OPEN FILE 81-7

Colorado Energy Activity Profile

Compiled by

L.R. Ladwig - Colorado Geological Survey

Colorado Geological Survey
Energy Activity Profile

KEY

Type of Operation	I.D. Heading
Coal (Surface Mining)	A
Coal (Underground Mining)	B
Coal (Surface Conversion)	C
Coal (Underground Conversion)	D
Coal (Methane Extraction)	E
Coal (Miscellaneous)	F
Oil Shale (Surface Mining)	G
Oil Shale (Underground Mining)	H
Oil Shale (In Situ)	I
Oil Shale (Miscellaneous)	J
Uranium (Underground Mining)	K
Uranium (Surface Mining)	L
Uranium (In Situ)	M
Uranium (Miscellaneous)	N
Geothermal	O
Oil (Fields)	P
Oil (Refining)	Q
Oil (Pipelines)	R
Oil (Miscellaneous)	S
Gas (Fields)	T
Gas (Processing)	U
Gas (Pipelines)	V
Gas (Miscellaneous)	W
Slurry Pipelines	X
Electric Power Generation	Y
Miscellaneous	Z

OPEN FILE 81-7

COLORADO ENERGY ACTIVITY PROFILE

Compiled by

L.R. LADWIG - COLORADO GEOLOGICAL SURVEY
AND DEPARTMENT OF NATURAL RESOURCES STAFF,
STATE OF COLORADO

COLORADO GEOLOGICAL SURVEY
DEPARTMENT OF NATURAL RESOURCES
STATE OF COLORADO
DENVER, COLORADO

December 1, 1981

This Energy Activity Profile is a compliation of data from the best available sources but the Colorado Geological Survey assumes no liability in the use of this data by others.

This Energy Activity Profile will be expanded and up-dated periodically. Price may change due to content and other cost factors.

Check with the Colorado Geological Survey for the most current volume.

Colorado Geological Survey
Room 715, 1313 Sherman St.
Denver, Colorado 80203
303-866-2611

Colorado Geological Survey
Energy Activity Profile

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Type of Operation	I.D. Heading
Coal (Surface Mining)	A
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Coal (Miscellaneous)	F
Oil Shale (Surface Mining)	G
Oil Shale (Underground Mining)	H
Oil Shale (In Situ)	I
Oil Shale (Miscellaneous)	J
Uranium (Underground Mining)	K
Uranium (Surface Mining)	L
Uranium (In Situ)	M
Uranium (Miscellaneous)	N
Geothermal	O
Oil (Fields)	P
Oil (Refining)	Q
Oil (Pipelines)	R
Oil (Miscellaneous)	S
Gas (Fields)	T
Gas (Processing)	U
Gas (Pipelines)	V
Gas (Miscellaneous)	W
Slurry Pipelines	X
Electric Power Generation	Y
Miscellaneous	Z

COAL MINE INDEX

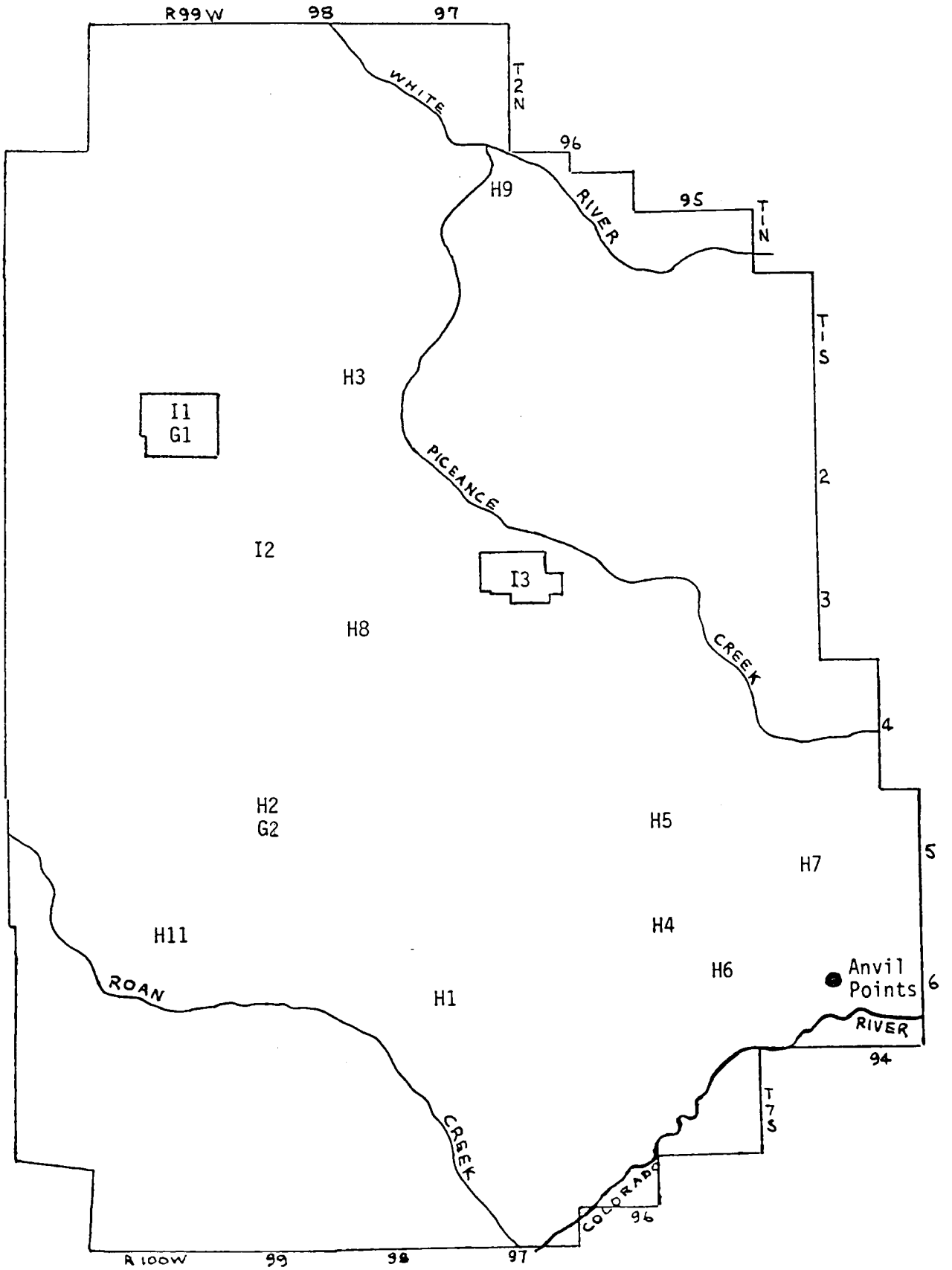
Mine Name	Index No.	Mine Name	Index No.
Allen	B12	Helen Mine	B9
Apex No. 2	B13	Marr Strip	A9
Bacon	A6	Maxwell	B32
Bear	B4	McClane Canyon	B34
Bear Creek	B18	Meadows No. 1	A18
Blue Ribbon	B14	Mt. Gunnison No. 1	B25
Bourg	A7	Munger Canyon	B30
Cameo	B7	National King Mine	B6
Canadian Strip	A8	Newlin Creek	B24
Chimney Rock Coal	A3	Northern No. 1	B38
Coal Basin Mines	B15	Northern No. 2	B39
Coal Gulch	B21	Northern No. 3	B40
Coal Basin	B20	North Thompson Creek #1	B22
Colorado Coal Mine #1	A12	North Thompson Creek #2	B23
Colorado Yampa 1	B45	Nucla Strip	A15
Colorado Yampa 2	B46	Ohio Creek Coal Mine #2	B11
Colorado Yampa 3	B44	Orchard Valley	B29
Colowyo Coal Mine	A16	Peacock Coal Mine	B33
Coors Keensburg	A17	Pryor Strip	A2
Deserado	B3	Pueblo	A21
Dorchester No. 1	B28	Red Canyon Mine #1	B5
Dutch Creek #1	B16	Red Canyon Mine #2	B47
Dutch Creek No. 2	B17	Rienau #2	B41
Eagle No. 5	B36	Roadside	B8
Eagle No. 9	B37	Senace II	A5
Edna Strip	A4	Shalako Mine	B35
Erie Strip	A1	Somerset Mine	B42
Fruita #1	B1	Sulphur Creek	B26
Fruita #2	B27	Sunlight Mine	B10
GEC Strip	A19	Tomahawk	A13
Grassy Creek No. 1	A20	Trapper	A14
Hawk's Nest East	B31	Trinidad Basin	A11
Hawk's Nest West	B2	Trout Creek	B43
Hayden Gulch	A10	Wood	B19

Coal Conversion Index

Oil Shale Index

Name	Index No.
BX Insitu - Equity	I2
Cathedral Bluffs - Occid - Tenneco	I3
Clear Creek - Chevron	H2-G2
Colony - Tosco - Exxon	H5
Exxon	H8
Multi-Minerals	H3
Naval Oil Shale	H7
Parachute - Mobil	H6
Rio Blanco - Gulf - Standard Indiana	I1-G1
Shaleglass	J1
Superior - Pacific	H1
Superior Multiminerals	H9
Thermo-Mist	H11
Union Long Ridge	H4

OIL SHALE PROJECTS - LOCATION INDEX



Uranium Index

Name	Index No.
Hansen Project	L1
Keota Project	M1
San Miguel Mill	N2
Union Carbide Mill	N1

Geothermal Index

Name	Index No.
Alamosa City Project	P4
Glenwood Springs #1	P2
Glenwood Springs #2	P1
Pagosa Springs Geothermal Heating District	P3

Oil Refining

Name	Index No.
Gary Energy	Q1

Electric Power Generation

Name	Index No.
Cherokee Units 1, 2, 3, 4 PSC	Y3
Moon Lake	Y1
Rawhide Project	Y4
Yampa Power Project	Y2

Miscellaneous Index

Name	Index No.
ARCO - Sheep Mt-CO^2	W1
Mt. Emmons Project- Amax	Z1
Shell Oil-McElmo Dome-DOE Canyon CO^2	W2

Colorado Geological Survey
Energy Activity Profile

1.1 I D # A1

1 Identifying Information

1 2 Project Name Erie Strip
1 3 Project Owners Rocky Mountain Energy
1 4 Colo Address Broomfield CO
1.5 Contact Person Jerry Peters 1.6 Phone 469-8844
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Weld 3.2 Legal S * Twp Rge

4. Land Ownership

4.1 Private X 4.11 Acres ** 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Laramie 5.2 Age Cretaceous
5.3 Bed or Zone 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton 8900 BTU/lb
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground 6.32 Strip X
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Powe 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# A1

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output Truck

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Misc. Data or Short Description _____

Truck and Shovel Operation, pit 350' wide and 1/4 th mile long. Life expectancy 13-14 years. Overburden from 60 to 100 ft. 8900 BTU coal. Residential truck sales.

* S33, T2N, R68W, S4, T1N, R68W, S14, T1N, R68W

** 1280 acres west I25, 640 acres east I25

17. Form Completed or Updated (date) 6-8-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # A2

1. Identifying Information

1.2 Project Name Pryor Strip
1.3 Project Owners Viking Coal Company
1.4 Colo. Address 6954 Webster, Arvada, CO 80003
1.5 Contact Person _____ 1.6 Phone 422-4000
1.7 Corporate Address _____
_____ 1.8 Phone _____
1.9 New Project _____ 1.91 Existing Project X 1.92 Expansion _____

2. Resource Base

2.1 Oil _____ 2.2 Natural Gas _____ 2.3 Oil Shale _____ 2.4 Uranium _____
2.5 Coal X 2.6 Geothermal _____ 2.7 Other _____

3. Project Location

3.1 County(ies) Huerfano 3.2 Legal S * Twp ~~29S~~ Rge ~~65W~~

4. Land Ownership

4.1 Private X 4.11 Acres _____ 4.2 Federal _____ 4.21 Acres _____
4.3 State _____ 4.31 Acres _____ 4.4 Total Acres permitted 234

5. Geological Base

5.1 Formation Vermejo 5.2 Age Cretaceous
5.3 Bed or Zone See Misc. 5.4 Thickness _____
5.5 Quality: Gals/ton, BTU, Pounds/ton _____
5.6 Reserves Recoverable: tons, bbls, cu ft _____

6. Resource Extraction Type

6.1 Oil Shale Mine ___ 6.11 Underground ___ 6.12 Strip ___ 6.13 In situ ___
6.2 Uranium Mine ___ 6.21 Underground ___ 6.22 Strip ___ 6.23 In situ ___
6.3 Coal Mine X 6.31 Underground ___ 6.32 Strip X
6.33 Methane Extraction ___ 6.34 UCG ___ 6.35 Other Coal _____
6.4 Oil Well ___ 6.5 Gas Well ___ 6.6 Other _____

7. Conversion Activity Type

7.1 Oil Refining ___ 7.2 Gas Processing ___ 7.3 Oil Shale Retorting ___
7.4 Shale Oil Refining ___ 7.5 Uranium Refining ___ 7.6 Coal Gasification ___
7.7 Coal Liquefication ___ 7.8 Electric Power ___ 7.81 Coal to Elect. ___
7.82 Oil to Elect. ___ 7.83 Gas to Elect. ___ 7.84 Other to Elect. ___
7.9 Other _____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day _____ 8.2 Barrels/day _____ 8.3 Other 100,000 TPU
Actual 8.4 Tons/day _____ 8.5 Barrels/day _____ 8.6 Other 1980-23,515 T

9. Product Upgrading

9.1 Process _____
9.2 Additional Raw Material Required _____ 9.21 Vol _____
9.3 New Products _____ 9.31 Vol _____

1.1 I.D.# A2

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 4

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Misc. Data or Short Description MLRB #C-031-81

* S ~~13, 18, 19, 24 (all or part)~~ 13 24 T29S (illegible)

Beds Robinson 4-6', IB 60', Walsen 3', IB 30', Lenox 4-5', IB 40',

Cameron 4-5', OB 0-50'

Selected Samples

#1 13012 BTUs, .89% S, 3.81% M, 8.75% Ash

#3 12493 BTUs, .57% S, 4.94% M, 8.32% Ash

#9 12659 BTUs, 1.06% S, 3.55% M, 9.94% Ash

17. Form Completed or Updated (date) 6-29-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # A3

1. Identifying Information

1.2 Project Name Martinez Strip
1.3 Project Owners Chimney Rock Coal Company
1.4 Colo. Address P.O. Box 52A, Star Rt., Pagosa Springs, CO 81147
1.5 Contact Person Rade Orell 1.6 Phone 883-2293
1.7 Corporate Address Perma Resources, 105 E. Kiowa, Ste. 200, Colorado Springs, CO 80903 1.8 Phone 475-7005
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Archuleta 3.2 Legal S 29-30 Twp 34N Rge 4W

4. Land Ownership

4.1 Private X 4.11 Acres ____ 4.2 Federal ____ 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres permitted 100

5. Geological Base

5.1 Formation Fruitland 5.2 Age Upper Cretaceous
5.3 Bed or Zone A, B, C 5.4 Thickness *
5.5 Quality: Gals/ton, BTU, Pounds/ton ____
5.6 Reserves Recoverable: tons, bbls, cu ft ____

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground ____ 6.32 Strip X
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other 250,000 TPY
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other [illegible]

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# A3

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational Current 8;35 full prod.

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Misc. Data or Short Description MLRB #C-023-81

* A seam 4-5' OB 74'

Interburden 6-12'

B Seam 11'

Interburden 20-30'

C Seam 9'

Coal Quality

B Seam 13244 BTUs, .48% S, 1.48% M, 10.90% Ash

13230 BTUs, .85% S, 4.38% M, 10.63% Ash

C Seam 11668 BTUs, .44% S, 5.93% M, 18% Ash

Sample shipment to Korea via Thoreau, New Mexico to San Pedro, California.

17. Form Completed or Updated (date) 6-30-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # A4

1. Identifying Information

1.2 Project Name Edna Strip
1.3 Project Owners Pittsburg & Midway Coal Co.
1.4 Colo. Address P.O. Box 176, Oak Creek, CO 80457
1.5 Contact Person F. H. Haller 1.6 Phone 736-8111
1.7 Corporate Address Gulf Oil Corp., Gulf Mineral Resources Co.
1720 So. Bellaire St., Denver, CO 80222 1.8 Phone 750-3505
1.9 New Project _____ 1.91 Existing Project X 1.92 Expansion _____

2. Resource Base

2.1 Oil _____ 2.2 Natural Gas _____ 2.3 Oil Shale _____ 2.4 Uranium _____
2.5 Coal X 2.6 Geothermal _____ 2.7 Other _____

3. Project Location

3.1 County(ies) Routt 3.2 Legal S * Twp 4-5N Rge 85-86W

4. Land Ownership

4.1 Private _____ 4.11 Acres _____ 4.2 Federal 9.3% 4.21 Acres _____
4.3 State _____ 4.31 Acres _____ 4.4 Total Acres 90.7% non-federal

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Upper Cretaceous
5.3 Bed or Zone Lennox, Wadge, Wolf Creek 5.4 Thickness 3-4';5-11';13.5'
5.5 Quality: Gals/ton, BTU, Pounds/ton _____
5.6 Reserves Recoverable: tons, bbls, cu ft _____

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground ____ 6.32 Strip X
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal _____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other _____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other _____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day _____ 8.2 Barrels/day _____ 8.3 Other 1.1 M.T.Y.
Actual 8.4 Tons/day _____ 8.5 Barrels/day _____ 8.6 Other 1980-1,026,391 T

9. Product Upgrading

9.1 Process _____
9.2 Additional Raw Material Required _____ 9.21 Vol _____
9.3 New Products _____ 9.31 Vol _____

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output rail

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 97

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Misc. Data or Short Description Located 5 miles NW of Oak Creek.

Interburden	Zone	Beds #	Total Thick	OB
	Lennox	1	3-4'	0-50'
35-40'				
	Wadge	2	5-11'	0-90'
100'				
	Wolfcreek	4	13.5'	0-200'

Permit Acres 4360

*Sec. 19, 30, 31, T5N, R85W; Sec. 36, T5N, R86W; Sec. 7, 18, 19, T4N, R85W; Sec. 12, 13, 14, 23, 24, 25, T4N, R86W

17. Form Completed or Updated (date) 6-30-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # A5

1. Identifying Information

1.2 Project Name Seneca II
1.3 Project Owners Seneca Coals Ltd.
1.4 Colo. Address St. 600, 12015 E. 46th St., Denver, CO 80239
1.5 Contact Person Tom Wainwright 1.6 Phone 371-7990
1.7 Corporate Address Peabody Coal Co. and Western Utility Corp., 301 N. Memorial Drive, St. Louis, MO 63102 1.8 Phone 314-342-3400
1.9 New Project _____ 1.91 Existing Project X 1.92 Expansion _____

2. Resource Base

2.1 Oil _____ 2.2 Natural Gas _____ 2.3 Oil Shale _____ 2.4 Uranium _____
2.5 Coal X 2.6 Geothermal _____ 2.7 Other _____

3. Project Location

3.1 County(ies) Routt 3.2 Legal S _____ Twp _____ Rge _____

4. Land Ownership

4.1 Private _____ 4.11 Acres _____ 4.2 Federal _____ 4.21 Acres _____
4.3 State 90% 4.31 Acres _____ 4.4 Total Acres permitted 3375

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Upper Cretaceous
5.3 Bed or Zone * 5.4 Thickness *
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft Est 32 MT

6. Resource Extraction Type

6.1 Oil Shale Mine ___ 6.11 Underground ___ 6.12 Strip ___ 6.13 In situ ___
6.2 Uranium Mine ___ 6.21 Underground ___ 6.22 Strip ___ 6.23 In situ ___
6.3 Coal Mine X 6.31 Underground ___ 6.32 Strip X
6.33 Methane Extraction ___ 6.34 UCG ___ 6.35 Other Coal _____
6.4 Oil Well ___ 6.5 Gas Well ___ 6.6 Other _____

7. Conversion Activity Type

7.1 Oil Refining ___ 7.2 Gas Processing ___ 7.3 Oil Shale Retorting ___
7.4 Shale Oil Refining ___ 7.5 Uranium Refining ___ 7.6 Coal Gasification ___
7.7 Coal Liquefication ___ 7.8 Electric Power ___ 7.81 Coal to Elect. ___
7.82 Oil to Elect. ___ 7.83 Gas to Elect. ___ 7.84 Other to Elect. ___
7.9 Other _____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day _____ 8.2 Barrels/day _____ 8.3 Other _____
Actual 8.4 Tons/day _____ 8.5 Barrels/day _____ 8.6 Other 1980-1.[illegible] MT

9. Product Upgrading

9.1 Process _____
9.2 Additional Raw Material Required _____ 9.21 Vol _____
9.3 New Products _____ 9.31 Vol _____

1.1 I.D.# A5

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output Truck

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 89

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous Output of 1.6 MTY to Colorado Ute Electric, Hayden Plant.

*Lennox 4' thick
Wadge 9' thick
Wolfcreek 16' thick
**Lennox 11,860 BTU, 2.51% S, 13.6% Ash
Wadge 11,950 BTU, 0.53% S, 9.8% M, 9.5% Ash
Wolfcreek 12,090 BT, 0.52% S, 10.3% Ash
All dry values

MLRB #C-005-80

17. Latest Entry on this Form (data and initials) 6-25-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # A6

1. Identifying Information

1.2 Project Name Bacon Strip
1.3 Project Owners Capstan Mining Co. Inc.
1.4 Colo. Address 1536 Cole Blvd. Suite 180, Golden, CO 80401
1.5 Contact Person Rick Chilton 1.6 Phone 233-5284
1.7 Corporate Address A.T. Massey P.O. Box 26765, Richmond, VA 23261
1.8 Phone
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) El Paso 3.2 Legal S 29-30 Twp 14S Rge 64W

4. Land Ownership

4.1 Private X 4.11 Acres ____ 4.2 Federal ____ 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres Permitted 460

5. Geological Base

5.1 Formation Laramie 5.2 Age Cretaceous
5.3 Bed or Zone A and B 5.4 Thickness 9-10', 1'-2'
5.5 Quality: Gals/ton, BTU, Pounds/ton *
5.6 Reserves Recoverable: tons, bbls, cu ft Est. Life 5 1/2 years

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground ____ 6.32 Strip X
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other ____
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1990-22,000

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# A6

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output Truck

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 6

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-030-81

Mine Operator: Nurseries Inc. of Wyoming, 1790 Old Franceville Coal Mine Rd., Colorado Springs, CO 80909, Phone 683-2588.

#Coal Quality

BTU 8815 (as received)	11,155 (Dry)
S 0.38%	0.48%
M 21.0%	-----
Ash 10.0%	12.7%
Vol Matter 30.9%	39.1%
Fixed Carbon 38.1%	48.2%

17. Latest Entry on this Form (date and initials) 7-6-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # A7

1. Identifying Information

1.2 Project Name Bourg Strip
1.3 Project Owners Flatiron Companies
1.4 Colo. Address P.O. Box 229, Boulder, CO 80302
1.5 Contact Person Scott Patten 1.6 Phone 444-2151
1.7 Corporate Address Mine Operator **
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Jackson 3.2 Legal S 7-18 T p 9N Rge 78W

4. Land Ownership

4.1 Private X 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres 160

5. Geological Base

5.1 Formation Coalmont 5.2 Age Paleozene
5.3 Bed or Zone Lower and Upper 5.4 Thickness 25.5' and 16.5'
5.5 Quality: Gals/ton, BTU, Pounds/ton *
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground 6.32 Strip X
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 1985-1000000TY
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other May 31, 2017

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# A7

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output Truck, Truck to Rail Loadout at UPRR

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 7

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-021-81

*Analysis (1915) from McCallan Mine (as received)

BTU 9640 , S-0.27%, M-19.2%, Ash-6.3%, Vol. Matter 33.5%, Fixed carbon 41.0%

Overburden 0-140' Interburden 80'

**Walden Coal Co., P.O. Box 37, Walden, CO 80434 Phone 723-8312

17. Latest Entry on this Form (date and initials) 7-6-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # A8

1. Identifying Information

1.2 Project Name Canadian Strip
1.3 Project Owners Wyoming Fuel Co.
1.4 Colo. Address 12055 W. 2nd Pl. P.O. Box 265, Lakewood, CO 80215
1.5 Contact Person Tom Young 1.6 Phone 989-1740
1.7 Corporate Address (Mine Address) PO Box 782 Walden, CO 80480
Mike Kolin 1.8 Phone 989-1740
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Jackson 3.2 Legal S * Twp 8N Rge 78W

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres permitted 160

5. Geological Base

5.1 Formation Coalmont 5.2 Age Paleocene
5.3 Bed or Zone Sudduth 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft 150,000 Tons

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground 6.32 Strip X
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1950 21720

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# A8

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 10

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB # C-206-81

*S. 2,3,4.9,10,11 (all or part)

**Coal Quality (as received)

BTU 10890,S. 0.24%, M-13.18%, Ash-6.56%, Vol. Mat. 27.4-34.39%, Fixed Carbon 38.9-49.1%, Dip of Bedding 24-35° SW Strike N20° to N50°E

Reserves 50,000 tons

Sales 100%OFS - Midwest U.S.

17. Latest Entry on this Form (date and initials) 7-6-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # A9

1. Identifying Information

1.2 Project Name Marr Strip
1.3 Project Owners (operator) Kerr Coal Co.
1.4 Colo. Address Box 773457, Steamboat Springs, CO 80477
1.5 Contact Person David Gossett 1.6 Phone 879-7310
1.7 Corporate Address Kerr Coal Co., Suite 900, Three Park Central
1515 Arapahoe, Denver, CO 80202 1.8 Phone 623-8217
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Jackson 3.2 Legal S ** Twp ____ Rge ____

4. Land Ownership

4.1 Private ____ 4.11 Acres ____ 4.2 Federal ____ 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres ____

5. Geological Base

5.1 Formation Coalmont 5.2 Age Early to Mid Tertiary
5.3 Bed or Zone Sudduth 5.4 Thickness 36'-75',50' avg.
5.5 Quality: Gals/ton, BTU, Pounds/ton *
5.6 Reserves Recoverable: tons, bbls, cu ft ____

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground ____ 6.32 Strip X
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other ____
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1980-744,216 T

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# A9

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output rail loadout UPRR

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 114

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-006-80

10 miles east of Walden on County Road 12F

*As Received Coal Quality

Fixed Carbon-42.06, Vol. Mat.-36.18, S-0.3%, M-11.12%, Ash-10.64%

**Sec. 15, 22, 23, 25, 26, 35 T9N, R78W, Sec. 2, T8N, R78W

500,000 tons/year to Labodie Power Plant, Missouri (Union Electric Co.).

221,000 tons/year to Corn Products, Perkin, Illinois and Fremont, Nebraska, Dept. of Utilities.

17. Latest Entry on this Form (date and initials) 7-22-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # A10

1. Identifying Information

1.2 Project Name Hayden Gulch
1.3 Project Owners H-G Coal Co. *
1.4 Colo. Address 3333 Quebec, Suite 8800, Denver, CO 80207
1.5 Contact Person E. K. Olsen 1.6 Phone 339-0779
1.7 Corporate Address W. R. Grace, 3400 1st International Bldg., Dallas, TX 75270 T. R. Fowler 1.8 Phone 214-658-1053
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Routt 3.2 Legal S ** Twp 5-6N Rge 88W

4. Land Ownership

4.1 Private ____ 4.11 Acres ____ 4.2 Federal ____ 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres permitted 1,272 private surface and minerals

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Cretaceous
5.3 Bed or Zone ____ 5.4 Thickness 22' total-5 beds
5.5 Quality: Gals/ton, BTU, Pounds/ton S-.43% Avg.
5.6 Reserves Recoverable: tons, bbls, cu ft ____

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground ____ 6.32 Strip X
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other ____
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1980-552,626 T

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____

1.1 I.D.# A10

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 60

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-003-80

*Local office - H-C Coal Co., P.O. Box 77',Hayden, CO 81039 - Bob Beuell 276-3116, Mine Operator - Yampa Mining Co., P.O. Box HH, Hayden, CO 81639, Larry Jackson, 276-3751

**portions of Sec. 30-31, T5N, R88W; Sec. 10, T6N, R88W; Sec. 10, T6N, R88W; Sec. 14, T6N, R88W; Sec. 15, T6N, R88W; Sec. 22, T6N, R88W; Sec. 23, T6N, R88W.

17. Latest Entry on this Form (date and initials) 7-22-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # A11

1. Identifying Information

1.2 Project Name Trinidad Basin
1.3 Project Owners Trinidad Basin Mining, Inc.
1.4 Colo. Address P.O. Box 783, Trinidad, CO 81082
1.5 Contact Person Jim Renfro 1.6 Phone 846-2300
1.7 Corporate Address
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Las Animas 3.2 Legal S * Twp 31S Rge 65W

4. Land Ownership

4.1 Private mineral 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres permitted 1165

5. Geological Base

5.1 Formation Raton 5.2 Age Cretaceous
5.3 Bed or Zone Del Agua and Cass 5.4 Thickness 4.5-6.0';3.5-4.5'
5.5 Quality: Gals/ton, BTU, Pounds/ton 12000 BTU, S-0.5%, Ash 12-17%
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground 6.32 Strip X
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-87, 750 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.= A11

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck to railroad

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-048-81

*Portions of S. 15, 21, 22

Load out location: Sec. 15, T31S, R64W

17. Latest Entry on this Form (date and initials) 7-27-81

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # A12

1. Identifying Information

1.2 Project Name Colorado Coal Mine No. 1
1.3 Project Owners Colorado Coal Mining Co.
1.4 Colo. Address P.O. Box 410, Walsenberg, CO 81089
1.5 Contact Person Charles S. McNeil 1.6 Phone 738-1831
1.7 Corporate Address Colorado Coal Mining Co., 105 E. Kiowa, Suite 200, Colorado Springs, CO 80903 1.8 Phone 475-7005
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Huerfano 3.2 Legal S 25-36 Twp 27S Rge 67W

4. Land Ownership

4.1 Private minerals 4.11 Acres ____ 4.2 Federal ____ 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres permitted 951

5. Geological Base

5.1 Formation Vermejo 5.2 Age Cretaceous
5.3 Bed or Zone * 5.4 Thickness ____
5.5 Quality: Gals/ton, BTU, Pounds/ton ____
5.6 Reserves Recoverable: tons, bbls, cu ft ____

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground ____ 6.32 Strip X
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other ____
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1980 no prod.

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# A12

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-024-81

*Lower Robinson, Pryor, Walsen, Lennox, Cameron

some dikes, locally coked

coal quality confidential

17. Latest Entry on this Form (date and initials) 7-27-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # A13

1. Identifying Information

1.2 Project Name Tomahawk Strip
1.3 Project Owners Operator - Quinn Coal Co.
1.4 Colo. Address P.O. Box 265, Eckert, CO 81418
1.5 Contact Person June Crawford 1.6 Phone 856-3400
1.7 Corporate Address Texas Gulf Inc., Highridge Park, Stamford, Conn., 06904 1.8 Phone 203-358-5000
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Delta 3.2 Legal S 10-15-16 Twp 13S Rge 95W

4. Land Ownership

4.1 Private minerals 4 11 Acres ____ 4.2 Federal ____ 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres permitted 316

5. Geological Base

5.1 Formation Mesaverde 5.2 Age Upper Cretaceous
5.3 Bed or Zone * 5.4 Thickness *
5.5 Quality: Gals/ton, BTU, Pounds/ton ____
5.6 Reserves Recoverable: tons, bbls, cu ft ____

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground ____ 6.32 Strip X
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other ____
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1980-24,076

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# A13

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 9

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-009-81

*Beds A-2.5', B-4.9', C-8.7', D-7.6', E-7.2', F-13.4'

overburden 60'

Interburden (from A Bed - 4', 130', 13', 30', 30'

17. Latest Entry on this Form (date and initials) 7-28-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # A14

1. Identifying Information

1.2 Project Name Trapper Strip
1.3 Project Owners Utah International Inc.
1.4 Colo. Address Box 187, Craig, CO 81625
1.5 Contact Person R. C. Diederich 1.6 Phone 824-4401
1.7 Corporate Address
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Moffat 3.2 Legal S * Twp 5-6N Rge 90-91W

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Cretaceous
5.3 Bed or Zone 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground 6.32 Strip X
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1935-2.3 MT
1980-2,014,378

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# A14

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 220

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-010-81

*Sec. 5 and 6, T5N, R90W; Sec. 1, 2, 3, 4, 5, T5N, R91W; Sec. 30, 31, 32, T6N, R90W; Sec. 21, 25, 26, 27, 28, 29, 32, T6N, R91W

Reserve mine life 68 MT

Sales 100% in state Yampa Power Plant

Letter of Intent - To transfer certain mine assets to a wholly owned subsidiary of Yampa Power Project (see Y-2).

17. Latest Entry on this Form (date and initials) 11/11/81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # A15

1. Identifying Information

1.2 Project Name Nucla Strip
1.3 Project Owners Peabody Coal Co.
1.4 Colo. Address 12015 E. 46th Ave., Denver, CO 80239
1.5 Contact Person Thomas J. Wainwright 1.6 Phone 371-7990
1.7 Corporate Address
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Montrose 3.2 Legal S 25,31,36 Twp 47N Rge 16W

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres permitted 393

5. Geological Base

5.1 Formation Dakota 5.2 Age Cretaceous
5.3 Bed or Zone * 5.4 Thickness *
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground 6.32 Strip X
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 1985-92,000 TY
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-93069

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# A15

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 24

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-008-81

* #1 or Upper Dakota, 100 feet above base of Dakota, 1.6' to 3.3'. #2 or Lower Dakota, 83' above base of Dakota; 5.9' to 7.9'. Nucla seam about 40' below Lower Dakota, 1.8' to 3.4', not mined.

** Coal Quality (Dry)

#1 - Btu-13126-13213, S.-7-2.5, M-3.4-3.7, Ash 8.9-10.3

#2 - Btu-10950-11950, S-.5-.9, M-3.7-11.5, Ash-15.5-24.6

17. Latest Entry on this Form (date and initials) 7-30-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # A16

1. Identifying Information

1.2 Project Name Colowyo Coal Mine
1.3 Project Owners Colowyo Coal Co.
1.4 Colo. Address 5731 Hwy 13, Meeker, CO 81641
1.5 Contact Person R.G. Atkinson, A.D. Thompson 1.6 Phone 824-4451
1.7 Corporate Address W. R. Grace, Hanna Mining - 50/50 I. E. McKeever
1.8 Phone 399-0779
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Moffat 3.2 Legal S * Twp 3-4N Rge 93W

4. Land Ownership

4.1 Private ____ 4.11 Acres ____ 4.2 Federal miner. 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres permitted 5165
surface - Fed & non-Fed

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Upper Cretaceous
5.3 Bed or Zone Y3,Y2,X,A2,A3,B1,C,D,E,F 5.4 Thickness **
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground ____ 6.32 Strip X
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other 1985-4.5 MT
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1980-2.6 MT

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# A16

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output rail loadout

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 1980-300;1984-565

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-019-81

*Sec. 13, 22, 23, 24, 26, 27, 33, 34, T4N, R93W

Sec. 2, 3, 4, 9, 10, 11, T3N, R93W (all or part)

Overburden 0-400'

Redwing and Strecter Mines - old underground mines in permit area

**Bed Thickness: Total 57.8', Y3 + Y2 - 6.8', X-12.3', A2 + A3 - 6.7',

B - 5.3', C - 6.0', D - 10.1', E - 6.8', F - 5.4'

Sales - 80% Central Power - Texas

20% City of Colorado Springs

Reserve life 129.5 MT

17. Latest Entry on this Form (date and initials) 8-1-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # A17

1. Identifying Information

1.2 Project Name Coors Keensburg
1.3 Project Owners Coors Energy Co.
1.4 Colo. Address P.O. Box 359, Keenseburg, CO 80643
1.5 Contact Person John Nelson 1.6 Phone 659-8520
1.7 Corporate Address Adolph Coors Co., P.O. Box 467, Golden, CO 80401
Louis Gaspar 1.8 Phone 278-7030
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Weld 3.2 Legal S * Twp 3N Rge 64W

4. Land Ownership

4.1 Private X 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres permitted 1525

5. Geological Base

5.1 Formation Laramie Fm. 5.2 Age Cretaceous
5.3 Bed or Zone No. 7 5.4 Thickness 2-8'
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft 20 year life

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground 6.32 Strip X
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 1985-500,000 T
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other under constr.

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# A17

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck to Coors boiler plant, Golden, CO 100%

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase 37 _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-028-81

Portions of Sec. 25, 26, 35, 36

**Average of 9 samples BTU-8079, S-.37%, M-28.33%, Ash-7.68%

Production-100% to Coors Brewery and Coors Ceramic Plant

Overburden 50-160'

17. Latest Entry on this Form (date and initials) 10-20-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # A18

1. Identifying Information

1.2 Project Name Meadows No. 1
1.3 Project Owners Sun Coal Company
1.4 Colo. Address P.O. Box 26, Milner, CO 80477
1.5 Contact Person 1.6 Phone 276-3746
1.7 Corporate Address Sun Coal Co., 1536 Cole Blvd., Golden, CO 80401
Rick Chilton 1.8 Phone 233-5284
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Routt 3.2 Legal S * Twp 6N Rge 87W

4. Land Ownership

4.1 Private X 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres permitted 199

5. Geological Base

5.1 Formation Iles Fm. 5.2 Age Cretaceous
5.3 Bed or Zone pinnacle 5.4 Thickness 6.7-8.5
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft 140,000 (2 years)

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground 6.32 Strip X
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-27,940

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# A18

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output rail

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 5

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-029-81

*Sec. 11, 14, 23, 24, 25, 26

Currently idle

**BTU-11,145-11,190, S-.39-.47, M-12.18-13.09, A-4.54-5.06, HvC Bituminous

100% out of state

17. Latest Entry on this Form (date and initials) 9-1-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # A19

1. Identifying Information

1.2 Project Name GEC Strip
1.3 Project Owners GEC Minerals, Inc.
1.4 Colo. Address P.O. Box 225, Florence CO 81226
1.5 Contact Person L. K. Chen 1.6 Phone 784-6891
1.7 Corporate Address
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Fremont 3.2 Legal S * Twp Rge

4. Land Ownership

4.1 Private X 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres permitted 720

5. Geological Base

5.1 Formation Vermejo 5.2 Age Upper Cretaceous
5.3 Bed or Zone D E G J K 5.4 Thickness 2-4' each
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground 6.32 Strip X
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-80,000

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol

1.1 I.D.# A19

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 23

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-037-81

*Portions of Sec 24, 25, T20S, R70W, and Sec. 19 and 30, T20S, R69W

Overburden 100'

Reserves 20 million tons, 10 million recoverable

Shipped 30% N.M., 70% in-state

**BTU-10,600, S-.4, M-11.0, Ash-10.0, HvC Bit.

17. Latest Entry on this Form (date and initials) 9-1-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # A20

1. Identifying Information

1.2 Project Name Grassy Creek Coal Mine No. 1
1.3 Project Owners The Rock Castle Company
1.4 Colo. Address P.O. Box AA, Hayden, CO 81639
1.5 Contact Person Wm. Heiden 1.6 Phone 824-9014
1.7 Corporate Address Rock Castle Co., P.O. Box 1038, Janesville, Wisconsin 53545 1.8 Phone 608-754-2291
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Routt 3.2 Legal S * Twp 5N Rge 87W

4. Land Ownership

4.1 Private X 4.11 Acres ____ 4.2 Federal ____ 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres permitted 462.3

5. Geological Base

5.1 Formation Iles Fm. 5.2 Age Cretaceous
5.3 Bed or Zone Pinnacle-Blacksmith 5.4 Thickness Pinnacle 6-7'
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft ____

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground ____ 6.32 Strip X
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other 1985-200,000 TY
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1990-221,365 T

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# A20

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 20 _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-039-81

*Sec. 20, 21, 28, 29, 31, 32

**Coal Quality

	Pinnacle	Blacksmith
BTU	11000-11800	11,465
S	.5-.6	.4-.7
M	10.0-12.0	10.5
Ash	5.0-7.0	4.0-7.0

17. Latest Entry on this Form (date and initials) 9-1-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # A21

1. Identifying Information

1.2 Project Name Pueblo (Durango) Project
1.3 Project Owners Pueblo Coal Co.
1.4 Colo. Address 25825 East Highway 160, Durango, CO 81301
1.5 Contact Person Ray Lewis 1.6 Phone 259-3731
1.7 Corporate Address Wichita Falls, Texas
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) La Plata 3.2 Legal S * Twp Rge

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres 150 Strip of 1,110

5. Geological Base

5.1 Formation 5.2 Age Cretaceous
5.3 Bed or Zone 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip X 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 250,000 1st yr
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# A21

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output Truck to rail in Gallup NM
50-25 ton trucks/day

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 100

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous Presently in planning stage

* SE of Durango on Ewing Mesa, Strip Mine leading to underground development

Produce 250,000 tons/1st year and 500,000 tons next 4, before going

underground.

17. Latest Entry on this Form (date and initials) LRL 11/11/81

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # B1

1. Identifying Information

1.2 Project Name Fruita Mine #1
1.3 Project Owners Dorchester Coal Company
1.4 Colo. Address 2795 Skyline Court, Grand Junction, CO 81501
1.5 Contact Person Leland Acre, Manager 1.6 Phone 245-6370
1.7 Corporate Address Dorchester Gas Corp., P.O. Box 31049, Dallas, TX 75231 1.8 Phone 214-750-3667
1.9 New Project _____ 1.91 Existing Project X 1.92 Expansion _____

2. Resource Base

2.1 Oil _____ 2.2 Natural Gas _____ 2.3 Oil Shale _____ 2.4 Uranium _____
2.5 Coal X 2.6 Geothermal _____ 2.7 Other _____

3. Project Location

3.1 County(ies) Mesa 3.2 Legal S * Twp _____ Rge _____

4. Land Ownership

4.1 Private X 4.11 Acres _____ 4.2 Federal _____ 4.21 Acres _____
4.3 State _____ 4.31 Acres _____ 4.4 Total Acres Permitted 150

5. Geological Base

5.1 Formation Mesaverde Mancos** 5.2 Age Cretaceous
5.3 Bed or Zone Cameo and Anchor 5.4 Thickness 10-25', 4-6'
5.5 Quality: Gals/ton, BTU, Pounds/ton _____
5.6 Reserves Recoverable: tons, bbls, cu ft _____

6. Resource Extraction Type

6.1 Oil Shale Mine ___ 6.11 Underground ___ 6.12 Strip ___ 6.13 In situ ___
6.2 Uranium Mine ___ 6.21 Underground ___ 6.22 Strip ___ 6.23 In situ ___
6.3 Coal Mine X 6.31 Underground X 6.32 Strip ___
6.33 Methane Extraction ___ 6.34 UCG ___ 6.35 Other Coal _____
6.4 Oil Well ___ 6.5 Gas Well ___ 6.6 Other _____

7. Conversion Activity Type

7.1 Oil Refining ___ 7.2 Gas Processing ___ 7.3 Oil Shale Retorting ___
7.4 Shale Oil Refining ___ 7.5 Uranium Refining ___ 7.6 Coal Gasification ___
7.7 Coal Liquefication ___ 7.8 Electric Power ___ 7.81 Coal to Elect. ___
7.82 Oil to Elect. ___ 7.83 Gas to Elect. ___ 7.84 Other to Elect. ___
7.9 Other _____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ___ 8.2 Barrels/day ___ 8.3 Other _____
Actual 8.4 Tons/day ___ 8.5 Barrels/day ___ 8.6 Other _____

9. Product Upgrading

9.1 Process _____
9.2 Additional Raw Material Required _____ 9.21 Vol _____
9.3 New Products _____ 9.31 Vol _____

1.1 I.D.# B1

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Misc. Data or Short Description MLRB #C-015-81

1-81 IDLE

* S30, T8S, R101W, S29, T8S, R101W (all or part)

Room & Pillar - continuous miner

** Mt. Garfield Fm. of Mesaverde Gp. and Anchor Tongue of Mancos Shale

17. Form Completed or Updated (date) 7-1-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # B2 see B31

1. Identifying Information

1.2 Project Name Hawks Nest West
1.3 Project Owners Western Slope Carbon Inc.
1.4 Colo. Address Somerset, CO 81434
1.5 Contact Person Tom Muncy - Tony Durando 1.6 Phone 929-5815
1.7 Corporate Address Northwest Coal Corp., 315 E. 200 St., P.O. Box 1526, Salt Lake City, UT 84110 1.8 Phone 801-534-3695
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Gunnison 3.2 Legal S * Twp 13S Rge 90W

4. Land Ownership

4.1 Private X 4.11 Acres ____ 4.2 Federal X 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres ____

5. Geological Base

5.1 Formation Mesaverde 5.2 Age Cretaceous
5.3 Bed or Zone Bowie, Paonia 5.4 Thickness **
5.5 Quality: Gals/ton, BTU, Pounds/ton ***
5.6 Reserves Recoverable: tons, bbls, cu ft E - 9.0 M, Wild Seam - 10.3 M, D - 11.1 M.

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground X 6.32 Strip ____
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other 750,000 TPY
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1980-6,438 T

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# B2

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output rail

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 60

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Misc. Data or Short Description MLRB #C-016-81

* S 1, 2, 3, 11, 12 (all or part) plus others

Continuous and longwall miner

** Bowie Member — Paonia Member

A Seam 3" to 3'+ — D Seam 6-14'

Lower B 6-7' OB 6-10' — Wild Seam 5.5-10'

Upper B 13-14' — E Seam 4'7"-12'+

C 6-7' — (E being mined)

***Coal Quality E Seam 12400 BTU, .63% S, 6-7% M, 8-12% Ash, 2/5% FST, 50% HGI

Wild Seam 9707 BTU, 1.58% S, 3.35% M, 28.38% Ash

D Seam 12227 BTU, .84% S, 3.28% M, 12.96% Ash

Sales - OFS 100% Illinois and Japan

17. Form Completed or Updated (date) 6-30-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B3

1. Identifying Information

1.2 Project Name Deserado Mine
1.3 Project Owners Western Fuels-Utah Inc.
1.4 Colo. Address 405 Urban St. SU 305, Lakewood, CO 80228
1.5 Contact Person Don Deardorff 1.6 Phone 988-9626
1.7 Corporate Address 1835 K St. NW, Suite 412, Washington, D.C. 20006
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Rio Blanco 3.2 Legal S * Twp 2-3N Rge 101W

4. Land Ownership

4.1 Private X 4.11 Acres 4.2 Federal X 4.21 Acres 3,625
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Upper Cretaceous
5.3 Bed or Zone B, B/C, D 5.4 Thickness B-6.4'; D-4.5-10'
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft B-13.67 MT, D-17.25 MT

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 2.7 MTY
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1.35 MTY

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B3

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output 38 mile electric railroad and 3.5 mile conveyor belt. 31-100 ton cars on unit train.

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak 400
14.12 Expected Peak Date _____ 14.2 Operational 350

15. Timetable (Dates)

15.1 Construction Begins under construction 15.2 Operational _____

16. Misc. Data or Short Description MLRB #C-018-81. Coal to be used by Deseret Generation and Transmission Cooperative at Moon Lake project. Moon Lake -2-400 megawatt coal fired electrical plant would use up to 17,470 a/ft water. Would require 2.7 Mty of coal at final capacity. Lease applications and exploration permits on additional 3,382 acres. Cost of mine and railroad about $300 million. Additional 100 workers to build railroad. Expected population increase 1500 to 1800.

*S1,2,3,4,10,11, T2N, R101W, S. 22, 23, 26, 27, 28, 32, 33, 34, 35, 36, T3N R101W (all or part).

**D-10,800 Btu/lb, SS, 12.0 M, 8.0 Ash; B + B/C 10,560 Btu/lb, .47S, 12.0 M, 11.0 Ash (dry). Life expectancy 25-30 years.

17. Form Completed or Updated (date) 6-25-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # B3

Misc. Cont.

3.5 mile conveyor belt, 36 mile electric railroad, 62 car unit train

Mine D coal seam first

Coal Production:

1982 - 30,000 T, 1983 - 495,000 T, 1984 - 742,000 T, 1985 - 1,072,000 T,

1986 - 1,678,000 T, 1987 - 1,920,000 T

19. Latest Entry on this Form (date and initials) 9-9-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # B4

1. Identifying Information

1.2 Project Name Bear Mine
1.3 Project Owners Bear Coal Company, Inc.
1.4 Colo. Address Somerset, CO 81434
1.5 Contact Person William A. Bear 1.6 Phone 929-5775
1.7 Corporate Address
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Gunnison 3.2 Legal S * Twp 13S Rge 90W

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal X 4.21 Acres 1360
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Mesaverde Gp. 5.2 Age Upper Cretaceous
5.3 Bed or Zone Lower & Upper 5.4 Thickness **
5.5 Quality: Gals/ton, BTU, Pounds/ton ***
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.3 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 234,000 TY
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-239,217 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B4

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output Rail

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 63

. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Misc. Data or Short Description MLRB #C-033-81

*S. 9, 16, 17, 20, 21 (all or part)

**C Seam 1-8' thick, 12639 BTU, 0.57% S, 6.12% M, 6.55% Ash

D Seam 0-7' thick

E Seam 10-20' thick

F Seam 2-10' thick

Room & Pillar-continuous miner

17. Form Completed or Updated (date) 6-25-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B5

1. Identifying Information

1.2 Project Name Red Canyon #1-Delta Loadout
1.3 Project Owners Grand Mesa Coal Company
1.4 Colo. Address P.O. Box 226, 1st & Columbia, Delta, CO 81416
1.5 Contact Person Larry Reschke 1.6 Phone 874-7561
1.7 Corporate Address Tremont Coal Corp., 410 17th St., #2300, Denver, CO 80202 ** 1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Delta 3.2 Legal S * Twp 13S Rge 95W

4. Land Ownership

4.1 Private X 4.11 Acres 4.2 Federal X 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres 450

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Cretaceous
5.3 Bed or Zone E 5.4 Thickness 4.9-7.5'
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft 19 year life

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 1985-350,000 T
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-93,258 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B5

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck to Delta

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational 34

16. Misc. Data or Short Description MLRB #C-034-81

**

Coal Quality		BTU/lb	S.	M.	Ash	HGI
Sample #1	E	10300	.44%	17.41%	8.36%	47/6.45% H20
Sample #2	E	10702	.47%	12.48%	9.75%	
Sample #3	E	10811	.45%	11.39%	10.28%	
Sample #4	E	10314	.51%	10.28%	9.34%	

*S. 2, 11, 12 (all or part)

Room and pillar, continuous miner Dip 5° S-85°E

#1 mine is operational; #2 proposed Overburden up to 700'

**Check on change of owner

Res/Est. Life - 19 years

17. Form Completed or Updated (date) 6-26-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B6

1. Identifying Information

1.2 Project Name National King Mine
1.3 Project Owners National King Coal Co.
1.4 Colo. Address 4424 County Rd. 120, Hesperus, CO 81326
1.5 Contact Person Alan Salter 1.6 Phone 385-4528
1.7 Corporate Address
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) La Plata 3.2 Legal S * Twp 35N Rge 11W

4. Land Ownership

4.1 Private X 4.11 Acres 4.2 Federal X 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres Permit Acres 9.28

5. Geological Base

5.1 Formation Menefee F Seam 5.2 Age Cretaceous
5.3 Bed or Zone Upper-Lower (undeveloped) 5.4 Thickness 66-74"
5.5 Quality: Gals/ton, BTU, Pounds/ton 13,560 BTU/lb
5.6 Reserves Recoverable: tons, bbls, cu ft 6/80 F seam 284,000 T

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-87,189 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B6

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output Truck

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 53

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Misc. Data or Short Description MLRB #C-035-81

* S 29, 31, 32 (all or part)

Room and Pillar - Continuous Miner

Coal Quality	BTU/lb	S.	M.	A	FSI	HGI	Dip 3-4°S
#1	13529	.84%	3.5%	5.8%	5.0		Strike S35°W
#2	13560	.3%	2.4%	4.2%			

Interburden 80' Overburden Max 300'

Mining Upper Seam Only Federal lease P-058300, In place reserves 470,000 T, minable reserves 284,000 T. Applied for Federal lease (160 acres) 1,670,000 tons in place F seam (7-6-81). Sales: 90,000-120,000 T to Ideal Cement, Albuquerque. 10,000 T to Rio Algom in Utah, 10-15,000 to N.W. Alloys plus 11,000 T local sales.

17. Form Completed or Updated (date) 6-26-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B7

1. Identifying Information

1.2 Project Name Cameo #1
1.3 Project Owners Western Associated Coal Corp.
1.4 Colo. Address Denver, CO
1.5 Contact Person 1.6 Phone
1.7 Corporate Address Eastern Gas and Fuel Assoc. and Nicor Inc.
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Mesa 3.2 Legal S * Twp 10-11S Rge 98W

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Mesaverde Group 5.2 Age Cretaceous
5.3 Bed or Zone Cameo Coal Seam 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 1985-500,000 TPY
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-229,655 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B7

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 61

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Misc. Data or Short Description MLRB #C-041-81

* 3 miles north of Palisade

S 20, 21, 22, 23, 26, 27, 28, 29, 34, 35 T10S R98W

S 1, 2 T11S, R98W (all or part)

Reserve - 30 million tons recoverable - 47 years life

Sale OFS - 100% Mississippi Power - Gulfport

17. Form Completed or Updated (date) 10-20-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B8

1. Identifying Information

1.2 Project Name Roadside
1.3 Project Owners Western Associated Coal Corp.
1.4 Colo. Address Denver, CO
1.5 Contact Person 1.6 Phone
1.7 Corporate Address Eastern Gas and Fuel Assoc. and Nicor Inc.
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Mesa 3.2 Legal S * Twp 10-11S Rge 98W

4. Land Ownership

4.1 Private 39% 4.11 Acres 4.2 Federal 61% 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres permitted 2615

5. Geological Base

5.1 Formation Mesaverde Group 5.2 Age Cretaceous
5.3 Bed or Zone Cameo Seam 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 1985-800,000
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-603,464 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B8

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 248

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Misc. Data or Short Description MLRB #C-041-81

* S 20, 21, 22, 23, 26, 27, 28, 29, 34, 35, T10S, R98W

S 1, 2, T11S, R98W (all or part)

Room and Pillar-Longwall

Reserve est life - 9 MT - 14 years

Sales 91% - Mississippi Power - Gulfport

.9% local spot

17. Form Completed or Updated (date) 10-20-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B9

. Identifying Information

1.2 Project Name Helen Mine
1.3 Project Owners Animas Coal Co. Inc.
1.4 Colo. Address P.O. Box 247, Trinidad, CO 81082
1.5 Contact Person Steven Marusich 1.6 Phone 846-9251
1.7 Corporate Address Western Assoc. Energy Corp.
P.O. Box 17485 San Antonio, TX 78217 1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Las Animas 3.2 Legal S * Twp 33S Rge 64W

4. Land Ownership

4.1 Private X 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Vermejo & Raton 52 Age Upper Cretaceous-Paleocene
5.3 Bed or Zone ** 5.4 Thickness **
5.5 Quality: Gals/ton, BTU, Pounds/ton 12173, S.63%, M 1.95%, Ash 15.47%
5.6 Reserves Recoverable: tons, bbls, cu ft

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 622 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-11,743 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B9

End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output Truck

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 1

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Misc. Data or Short Description MLRB #C-043-81

*S. 31,32,36 (all or part

Room and pillar

Vermejo 2 to 6 beds more than 2' thick

Raton 2 coal zones, thin and unworkable

Up Starkville 4-8' thick (worked)

17. Form Completed or Updated (date) 7-8-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B10

1. Identifying Information

1.2 Project Name Sunlight Mine
1.3 Project Owners Black Rock Mining Co.
1.4 Colo. Address 214 - 8th St., Suite 204, Glenwood Springs, CO 81601
1.5 Contact Person J. R. Bachman 1.6 Phone 945-8588
1.7 Corporate Address Bessinger and Bessinger
1.8 Phone
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Garfield 3.2 Legal S 33,34 Twp 7S Rge 89W

4. Land Ownership

4.1 Private X 4.11 Acres ____ 4.2 Federal ____ 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres ____

5. Geological Base

5.1 Formation ____ 5.2 Age ____
5.3 Bed or Zone A, B, C, D 5.4 Thickness 10'-3'-4'-8'
5.5 Quality: Gals/ton, BTU, Pounds/ton ____
5.6 Reserves Recoverable: tons, bbls, cu ft ____

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground X 6.32 Strip ____
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other ____
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1980-885 T

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# B10

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Misc. Data or Short Description MLRB #C-046-81

Room and Pillar

17. Form Completed or Updated (date) 6-26-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B11

1. Identifying Information

1.2 Project Name Ohio Creek Coal Mine No. 2
1.3 Project Owners Henry L. and Opal Weaver
1.4 Colo. Address 117 S. 8th St., Gunnison, CO 81230
1.5 Contact Person Bob Weaver 1.6 Phone 641-1560
1.7 Corporate Address same
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Gunnison 3.2 Legal S * Twp Rge

4. Land Ownership

4.1 Private surf. 4.11 Acres 4.2 Federal coal 4.21 Acres 200
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Mesaverde 5.2 Age Cretaceous
5.3 Bed or Zone #1, #2 (C), #3 5.4 Thickness C-4-7'
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft (45 years)

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-1447 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B11

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 5 _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-002-80

**Coal Quality

#1 - 11840 BTU; .6% S, 9.7% M, 5.4% Ash Rank hvC

#2 - 11580 BTU; .54% S, 10.5% M, 5.6% Ash

#1 - Fixed Carbon 46.9%, Volatile Matter 38.0%

#2 - Fixed Carbon 52.6%, Volatile Matter 38.4%

* NE Sec 16 and NW Sec 15, T15S, R86W

Sublessee: Mecar Mining Corp., Dallas TX

17. Latest Entry on this Form (date and initials) 7-1-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B12

1. Identifying Information

1.2 Project Name Allen
1.3 Project Owners CF&I Steel Corp.
1.4 Colo. Address Weston, CO 81091
1.5 Contact Person T. J. Augstine 1.6 Phone 868-2761
1.7 Corporate Address P.O. Box 316 Pueblo, CO 81002
J. G. Wark 1.8 Phone 561-6622
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Las Animas 3.2 Legal S22-23 Twp 33S Rge 68W

4. Land Ownership

4.1 Private X 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres Permitted 155

5. Geological Base

5.1 Formation Raton 5.2 Age Upper Cretaceous
5.3 Bed or Zone Allen 5.4 Thickness 4-7'
5.5 Quality: Gals/ton, BTU, Pounds/ton *
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 1985-1.0 MTY
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980 561,737T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B12

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output Rail

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 500+

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB # C-012-81

*Average of 11 analyses

BTU 13,740, S 0.49%, M 0.7%, Ash 8.5%

Vol. Matter 37.8% Fixed Carbon 53.0%

Room and pillar, continuous miner

met coal

captive operation

17. Latest Entry on this Form (date and initials) 7-6-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B13

1. Identifying Information

1.2 Project Name Apex No. 2
1.3 Project Owners Sunland Mining Corp.
1.4 Colo. Address P.O. Box 55, Oak Creek, CO 80467
1.5 Contact Person David R. Canning 1.6 Phone 736-8181
1.7 Corporate Address
President: Charles W. Schulties 1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Routt 3.2 Legal S 22 Twp 4N Rge 86W

4. Land Ownership

4.1 Private surface 4.11 Acres 4.2 Federal Mineral 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres Permitted 240

5. Geological Base

5.1 Formation Iles 5.2 Age Upper Cretaceous
5.3 Bed or Zone Lower Pinnacle ** 5.4 Thickness 4'
5.5 Quality: Gals/ton, BTU, Pounds/ton *
5.6 Reserves Recoverable: tons, bbls, cu ft 1,222,000 T

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retoting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980 4,258 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol

1.1 I.D.# B13

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 12

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB # C-011-81

*Coal Quality

BTU 11758 (as received) 12,894 (Dry) S-0.7%

Ash 7.48%, FSI 1.0, HGI 38.1

(CT & E)

** below Trout Creek and above Tow Creek

Room and pillar, continuous miner

Sale Instate 99% domestic use

17. Latest Entry on this Form (date and initials) 7-6-81 LRL

Energy Activity Profile 1.1 I.D. # B14

1. Identifying Information

1.2 Project Name Blue Ribbon
1.3 Project Owners Blue Ribbon Coal Co.
1.4 Colo. Address P.O. Box 58, Delta Colorado 81416
1.5 Contact Person Bruce Collins 1.6 Phone 929-5911
1.7 Corporate Address Western Associated Coal Corp., 410 17th St.,
Denver, CO WSTATE 1.8 Phone 825-1966
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Delta 3.2 Legal S Twp Rge

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Mesaverde 5.2 Age Cretaceous
5.3 Bed or Zone E 5.4 Thickness 6'
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 1985-200,000TY
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-97,013T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B14

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 32

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-047-81

Room and pillar

**Coal Quality: As received BTU 13,030, S-0.5%, M--, Ash - 3.8%,

HGI 54, Vol. Mat. 40.3%, Fixed Carbon 54.7%

Steam Coal

Sales - Instate 5%, OFS 95'

17. Latest Entry on this Form (date and initials) 7-6-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B15

1. Identifying Information

1.2 Project Name Coal Basin Mines *
1.3 Project Owners Mid-Continent Resources, Inc.
1.4 Colo. Address P.O. Box 158, Carbondale, CO 81623
1.5 Contact Person Doug Bowman, G. Wear 1.6 Phone 963-2581
1.7 Corporate Address 945-5956
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Gunnison-Pitkin 3.2 Legal S *** Twp Rge

4. Land Ownership **

4.1 Private 85% 4.11 Acres 4.2 Federal 15% 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres permitted 7,173

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Cretaceous
5.3 Bed or Zone B and Dutch Creek 5.4 Thickness 15-20'; 4-20'
5.5 Quality: Gals/ton, BTU, Pounds/ton *
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 1985-2.5 MTY
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other see Ind. Mines

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B15

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck to Carbondale, rail loadout

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 505 (all mines)

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous _____

*Includes Coal Basin, Dutch Creek No. 1, Dutch Creek No. 2, Bear Creek and L.S. Wood

**Surface - Fed and Non-Fed, Mineral - 15% Fed, 85% non-Fed

Room and Pillar - Longwall

Coal Quality (Dry)

"B" BTU-14500; S-.5%; Ash-8.4%; HGI-108; Vol.-22.8%; FC-68.3%

Dutch Creek Btu-14000; S-.59%; Ash-9.2%; HGI-108; Vol.-26.0%; FC-64.8%

Both Mid Vol Bit, Coking Coal, extremely gassy

Sales - 100% out-of-state, U.S. Steel, Provo, UT and Kaiser Steel, Fontana, California

***Portions of T9-10S, R88-89-90W

17. Latest Entry on this Form (date and initials) 7-14-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # B16
see B15

1. Identifying Information

1.2 Project Name Dutch Creek No. 1 *
1.3 Project Owners Mid-Continent Resources Inc.
1.4 Colo. Address P.O. Box 158, Carbondale, CO 81623
1.5 Contact Person D. Bowman, G. Wear 1.6 Phone 963-2581
1.7 Corporate Address 945-5956
1.8 Phone
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Gunnison-Pitkin 3.2 Legal S ** Twp ____ Rge ____

4. Land Ownership

4.1 Private ____ 4.11 Acres ____ 4.2 Federal ____ 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres ____

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Cretaceous
5.3 Bed or Zone B 5.4 Thickness 15-20'
5.5 Quality: Gals/ton, BTU, Pounds/ton ***
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground X 6.32 Strip ____
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other ____
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1980-156533 T

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# B16

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck to rail loadout at Carbondale

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 134

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous

*Also see B15 Coal Basin Mines

**Portions of T9-10S, R88-89-90W

***(DRY) Btu-14,000; S-0.5%; Ash-8.4%; HGI-108; Vol. Mat.-22.8%; Fixed Carbon 68.3%; MvB, coking quality

Sales 100% U.S. Steel Utah, Kaiser Calif.

Closed by explosion

17. Latest Entry on this Form (date and initials) 11-11-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # B17
see B15

1. Identifying Information

1.2 Project Name Dutch Creek No. 2 *
1.3 Project Owners Mid-Continent Resources, Inc.
1.4 Colo. Address P.O. Box 158, Carbondale, CO 81623
1.5 Contact Person D. Bowman, G. Wear 1.6 Phone 963-2581
1.7 Corporate Address 945-5956
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Gunnison-Pitkin 3.2 Legal S *** Twp Rge

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Cretaceous
5.3 Bed or Zone Dutch Creek 5.4 Thickness 4-20'
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-181,145 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B17

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck to rail loadout in Carbondale

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 99

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous _____

*Also see B15 Coal Basin Mines

**(Dry) BTU-14,000; S-.59%; Ash-9.2%; HGI-108; Vol. Mat.-26.0%;

Fixed Carbon 64.8%; MvB Coking Quality

1.5 million tons extracted to date

***Portions of T9-10S, R88-89-90W

Sales 100% U.S. Steel Utah, Kaiser Calif.

17. Latest Entry on this Form (date and initials) 7-14-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # B18
see B15

1. Identifying Information

1.2 Project Name Bear Creek *
1.3 Project Owners Mid-Continent Resources, Inc.
1.4 Colo. Address P.O. Box 158, Carbondale, CO 81623
1.5 Contact Person D. Bowman, G. Wear 1.6 Phone 963-2581
1.7 Corporate Address 945-5956
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Gunnison-Pitkin 3.2 Legal S ** Twp Rge

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Cretaceous
5.3 Bed or Zone B 5.4 Thickness 15-20'
5.5 Quality: Gals/ton, BTU, Pounds/ton ***
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-5282 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B18

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output Truck to rail, load out at Carbondale

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 27

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous _____

*Also see B15 Coal Basin Mines

**Portions of T9-10S, R88-89-90W

***(Dry) Btu 14,500; S-0.5%; Ash-8.4%; HGI-108; Vol. Mat.-26.0%; Fixed Carbon 68.3%; MvB Coking Quality

Total B bed production since 1956 - 12 MT

17. Latest Entry on this Form (date and initials) 7-14-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # B19
see B15

1. Identifying Information

1.2 Project Name L. S. Wood *
1.3 Project Owners Mid-Continent Resources, Inc.
1.4 Colo. Address P.O. Box 158, Carbondale, CO 81623
1.5 Contact Person D. Bowman, G. Wear 1.6 Phone 963-2581
1.7 Corporate Address 945-5956
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Gunnison-Pitkin 3.2 Legal S ** Twp Rge

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Cretaceous
5.3 Bed or Zone B 5.4 Thickness 15-20'
5.5 Quality: Gals/ton, BTU, Pounds/ton ***
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B19

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck to rail, load out at Carbondale

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 128

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous _____

*Also see B15 Coal Basin Mines

**Portions of T9-10S, R88-89-90W

***(Dry) Btu-14,500; S-0.5%; Ash-8.4%; HGI-108; Vol. Mat.-22.8%;
Fixed Carbon-68.3%; MvB coking quality

B bed production since 1956 - 12 MT

Sales 100% U.S. Steel Utah, Kaiser Steel, Calif.

17. Latest Entry on this Form (date and initials) 7-14-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B20

1. Identifying Information

1.2 Project Name Coal Basin *
1.3 Project Owners Mid-Continent Resources, Inc.
1.4 Colo. Address P.O. Box 158, Carbondale, CO 81623
1.5 Contact Person D. Bowman, G. Wear 1.6 Phone 963-2581
1.7 Corporate Address 945-5956
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Gunnison-Pitkin 3.2 Legal S ** Twp Rge

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Cretaceous
5.3 Bed or Zone B 5.4 Thickness 15-20'
5.5 Quality: Gals/ton, BTU, Pounds/ton ***
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-13,278 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B20

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output Truck to rail, loadout at Carbondale

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 94

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous _____

*Also see B15 Coal Basin Mines

**Portions of T9-10S, R88-89-90W

***(Dry) BTU-14,500; S-0.5%; Ash-8.4%; HGI-108; Vol. Mat.-22.8%; Fixed Carbon-68.3%; MvB coking quality

B bed total production since 1956 - 12 MT

Est. Life -30-40 years

Sales 100% U.S. Steel Utah, Kaiser Steel Calif.

17. Latest Entry on this Form (date and initials) 7-14-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B21

1. Identifying Information

1.2 Project Name Coal Gulch
1.3 Project Owners Arness - McGriffen Coal Co.
1.4 Colo. Address 1139 Main St., Durango, CO 81301
1.5 Contact Person Ken McGriffin 1.6 Phone 259-1501
1.7 Corporate Address
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) La Plata 3.2 Legal S * Twp Rge

4. Land Ownership

4.1 Private X 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres permitted 41

5. Geological Base

5.1 Formation Menefee 5.2 Age Cretaceous
5.3 Bed or Zone A1, A2, B3 5.4 Thickness 8', 3', 6'
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other ?
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980 none

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B21

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-042-81

was small open pit to be converted to underground

*located 4 miles west of Durango on Highway 160

Rumored to have been sold.

200' to 600' of overburden

Bed A1 and B4 BTU 13500-14000, S-.4 to .8 %

M-3-8%, Ash 4-9%, FSI 3-6, Bit HvA or B

Wet or Steam

Est. Reserve 40 MT

17. Latest Entry on this Form (date and initials) 7-21-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # B22
See B23

1. Identifying Information

1.2 Project Name North Thompson Creek Mine No. 1
1.3 Project Owners operator - Snowmass Coal Co.
1.4 Colo. Address P.O. Box 980, Carbondale, CO 81623
1.5 Contact Person Stephen Self 1.6 Phone 963-3440
1.7 Corporate Address Roaring Fork Coal Co., Suite 2300, 410 17th St., Denver, CO 80202 1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Pitkin 3.2 Legal S 31-35 T p 8S Rge 89W

4. Land Ownership

4.1 Private surface 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres permit 320
Mineral 90% non-Fed, 10% Fed.

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Cretaceous
5.3 Bed or Zone A - dip 34° 5.4 Thickness 7.5'
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft 80 M tons #1 and #3

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-40,545 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol

1.1 I.D.# B22

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck to rail loadout 11 miles

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 123

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-025-81

A bed overlies Rollins SS, Anderson (or upper Sunshine) 800' above A seam

New construction includes $4.5 mm railload out facility at Carbondale,

$12 mm Longwall miner. Expected production 275,000 TY by 6-82.

6000 T shipped to Japan 6-81 of 300,000 T total to be shipped.

Using Trolka 320 Hemscheidt Face shields, Anderson-Strathclyde 500 hp double

drum shearer, Dowty-Meco face and stage loader.

Methane - 80,000 cfm per 24 hrs.

Overburden 1500-4000'

200 TPh prep plant

17. Latest Entry on this Form (date and initials) 10-21-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # B23
See B22

1. Identifying Information

1.2 Project Name North Thompson Creek Mine No. 3
1.3 Project Owners operator - Snowmass Coal Co.
1.4 Colo. Address P.O. Box 980, Carbondale, CO 81623
1.5 Contact Person Stephen Self 1.6 Phone 963-3440
1.7 Corporate Address Roaring Fork Coal Co., Suite 2300, 410 17th St., Denver, CO 80202 1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Pitkin 3.2 Legal S 31-35 Twp 8S Rge 89W

4. Land Ownership

4.1 Private surf. 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres permitted 320
Mineral 90% Fed, 10% Non-Fed.

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Cretaceous
5.3 Bed or Zone Anderson * 5.4 Thickness 10' *
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft 80 M #1 and #3

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-1,812 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B23

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck to rail loadout 11 miles

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-025-81

Anderson (or upper Sunshine) 800' above A seam.

New construction includes $4.5 mm rail loadout facility at Carbondale,

$12 mm longwall miner.

Expected production 275,000 TY by 6-87

6000 T shipped to Japan 6-81 of 300,000 T total to be shipped.

*Anderson Seam 400' above A Seam

Overburden 1500 to 4000 ft.

Med. to HvA & B Bit.

High methane output

200 TPh prep plant

17. Latest Entry on this Form (date and initials) 10-20-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # B24

1. Identifying Information

1.2 Project Name Newlin Creek
1.3 Project Owners Harrison Peltron (joint venture)
1.4 Colo. Address 1208 Quail St., Denver, CO 80215
1.5 Contact Person Jim Irwin or Mike Bertold 1.6 Phone 234-0273
1.7 Corporate Address mine operator as above, P.O. Box 48, Florence, CO 81226 1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Fremont 3.2 Legal S 30-31 Twp 20S Rge 69W

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres
surface and minerals non-fed

5. Geological Base

5.1 Formation Vermejo 5.2 Age Upper Cretaceous
5.3 Bed or Zone Shamrock ? 5.4 Thickness 3'-7'
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 1985-400,000 TY
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-96,324 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B24

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output rail

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 37

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-045-81

7.5 miles south of Florence

17. Latest Entry on this Form (date and initials) 7-22-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B25

1. Identifying Information

1.2 Project Name Mt. Gunnison No. 1
1.3 Project Owners Arco Coal Co.
1.4 Colo. Address 555 17th St., P.O. Box 5300, Denver, CO 80217
1.5 Contact Person Mr. Kuchta 1.6 Phone 575-7500
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Gunnison 3.2 Legal S * Twp Rge

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres permitted 237

5. Geological Base

5.1 Formation 5.2 Age
5.3 Bed or Zone F 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 2,130,000 TY*
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-none

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B25

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output rail to Cameo Public Service Co. plant

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase min. 30 _____ 14.11 Peak 175
14.12 Expected Peak Date _____ 14.2 Operational 60

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-007-80

*Portions of Sec. 8, 9, 15, 16, 17, 18, 19, 20, 21, 27, 28, 29, 30, 31, 32, 33, T13S, R90W and 3, 4, 5, 8, 9, 10, 15, 16, 21, 22, T14S, R90W

Preliminary construction started 9-81, Lively M & C, Glen White, WV, construct coal handling system, Atkinson & Co. construction 2 MW substitution. 8000 ton silo, rail loadout.

*Startup production est. 220,000 TPY

17. Latest Entry on this Form (date and initials) 9-14-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B26

1. Identifying Information

1.2 Project Name Sulphur Creek
1.3 Project Owners Sulphur Creek Mines, Inc.
1.4 Colo. Address Box 130, Meeker, CO 81641
1.5 Contact Person Roger Patel 1.6 Phone 878-9931
1.7 Corporate Address William C. Lackey and Assoc., Inc.
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Rio Blanco 3.2 Legal S 10 Twp 1N Rge 94W

4. Land Ownership

4.1 Private minerals 4 11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres permitted 7.28

5. Geological Base

5.1 Formation Williams Fork & Iles 5.2 Age Cretaceous
5.3 Bed or Zone * 5.4 Thickness *
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft 2.039 million tons

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-none

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B26

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output rail

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-027-81

* Fairfield 6.9-12', Major 5-10', Sulphur Creek 5.5-6.5'

**As received (CT & E)

Btu 9900-10650; S-.5-.7%; M-11.2-11.5%; Ash-7.8-12.8%;

Vol. Mat. 31.79-34.23%, Fixed Carbon 43.8-47.0

Underground Room & Pillar

Reserve life 15.5 MT - 10 years

17. Latest Entry on this Form (date and initials) 7-27-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B27

1. Identifying Information

1.2 Project Name Fruita Mine No. 2
1.3 Project Owners Dorchester Coal Co.
1.4 Colo. Address 2795 Skyline Court, Grand Junction, CO 81501
1.5 Contact Person Leland Acre, Manager 1.6 Phone 245-6370
1.7 Corporate Address Dorchester Gas Corp., P.O. Box 31049, Dallas, TX 75231 1.8 Phone 214-750-3667
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Mesa 3.2 Legal S 29-30 Twp 8S Rge 101W

4. Land Ownership

4.1 Private minerals 4.11 Acres ____ 4.2 Federal ____ 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres permitted 150

5. Geological Base

5.1 Formation Mt. Garfield & Anchor Tongue 5.2 Age Cretaceous
5.3 Bed or Zone Cameo and Anchor 5.4 Thickness 10-25', 4-6'
5.5 Quality: Gals/ton, BTU, Pounds/ton ____
5.6 Reserves Recoverable: tons, bbls, cu ft ____

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground X 6.32 Strip ____
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other ____
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1980-10737 T

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# B27

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 3

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-015-81

350' overburden on Anchor

Domestic local use

17. Latest Entry on this Form (date and initials) 7-28-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B28

1. Identifying Information

1.2 Project Name Dorchester No. 1
1.3 Project Owners Dorchester Coal Co.
1.4 Colo. Address 2795 Skyline Ct., Grand Junction, CO 81501
1.5 Contact Person Leland Acre, Manager 1.6 Phone 245-6370
1.7 Corporate Address Dorchester Coal Co., P.O. Box 31049,
Dallas, TX 75231 1.8 Phone 214-750-3667
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Fremont 3.2 Legal S * Twp ~~20S~~ Rge ~~69W~~

4. Land Ownership

4.1 Private minerals 4.11 Acres ____ 4.2 Federal ____ 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres permitted 979

5. Geological Base

5.1 Formation Vermejo 5.2 Age Cretaceous
5.3 Bed or Zone ** 5.4 Thickness **
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft ____

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground X 6.32 Strip ____
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other 1985-500,000 TY
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1980-73,317 T

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# B28

10. End Products This Operation

10.1 Solids ________ 10.11 Tons/day ________
10.2 Liquids ________ 10.21 Barrels/day ________
10.3 Gases ________ 10.31 cu ft/day ________

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas ________ 11.2 Oil ________ 11.3 Elect ________ 11.4 Coal ________
11.5 Other ________

12. Transportation (Type)

12.1 Raw Resource Input ________
12.2 Final Resource Output rail loadout and truck

13. Water

13.1 Consumptive Use: A/ft/yr. ________
13.2 Surface ________ 13.3 Underground ________
13.4 Storage facilities ________
13.5 Other ________

14. Work force

14.1 Construction Phase ________ 14.11 Peak ________
14.12 Expected Peak Date ________ 14.2 Operational 140 by 11/81

15. Timetable (Dates)

15.1 Construction Begins ________ 15.2 Operational ________

16. Miscellaneous MLRB #C-014-81

*Parts of Sec. ~~19, 30, 25 and 26~~ 25 26, [illegible]; 19, 25, 30, [illegible]

**Bed - Manley, 3-5', S-.7%

Vento, 1-5', S-.4%

Pine Gulch, 3-11', S-.5

Dirty Jack O'Lantern, 1-6', S-.6

Red Arrow, 3-7'

Steam Coal

Reserves 8,016,517 recoverable

43% OFS-Lone Star, Indiana, Texas Industries

57% IS - S.C. Power, Kaisser, & Martin Marietta Cement

10-20-81 New Federal leases (14,200 AC, 200 MT, Cameo-Anchor Seams) plans for 4 MTY mine.

17. Latest Entry on this Form (date and initials) 10-20-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B29

1. Identifying Information

1.2 Project Name Orchard Valley
1.3 Project Owners Colorado Westmoreland Inc.
1.4 Colo. Address P.O. Box E, Paonia, CO 81428
1.5 Contact Person Ronald Stucki 1.6 Phone 527-4135
1.7 Corporate Address Westmoreland Coal Co., 9034 E. Easter Pl., Englewood, CO 80112 1.8 Phone 779-0902
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Delta 3.2 Legal S * Twp 13S Rge 92W

4. Land Ownership

4.1 Private ____ 4.11 Acres ____ 4.2 Federal ____ 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres ____

5. Geological Base

5.1 Formation Mesaverde 5.2 Age Cretaceous
5.3 Bed or Zone D 5.4 Thickness 3.2' to 10.7'**
5.5 Quality: Gals/ton, BTU, Pounds/ton high methane
5.6 Reserves Recoverable: tons, bbls, cu ft ____

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground X 6.32 Strip ____
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other 1985-1,300,000 T
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1980-761,824 T

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# B29

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output rail loadout

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 234

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous C-038-81

*Part of Sec. 7, 12, 13, 18, 19, 24, 25, 29, 30, 31, 32

**Varies from 4' to 27'

17. Latest Entry on this Form (date and initials) 7-28-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # B30

1. Identifying Information

1.2 Project Name Munger Canyon
1.3 Project Owners Sheridan Enterprises Inc.
1.4 Colo. Address 9745 E. Hampden Ave., Suite 350, Denver, CO 80231
1.5 Contact Person William C. Bosworth 1.6 Phone 751-0093
1.7 Corporate Address Occidental Petroleum
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Garfield 3.2 Legal S * Twp 7S Rge 102W

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal minerals 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres permitted 775

5. Geological Base

5.1 Formation Mt. Garfield 5.2 Age Upper Cretaceous
5.3 Bed or Zone Cameo, Upper Carbonera 5.4 Thickness 5-26', 4'-7'
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other ***
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980 none

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output rail loadout at Loma, CO

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-020-81

*Portions of Sec. 15, 16, 21, and 22

**All seams as received

S-.38 to .94%, M-6.7 to 13.9%, Ash-8.7 to 20.6%, hvC, FSI-0.5 to 1.5,

HGI-45 to 50

30 year life - 61+ million tons

***1st year 149,000 T increasing to 847,000 T 5th year

17. Latest Entry on this Form (date and initials) 7-28-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # B31
see B2

1. Identifying Information

1.2 Project Name Hawks Nest East
1.3 Project Owners Western Slope Carbon Inc.
1.4 Colo. Address Somerset, CO 81424
1.5 Contact Person Tom Muney, Tony Durando 1.6 Phone 929-5815
1.7 Corporate Address Northwest Coal Corp., 315 E. 200 St., P.O. Box 1526, Salt Lake City, UT 84110 1.8 Phone 801-534-3695
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Gunnison 3.2 Legal S * Twp 13S Rge 90W

4. Land Ownership

	minerals			minerals	
4.1 Private	surf.	4.11 Acres ____	4.2 Federal	surf.	4.21 Acres ____
4.3 State ____		4.31 Acres ____	4.4 Total Acres ____		

5. Geological Base

5.1 Formation Mesaverde 5.2 Age Cretaceous
5.3 Bed or Zone Bowie-Paonia 5.4 Thickness **
5.5 Quality: Gals/ton, BTU, Pounds/ton ***
5.6 Reserves Recoverable: tons, bbls, cu ft E-9.0 M, Wild Seam-10.3 M; D-11.1 M

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground X 6.32 Strip ____
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity	8.1 Tons/day ____	8.2 Barrels/day ____	8.3 Other ____
Actual	8.4 Tons/day ____	8.5 Barrels/day ____	8.6 Other 1980-436,409 T

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# B31

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output rail

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 200

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-016-81

*Sec, 1, 2, 3, 11, 12 (all or part) plus others

Continuous and longwall miner

**Bowie Member	Paonia Member
A Seam 3" to 3'+	D Seam 6-14'
Lower B - 6-7' OB 6-10'	Wild Seam 5.5-10'
Upper B - 13-14'	E Seam 4'7"-12'+
C - 6-7'	(E being mined)

***Coal Quality E Seam 12400 BTU, .63% S, 6-7 M, 8-12 Ash As Rec.

Wild Seam 9707 Btu, 1.58% S, 3.35% M, 28.38% Ash

D Seam 12227 Btu, .84% S, 3.28% M, 12.96% Ash

Sales - OFS 100% Illinois and Japan

17. Latest Entry on this Form (date and initials) 7-28-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B32

1. Identifying Information

1.2 Project Name Maxwell
1.3 Project Owners mine address - Weston, CO 81091
1.4 Colo. Address
1.5 Contact Person T. J. Augustine 1.6 Phone 868-2761
1.7 Corporate Address CF&I Steel Corp. (Crane Corp) P.O. Box 316
Pueblo, CO 81002 1.8 Phone 561-7394 or 6622
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Las Animas 3.2 Legal S 29 Twp 33S Rge 67W

4. Land Ownership

surface
4.1 Private minerals 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres permitted 141.5

5. Geological Base

5.1 Formation Raton 5.2 Age Upper Cretaceous-Tertiary
5.3 Bed or Zone Maxwell 5.4 Thickness 9'-10'
5.5 Quality: Gals/ton, BTU, Pounds/ton *
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 1985-500,000 TY
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-200,959 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B32

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output rail - unit train

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 163

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #0-013-81

*Average of 19 Samples

BTU 12963, S-.4%, M-1.6%, Ash-13.0%, Vol. Mat.-31.2%, Fixed Carb-54.2%

Continuous Miners-Room & Pillar

Captive Operation

17. Latest Entry on this Form (date and initials) 7-28-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B33

1. Identifying Information

1.2 Project Name Peacock
1.3 Project Owners Sun Belt Mining Inc.
1.4 Colo. Address 3701 County Rd., Hesperus, CO 81320
1.5 Contact Person S. D. Stevens 1.6 Phone 385-4377
1.7 Corporate Address 7100 Grapevine Hwy, Suite 208, Fort Worth, TX 76118 1.8 Phone
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) La Plata 3.2 Legal S 29 Twp 35N Rge 11W

4. Land Ownership

surface
4.1 Private minerals 4.11 Acres ____ 4.2 Federal ____ 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres permitted 111

5. Geological Base

5.1 Formation Menefee 5.2 Age Cretaceous
5.3 Bed or Zone Peerless 5.4 Thickness ____
5.5 Quality: Gals/ton, BTU, Pounds/ton ____
5.6 Reserves Recoverable: tons, bbls, cu ft ____

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground X 6.32 Strip ____
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other ____
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1980-656 T

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# B33

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 13

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-040-81

17. Latest Entry on this Form (date and initials) 7-28-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B34

1. Identifying Information

1.2 Project Name McClane Canyon
1.3 Project Owners Sheridan Enterprises, Inc.
1.4 Colo. Address P.O. Box 1555, Grand Junction, CO 81501
1.5 Contact Person William Bosworth 1.6 Phone 245-7931
1.7 Corporate Address Sheridan Enterprises (Occidental Pet) 9745 E. Hampden, Suite 350, Denver, CO 80231 1.8 Phone 751-0093
1.9 New Project X 1.91 Existing Project ____ 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Garfield 3.2 Legal S * Twp 7S Rge 102W

4. Land Ownership

4.1 Private ____ 4.11 Acres ____ 4.2 Federal surface minerals 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres permitted 248

5. Geological Base

5.1 Formation Mt. Garfield 5.2 Age Upper Cretaceous
5.3 Bed or Zone Cameo 5.4 Thickness 17'-22'
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground X 6.32 Strip ____
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other ____
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1980-13,202 T

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# B34

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck to DRGRR spur

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-004-80

*Portions of Sec. 15, 16, 21, 22

**BTU 9,755-11,666 (10700 mean), S-0.5%, M-8.6%, Ash-15%,

Fixed Carbon 43.7%, hvC Bituminous

Mine under development?

17. Latest Entry on this Form (date and initials) 7-28-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # B35

1. Identifying Information

1.2 Project Name Shalako Mine
1.3 Project Owners Sackett Mining Co. Inc.
1.4 Colo. Address 1536 Cole Blvd., Golden, CO 80401
1.5 Contact Person Rick Chilton 1.6 Phone 233-5284
1.7 Corporate Address A. T. Massey Coal Co., P.O. Box 26765, Richmond, VA 23261 1.8 Phone 233-5284
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) La Plata 3.2 Legal S 27-28-29 Twp 35N Rge 11W

4. Land Ownership

	surface		mineral	
4.1 Private		4.11 Acres		4.2 Federal		4.21 Acres	
4.3 State		4.31 Acres		4.4 Total Acres	permitted 280		

5. Geological Base

5.1 Formation Menefee 5.2 Age Cretaceous
5.3 Bed or Zone A 5.4 Thickness 6'
5.5 Quality: Gals/ton, BTU, Pounds/ton ____
5.6 Reserves Recoverable: tons, bbls, cu ft 1,015,000 by 1989

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground X 6.32 Strip ____
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

					1982-1989
Capacity	8.1 Tons/day		8.2 Barrels/day		8.3 Other	125,000 TPY
Actual	8.4 Tons/day		8.5 Barrels/day		8.6 Other	1980 - none

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# B35

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-050-81

mine in preparation

1981 production estimated at 15000 T.

17. Latest Entry on this Form (date and initials) 7-30-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # B36
see B37

1. Identifying Information

1.2 Project Name Eagle No. 5
1.3 Project Owners Empire Energy Corp.
1.4 Colo. Address P.O. Box 68, Craig, CO 81625
1.5 Contact Person Rick Mills, 740-5110 1.6 Phone 824-9464
1.7 Corporate Address Amoco Minerals Corp., 7000 S. Yosemite, Englewood, CO 80112 1.8 Phone
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Moffat 3.2 Legal S * Twp 5-6N Rge 91-92W

4. Land Ownership

	surface / minerals			surface / minerals	
4.1 Private		4.11 Acres	4.2 Federal		4.21 Acres
4.3 State		4.31 Acres	4.4 Total Acres	permitted 1873	

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Cretaceous
5.3 Bed or Zone C, E, F, P 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton ** As Received
5.6 Reserves Recoverable: tons, bbls, cu ft 400 MT in place/200 MT Rec.

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity	8.1 Tons/day	8.2 Barrels/day	8.3 Other
Actual	8.4 Tons/day	8.5 Barrels/day	8.6 Other 1980-473,773 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B36

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output rail

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 197

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-044-81

*Part of Sec. 5-6, T5N, R91W and Sec. 25, 31, 32, 36, T6N, R92W; Sec. 31, 32, T6N, R91W, and Sec. 5 and 6, T5N, R91W.

17. Latest Entry on this Form (date and initials) 7-30-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # B37
see B36

1. Identifying Information

1.2 Project Name Eagle #9
1.3 Project Owners Empire Energy Corp.
1.4 Colo. Address P.O. Box 68, Craig, CO 81625
1.5 Contact Person Rick Mills, 740-5110 1.6 Phone 824-9464
1.7 Corporate Address Empire Energy Corp., (Houston Natural Gas) 2700 River Rd., Des Plaines, IL 60018 1.8 Phone
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Moffat 3.2 Legal S * Twp 5-6N Rge 91-92W

4. Land Ownership

	surf. miner.			surf. miner.	
4.1 Private		4.11 Acres	4.2 Federal		4.21 Acres
4.3 State		4.31 Acres	4.4 Total Acres	permitted 1007	

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Cretaceous
5.3 Bed or Zone C E F P 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton ** as received
5.6 Reserves Recoverable: tons, bbls, cu ft 400 MT in place/250 MT rec.

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity	8.1 Tons/day	8.2 Barrels/day	8.3 Other
Actual	8.4 Tons/day	8.5 Barrels/day	8.6 Other 1980-180,259 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B37

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output rail

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 55

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-044-81

*Part of Sec. 5-6, T5N, R91W and Sec. 25, 31, 32, 36, T6N, R92W; Sec. 31, 32, T6N, R91W, and Sec. 5 and 6, T5N, R91W.

17. Latest Entry on this Form (date and initials) 7-30-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B38

1. Identifying Information

1.2 Project Name Northern #1
1.3 Project Owners Northern Coal Co.
1.4 Colo. Address P.O. Box 17583 T.A., Denver, CO 80217
1.5 Contact Person 1.6 Phone 753-8669
1.7 Corporate Address Suite 200, 740 So. Colorado Blvd., Denver, CO
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Rio Blanco 3.2 Legal S 21 Twp 2N Rge 93W

4. Land Ownership

4.1 Private miner. 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres permitted 7860 (4 mines)

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Upper Cretaceous
5.3 Bed or Zone FF 5.4 Thickness 6.4-9.8' (9')
5.5 Quality: Gals/ton, BTU, Pounds/ton *
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 1980-86,392,000 TY
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-71,959 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B38

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output trucked to Wilson loadout

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 7

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-032-81

*As Received from 38 samples-principle coal beds

BTU, 10,400-11,300, S-.18-.52, M-11.6-18.0, Ash-3.6-7.4, Vol Mat-331.6-35.4,

Fixed Carbon-45.8-49.6

Projected total tonnage 1981-86 = 6.6 MT

Closed as of 8-18-81

17. Latest Entry on this Form (date and initials) 8-18-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B39

1. Identifying Information

1.2 Project Name Northern #2
1.3 Project Owners Northern Coal Company
1.4 Colo. Address P.O. Box 17583 T.A., Denver, CO 80217
1.5 Contact Person _____ 1.6 Phone 753-3669
1.7 Corporate Address Suite 200, 740 S. Colorado Blvd., Denver, CO
_____ 1.8 Phone _____
1.9 New Project X 1.91 Existing Project _____ 1.92 Expansion _____

2. Resource Base

2.1 Oil _____ 2.2 Natural Gas _____ 2.3 Oil Shale _____ 2.4 Uranium _____
2.5 Coal X 2.6 Geothermal _____ 2.7 Other _____

3. Project Location

3.1 County(ies) Rio Blanco 3.2 Legal S 21 Twp 2N Rge 93W

4. Land Ownership

4.1 Private ? 4.11 Acres _____ 4.2 Federal _____ 4.21 Acres _____
4.3 State _____ 4.31 Acres _____ 4.4 Total Acres permitted 7860 (4 mines)

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Upper Cretaceous
5.3 Bed or Zone P 5.4 Thickness 5.2'-13.7' (9')
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft _____

6. Resource Extraction Type

6.1 Oil Shale Mine ___ 6.11 Underground ___ 6.12 Strip ___ 6.13 In situ ___
6.2 Uranium Mine ___ 6.21 Underground ___ 6.22 Strip ___ 6.23 In situ ___
6.3 Coal Mine X 6.31 Underground X 6.32 Strip ___
6.33 Methane Extraction ___ 6.34 UCG ___ 6.35 Other Coal _____
6.4 Oil Well ___ 6.5 Gas Well ___ 6.6 Other _____

7. Conversion Activity Type

7.1 Oil Refining ___ 7.2 Gas Processing ___ 7.3 Oil Shale Retorting ___
7.4 Shale Oil Refining ___ 7.5 Uranium Refining ___ 7.6 Coal Gasification ___
7.7 Coal Liquefication ___ 7.8 Electric Power ___ 7.81 Coal to Elect. ___
7.82 Oil to Elect. ___ 7.83 Gas to Elect. ___ 7.84 Other to Elect. ___
7.9 Other _____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ___ 8.2 Barrels/day ___ 8.3 Other _____
Actual 8.4 Tons/day ___ 8.5 Barrels/day ___ 8.6 Other _____

9. Product Upgrading

9.1 Process _____
9.2 Additional Raw Material Required _____ 9.21 Vol _____
9.3 New Products _____ 9.31 Vol _____

1.1 I.D.# B39

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck to Wilson loadout

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-032-81

**Range of 38 samples from the principle coal beds (as received)

BTU - 10,400-11,300, S-.18-.52, M-11.6-18.0, A-3.6-7.4, Vol Mat-31.6-35.4,

Fixed Carb-45.8-49.6

No production as of 8-18-81 in permit stage

Start up 82 or 83

Reserve - Est. Life - 16,170,671 tons (20 years)

83.4 MT recoverable

17. Latest Entry on this Form (date and initials) 8-18-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B40

1. Identifying Information

1.2 Project Name Northern #3
1.3 Project Owners Northern Coal Company
1.4 Colo. Address P.O. Box 17583 T.A., Denver, CO 80217
1.5 Contact Person _____ 1.6 Phone 753-8669
1.7 Corporate Address Suite 200, 740 S. Colorado Blvd., Denver, CO
_____ 1.8 Phone _____
1.9 New Project X 1.91 Existing Project _____ 1.92 Expansion _____

2. Resource Base

2.1 Oil _____ 2.2 Natural Gas _____ 2.3 Oil Shale _____ 2.4 Uranium _____
2.5 Coal X 2.6 Geothermal _____ 2.7 Other _____

3. Project Location

3.1 County(ies) Rio Blanco 3.2 Legal S 21 Twp 2N Rge 93W

4. Land Ownership

4.1 Private ? 4.11 Acres _____ 4.2 Federal _____ 4.21 Acres _____
4.3 State _____ 4.31 Acres _____ 4.4 Total Acres _____

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Upper Cretaceous
5.3 Bed or Zone J 5.4 Thickness 10.5'-20.2'(14')
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft _____

6. Resource Extraction Type

6.1 Oil Shale Mine ___ 6.11 Underground ___ 6.12 Strip ___ 6.13 In situ ___
6.2 Uranium Mine ___ 6.21 Underground ___ 6.22 Strip ___ 6.23 In situ ___
6.3 Coal Mine X 6.31 Underground X 6.32 Strip ___
6.33 Methane Extraction ___ 6.34 UCG ___ 6.35 Other Coal _____
6.4 Oil Well ___ 6.5 Gas Well ___ 6.6 Other _____

7. Conversion Activity Type

7.1 Oil Refining ___ 7.2 Gas Processing ___ 7.3 Oil Shale Retorting ___
7.4 Shale Oil Refining ___ 7.5 Uranium Refining ___ 7.6 Coal Gasification ___
7.7 Coal Liquefication ___ 7.8 Electric Power ___ 7.81 Coal to Elect. ___
7.82 Oil to Elect. ___ 7.83 Gas to Elect. ___ 7.84 Other to Elect. ___
7.9 Other _____

8. Resource Extraction or Conversion

Actual 8.4 Tons/day _____ 8.5 Barrels/day _____ 8.6 Other _____

9. Product Upgrading

9.1 Process _____
9.2 Additional Raw Material Required _____ 9.21 Vol _____
9.3 New Products _____ 9.31 Vol _____

1.1 I.D.# B40

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck to Wilson rail loadout

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-032-81

**Range of 38 samples from the principle coal beds (as received)

BTU - 10,400-11,300, S-.18-.52%, M-11.6-18.0%, Ash-3.6-7.4%,

Vol Mat - 31.6-35.4%, Fixed Carb - 45.8-49.6%

In permit stage - startup 82 or 83

Reserves/est life - 34.4 MT (26 years) (Recoverable) 113.1 MT in place

17. Latest Entry on this Form (date and initials) 8-18-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B41

1. Identifying Information

1.2 Project Name Rienau #2
1.3 Project Owners Northern Coal Company
1.4 Colo. Address P.O. Box 2140, Meeker, CO
1.5 Contact Person Tim Nunn/Rick Skvarch 1.6 Phone
1.7 Corporate Address 740 So. Colorado Blvd., Suite 200, Denver, CO
1.8 Phone 753-8603
1.9 New Project 1.91 Existing Project X 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Rio Blanco 3.2 Legal S 29 Twp 2N Rge 93W

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal miner. 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Mesaverde 5.2 Age Cretaceous
5.3 Bed or Zone G 5.4 Thickness 6-22' (13.1')
5.5 Quality: Gals/ton, BTU, Pounds/ton *
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction r Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 2 MT ?
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1980-144,991 T

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B41

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output truck to rail loadout

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 54

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-032-81

*BTU-10,910, S-.4%, M-13.4%, Ash-6.4%, HVC bituminous, F.S.I.-1.0

Reserve/Est Life - 76.8 MT in place/25.9 MT recoverable

Applied 8-18-81 for 100,000 TPY production.

1981 shipped 47,000 tons to Korea Cement Plant via DRGRR and Longbeach.

17. Latest Entry on this Form (date and initials) 10/20/81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B42

1. Identifying Information

1.2 Project Name Somerset
1.3 Project Owners U.S. Steel
1.4 Colo. Address P.O. Box 1, Somerset, CO 81434
1.5 Contact Person Lloyd Miller 1.6 Phone 929-5115
1.7 Corporate Address U.S. Steel Corp. Mining Company
P.O. Box 807, East Carbon, UT 84520 1.8 Phone 801-888-4431
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Delta-Gunnison 3.2 Legal S * Twp * Rge *

4. Land Ownership

4.1 Private X 4.11 Acres ____ 4.2 Federal X 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres permitted 160

5. Geological Base

5.1 Formation Bowie Member 5.2 Age Cretaceous
5.3 Bed or Zone B-2 5.4 Thickness 14-21'
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground X 6.32 Strip ____
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other ____
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1980-854,697 T

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# B42

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output rail

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 278

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-022-81

*Portions of Sec. 34, 35, 36, T12S, R91W and Sec. 1, 2, 3, 12, T13S, R91W, and Sec. 6, 7, 8, T13S, R90W

**BTU-12,070-12,970, S-.53%, M-3.8-8.2%, A-8.6%, Bituminous hvC, use Coke - Gassy Mine - flared

Production 100% to Orem, Utah, U.S. Steel

Est. Reserves 20 million tons

17. Latest Entry on this Form (date and initials) 9-1-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B43

1. Identifying Information

1.2 Project Name Trout Creek No. 2
1.3 Project Owners Sun Coal Co.
1.4 Colo. Address P.O. Box 26, Milner, CO 80477
1.5 Contact Person 1.6 Phone 276-3746
1.7 Corporate Address Sun Coal Co., Inc., 1536 Cole Blvd., Golden, CO 80401 Rick Chilton 1.8 Phone 233-5284
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Routt 3.2 Legal S * Twp 6N Rge 87W

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres permitted 7.5

5. Geological Base

5.1 Formation Iles Fm. 5.2 Age Cretaceous
5.3 Bed or Zone Blacksmith 5.4 Thickness 6.4'
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground X 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 150,000 T
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other under constr.

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B43

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-049-81

*Portions of Sec. 11, 14, 23

Proposed startup mid 82

**Coal Quality

As Rec. BTU-11,538, S-.91, M-9.73, A-6.19

Dry BTU-12,782, S-1.01, M- , A-6.85

H.G.I. 45.2 @ 9.44% moisture, bituminous C

450,000 tons recoverable

17. Latest Entry on this Form (date and initials) 9-1-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B44

1. Identifying Information

1.2 Project Name Colorado-Yampa No. 3
1.3 Project Owners Colorado Yampa Coal Co.
1.4 Colo. Address P.O. Box 772129, Steamboat Springs, CO 80477
1.5 Contact Person Gary Meyers, Jim Cooper 1.6 Phone 879-3800
1.7 Corporate Address Getty Oil Company (Getty Coal Co.)
1.8 Phone 213-739-2733
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Routt 3.2 Legal S * Twp 5N Rge 85-86W

4. Land Ownership

4.1 Private X 4.11 Acres ____ 4.2 Federal ____ 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres permitted 1860

5. Geological Base

5.1 Formation Mesaverde Group 5.2 Age Upper Cretaceous
5.3 Bed or Zone Wadge 5.4 Thickness 7-10'
5.5 Quality: Gals/ton, BTU, Pounds/ton subbituminous-confidential
5.6 Reserves Recoverable: tons, bbls, cu ft ____

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground X 6.32 Strip X
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other ____
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1980-270,312 T

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# B44

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output rail from Milner

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous MLRB #C-036-81

*Portions of Sec. 1, 2, 12, 13, 24, T5N, R86W

Portions of Sec. 18, 19, T5N, R85W

Overburden-0-100', Surface-100-800' underground

Current Status - idle surface

Cumulative Production from 1975-2,441,988 T

Sales - Illinois Power Co. (33%), PSC of Colorado (67%)

Bed - Wadge, BTU-11,000, S-.5%, M-10.0%, Ash-6.5%, Sub. Bit.

Formerly Energy Fuels No. 3 - acquired June, 1981, for about $70 million.

17. Latest Entry on this Form (date and initials) 9-1-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B45

1. Identifying Information

1.2 Project Name Colorado-Yampa No. 1
1.3 Project Owners Colorado Yampa Coal Co.
1.4 Colo. Address P.O. Box 772129, Steamboat Springs, CO 80477
1.5 Contact Person Gary Meyers, Jim Cooper 1.6 Phone 879-3800
1.7 Corporate Address Getty Oil Company (Getty Coal Co.)
1.8 Phone 213-739-2733
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Routt 3.2 Legal S * Twp * Rge *

4. Land Ownership

4.1 Private X 4.11 Acres ____ 4.2 Federal X 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres ____

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Cretaceous
5.3 Bed or Zone Wadge 5.4 Thickness 7-11'
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft ____

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground ____ 6.32 Strip X
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other ____
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1980-3.337 MT

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____

1.1 I.D.# B45

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output Milner rail spur

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 267

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous Federal Land Permit until 12-15-81

*Sec. 7, 8, 9, 10, 16, 17, 18, 19, 24, 30, T4N, R86W
Sec. 12, 13, 14, 23, 24, 25, 26, T4N, R87W, Sec. 19, 20, 21, 28, 29, 30, 31, 32, 33, 34, T5N, R86W, Sec. 24, 25, 36, T5N, R87W

**Wadge Seam - BTU-11,321, S-.41, M-10.64, Ash-6.64, Sub. Bit.

33% out of state, Illinois Power, 67% PSC of Colorado, Denver

Formerly Energy Fuels, acquired June '81 for $70 million.

17. Latest Entry on this Form (date and initials) 9-1-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B46

1. Identifying Information

1.2 Project Name Colorado-Yampa No. 2
1.3 Project Owners Colorado-Yampa Coal Co.
1.4 Colo. Address P.O. Box 772129, Steamboat Springs, CO 80477
1.5 Contact Person Gary Myers, Jim Cooper 1.6 Phone 879-3800
1.7 Corporate Address Getty Oil Company (Getty Coal Co.)
1.8 Phone 213-734-2733
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium ____
2.5 Coal X 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Routt 3.2 Legal S X Twp X Rge X

4. Land Ownership

4.1 Private X 4.11 Acres ____ 4.2 Federal X 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres ____

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Cretaceous
5.3 Bed or Zone Fish Creek Seam 5.4 Thickness 3-4'
5.5 Quality: Gals/ton, BTU, Pounds/ton **
5.6 Reserves Recoverable: tons, bbls, cu ft ____

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine X 6.31 Underground ____ 6.32 Strip X
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other ____
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other 1980-none

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# B46

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output rail

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous Federal Land Mining Permit until 12-15-81

*Sec. 7, 8, 9, 10, 16, 17, 18, 19, 24, 30 T4N, R86W, Sec. 12, 13, 14, 23, 24, 25, 26, T4N, R87W, Sec. 19, 20, 21, 28, 29, 30, 31, 32, 33, 34, T5N, R87W

Idle this date

**BTU-11,342, S-.53, M-13.86, Ash-9.92, Sub. Bit.

Sales 33% Illinois Power Company

67% Public Service Company of Colorado

Formerly Energy Fuels - acquired June '81 for $70 million.

17. Latest Entry on this Form (date and initials) 9-2-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # B47

1. Identifying Information

1.2 Project Name Red Canyon #2
1.3 Project Owners Grand Mesa Coal Co.
1.4 Colo. Address P.O. Box 226, 1st and Columbia, Delta, CO 81416
1.5 Contact Person Larry Reschke 1.6 Phone 856-6402
1.7 Corporate Address Tilemont Coal Corp./Eagle Mining Co.
410 17th St. #2300, Denver, CO 80202 1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Delta 3.2 Legal S2-11-12Twp 13S Rge 95W

4. Land Ownership

	Surf.				
4.1 Private	Min	4.11 Acres	4.2 Federal	Min	4.21 Acres
4.3 State		4.31 Acres	4.4 Total Acres		450 +

5. Geological Base

5.1 Formation Williams Fork 5.2 Age Cretaceous
5.3 Bed or Zone D Bed 5.4 Thickness 8-11'
5.5 Quality: Gals/ton, BTU, Pounds/ton *
5.6 Reserves Recoverable: tons, bbls, cu ft 10 year life

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground X 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 1985-650000T
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other None

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# B47

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output Truck to Delta Rail loadout

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous _____

*Quality - D Seam	#1	#2	#3	#4
BTU	10328	10565	11040	11051
S	.51	.67	.65	.65
M	8.40	7.54	9.76	11.42
Ash	16.41	15.54	9.82	8.35

DIP 5 1/2° S-85°E Overburden up to 830'

Start up 1981

17. Latest Entry on this Form (date and initials) 10-20-81 LRL

C

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # C1

1. Identifying Information

1.2 Project Name Coal-to-Methanol Project
1.3 Project Owners W. R. Grace & Co.
1.4 Colo. Address 3333 Quebec St., Ste. 8800, Denver, CO 80207
1.5 Contact Person Cass Legal, C. Margolf 1.6 Phone 303-399-0774
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Moffat 3.2 Legal S * Twp Rge

4. Land Ownership

4.1 Private X 4.11 Acres 100-200 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation 5.2 Age
5.3 Bed or Zone 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine X 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication X 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day/500 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day/500 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process Coal to Methanol
9.2 Additional Raw Material Required none 9.21 Vol
9.3 New Products Methanol 9.31 Vol 500 TPD

1.1 I.D.# C1

10. End Products This Operation

10.1 Solids Sulfur 10.11 Tons/day 4
10.2 Liquids Methanol 151,000 Gals/Day 10.21 Barrels/day
10.3 Gases 10.31 cu ft/day

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas 11.2 Oil 11.3 Elect 11.4 Coal
11.5 Other

12. Transportation (Type)

12.1 Raw Resource Input Truck
12.2 Final Resource Output Railroad, Truck

13. Water

13.1 Consumptive Use: A/ft/yr. Int. 1700 Full Scale 11,500
13.2 Surface X 13.3 Underground
13.4 Storage facilities
13.5 Other

14. Work force
14.1 Construction Phase 150 Int. phase only 14.11 Peak 400
14.12 Expected Peak Date 1983 14.2 Operational mid 85

15. Timetable (Dates)

15.1 Construction Begins 1983 15.2 Operational 80

16. Misc. Data or Short Description 1st module will be 1500 tons coal/day from Colowyo coal mine. Additional modules up to 13500 tons/day from new mine yet to be started. Final size will yield 5000 TPD (methanol) (1,510,000 gals.). Energy Transition Corp. (Jeny Zollars, 505-988-5589) development partners.

*Site not selected

Full scale operation to require 200 acres.

Coal to Intermediate BTU Gas - Koppers Process

Gas to Methanol

17. Form Completed or Updated (date) 6-12-81 LRL

18. Status of Regulatory Actions

Required Permits	Date Application Submitted	Agency Decision and Date	Permit Number
P.S.D. (US EPA)			
Conditional Use Permit (Moffat Co.)			
Air Emissions Permit (CDH)			
Cert. of Designation (Moffat Co/CDH)			
Hazardous Waste Permit (EPA)			

19. Latest Entry on this Form (date and initials) 6/23/81 JW/AP

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # C2

1. Identifying Information

1.2 Project Name Coal Fuel Conversion Co.
1.3 Project Owners Coal Fuel Conversion Co. & Timberline Fuels
1.4 Colo. Address CFC: 6954 Webster St.,Arvada, CO 80003; TF: 3170 Zuni, Englewood, CO 80110
1.5 Contact Person CFC: John Kennedy;TF: Carl Ott 1.6 Phone CFC:422-4000 TF: 756-5622
1.7 Corporate Address _____ 1.8 Phone _____
1.9 New Project X 1.91 Existing Project _____ 1.92 Expansion _____

2. Resource Base

2.1 Oil _____ 2.2 Natural Gas _____ 2.3 Oil Shale _____ 2.4 Uranium _____
2.5 Coal X 2.6 Geothermal _____ 2.7 Other _____

3. Project Location

3.1 County(ies) Las Animas 3.2 Legal S * Twp _____ Rge _____

4. Land Ownership

4.1 Private _____ 4.11 Acres _____ 4.2 Federal _____ 4.21 Acres _____
4.3 State _____ 4.31 Acres _____ 4.4 Total Acres _____

5. Geological Base

5.1 Formation _____ 5.2 Age _____
5.3 Bed or Zone _____ 5.4 Thickness _____
5.5 Quality: Gals/ton, BTU, Pounds/ton _____
5.6 Reserves Recoverable: tons, bbls, cu ft _____

6. Resource Extraction Type

6.1 Oil Shale Mine ___ 6.11 Underground ___ 6.12 Strip ___ 6.13 In situ ___
6.2 Uranium Mine ___ 6.21 Underground ___ 6.22 Strip ___ 6.23 In situ ___
6.3 Coal Mine ___ 6.31 Underground X 6.32 Strip ___
6.33 Methane Extraction ___ 6.34 UCG ___ 6.35 Other Coal _____
6.4 Oil Well ___ 6.5 Gas Well ___ 6.6 Other _____

7. Conversion Activity Type

7.1 Oil Refining ___ 7.2 Gas Processing ___ 7.3 Oil Shale Retorting ___
7.4 Shale Oil Refining ___ 7.5 Uranium Refining ___ 7.6 Coal Gasification ___
7.7 Coal Liquefication X 7.8 Electric Power ___ 7.81 Coal to Elect. ___
7.82 Oil to Elect. ___ 7.83 Gas to Elect. ___ 7.84 Other to Elect. ___
7.9 Other _____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day _____ 8.2 Barrels/day _____ 8.3 Other _____
Actual 8.4 Tons/day 302 8.5 Barrels/day _____ 8.6 Other _____

9. Product Upgrading

9.1 Process Ott hydrogeneration
9.2 Additional Raw Material Required _____ 9.21 Vol _____
9.3 New Products _____ 9.31 Vol _____

1.1 I.D.# C2

10. End Products This Operation

10.1 Solids ____ 10.11 Tons/day ____
10.2 Liquids Bunker Fuel #6 10.21 Barrels/day 1,000
10.3 Gases ____ 10.31 cu ft/day ____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas ____ 11.2 Oil ____ 11.3 Elect ____ 11.4 Coal ____
11.5 Other ____

12. Transportation (Type)

12.1 Raw Resource Input ____
12.2 Final Resource Output ____

13. Water

13.1 Consumptive Use: A/ft/yr. 5200 af/yr
13.2 Surface ____ 13.3 Underground ____
13.4 Storage facilities ____
13.5 Other ____

14. Work force

14.1 Construction Phase ____ 14.11 Peak 32
14.12 Expected Peak Date ____ 14.2 Operational 30

15. Timetable (Dates)

15.1 Construction Begins 6/81 15.2 Operational 12/82

16. Misc. Data or Short Description Project to be operational 15 months after start of construction. Applied to Synfuels Corp. for purchase agreement. 10,000 BPD by Feb. 1986.

Location: Chicosa Canyon Ranch, 10 mi. north of Trinidad

17. Form Completed or Updated (date) 8/31/81 DJ

D

G

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # G1

1. Identifying Information

1.2 Project Name Rio Blanco Oil Shale Project
1.3 Project Owners Gulf Oil and Standard of Indiana
1.4 Colo. Address 9725 E. Hampden Ave., Denver, CO
1.5 Contact Person 1.6 Phone 751-2030
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale X 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Rio Blanco 3.2 Legal S Twp Rge

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal X 4.21 Acres 5100
4.3 State 4.31 Acres 4.4 Total Acres 5100

5. Geological Base

5.1 Formation Green River 5.2 Age Tertiary
5.3 Bed or Zone Parachute Creek 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine X 6.11 Underground 6.12 Strip X 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting X
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process Lurgi Surface retort
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# G1

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids shale oil 10.21 Barrels/day 2000
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. 350
13.2 Surface None 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase 350 as of 1982 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 150 as of late '82

15. Timetable (Dates)

15.1 Construction Begins 1981-1982 15.2 Operational 1983-1984

16. Misc. Data or Short Description On Federal Tract Ca

Designed as a demonstration open-pit-surface Lurgi Retort to produce 2000 BOPD from 4,400 T/day/shale. Projected for commercial scale of 76,000 BOPD. Original cost est. $160M, when est. rose to $330M in April 1981, RBPSC put project on hold. Building a 1-5 T/day Lurgi pilot plant at Gulf Research Center, Harmarville, Penn. Shale from MIS retort #2 (See I1). 9-4-81 work force reduced from 175-45 when work on Lurgi halted.

17. Form Completed or Updated (date) 10/20/81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # G1

18. Status of Regulatory Actions

Required Permits	Date Application Submitted	Agency Decision and Date	Permit Number
Detailed Develop. Plan Modification	2/2/81	Approved 5/1/81	
Special Use Permit (Rio Blanco Co.)	11/4/80		
Regular Mining Permit	1/81		
Air Emissions Permit	1/9/81		
Prevention of Significant Deterioriation	1/12/81		
Natl. Pollutant Discharge Elimination System Permit (NPDES)	3/9/81		

19. Latest Entry on this Form (date and initials) AP/JW 6/81

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # G2
see H2

1. Identifying Information

1.2 Project Name Clear Creek Shale Oil Project
1.3 Project Owners Chevron Shale Oil Company
1.4 Colo. Address
1.5 Contact Person 1.6 Phone
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale X 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) 3.2 Legal S Twp Rge

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Green River Fm 5.2 Age Eocene
5.3 Bed or Zone Mahogany 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine X 6.11 Underground 6.12 Strip X 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 100,000 BOPD
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# G2

10. End Products This Operation

10.1 Solids SPENT SHALE 10.11 Tons/day 275,000
10.2 Liquids 10.21 Barrels/day
10.3 Gases 10.31 cu ft/day

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas 11.2 Oil 11.3 Elect 11.4 Coal
11.5 Other

12. Transportation (Type)

12.1 Raw Resource Input
12.2 Final Resource Output PIPELINE

13. Water

13.1 Consumptive Use: A/ft/yr.
13.2 Surface 3000 AC REVISED 13.3 Underground
13.4 Storage facilities
13.5 Other SOURCE COLO RIVER, ROAN CK, CLEAR CREEK

14. Work force

14.1 Construction Phase 14.11 Peak
14.12 Expected Peak Date 14.2 Operational

15. Timetable (Dates)

15.1 Construction Begins 15.2 Operational

16. Miscellaneous Will start A- AN underground MINE AND EVENTUALLY go to AN OPEN PIT. Both RETORTING AND REFINING ON SITE. Hope to have ALL PERMITS by April 1983

17. Latest Entry on this Form (date and initials) 10-24-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # H1

1. Identifying Information

1.2 Project Name Superior Pacific
1.3 Project Owners Superior Oil 20%, Sohio 60%, Cleveland Cliffs 20%
1.4 Colo. Address 2750 So. Shoshone, Englewood CO 80110
1.5 Contact Person John H. Knight 1.6 Phone 761-5853
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale X 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Garfield 3.2 Legal S Twp 6S Rge 98W

4. Land Ownership

4.1 Private X 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Green River Formation 5.2 Age Eocene
5.3 Bed or Zone Mahogany Zone 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton 32
5.6 Reserves Recoverable: tons, bbls, cu ft 25 years at 30,000 TPD

6. Resource Extraction Type

6.1 Oil Shale Mine X 6.11 Underground X 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other Room and Pillar

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting X
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 24,000 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other 1700 TPD spent shale

9. Product Upgrading

9.1 Process Surface retorting-Superior's circular grate retort's on-site
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol
upgrading not yet determined

1.1 I.D.# H1

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids shale oil 10.21 Barrels/day 50,000
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output Not yet determined

13. Water

13.1 Consumptive Use: A/ft/yr. 2500 for Plant and Spend Shale
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase * 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational ** _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous The Superior project is currently "on hold" due to pending recomfirmation of the project from directors within Superior, Sohio, and Cleveland Cliffs. The Superior Oil Shale Project is a participant in the Colorado Joint Review Process. Plans to expand to 50,000 BOPD +

Conditioned surface water rights from Colorado River, Clear Creek, Conn Creek, Threemile Creek and Deer Park Gulch Pumping Pipeline exist.

*1st year 257, 2nd year 501, 3rd year 501, 4th year 257

**1st year 20, 2nd year 59, 3rd year 65, 4th year 216, years 5 through 30, 383

Cleveland Cliffs alone applied for SFC financial assistance

17. Latest Entry on this Form (data and initials) 10/26/81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # H1

18. Status of Regulatory Actions

Potential Permits	Date Application Submitted	Agency Decision and Date	Permit Number
Special Use Permit			
Regular Mining Permit			
Air Emission Permit			
NPDES			
401 Water Quality Certification			
404 Dredge & Fill Permit			
PSD Permit			
Rights-of-Way Special Use Permit			
Hazardous Waste Permit			

19. Latest Entry on this Form (date and initials) AP/JW 6/81

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # H2

1. Identifying Information

1.2 Project Name Clear Creek Shale Oil Project
1.3 Project Owners Chevron Shale Oil Company (St. of California)
1.4 Colo. Address *
1.5 Contact Person D. R. Loper 1.6 Phone 303-623-8282
1.7 Corporate Address 595 Market St., San Francisco, Calif. 94105
1.8 Phone 415-894-5983
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale X 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Garfield 3.2 Legal S Twp 5S Rge 98-99W

4. Land Ownership

4.1 Private X 4.11 Acres 43,000 total 4.2 Federal X ** 4.21 Acres unknown
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Green River 5.2 Age Eocene
5.3 Bed or Zone Mahogany 5.4 Thickness 80'-100'
5.5 Quality: Gals/ton, BTU, Pounds/ton 31 GPT/underground,19 GPT/surf.
5.6 Reserves Recoverable: tons, bbls, cu ft 14 billion/in place/5 billion recovered

6. Resource Extraction Type

6.1 Oil Shale Mine X 6.11 Underground X 6.12 Strip X 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other Open Pit and Underground/Surface Retorting

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting X
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day **** 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process ***
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

10. End Products This Operation

10.1 Solids ____ 10.11 Tons/day ____
10.2 Liquids X 10.21 Barrels/day 100,000
10.3 Gases ____ 10.31 cu ft/day ____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas ____ 11.2 Oil ____ 11.3 Elect ____ 11.4 Coal ____
11.5 Other ____

12. Transportation (Type)

12.1 Raw Resource Input ____
12.2 Final Resource Output Products initially shipped by truck or rail. As volume increases, a pipeline will be constructed.

13. Water

13.1 Consumptive Use: A/ft/yr. 28,000
13.2 Surface Not available 13.3 Underground Not available
13.4 Storage facilities A storage reservoir is planned in Roan Creek
13.5 Other ____

14. Work force

14.1 Construction Phase 5000 construction, 2500 secondary workers 14.11 Peak 1800 (1990)
14.12 Expected Peak Date 1990 14.2 Operational 3000

15. Timetable (Dates)

15.1 Construction Begins 1983 15.2 Operational 1986

16. Miscellaneous *Great West Plaza, Tower 2, 1625 Broadway, Suite 2150, Denver, CO 80202

**for off-site facilities

***Staged Turbulent Bed process will be used for retoring the shale; the shale will be partially upgraded prior to shipment.

June 19, 1981: Chevron Shale Oil Company formally requested the Colorado Dept. of Natural Resources to consider its proposed Clear Creek Shale Oil Project for participation in the Joint Review Process. The project includes a 100,000 BPD shale oil facility comprised of 10-12 surface retorts, an underground mine, a surface mine, a syncrude pipeline, transmission lines, and a water storage reservoir. The project was accepted into the JRP on June 25, 1981. (see next page)

17. Latest Entry on this Form (data and initials) 11/19/81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # H2

18. Status of Regulatory Actions

Potential Permits	Date Application Submitted	Agency Decision and Date	Permit Number
Special Use Permit			
Regular Mining Permit			
Air Emissions Permit			
NPDES Permit			
401 Water Quality Certification			
404 Dredge & Fill Permit			
PSD Permit			
Rights-of-Way Special Use Permit			
Hazardous Waste Permit			

****270,000 for 100,000 BPD of oil for 100 years.

Feasibility assessment: The Semi-Works Project: Building a 350 T/D retort at Chevron's Salt Lake Refinery, oil shale to be mined at Clear Creek, trucked to DeBeque, and railed to S.L. Mine construction to begin in Spring 1982, retort operation to start late 1981 and continue through 1984.

19. Latest Entry on this Form (date and initials) AP/JW 6/81

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # H3

1. Identifying Information

1.2 Project Name Multi Mineral
1.3 Project Owners Multi Mineral Corporation
1.4 Colo. Address 715 Horizon Dr., Ste 380, Grand Junction, CO 81501
1.5 Contact Person Hal Aronson 1.6 Phone 303-243-9406
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale X 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other Nahcolite w/oil shale

3. Project Location

3.1 County(ies) Rio Blanco 3.2 Legal S 23,24 25,26 Twp 1S Rge 98W

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal X 4.21 Acres 8300
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Green River Formation 5.2 Age Eocene
5.3 Bed or Zone Saline Zone 5.4 Thickness 100-500'
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft 16,000 tons/acre average

6. Resource Extraction Type

6.1 Oil Shale Mine X 6.11 Underground X 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other Nahcolite-underground

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 6,680 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# H3

10. End Products This Operation

10.1 Solids Nahcolite 10.11 Tons/year 1,000,000
10.2 Liquids shale oil 10.21 Barrels/day 50,000
10.3 Gases 10.31 cu ft/day

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas 11.2 Oil 11.3 Elect 11.4 Coal
11.5 Other 64 barrels/day diesel fuel

12. Transportation (Type)

12.1 Raw Resource Input
12.2 Final Resource Output Product transporation from the mine to the nearest railroad will probably be by truck.

13. Water

13.1 Consumptive Use: A/ft/yr. 50 gpm
13.2 Surface 13.3 Underground X
13.4 Storage facilities 2500 gal. storage tank for domestic potable water supply.
13.5 Other

14. Work force

14.1 Construction Phase 14.11 Peak 146 (1983)
14.12 Expected Peak Date 1983 14.2 Operational 440 in 1986

15. Timetable (Dates)

15.1 Construction Begins 1982 15.2 Operational 1984

16. Miscellaneous Multi Mineral's proposed project will be the first nahcolite mine and will make available a SO2 scrubbing agent for power plants. The project is participating in the Joint Review Process.

17. Latest Entry on this Form (data and initials) 9-9-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # H3

18. Status of Regulatory Actions

Required Permits	Date Application Submitted	Agency Decision and Date	Permit Number
Mining Plan Approval, USGS	1/81	Approved 6/16/81	
Special Use Permit, Rio Blanco Co.			
Hazardous Waste Permit, EPA			
Dam Design Approval, State Engineer			
Regular Mining Permit, MLRB			
Air Emissions Permit, Colo. Dept. Health			
NPDES, Dept. of Health			

19. Latest Entry on this Form (date and initials) AP/JW 6/81

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # H4

1. Identifying Information

1.2 Project Name Union Long Ridge
1.3 Project Owners Union Oil Co.
1.4 Colo. Address 1700 Broadway, Denver, CO 80203
1.5 Contact Person Allan Randle 1.6 Phone 861-9511
1.7 Corporate Address P.O. Box 7600, Los Angeles, Calif. 90051
1.8 Phone 213-977-6437
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale X 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Garfield 3.2 Legal S Twp 5S Rge 96W

4. Land Ownership

4.1 Private X 4.11 Acres 3440 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres 3440

5. Geological Base

5.1 Formation Green River 5.2 Age Eocene
5.3 Bed or Zone Mahogany 5.4 Thickness 120'
5.5 Quality: Gals/ton, BTU, Pounds/ton 26 gal/ton
5.6 Reserves Recoverable: tons, bbls, cu ft 1.6 billion barrels
25 years at 150,000 BPD

6. Resource Extraction Type

6.1 Oil Shale Mine X 6.11 Underground X 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other Room & Pillar/Surface Retorting

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting X
7.4 Shale Oil Refining X 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 12500 8.2 Barrels/day 9000 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process Union Up-Flow Retort
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol 10,000

1.1 I.D.# H4

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids shale oil 10.21 Barrels/day 9000
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. 3000
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase 1981 (217) 1982 (1840) 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 1988 (1100)

15. Timetable (Dates)

15.1 Construction Begins 5/80 15.2 Operational 1988

16. Miscellaneous Phase 2 would include construction of four more retorts, bringing total production to 50,000 BPD by 1990. Construction would start in 1983. 11/80: Applied for DOE purchase commitments with advances. 3/81: Applied for SFC. Applications (and work force numbers above) are for Phase 1 & 2.

Production: 10,000 BOPD by 7-1-83, sell 33 MBY jet and diesel fuel to Defense Dept. by 1-30-93. Jet fuel refined Los Angeles, diesel at Beaumont, Texas.

11/20/81 - Expanded project production goal to 90,000

17. Latest Entry on this Form (data and initials) DJ 6-23-81

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # H5

1. Identifying Information

1.2 Project Name Colony Shale Oil Project
1.3 Project Owners Exxon (60%) and Tosco (40%)
1.4 Colo. Address 759 Horizon Dr., P.O. Box 308,Grand Junction, CO 81502
1.5 Contact Person J. B. Phillips 1.6 Phone 245-6907
1.7 Corporate Address c/o Exxon, P.O. Box 2426, Houston, TX 77001
1.8 Phone 713-789-7731
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale X 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Garfield 3.2 Legal S Twp 5 Rge 95-96W

4. Land Ownership

4.1 Private X 4.11 Acres 5480 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres 5480

5. Geological Base

5.1 Formation Green River 5.2 Age Eocene
5.3 Bed or Zone Mahogany 5.4 Thickness 130'
5.5 Quality: Gals/ton, BTU, Pounds/ton 27 gal/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine X 6.11 Underground X 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other Room & Pillar/Surface Retorting

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting X
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 66,000 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process (Yes) Tosco II Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# H5

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day *
10.2 Liquids shale oil (fuel oil) 10.21 Barrels/day 48,300
10.3 Gases _____ 10.31 cu ft/day *

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas 0 11.2 Oil 0 11.3 Elect _____ 11.4 Coal 0
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output Pipeline north to Casper, WY

13. Water

13.1 Consumptive Use: A/ft/yr. 10,000
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities Negotiating for water from Rendi Reservoir.
13.5 Other Intake structure on Colorado

14. Work force

14.1 Construction Phase 2400 (1985) 14.11 Peak 4,452
14.12 Expected Peak Date 1985 14.2 Operational 2052 (1985)

15. Timetable (Dates)

15.1 Construction Begins 1980 15.2 Operational 1985

16. Miscellaneous 5/80--Arco sells 60% interest to Exxon

*Also 4330 BBL/day of liquified petroleum gas, 135 tons/day of ammonia, 173 long tons/day of sulfur and 800 short tons/day of coke.

Est. project cost: $3.2 billion (1981)

Tosco II process

17. Latest Entry on this Form (data and initials) DJ 6/22/81

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # H6

1. Identifying Information

1.2 Project Name Parachute Oil Shale Project
1.3 Project Owners Mobil Oil Corporation
1.4 Colo. Address P.O. Box 1772, Denver, CO 80217
1.5 Contact Person P. L. Fuselier 1.6 Phone
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale X 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Garfield 3.2 Legal S Twp 6 Rge 95-96W

4. Land Ownership

4.1 Private X 4.11 Acres 10,000 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Green River 5.2 Age Eocene
5.3 Bed or Zone Mahogany 5.4 Thickness 100'
5.5 Quality: Gals/ton, BTU, Pounds/ton 25 GPT
5.6 Reserves Recoverable: tons, bbls, cu ft Mined interval 30-35 GPT

6. Resource Extraction Type

6.1 Oil Shale Mine X 6.11 Underground X 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other Room & Pillar/Surface Retorting

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting X
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day * 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# H6

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. ** Reservoir on Main Elk Creek
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase 675 (1986) 14.11 Peak 1,092 (1986)
14.12 Expected Peak Date 1986 14.2 Operational 417 (1988-89)

15. Timetable (Dates)

15.1 Construction Begins 1984-85 15.2 Operational 1988-89

16. Miscellaneous 3-81: Applied for loan purchase and long guarantees from SFC. Est. cost $4 billion. Eventual expansion to 100,000 BPD.

**Owns conditional water rights for 35,000 Af near Newcastle.

Plans to start construction early 1983 of a 185' high earthen dam.

7-81: *Entered preliminary engineering phase for 12,000 BPD plant, with later expansion to 50,000. 150,000 TPD yields 100,000 BPD shale oil.

Owns land near Rifle for housing, but has no plans for a camping town.

9-1-81: Bechtel-develop plant

8-81: Phase I engineering 1982-83, Phase II 1983-84, considering Union, Tosco and other processes, operational 1988-89.

17. Latest Entry on this Form (data and initials) 10-20-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # H7

1. Identifying Information

1.2 Project Name Naval Oil Shale Reserve
1.3 Project Owners U.S. Department of Energy
1.4 Colo. Address
1.5 Contact Person Don Solowsky 1.6 Phone 202-633-8641
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale X 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Garfield 3.2 Legal S Twp 5-6S Rge 93-94-95W

4. Land Ownership

4.1 Private 4.11 Acres 0 4.2 Federal X 4.21 Acres 127,000
4.3 State 4.31 Acres 0 4.4 Total Acres 127,000

5. Geological Base

5.1 Formation Green River 5.2 Age Eocene
5.3 Bed or Zone Mahogany 5.4 Thickness 120'
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine X 6.11 Underground X 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other Room & Pillar

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting X
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# H7

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day 50,000-200,000
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous Options currently under study. 9/50: Draft Programmatic EIS proposing 50,000 or 200,000 BPD in 1990 issued by DOE.

17. Latest Entry on this Form (data and initials) DJ 6-23-81

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # H8

1. Identifying Information

1.2 Project Name Exxon
1.3 Project Owners Exxon
1.4 Colo. Address
1.5 Contact Person J. P. Racz 1.6 Phone
1.7 Corporate Address P.O. Box 2180, Houston, TX 77001
1.8 Phone 713-656-6341
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale X 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Rio Blanco 3.2 Legal S Twp 3S Rge 97-98W

4. Land Ownership

4.1 Private X 4.11 Acres 4.2 Federal X 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Green River 5.2 Age Eocene
5.3 Bed or Zone Parachute Creek 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton 30
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine X 6.11 Underground X 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 80,000 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# H8

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids shale oil 10.21 Barrels/day 60,000
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. 8500
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous _____

Room and Pillar, surface retort

Dec. '79 Exxon applied for an exchange of 11,814 fee acres for 10,840 acres BLM land -- Denied

Other facilities required: shale oil product pipeline, ammonia and sulfur storage and loading facilities near Rifle, two 230 KU transmission lines.

17. Latest Entry on this Form (date and initials) 10-24-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # H9

1. Identifying Information

1.2 Project Name Superior Multimineral
1.3 Project Owners Superior Oil (60%) Sohio (30%) Cleveland Cliffs (10%)
1.4 Colo. Address 2750 S. Shoshone Englewood, CO 80110
1.5 Contact Person J. H. Knight 1.6 Phone 761-5853
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Rio Blanco 3.2 Legal S Twp 1N Rge 97W

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Green River 5.2 Age Eocene
5.3 Bed or Zone Mahogany 5.4 Thickness 160-220
5.5 Quality: Gals/ton, BTU, Pounds/ton 25 GPT
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine X 6.11 Underground X 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other Room & Pillar/Surface Retorting

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 26,000 .2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process Proprietary retorting (traveling grate) and retort shale leaching
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# H9

10. End Products This Operation

10.1 Solids 4000 TPD Nacholite 700 TPD Al2O3, 1500 TPD Na2CO3 — 10.11 Tons/day
10.2 Liquids shale oil — 10.21 Barrels/day 13,000
10.3 Gases — 10.31 cu ft/day

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas 11.2 Oil 11.3 Elect 11.4 Coal
11.5 Other

12. Transportation (Type)

12.1 Raw Resource Input
12.2 Final Resource Output

13. Water

13.1 Consumptive Use: A/ft/yr. ~~Rom~~ FROM mine drainage and salt aquifer
13.2 Surface 13.3 Underground
13.4 Storage facilities
13.5 Other

14. Work force

14.1 Construction Phase 14.11 Peak
14.12 Expected Peak Date 14.2 Operational

15. Timetable (Dates)

15.1 Construction Begins 15.2 Operational

16. Miscellaneous

In November 1973 an application for exchange of 2,581 fee acres for 1,769 acres of BLM land was made -- Denied February 1980.

Lower unleached shales are 25 GPT, with 25% Nahcolite and 7% Dawsonite

17. Latest Entry on this Form (date and initials) 10-24-81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # H11

1. Identifying Information

1.2 Project Name Thermo-Mist
1.3 Project Owners The Thermo-Mist Co.
1.4 Colo. Address
1.5 Contact Person Margaret Savage 1.6 Phone
1.7 Corporate Address 9528 Lemoran Ave. Downey, CA 90240
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale X 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Rio Blanco 3.2 Legal S Twp 5-6S Rge 99-100W

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Green River 5.2 Age Eocene
5.3 Bed or Zone 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine X 6.11 Underground X 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 3,000 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process Thermo Mist Retort
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# H11

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous _____

California limited partnership formed 1971 by the Savage family and

Ben Holt Co., Pasadena, California.

Phase I 2000 BPD Phase II add. 2000-4000 BPD

Phase III 2000-6000 BPD from unpatented land when patent is received.

Asked for DOE funding (1980), denied.

17. Latest Entry on this Form (date and initials) 10-24-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # I1
see G1

1. Identifying Information

1.2 Project Name Rio Blanco Oil Shale Project
1.3 Project Owners Gulf Oil and Standard of Indiana
1.4 Colo. Address 2851 S. Parker Rd., Suite 500, Aurora, CO 80014
1.5 Contact Person J. Blaine Miller, President 1.6 Phone 303-695-2400
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale X 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Rio Blanco 3.2 Legal S Twp 1-2S, R98-99W

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal X 4.21 Acres 5100
4.3 State X 4.31 Acres 457 4.4 Total Acres 5100

5. Geological Base

5.1 Formation Green River 5.2 Age Tertiary
5.3 Bed or Zone Parachute Cr 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine X 6.11 Underground 6.12 Strip 6.13 In situ X
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other Modified in situ

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting X
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 76000 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# I1

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational 1991

16. Miscellaneous On Federal Tract Ca

Have fired two MIS retorts, Recovery on Retort 0 about 60%, after burning of Retort 1, work force will be reduced from 175 to 45, to cover maintenance only. See G1 for abandoned demonstration Lurgi/Strip project.

17. Latest Entry on this Form (data and initials) LRL 10/20/81

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # I2

1. Identifying Information

1.2 Project Name BX InSitu Oil Shale Project
1.3 Project Owners Equity Oil Co.
1.4 Colo. Address Piceance Creek Route, Rifle CO
1.5 Contact Person Dallas Goodrich 1.6 Phone 878-5901
1.7 Corporate Address Suite 806, 10 West Third South, Salt Lake City, UT 84101 1.8 Phone 801-521-3515
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion ____

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale X 2.4 Uranium ____
2.5 Coal ____ 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Rio Blanco 3.2 Legal S 6 Twp 3S Rge 98W

4. Land Ownership

4.1 Private X 4.11 Acres 160 4.2 Federal ____ 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres 160

5. Geological Base

5.1 Formation Green River 5.2 Age Eocene
5.3 Bed or Zone leached zone 5.4 Thickness ____
5.5 Quality: Gals/ton, BTU, Pounds/ton ____
5.6 Reserves Recoverable: tons, bbls, cu ft ____

6. Resource Extraction Type

6.1 Oil Shale Mine X 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ X
6.2 Uranium Mine ____ 6.21 Underground ____ 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine ____ 6.31 Underground ____ 6.32 Strip ____
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other true in situ

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting X
7.4 Shale Oil Refining ____ 7.5 Uranium Refining ____ 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day ____ 8.2 Barrels/day ____ 8.3 Other ____
Actual 8.4 Tons/day ____ 8.5 Barrels/day ____ 8.6 Other ____

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# I2

10. End Products This Operation

10.1 Solids
10.11 Tons/day
10.2 Liquids
10.21 Barrels/day 150
10.3 Gases
10.31 cu ft/day

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas 11.2 Oil 11.3 Elect 11.4 Coal
11.5 Other

12. Transportation (Type)

12.1 Raw Resource Input
12.2 Final Resource Output

13. Water

13.1 Consumptive Use: A/ft/yr. none: reinjected
13.2 Surface 13.3 Underground leached zone
13.4 Storage facilities
13.5 Other

14. Work force

14.1 Construction Phase 14.11 Peak
14.12 Expected Peak Date 14.2 Operational

15. Timetable (Dates)

15.1 Construction Begins 1978 15.2 Operational 9-80

16. Miscellaneous Inject superheated steam at 1000°F into 8 wells; recover steam, water, oil and gas from 5 producing wells. Project area 7/10 acre. Has DOE funding. Eventual production 1000 BPD in 1986; 4000 BPD in 1992.

Fee acreage owned by Equity (50%) ARCO (50%), 1,000 acres

Technical feasibility demonstration project commenced March 1977 and scheduled to conclude in early 1982.

17. Latest Entry on this Form (data and initials) DJ 6-23-81

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # I3

1. Identifying Information

1.2 Project Name Cathedral Bluffs Shale Oil Company
1.3 Project Owners Occidental Oil (50%) and Tenneco (50%)
1.4 Colo. Address P.O. Box 2687, Grand Junction, CO 81502
1.5 Contact Person R. A. Loucks 1.6 Phone 242-8463
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale X 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Rio Blanco 3.2 Legal S Twp 3 Rge 96-97W

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal X 4.21 Acres 5094
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Green River 5.2 Age Eocene
5.3 Bed or Zone 5.4 Thickness 290 mining zone
5.5 Quality: Gals/ton, BTU, Pounds/ton 26.3 gal/ton
5.6 Reserves Recoverable: tons, bbls, cu ft 660 million bbls. from MIS
1.1 billion total

6. Resource Extraction Type

6.1 Oil Shale Mine X 6.11 Underground 6.12 Strip 6.13 In situ X
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other modified in situ

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting X
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 166,000 8.5 Barrels/day 94,000 8.6 Other
1990

9. Product Upgrading

9.1 Process none
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# I3

10. End Products This Operation

10.1 Solids Fertilizer-quality anhydrous ammonia 10.11 Tons/day 229
10.2 Liquids shale oil 10.21 Barrels/day 94,000
10.3 Gases 10.31 cu ft/day 2390

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas 11.2 Oil 11.3 Elect 11.4 Coal
11.5 Other will export electricity

12. Transportation (Type)

12.1 Raw Resource Input
12.2 Final Resource Output

13. Water

13.1 Consumptive Use: A/ft/yr. 10 million gallons per day
13.2 Surface 13.3 Underground
13.4 Storage facilities
13.5 Other

14. Work force

14.1 Construction Phase 1140 (1988) 14.11 Peak 4970 (1988)
14.12 Expected Peak Date 1988 14.2 Operational 3,830 (1988)

15. Timetable (Dates)

15.1 Construction Begins 1-78 15.2 Operational 1985

16. Miscellaneous Initial production: 1985; 55,000 BPD in 1988; 94,000 BPD in 1990 including 55,000 MIS and 39,000 above-ground Lurgi retorting. 11-80: Applied for $4.3 billion DOE loan guarantee; 3/81: applied for SFC loan guarantee. Est. cost $3 billion (1980 dollars), $5.9 billion (current dollars).

17. Latest Entry on this Form (date and initials) DJ 6-23-81

Energy Activity Profile 1.1 I.D. # J1

1. Identifying Information

1.2 Project Name Shaleglass Corp.
1.3 Project Owners Shaleglass Corp.
1.4 Colo. Address Grand Junction, CO
1.5 Contact Person _____ 1.6 Phone _____
1.7 Corporate Address _____
_____ 1.8 Phone _____
1.9 New Project X 1.91 Existing Project _____ 1.92 Expansion _____

2. Resource Base

2.1 Oil _____ 2.2 Natural Gas _____ 2.3 Oil Shale X 2.4 Uranium _____
2.5 Coal _____ 2.6 Geothermal _____ 2.7 Other _____

3. Project Location

3.1 County(ies) _____ 3.2 Legal S _____ Twp _____ Rge _____

4. Land Ownership

4.1 Private _____ 4.11 Acres _____ 4.2 Federal _____ 4.21 Acres _____
4.3 State _____ 4.31 Acres _____ 4.4 Total Acres _____

5. Geological Base

5.1 Formation _____ 5.2 Age _____
5.3 Bed or Zone _____ 5.4 Thickness _____
5.5 Quality: Gals/ton, BTU, Pounds/ton _____
5.6 Reserves Recoverable: tons, bbls, cu ft _____

6. Resource Extraction Type

6.1 Oil Shale Mine ___ 6.11 Underground ___ 6.12 Strip ___ 6.13 In situ ___
6.2 Uranium Mine ___ 6.21 Underground ___ 6.22 Strip ___ 6.23 In situ ___
6.3 Coal Mine ___ 6.31 Underground ___ 6.32 Strip ___
6.33 Methane Extraction ___ 6.34 UCG ___ 6.35 Other Coal _____
6.4 Oil Well ___ 6.5 Gas Well ___ 6.6 Other _____

7. Conversion Activity Type

7.1 Oil Refining ___ 7.2 Gas Processing ___ 7.3 Oil Shale Retorting ___
7.4 Shale Oil Refining ___ 7.5 Uranium Refining ___ 7.6 Coal Gasification ___
7.7 Coal Liquefication ___ 7.8 Electric Power ___ 7.81 Coal to Elect. ___
7.82 Oil to Elect. ___ 7.83 Gas to Elect. ___ 7.84 Other to Elect. ___
7.9 Other _____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day _____ 8.2 Barrels/day _____ 8.3 Other _____
Actual 8.4 Tons/day _____ 8.5 Barrels/day _____ 8.6 Other _____

9. Product Upgrading

9.1 Process SORG cellular glass process
9.2 Additional Raw Material Required _____ 9.21 Vol _____
9.3 New Products _____ 9.31 Vol _____

1.1 I.D.# J1

10. End Products This Operation

10.1 Solids glass and building materials 10.11 Tons/day
10.2 Liquids 10.21 Barrels/day
10.3 Gases 10.31 cu ft/day

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas 11.2 Oil 11.3 Elect 11.4 Coal
11.5 Other

12. Transportation (Type)

12.1 Raw Resource Input
12.2 Final Resource Output

13. Water

13.1 Consumptive Use: A/ft/yr.
13.2 Surface 13.3 Underground
13.4 Storage facilities
13.5 Other

14. Work force

14.1 Construction Phase 14.11 Peak
14.12 Expected Peak Date 14.2 Operational

15. Timetable (Dates)

15.1 Construction Begins 15.2 Operational 30 months after award

16. Misc. Data or Short Description Proposed a project that would both produce and consume new shale oil as an energy source in a Sorg cellular glass process that uses shale by-products to manufacture glass and building materials.

3/81 Request for 75% of $4.9 million from Synthetic Fuels Corp. for Demo Project of 24-30 months

17. Form Completed or Updated (date) 6-23-81 LRL

18. Status of Regulatory Actions

Required Permits	Date Application Submitted	Agency Decision and Date	Permit Number

19. Latest Entry on this Form (date and initials)_____


K

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # L1

1. Identifying Information

1.2 Project Name Hansen
1.3 Project Owners Cyrpus Mines Corporation
1.4 Colo. Address P.O. Box 3299, Englewood, CO 80155
1.5 Contact Person Mr. Ron McDaniel 1.6 Phone 740-5147
1.7 Corporate Address 555 South Flower St., Los Angeles, CA 90071
1.8 Phone 213-489-3700
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium X
2.5 Coal 2.6 Geothermal 2.7 Other molybdenum

3. Project Location

3.1 County(ies) Fremont 3.2 Legal S * Twp 17S Rge 73W

4. Land Ownership

4.1 Private X 4.11 Acres 2185 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 550 4.4 Total Acres 2185

5. Geological Base

5.1 Formation ** 5.2 Age Eocene and Oligocene
5.3 Bed or Zone 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton 1-68 pounds U308 per ton
5.6 Reserves Recoverable: tons, bbls, cu ft 30 million pounds U308

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine X 6.21 Underground 6.22 Strip X 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining X 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 4500 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# L1

10. End Products This Operation

10.1 Solids *** 10.11 Tons/day 4500
10.2 Liquids 10.21 Barrels/day
10.3 Gases 10.31 cu ft/day

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas 11.2 Oil 11.3 Elect X Unk. 11.4 Coal
11.5 Other

12. Transportation (Type)

12.1 Raw Resource Input truck
12.2 Final Resource Output truck

13. Water

13.1 Consumptive Use: A/ft/yr. 1150
13.2 Surface 13.3 Underground 1150
13.4 Storage facilities
13.5 Other

14. Work force

14.1 Construction Phase 300 14.11 Peak 840
14.12 Expected Peak Date 14.2 Operational 540

15. Timetable (Dates)

15.1 Construction Begins Pilot 1981 15.2 Operational 1982

16. Miscellaneous The Hansen Project economics were based on $40 per lb for yellowcake. At present the mine is not scheduled for operation. Initially, two ore bodies were to be mined: Picnic Tree (Tallahassee Creek Ash Fall) and Hansen (Echo Park Formation). These ore bodies could produce 17 million tons of ore; however, 272.5 million cubic yards of overburden would need to be removed. A 16 year life is anticipated for the project.

* Section 9, 10, 15-17, 19-23, 26-30, 33, 34

** Echo Park, Tallahassee Creek Conglomerate

***uranium tailings and 2,000,000 lbs/year yellowcake

17. Latest Entry on this Form (date and initials) 12/8/81 WRJ

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # M1

1. Identifying Information

1.2 Project Name Keota Uranium Project
1.3 Project Owners Power Resources Corp. - Aquarius Resouces Corp.
1.4 Colo. Address 12860 W. Cedar Ave.
1.5 Contact Person Milton O. Childers 1.6 Phone 989-5900
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium X
2.5 Coal 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Weld 3.2 Legal S25,27 30,34,35,36 Twp 9N Rge 60W
30 9N 59W

4. Land Ownership

4.1 Private X 4.11 Acres 1450 4.2 Federal 4.21 Acres
4.3 State X 4.31 Acres 550 4.4 Total Acres 2000

5. Geological Base

5.1 Formation Fox Hills Formation 5.2 Age Upper Cretaceous
5.3 Bed or Zone Keota & Buckingham SS 5.4 Thickness 10 feet
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft 2,500,000 - 5,000,000 tons

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine X 6.21 Underground 6.22 Strip 6.23 In situ X
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining X 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day .69 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 0 8.5 Barrels/day 8.6 Other

9. Product Upgrading

In situ leaching - uranium
9.1 Process sorption alumn - resin treated to produce yellowcake
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# M1

10. End Products This Operation

10.1 Solids Yellowcake slurry 10.11 Tons/day .5-.69
10.2 Liquids 10.21 Barrels/day
10.3 Gases 10.31 cu ft/day

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas 11.2 Oil 11.3 Elect Unk. 11.4 Coal
11.5 Other

12. Transportation (Type)

12.1 Raw Resource Input Pipelines
12.2 Final Resource Output Tank Trucks

13. Water

13.1 Consumptive Use: A/ft/yr. ?
13.2 Surface Wild Horse Cr.& ditch 13.3 Underground White River Group, Buckingham, Keota
13.4 Storage facilities Storage tanks in the permit area
13.5 Other

14. Work force

14.1 Construction Phase 14.11 Peak 45 people
14.12 Expected Peak Date 14.2 Operational 1984

15. Timetable (Dates)

15.1 Construction Begins Pilot 1981 15.2 Operational 1982

16. Miscellaneous Union Oil was heading this project but has now turned the project over to Power Resources Corp. Their original plan was to start a pilot project first then develop a bigger operation. This process has been delayed due to permit delays.

17. Latest Entry on this Form (date and initials) Nov. 12, 1981 JET

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # N1

1. Identifying Information

1.2 Project Name Uravan Mill
1.3 Project Owners Union Carbide
1.4 Colo. Address Box 1029, Grand Junction, CO 81501
1.5 Contact Person Mr. P. C. Rekemeyer 1.6 Phone 303-245-3700
1.7 Corporate Address 137 47th St., P.O. Box 97, Niagara, New York, 14302 1.8 Phone 716-278-3000
1.9 New Project ____ 1.91 Existing Project X 1.92 Expansion X

2. Resource Base

2.1 Oil ____ 2.2 Natural Gas ____ 2.3 Oil Shale ____ 2.4 Uranium X
2.5 Coal ____ 2.6 Geothermal ____ 2.7 Other ____

3. Project Location

3.1 County(ies) Montrose 3.2 Legal S 33,34 Twp 48N Rge 17W

4. Land Ownership

4.1 Private X 4.11 Acres 990 4.2 Federal ____ 4.21 Acres ____
4.3 State ____ 4.31 Acres ____ 4.4 Total Acres ____

5. Geological Base

5.1 Formation Morrison 5.2 Age Jurassic
5.3 Bed or Zone ____ 5.4 Thickness ____
5.5 Quality: Gals/ton, BTU, Pounds/ton ____
5.6 Reserves Recoverable: tons, bbls, cu ft unknown, mill served by 36 mines

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mines X 6.21 Underground X 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine ____ 6.31 Underground ____ 6.32 Strip ____
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal ____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other ____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining X 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other ____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 1300 8.2 Barrels/day ____ 8.3 Other ____
Actual 8.4 Tons/day 800 8.5 Barrels/day ____ 8.6 Other ____

9. Product Upgrading

9.1 Process ____
9.2 Additional Raw Material Required ____ 9.21 Vol ____
9.3 New Products ____ 9.31 Vol ____

1.1 I.D.# N1

10. End Products This Operation

10.1 Solids uranium tailings 10.11 Tons/day 1300
10.2 Liquids raffinate 10.21 240 gal/min
10.3 Gases 10.31 cu ft/day

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas 11.2 Oil 11.3 Elect 11.4 Coal
11.5 Other

12. Transportation (Type)

12.1 Raw Resource Input truck,36 mines up to 100 mi. distant from mill
12.2 Final Resource Output truck, U308 yellowcake to Grand Junction

13. Water

13.1 Consumptive Use: A/ft/yr. 200 gpm
13.2 Surface 13.3 Underground
13.4 Storage facilities tailings impoundments and raffinate ponds
13.5 Other

14. Work force

14.1 Construction Phase 14.11 Peak
14.12 Expected Peak Date 14.2 Operational 183(mill) 314(mines)

15. Timetable (Dates)

15.1 Construction Begins 15.2 Operational X

16. Miscellaneous Operations at Uravan began in 1922, principally for the extraction of radium. In 1935 a vanadium mill was built and both uranium and vanadium were extracted during WW II. The mill was shut down in 1945 but reopened in 1948. It has been operated continuously since that time. If operated at maximum capacity, approximately two years remain in the life of the tailings ponds. At present, Union Carbide is investigating an alternate disposal site and raffinate evaporation pond on Spring Creek Mesa. The mill serves 18 medium sized mines and 18 smaller operations located in the Uravan Mineral Belt.

17. Latest Entry on this Form (date and initials) 12/7/81 WRJ

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # N2

1. Identifying Information

1.2 Project Name San Miguel Mill Project
1.3 Project Owners Pioneer Uravan, Inc. (2/3)
1.4 Colo. Address 2516 Foresight Circle,Box 2065,Grand Junction,CO 81501
1.5 Contact Person Steve L. Lange 1.6 Phone (806)378-3300
1.7 Corporate Address Bank of the Southwest Bldg., Suite 106, P.O. Box 151, Amarillo, TX 79105 1.8 Phone (806)378-3300
1.9 New Project X 1.91 Existing Project _____ 1.92 Expansion _____

2. Resource Base

2.1 Oil _____ 2.2 Natural Gas _____ 2.3 Oil Shale _____ 2.4 Uranium X
2.5 Coal _____ 2.6 Geothermal _____ 2.7 Other _____

3. Project Location

3.1 County(ies) San Miguel 3.2 Legal S 35,26,27,34 Twp 44N Rge 18W

4. Land Ownership

4.1 Private _____ 4.11 Acres 1440 4.2 Federal _____ 4.21 Acres _____
4.3 State _____ 4.31 Acres _____ 4.4 Total Acres _____

5. Geological Base

ore from various mines
5.1 Formation in area 5.2 Age _____
5.3 Bed or Zone _____ 5.4 Thickness _____
5.5 Quality: Gals/ton, BTU, Pounds/ton _____
5.6 Reserves Recoverable: tons, bbls, cu ft _____

6. Resource Extraction Type

6.1 Oil Shale Mine ____ 6.11 Underground ____ 6.12 Strip ____ 6.13 In situ ____
6.2 Uranium Mine _____ 6.21 Underground X 6.22 Strip ____ 6.23 In situ ____
6.3 Coal Mine ____ 6.31 Underground ____ 6.32 Strip ____
6.33 Methane Extraction ____ 6.34 UCG ____ 6.35 Other Coal _____
6.4 Oil Well ____ 6.5 Gas Well ____ 6.6 Other _____

7. Conversion Activity Type

7.1 Oil Refining ____ 7.2 Gas Processing ____ 7.3 Oil Shale Retorting ____
7.4 Shale Oil Refining ____ 7.5 Uranium Refining X 7.6 Coal Gasification ____
7.7 Coal Liquefication ____ 7.8 Electric Power ____ 7.81 Coal to Elect. ____
7.82 Oil to Elect. ____ 7.83 Gas to Elect. ____ 7.84 Other to Elect. ____
7.9 Other vanadium refining

8. Resource Extraction or Conversion

(STPD)
Capacity 8.1 Tons/day 1000 8.2 Barrels/day _____ 8.3 Other _____
Actual 8.4 Tons/day _____ 8.5 Barrels/day _____ 8.6 Other _____

9. Product Upgrading

9.1 Process _____
9.2 Additional Raw Material Required _____ 9.21 Vol _____
9.3 New Products _____ 9.31 Vol _____

1.1 I.D.# N2

10. End Products This Operation

10.1 Solids yellowcake, black flake — 10.11 Tons/day 3000 ppd/ 9300-12400 ppd
10.2 Liquids — 10.21 Barrels/day
10.3 Gases — 10.31 cu ft/day

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas X 11.2 Oil 11.3 Elect X 11.4 Coal
11.5 Other

12. Transportation (Type)

12.1 Raw Resource Input 18 wheeled 20-ton-cap. end dump w/"pup"trailers
12.2 Final Resource Output truck

13. Water

13.1 Consumptive Use: A/ft/yr. plans to recycle, so amount uncertain
13.2 Surface 13.3 Underground 200 gpm
13.4 Storage facilities 750,000 gal/mill H20, 3000 gal potable
13.5 Other

14. Work force

14.1 Construction Phase 113 — 14.11 Peak 150
14.12 Expected Peak Date — 14.2 Operational 70

15. Timetable (Dates)

15.1 Construction Begins — 15.2 Operational

16. Miscellaneous The project consists of the construction and operation of a new uranium-vanadium ore-milling facility. Located in the Disappointment Valley of San Miguel County, Colorado, the mill will receive and process uranium-vanadium bearing ores mined in the general area of the Uravan Mineral Belt. The ores will be supplied from numerous, small mining operations within a 100-mile radius of the mill. Expected operational life of the mill is 20 years. End products yellowcake and black flake. Although the mill was planned to be operational in June 1981 it is still in permitting.

17. Latest Entry on this Form (date and initials) CLJ 11-19-81

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # P1

1. Identifying Information

1.2 Project Name Glenwood Springs #2
1.3 Project Owners Redstone Corporation
1.4 Colo. Address
1.5 Contact Person Jay Dick - Chaffee Geothermal 1.6 Phone 692-9496
1.7 Corporate Address 1776 So. Jackson, Suite 1000, Denver, CO 80210
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal 2.6 Geothermal X 2.7 Other

3. Project Location

3.1 County(ies) Garfield 3.2 Legal S Twp 6S Rge 90W

4. Land Ownership

4.1 Private 500 4.11 Acres 4.2 Federal 640 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres 1140

5. Geological Base

5.1 Formation Leadville Limestone 5.2 Age Mississippian
5.3 Bed or Zone 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton 122°F (50°C)
5.6 Reserves Recoverable: tons, bbls, cu ft 279 x 10" BTUs

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other flowing geothermal well

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other heat exchanger

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 1400 gpm
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# P1

10. End Products This Operation
space heat building

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output pipeline

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground 1400 gpm
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins 7-81 15.2 Operational _____

16. Miscellaneous TDS - 10,000 to 20,000 mg/l

This geothermal well located in Glenwood Springs flows at 1400 gpm, use is space heating, discharge of spent fluids into a surface stream.

17. Latest Entry on this Form (date and initials) 12/4/81 KM

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # P2

1. Identifying Information

1.2 Project Name Glenwood Springs #1
1.3 Project Owners Wright Water Engineers
1.4 Colo. Address P.O. Box 219, Glenwood Springs, CO 81601
1.5 Contact Person Dick Johnson 1.6 Phone 893-1608
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal 2.6 Geothermal X 2.7 Other

3. Project Location

3.1 County(ies) Garfield 3.2 Legal S Twp 6S Rge 90W

4. Land Ownership

4.1 Private 500 4.11 Acres 4.2 Federal 640 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres 1140

5. Geological Base

5.1 Formation Leadville Limestone 5.2 Age Mississippian
5.3 Bed or Zone 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton 125°F
5.6 Reserves Recoverable: tons, bbls, cu ft 279 x 10" Btu's

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other pumping geothermal well

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other heat exchanger

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other unknown
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol

1.1 I.D.# P2

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. no pumping rate yet
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase well - 4 months 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins 5-81 15.2 Operational _____

16. Miscellaneous _____

Depth to water +20 ft

Cable tool, 12" casing

Total depth of well +550 ft

Bottom hole temp. 128°F

TDS +20,000 mg/lt.

17. Latest Entry on this Form (date and initials) 12/3/81 KM

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # P3

1. Identifying Information

1.2 Project Name Pagosa Springs Geothermal Heating District
1.3 Project Owners The City of Pagosa Springs
1.4 Colo. Address
1.5 Contact Person Bill Ray, City Manager 1.6 Phone 264-5698
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal 2.6 Geothermal X 2.7 Other

3. Project Location

3.1 County(ies) Archuleta 3.2 Legal S Twp 35N Rge 2W

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal City X 4.21 Acres 140
4.3 State 4.31 Acres 4.4 Total Acres 640 Federal X Acres 500

5. Geological Base

5.1 Formation Dakota Formation 5.2 Age Cretaceous
5.3 Bed or Zone 5.4 Thickness 200'
5.5 Quality: Gals/ton, BTU, Pounds/ton 144°F H20
5.6 Reserves Recoverable: tons, bbls, cu ft 226 x 10" Btu's

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other well flowing-circulation pump

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other heat exchanger - heating city water

8. Resource Extraction or Conversion

900-1800 gpm of 144°F H20
Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# P3

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output 10" concrete asbestos pipe

13. Water

13.1 Consumptive Use: A/ft/yr. 900-1800 gpm
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other discharged into San Juan River

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins 1979 15.2 Operational 11/21/81

16. Miscellaneous _____

Well - 285' deep

68 customers, cost - $3.35/million Btu's - 42% of cost of natural gas.

Initial cost - $1.3 million

School district alone will save $35,000 this year.

7200 ft of supply line.

Geothermal fluid disposed of in San Juan River.

Produces 28.6 billion BTU's annually.

17. Latest Entry on this Form (date and initials) 12/3/81 KM

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # P4

1. Identifying Information

1.2 Project Name Alamosa City Project
1.3 Project Owners City
1.4 Colo. Address
1.5 Contact Person Jay Kunze 1.6 Phone
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal 2.6 Geothermal X 2.7 Other

3. Project Location

3.1 County(ies) Alamosa 3.2 Legal S Twp 37N Rge 10E

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres 960

5. Geological Base

5.1 Formation Valley Fill 5.2 Age ?
5.3 Bed or Zone 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton 160-180°F
5.6 Reserves Recoverable: tons, bbls, cu ft 1551 x 10¹¹ Btu's

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other well to be pumped

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other space heat - process heat

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other presently unk.
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# P4

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids presently unknown 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins Nov. 1, 1981 15.2 Operational _____

16. Miscellaneous _____

Well to be drilled to 7500'

Casing set at 4100' on November 21, 1981

Geothermal water to be used for malting barley and space ~~bent~~ heat

17. Latest Entry on this Form (date and initials) 12/3/81 KM

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # Q1

1. Identifying Information

1.2 Project Name Gary Energy
1.3 Project Owners Gary Energy Co.
1.4 Colo. Address Gary Community, Rural St., Fruita, CO 81521
1.5 Contact Person George Benson 1.6 Phone
1.7 Corporate Address
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion X

2. Resource Base

2.1 Oil X 2.2 Natural Gas 2.3 Oil Shale X 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Mesa 3.2 Legal S Twp Rge

4. Land Ownership

4.1 Private X 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation 5.2 Age
5.3 Bed or Zone 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining X 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 10,000 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process UOP Process Hydro treating, Hydro cracking
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# Q1

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids liquid products from shale oil 10.21 Barrels/day 10,000
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase 300-400 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational 60-70

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous _____

Expand existing refinery to convert shale oil.

17. Latest Entry on this Form (date and initials) 10-24-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # W1

1. Identifying Information

1.2 Project Name ARCO - Sheep Mt. - CO2
1.3 Project Owners ARCO Oil and Gas Company
1.4 Colo. Address
1.5 Contact Person 1.6 Phone
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other Carbon Dioxide

3. Project Location

3.1 County(ies) Huerfano 3.2 Legal S Twp Rge

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation Dakota, Entrada 5.2 Age Cretaceous
5.3 Bed or Zone 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton Gas-97% CO2, 0.6 N2, 1.7 methane
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well X 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other 300 MMCFD
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process Dehydration
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# W1

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases CO2 _____ 10.31 cu ft/day 300 MMCFD

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input Pipeline
12.2 Final Resource Output Pipeline to Wasson and Seminole Fields, Yoakum, Gaines Counties, Texas.

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous _____

five drilling sites, multi wells -

400 mile pipeline to NW Texas for Tertiary recovery of oil

Fluor Corp. - Building Pipeline

17. Latest Entry on this Form (date and initials) 9/10/81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # W2

1. Identifying Information

1.2 Project Name Shell Oil - McElmo Dome - Doe Canyon CO2
1.3 Project Owners
1.4 Colo. Address
1.5 Contact Person 1.6 Phone
1.7 Corporate Address
1.8 Phone
1.9 New Project 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) 3.2 Legal S Twp Rge

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation 5.2 Age
5.3 Bed or Zone 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves: tons, bbls, cu ft proved 800 BCF, undrilled, 2TCF

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# W2

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous CO2 , Colorado to Wasson Field TX

Spending $660M in drilling new wells

17. Latest Entry on this Form (date and initials) 10-20-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # Y1

1. Identifying Information

1.2 Project Name Moon Lake Power Plant Units 1 & 2
1.3 Project Owners Deseret Generation & Transmission Coop.
1.4 Colo. Address
1.5 Contact Person 1.6 Phone
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Uintah, Utah 3.2 Legal S * Twp Rge

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation 5.2 Age
5.3 Bed or Zone 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power X 7.81 Coal to Elect. X
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 7397 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required coal 9.21 Vol 2.7 MTY
9.3 New Products 9.31 Vol

1.1 I.D.# Y1

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal 2.7 MTY
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input train, truck, or conversion belt
12.2 Final Resource Output **

13. Water

13.1 Consumptive Use: A/ft/yr. 17,470
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational 1985

16. Misc. Data or Short Description _____

*Northwest of Bonanza, Utah

**1-345 KU-AC line to Mona, Utah

3-138 KU-AC lines to Upalco & Vernal, Utah and Rangely, Colorado

Two 400 megawatt units to receive coal from Deserade Mine near Rangely, CO

17. Form Completed or Updated (date) 6-25-81 LRL

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # Y1

19. Status of Regulatory Actions

Required Permits	Date Application Submitted	Agency Decision and Date	Permit Number

Latest Entry on this Form (date and initials)

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # Y2

1. Identifying Information

1.2 Project Name Yampa Power Project
1.3 Project Owners Colo.-Ute, Montrose, Colorado, Manager *
1.4 Colo. Address
1.5 Contact Person 1.6 Phone
1.7 Corporate Address
1.8 Phone
1.9 New Project 1.91 Existing Project X 1.92 Expansion X

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Moffat-4 mi. SW of Craig 3.2 Legal S Twp Rge

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base - Coal from Trapper Mine (See A-14)

5.1 Formation 5.2 Age
5.3 Bed or Zone 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power X 7.81 Coal to Elect. X
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/yr. 2.3mil 8.2 Barrels/day 8.3 Other Coal from Trapper Mine
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process Coal fired Steam Generators
9.2 Additional Raw Material Required 9.21 Vol

1.1 I.D.# Y2

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal _____
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input Truck from mine to plant
12.2 Final Resource Output Electricity by high voltage line

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous * Salt River Project of Phoenix; Tri-state Generation and Transmission Assoc., Thornton, Colorado; Platte River Power Authority, Fort Collins, Colorado.

In Operation: Craig Units 1, Craig Units 2, both 834,000 KW

Building: Craig Unit 3

17. Latest Entry on this Form (date and initials) LRL 11/11/81

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # Y3

1. Identifying Information

1.2 Project Name Cherokee Units 1, 2, 3, 4
1.3 Project Owners Public Service Co. Colorado
1.4 Colo. Address 550 15th St. Denver, Colorado
1.5 Contact Person _____ 1.6 Phone 571-7511
1.7 Corporate Address _____
_____ 1.8 Phone _____
1.9 New Project _____ 1.91 Existing Project X 1.92 Expansion _____

2. Resource Base

2.1 Oil _____ 2.2 Natural Gas _____ 2.3 Oil Shale _____ 2.4 Uranium _____
2.5 Coal X 2.6 Geothermal _____ 2.7 Other _____

3. Project Location

3.1 County(ies) Adams 3.2 Legal S 9-10 Twp 3N Rge 66W
6198 Franklin St. Commerce City, CO

4. Land Ownership

4.1 Private X 4.11 Acres _____ 4.2 Federal _____ 4.21 Acres _____
4.3 State _____ 4.31 Acres _____ 4.4 Total Acres _____

5. Geological Base

5.1 Formation _____ 5.2 Age _____
5.3 Bed or Zone _____ 5.4 Thickness _____
5.5 Quality: Gals/ton, BTU, Pounds/ton _____
5.6 Reserves Recoverable: tons, bbls, cu ft _____

6. Resource Extraction Type

6.1 Oil Shale Mine ___ 6.11 Underground ___ 6.12 Strip ___ 6.13 In situ ___
6.2 Uranium Mine ___ 6.21 Underground ___ 6.22 Strip ___ 6.23 In situ ___
6.3 Coal Mine ___ 6.31 Underground ___ 6.32 Strip ___
6.33 Methane Extraction ___ 6.34 UCG ___ 6.35 Other Coal _____
6.4 Oil Well ___ 6.5 Gas Well ___ 6.6 Other _____

7. Conversion Activity Type

7.1 Oil Refining ___ 7.2 Gas Processing ___ 7.3 Oil Shale Retorting ___
7.4 Shale Oil Refining ___ 7.5 Uranium Refining ___ 7.6 Coal Gasification ___
7.7 Coal Liquefication ___ 7.8 Electric Power X 7.81 Coal to Elect. X
7.82 Oil to Elect. ___ 7.83 Gas to Elect. ___ 7.84 Other to Elect. ___
7.9 Other _____

8. Resource Extraction or Conversion

Capacity 8.1 Tons/year 2M 8.2 Barrels/day ___ 8.3 Other *
Actual 8.4 Tons/day ___ 8.5 Barrels/day ___ 8.6 Other _____

9. Product Upgrading

9.1 Process Coal to Elect - Steam Generation
9.2 Additional Raw Material Required _____ 9.21 Vol 2MTPY
9.3 New Products _____ 9.31 Vol 710MW

1.1 I.D.# Y3

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal 2.0 MTPU
11.5 Other Source _____

12. Transportation (Type)

12.1 Raw Resource Input Rail _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. South Platte _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous * Capacity #1 - 125 MW, #2 - 125 MW, #3 - 171 MW, #4 - 381 MW

17. Latest Entry on this Form (date and initials) LRL 9-10-81

1.1 I.D.# Y3

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal 2.0 MTPU
11.5 Other Source _____

12. Transportation (Type)

12.1 Raw Resource Input Rail _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. South Platte _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous * Capacity #1 - 125 MW, #2 - 125 MW, #3 - 171 MW, #4 - 381 MW

17. Latest Entry on this Form (date and initials) LRL 9-10-81

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # Y4

1. Identifying Information

1.2 Project Name Rawhide Project
1.3 Project Owners Platte River Power Authority
1.4 Colo. Address
1.5 Contact Person 1.6 Phone
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal X 2.6 Geothermal 2.7 Other

3. Project Location

3.1 County(ies) Larimer 3.2 Legal S Twp Rge

4. Land Ownership

4.1 Private X 4.11 Acres 4.2 Federal 4.21 Acres
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation 5.2 Age
5.3 Bed or Zone 5.4 Thickness
5.5 Quality: Gals/ton, BTU, Pounds/ton
5.6 Reserves Recoverable: tons, bbls, cu ft

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power X 7.81 Coal to Elect. X
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/yr. coal 900,000 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# Y4

10. End Products This Operation

10.1 Solids _____ 10.11 Tons/day _____
10.2 Liquids _____ 10.21 Barrels/day _____
10.3 Gases _____ 10.31 cu ft/day _____

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas _____ 11.2 Oil _____ 11.3 Elect _____ 11.4 Coal *
11.5 Other _____

12. Transportation (Type)

12.1 Raw Resource Input _____
12.2 Final Resource Output _____

13. Water

13.1 Consumptive Use: A/ft/yr. _____
13.2 Surface _____ 13.3 Underground _____
13.4 Storage facilities _____
13.5 Other _____

14. Work force

14.1 Construction Phase _____ 14.11 Peak _____
14.12 Expected Peak Date _____ 14.2 Operational _____

15. Timetable (Dates)

15.1 Construction Begins _____ 15.2 Operational _____

16. Miscellaneous *Contracted to purchase 900,000 ton/year from NERCO Antelope Mine, Powder River Basin, WY

17. Latest Entry on this Form (date and initials) 11/11/81 LRL

Colorado Geological Survey
Energy Activity Profile 1.1 I.D. # Z1

1. Identifying Information

1.2 Project Name Mt. Emmons Project
1.3 Project Owners Amax Inc.
1.4 Colo. Address 13949 W. Colfax Ave., Golden, CO 80401
1.5 Contact Person Art Biddle 1.6 Phone 234-9020
1.7 Corporate Address
1.8 Phone
1.9 New Project X 1.91 Existing Project 1.92 Expansion

2. Resource Base

2.1 Oil 2.2 Natural Gas 2.3 Oil Shale 2.4 Uranium
2.5 Coal 2.6 Geothermal 2.7 Other molybdenum

3. Project Location

3.1 County(ies) Gunnison 3.2 Legal S Twp Rge

4. Land Ownership

4.1 Private 4.11 Acres 4.2 Federal X 4.21 Acres *
4.3 State 4.31 Acres 4.4 Total Acres

5. Geological Base

5.1 Formation 5.2 Age
5.3 Bed or Zone 5.4 Thickness
5.5 Quality: Gals/ton,BTU,Pounds/ton .44% MoS2 (0.2% MoS2 cutoff grade)
5.6 Reserves Recoverable: tons, bbls, cu ft 155 million tons

6. Resource Extraction Type

6.1 Oil Shale Mine 6.11 Underground 6.12 Strip 6.13 In situ
6.2 Uranium Mine 6.21 Underground 6.22 Strip 6.23 In situ
6.3 Coal Mine 6.31 Underground 6.32 Strip
6.33 Methane Extraction 6.34 UCG 6.35 Other Coal
6.4 Oil Well 6.5 Gas Well 6.6 Other molybdenum-underground

7. Conversion Activity Type

7.1 Oil Refining 7.2 Gas Processing 7.3 Oil Shale Retorting
7.4 Shale Oil Refining 7.5 Uranium Refining 7.6 Coal Gasification
7.7 Coal Liquefication 7.8 Electric Power 7.81 Coal to Elect.
7.82 Oil to Elect. 7.83 Gas to Elect. 7.84 Other to Elect.
7.9 Other

8. Resource Extraction or Conversion

Capacity 8.1 Tons/day 20,000 8.2 Barrels/day 8.3 Other
Actual 8.4 Tons/day 8.5 Barrels/day 8.6 Other

9. Product Upgrading

9.1 Process milling
9.2 Additional Raw Material Required 9.21 Vol
9.3 New Products 9.31 Vol

1.1 I.D.# Z1

10. End Products This Operation

10.1 Solids X 10.11 Tons/day
10.2 Liquids 10.21 Barrels/day
10.3 Gases 10.31 cu ft/day

11. Process Energy Consumption (Vol/Unit Time)

11.1 Gas 11.2 Oil 11.3 Elect ** 11.4 Coal ***
11.5 Other 23,000 gal. diesel fuel/month

12. Transportation (Type)

12.1 Raw Resource Input rail haulage system (electric)
12.2 Final Resource Output two trucks/day

13. Water

13.1 Consumptive Use: A/ft/yr. 3000 a/ft/yr
13.2 Surface 13.3 Underground
13.4 Storage facilities 2700 a/ft/yr
13.5 Other

14. Work force

	'82	'83	'84	'85	'86	'87	'88
14.1 Construction Phase	60	270	360	340	530	620	320

14.11 Peak 620
14.12 Expected Peak Date 1987 14.2 Operational peak in 1993 with 1,489 workers

15. Timetable (Dates)

15.1 Construction Begins 1982 15.2 Operational 1989

16. Miscellaneous * 1,667 acres for mine, mill and tailings site

** 3,655 MWH/month

***Approx. 4400 tons/month for steam boilers

The project has been participating in the Joint Review Process since June 1978.

Start-up 1984 (construction)

17. Latest Entry on this Form (date and initials) 6/22/81 JW/AP

Colorado Geological Survey
Energy Activity Profile

1.1 I.D. # Z1

18. Status of Regulatory Actions

Required Permits	Date Application Submitted	Agency Decision and Date	Permit Number
Plan of Operations	4-27-79		
Environmental Impact Statement	sloping complete 12/31/81		
Land Exchange	4/27/79		
Land Use Change Permit	4/27/79		
Regular Mining Permit			
NPDES Permit			
Air Emissions Permit	5/30/80	prelim. decision approval 10/13/80	
404 Dredge & Fill Permit			
Protection of Historical & Cultural Resources	2/23/81		
Transmission Line ROW/Special Use	3/81		
Railroad Row/Special Use	3/81		

19. Latest Entry on this Form (date and initials) 6/22/81 JW/AP