

**Exhibit 13.2.b**

**Schlumberger Carbon Services  
Cost Report for the Taylorville Energy Center**



# **Cost Report**

(Revised and Amended)

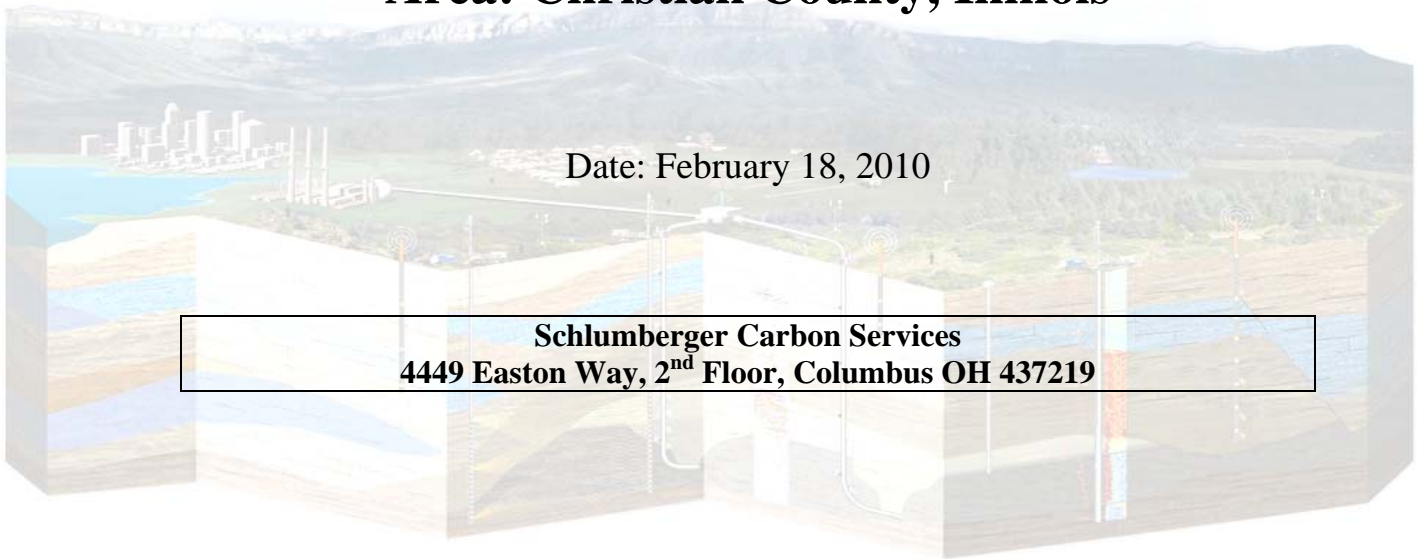
for

## **Taylorville Energy Center**

**Area: Christian County, Illinois**

Date: February 18, 2010

**Schlumberger Carbon Services**  
**4449 Easton Way, 2<sup>nd</sup> Floor, Columbus OH 43219**





## INTRODUCTION

This report provides a summary of the costs for development of geologic (saline reservoir) CO<sub>2</sub> storage for the Taylorville Energy Center project. The costs are developed from:

- A combination of formal and informal quotations solicited for this specific project;
- Recent experience on other similar projects (historical costs);
- Schlumberger engineering estimates.

This report has been amended from the December 2009 report to include consideration of a reduced capture and flow volume. The amended analysis is summarized in table C-2 and is summarized at the end of the current document.

Based on Schlumberger Carbon Services evaluation and understanding of project requirements, including pending regulations, costs for typical carbon storage projects are likely to be in the range of \$5.00 to \$10.00 per tonne of stored CO<sub>2</sub>. The project costs presented herein are lower than this range due to the very favorable geologic setting, the assumptions concerning project requirements, and other conditions for CO<sub>2</sub> injection specific to the Taylorville Energy Center (TEC). This project and cost report should not be considered representative or typical of other CO<sub>2</sub> storage projects.

The scope and costs are based on current Class I UIC non-hazardous permitting for the State of Illinois. It is possible the wells will need to be converted to a Class VI injection wells in the future. The Class VI regulations have not been finalized at this time. When they are finalized, additional requirements may be placed on the operator of the TEC injection field. It is Schlumberger's opinion, that in order to meet those regulations, or other requirements (such as those, including but not limited to, those imposed by private insurance or those required to demonstrate site security, and storage for carbon credits) that monitoring and site management costs could be higher than those described in this report.

The geologic setting is favorable. The target formation of the Mt. Simon is estimated to be very thick at 1100-1300 feet with a high estimated porosity and permeability in the area selected. The thickness combined with the porosity and permeability allows for a high capacity injection field to be developed using a minimal number of wells. The field is estimated to only require 3 to 4 wells with a well spacing of only 2 miles. The thickness also reduces the area required for the CO<sub>2</sub> resulting in reduced right of way. Also, the target area is under and adjacent to the plant resulting in minimal pipeline cost.

It should also be noted the estimate was completed without a test well. When the first injection well is drilled, actual conditions are likely to vary from those assumptions and could therefore result in the need for alternate designs, additional infrastructure, and revised operating assumptions.

All costs are in January 2010 dollars and have not been adjusted for changes to the value of currency (inflation, deflation). In addition and of particular note is that most of the goods and services are from the oil and gas business which tends to fluctuate substantially over relatively short periods of time. These fluctuations have a direct and equally rapid impact on prices for everything from services to the cost of commodity-based items such as steel for tubulars, and cement.

### **COST ROLL UP AND SUMMARY**

Following is a cost roll up (Table C-1) and forecast draw schedule (Table C-2) for the project

Item	Costs
Well Installation and Site Characterization	\$29,814,354
Insurance	\$945,672
Land and Access	\$1,500,000
Monitoring	\$34,704,612
Pipeline	\$ 7,144,379
Work Over	\$5,834,670
Subtotal	\$79,943,687
Engineering, Operations, and Maintenance (15%)	\$11,991,553
Contingency (10%)	\$7,994,369
Plugging and Abandonment	\$1,651,500
Decommissioning Contingency	\$15,136,570
TOTAL	\$116,717,679
Contingency for Additional Injection Well	\$24,498,394

Table C-1      CO<sub>2</sub> storage cost roll up for three injection well case, Taylorville Energy Center site.

Item	Costs
Well Installation and Site Characterization	\$20,386,652
Insurance	\$630,448
Land and Access	\$1,200,000
Monitoring	\$29,192,779
Pipeline	\$ 4,286,627
Work Over	\$3,945,950,
Subtotal	\$56,348,001
Engineering, Operations, and Maintenance (15%)	\$8,946,368
Contingency (10%)	\$5,964,246
Plugging and Abandonment	\$1,101,000
Decommissioning Contingency	\$12,431,738
TOTAL	\$88,085,808
Contingency for Additional Injection Well	\$24,498,394

Table C-2 Amended CO<sub>2</sub> storage cost roll up for two injection well case, Taylorville Energy Center site.

TEC Mt. Simon Injection Field Draw Schedule						
Year	Development	Capital	Monitor O&M	Total O&M	Decommissioning	Work
2009	\$600,000					Site Characterization/Permitting
2010	\$500,000					Permitting/Land Options
2011		\$500,000				Engineering
2012		\$9,557,080				Drill First Injection Well/Land
2013		\$9,626,898	\$9,000	\$19,000		Install CO2 pipeline/ Baseline Seismic Drill Shallow Wells and Test
2014		\$34,668,002	\$12,000	\$112,000		Drill 2 Injection and 3 St Peter wells, complete 6 wells, Install wells head equipment
2015			\$82,090	\$182,090		Water sampling and Wellhead O&M
2016			\$82,090	\$182,090		Water sampling and Wellhead O&M
2017			\$82,090	\$182,090		Water sampling and Wellhead O&M
2018			\$82,090	\$182,090		Water sampling and Wellhead O&M
2019			\$12,000	\$112,000		Water sampling and Wellhead O&M
2020			\$12,000	\$112,000		Water sampling and Wellhead O&M
2021			\$12,000	\$112,000		Water sampling and Wellhead O&M
2022			\$12,000	\$112,000		Water sampling and Wellhead O&M
2023			\$12,000	\$112,000		Water sampling and Wellhead O&M
2024			\$9,611,325	\$9,711,325		Seismic/Well Work Overs
2025			\$12,000	\$112,000		Water sampling and Wellhead O&M
2026			\$12,000	\$112,000		Water sampling and Wellhead O&M
2027			\$12,000	\$112,000		Water sampling and Wellhead O&M
2028			\$12,000	\$112,000		Water sampling and Wellhead O&M
2029			\$82,090	\$182,090		Water sampling and Wellhead O&M
2030			\$12,000	\$112,000		Water sampling and Wellhead O&M
2031			\$12,000	\$112,000		Water sampling and Wellhead O&M
2032			\$12,000	\$112,000		Water sampling and Wellhead O&M
2033			\$12,000	\$112,000		Water sampling and Wellhead O&M
2034			\$9,611,325	\$9,711,325		Seismic/Well Work Overs
2035			\$12,000	\$112,000		Water sampling and Wellhead O&M
2036			\$12,000	\$112,000		Water sampling and Wellhead O&M
2037			\$12,000	\$112,000		Water sampling and Wellhead O&M
2038			\$12,000	\$112,000		Water sampling and Wellhead O&M
2039			\$82,090	\$182,090		Water sampling and Wellhead O&M
2040			\$12,000	\$112,000		Water sampling and Wellhead O&M
2041			\$12,000	\$112,000		Water sampling and Wellhead O&M
2042			\$12,000	\$112,000		Water sampling and Wellhead O&M
2043			\$12,000	\$112,000		Water sampling and Wellhead O&M
2044					\$7,890,990	Seismic/P and A work
2045					\$3,000	Water sampling
2046					\$3,000	Water sampling
2047					\$3,000	Water sampling
2048					\$3,000	Water sampling
2049					\$82,090	Water sampling
2050					\$3,000	Water sampling
2051					\$3,000	Water sampling
2052					\$3,000	Water sampling
2053					\$3,000	Water sampling
2054					\$7,139,490	Seismic/P and A work OB wells
Contingency		\$7,994,369				
Decommissioning Contingency					\$15,136,570	100% Contingency for closure/post closure care
Totals	\$1,100,000	\$62,346,349	\$19,988,190	\$22,998,190	\$30,273,140	
Total	\$116,717,679					
Add'l Inj. Well		\$13,144,057		\$6,151,737	\$5,202,600	Includes potential additional capital cost and factor for monitoring and closure – Total cost for additional injection well is \$24,498,394

Table C-3 Project draw schedule for three injection well base case.



TEC Mt. Simon Injection Field Draw Schedule						
Year	Development	Capital	Monitor O&M	Total O&M	Decommissioning	Work
2009	\$600,000					Site Characterization/Permitting
2010	\$500,000					Permitting/Land Options
2011		\$500,000				Engineering
2012		\$9,257,080				Drill First Injection Well/Land
2013		\$9,247,810	\$9,000	\$19,000		Install CO2 pipeline/ Baseline Seismic Drill Shallow Wells and Test
2014		\$17,909,778	\$12,000	\$84,000		Drill 1 Injection and 2 St Peter wells, complete 4 wells, Install wells head equipment
2015			\$54,750	\$136,570		Water sampling and Wellhead O&M
2016			\$54,750	\$136,570		Water sampling and Wellhead O&M
2017			\$54,750	\$136,570		Water sampling and Wellhead O&M
2018			\$54,750	\$136,570		Water sampling and Wellhead O&M
2019			\$8,000	\$84,000		Water sampling and Wellhead O&M
2020			\$8,000	\$84,000		Water sampling and Wellhead O&M
2021			\$8,000	\$84,000		Water sampling and Wellhead O&M
2022			\$8,000	\$84,000		Water sampling and Wellhead O&M
2023			\$8,000	\$84,000		Water sampling and Wellhead O&M
2024			\$8,178,499	\$8,278,499		Seismic/Well Work Overs
2025			\$8,000	\$84,000		Water sampling and Wellhead O&M
2026			\$8,000	\$84,000		Water sampling and Wellhead O&M
2027			\$8,000	\$84,000		Water sampling and Wellhead O&M
2028			\$8,000	\$84,000		Water sampling and Wellhead O&M
2029			\$54,750	\$136,570		Water sampling and Wellhead O&M
2030			\$8,000	\$84,000		Water sampling and Wellhead O&M
2031			\$8,000	\$84,000		Water sampling and Wellhead O&M
2032			\$8,000	\$84,000		Water sampling and Wellhead O&M
2033			\$8,000	\$84,000		Water sampling and Wellhead O&M
2034			\$8,178,499	\$8,278,499		Seismic/Well Work Overs
2035			\$8,000	\$84,000		Water sampling and Wellhead O&M
2036			\$8,000	\$84,000		Water sampling and Wellhead O&M
2037			\$8,000	\$84,000		Water sampling and Wellhead O&M
2038			\$8,000	\$84,000		Water sampling and Wellhead O&M
2039			\$54,750	\$136,570		Water sampling and Wellhead O&M
2040			\$8,000	\$84,000		Water sampling and Wellhead O&M
2041			\$8,000	\$84,000		Water sampling and Wellhead O&M
2042			\$8,000	\$84,000		Water sampling and Wellhead O&M
2043			\$8,000	\$84,000		Water sampling and Wellhead O&M
2044					\$6,715,074	Seismic/P and A work
2045					\$2,000	Water sampling
2046					\$2,000	Water sampling
2047					\$2,000	Water sampling
2048					\$2,000	Water sampling
2049					\$82,090	Water sampling
2050					\$2,000	Water sampling
2051					\$2,000	Water sampling
2052					\$2,000	Water sampling
2053					\$2,000	Water sampling
2054					\$5,618,574	Seismic/P and A work OB wells
Contingency		\$5,964,246				
Decommissioning Contingency					\$12,431,738	100% Contingency for closure/post closure care
Totals	\$1,100,000	\$42,878,914	\$16,874,498	\$19,243,418	\$24,863,476	
Total	\$88,085,808					
Add'l Inj. Well		\$13,144,057		\$6,151,737	\$5,202,600	Includes potential additional capital cost and factor for monitoring and closure – Total cost for additional injection well is \$24,498,394

Table C-4 Project draw schedule for two injection well alternate case.

## WELL INSTALLATION AND SITE CHARACTERIZATION

A total of nine wells are budgeted for the project:

- Three injection wells completed in the Mt. Simon sandstone, the storage reservoir;
- Three deep monitoring wells completed in the St. Peter sandstone, a deep zone of low-salinity water;
- Three shallow groundwater monitoring wells completed in the glacial outwash, the primary source of potable groundwater in the area.

Well Type	Approximate Total Depth (feet)	Number of Wells	Estimated Cost per Well	Total Well Cost
Initial Mt. Simon Injection	7000	1	\$9,150,259	\$9,150,259
Additional Mt. Simon Injection	7000	2	\$8,172,711	\$16,345,422
St. Peter Monitoring	3400	3	\$1,225,891	\$3,677,673
Shallow Groundwater Monitoring	175	3	\$30,000	\$90,000
Subtotal				\$29,263,354
Core Analytical				\$551,900
TOTAL				\$29,814,354

Table C-5 Summary of well installation costs.

### **Mt. Simon Injection Wells**

The initial Mt. Simon well will include collection of standard and advance wireline logs. Other anticipated geologic characterization activities include drill stem tests, collection of mud cuttings and mud logging, and collection of core samples. The cost of the additional Mt Simon wells includes an adjustment for a reduced suite of wireline logging. All of the wells (initial and subsequent) include advanced logging to demonstrate mechanical integrity.

Budget for 90 feet of coring and a drill stem test is retained in each injection well estimate, following the assumption that coring and testing intervals may be distributed to each well, based on information gathered from the previous well. For this estimate, it is assumed that 120 feet of the full core would be selected for laboratory testing and analysis. The drilling budget also includes provision for collection of side wall cores. These supplemental cores are considered in the core analytical costs. The laboratory and drill stem tests would be completed to gather information on the rock lithologic and petrographic properties, hydrogeological properties, and mechanical strength. The test

results, along with the wireline information will be used to refine the site static and dynamic flow models. The core analytical costs are estimated at \$551,990.

At present, the general well design calls for nominal 7-inch tubing set in 9 5/8-inch production casing. The production casing will be set to within about 400 feet of the base of the Mt. Simon. This zone (the lowermost 400 feet) will be open hole. The bottom 1400 feet of the 9 5/8-inch casing will be chrome; the balance of the casing and tubing will consist of carbon steel.

### **St. Peter Monitoring Wells**

The St. Peter sandstone is not developed as a potable, agricultural, or industrial water supply in the project area. However, data are available to indicate that it could meet the US EPA definition of the lowermost underground source of drinking water. Total dissolved solids (TDS) in the St. Peter are close to 10,000 parts per million (ppm) which is the limit set by the agency. For comparison, the injection reservoir salinity is expected to contain over 100,000 ppm TDS, several times the salinity of sea water.

As a result, site development and monitoring plans call for installation of one St. Peter monitoring well in association with each injection well. Each well will be equipped with a packer and downhole, real-time pressure and temperature gauge. Data will be transmitted to ground surface via fiber optic cable and connected to the system control and data acquisition (SCADA) network. Additional information regarding the monitoring program is described in the “Monitoring” section.

In regards to construction assumptions, it is anticipated that the well can be installed and completed with two sets of casing:

1. A 400 foot section of 9 5/8-inch surface casing set in a 12 1/4-inch borehole and
2. 5 1/2-inch production casing, approximately 3310 feet in length.

Standard metallurgy and installation methods are anticipated for well installation.

### **Shallow Groundwater Monitoring Wells**

Three shallow groundwater monitoring wells will be completed in the glacial outwash, the primary source of potable groundwater in the area. The outwash zones can occur anywhere within the glacial sediments which are approximately 100 feet thick in the area. Costs included here assume that each well will be constructed of Schedule 40 PVC and will be approximately 75 feet deep. Each well would be secured with a locking surface “stick up” to prevent tampering and with a minimum of three bollards to reduce the risk of surface damage due to vehicular traffic and vandalism. Shallow well costs of \$20,000 per well, are based on recent experience and engineers estimate. Details of the monitoring program are discussed in the “Monitoring” section.

## **Optional Hole Insurance**

Insurance to protect against lost hole and tools due to geological and drilling issues is available for deep wells. A recent cost quote for this type of insurance is \$30.31 per foot drilled. Assuming that the Mt. Simon wells are each approximately 7,000 feet deep, then insurance on each well would be approximately \$212,170 or \$636,510 for all three wells.

The St. Peter wells are projected to be approximately 3,400 feet deep and so the per well insurance cost would be \$103,054 or \$309,162 for all three. Total insurance costs for all six deep wells would be \$945,672.

The actual cost for this insurance could vary from this budget estimate. Typical factors considered in the quotation are:

- The size (diameter and depth) of the well. (The Mt. Simon wells are large diameter and relatively deep for the region)
- The owner/operators experience in drilling similar wells. (Wells are larger and deeper than is typical for the region.)
- The history of well drilling in the area. (Wells are larger and deeper than is typical for the region.)
- Geological complexity

The actual policy would also likely have a deductible which could be relatively high and is not included here.

## **Well Work Overs**

Other significant costs to be considered are well workovers for the injection wells and the St. Peter wells. For cost budgeting, assume that each well will require a work over at years 10 and 20 of operations. The estimated cost for each work over is 10% of the original cost. The total well cost for the injection wells and St. Peter observation wells are \$29,173,354. Assuming the two workover events, the total cost is \$5,834,670. These costs would cover removal of down well hardware (tubing, gauges, etc.), inspection of the well and hardware, item replacement as needed (e.g. new packers, tubing, communications cables), well restoration, and mechanical integrity testing as required by the permit.

## **Plugging and Abandonment**

Well costs associated with site closure include plugging and abandoning (P&A) the injection wells, the St. Peter wells, and the shallow monitoring wells. The cost for the injection wells is estimated at \$399,000 per well; St Peter well \$150,000 each; and \$1500 for each of the shallow monitoring wells. The total costs for P&A are \$1,651,500

## LAND AND ACCESS COSTS

There are several areas of consideration for land costs, including both surface and subsurface access. Based on known and observed site conditions and land use, this cost section assumes that all land required for the project is currently developed for agriculture, specifically as crop land. Surface and subsurface acquisition costs, along with an evaluation of permanent versus temporary access, were considered for this portion of the cost estimate. Total land and access costs are estimated at approximately \$1,500,000.

## MONITORING

The absence of established protocols or requirements for a monitoring program due to the evolving regulatory environment contributes to uncertainty in budgeting for site monitoring requirements. In addition, while there are many ideas and technologies under evaluation for monitoring CO<sub>2</sub> storage sites, there is no industry standard or typical suite of technologies that may be applied to monitoring.

Site monitoring can be considered to fall in to two categories:

1. Verification and accounting
2. Security or leak detection

Monitoring Event/System	Unit Cost	Units	Number of Units	Total Cost
St. Peter Pressure-Temperature System	\$175,314	well	3	\$525,942
St. Peter Sampling and Analytical	\$75,090	Event	13	\$976,170
Shallow Well Sampling and Analytical	\$3000	Event	56	\$168,000
Seismic 3-D/4-D Surveys	\$6,606,900	Event	5	\$33,034,500
TOTAL				\$34,704,612.00

Table C-6 Monitoring cost summary

### Real Time Monitoring

At the injection wells, the well head will be equipped to measure and record real time temperature, injection pressure, and flow rates to monitor system performance, for

verification and accounting, and to optimize operations. Annular pressure will be monitored to evaluate leakage through the injection tubing or around the packer. The costs for this equipment are included with the injection well cost estimate.

It is assumed each St. Peter monitoring well will be equipped with down hole temperature and pressure gauges and (continuous) surface data recorders. The continuous record may be used to identify anomalous changes in subsurface conditions that could indicate leakage. The installed costs for the St. Peter well pressure-temperature system is \$175,314 (see attachment).

## **Periodic Monitoring**

### **Formation Fluid Monitoring**

The St. Peter wells will be accessed periodically to collect fluid samples. The proposed sampling and analysis schedule includes:

- One baseline (pre-injection)
- Annual through the first five years of injection (five rounds)
- Every five years through the end of injection (an additional five rounds assuming 30 years of injection)
- Every fifth year (two additional rounds) through the 10 year post-injection stabilization period.

The cost per event is estimated at \$75,090. This includes sample collection.

Maintenance of the sample at formation pressure and analyses including gas-water ratio, ionic composition, pH, and analyses required for correction to account for mud filtrate.

The three shallow monitoring wells will be monitored quarterly for one year, prior to start up of the injection system to establish baseline conditions, and then quarterly through the life of the injection phase and annually during the post injection stabilization period.

This represents a total of 56 sampling events. The cost for sampling and analysis, per event is \$3,000. The planned analyses include field pH measurements; laboratory analyses include major cations and anions, and select trace metals.

### **Seismic Monitoring**

Seismic surveying is proposed as the method of choice for monitoring the extent of the CO<sub>2</sub> in the subsurface. The principle underlying the technique is to generate a sonic signal and then measure their velocities as they travel down through the earth and back to sensors couple with ground surface. As CO<sub>2</sub> displaces brine, there would be expected a comparable change in the velocity of an acoustic signal through that zone. Using advance recording and processing techniques, repeat three dimensional surveys can be completed. This is referred to as 3-D/4-D seismic survey. Assuming a 20 square mile plume area, approximately 8 miles (N-S) by 2.5 miles (E-W) then the survey area would be approximately 11 miles (N-S) by 5.5 miles (E-W). This larger area is necessary to get full coverage of the maximum plume area. Basic survey assumptions for preparation of the cost estimate are that receiver lines would be place on 1/4 –mile spacing and signal/source interval is 1/2 –mile spacing. With a survey area of approximately 60 square miles and acquisition costs of \$110,115, the total costs per event are \$6,606,900.

The survey would include a baseline survey to be completed prior to any injection and then one survey every ten years through the injection period and post-injection stabilization period for a total of five surveys over the life of the project. The project cost would be \$33,034,500.

Optimization strategies will be considered during the design of each event. Consideration will be given to timing of the survey (e.g. after crop harvest) and to source and receiver line spacing. Either of these may be reduced either based on site characteristics or advances in technology. The size of the survey area may also be revised. In particular, the area may be reduced for Year 10 and Year 20 where the CO<sub>2</sub> is at an interim position and has not reached its maximum extent.

Event/Year	Pressure-Temperature Logging	St. Peter Sampling and Analysis	Shallow Groundwater Sampling and Analysis (Quarterly)	Seismic Survey
Baseline	✓	✓	✓	✓
1 through 4	✓	✓	✓	
5	✓	✓	✓	
6 through 9	✓		✓	
10	✓	✓	✓	✓
11 through 14	✓		✓	
15	✓	✓	✓	
16 through 19	✓		✓	
20	✓	✓	✓	✓
21 through 24	✓		✓	
25	✓	✓	✓	
26 through 29	✓		✓	
30	✓	✓	✓	✓
31 through 34	✓		✓*	
35	✓	✓	✓*	
36 through 39	✓		✓*	
40	✓	✓	✓*	✓

\* Annual sampling of shallow groundwater during post-injection stabilization period.

Table C-7 Monitoring Summary

## PIPELINE

The pipeline estimate was prepared by Peterson Engineering under the direction of Mr. Charles Peterson, a registered engineer in the State of Illinois. The total estimate is \$7,144,379 including a 30% contingency.

## **ENGINEERING, OPERATIONS, AND MAINTENANCE**

Costs for engineering, operations, and maintenance that were not captured in individual tasks and events described previously are estimated as a percentage of the overall project costs. A typical range applied to overall project costs is 10% to 25%. A significant amount of the engineering for the storage project has been completed and there are also costs for specific engineering and site supervision tasks included in the drilling budgets. Based on these conditions, costs for engineering, operation, and maintenance with noted exceptions are estimated at 15% of the overall project costs. This will include engineering, reporting, and routine site maintenance. These costs would also include the reservoir engineering support to develop and update the 4D seismic model and reservoir model.

## **DECOMMISSIONING CONTINGENCY**

A requirement for the project is to maintain a potential emergency or remedial response and liability reserve. There are no established methods for determining the required value of such a reserve, with the purpose of providing reservoir closure funding specifically to:

1. Maintain the reservoir;
2. Monitor and verify the permanently sequestered nature of the CO<sub>2</sub> in the reservoir; and
3. Provide a liability reserve that would meet “prudent industry practices”.

The project includes several provisions, described in various sections above, to provide for post closure care. These activities include post closure monitoring to verify that the storage reservoir is stable and also includes budget to close out (plug and abandon) the injection and monitoring wells. The post-injection costs, incurred during the 10-year post-injection period (assuming four injection wells), are estimated at \$15,136,570. An additional \$15,136,570 is budgeted as a reserve contingency to allow coverage for potential emergency or remedial response.

## **PROJECT CONTINGENCY**

As noted above, there are several areas of uncertainty, inherent in the project:

- Oil field services costs can fluctuate rapidly
- Commodities prices can swing through significant price changes depending on global demand and economic activity
- Regulations governing CO<sub>2</sub> storage projects are in progress and may or may not be “final” at the time the project is implemented or during operations.
- This is one of the first commercial-scale CO<sub>2</sub> storage projects and so there is not a historical record or data base of other projects to compare costs.

However, the technology identified for the project exists and has been demonstrated effective through smaller storage projects, through the experience of the enhanced oil recovery industry, and through other analogous applications (e.g commercial CO<sub>2</sub>



production and transportation projects). Therefore, a 10% contingency based on the project following project items is added to the overall project costs:

- Well Installation and Site Characterization
- Insurance
- Land and Access
- Monitoring
- Pipeline
- Workover

The total for the contingency is \$7,994,369

### **CONTINGENCY FOR ADDITIONAL INJECTION WELL**

In the event an additional well is required to meet injection requirements, a budgeted contingency is included. The contingency includes capital (well installation, land, insurance) and operating costs (additional monitoring area), additional pipeline, and costs for plugging and abandonment. The budget for this additional well also includes engineering, operations, and maintenance costs. The total estimated budget for an additional injection well is \$24,498,394.

### **AMENDMENT FOR TWO INJECTION WELL CASE**

Following completion of the Revised Cost Report for the Taylorville Energy Center, dated December 15, 2009, further consideration was given to capturing approximately a reduced amount of CO<sub>2</sub>. This alternate case considers approximately 2/3 capture (67%) of the 100% capacity factor. Although this case was not modeled, the study results are extrapolated to suggest that two injection wells could be designed and optimized to handle this reduced volume. The CO<sub>2</sub> plume volume and area is also inferred to be roughly, proportionally reduced. An updated cost for the two well scenario is shown in summary table C-2. Line item reductions were made that generally correspond to the budget developed for the contingency well (described above). However, due to the reduced volume and smaller plume area, the budget reduction of the two-well injection case is greater than the budget increase of going from three wells to four wells (with no change in volume).