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Exhibit 13

**A Cost Analysis of the Impact of Draft Rule 19.15.17 NMAC
On Oil and Natural Gas Drilling Operations in New Mexico**

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13

13-1

OVERVIEW:

Draft rule 19 NMAC 19.15.17, as it pertains to temporary pits used in drilling or workover operations, stipulates four conditional options for the type of pit system to be used and the manner in which pit contents are to be handled. An operator can, upon meeting the conditions stipulated in the draft rule, utilize lined earthen pits, disposing of the pit contents on or off site, or utilize a closed loop system, disposing of the tank contents and solids on or off site.

This report evaluates the cost of employing each of the above options to determine the magnitude of the draft rule's impact on the expense of drilling an oil or gas well in the State. The draft rule's impact with respect to workover costs was not evaluated because workover pit volumes and contents vary greatly, depending on the type and/or size of the workover to be performed. Significant cost impacts can be expected though with regard to handling liquids and solids generated during the work.

A large number of variables associated with drilling operations, wellbore size and depth, surface and immediate subsurface conditions, well location relative to disposal facilities and equipment costs among others, contribute to a certain degree of subjectivity in any economic evaluation. In an attempt to reduce to the degree of subjectivity, two 'type wells' were evaluated in both the Southeast and the Northwest regions of New Mexico. Operators and vendors in each region were interviewed and equipment and construction costs were solicited to generate a representative cost for implementation of each of the four scenarios with respect to each of the 'type wells'.

CONCLUSIONS:

Not unexpectedly, the most significant item affecting the cost associated with each of the options was the manner in which the pit contents are disposed. Removing solid material off-site to a commercial facility has the potential to substantially impact the cost of complying with the draft rule, particularly if the distance between the well site and the facility is extensive. The limited number of disposal sites approved by the Division to accept drilling solids is a contributing factor to the distance the material must be transported. It is also significant that the limited number of Division approved disposal sites offers no incentive for the existing sites to maintain their current disposal fees. The lack of disposal sites is of particular concern in the Northwest region of the State. In the Northwest, the need to remove and dispose of liquids will also add significantly to the waste handling costs currently being incurred.

The cost associated with renting closed loop drilling system equipment versus earthen pit construction, under the conditions evaluated, also adds to the cost of complying with the draft rule. A number of the reported benefits of using a closed-loop system such as improved penetration rates, fewer drilling bits used and reduced drilling mud volumes have not been universally realized.

The draft rule will potentially add as much as 8-10% to the current cost of drilling a well in Southeast New Mexico. Where closed loop systems and commercial disposal facilities are used a cost difference of \$89,000 for a 7,500 foot well and \$67,500 for a 4,000 foot

well can be expected. The draft rule will potentially add as much as 10-15% to the current cost of drilling a well in Northwest New Mexico. Using a closed loop system and commercial disposal facility a cost difference of \$160,500 for a 7,500 foot well and \$99,500 for a 4,000 foot well can be expected.

DISCUSSION:

The two wellbore configurations chosen as 'type wells', Diagrams 1 & 2, were selected because accurate data was available to make a comparison of volumes of solids generated relative to wellbore volumes for a number of similar wells drilled in Lea County, New Mexico. Table 5 is a tabulation of this data. The 'type wells' are also representative of a relatively shallow well, 4000 foot in depth, and an intermediate depth well, 7500 foot in depth. After the wells listed in Table 5 were drilled and completed, standing liquids were removed from the earthen reserve pits and the pits were allowed to dry out naturally through evaporation. The remaining solids and pit liner were transported to a Division approved commercial disposal site.

The dimensions of the earthen pits, horseshoe in the SE and regular pit in the NW, are generally dictated by the drilling rig employed. The two pit sizes selected in each area for the evaluation represent pits typically associated with the 'type well' depths. Pit construction and lining costs were obtained from vendors and company personnel working in the area. Reserve pit closure costs were derived from actual data and vendors estimates.

Well location distance from a Division approved commercial disposal facility was assumed to be at the maximum distance requiring off-site disposal in the draft rule, 100 miles. Graphs for the turn-around transit times associated with the cost per load were generated. The cost per cubic yard to dispose of solids was obtained from the available facilities approved by the Division to handle drilling solids. A load was assumed to be 14 yd³ because of New Mexico Highway Department weight restrictions and loading methods.

The rental rates for equipment used in closed loop systems was obtained from vendors and the actual cost (time on location) of utilizing the equipment was obtained through interviews with company drilling personnel.

A cost estimate for the current method widely used for handling drilling fluids and solids in the Southeast region of the State was based on the use of a horseshoe earthen reserve pit lined with a 12 mil liner and on-site deep burial of solids, free liquids hauled to disposal. In the Northwest the cost was based on an earthen rectangular reserve pit with a 12 mil liner and burial of solids in place, liquids being allowed to evaporate on site.

Within the scope of this study, I was unable to document claims for reductions in drilling times, reduced bit usage, or reduced mud volumes. Previously published 'waste' reduction claims rely heavily on the recycling of the drilling fluid. For this study the assumption was made that only one well was to be drilled and all of the drilling fluid and generated solid waste was to be disposed of at the conclusion of drilling and completion activities.

RESULTS:

The following tables contain the results of the 'type well' cost analyses assuming the draft pit rule is adopted:

SOUTHEAST NM 7,500 FOOT WELL

	Current Method Used	Earthen Reserve Pit On-site Disposal	Earthen Reserve Pit Off-site Disposal	Closed Loop On-site Disposal	Closed Loop Off-site Disposal
Reserve Pit Construction & Closure	\$20,000	\$24,000	\$24,000		
Closed Loop Equipment Rental				\$57,000	\$57,000
Deep Burial	\$23,500	\$27,000		\$27,000	
Commercial Disposal Facility			\$75,500		\$75,500
TOTAL COST	\$43,500	\$51,000	\$99,500	\$84,000	\$132,500

TABLE 1

SOUTHEAST NM 4,000 FOOT WELL

	Current Method Used	Earthen Reserve Pit On-site Disposal	Earthen Reserve Pit Off-site Disposal	Closed Loop On-site Disposal	Closed Loop Off-site Disposal
Reserve Pit Construction & Closure	\$13,500	\$15,500	\$15,500		
Closed Loop Equipment Rental				\$33,500	\$33,500
Deep Burial	\$12,500	\$15,500		\$15,000	
Commercial Disposal Facility			\$60,000		\$60,000
TOTAL COST	\$26,000	\$31,000	\$75,500	\$48,500	\$93,500

TABLE 2

NORTHWEST NM 7,500 FOOT WELL

	Current Method Used	Earthen Reserve Pit On-site Disposal	Earthen Reserve Pit Off-site Disposal	Closed Loop On-site Disposal	Closed Loop Off-site Disposal
Reserve Pit Construction & Closure	\$11,000	\$14,000	\$14,000		
Closed Loop Equipment Rental				\$57,000	\$57,000
Deep Burial		\$61,000		\$61,000	
Commercial Disposal Facility			\$114,500		\$114,500
TOTAL COST	\$11,000	\$75,000	\$128,500	\$118,000	\$171,500

TABLE 3

NORTHWEST NM 4,000 FOOT WELL

	Current Method Used	Earthen Reserve Pit On-site Disposal	Earthen Reserve Pit Off-site Disposal	Closed Loop On-site Disposal	Closed Loop Off-site Disposal
Reserve Pit Construction & Closure	\$7,000	\$10,000	\$10,000		
Closed Loop Equipment Rental				\$33,500	\$33,000
Deep Burial		\$24,000		\$24,000	
Commercial Disposal Facility			\$73,500		\$73,500
TOTAL COST	\$7,000	\$34,000	\$83,500	\$57,500	\$106,500

TABLE 4

CALCULATIONS:

Hole Volume (hv) and Waste Volume (wv)

Hole Volume: 7500 foot 'type well' (Diagram No.1)

$$\begin{array}{r} 1500 \text{ ft} \times 0.1175 \text{ bbl/ft} \quad 176.25 \text{ bbl} \\ (7500 - 1500) \text{ ft} \times 0.0602 \text{ bbl/ft} \quad \underline{361.20 \text{ bbl}} \\ 537.45 \text{ bbls (112 yd}^3) \end{array}$$

Hole Volume: 4000 foot 'type well' (Diagram No. 2)

$$\begin{array}{r} 1200 \text{ ft} \times 0.1175 \text{ bbl/ft} \quad 141.00 \text{ bbl} \\ (4000-1200) \text{ ft} \times 0.0602 \text{ bbl/ft} \quad \underline{168.56 \text{ bbl}} \\ 309.56 \text{ bbl (64 yd}^3) \end{array}$$

Waste Volume: 7500 foot 'type well'

$$\begin{array}{r} \text{Total Waste Volume: } 537.45 \text{ bbl} \times 20 \text{ wv: hv}^* = \quad 10749 \text{ bbls} \\ \text{Solid Waste: } 112 \text{ yd}^3 \times 10 \text{ wv: hv}^{**} \times 4.8089 \text{ bbl/yd}^3 = \quad \underline{5386 \text{ bbls}} \\ \text{Liquid Waste : Total Waste - Solid Waste} = \quad 5363 \text{ bbls} \end{array}$$

Waste Volume: 4000 foot 'type well'

$$\begin{array}{r} \text{Total Waste Volume: } 309.56 \text{ bbl} \times 20 \text{ wv: hv}^* = \quad 6191 \text{ bbls} \\ \text{Solid Waste: } 64 \text{ yd}^3 \times 16 \text{ wv: hv}^{**} \times 4.8089 \text{ bbl/yd}^3 = \quad \underline{4924 \text{ bbls}} \\ \text{Liquid Waste : Total Waste - Solid Waste} = \quad 1267 \text{ bbls} \end{array}$$

* References 1,2&3

** Table 5

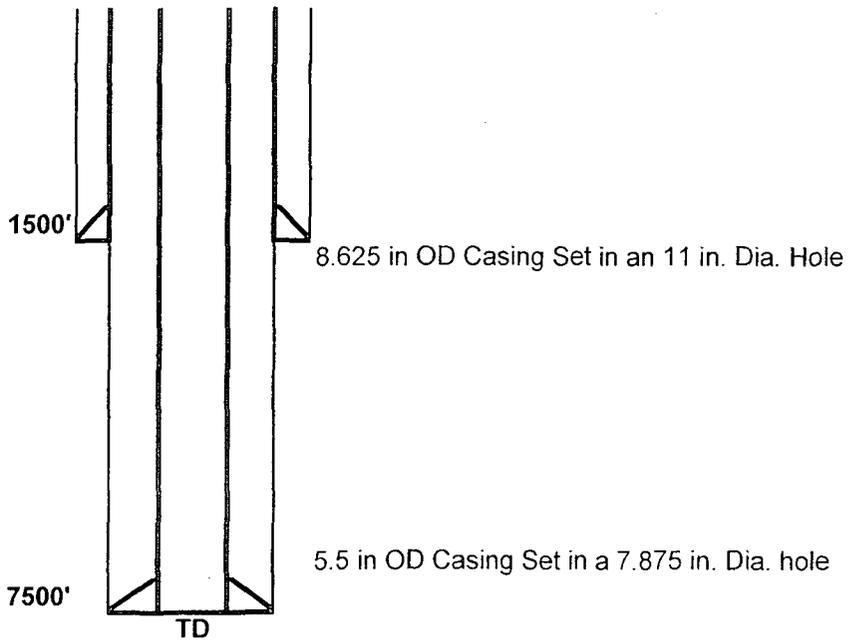


DIAGRAM NO. 1

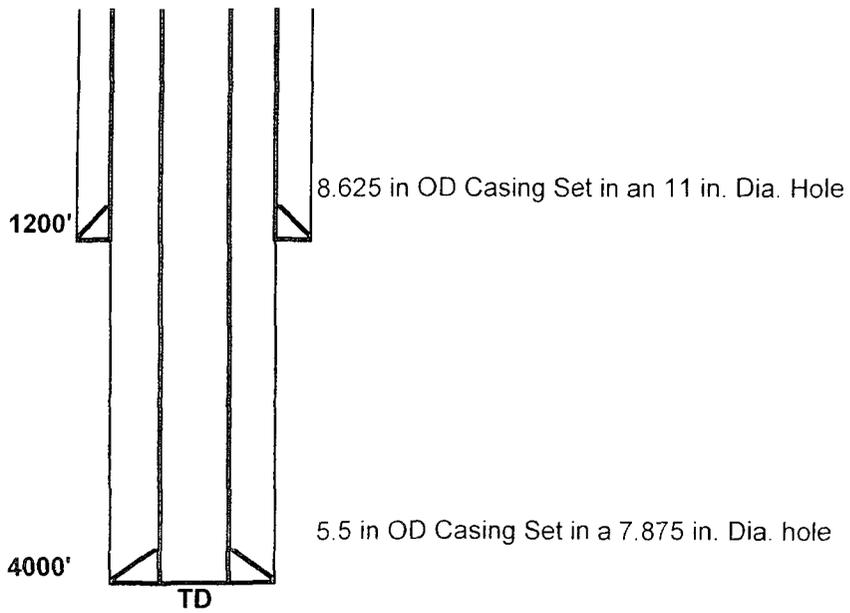


DIAGRAM NO. 2

WASTE VOLUME TO HOLE VOLUME RATIO SPREADSHEET

A	C		D		E		F		G		H		I	J	K
	Well	Depth (Feet)	Diameter (Inches)	Hole Vol. (Yards ³)	Depth (Feet)	Diameter (Inches)	Hole Vol. (Yards ³)	Production Csg Hole	Total Hole Vol. (Yards ³)	Material Hauled (Yards ³)	Ratio				
	1	427	11	10.44	3960	7.875	44.25		54.69	900	16.5				
	2	432	11	10.56	3960	7.875	44.19		54.75	800	14.6				
	3	1122	11	27.42	3900	7.875	34.80		62.22	540	8.7				
	4	1200	11	29.33	3916	7.875	34.02		63.35	1400	22.1				
	5	1225	11	29.94	4597	7.875	42.24		72.18	1424	19.7				
	6	1503	11	36.73	7525	7.875	75.43		112.17	1080	9.6				
	7	1239	11	30.28	7283	7.875	75.71		105.99	960	9.1				
	8	1460	11	35.68	7525	7.875	75.97		111.65	800	7.2				
	9	1468	11	35.88	7638	7.875	77.28		113.16	780	6.9				
	10	1513	11	36.98	7650	7.875	76.87		113.85	1180	10.4				
	11	1450	11	35.44	7705	7.875	78.35		113.79	900	7.9				
	12	1510	11	36.91	7650	7.875	76.91		113.81	1800	15.8				
	13	1530	12.25	46.38	7200	7.875	71.02		117.40	1300	11.1				
	14	1530	12.25	46.38	7200	7.875	71.02		117.40	1200	10.2				
	15	1193	12.25	36.16	7465	7.875	78.56		114.72	1672	14.6				

Avg 16

Avg 10

E = C X 0.6599 / 27
 for 11 inch hole
 E = C X 0.8184 / 27
 for 12.24 inch hole
 H = (F-C) X 0.3382 / 27
 for 7.875 inch hole

I = E+H
 K = J/I

TABLE 5

Cost of Current Methods Employed to Handle Drill Pit Contents

SE: 7,500 foot type well

Reserve Pit with a 12 mil Liner		
Construction:	D-6 dozer for 40 hours @ \$116/hr	\$ 4,640
12 mil liner	31,500 ft ² @ \$0.21/ft ² installed	\$ 6,615
Geotextile	25,500 ft ² @ \$0.14/ft ² installed	\$ 3,570
Sampling	2 samples background & beneath pit	\$ 550
Closure	D-6 dozer for 40 hours @ \$116/hr	\$ 4,640
Deep Burial Trench with a 12 mil Liner		
Construction	D-6 dozer for 30 hours @ \$116/hr	\$ 3,480
12 mil liner	10,820 ft ² @ \$0.21/ft ² installed	\$ 2,272
Geotextile	3,000 ft ² @ \$0.14/ft ² installed	\$ 420
Liquids Removal		
45 loads	120 bbl vac. trk. @ \$212.50/load	\$ 9,474
5350 bbls	Disposal charge @ \$0.65/bbl	\$ 3,478
Closure	D-6 dozer for 30 hours @ \$116/hr	\$ 3,480
12 mil cap	4,800 ft ² @ \$0.21/ft ² installed	\$ 1,008
		\$43,627

4,000 foot type well

Reserve Pit with a 12 mil Liner		
Construction:	D-6 dozer for 30 hours @ \$116/hr	\$ 3,480
12 mil liner	16,200 ft ² @ \$0.21/ft ² installed	\$ 3,402
Geotextile	12,000 ft ² @ \$0.14/ft ² installed	\$ 1,680
Sampling	2 samples background & beneath pit	\$ 550
Closure	D-6 dozer for 40 hours @ \$116/hr	\$ 4,640
Deep Burial Trench with a 12 mil Liner		
Construction	D-6 dozer for 30 hours @ \$116/hr	\$ 3,480
12 mil liner	7,520 ft ² @ \$0.21/ft ² installed	\$ 1,579
Geotextile	2,000 ft ² @ \$0.14/ft ² installed	\$ 280
Liquids Removal		
11 loads	120 bbl vac. trk. @ \$212.50/load	\$ 2,338
1260 bbls	Disposal charge @ \$0.65/bbl	\$ 819
Closure	D-6 dozer for 30 hours @ \$116/hr	\$ 3,480
12 mil cap	3,300 ft ² @ \$0.21/ft ² installed	\$ 693
		\$26,421

NW: 7,500 foot type well

Reserve Pit with a 12 mil Liner		
Construction:	D-6 dozer for 30 hours @ \$138/hr	\$ 4,140
12 mil liner	9,700 ft ² @ \$0.25/ft ² installed	\$ 2,425
Closure	D-6 dozer for 30 hours @ \$138/hr	\$ 4,140
		\$10,705

4,000 foot type well

Reserve Pit with a 12 mil Liner

Construction:	D-6 dozer for 20 hours @ \$138/hr	\$ 2,760
12 mil liner	6,600 ft ² @ \$0.25/ft ² installed	\$ 1,650
Closure	D-6 dozer for 20 hours @ \$138/hr	\$ 2,760
		<u>\$ 7,170</u>

Draft Rule Reserve Pit Cost Calculations With a 20 mil Liner

Reserve pit construction and closure: 7,500 foot well (150' X 150' X 10'):

SE: Pit Construction:	D-6 dozer for 40 hours @ \$116/hr	\$ 4,640
20 mil liner	31,500 ft ² @ \$0.33/ft ² installed	\$10,395
Geotextile	25,500 ft ² @ \$0.14/ft ² installed	\$ 3,570
Sampling	2 samples background & beneath pit	\$ 550
Closure	D-6 dozer for 40 hours @ \$116/hr	<u>\$ 4,640</u>
		\$23,795

Reserve pit construction and closure: 4,000 foot well (100' X 100' X 10'):

SE: Pit Construction:	D-6 dozer for 30 hours @ \$116/hr	\$ 3,480
20 mil liner	16,200 ft ² @ \$0.33/ft ² installed	\$ 5,346
Geotextile	12,000 ft ² @ \$0.14/ft ² installed	\$ 1,680
Sampling	2 samples background and beneath pit	\$ 550
Closure	D-6 dozer for 40 hours @ \$116/hr	<u>\$ 4,640</u>
		\$15,696

Reserve pit construction and closure: 7,500 foot well (100' X 30' X 10'):

NW: Pit Construction:	D-6 dozer for 30 hours @ \$138/hr	\$ 4,140
20 mil liner	9,700 ft ² @ \$0.40/ft ² installed	\$ 3,880
Geotextile	4,300 ft ² @ \$0.14/ft ² installed	\$ 602
Sampling	2 samples background and beneath pit	\$ 1,510
Closure	D-6 dozer for 30 hours @ \$138/hr	<u>\$ 4,140</u>
		\$14,272

Reserve pit construction and closure: 4,000 foot well (75' X 25' X 8'):

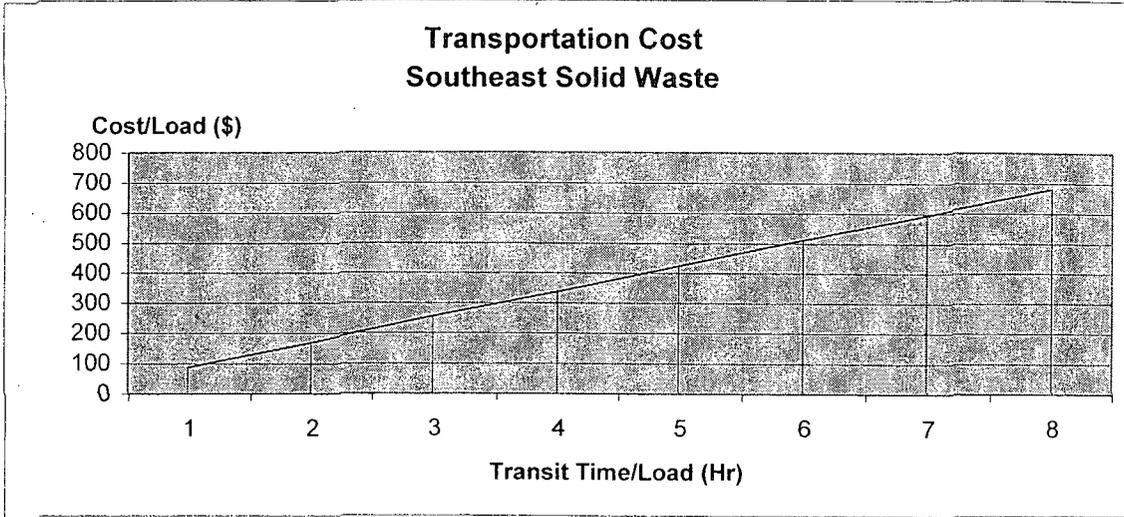
NW: Pit Construction:	D-6 dozer for 20 hours @ \$138/hr	\$ 2,760
20 mil liner	6,600 ft ² @ \$0.40/ft ² installed	\$ 2,640
Geotextile	2,675 ft ² @ \$0.14/ft ² installed	\$ 375
Sampling	2 samples background and beneath pit	\$ 1,510
Closure	D-6 dozer for 20 hours @ \$138/hr	<u>\$ 2,760</u>
		\$10,045

Draft Rule Deep Burial of Drilling Solids Cost Calculations

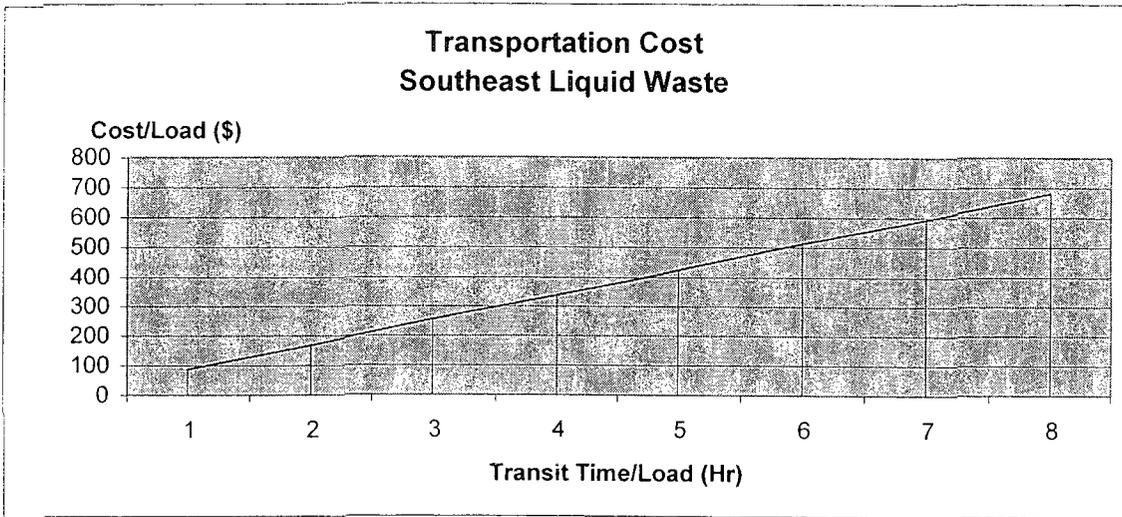
Trench construction and closure: 7,500 foot well (150' X 20' X 20')

SE: Trench Construction	D-6 dozer for 30 hours @ \$116/hr	\$ 3,480
20 mil liner	10,820 ft ² @ \$0.33/ft ² installed	\$ 3,571
Geotextile	3,000 ft ² @ \$0.14/ft ² installed	\$ 420
Sampling & Analyses	Solids to be disposed of	\$ 1,500
Liquids Removal		
45 loads	120 bbl vac. trk. @ \$212.50/load	\$ 9,474
5350 bbls	Disposal charge @ \$0.65/bbl	\$ 3,478

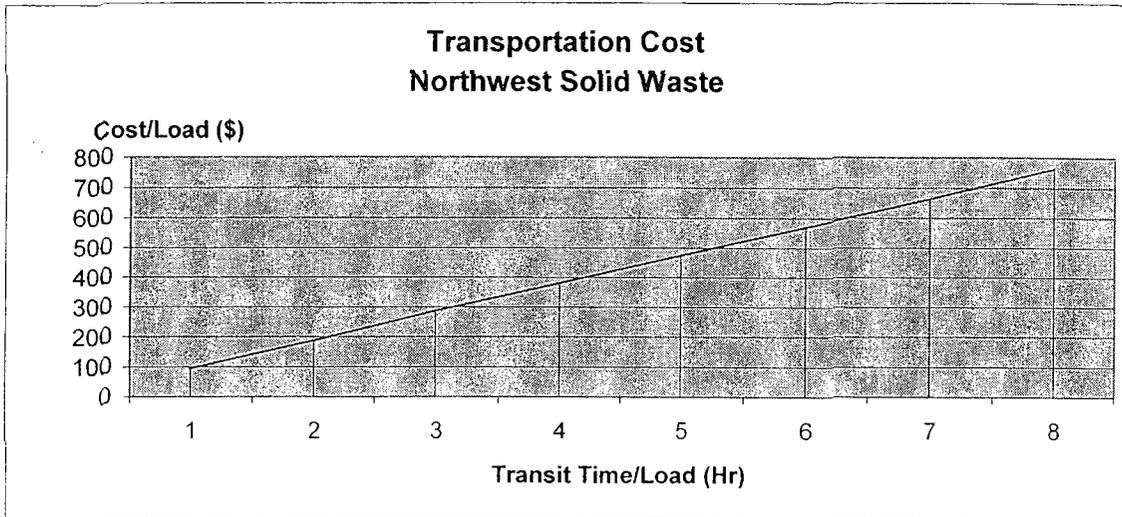
Closure	D-6 dozer for 30 hours @ \$116/hr	\$ 3,480
20 mil cap	4,800 ft ² @ \$0.33/ft ² installed	\$ 1,584
		\$26,987
Trench construction and closure: 4,000 foot well (100' X 20' X 20')		
SE: Trench Construction	D-6 dozer for 30 hours @ \$116/hr	\$ 3,480
20 mil liner	7,520 ft ² @ \$0.33/ft ² installed	\$ 2,482
Geotextile	2,000 ft ² @ \$0.14/ft ² installed	\$ 280
Sampling & Analyses	Solids to be disposed of	\$ 1,500
Liquids Removal		
11 loads	120 bbl vac. trk. @ \$212.50/load	\$ 2,338
1260 bbls	Disposal charge @ \$0.65/bbl	\$ 819
Closure	D-6 dozer for 30 hours @ \$116/hr	\$ 3,480
20 mil cap	3,300 ft ² @ \$0.33/ft ² installed	\$ 1,089
		\$15,468
Trench construction and closure: 7,500 foot well (100' X 20' X 15')		
NW: Trench Construction	D-6 dozer for 30 hours @ \$138/hr	\$ 4,140
20 mil liner	6,320 ft ² @ \$0.40/ft ² installed	\$ 2,528
Geotextile	2,000 ft ² @ \$0.14/ft ² installed	\$ 280
Sampling & Analyses	Solids to be disposed of	\$ 2,500
Liquids Removal		
45 loads	120 bbl vac. trk. @ \$905/load	\$40,725
5350 bbls	Disposal charge @ \$1.00/bbl	\$ 5,350
Closure	D-6 dozer for 30 hours @ \$138/hr	\$ 4,140
20 mil cap	3,300 ft ² @ \$0.40/ft ² installed	\$ 1,320
		\$60,983
Trench construction and closure: 4,000 foot well (75' X 20' X 15')		
NW: Trench Construction	D-6 dozer for 30 hours @ \$138/hr	\$ 4,140
20 mil liner	4,920 ft ² @ \$0.40/ft ² installed	\$ 1,968
Geotextile	1,500 ft ² @ \$0.14/ft ² installed	\$ 210
Sampling & Analyses	Solids to be disposed of	\$ 2,500
Liquids Removal		
11 loads	120 bbl vac. trk. @ \$905/load	\$ 9,955
1260 bbls	Disposal charge @ \$1.00/bbl	\$ 1,260
Closure	D-6 dozer for 20 hours @ \$138/hr	\$ 2,760
20 mil cap	2,550 ft ² @ \$0.40/ft ² installed	\$ 1,020
		\$23,813



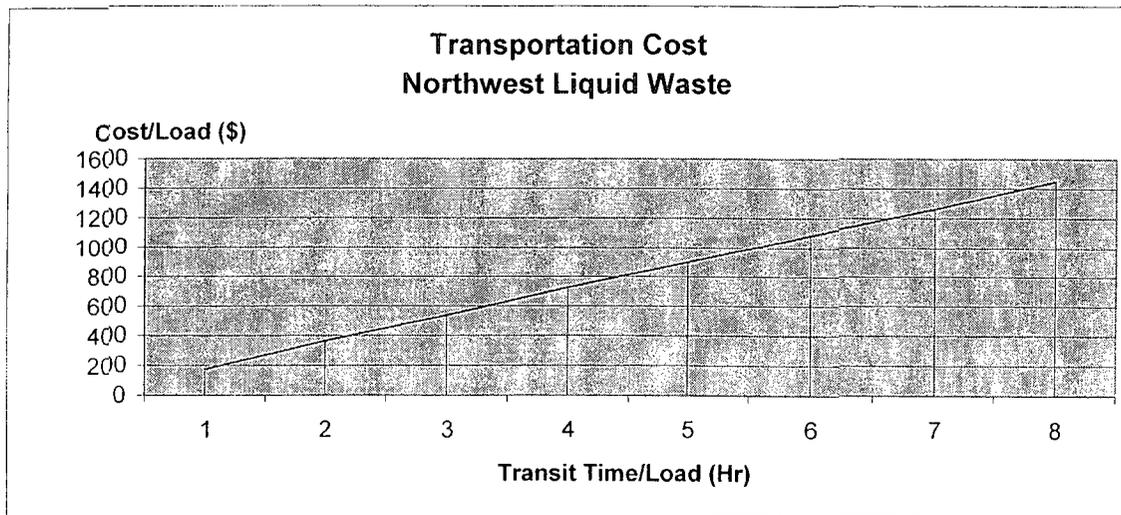
Transit turn-around for a 100 mile haul is assumed to be 5 hours @ \$85/hr.



Transit turn-around for a 40 mile haul is assumed to be 2.5 hours @ \$ 85/hr



Transit turn-around for a 100 mile haul is assumed to be 5 hours @ \$95/hr.



Transit turn-around for a 100 mile haul is assumed to be 5 hours @ \$180/hr.

Draft Rule Off-Site Disposal Cost Calculations

Disposal of wastes: 7,500 foot well (1,120 yd³ solids & 5,350 bbl liquids)

SE: Solids:

Use 4 trucks	Front end loader 70 hr @ \$100/hr	\$ 7,000
80 loads	20 yd dump truck @ \$425/load	\$34,000
1120 yd ³	Disposal charge @ \$18/yd ³	\$20,160
Sampling & Analyses	Solids to be disposed of	\$ 1,500

Liquids:

45 loads	120 bbl vac. trk. @ \$212.50/load	\$ 9,474
5350 bbls	Disposal charge @ \$0.65/bbl	\$ 3,478
		<u>\$75,612</u>

Disposal of wastes: 4,000 foot well (1,024 yd³ solids & 1,260 bbl liquids)

SE: Solids:

Use 4 trucks	Front end loader 60 hr @ \$100/hr	\$ 6,000
73 loads	20 yd dump truck @ \$425/load	\$31,025
1,024 yd ³	Disposal charge @ \$18/yd ³	\$18,432
Sampling & Analyses	Solids to be disposed of	\$ 1,500

Liquids:

11 loads	120 bbl vac. trk. @ \$212.50/load	\$ 2,338
1260 bbls	Disposal Charge @ \$0.65/bbl	\$ 819
		<u>\$60,114</u>

Disposal of solids: 7,500 foot well (1120 yd³)

NW: Solids:

Use 4 trucks	Front end loader 70 hr @ \$110/hr	\$ 7,700
80 loads	20 yd dump truck @ \$475/load	\$38,000
1120 yd ³	Disposal charge @ \$18/yd ³	\$20,160
Sampling & Analyses	Solids to be disposed of	\$ 2,500

Liquids:

45 loads	120 bbl vac. trk. @ \$905/load	\$40,725
5350 bbls	Disposal charge @ \$1.00/bbl	\$ 5,350
		<u>\$114,435</u>

Disposal of solids: 4000 foot well (1024 yd³)

NW: Solids:

Use 4 trucks	Front end loader 60 hr @ \$110/hr	\$ 6,600
73 loads	20 yd dump truck @ \$475/load	\$34,675
1024 yd ³	Disposal charge @ \$18/yd ³	\$18,432
Sampling & Analyses	Solids to be disposed of	\$ 2,500

Liquids:

11 loads	120 bbl vac. trk. @ \$905/load	\$ 9,955
1260 bbls	Disposal charge @ \$1.00/bbl	\$ 1,260
		<u>\$73,422</u>

Closed Loop System Equipment Rental & Labor Costs

Drilling time for a 7,500 foot well estimated at 14 days

SE: Solids control equipment	\$16,300
Equipment installation cost	\$10,000
Operators	\$16,800
Tanks	<u>\$13,700</u>
	\$56,800

Drilling time for a 4,000 foot well estimated at 7 days

SE: Solids control equipment	\$ 8,155
Equipment installation cost	\$10,000
Operators	\$ 8,400
Tanks	<u>\$ 6,840</u>
	\$33,395

The cost of using a closed loop drilling system in the Northwest was assumed to be similar to the cost in the Southeast. Some of the same vendors are being used and the data available indicates that this is the case.

REFERENCES:

1. Rogers, Smith, Fout and Marchbanks; Closed-loop Drilling System: A Viable Alternative to Waste Pits, *World Oil Dec 2006*
2. Rogers, Fout and Piper; New Innovative Process Allows Drilling Without Pits in New Mexico, The 13th International Petroleum Environmental Conference, San Antonio, TX, Oct 2006
3. Fleming, Ivan and Piper; Theoretical and Practical Models for Drilling Waste Volume Calculation with Field Case Studies, The 13th International Petroleum Environmental Conference, San Antonio, TX, Oct 2006
4. Dowell; Engineers Handbook