
**The Economic Impact of Fernald
on the Greater Cincinnati Economy**

Prepared for the

Fernald Community Reuse Organization

By the

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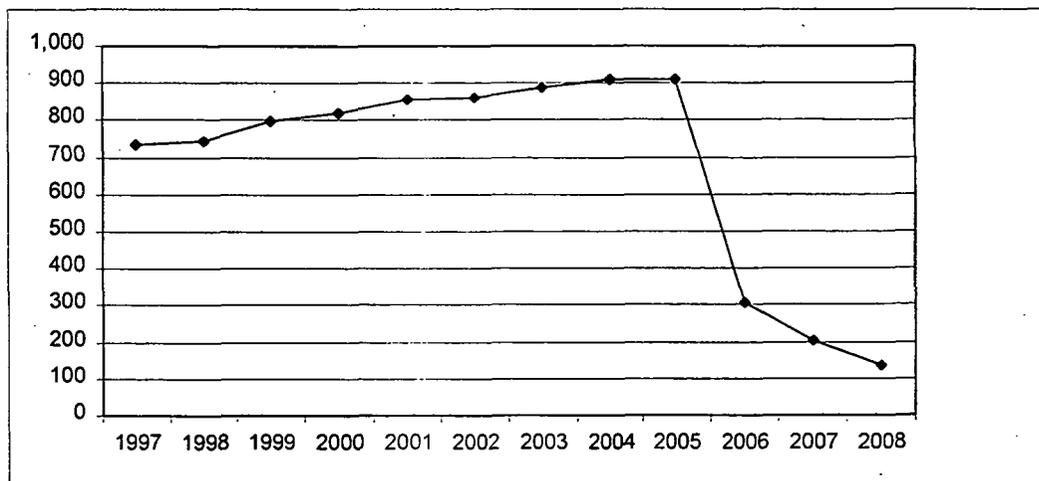
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Executive Summary**The Economic Impact of Fernald on the Greater Cincinnati Economy**

We have analyzed Fernald's economic impact on the Greater Cincinnati economy for each year between 1997 and 2008. Our major findings include the following:

- From 1997 to 2008, Fernald's total annual economic impact on the Greater Cincinnati economy will decline by 81 percent – from \$735 million in 1997 to \$136 million in 2008.
- Fernald's total annual economic impact will peak in 2005, when it will reach \$910 million. The total economic impact of Fernald in 2005 includes \$764 million in regional economic output and \$164 million in household earnings.
- From 1997 to 2008, Fernald's direct and indirect employment impact on the Greater Cincinnati economy will decrease by 2,765 jobs – from 4,394 in 1997 to 1,629 in 2008.
- The impact of Fernald on regional employment will peak in 1998, when 4,638 jobs are directly and indirectly created throughout a number of Greater Cincinnati's industries.
- The industries in Greater Cincinnati that benefit the most from Fernald's operations are construction, business services, real estate, retail trade, and health services.
- Chart 1 shows the total annual economic impacts of Fernald for the years 1997 through 2008. After the year 2005, the loss in regional economic activity due to lower Fernald spending is dramatic. In fact, the combined annual economic impacts of Fernald over the three year period from 2006 to 2008 is less than the total economic impact in any one of the nine prior years.

Chart 1: 1997-2008 Total Fernald Annual Economic Impacts 1997 to 2008
(in millions of dollars)



Introduction

Between 1953 and 1989, Fernald produced uranium metal products for the nation's defense programs. Fernald's uranium metal production was suspended in 1989 to focus resources on environmental restoration, and since 1991, the Fernald work force has been dedicated to environmental restoration and waste management. In 1992, Fluor Daniel Fernald assumed responsibility for managing all cleanup activities at Fernald under a contract with the Department of Energy.

This report describes the economic impact of Fernald on the Greater Cincinnati economy over the 1997 to 2008 time period. We describe Fernald's economic impact in terms of its direct and indirect creation of regional output, household earnings, and employment in the Greater Cincinnati economy.¹

Structure of this Report

This report is structured as follows. The introduction includes descriptions of the data sources and research methodology we used for this analysis. The summary, which begins on page four, summarizes the total economic impact of Fernald over the 11-year period and highlights our major findings. Following the summary we describe in detail the economic impact of Fernald for each year between 1997 and 2008.

Two appendices are included in the back of the report. Appendix I includes the data provided to us from the Department of Energy, as well as a description of the assumptions they made in order to provide us with the data we required. Appendix II includes detailed information on the methodology used in our analysis.

Data Sources

The Department of Energy's Fernald Area Office provided us with the data that was necessary to conduct this analysis. Economic impacts are based on industry and location specific multipliers for economic activities. Because there is not an "environmental remediation" industry multiplier, we have divided Fernald's business activities into three main categories: engineering and management, construction, and transportation. These three industries represent Fernald's operations, and together they describe how and to what extent Fernald affects regional economic activity.

¹ Greater Cincinnati is defined as a 13-county area including parts of three states. The counties are Brown, Butler, Clermont, Hamilton, and Warren in Ohio; Boone, Campbell, Gallatin, Grant, Kenton, and Pendleton in Kentucky; and Dearborn and Ohio counties in Indiana.

1837

For each of these three operating activities, we asked the Department of Energy to provide us with total payroll and benefit expenditures, all other expenditures, and total employment. Therefore, our analysis is based on total non-payroll expenditures, total payroll and benefit expenditures, and total employment associated with Fernald's engineering and management activities, construction activities, and transportation activities.

The Department of Energy provided the total expenditures, payroll and benefits, and employment associated with each of the three units beginning with the 1997 fiscal year and projected through the 2008 fiscal year. These data and an outline of the assumptions and methodology used to gather these data are in Appendix I.

Research Methodology

The economic impact of Fernald is described in terms of Fernald's impact on regional output, household earnings, and employment. The economic impact analysis was performed using the Regional Input Output Modeling System (RIMS II), developed by the Bureau of Economic Analysis at the U.S. Department of Commerce.² RIMS II measures the impact of a project's economic activities by using location specific multipliers which determine the total amount of business activity, household earnings, and employment that will be generated within the Cincinnati Consolidated Metropolitan Statistical Area.

The "output" multipliers (which we use to calculate the economic impacts of spending on regional output) determine the total amount of expenditures that are spent in the region by estimating how much of the industry-specific spending could be satisfied by regional businesses. Therefore, we do not create our own estimates of how much of Fernald's expenditures stay within the Greater Cincinnati region. However, the "earnings" and "employment" multipliers do require that we estimate how many Fernald employees live in the Greater Cincinnati region. Based on a 1996 study we conducted for Fernald, we estimate that 72 percent of Fernald's employees live within the 13-county Greater Cincinnati area. For more detailed information on the methodology used in this analysis, please see Appendix II.

² This economic impact analysis was conducted using the latest version of RIMS II industry multipliers for the Greater Cincinnati region. These multipliers are based on 1995 Greater Cincinnati data and 1992 US Benchmark (Input-Output) tables.

Summary of the Economic Impact of Fernald

From 1997 to 2008, Fernald’s total annual economic impact on the Greater Cincinnati economy will decline by 81 percent – from \$735 million in 1997 to \$136 million in 2008. After the year 2005, the loss in regional economic activity due to lower Fernald spending is dramatic. In fact, the combined annual economic impacts of Fernald over the three year period from 2006 to 2008 is less than the total economic impact in any one of the nine prior years.

Fernald’s total economic impact includes two separate components -- the impact on regional output and the impact on regional household earnings. From 1997 to 2008, Fernald’s economic impact on regional output will decline by 88 percent – from \$594 million in 1997 to \$72 million in 2008. Fernald’s impact on household earnings in the Greater Cincinnati region will decline by \$76 million, or 54 percent, over the same period. In addition, Fernald-associated employment in Greater Cincinnati will suffer a loss of 2,765 jobs between 1997 and 2008.

Table 1 reports the data on which our analysis is based. In FY 1997, total Fernald non-payroll expenditures were \$257 million. In addition, payroll and benefit payments totaled nearly \$91 million. Fernald’s activities required a total of 2,464 direct jobs in the 1997 fiscal year.

By 2008, Fernald’s non-payroll expenditures will fall to \$31 million, and payroll and benefits will drop to \$41 million. Fernald employment will decline from 2,464 in 1997 to 911 in 2008.

It is expected that over the next 11 years total Fernald non-payroll expenditures will peak at \$321 million in 2005. Expenditures for payroll and benefits are highest in 2001 when Fernald will spend \$121 million for payroll and benefits. The number of total employees reaches a peak in 1998 when Fernald will employ 2,594 people. See Table 1 below for details.

Table 1: Total Fernald Expenditures, 1997-2008

Year	Total Expenditures	Total Non-Payroll Expenditures	Total Payroll and Benefits	Total Employees
1997	\$ 348,020,000	\$ 257,441,000	\$ 90,579,000	2,464
1998	350,674,000	258,700,000	91,974,000	2,594
1999	379,678,000	275,212,000	104,466,000	2,586
2000	392,409,000	280,589,000	111,820,000	2,390
2001	409,206,000	288,165,000	121,041,000	2,345
2002	409,688,000	295,948,000	113,740,000	2,278
2003	419,478,000	303,937,000	115,541,000	2,236
2004	430,666,000	312,143,000	118,523,000	1,844
2005	423,251,000	320,571,000	102,680,000	1,757
2006	149,793,000	94,483,000	55,310,000	1,306
2007	101,461,000	56,965,000	44,496,000	842
2008	72,592,000	31,117,000	41,475,000	911

5

While Table 1 shows the direct effects of Fernald on the Greater Cincinnati region, Table 2 shows the direct *and indirect* effects of Fernald on the regional economy. For example, the \$257 million in non-payroll expenditures that Fernald spent in 1997 created an economic impact on regionwide output of \$594 million. The \$91 million in direct payroll and benefits led to a total impact of \$140 million on household earnings, which includes the indirect impacts of earnings through the re-spending of dollars in the local economy. Together, the output and earnings components yielded a total annual economic impact of \$735 million in 1997. In addition, the 2,464 jobs directly created at Fernald led to a total of 4,394 jobs in the regional economy due to the indirect business activity that is stimulated by Fernald employment.

Fernald's total economic impact is expected to be greatest in 2005 when the impact will reach \$910 million. The economic impact on regional output peaks in 2005, while the economic impact on regional earnings peaks in 2001. The regional impact on employment is greatest in 1998, when 4,638 jobs are created.

Table 2: Total Fernald Economic Impacts, 1997-2008

	Total Economic Impact	Total Economic Impact on Output	Total Economic Impact on Earnings	Total Economic Impact on Employment
1997	\$ 734,601,510	\$ 594,143,553	\$ 140,457,957	4,394
1998	741,171,843	597,924,825	143,247,018	4,638
1999	795,957,617	633,292,150	162,665,468	4,629
2000	821,071,980	646,140,069	174,931,912	4,283
2001	855,479,451	665,049,145	190,430,306	4,219
2002	860,424,699	682,009,621	178,415,078	4,088
2003	885,466,919	702,453,116	183,013,803	4,034
2004	909,237,431	721,443,942	187,793,489	3,327
2005	909,641,275	745,808,047	163,833,228	3,179
2006	305,758,568	218,641,769	87,116,799	2,347
2007	200,734,635	131,307,606	69,427,029	1,507
2008	136,216,573	71,673,815	64,542,758	1,629

Charts 1 and 2 on the following page show the total economic impact of Fernald for each year, and then the two component parts – the annual economic impact on regional output and the annual economic impact on regional earnings.

Chart 1: Total Fernald Economic Impacts, 1997-2008 (in millions)

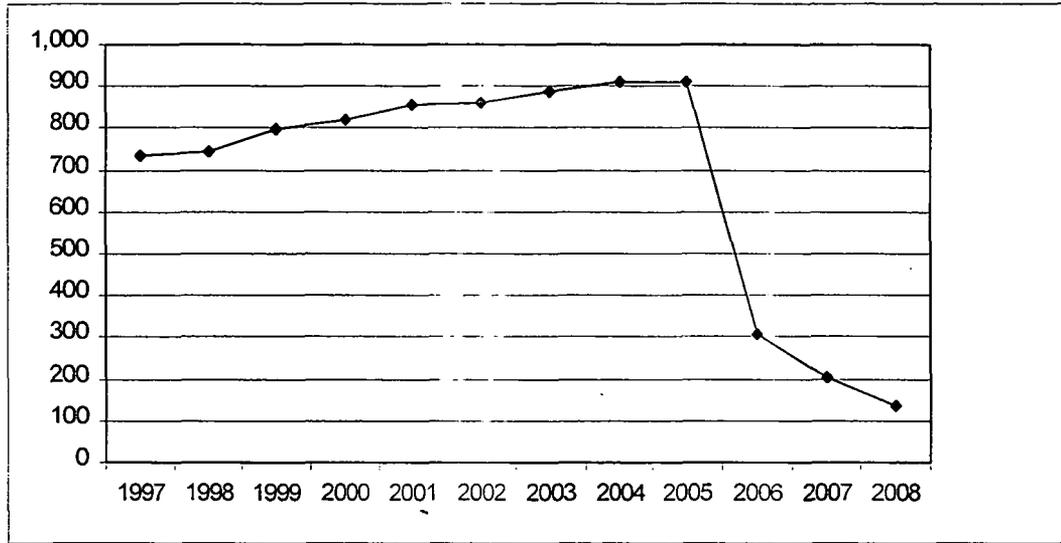
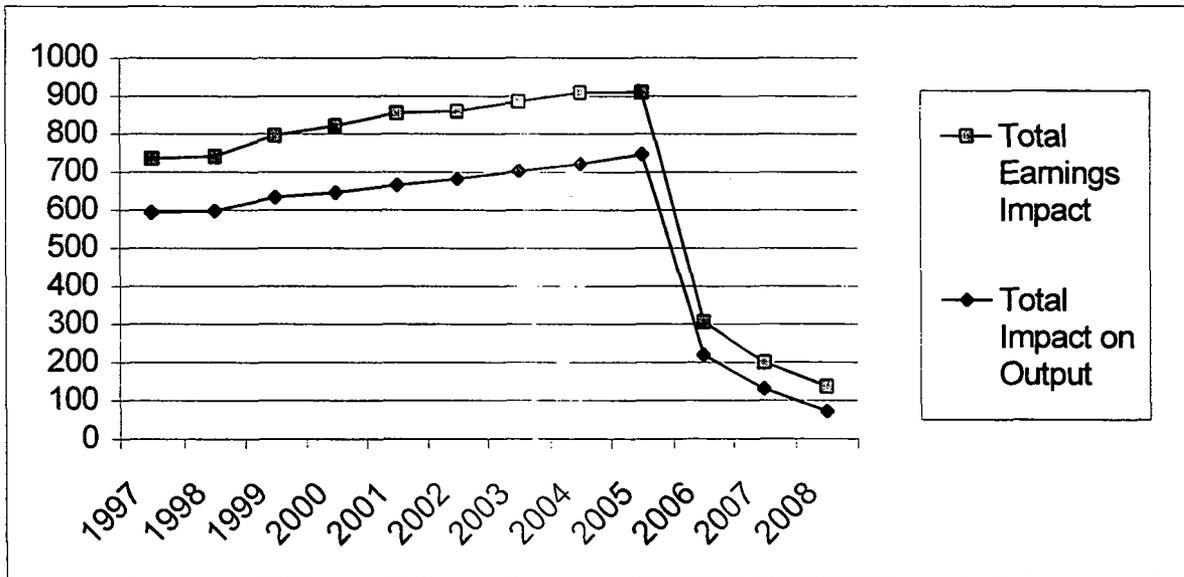


Chart 2: Total Impact on Output and Total Impact on Earnings 1997-2008 (in millions)



7

1837

Table 3 shows the 13 industries that benefit the most from Fernald's presence in the region. For each year of data we analyzed, we evaluated the economic impact of Fernald's expenditures on the output of the 38 aggregate industries that make up the Greater Cincinnati economy. While the dollar amount and percentage of the economic impact going to each of these industries varies from year to year due to the amount and type of spending, the 13 industries shown in Table 3 are consistently the top 13 industries benefiting from Fernald.

Table 3: 1997 Economic Impact on Regional Output by Industry

Industry Name	Economic Impact on Regional Output by Industry	Percentage of Total Output
Construction	\$ 200,532,946	33.75
Business services	126,416,094	21.28
Real estate	33,437,673	5.63
Retail trade	27,329,731	4.60
Health services	22,192,650	3.74
Wholesale trade	21,198,722	3.57
Miscellaneous services	16,152,878	2.72
Transportation	15,240,095	2.57
Fabricated metal products	13,014,569	2.19
Depository, nondepository institutions, brokers	12,540,672	2.11
Insurance	9,457,559	1.59
Chemicals and petroleum and coal products	9,312,568	1.57
Eating and drinking places	9,276,938	1.56
Communications	8,217,723	1.38
Food and kindred products	7,924,652	1.33
Other	61,898,084	10.42
Total	\$ 594,143,553	100%

Total Fernald Expenditures and Regional Economic Impacts 1997 Fiscal Year

Total Fernald expenditures in 1997 were \$348 million, which created a total economic impact of \$734 million in the Greater Cincinnati region. A total of 4,394 regional jobs were directly and indirectly supported due to Fernald-related activities.

In 1997, Fernald spent a total of \$257 million on non-payroll goods and services. Of this \$257 million, Fernald spent \$62 million on engineering and management activities and \$196 million on construction. See Table 4.

Table 5 shows the economic impact of Fernald's 1997 expenditures by operating unit. Fernald's 1997 expenditures created a regional output impact of \$594 million. Engineering and management activities accounted for \$135 million of the impact and construction accounted for \$459 million of the impact.

In addition, Fernald's 1997 payroll and benefit expenditures created a regional household earnings impact of \$140 million. The impact on regional household earnings from engineering and management activities was \$38 million and the impact from construction activities was \$102 million. Engineering and management accounted for 27 percent of this impact and construction provided 73 percent of the earnings impact.

Fernald's 1997 employment created a regional employment impact of 4,393 jobs. The impact on regional employment was 948 jobs from engineering and management services (22 percent of the impact) and 3,445 jobs from construction activities (78 percent of the total employment impact).

The construction industry benefits the most from Fernald's presence in Greater Cincinnati with a \$201 million economic impact on output in 1997. The impact on the business services industry was the second largest at \$126 million. These two industries account for more than half of Fernald's regional output impacts for 1997. Although Fernald made no major direct transportation expenditures during 1997, the transportation industry had an indirect economic impact of \$15 million. See Table 6 for other details.

1837

Table 4: 1997 Fernald Expenditures, Payroll and Benefits, and Employment

Operations	Total Expenditures	Payroll and Benefits	Employment
Engineering and management	\$ 61,785,840	\$ 28,831,000	591
Construction	195,655,160	61,650,000	1,873
Transportation	-	98,000	-
Total	\$ 257,441,000	\$ 90,579,000	2,464

Table 5: 1997 Fernald Regional Impacts: Output, Earnings, and Employment

Operations	Impact on Regional Output	Impact on Regional Earnings	Impact on Regional Employment
Engineering and management	\$ 134,647,410	\$ 38,172,059	948
Construction	459,496,143	102,154,543	3,445
Transportation	-	131,354	-
Total	\$ 594,143,553	\$ 140,457,957	4,394

Table 6: 1997 Economic Impact on Regional Output by Industry

Industry Name	Economic Impact on Regional Output by Industry
Construction	\$ 200,532,946
Business services	126,416,094
Real estate	33,437,673
Retail trade	27,329,731
Health services	22,192,650
Wholesale trade	21,198,722
Miscellaneous services	16,152,878
Transportation	15,240,095
Fabricated metal products	13,014,569
Depository, nondepository institutions, brokers	12,540,672
Insurance	9,457,559
Chemicals and petroleum and coal products	9,312,568
Eating and drinking places	9,276,938
Communications	8,217,723
Food and kindred products and tobacco products	7,924,652
Other	61,898,084
Total	\$ 594,143,553

Total Fernald Expenditures and Regional Economic Impacts 1998 Fiscal Year

Total Fernald expenditures in 1998 will be \$ 351 million, which will create a total economic impact of \$741 million in the Greater Cincinnati region. A total of 4,638 regional jobs will be directly and indirectly supported due to Fernald-related activities.

Fernald will spend a total of \$259 million during 1998, not including payroll and benefits. Engineering and management expenditures account for \$57 million, or 22 percent of total spending, while construction expenditures total \$202 million, or 78 percent of spending. For the 1998 fiscal year, Fernald's non-payroll expenditures are expected to increase by \$2 million over 1997 expenditures. See Table 7 for 1998 fiscal year spending estimates.

Fernald's 1998 non-payroll expenditures will translate into a \$598 million economic impact on output for the region. Engineering and management activities at Fernald will generate a \$124 million economic impact on output and contribute 21 percent to the total output impact. Fernald construction activities will create a \$474 million impact on output in the Greater Cincinnati area. The impact on regional output for 1998 is expected to be \$4 million greater than the impact for 1997.

In addition, Fernald's impact on regional earnings will increase \$3 million to \$143 million in 1998. Engineering and management activities will contribute \$36 million to the impact on regional earnings, and construction activities will contribute \$107 million, or 75 percent, to the total regional earnings impact.

The total impact on regional employment for 1998 is expected to total 4,638 jobs, which is the largest employment impact over the 11-year period under study. This reflects a 5.5 percent increase in total jobs when compared to 1997's employment impact. Engineering and management activities will generate 915 of these jobs, or 20 percent of the total impact. Construction activities will account for 3,723 jobs and 80 percent of the total impact. See Table 8 for Fernald's economic impacts in 1998.

The construction industry will benefit the most from Fernald's 1998 expenditures with a \$186 million regional output impact. Business services will gain \$111 million in direct and indirect Fernald-related activities, and the transportation industry will realize a \$14 million impact in 1998. The impact on the construction industry will increase \$6 million from 1997 to 1998, while the impact on business services will decline \$5 million year over year. Other industries benefiting from Fernald include real estate, retail trade, and health services. See Table 9 for the industries benefiting the most from Fernald's 1998 operations.

1837

Table 7: 1998 Fernald Expenditures, Payroll and Benefits, and Employment

Operations	Total Expenditures	Payroll and Benefits	Employment
Engineering and management	\$ 56,914,000	\$ 27,402,000	571
Construction	201,786,000	64,475,000	2,023
Transportation	-	98,000	-
Total	\$ 258,700,000	\$ 91,975,000	2,594

Table 8: 1998 Fernald Regional Impacts: Output, Earnings, and Employment

Operations	Impact on Regional Output	Impact on Regional Earnings	Employment
Engineering and management	\$ 124,030,404	\$ 36,280,073	915
Construction	473,894,421	106,835,591	3,723
Transportation	-	131,354	-
Total	\$ 597,924,825	\$ 143,247,018	4,638

Table 9: 1998 Economic Impact on Regional Output by Industry

Industry Name	Economic Impact on Regional Output by Industry
Construction	\$ 206,675,844
Business services	121,637,222
Real estate	33,435,526
Retail trade	27,587,147
Health services	22,249,338
Wholesale trade	21,493,313
Miscellaneous services	16,215,833
Transportation	15,344,842
Fabricated metal products	13,385,345
Depository and nondepository institutions and brokers	12,580,167
Insurance	9,533,198
Chemicals and petroleum and coal products	9,442,757
Eating and drinking places	9,291,366
Communications	8,227,281
Primary metal industries	7,998,590
Other	62,827,054
Total	\$ 597,924,825

Total Fernald Expenditures and Regional Economic Impacts 1999 Fiscal Year

Total Fernald expenditures in 1999 will be \$380 million, which will create a total economic impact of \$796 million in the Greater Cincinnati region. A total of 4,629 regional jobs will be directly and indirectly supported due to Fernald-related activities.

As seen in Table 10, during 1999 Fernald is expected to spend \$58 million on engineering and management activities, \$209 million on construction activities, and \$8 million on transportation activities for total non-payroll expenditures of \$275 million. This represents a \$16 million increase in expenditures from 1998.

Fernald's 1999 non-payroll expenditures will create a \$633 million impact on regional output. Of this, engineering and management activities create \$126 million of the impact, construction activities \$491 million, and transportation activities will contribute \$16 million to the impact on regional output. The total regional output impact is expected to increase \$35 million, or 6 percent, from 1998 to 1999.

In addition, the impact on regional earnings for 1999 is expected to reach \$163 million based on payroll and benefit expenditures of \$104 million. Engineering and management activities account for \$41 million of the earnings impact, construction activities \$121 million, and transportation activities \$1 million. The impact on regional earnings will increase by \$18 million in 1999, or 13 percent over 1998 levels.

There will be a total impact on regional employment of 4,629 jobs from Fernald's 1999 employment estimates. Engineering and management will contribute 871 jobs, construction will generate 3,616 jobs, and transportation activities will account for 142 regional jobs. Nine fewer regional jobs will be generated in 1999 compared to the estimates for 1998. Table 11 shows the expected economic impacts generated by Fernald from its operations in 1999.

The construction industry will gain \$215 million in Fernald-associated business and the regional business services industry will gain \$125 million. The transportation industry shows a \$25 million impact from Fernald's 1999 operations. As seen in Table 12, the impact on the construction industry will increase \$8 million from 1998, the impact on business services will increase \$4 million, and the impact on the transportation industry will increase \$10 million over 1998 levels.

1837

Table 10: 1999 Fernald Expenditures, Payroll and Benefits, and Employment

Operations	Total Expenditures	Payroll and Benefits	Employment
Engineering and management	\$ 57,794,520	\$ 30,685,000	543
Construction	209,161,120	73,100,000	1,965
Transportation	8,256,360	680,000	78
Total	\$ 275,212,000	\$ 104,465,000	2,586

Table 11: 1999 Fernald Regional Impacts: Output, Earnings, and Employment

Operations	Impact on Regional Output	Impact on Regional Earnings	Employment
Engineering and management	\$ 125,949,286	\$ 40,626,744	871
Construction	491,214,890	121,127,285	3,616
Transportation	16,127,974	911,439	142
Total	\$ 633,292,150	\$ 162,665,468	4,629

Table 12: 1999 Economic Impact on Regional Output by Industry

Industry Name	Economic Impact on Regional Output by Industry
Construction	\$ 214,853,000
Business services	125,216,561
Real estate	35,315,534
Retail trade	29,068,662
Transportation	24,938,501
Health services	23,537,837
Wholesale trade	22,673,616
Miscellaneous services	17,161,395
Fabricated metal products	13,947,304
Depository and nondepository institutions brokers	13,430,951
Insurance	10,071,438
Chemicals and petroleum and coal products	9,963,335
Eating and drinking places	9,851,434
Communications	8,671,710
Primary metal industries	8,440,532
Other	66,150,342
Total	\$ 633,292,150

Total Fernald Expenditures and Regional Economic Impacts 2000 Fiscal Year

Total Fernald expenditures in 2000 will be \$392 million, which will create a total economic impact of \$821 million in the Greater Cincinnati region. A total of 4,283 regional jobs will be directly and indirectly supported due to Fernald-related activities.

As seen in Table 13, Fernald's non-payroll and benefit spending in the year 2000 is expected to total \$281 million. Expenditures for engineering and management activities will be \$56 million, construction-related expenditures \$216 million, and transportation expenditures \$8 million. This reflects an increase of \$6 million in total non-payroll expenditures from 1999.

We estimate that Fernald's year 2000 expenditures will create a \$646 million impact on regional output. Engineering and management activities at Fernald will create \$122 million, or 19 percent, of the total impact. Construction activities will generate \$507 million of the impact, or 78 percent of the total, and transportation activities will contribute \$16 million to Fernald's regional impact. The total regional output impact is expected to increase by \$13 million, or two percent, from 1999 to 2000.

In addition, the impact on regional earnings for the year 2000 is expected to reach \$175 million. Engineering and management-related payroll and benefits will account for \$40 million of this impact, construction \$134 million, and transportation-related payroll and benefits will generate \$1 million of the impact. The impact on regional earnings is expected to increase seven percent, or \$12 million, between 1999 and 2000.

We project a total impact on regional employment of 4,283 jobs based on Fernald's year 2000 employment levels. Engineering and management-related employment will contribute 767 of these jobs, construction activities will provide 3,386 regional jobs, and transportation activities will account for 131 jobs of the total employment impact. Fernald's employment impact will decrease by seven percent between 1999 and 2000. See Table 14 for Fernald's year 2000 economic impacts.

Table 15 describes the industries benefiting the most from Fernald's operations in the year 2000. The construction industry will benefit approximately \$222 million from Fernald's spending, while the business services industry can expect to gain \$125 million. We estimate a \$25 million impact on the transportation industry. Compared to 1999, the impact on construction will increase by \$6 million, the impact on business services will fall by a half a million, and the impact on transportation will increase by half a million in the year 2000.

15

1837

Table 13: 2000 Fernald Expenditures, Payroll and Benefits, and Employment

Operations	Total Expenditures	Payroll and Benefits	Employment
Engineering and management	\$ 56,117,800	\$ 30,260,000	478
Construction	216,053,530	80,683,000	1,840
Transportation	8,417,670	877,000	72
Total	\$ 280,589,000	\$ 111,820,000	2,390

Table 14: 2000 Fernald Regional Impacts: Output, Earnings, and Employment

Operations	Impact on Regional Output	Impact on Regional Earnings	Employment
Engineering and management	\$ 122,295,277	\$ 40,064,046	767
Construction	507,401,715	133,692,376	3,386
Transportation	16,443,077	1,175,489	131
Total	\$ 646,140,069	\$ 174,931,912	4,283

Table 15: 2000 Total Fernald Regional Output Impacts

Industry Name	Economic Impact on Regional Output by Industry
Construction	\$ 221,850,218
Business services	124,736,121
Real estate	35,915,673
Retail trade	29,703,713
Transportation	25,442,127
Health services	23,969,596
Wholesale trade	23,220,143
Miscellaneous services	17,487,990
Fabricated metal products	14,386,359
Depository and nondepository institutions and brokers	13,681,520
Insurance	10,284,148
Chemicals and petroleum and coal products	10,203,900
Eating and drinking places	10,027,129
Communications	8,824,524
Primary metal industries	8,707,238
Other	67,699,672
Total	\$ 646,140,069

Total Fernald Expenditures and Regional Economic Impacts 2001 Fiscal Year

Total Fernald expenditures in 2001 will be \$409 million, which will create a total economic impact of \$855 million in the Greater Cincinnati region. A total of 4,219 regional jobs will be directly and indirectly supported due to Fernald-related activities.

In 2001, we expect Fernald's total spending on non-payroll and benefit expenditures to be \$288 million. This represents a \$7 million spending increase when compared to the year 2000. In 2001, Fernald is expected to spend \$49 million on engineering and management activities, \$231 million on construction activities, and \$9 million on transportation activities. See Table 16.

We estimate that Fernald's 2001 spending will create a regional output impact of \$665 million. Engineering and management activities will create \$107 million of this impact, construction \$541 million, and transportation will contribute \$17 million to the total impact. The total regional output impact is expected to increase \$18 million, or three percent, from 2000 to 2001.

In addition, we estimate the impact on regional household earnings for 2001 to be \$190 million. Over the 11-year period under study, Fernald's payroll and benefit expenditures peak in 2001 at \$121 million, creating the largest impact on household earnings during the period. The impact on regional earnings is expected to increase nine percent, or by \$15 million, between 2000 and 2001.

There will be a total impact on regional employment of 4,219 jobs from Fernald's 2001 direct employment. Engineering and management-related employment will generate a total of 639 regional jobs. Fernald's construction employment will create a total of 3,452 regional jobs. Fernald's transportation-related employment will account for 128 regional jobs. Between 2000 and 2001, Fernald's regional employment impact will decline by 64 jobs. See Table 17 for Fernald's economic impacts for the year 2001.

As seen in Table 18, the regional construction industry will gain \$236 million in Fernald-related business activity from year 2001 spending, and the regional business services industry will benefit by \$119 million. The impact on construction will increase \$14 million and the impact on business services will decrease by \$6 million between 2000 to 2001. Real estate, retail trade, transportation, and health services industries in Greater Cincinnati will also reap significant benefits from Fernald.

1837

Table 16: 2001 Fernald Expenditures, Payroll and Benefits, and Employment

Operations	Total Expenditures	Payroll and Benefits	Employment
Engineering and management	\$ 48,988,050	\$ 29,602,000	399
Construction	230,532,000	90,562,000	1,876
Transportation	8,644,950	877,000	70
Total	\$ 288,165,000	\$ 121,041,000	2,345

Table 17: 2001 Fernald Regional Impacts: Output, Earnings, and Employment

Operations	Impact on Regional Output	Impact on Regional Earnings	Employment
Engineering and management	\$ 106,757,698	\$ 39,192,859	639
Construction	541,404,402	150,061,958	3,452
Transportation	16,887,045	1,175,489	128
Total	\$ 665,049,145	\$ 190,430,306	4,219

Table 18: 2001 Economic Impact on Regional Output by Industry

Industry Name	Economic Impact on Regional Output by Industry
Construction	\$ 236,465,490
Business services	119,086,319
Real estate	36,608,597
Retail trade	30,712,510
Transportation	26,179,560
Health services	24,530,161
Wholesale trade	24,166,093
Miscellaneous services	17,933,372
Fabricated metal products	15,287,960
Depository and nondepository institutions and brokers	14,014,444
Chemicals and petroleum and coal products	10,620,840
Insurance	10,610,927
Eating and drinking places	10,246,168
Primary metal industries	9,255,975
Communications	9,011,611
Other	70,319,118
Total	\$ 665,049,145

Total Fernald Expenditures and Regional Economic Impacts 2002 Fiscal Year

Total Fernald expenditures in 2002 will be \$410 million, which will create a total economic impact of \$860 million in the Greater Cincinnati region. A total of 4,088 regional jobs will be directly and indirectly supported due to Fernald-related activities.

In the year 2002, Fernald is expected to spend \$296 million in non-payroll and benefit expenditures. Of this \$296 million, \$56 million will be allocated to engineering and management activities, \$231 million to construction activities, and \$9 million for transportation-related activities. Total non-payroll spending is expected to increase by \$8 million from 2001 to 2002. See Table 19 for 2002 expenditure and employment data.

The regional impact from Fernald's output expenditures in 2002 will be \$682 million. Engineering and management activities will create \$123 million of this impact, construction activities \$542 million, and transportation activities \$17 million. The total regional output impact will increase \$17 million (three percent) from 2001 to 2002.

In addition, Greater Cincinnati's household earnings will increase by \$178 million based on Fernald's 2002 payroll and benefit payments. Engineering and management wage payments will account for \$39 million of the earnings impact, construction payments \$138 million, and transportation \$1 million. The impact on regional earnings will decrease by \$12 million between 2001 and 2002 (six percent).

We expect a total impact on regional employment of 4,088 jobs from Fernald's 2002 employment. Engineering and management-related employment will contribute 694 of these jobs, construction employment will generate 3,269 direct and indirect jobs, and transportation-related employment will account for 125 direct and indirect jobs. Between 2001 and 2002, Fernald's impact on regional employment will decline by three percent. See Table 20 for details on Fernald's economic impacts in the year 2002.

Based on the regional output impact of Fernald in 2002, the regional construction industry will gain \$234 million, business services \$128 million, and the transportation industry \$27 million. The impact on the regional construction industry increased by half a million between 2001 and 2002. The impact on business services increased by \$9 million, or 8 percent, over this time period, and the impact on transportation increased three percent. See Table 21 for the industries benefiting the most from Fernald in the year 2002.

19

1837

Table 19: 2002 Fernald Expenditures, Payroll and Benefits, and Employment

Operations	Total Expenditures	Payroll and Benefits	Employment
Engineering and management	\$ 56,230,120	\$ 29,354,000	433
Construction	230,839,440	83,509,000	1,777
Transportation	8,878,440	877,000	68
Total	\$ 295,948,000	\$ 113,740,000	2,278

Table 20: 2002 Fernald Regional Impacts: Output, Earnings, and Employment

Operations	Impact on Regional Output	Impact on Regional Earnings	Employment
Engineering and management	\$ 122,540,051	\$ 38,864,508	694
Construction	542,126,425	138,375,081	3,269
Transportation	17,343,145	1,175,489	125
Total	\$ 682,009,621	\$ 178,415,078	4,088

Table 21: 2002 Economic Impact on Regional Output by Industry

Industry Name	Economic Impact on Regional Output by Industry
Construction	\$ 236,946,682
Business services	128,476,887
Real estate	37,786,877
Retail trade	31,400,438
Transportation	26,852,072
Health services	25,252,000
Wholesale trade	24,600,382
Miscellaneous services	18,436,081
Fabricated metal products	15,349,521
Depository and nondepository institutions brokers	14,417,935
Insurance	10,863,896
Chemicals and petroleum and coal products	10,810,862
Eating and drinking places	10,558,300
Primary metal industries	9,291,228
Communications	9,290,044
Other	71,676,416
Total	\$ 682,009,621

Total Fernald Expenditures and Regional Economic Impacts 2003 Fiscal Year

Total Fernald expenditures in 2003 will be \$419 million, which will create a total economic impact of \$885 million in the Greater Cincinnati region. A total of 4,034 regional jobs will be directly and indirectly supported due to Fernald-related activities.

Fernald's non-payroll expenditures in 2003 are expected to total \$304 million. This is an increase of \$8 million over 2002. Spending on engineering and management activities will total \$46 million, construction-related spending will be \$249 million, and transportation-related spending \$9 million. See Table 22 for expenditure and employment data for Fernald in the year 2003.

Year 2003 operation spending will create an economic impact of \$702 million in the Greater Cincinnati economy. Engineering and management activities stimulate \$99 million in economic activity, construction activities generate \$585 million of the impact, and transportation activities contribute \$18 million to the total output impact. We estimate the total regional output impact will increase \$20 million, or three percent, from 2002 to 2003.

In addition, household earnings in Greater Cincinnati will increase by \$183 million in 2003, based on Fernald's payroll and benefit payments of \$116 million during that year. The impact on regional earnings is expected to increase \$5 million between 2002 and 2003.

Fernald's direct employment in 2003 will create a total impact on regional employment of 4,034 jobs. Engineering and management-related employment at Fernald will generate 538 regional jobs, Fernald construction-related employment will generate 3,373 direct and indirect jobs, and transportation-related employment will create 122 regional jobs. Between 2002 and 2003, regional employment related to Fernald will decrease by 54 jobs. See Table 23 for Fernald's year 2003 economic impacts on the Greater Cincinnati economy.

In 2003, the regional construction industry will receive \$255 million of the total economic impact. Business services will gain \$119 million, and the regional transportation industry \$28 million. Between 2002 and 2003, the impact on construction will increase \$18 million (eight percent), the impact on business services will decrease by \$9 million, and the impact on transportation will increase three percent. See Table 24 for a list of the industries benefiting the most from Fernald's year 2003 activities.

1837

Table 22: 2003 Fernald Expenditures, Payroll and Benefits, and Employment

Operations	Total Expenditures	Payroll and Benefits	Employment
Engineering and management	\$ 45,590,550	\$ 24,506,000	335
Construction	249,228,340	90,158,000	1,834
Transportation	9,118,110	877,000	67
Total	\$ 303,937,000	\$ 115,541,000	2,236

Table 23: 2003 Fernald Regional Impacts: Output, Earnings, and Employment

Operations	Impact on Regional Output	Impact on Regional Earnings	Employment
Engineering and management	\$ 99,353,662	\$ 32,445,787	538
Construction	585,312,756	149,392,527	3,373
Transportation	17,786,697	1,175,489	122
Total	\$ 702,453,116	\$ 183,013,803	4,034

Table 24: 2003 Economic Impact on Regional Output by Industry

Industry Name	Economic Impact on Regional Output by Industry
Construction	\$ 255,472,726
Business services	119,263,359
Real estate	38,417,637
Retail trade	32,538,887
Transportation	27,647,933
Health services	25,811,850
Wholesale trade	25,713,070
Miscellaneous services	18,896,067
Fabricated metal products	16,485,543
Depository and nondepository institutions and brokers	14,755,837
Chemicals and petroleum and coal products	11,301,593
Insurance	11,226,217
Eating and drinking places	10,770,615
Primary metal industries	9,983,115
Communications	9,468,853
Other	74,699,812
Total	\$ 702,453,116

Total Fernald Expenditures and Regional Economic Impacts 2004 Fiscal Year

Total Fernald expenditures in 2004 will be \$431 million, which will create a total economic impact of \$188 million in the Greater Cincinnati region. A total of 3,327 regional jobs will be directly and indirectly supported due to Fernald-related activities.

By 2004, Fernald's operation spending is expected to reach a total of \$312 million -- \$8 million more than operation spending in 2003. Engineering and management expenditures will account for 15 percent of non-payroll spending, construction activities will account for 82 percent of the total, and transportation-related spending three percent. See Table 25 for information on Fernald's payroll expenditures and employment in the year 2004.

Fernald's total impact on Greater Cincinnati output will be \$721 million in 2004. Engineering and management activities will create \$102 million of the impact, construction activities will generate \$601 million (83 percent) of the impact, and transportation will contribute \$18 million to the regional total. The output impact in 2004 will be \$19 million more than it was in 2003.

In addition, Greater Cincinnati's household earnings will increase by \$188 million in 2004. Engineering and management earnings will stimulate \$33 million in direct and indirect regional earnings, construction earnings will generate a total earnings impact of \$154 million, and transportation will create \$1 million of the total earnings impact. The impact on regional earnings increased \$5 million between 2003 and 2004.

We expect Fernald will generate a total impact on regional employment of 3,327 jobs in 2004. However, between 2003 and 2004, regional employment associated with Fernald will decline by over 700 jobs, or 18 percent. See Table 26 for Fernald's economic impacts for the year 2004.

The impact on the regional construction industry is expected to total \$262 million in 2004, an increase of three percent over 2003. The impact on regional business services will total \$122 million in 2004, a \$3 million increase over 2003's industry impact. The impact on the transportation industry will increase three percent between 2003 and 2004 to total \$28 million. See Table 27 for the industries benefiting the most from Fernald's regional activities in 2004.

1837

Table 25: 2004 Fernald Expenditures, Payroll and Benefits, and Employment

Operations	Total Expenditures	Payroll and Benefits	Employment
Engineering and management	\$ 46,821,450	\$ 24,991,000	277
Construction	255,957,260	92,655,000	1,512
Transportation	9,364,290	877,000	55
Total	\$ 312,143,000	\$ 118,523,000	1,844

Table 26: 2004 Fernald Regional Impacts: Output, Earnings, and Employment

Operations	Impact on Regional Output	Impact on Regional Earnings	Employment
Engineering and management	\$ 102,036,113	\$ 33,087,924	444
Construction	601,115,625	153,530,076	2,782
Transportation	18,292,204	1,175,489	101
Total	\$ 721,443,942	\$ 187,793,489	3,327

Table 27: 2004 Total Fernald Regional Output Impacts

Industry Name	Economic Impact on Regional Output by Industry
Construction	\$ 262,370,238
Business services	122,483,352
Real estate	39,454,875
Retail trade	33,417,405
Transportation	28,394,400
Health services	26,508,744
Wholesale trade	26,407,298
Miscellaneous services	19,406,242
Fabricated metal products	16,930,636
Depository, nondepository institutions and brokers	15,154,231
Chemicals and petroleum and coal products	11,606,725
Insurance	11,529,314
Eating and drinking places	11,061,411
Primary metal industries	10,252,649
Communications	9,724,503
Other	76,741,917
Total	\$ 721,443,942

Total Fernald Expenditures and Regional Economic Impacts 2005 Fiscal Year

Total Fernald expenditures in 2005 will be \$423 million, which will create a total economic impact of \$910 million in the Greater Cincinnati region. A total of 3,179 regional jobs will be directly and indirectly supported due to Fernald-related activities.

Total non-payroll expenditures at Fernald are expected to increase by \$8 million between 2004 and 2005, to reach a peak of \$321 million. Table 28 shows the details of non-payroll and payroll expenditures in 2005, as well as Fernald employment estimates.

We estimate that Fernald's 2005 expenditure levels will lead to a \$746 million economic impact on Greater Cincinnati's output, which is the peak of Fernald's impact on the regional economy. Engineering and management activities will create \$91 million of the total impact, and construction activities will generate \$655 million in direct and indirect output (88 percent of the total impact). The total regional output impact will increase \$24 million, or three percent, from 2004 to 2005.

In addition, the impact on Greater Cincinnati's household earnings will be \$164 million, based on Fernald's payroll and benefit payments in 2005. Engineering and management-related earnings will lead to a \$25 million earnings impact, and construction earnings will provide a \$139 million earnings impact, accounting for 85 percent of the total regional impact on earnings. The impact on regional earnings will decrease by \$23 million from 2004 to 2005.

We estimate that Fernald's direct employment in the year 2005 will generate a total employment impact of 3,179 jobs in the Greater Cincinnati economy. Of these jobs, 366 will stem from engineering and management employment at Fernald, and 2,812 jobs will be generated from Fernald's construction-related employment. The number of regional jobs associated with Fernald will decline by four percent between 2004 and 2005. See Table 29 for Fernald's 2005 economic impacts on the Greater Cincinnati economy.

In 2005, the regional construction industry will gain \$285 million and the regional business services industry will gain \$121 million from Fernald's operations. Other industries benefiting from Fernald's operations include real estate, retail trade, wholesale trade, and health services. See Table 30 for a complete listing.

1837

Table 28: 2005 Fernald Expenditures, Payroll and Benefits, and Employment

Operations	Total Expenditures	Payroll and Benefits	Employment
Engineering and management	\$ 41,674,230	\$ 18,850,000	228
Construction	278,896,770	83,732,000	1,529
Transportation	-	98,000	-
Total	\$ 320,571,000	\$ 102,680,000	1,757

Table 29: 2005 Fernald Regional Impacts: Output, Earnings, and Employment

Operations	Impact on Regional Output	Impact on Regional Earnings	Employment
Engineering and management	\$ 90,818,982	\$ 24,957,279	366
Construction	654,989,064	138,744,594	2,812
Transportation	-	131,354	-
Total	\$ 745,808,047	\$ 163,833,228	3,179

Table 30: 2005 Economic Impact on Regional Output by Industry

Industry Name	Economic Impact on Regional Output by Industry
Construction	\$ 284,890,294
Business services	120,632,662
Real estate	40,508,185
Retail trade	34,875,047
Wholesale trade	27,698,296
Health services	27,281,426
Miscellaneous services	20,004,592
Transportation	19,183,225
Fabricated metal products	18,299,219
Depository and nondepository institutions and brokers	15,467,102
Chemicals and petroleum and coal products	12,173,107
Insurance	11,977,045
Eating and drinking places	11,340,968
Primary metal industries	10,958,271
Communications	10,024,127
Other	80,494,481
Total	\$ 745,808,047

Total Fernald Expenditures and Regional Economic Impacts 2006 Fiscal Year

Total Fernald expenditures in 2006 will be \$150 million, which will create a total economic impact of \$306 million in the Greater Cincinnati region. A total of 2,347 regional jobs will be directly and indirectly supported due to Fernald-related activities.

By 2006, Fernald's non-payroll expenditures are expected to drop by \$226 million (71 percent) to \$94 million. According to this estimate Fernald will spend \$17 million on engineering and management, \$77 million on construction activities, and \$1 million on transportation in 2006. See Table 31.

Fernald's year 2006 operation expenditures will create a total impact on output of \$218 million. This reflects a decrease of 70 percent (527 million) compared to 2005. Engineering and management activities will generate 17 percent of the total output impact, construction activities will create 82 percent of the total, and transportation 1 percent.

In addition, Greater Cincinnati households will benefit from an \$87 million impact on household earnings in 2006. Fernald's earnings impact will decrease by \$77 million between 2005 and 2006. Engineering and management will account for \$18 million of the earnings impact, and construction \$69 million.

Fernald's employment impact will total 2,347 Greater Cincinnati jobs in 2006. This is a 26 percent decrease over the 2005 employment impact. Fernald's engineering and management activities will directly and indirectly create 377 regional jobs, construction 1,946 regional jobs, and transportation 24 jobs. See Table 32 for Fernald's year 2006 economic impacts.

Industries benefiting the most from Fernald's 2006 operations include the construction industry (\$78 million), the business services industry (\$40 million), and real estate (\$12 million). The impact on the regional construction industry will decrease \$207 million from 2005 to 2006, and the impact on business services will decrease by \$80 million. See Table 33 for a more complete listing of the industries benefiting from Fernald operations in 2006.

1837

Table 31: 2006 Fernald Expenditures, Payroll and Benefits, and Employment

Operations	Total Expenditures	Payroll and Benefits	Employment
Engineering and management	\$ 17,006,940	\$ 13,435,000	235
Construction	76,531,230	41,691,000	1,058
Transportation	944,830	184,000	13
Total	\$ 94,483,000	\$ 55,310,000	1,306

Table 32: 2006 Fernald Regional Impacts: Output, Earnings, and Employment

Operations	Impact on Regional Output	Impact on Regional Earnings	Employment
Engineering and management	\$ 37,062,544	\$ 17,787,854	377
Construction	179,733,594	69,082,321	1,946
Transportation	1,845,631	246,625	24
Total	\$ 218,641,769	\$ 87,116,799	2,347

Table 33: 2006 Economic Impact on Regional Output by Industry

Industry Name	Economic Impact on Regional Output by Industry
Construction	\$ 78,365,277
Business services	40,332,015
Real estate	12,071,394
Retail trade	10,126,348
Health services	8,076,180
Wholesale trade	7,955,752
Transportation	6,610,295
Miscellaneous services	5,901,408
Fabricated metal products	5,060,812
Depository and nondepository institutions and brokers	4,585,411
Chemicals and petroleum and coal products	3,495,984
Insurance	3,493,377
Eating and drinking places	3,368,924
Primary metal industries	3,039,102
Communications	2,975,043
Other	23,184,446
Total	\$ 218,641,769

Total Fernald Expenditures and Regional Economic Impacts 2007 Fiscal Year

Total Fernald expenditures in 2007 will be \$101 million, which will create a total economic impact of \$201 million in the Greater Cincinnati region. A total of 1,507 regional jobs will be directly and indirectly supported due to Fernald-related activities.

In 2007, Fernald's non-payroll expenditures are expected to drop another \$37 million from the 2006 level, to \$57 million. Expenditures on engineering and management activities will total \$12 million, construction activities will total \$44 million, and transportation spending \$1 million. See Table 34 for information about Fernald's year 2007 payroll expenditures and employment.

We estimate Fernald's non-payroll spending will create an economic impact on regional output of \$131 million. Engineering and management activities will create \$26 million of the total impact, construction activities \$103 million, and transportation activities \$2 million. Fernald's output impact on the Greater Cincinnati economy will decrease \$87 million, or 40 percent, from 2006 to 2007.

The impact of Fernald on regional earnings will fall to \$69 million in 2007, a decrease of \$17 million (20 percent) over 2006. Engineering and management-related earnings will account for \$17 million of the regional impact, and construction-related earnings will provide \$52 million of the impact.

We anticipate a total impact on regional employment of 1,507 jobs in 2007. Engineering and management will directly and indirectly contribute 284 regional jobs, construction-related employment will generate 1,193 direct and indirect Greater Cincinnati jobs, and transportation will account for 31 jobs. Compared to 2006, there will be 36 percent fewer regional jobs created by Fernald in 2007. See Table 35 for more details about Fernald's 2007 economic impacts.

The regional construction industry will benefit the most from Fernald in 2007, gaining \$45 million in direct and indirect business sales. Business services will benefit by \$26 million and the transportation industry will benefit by \$5 million. From 2006 to 2007, the impact on construction will decrease \$33 million (43 percent), the impact on business services will decline \$14 million, and the impact on transportation will decrease \$2 million. See Table 36 for a further description of industries that benefit from Fernald-related business activity.

1837

Table 34: 2007 Fernald Expenditures, Payroll and Benefits, and Employment

Operations	Total Expenditures	Payroll and Benefits	Employment
Engineering and management	\$ 11,962,650	\$ 12,747,000	177
Construction	43,863,050	31,565,000	648
Transportation	1,139,300	184,000	17
Total	\$ 56,965,000	\$ 44,496,000	842

Table 35: 2007 Fernald Regional Impacts: Output, Earnings, and Employment

Operations	Impact on Regional Output	Impact on Regional Earnings	Employment
Engineering and management	\$ 26,069,725	\$ 16,876,946	284
Construction	103,012,373	52,303,458	1,193
Transportation	2,225,509	246,625	31
Total	\$ 131,307,606	\$ 69,427,029	1,507

Table 36: 2007 Economic Impact on Regional Output by Industry

Industry Name	Economic Impact on Regional Output by Industry
Construction	\$ 45,006,953
Business services	26,008,692
Real estate	7,321,267
Retail trade	6,040,614
Health services	4,879,178
Wholesale trade	4,713,341
Transportation	4,568,684
Miscellaneous services	3,557,749
Fabricated metal products	2,918,340
Depository and nondepository institutions and brokers	2,775,916
Insurance	2,090,570
Chemicals and petroleum and coal products	2,071,042
Eating and drinking places	2,040,247
Communications	1,799,365
Primary metal industries	1,758,692
Other	13,756,956
Total	\$ 131,307,606

Total Fernald Expenditures and Regional Economic Impacts 2008 Fiscal Year

Total Fernald expenditures in 2008 will be \$50 million, which will create a total economic impact of \$136 million in the Greater Cincinnati region. A total of 1,629 regional jobs will be directly and indirectly supported due to Fernald-related activities.

By 2008, Fernald's non-payroll expenditures are estimated to drop to \$31 million. This is a \$26 million decrease in spending from 2007, and a \$226 million decrease in spending from 1997. See Table 37 for details.

The economic impact on regional output generated by Fernald's year 2008 spending will total \$72 million. This reflects a \$60 million fall from the economic impact created in 2007, and a \$522 million fall from the economic impact created in 1997 – a decline of 88 percent. While engineering and management services contributed \$135 million to Fernald's economic impact on output in 1997, this will fall to \$15 million in 2008, reflecting an 89 percent decline. In 1997, construction activities provided \$459 million of Fernald's impact, but this will drop to \$56 million in 2008 – an 88 percent decline. Transportation activities will contribute \$1 million to the impact on regional output in 2008, while it made no significant contribution in 1997.

The impact of Fernald on Greater Cincinnati's household earnings will total \$65 million in 2008. This is a seven percent decrease over 2007, and a 54 percent decrease over 1997. Engineering and management services accounted for \$38 million of the household earnings impact in 1997, and this will decline to \$16 million by 2008 – a 58 percent loss. In 1997, construction activities accounted for \$102 million of the impact on regional earnings, while in 2008 these activities will account for \$48 million of the impact, a decrease of 53 percent.

By 2008, Fernald will have a total impact on regional employment of 1,629 jobs. This is actually an increase over 2007, when there will be an employment impact of 1,507 jobs. However, total job creation over the 11-year period will decrease by 63 percent, or 2,765 jobs. See Table 38 for Fernald's year 2008 regional economic impacts.

In 1997, Greater Cincinnati's construction industry benefited from an additional \$177 million in business activity due to the direct and indirect effects of Fernald. By 2008, Fernald's impact on the regional construction industry will decline by 88 percent to \$24 million. In 1997, the Greater Cincinnati business services industry received \$126 million in additional economic activity due to Fernald, and by 2008 this will decline to \$15 million – another 88 percent drop. See Table 39 for a description of industries benefiting most from Fernald in 2008.

Table 37: 2008 Fernald Expenditures, Payroll and Benefits, and Employment

Operations	Total Expenditures	Payroll and Benefits	Employment
Engineering and management	\$ 6,845,740	\$ 12,382,000	200
Construction	23,648,920	28,909,000	692
Transportation	622,340	184,000	18
Total	\$ 31,117,000	\$ 41,475,000	911

Table 38: 2008 Fernald Regional Impacts: Output, Earnings, and Employment

Operations	Impact on Regional Output	Impact on Regional Earnings	Employment
Engineering and management	\$ 14,918,647	\$ 16,393,689	321
Construction	55,539,489	47,902,444	1,274
Transportation	1,215,679	246,625	33
Total	\$ 71,673,815	\$ 64,542,758	1,629

Table 39: 2008 Economic Impact on Regional Output by Industry

Industry Name	Economic Impact on Regional Output by Industry
Construction	\$ 24,274,484
Business services	14,531,776
Real estate	4,009,189
Retail trade	3,292,228
Health services	2,668,357
Wholesale trade	2,563,170
Transportation	2,493,816
Miscellaneous services	1,944,377
Fabricated metal products	1,575,665
Depository and nondepository institutions brokers	1,517,651
Insurance	1,140,202
Chemicals and petroleum and coal products	1,126,211
Eating and drinking places	1,116,341
Communications	984,741
Food and kindred products and tobacco products	953,089
Other	7,482,518
Total	\$ 71,673,815

Appendix I
Description of Data

1837

**Community Reuse Organization
Economic Impact Assessment Information
(Dollars in thousands)**

ASSUMPTIONS AND METHODOLOGY

Total Fernald Operating Budgets:

- Represents Budget Authority dollars (new fiscal year funding)
- Includes DOE-FEMP and FDF Fee

Percentages of Operating Budgets based upon the 3 Main Operating Units:

- Engineering and Management Services activities includes Activity Data Sheet (ADS) 4004 Support and Oversight costs
- Construction activities includes ADS 4001, 4002 and 4003 remediation costs
- Transportation includes shipping cost for Waste Management, Silos Project and the Waste Pits Remedial Action Project (WPRAP); excludes container and disposal costs
- FY 1997 reflects actual costs; FY 1998 - FY 2008 reflects the budgeted cost of work scheduled (BCWS) from the FY 1999 Replan August file

Number of Employees:

- Represents Full Time Equivalent (FTEs) from the FY 1999 Replan file
- Includes Basic Ordering Agreement (BOA) FTEs
- BOA FTEs are based upon the current FY1998 number of BOAs onsite and assumes that number will remain relatively constant in the outyears
- Includes all other subcontractors on site at a rate of 250 FTEs per year through FY 2006 and 100 FTEs for FY 2007 and FY 2008

Payroll and Benefits:

- Dollars are based upon 60% payroll and benefits for engineering/management service activities; 40% for construction activities; and 10% for transportation activities

Notes:

- This report reflects information from FY 1997 through project completion (FY 2008) as documented in the FEMP performance measurement baseline. It is the goal of the FEMP to accelerate the current work and bring the schedule back into the FY 2006 time period. This should have no affect on the information contained in this report.

**Community Reuse Organization
Economic Impact Assessment Information
(Dollars in thousands)**

Total Fernald Operating Budget (Funds), FY 1997 - FY 2008:

FY 97	\$257,441
FY 98	\$258,700
FY 99	\$275,212
FY 00	\$280,589
FY 01	\$288,165
FY 02	\$295,948
FY 03	\$303,937
FY 04	\$312,143
FY 05	\$320,571
FY 06	\$ 94,483
FY 07	\$ 56,965
FY 08	\$ 31,117

Percentage of each year's operating budget that is used for engineering and management service activities:

FY 97	24%
FY 98	22%
FY 99	21%
FY 00	19%
FY 01	17%
FY 02	18%
FY 03	15%
FY 04	15%
FY 05	13%
FY 06	17%
FY 07	21%
FY 08	22%

Percentage of each year's operating budget that is used for construction activities:

FY 97	76%
FY 98	78%
FY 99	76%
FY 00	77%
FY 01	80%
FY 02	78%
FY 03	82%
FY 04	82%
FY 05	87%
FY 06	81%
FY 07	77%
FY 08	76%

35

**Community Reuse Organization
Economic Impact Assessment Information
(Dollars in thousands)**

Percentage of each year's operating budget that is used for transportation activities:

FY 97	0%
FY 98	0%
FY 99	3%
FY 00	3%
FY 01	3%
FY 02	3%
FY 03	3%
FY 04	3%
FY 05	0%
FY 06	1%
FY 07	2%
FY 08	2%

Total number of employees, FY 1997 - FY 2008:

FY 97	2464
FY 98	2594
FY 99	2586
FY 00	2390
FY 01	2345
FY 02	2278
FY 03	2236
FY 04	1844
FY 05	1757
FY 06	1306
FY 07	842
FY 08	911

Note: Includes subcontractor FTEs.

Percentage of employees working in (or whose work supports) engineering and management service activities (FY 1997 - FY 2008):

FY 97	24%
FY 98	22%
FY 99	21%
FY 00	19%
FY 01	17%
FY 02	18%
FY 03	15%
FY 04	15%
FY 05	13%
FY 06	17%
FY 07	21%
FY 08	22%

Community Reuse Organization
Economic Impact Assessment Information
(Dollars in thousands)

Percentage of employees working in (or whose work supports) construction activities
(FY 1997 - FY 2008):

FY 97	76%
FY 98	78%
FY 99	76%
FY 00	77%
FY 01	80%
FY 02	78%
FY 03	82%
FY 04	82%
FY 05	87%
FY 06	81%
FY 07	77%
FY 08	76%

Percentage of employees working in (or whose work supports) transportation activities
(FY 1997 - FY 2008):

FY 97	0%
FY 98	0%
FY 99	3%
FY 00	3%
FY 01	3%
FY 02	3%
FY 03	3%
FY 04	3%
FY 05	0%
FY 06	1%
FY 07	2%
FY 08	2%

37

Community Reuse Organization
Economic Impact Assessment Information
(Dollars in thousands)

Total payroll and benefits, FY 1997 - FY 2008:

FY 97	\$ 90,579
FY 98	\$ 91,974
FY 99	\$104,466
FY 00	\$111,820
FY 01	\$121,041
FY 02	\$113,740
FY 03	\$115,541
FY 04	\$118,523
FY 05	\$102,680
FY 06	\$ 55,310
FY 07	\$ 44,496
FY 08	\$ 41,474

Payroll and benefits for the employees in engineering and management services
(FY 1997 - FY 2008):

FY 97	\$28,831
FY 98	\$27,402
FY 99	\$30,685
FY 00	\$30,260
FY 01	\$29,602
FY 02	\$29,354
FY 03	\$24,506
FY 04	\$24,991
FY 05	\$18,850
FY 06	\$13,435
FY 07	\$12,747
FY 08	\$12,382

Payroll and benefits for the employees in construction activities (FY 1997 - FY 2008):

FY 97	\$61,650
FY 98	\$64,475
FY 99	\$73,100
FY 00	\$80,683
FY 01	\$90,562
FY 02	\$83,509
FY 03	\$90,158
FY 04	\$92,655
FY 05	\$83,732
FY 06	\$41,691
FY 07	\$31,565
FY 08	\$28,909

Community Reuse Organization
Economic Impact Assessment Information
(Dollars in thousands)

Payroll and benefits for the employees in transportation activities (FY 1997 - FY 2008):

FY 97	\$ 98
FY 98	\$ 98
FY 99	\$680
FY 00	\$877
FY 01	\$877
FY 02	\$877
FY 03	\$877
FY 04	\$877
FY 05	\$ 98
FY 06	\$184
FY 07	\$184
FY 08	\$184

Appendix II Research Methodology

Fernald's economic impact was calculated using the Regional Input Output Modeling System (RIMS II), developed by the Bureau of Economic Analysis at the U.S. Department of Commerce. As described in the RIMS II user manual:

“RIMS II is based on an accounting framework called an I-O table. For each industry, an I-O table shows the distribution of the inputs purchased and the outputs sold. A typical I-O table in RIMS II is derived mainly from two data sources: BEA's national I-O table, which shows the input and output structure of nearly 500 U.S. industries, and BEA'S regional economic accounts, which are used to adjust the national I-O table in order to reflect a region's industrial structure and trading patterns.¹”

The analysis was conducted using the latest version of RIMS II industry multipliers for the Greater Cincinnati region. These multipliers are based on 1995 Greater Cincinnati data and 1992 U.S. Benchmark (national I-O) tables.

RIMS II measures the impact of a project's economic activities by using location specific multipliers, which determine the total amount of business activity, household earnings, and employment that will be generated within the Cincinnati Consolidated Metropolitan Statistical Area. In order to determine Fernald's economic impact on output (or business activity), we applied final demand output multipliers to Fernald's total non-payroll and benefit expenditures. We calculated Fernald's economic impact on household earnings by applying direct effect earnings multipliers to Fernald's direct payroll and benefit expenditures. We determined Fernald's economic impact on employment by applying direct effect employment multipliers to Fernald's direct employment levels.

The final demand output multipliers determine the total amount of expenditures that are spent in the region by estimating how much of the industry-specific spending could be satisfied by regional businesses. The BEA does this by calculating location quotients for each industry in the region. Therefore, we did not create our own estimates of how much of Fernald's expenditures stay within the Greater Cincinnati region.

However, the direct effect earnings and direct effect employment multipliers do require that we estimate how many Fernald employees live in the Greater Cincinnati region. Based on a 1996 study we conducted for Fernald, we assumed that 72 percent of Fernald's employees live within the 13-county Greater Cincinnati area. The percentage of local employment was provided to us by the Department of Energy in 1995, and we have no reason to believe that the distribution of Fernald's employment by place of residence has changed since 1995, or will change over the next 11 years.

¹ U.S. Department of Commerce, Economics and Statistics Administration, Bureau of Economic Analysis, *Regional Multipliers – A User Handbook for the Regional Input-Output Modeling System (RIMS II)*, Third Edition (Washington DC: U.S. Government Printing Office, 1997): page 1.