATER QUALITY ANALYSES<sup>2</sup>  
 (1978 Dollars)

Major Inorganic Chemicals

Iron Magnesium Chloride	Carbonate Bicarbonate Sodium	Potassium pH Electrical Conductivity
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Group Rate: \$53.50 to \$107.00

Comprehensive Analysis

Uranium	Lead	Mercury	Sulfate	Potassium
Vanadium	Iron	Zinc	Carbonate	Silica
Copper	Manganese	Barium	Bicarbonate	Gross Alpha
Selenium	Chromium	Fluoride	Nitrate	Gross Beta
Molybdenum	Nickel	Boron	Ammonia	Total Dissolved Solids
Arsenic	Cobalt	Magnesium	Sodium	pH
Radium 225	Cadmium	Chloride	Calcium	Electrical Conductivity

Group Rate: \$206.00 to \$447.00

Gross Alpha      Radium 226  
 Gross Beta      Uranium

Group Rate: \$41.00 to \$94.00

	NRC 1978	NRC 2010	DOE LCB	
Contractor project management	\$0	\$0	\$3,035	
DOE program management	\$0	\$0	\$17,000	This cost is added to annual LT surveillance estimate after other costs for contracted services have been summed and marked up for overheads. NRC does not include program manager time.
<b>Inspection, Reporting, and Travel Costs</b>				
Labor	\$4,900	\$15,776	\$5,427	NRC includes monitoring labor, expenses, and vehicle cost in inspection cost. DOE assumes separate trips for inspection and sampling.
Expenses	\$245	\$789	\$405	
Vehicle	\$100	\$322	\$108	
				NRC 1978 labor, expenses, and vehicle costs total \$5,245 per upper bound estimate
<b>Annual maintenance</b>				
	\$0	\$0	\$1,485	Weed control, signs, incidentals
<b>Monitoring</b>				
Equipment	\$350	\$1,127	\$0	NRC guidance assumes 3 csg volume purge. DOE follows EPA guidance for low flow purge - different equipment requirements. DOE does not capitalize monitoring equipment costs such as dedicated bladder pumps. Initial equipment costs are not included in the DOE LT care cost estimate.
Well replacement	\$700	\$2,254	\$5,065	DOE assumes 12 wells, 30 year service life for wells, NRC assumes 5 wells, 50 years.
Labor	\$0	\$0	\$6,887	NRC includes monitoring labor, expenses, and vehicle cost in inspection cost. DOE assumes separate trips for inspection and sampling.
Expenses	\$0	\$0	\$591	
Vehicle	\$0	\$0	\$216	
Analysis	\$1,000	\$3,220	\$1,609	
	NRC 1978	NRC 2010	DOE LCB	DOE LCB cost does not include DOE Program Management
<b>Subtotal (DOE is unburdened)</b>	\$7,295	\$23,487	\$24,829	NRC total in 1978 dollars differs from upper bound estimate (\$7,000) due to rounding of itemized costs in Scenario II estimate.
<b>Subtotal, Burdened</b>			\$42,459	Unburdened rate plus burdens for contractor indirect rate, program management, and contingency
<b>DOE Program Management</b>			\$17,000	
<b>Total Annual Cost</b>		\$23,487	\$59,459	
<b>LT Care Fee (PV=A/i)</b>		\$2,348,678	\$5,945,909	
<b>Total Annual Cost, Scenario I</b>	\$2,500	\$8,049		For comparison to estimated costs. Note that Scenario I does not include rigorous annual groundwater monitoring, program or project management, or annual maintenance. Used as basis for LT care fee base amount in 10 CFR 40 Appendix A Criterion 10.
<b>LT Care Fee, Scenario I, 2010 dollars</b>	\$250,000	\$804,893		

To burden DOE contractor costs, the following composite adder is used. This includes Indirect rate (including award fee, G&A, and project support overhead at the GJ site.), project management (contractor management overhead), and contingency.

1.71

**Long-Term Surveillance and Maintenance Requirements and Estimated Costs  
Gas Hills East, UMRCA Title II Site**

**Long-Term Care Fee Elements and Calculation**

Activity	Justification	Cost per	Cost per	Frequency	Annual cost,	Annual cost,
		event, DOE	event, DOE		DOE	DOE
		estimate,	estimate,		estimate,	estimate,
		2010	2010		2010	2010
		dollars,	dollars,	(yr/event)	dollars,	dollars,
		unburdened	burdened		unburdened	burdened
Project Management	Necessary for operation of a Federal program	\$3,035	\$5,190	1	\$3,035	\$5,190
Annual Inspection	10 CFR 40.28, 10CFR 40 Appendix A Criterion 12	\$4,341	\$7,423	1	\$4,341	\$7,423
Annual reporting	10 CFR 40 Appendix A Criterion 12	\$1,600	\$2,736	1	\$1,600	\$2,736
Follow-up inspections and emergency response	10 CFR 40.28	\$0	\$0	0	\$0	\$0
Groundwater Monitoring	10 CFR 40 Appendix A Criterion 7 and approved ACL	\$9,303	\$15,909	1	\$9,303	\$15,909
Well Replacement	NUREG 0706 Appendix R Scenario 2	\$151,956	\$259,856	30	\$5,065	\$8,662
Sign Maintenance	NUREG 1620 Section E3.5, "necessary control feature"	\$3,789	\$6,479	15	\$253	\$432
Vegetation monitoring and control	Per UMRCA, DOE assumes land stewardship responsibilities	\$1,233	\$2,108	1	\$1,233	\$2,108
DOE Oversight	Necessary for operation of Federal program	\$17,000	\$17,000	1	\$17,000	\$17,000
<b>Total Annual Cost</b>		<b>\$192,256</b>	<b>\$316,701</b>		<b>\$41,829</b>	<b>\$59,459</b>

<b>Long-term care fee: (Perpetuity Calculation: <math>PV = A/i</math>)</b>	<b>\$4,182,883</b>	<b>\$5,945,909</b>
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Event: an occurrence of a particular activity. Events can occur annually or once every few years.  
If an event occurs only every few years, the annual cost is the event cost divided by the frequency of occurrence.

**Not costed:**

Fence maintenance

The Gas Hills East site can tolerate livestock, the site is remote and probability of intrusion and vandalism is low

Erosion or other nonroutine monitoring or repair (e.g., subsidence monitoring and repair, riprap placement)  
Cannot predict long-term performance, although there is typically one incident annually across all DOE sites

**Notes**

Fully burdened contractor costs represent total cost to the U.S. Government

To burden contractor costs, the following composite adder is used. This includes Indirect rate (including award fee, G&A, and project support overhead at the GJ site.), project management (contractor management overhead), and contingency.

1.71

Life-cycle baseline costs on the "BOE Detail" worksheet are in 2007 dollars and are escalated to 2010 dollars using the calculation below using CPI-urban values:

CPI - Oct 2006 (start of FY07):

201.8

CPI - June 2010:

217.965

Escalation (percent change):

0.080

Escalation factor calculated as a percent difference:  
(2010 CPI - 2006 CPI) / (2006 CPI)

## Basis of Estimate

<b>WBS #:</b> 1.108.1.06	<b>Subtask Title:</b> Title II: Gas Hills East, WY, Disp. Site	<b>Period of Performance:</b> FY 2011 - FY 2085
<b>Prepared by: Michael Widdop</b>		
	[Signature ]	Date
<b>Reviewed by:</b>		
	[Signature ]	Date

**Cost Estimating Methodology** (Summarize the primary methodologies and data sources used to estimate the types of cost - Labor, Equipment, Supplies, Services, Subcontracts, Training, and Travel):

- Cost estimates were prepared on the basis of previous years' actual costs for similar sites that are applicable to the FY06 scope of work.
- Indirect rates established in Stoller's contract with DOE are included in the cost estimates.

### Planning Scope and Basis:

#### WBS No. 1.108.1.06.1.1.01, Title II: Gas Hills East, Site Transition Costs

Description	Travel Split Factor	Resource Code	Number of Staff	Labor Hours per Worker	Total Labor Hours for Task	Labor Cost (\$)
<b>DPLH LABOR AND LABOR COST</b>						
<b>Site Management (FY07 and FY08)</b>						
Develop list of site transition activities, update site transition schedule, and identify specific resources to fulfill identified requirements.		PME3-S	1	24	24	\$1,405
Provide management and coordination of transition activities, to include meetings with NRC, DOE, and State of Wyoming, the licensee, and others as necessary.		PME3-S	1	16	16	\$937
Conduct a technical information exchange and continue transfer of technical data and other pertinent information with the owner to ensure the Office of Legacy Management is ready and able to meet all programmatic requirements during FY06.		PME3-S	1	16	16	\$937
		CSE3-S	1	4	4	\$180
Ensure that the Corps of Engineers is briefed on the status of site access and is made aware of the need to establish permanent site access.		PME3-S	1	2	2	\$117
<b>Ground Water Modeling (FY07)</b>						

## Basis of Estimate

<p>Review project documents for site hydrogeology, nature and extent of contamination, ground water monitoring network, conceptual model of ground water flow and contaminant transport, water budget, and sources of model input parameters</p> <p>Review numerical ground water model for validity of approach, accuracy in the numerical representation of the conceptual model, reasonableness of input parameters including starting concentrations (if applicable) and hydraulic conductivity field, success of calibration to hydraulic head and water budget, sensitivity of model output/conclusions to uncertain inputs.</p> <p>Prepare a letter report to summarize review findings, cite possible limitations of the model or qualify its conditional use, and provide recommendations as appropriate to improve the validity of the model.</p> <p>Assumes that the models are not extremely complex, either hydrologically or geochemically</p>	GHE2-S	1	80	80	\$4,248
<b>Total Labor Hours</b>					<b>142</b>
<b>Total Labor Cost (\$)</b>					<b>\$7,824</b>

Description	Travel Split Factor	Qty	Unit Cost (\$)	Number of Staff	Total Cost per Item (\$)
<b>TRAVEL</b>					
Inspection					
N/A					
<b>Total Travel</b>				<b>\$</b>	<b>-</b>
Description		Qty	Unit Cost (\$)	Total Cost per Item (\$)	
<b>TRAINING</b>					
N/A				\$	-
<b>Total Training Cost</b>				<b>\$</b>	<b>-</b>
<b>EQUIPMENT</b>					
N/A				\$	-
<b>Total Equipment Cost</b>				<b>\$</b>	<b>-</b>
<b>SUPPLIES / SERVICES</b>					
N/A					
<b>Total Supplies/Services Cost</b>				<b>\$</b>	<b>-</b>
<b>SUBCONTRACTS</b>					
N/A				\$	-

## Basis of Estimate

Total Subcontract Cost				\$	-
OTHER					
N/A					
Total Other Cost				\$	-
<b>TOTAL ODC (UNBURDENED)</b>				<b>\$</b>	<b>-</b>

**Planning Scope and Basis:**

### WBS No. 1.108.1.06.1.1.01, Title II: Gas Hills East, Site Transition Costs

Description	Travel Split Factor	Resource Code	Number of Staff	Labor Hours per Worker	Total Labor Hours for Task	Labor Cost (\$)
<b>DPLH LABOR AND LABOR COST</b>						
<b>Site Management (FY08)</b>						
Develop list of site transition activities, update site transition schedule, and identify specific resources to fulfill identified requirements.		PME3-S	1	24	24	\$1,405
Provide management and coordination of transition activities, to include meetings with NRC, DOE, and State of Wyoming, the licensee, and others as necessary.		PME3-S	1	16	16	\$937
Conduct a technical information exchange and continue transfer of technical data and other pertinent information with the owner to ensure the Office of Legacy Management is ready and able to meet all programmatic requirements during FY06.		PME3-S	1	16	16	\$937
		CSE3-S	1	4	4	\$180
Ensure that the Corps of Engineers is briefed on the status of site access and is made aware of the need to establish permanent site access.		PME3-S	1	2	2	\$117
<b>Long-Term Surveillance Plan (FY08)</b>						
Draft revisions to the Long-Term Surveillance Plan in response to comments.		PME3-S	1	40	40	\$2,342
Update drawings and figures for LTSP in response to comments.		DSE1-S	1	50	50	\$1,413
Technical editing and document production.		GHE1-S	1	8	8	\$334
<b>Total Labor Hours</b>					<b>160</b>	
<b>Total Labor Cost (\$)</b>						<b>\$7,665</b>

Description	Travel Split Factor	Qty	Unit Cost (\$)	Number of Staff	Total Cost per Item (\$)
<b>TRAVEL</b>					
<b>Inspection</b>					
Orientation Inspection (FY08)					

**Basis of Estimate**

Lodging	1	1	\$55	1	\$ 55
Per diem	1	1.5	\$31	1	\$ 47
<b>Total Travel</b>				<b>\$</b>	<b>102</b>

**Basis of Estimate**

Description	Qty	Unit Cost (\$)	Total Cost per Item (\$)
<b>TRAINING</b>			
N/A			\$ -
<b>Total Training Cost</b>			<b>\$ -</b>
<b>EQUIPMENT</b>			
N/A			\$ -
<b>Total Equipment Cost</b>			<b>\$ -</b>
<b>SUPPLIES / SERVICES</b>			
N/A			
<b>Total Supplies/Services Cost</b>			<b>\$ -</b>
<b>SUBCONTRACTS</b>			
N/A			\$ -
<b>Total Subcontract Cost</b>			<b>\$ -</b>
<b>OTHER (FY08)</b>			
GSA Vehicle	1	\$100	\$ 100
<b>Total Other Cost</b>			<b>\$ 100</b>
<b>TOTAL ODC (UNBURDENED)</b>			<b>\$ 202</b>



**Basis of Estimate**

**Planning Scope and Basis:**

**WBS Unassigned-1, Title II: Gas Hills East, SiteMgmt-Annual Costs**

Description	Resource Code	Number of Staff	Labor Hours per Worker	Total Labor Hours for Task	Labor Cost (\$)
<b>DPLH LABOR AND LABOR COST</b>					
Schedule and budget management, task management, DOE interface <b>(beginning FY09)</b>	PME3-S	1	48	48	\$2,810
<b>Total Labor Hours</b>				<b>48</b>	
<b>Total Labor Cost (\$)</b>					<b>\$2,810</b>

Description	Travel Split Factor	Qty	Unit Cost (\$)	Number of Staff	Total Cost per Item (\$)
<b>TRAVEL</b>					
N/A					\$ -
<b>Total Travel</b>					<b>\$ -</b>
Description		Qty	Unit Cost (\$)	Total Cost per Item (\$)	
<b>TRAINING</b>					
N/A					\$ -
<b>Total Training Cost</b>					<b>\$ -</b>
<b>EQUIPMENT</b>					
N/A					\$ -
<b>Total Equipment Cost</b>					<b>\$ -</b>
<b>SUPPLIES / SERVICES</b>					
N/A					\$ -
<b>Total Supplies/Services Cost</b>					<b>\$ -</b>
<b>SUBCONTRACTS</b>					
N/A					\$ -
<b>Total Subcontract Cost</b>					<b>\$ -</b>
<b>OTHER</b>					
N/A					\$ -
<b>Total Other Cost</b>					<b>\$ -</b>
<b>TOTAL ODC (UNBURDENED)</b>					<b>\$ -</b>

**Basis of Estimate**

**WBS Unassigned-2, Title II: Gas Hills East, Annual Inspec-Annual Costs**

Description	Travel Split Factor	Resource Code	Number of Staff	Labor Hours per Worker	Total Labor Hours for Task	Labor Cost (\$)
<b>DPLH LABOR AND LABOR COST</b>						
<b>Annual inspection: (beginning FY09)</b>						
Checklist and preparation		PME3-S	1	8	8	\$468
Map preparation		DSE2-S	1	4	4	\$148
Pre-inspection meeting		PME3-S	4	0.5	2	\$117
Travel	1	PME3-S	2	16	32	\$1,873
Site work		PME3-S	2	8	16	\$937
<b>Reporting/posting/records management: (beginning FY09)</b>						
Writing and post trip wrap-up		PME3-S	1	16	16	\$937
Production		GHE1-S	1	4	4	\$167
Map production/edits		DSE2-S	1	4	4	\$148
Photo archiving (electronic) and report production		TWE2-S	1	1	1	\$29
Post inspection photos to GEMS		DSE3-S	1	4	4	\$200
<b>Total Labor Hours</b>					<b>91</b>	
<b>Total Labor Cost (\$)</b>						<b>\$5,025</b>

Description	Travel Split Factor	Qty	Unit Cost (\$)	Number of Staff	Total Cost per Item (\$)
<b>TRAVEL</b>					
<b>Inspection</b>					
Inspection travel					
Lodging	1	2	\$55	2	\$ 220
Per diem	1	2.5	\$31	2	\$ 155
<b>Total Travel</b>				<b>\$</b>	<b>375</b>

### Basis of Estimate

Description	Qty	Unit Cost (\$)	Total Cost per Item (\$)
<b>TRAINING</b>			
N/A			\$ -
<b>Total Training Cost</b>			<b>\$ -</b>
<b>EQUIPMENT</b>			
N/A			\$ -
<b>Total Equipment Cost</b>			<b>\$ -</b>
<b>SUPPLIES / SERVICES</b>			
N/A			\$ -
<b>Total Supplies/Services Cost</b>			<b>\$ -</b>
<b>SUBCONTRACTS</b>			
N/A			\$ -
<b>Total Subcontract Cost</b>			<b>\$ -</b>
<b>OTHER</b>			
GSA Vehicle	1	\$100	\$ 100
<b>Total Other Cost</b>			<b>\$ 100</b>
<b>TOTAL ODC (UNBURDENED)</b>			<b>\$ 475</b>

### WBS Unassigned-4, Title II: Gas Hills East, Maint-Non-annual Costs

Description	Resource Code	Number of Staff	Labor Hours per Worker	Total Labor Hours for Task	Labor Cost (\$)
<b>DPLH LABOR AND LABOR COST</b>					
<b>Replace Monitor Wells (Every 30 yrs beginning in FY39)</b> Decommission and replace an assumed 10 monitor wells (1000 total feet). Includes Statement of Work, procurement, bid tour, decommissioning and disposing of old wells, installing new wells, site reclamation, and project wrapup and records. Site work is estimated at 24 days.	ASE2-S	1	16	16	\$508
	ESE3-B	1	16	16	\$1,149
	SEE1-B	1	8	8	\$451
	PSE3-S	1	300	300	\$13,725
	DSE1-S	1	8	8	\$226
	TWE2-S	1	2	2	\$59
<b>Well Replacement Labor</b>				<b>350</b>	<b>\$16,118</b>
<b>Replace Perimeter Fence (Every 50 yrs beginning in FY59)</b> Remove and replace barbed-wire perimeter fence (35,000 ft) and gates. Includes Statement of Work, procurement, bid tour, removing and disposing of old fence, installing new fence and gates, and project wrapup and records. Site work is estimated at 30 days.	ASE2-S	1	8	8	\$254
	ESE3-B	1	2	2	\$144
	PSE3-S	1	360	360	\$16,470
	DSE1-S	1	4	4	\$113
	TWE2-S	1	1	1	\$29
<b>Fence Replacement Labor</b>				<b>375</b>	<b>\$17,010</b>
<b>Total Labor Hours</b>				<b>725</b>	
<b>Total Labor Cost (\$)</b>					<b>\$33,128</b>

## Basis of Estimate

Description	Qty	Unit Cost (\$)	Number of Staff	Total Cost per Item (\$)
<b>TRAVEL</b>				
<b>Replace Monitor Wells (Every 30 yrs beginning in FY39)</b>				
<u>Bid tour:</u>				
Lodging	2	\$55	1	\$ 110
Per diem	2.5	\$31	1	\$ 78
<u>Site Work:</u>				
Lodging	31	\$55	1	\$ 1,705
Per diem	31.5	\$31	1	\$ 977
<b>Well Travel</b>				<b>\$ 2,869</b>
<b>Replace Perimeter Fence (Every 50 yrs beginning in FY59)</b>				
<u>Bid tour:</u>				
Lodging	2	\$55	1	\$ 110
Per diem	2.5	\$31	1	\$ 78
<u>Site work:</u>				
Lodging	39	\$55	1	\$ 2,145
Per diem	39.5	\$31	1	\$ 1,225
<b>Fence Travel</b>				<b>\$ 3,557</b>
<b>Total Travel Cost</b>				<b>\$ 6,426</b>
Description	Qty	Unit Cost (\$)	Total Cost per Item (\$)	
<b>TRAINING</b>				
N/A				\$ -
<b>Total Training Cost</b>				<b>\$ -</b>
<b>EQUIPMENT</b>				
N/A				\$ -
<b>Total Equipment Cost</b>				<b>\$ -</b>
<b>SUPPLIES / SERVICES</b>				
<b>Replace Monitor Wells (Every 30 yrs beginning in FY39)</b>				
Decommissioning subcontractor		1	\$20,000	\$ 20,000
Installation subcontractor		1	\$100,000	\$ 100,000
<b>Well Services</b>				<b>\$ 120,000</b>
<b>Replace Perimeter Fence (Every 50 yrs beginning in FY59)</b>				
Subcontractor		1	\$182,000	\$ 182,000
<b>Fence Services</b>				<b>\$ 182,000</b>
<b>Total Supplies/Services Cost</b>				<b>\$ 302,000</b>
<b>SUBCONTRACT</b>				
N/A				\$ -
<b>Total Subcontract Cost</b>				<b>\$ -</b>

## Basis of Estimate

<b>OTHER</b>			
<b>Replace Monitor Wells (Every 30 yrs beginning in FY39)</b>			
GSA vehicle (bid tour and site work)	1	\$1,700	\$ 1,700
<b>Wells Other</b>			<b>\$ 1,700</b>
<b>Replace Perimeter Fence (Every 50 yrs beginning in FY59)</b>			
GSA vehicle (bid tour and site work)	1	\$2,100	\$ 2,100
<b>Fence Other</b>			<b>\$ 2,100</b>
<b>Total Other Cost</b>			<b>\$ 3,800</b>
<b>TOTAL ODC (UNBURDENED)</b>		<b>\$</b>	<b>312,226</b>

## Basis of Estimate

### WBS Unassigned-5, Title II: Gas Hills East, Monitor-annual Costs

Description	Travel Split Factor	Resource Code	Number of Staff	Labor Hours per Worker	Total Labor Hours for Task	Labor Cost (\$)
<b>DPLH LABOR AND LABOR COST</b>						
<b>Ground water monitoring (annually beginning in FY09):</b>						
Trip preparation		STE2-S	1	8	8	\$407
		GHE1-S	1	8	8	\$334
Travel	1	STE2-S	2	16	32	\$1,628
Sampling - field activity		STE2-S	2	20	40	\$2,035
Post-trip wrap-up		STE2-S	1	6	6	\$305
Data Validation		STE2-S	1	24	24	\$1,221
Data Management		DSE2-S	1	12	12	\$444
<b>Total Labor Hours</b>					<b>130</b>	
<b>Total Labor Cost (\$)</b>						<b>\$6,376</b>

Description	Travel Split Factor	Qty	Unit Cost (\$)	Number of Staff	Total Cost per Item (\$)
<b>TRAVEL</b>					
<b>Ground water monitoring (annually beginning in FY09):</b>					
Travel					
Lodging	1	3	\$55	2	\$ 330
Per diem	1	3.5	\$31	2	\$ 217
<b>Total Travel Cost</b>					<b>\$547</b>

Description	Qty	Unit Cost (\$)	Total Cost per Item (\$)
<b>TRAINING</b>			
N/A			\$ -
<b>Total Training Cost</b>			<b>\$ -</b>
<b>EQUIPMENT</b>			
N/A			\$ -
<b>Total Equipment Cost</b>			<b>\$ -</b>
<b>SUPPLIES / SERVICES</b>			
<b>Ground water sampling (all analytes beginning in FY09):</b>			
Laboratory Analysis	1	\$1,120	\$ 1,120
Sampling supplies	1	\$50	\$ 50
Sample shipping (coolers)	4	\$80	\$ 320
<b>All Analyte Samples</b>			<b>\$ 1,490</b>
<b>Total Supplies/Services Cost</b>			<b>\$ 1,490</b>

**Basis of Estimate**

<b>SUBCONTRACTS</b>			
N/A			\$ -
<b>Total Subcontract Cost</b>			<b>\$ -</b>
<b>OTHER</b>			
<b>Ground water monitoring (annually beginning in FY09):</b>			
GSA vehicle	1	\$200	\$ 200
<b>Total Other Cost</b>			<b>\$ 200</b>
<b>TOTAL DIRECT COSTS (UNBURDENED)</b>			<b>\$ 2,237</b>