

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: General Rules**

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**Summary**

This section contains the formulas, rules, and principles, and the rate schedules and calculation procedures for determining the assessed value of oil and gas well resource production equipment, and buildings located at an oil or gas well site.

**Description**

Resource production equipment includes the fixtures, machinery and other appliances by which petroleum oil or gas is produced to the surface, stored, transported from a well site or a battery or gas handling site, or is compressed.

Resource production equipment does not include the fixtures, machinery and other appliances by which petroleum oil or gas is stored at a battery site, or is compressed where the gas is, for the most part, a by-product of petroleum oil production.

Oil or Gas Well Site

The area of land on or under which is located the resource production equipment used to raise or pump the oil or gas to the surface, the resource production equipment used to inject air, water, steam or gas to enhance the production of a well, or the resource production equipment at a water source well, that was operated for 30 or more days in the 12 month period ending July 1 of the preceding year to which the assessment roll relates.

The resource production equipment located at an oil well site includes the pumping equipment, well head assembly, tubing and rods, and well accessories.

The resource production equipment located at a gas well site includes the well head assembly, tubing, chemical equipment, water handling equipment, and metering equipment.

The resource production equipment used to inject air, water, steam or gas to enhance the production of a well, and the resource production equipment at a water source well, includes the pumping equipment, well head assembly, tubing and rods, metering equipment, control valves, manifold, and well accessories.

New Well Site

An oil or gas well site that was drilled in the 12 month period ending July 1 of the preceding year to which the assessment roll relates.

Swabber Well Site

An oil or gas well site where on July 1 of the preceding year to which the assessment roll relates, the resource production equipment used in the preceding year has been removed from the site and has not been replaced with any other on-site resource production equipment.

Shut-In Well Site

The area of land on or under which is located the resource production equipment used to raise or pump the oil or gas to the surface, the resource production equipment used to inject air, water, steam or gas to enhance the production of a well, or the resource production equipment at a water source well, that was operated for less than 30 days in the 12 month period ending September 1 of the preceding year to which the assessment roll relates.

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Observation Well Site

The area of land on or under which is located the resource production equipment used to monitor an oil or gas well to enhance the production of the well.

Gas Storage Well Site

The area of land on or under which is located the resource production equipment used to inject gas into a gas cavern or sub surface formation and to pump gas from a gas cavern or subsurface formation.

Flow Line

A flow line is a line of pipe used to transport oil or gas from a well site to a battery or gas handling site.

**Replacement Cost New**

The replacement cost new of oil and gas well resource production equipment and buildings located at an oil or gas well site, or a new well site shall be determined by the standard unit method.

The replacement cost new of oil and gas well resource production equipment located at a swabber well site or shut-in well site shall be limited to the well head assembly which shall be determined in accordance with the well head assembly specifications in Chapter 4 - Resource Production Equipment, Section 4.1.3 - Oil and Gas Well Resource Production Equipment, Well Classification.

The replacement cost new of oil and gas well resource production equipment located at an observation well site or gas storage well site, and the replacement cost new of flow lines shall be determined by the unit-in-place method.

The trended original cost method for determining replacement cost new shall be used where the replacement cost new of specific oil or gas well resource production equipment cannot be determined by the standard unit method or the unit-in-place method.

The trended original cost shall include all direct and indirect costs. Direct costs include materials, labour, supervision, equipment rentals, and utilities. Indirect costs include architectural and engineering fees, building permits, title and legal fees, insurance, interest and fees on construction loans, taxes incurred during construction, advertising and sales expenses, and overhead and profit. Trended original costs shall be determined FOB the well site as of January 1, 2011.

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Standard Unit Method

The replacement cost new shall be determined as follows:

1. Determine the classification of the well
2. Determine the resource production equipment needed to operate a substitute well. The substitute well must perform the same function as the well being valued.
3. Calculate the replacement cost new of the resource production equipment located at the well by summing the replacement cost of the substitute resource production equipment.

Unit-In-Place Method

The replacement cost new shall be determined as follows:

1. Determine the type of resource production equipment using the rating guide.
2. Determine the features requiring a unit-in-place lump sum or percentage adjustment.
3. Calculate the replacement cost new of the resource production equipment by adjustment of the base rate by the unit-in-place adjustments.

Trended Original Cost Method

The replacement cost new shall be determined as follows:

1. Determine the original construction cost of all the resource production equipment at the facility.
2. Determine the direct and indirect costs requiring an adjustment.
3. Determine the direct and indirect cost factor for oil and gas resource production equipment required to adjust construction costs to January 1, 2011.
4. Calculate the construction cost of all the resource production equipment at the facility by adjusting the original construction cost for any direct or indirect costs requiring adjustment and multiplying the adjusted original construction cost by the comparative cost index.
5. Determine replacement cost of resource production equipment that can be separately identified and rated by the unit-in-place method.
6. Calculate the replacement cost of the resource production equipment that can not be separately identified by subtracting the replacement cost of separately identified components from the construction cost of all the resource production equipment at the facility.

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**Physical Deterioration**

The amount of physical deterioration for oil and gas well resource production equipment and buildings shall be determined using the lifetime depreciation method. No allowance shall be made for functional and economic obsolescence, except as may be accounted for in the downtime allowance or the production adjustment factor.

Lifetime Depreciation Method

The amount of physical deterioration shall be 40 percent. When calculating replacement cost new less depreciation no additional allowance shall be made for physical deterioration except as may be accounted for in the production adjustment factor.

**Downtime Allowance**

The downtime allowance for oil and gas well resource production equipment shall be determined by the schedule of rates method.

The downtime allowance and the production adjustment factor shall account for all of the loss in value due to under-utilization of the resource production equipment. This includes any loss in value due to differences in replacement cost and differences in the amount of depreciation, that have not been taken into account using the procedures in this manual.

Schedule of Rates Method

The downtime allowance shall be 10 percent. When calculating replacement cost new less depreciation and downtime, no additional allowance shall be made for downtime except as may be accounted for in the production adjustment factor.

**Production Adjustment  
Factor**

The production adjustment factor for oil and gas well resource production equipment and buildings located at an oil or gas well site, and flow lines shall be determined by the schedule of rates method.

The downtime allowance and the production adjustment factor shall account for all of the loss in value due to under-utilization of the resource production equipment or buildings. This includes any loss in value due to differences in replacement cost and differences in the amount of depreciation, that have not been taken into account using the procedures in this manual.

A production adjustment factor shall not be applied to the oil and gas well resource production equipment located at a new well site, swabber well site, shut-in well site, observation well site, or gas storage well site.

Schedule of Rates Method

The production adjustment factor shall be 0.75 for qualified resource production equipment, buildings, structures and flow lines.

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Qualifying Production Level

The production adjustment factor shall be applied to resource production equipment, buildings, structures and flow lines. The factor shall be a three year average of production from a 36 month period ending July 1 of the preceding year to which the roll relates.

The average production of the well shall be determined as follows:

1. Determine the volume of oil or gas produced by the well during the 12 month period of July 1 to June 30 for each of the three years.
2. Determine the number of days the well was operated during the 12 month period of July 1 to June 30 for each of the three years.
3. Calculate the production of the well for each year by dividing the volume of oil or gas produced by the well for the year by the number of days the well was operated during the year.
4. Calculate the average production of the well by summing the production of the well for the three years and dividing by three.

**Oil Wells**

Well Area (Abbreviation)	Crude Type	Qualifying Production Level	
		BBLs/Day	M <sup>3</sup> /Day
Weyburn (WE)	Light	3.05	0.485
	Medium	3.39	0.538
Swift Current (SC)	Light	1.19	0.189
	Medium	2.85	0.453
	Heavy	5.28	0.839
Kindersley (KD)	Light	1.19	0.189
	Heavy	5.28	0.839
North Battleford - South (NB-S)	Heavy	5.52	0.876
North Battleford - North (NB-N)	Heavy	5.52	0.876

**Gas Wells**

Well Area (Abbreviation)	Qualifying Production Level	
	Ft <sup>3</sup> /Day	M <sup>3</sup> /Day
Weyburn (WE)	29,000	821.16
Swift Current (SC)	15,000	424.74
Kindersley (KD)	29,000	821.16
North Battleford - South (NB-S)	29,000	821.16
North Battleford - North (NB-N)	29,000	821.16

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Calculation Procedure

Resource Production Equipment at an Oil or Gas Well Site

Description	Document No.	Page No.
Standard Unit Resource Production Equipment [a), b), c) ]		
a) Determine Well Characteristics		
a <sub>1</sub> . Well Area	4.1.3	1
a <sub>2</sub> . Well Type	4.1.3	1
a <sub>3</sub> . Crude Type	4.1.3	1
a <sub>4</sub> . Horizontal Completion	4.1.3	2
a <sub>5</sub> . Depth	4.1.3	2
a <sub>6</sub> . Rated Volume	4.1.3	2
a <sub>7</sub> . Facility Type	4.1.3	2
a <sub>8</sub> . Days Operated	4.1.3	2
b) Determine Substitute Well Features	4.1.3	3-18
c) Base Rate = (c <sub>1</sub> + c <sub>2</sub> + c <sub>3</sub> ... + c <sub>9</sub> )		
c <sub>1</sub> . Pumping Equipment Rate	4.1.5	1-5
c <sub>2</sub> . Wellhead Assembly Rate	4.1.4	1
c <sub>3</sub> . Tubing and Rods Rate	4.1.7	1
c <sub>4</sub> . Chemical Equipment Rate	4.1.18	1
c <sub>5</sub> . Water Handling Equipment Rate		
c <sub>5</sub> = (c <sub>5.1</sub> + c <sub>5.2</sub> )		
c <sub>5.1</sub> Separator Rate	4.1.8	1-6
c <sub>5.2</sub> Scraper Traps Rate	4.1.27	1-2
c <sub>6</sub> . Metering Equipment Rate	4.1.15	1-3
c <sub>7</sub> . Control Valves Rate	4.1.16	1-3
c <sub>8</sub> . Manifold Rate	4.1.26	1
c <sub>9</sub> . Flow Line Rectifier Rate	4.1.20	1
d) Unit-in-Place Resource Production Equipment	4.1.1	3
e) Trended Original Cost Resource Production Equipment	4.1.1	3
f) Replacement Cost New = (c + d + e)		
g) RCN less Physical Deterioration and Downtime		
Allowance = f x (1 - (g <sub>1</sub> + g <sub>2</sub> ))		
g <sub>1</sub> . Physical Deterioration	4.1.1	4
g <sub>2</sub> . Downtime Allowance	4.1.1	4
h) Production Adjustment Factor	4.1.1	4-5
i) Assessed Value = (g x h)		

The calculation procedure for oil and gas well buildings on an oil or gas well site is found on Document 3.1.3, Page 1.

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**Resource Production Equipment**

**Subject: Comparative Cost Factor**

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**Description**

The comparative cost factors are used to determine the replacement cost of oil and gas well resource production equipment valued by the trended original cost method.

**Application**

The trended original cost method shall be used when the individual components of resource production equipment cannot be determined or estimated.

The trended original cost method shall not be used to determine the replacement cost of resource production and equipment located at an oil or gas well site, or to determine the replacement cost of resource production equipment that can be separately identified and rated.

Comparative Cost Factor

The comparative cost factor shall be used to calculate the replacement cost new of resource production equipment as of January 1, 2011.

**Factors**

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Technical Standards and Policy Division  
Saskatchewan Assessment Management Agency  
200 – 2201 – 11<sup>th</sup> Avenue  
Regina, Saskatchewan S4P 0J8

Phone: (306) 924-8000  
Toll Free: 1-800-667-SAMA (7262)  
Fax: (306) 924-8070

Email: [info.request@sama.sk.ca](mailto:info.request@sama.sk.ca)  
Web Site: <http://www.sama.sk.ca>

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**Resource Production Equipment**

**Subject: Comparative Cost Factor**

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**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Well Classification**

**Well Characteristics**

This section describes the formulas, rules and procedures for determining the classification of resource production equipment located at an oil or gas well site. Oil and gas well resource production equipment shall be classified in accordance with the following well characteristics:

Well Area	Depth
Well Type	Rated Volume
Crude Type	Facility Type
Horizontal Completion	Days Operated

Well Area

The well areas shall be:

<b>Well Area (Abbreviation)</b>	<b>Description</b>
Weyburn (WE)	All municipalities east of the third meridian, from R.M. 1 to R.M. 371 inclusive, except R.M. 282.
Swift Current (SC)	All municipalities west of the third meridian, from R.M. 43 to R.M. 261 inclusive.
Kindersley (KD)	All municipalities west of the third meridian, from R.M. 282 to R.M. 382 inclusive, including R.M. 282 and R.M. 372.
North Battleford - South (NB-S)	All municipalities from R.M. 394 to R.M. 555 inclusive.
North Battleford - North (NB-N)	All municipalities from R.M. 561 to R.M. 622 inclusive and the Northern Administrative District.

Well Type

The well types shall be:

Oil	Gas Injection
Oil (New)	Continuous Steam Injection
Gas	Cyclic Steam Injection
Gas (New)	Water Source
Air Injection	Water Source (New)
Water Injection	

Oil (New) and Gas (New) wells are those wells located on a new well site that was drilled in the 12 month period preceding July 1 of the year to which the assessment roll relates.

Crude Type

The crude types shall be:

Light  
Medium  
Heavy

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Horizontal Completion:

The horizontal completion types shall be:

- Vertical
- Horizontal

Depth

The depth of an oil or gas well shall be determined by measuring the distance from the kelly bushing to the average depth of the perforations in the well casing, or in the case of a horizontal well, the distance from the kelly bushing to the kick off depth.

Rated Volume

The volume for an oil well shall be determined based on the combined volume of oil and water produced.

The volume for a water source well shall be determined based on the volume of water produced.

The period July 1 to June 30 of the year immediately preceding the year to which the assessment roll relates, shall be used to determine the volume and days operated.

The rated volume shall be determined by application of the following formula:

$$RV = \text{volume} \div \text{days operated}$$

- where: RV = rated volume  
 volume = number of barrels of oil and/or water produced by the well  
 days operated = number of days the well was operated

Facility Type

The facility types shall be:

Type	Description
Tanks	Used to store oil on site until it is transferred to a battery.
Flow Lines	Used to transfer oil directly to a battery or gas directly to a gas plant, satellite or compressor station.

Days Operated

The number of days that the well was operated during the period July 1 to June 30 of the year immediately preceding the year to which the assessment roll relates.

Shut-In Well Site Reporting Period

The shut-in well site status shall be determined from the 12 month period ending September 1 of the year immediately preceding the year to which the assessment roll relates.

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**Pumping Units**

All oil well pumping units shall be conventional or hydrabeam.

**Water Handling Equipment**

Type	Description	Rate (\$)
1	<ul style="list-style-type: none"> <li>• 20% of Metering Cabinet</li> <li>• 10% - 125 - 260psi 12"x5' vertical two phase Separator</li> <li>• 60% - 2" receiving and launching trap without bypass</li> <li>• 70% - Test Leads</li> </ul>	10,290
2	<ul style="list-style-type: none"> <li>• 125 - 260psi 24"x10' vertical two phase separator</li> <li>• 3" receiving and launching trap with bypass</li> </ul>	47,515

**Metering Equipment**

Type	Description	Rate (\$)
1	<ul style="list-style-type: none"> <li>• One 300psi gas, dry flow recorder chart 100" with 2 pens</li> <li>• 50% of one 3" 300psi senior quick change</li> <li>• 50% of one 3" 300psi simplex</li> </ul>	10,950

**Water Handling Buildings**

Type	Description	Rate (\$)
1	<ul style="list-style-type: none"> <li>• 10% - 8' height, 64 sq.ft. metal shed with lining and insulation, floor and heat</li> <li>• 20% of 50% 40 bbl open Plastic tank</li> <li>• 20% of 50% 120 bbl open Plastic tank</li> </ul>	1,393
2	<ul style="list-style-type: none"> <li>• 8' height, 64 sq.ft. metal shed with lining and insulation, floor and heat</li> <li>• 300 bbl lap welded steel stock tank with open top</li> </ul>	37,971

**Chemical Equipment**

Type	Description	Rate (\$)
1	<ul style="list-style-type: none"> <li>• Alcohol drip (9gal. Tank)</li> </ul>	1,405

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**Subject: Well Classification**

**Substitute Well Features  
Weyburn Well Area  
Light Crude Oil Wells**

The resource production equipment required to operate a substitute oil well that performs the same function as the oil well being valued shall be determined in accordance with the following specifications:

Pumping Equipment

1. Vertical Wells
  - New wells ... 160 pumping unit
  - All other vertical well pumping unit:

Rated Volume (barrels/day)	Depth (ft.)			
	<3000	3000-4799	4800-5700	>5700
< 3	40	114	114	228
3-9.9	57	114	114	228
10-74.99	57	160	160	320
75-119.99	80	160	228	320
120-199.99	PC-120	228	320	456
≥ 200	PC-120	320	456	640
Rated volume = oil per day + (water per day ÷ 2)				

2. Horizontal Wells
  - New wells ... 456 pumping unit
  - All other horizontal well pumping units:

Rated Volume (barrels/day)	All Depths (ft.)
< 120	160
120 - 199.99	228
200 - 299.99	456
300 - 449.99	456
450 - 599.99	640
≥600	912
Rated volume = oil per day + (water per day ÷ 2)	

3. Prime Mover ... electric motor.

Wellhead Assembly

Vertical ... threaded 2000 lbs.  
Horizontal ... flanged 2000 lbs.  
Dual wellhead for multizone completion.

Tubing and Rods

Vertical ... 2<sup>7</sup>/<sub>8</sub>" tubing plain steel; 3/4" rod  
Horizontal ... 2<sup>7</sup>/<sub>8</sub>" tubing plain steel; 3/4" rod  
Length ... depth of well for first tubing string  
... depth of well minus 200 ft. for each additional tubing string

Well Accessories

Cathodic protection rectifier.

Building

n/a

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Well Classification**

**Substitute Well Features  
Weyburn Well Area  
Medium Crude Oil Wells**

The resource production equipment required to operate a substitute oil well that performs the same function as the oil well being valued shall be determined in accordance with the following specifications:

Pumping Equipment

1. Vertical wells
  - New wells ... 160 Pumping units
  - All other vertical well pumping units:

Rated Volume (barrels/day)	Depth (ft.)			
	< 3000	3000-4799	4800-5700	> 5700
< 3	40	114	114	228
3-9.9	57	114	114	228
10-74.99	57	160	160	320
75-119.99	80	160	228	320
120-199.99	PC-120	228	320	456
≥ 200	PC-120	320	456	640
Rated volume = oil per day + (water per day ÷ 2)				

2. Horizontal Wells
  - New wells... 640 pumping unit
  - All other horizontal well pumping units:

Rated Volume (barrels/day)	All Depths (ft.)
< 120	160
120 - 199.99	228
200 - 299.99	456
300 - 449.99	456
450 - 599.99	640
≥600	912
Rated volume = oil per day + (water per day ÷ 2)	

3. Prime Mover ... electric motor.

Wellhead Assembly

Vertical ... threaded 2000 lbs.  
Horizontal ... flanged 2000 lbs.  
Dual wellhead for multizone completion.

Tubing and Rods

Vertical ... 2 7/8" tubing plain steel; 3/4" rod  
Horizontal ... 2 7/8" tubing plain steel; 3/4" rod  
Length ... depth of well for first tubing string  
... depth of well minus 200 ft. for each additional tubing string

Well Accessories

Cathodic protection rectifier.

Building

n/a

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**Subject: Well Classification**

**Substitute Well Features  
Swift Current Well Area  
Light Crude Oil Wells**

The resource production equipment required to operate a substitute oil well that performs the same function as the oil well being valued shall be determined in accordance with the following specifications.

Pumping Equipment

1. Vertical wells
  - New wells ... 40 pumping unit
  - All other vertical well pumping units:

Rated Volume (barrels/day)	Depth (ft.)		
	< 2000	2000-4500	> 4500
< 1.7	25	40	40
≥ 1.7	25	40	40
Rated volume = oil per day + (water per day ÷ 0.67)			

2. Horizontal Wells
  - New wells ... 456 pumping units
  - All other horizontal well pumping units:

Rated Volume (barrels/day)	All Depths (ft.)
< 120	160
120 - 199.99	228
200 - 299.99	456
300 - 449.99	456
450 - 599.99	640
≥600	912
Rated volume = oil per day + (water per day ÷ 2)	

3. Prime Mover...electric.

Wellhead Assembly

Vertical... threaded 2000lbs.  
Horizontal... flanged 2000lbs.  
Dual wellhead for multizone completion.

Tubing and Rods

Vertical ... 2 7/8" tubing plain steel; 5/8" rod  
Horizontal ... 2 7/8" tubing plain steel; 3/4" rod  
Length ... depth of well for first tubing string  
... depth of well minus 200 ft. for each additional tubing string

Building

n/a

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**Substitute Well Features  
Swift Current Well Area  
Medium Crude Oil Wells**

The resource production equipment required to operate a substitute oil well that performs the same function as the oil well being valued shall be determined in accordance with the following specifications:

Pumping Equipment

1. Vertical Wells
  - New wells ... 114 pumping units
  - All other vertical well pumping units:

Rated Volume (barrels/day)	Depth (ft.)		
	< 2000	2000-4500	> 4500
< 7	40	114	114
7-190	57	114	114
> 190	228	228	228
Rated volume = oil per day + (water per day ÷ 1.5)			

2. Horizontal Wells
  - New wells ... 640 pumping unit
  - All other horizontal well pumping units:

Rated Volume (barrels/day)	All Depths (ft.)
< 120	160
120 - 199.99	228
200 - 299.99	456
300 - 449.99	456
450 - 599.99	640
≥600	912
Rated volume = oil per day + (water per day ÷ 2)	

3. Mover ... electric motor.

Wellhead Assembly

Vertical ... threaded 2000 lbs.  
Horizontal ... flanged 2000 lbs.  
Dual wellhead for multizone completion.

Tubing and Rods

Vertical ... 2<sup>7</sup>/<sub>8</sub>" tubing plain steel; 5/8" rod  
Horizontal ... 2<sup>7</sup>/<sub>8</sub>" tubing plain steel; 3/4" rod  
Length ... depth of well for first tubing string  
... depth of well minus 200 ft. for each additional tubing string

Building

n/a

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**Substitute Well Features  
Swift Current Well Area  
Heavy Crude Oil Wells**

The resource production equipment required to operate a substitute oil well that performs the same function as the oil well being valued shall be determined in accordance with the following specifications:

Pumping Equipment

1. Vertical wells
  - New wells ... 160 pumping units
  - All other vertical well pumping units ... 160 pumping unit
  - Related Volume = oil per day
2. Horizontal Wells
  - New wells ... PC-54 pumping unit
  - All other horizontal well pumping units:

Rated Volume (barrels/day)	All Depths (ft.)
< 180	PC-54
180 - 499	PC-64
> 499	PC-80
Rated volume = oil per day + (water per day ÷ 7)	

3. Prime Mover ...electric motor.

Facility Type	Prime Mover
Tank	Gas Motor
Flow Line	Electric Motor

Wellhead Assembly

Vertical ... flanged 2000 lbs.  
Horizontal ... flanged 2000 lbs.  
Dual wellhead for multizone completion.

Tubing and Rods

Vertical ... 3 ½" tubing plain steel; 1" rod  
Horizontal ...3½" tubing plain steel; 1" rod  
Length ... depth of well for first tubing string  
... depth of well minus 200 ft. for each additional tubing string

Building

Facility Type	Building	Rate (\$)
Tank	64 sq.ft. pump shack	6,528
Flow Line	n/a	

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**Substitute Well Features  
Kindersley Well Area  
Light Crude Oil**

The resource production equipment required to operate a substitute oil well that performs the same function as the oil well being valued shall be determined in accordance with the following specifications:

Pumping Equipment

1. Vertical Wells
  - New wells ... 40 pumping units
  - All other vertical pumping well units:

Rated Volume (barrels/day)	Depth (ft.)		
	< 2000	2000-4500	> 4500
< 1.7	25	40	40
≥ 1.7	25	40	80
Rated volume = oil per day + (water per day ÷ 0.67)			

2. Horizontal Wells
  - New wells ... 456 pumping units
  - All other horizontal well pumping units:

Rated Volume (barrels/day)	All Depths (ft.)
< 120	160
120 - 199.99	228
200 - 299.99	456
300 - 449.99	456
450 - 599.99	640
≥600	912
Rated volume = oil per day + (water per day ÷ 2)	

3. Prime Mover...electric motor.

Wellhead Assembly

Vertical ... threaded 2000 lbs.  
Horizontal ... flanged 2000 lbs.  
Dual wellhead for multizone completion.

Tubing and Rods

Vertical ... 2 3/8" tubing plain steel; 5/8" rod  
Horizontal ... 2 7/8" tubing plain steel; 3/4" rod  
Length ... depth of well for first tubing string  
... depth of well minus 200 ft. for each additional tubing string

Building

n/a

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**Substitute Well Features  
Kindersley Well Area  
Heavy Crude Oil Wells**

The resource production equipment required to operate a substitute oil well that performs the same function as the oil well being valued shall be determined in accordance with the following specifications:

Pumping Equipment

1. Vertical Wells
  - New wells ... 160 pumping unit
  - All other vertical well pumping units ... 160 pumping unit
  - Rated Volume = oil per day
  
2. Horizontal Wells
  - New wells ... PC-54 pumping unit
  - All other horizontal well pumping units:

Rated Volume (barrels/day)	All Depths (ft.)
< 180	PC-54
180-499	PC-64
> 499	PC-80
Rated volume = oil per day + (water per day ÷ 7)	

3. Prime Mover ... electric motor,

Facility Type	Prime Mover
Tank	Gas motor
Flow Line	Electric motor

Wellhead Assembly

Vertical ... flanged 2000 lbs.  
Horizontal ... flanged 2000 lbs.  
Dual wellhead for multizone completion.

Tubing and Rods

Vertical ... 2 7/8" tubing plain steel; 7/8" rod  
Horizontal ... 3 1/2" tubing plain steel; 1" rod  
Length ... depth of well for first tubing string  
                  ... depth of well minus 200 ft. for each additional tubing string

Building

Facility Type	Building	Rate (\$)
Tank	64 sq.ft. pump shack	6,528
Flow Line	n/a	

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Well Classification**

**Substitute Well Features  
North Battleford (South)  
Well Area Heavy Crude Oil  
Wells**

The resource production equipment required to operate a substitute oil well that performs the same function as the oil well being valued shall be determined in accordance with the following specifications:

Pumping Equipment

1. Vertical Wells
  - New wells ... PC-15 pumping unit
  - All other vertical well pumping units

Rated Volume (barrel/day)	Pumping unit all depths
<30	PC 10
30 – 79.99	PC 15
80 – 119.99	PC 28
120 – 179.99	PC 54
≥180	PC 64
Rated volume = oil per day + (water per day ÷ 3)	

2. Horizontal Wells
  - New wells ... PC-54 pumping unit
  - All other horizontal well pumping units:

Rated Volume (barrels/day)	All Depths (ft.)
<180	PC-54
180-499	PC-64
> 499	PC-80
Rated volume = oil per day + (water per day ÷ 7)	

3. Prime Mover...electric motor.

Facility Type	Prime Mover
Tank	Gas motor
Flow Line	Electric motor

Wellhead Assembly

Vertical ... flanged 2000 lbs.  
Horizontal ... flanged 2000 lbs.  
Dual wellhead for multizone completion.

Tubing and Rods

Vertical ... 3 ½” tubing plain steel; 1” rod  
Horizontal ... 3 ½” tubing plain steel; 1” rod  
Length ... depth of well for first tubing string  
... depth of well minus 200 ft. for each additional tubing string

Building

Facility Type	Building	Rate (\$)
Tank	64 sq.ft. pump shack	6,528
Flow Line	n/a	

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Well Classification**

**Substitute Well Feature  
North Battleford (North)  
Well Area Heavy Crude Oil  
Wells**

The resource production equipment required to operate a substitute oil well that performs the same function as the oil well being valued shall be determined in accordance with the following specifications:

Pumping Equipment

1. Vertical Wells

- New wells ... PC-15 pumping unit
- All other vertical well pumping units:

Rated Volume (barrels/day)	Depth (ft.)		
	<1000	1000-2000	>2000
<9.0	40	80	PC-15
≥ 9.0	57	PC-15	PC-15
Rated volume = oil per day + (water per day ÷ 3)			

2. Horizontal Wells

- New wells ... PC-54 pumping unit
- All other horizontal well pumping units:

Rated Volume (barrels/day)	All Depths (ft.)
<180	PC-54
180-499	PC-64
> 499	PC-80
Rated volume = oil per day + (water per day ÷ 7)	

3. Prime Mover ...electric motor.

Facility Type	Prime Mover
Tank	Gas motor
Flow Line	Electric motor

Wellhead Assembly

Vertical ... Flanged 2000 lbs.

Horizontal ... flanged 2000 lbs.

Dual wellhead for multizone completion.

Tubing and Rods

Vertical ... 3 1/2" tubing plain steel; 1" rod

Horizontal ... 3 1/2" tubing plain steel; 1" rod

Length ... depth of well for first tubing string

... depth of well minus 200 ft. for each additional tubing string

Building

Facility Type	Building	Rate (\$)
Tank	64 sq.ft. pump shack	6,528
Flow Line	n/a	

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Well Classification**

**Substitute Well Features  
Swift Current Well Area  
Gas Wells**

The resource production equipment required to operate a substitute gas well that performs the same function as the gas well being valued shall be determined in accordance with the following specifications:

Description	Specifications	
Tubing	<ul style="list-style-type: none"> <li>1" diameter, plastic</li> <li>Length: depth of well for first tubing string, depth of well minus 200 ft. for each additional tubing string</li> </ul>	
Well head assembly	<ul style="list-style-type: none"> <li>Threaded, 1000 pound pressure.</li> <li>Dual wellhead for multi-zone completions.</li> </ul>	
Chemical Equipment	60% of Type 1	
Water handling buildings	100% of Type 1	
Water handling equipment	100% of Type 1	
Metering equipment	10% of Type 1	
Rated Volume = gas per day		
<b>Total Rate (\$)</b> (Except tubing and flow line)	Threaded, 1000 pound pressure	25,800
	Dual well head	27,400

**Substitute Well Features  
Kindersley Well Area  
Gas Wells**

The resource production equipment required to operate a substitute gas well that performs the same function as the gas well being valued shall be determined in accordance with the following specifications:

Description	Description	
Tubing	<ul style="list-style-type: none"> <li>2<sup>3</sup>/<sub>8</sub>" diameter, plain steel</li> <li>Length: depth of well for first tubing string, depth of well minus 200 ft. for each additional tubing string</li> </ul>	
Well head assembly	<ul style="list-style-type: none"> <li>Threaded, 2000 pound pressure</li> <li>Dual well head for multi-zone completions</li> </ul>	
Chemical equipment	None	
Water handling buildings and equipment	65% of Type 2	
Metering equipment	80% of Type 1	
Rated volume = gas per day		
<b>Total Rate (\$)</b> (Except tubing and flow line)	Threaded, 2000 pound pressure	81,570
	Dual well head	83,560

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Well Classification**

**Substitute Well Features  
North Battleford (South)  
Well Area Gas Wells**

The resource production equipment required to operate a substitute gas well that performs the same function as the gas well being valued shall be determined in accordance with the following specifications:

Description	Specifications	
Tubing	<ul style="list-style-type: none"> <li>• 2<sup>3</sup>/<sub>8</sub>" diameter, plain steel</li> <li>• Length: depth of well for first tubing string, depth of well minus 200 ft. for each additional tubing string</li> </ul>	
Well head assembly	<ul style="list-style-type: none"> <li>• Threaded, 2000 pound pressure</li> <li>• Dual well head for multi-zone completions</li> </ul>	
Chemical equipment	Alcohol drip	
Water handling buildings and equipment	55% of Type 2	
Metering equipment	80% of Type 1	
Rated volume = gas per day		
<b>Total Rate (\$)</b> (Except tubing and flow line)	Threaded, 2000 pound pressure	74,450
	Dual well head	76,440

**Substitute Well Features  
North Battleford (North)  
Well Area  
Gas Wells**

The resource production equipment required to operate a substitute gas well that performs the same function as the gas well being valued shall be determined in accordance with the following specifications:

Description	Specifications	
Tubing	<ul style="list-style-type: none"> <li>• 2" diameter, plain steel</li> <li>• Length: depth of well for first tubing string, depth of well minus 200 ft. for each additional tubing string</li> </ul>	
Well head assembly	<ul style="list-style-type: none"> <li>• Flanged, 2000 pound pressure</li> <li>• Dual well head for multi-zone completions</li> </ul>	
Chemical equipment	Alcohol drip	
Water handling buildings and equipment	48% of Type 2	
Metering equipment	80% of Type 1	
Rated volume = gas per day		
<b>Total Rate (\$)</b> (Except tubing and flow line)	Flanged, 2000 pound pressure	70,030
	Dual well head	76,445

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Well Classification**

**Substitute Well Features  
Air, Water and Gas Injection  
Wells**

The resource production equipment required to operate a substitute air, water or gas injection well that performs the same function as the injection well being valued shall be determined in accordance with the following specifications:

Description	Specifications	
Pumping equipment	Unit-in-place or trended original cost	
Tubing	<ul style="list-style-type: none"> <li>• 2" tubing, plain steel</li> <li>• Length: depth of well for first tubing string, depth of well minus 200 ft. for each additional tubing string</li> </ul>	
Well head assembly	Threaded, 2000 pound pressure	
Metering equipment	1 - 2" floco meter	
Control valves	1 - 3" choke 1 - pressure control switch	
Well accessories	All wells east of the third meridian: Cathodic protection rectifier	
Building	20 sq.ft. fibreglass wellhead shelter	
<b>Total Rate (\$)</b> (Except pumping equipment and tubing and flow line)	All wells east of the third meridian	48,080
	All wells west of the third meridian	36,020

**Substitute Well Features  
Continuous Steam Injection  
Wells**

The resource production equipment required to operate a substitute continuous steam injection well that performs the same function as the injection well being valued shall be determined in accordance with the following specifications:

Description	Specifications	
Tubing	<ul style="list-style-type: none"> <li>• 3<sup>1</sup>/<sub>2</sub>" tubing, lined</li> <li>• Length: depth of well for first tubing string, depth of well minus 200 ft. for each additional tubing string</li> </ul>	
Well head assembly	Flanged, 3000 pound pressure	
Metering equipment	1 - 3" turbine meter and totalizer	
Control valves	1 - 3" choke	
Manifold	1 - 3" steam injection manifold	
Flowline	250' of steam service line	
<b>Total Rate (\$)</b> (Except tubing and flow line)	86,495	

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Well Classification**

**Substitute Well  
Features  
Cyclic Steam Injection  
Wells**

The resource production equipment required to operate a substitute cyclic steam injection well that performs the same function as the injection well being valued shall be determined in accordance with the following specifications:

Description	Specifications
Tubing and rods	<ul style="list-style-type: none"> <li>• 3½" tubing, lined; 1" rods</li> <li>• Length: depth of well for first tubing string, depth of well minus 200 ft. for each additional tubing string</li> </ul>
Pumping equipment	67% of a conventional 160 pumping unit with electric motor
Well head assembly	Flanged, 3000 pound pressure
Metering equipment	3 - 3" turbine meters and totalizers
Control valves	1 - 3" choke
Manifold	<ul style="list-style-type: none"> <li>• 1 - 3" steam injection manifold</li> <li>• 2 - 3" manual production manifold</li> </ul>
<b>Total Rate (\$)</b> (Except tubing and rods and flow line)	194,920

**Substitute Well  
Features  
Water Source Wells**

The resource production equipment required to operate a substitute water source well that performs the same function as the injection well being valued shall be determined in accordance with the following specifications:

Tubing and Rods

1. New Wells
  - 2<sup>7</sup>/<sub>8</sub>" tubing, plain steel; <sup>7</sup>/<sub>8</sub>" rod
  - Length: depth of well for first tubing string, depth of well minus 200 ft. for each additional tubing string
2. Rated volume <150,000 gallons/day
  - 2<sup>7</sup>/<sub>8</sub>" tubing, plain steel; <sup>7</sup>/<sub>8</sub>" rod
  - Length: depth of well for first tubing string, depth of well minus 200 ft. for each additional tubing string
3. Rated volume >150,000 gallons/day
  - 2<sup>7</sup>/<sub>8</sub>" tubing plain steel
  - Length: depth of well for first tubing string, depth of well minus 200 ft. for each additional tubing string for depth of well

Section: Oil & Gas Well Resource Production Equipment

Resource Production Equipment

Subject: Well Classification

Description	Specifications		
	New Wells and Wells Rated Volume < 150,000 gallons per day	Rated Volume ≥150,000 gallons/day	
Pumping equipment	<ul style="list-style-type: none"> <li>PC-15 pumping unit</li> <li>50% of 1 - variable frequency drive</li> </ul>	<ul style="list-style-type: none"> <li>Submersible pumping unit 400 series 100 stage</li> <li>Submersible pump motor 456 series 80 hp</li> <li>Switchboard 100 hp</li> <li>Transformer 75 kva</li> <li>Size 4 submersible pump cable x well depth x 1.05</li> <li>50% of 1 - variable frequency drive</li> </ul>	
Well head assembly	Threaded, 2000 pound pressure	Threaded, 2000 pound pressure	
Metering equipment	None	None	
None	<ul style="list-style-type: none"> <li>1 - 3" choke</li> <li>1 - pressure control switch</li> </ul>	<ul style="list-style-type: none"> <li>1 - 3" choke</li> <li>1 - pressure control switch</li> </ul>	
Manifold	None	None	
Well Accessories: Cathodic Protection	All wells east of the third meridian	All wells east of the third meridian	
Building	None	20 sq.ft. fibreglass wellhead shelter with heat	
<b>Total Rate (\$)</b> (except tubing, rod and cable and flow line)	All wells east of the third meridian	122,270	184,610
	All wells west of the third meridian	110,210	172,550

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Well Classification**

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**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Well Head Assembly**

**Description**

A typical wellhead assembly is made up of a casing head, tubing head and Christmas tree. The wellhead may be screwed onto the casing or it may be an assembly that is bolted together. These are called the threaded or flanged well-heads respectively.

**Rates**

The rates for wellhead assembly are dollars per unit.

Type	Size			
	Series 400 W.P. ≤ 1000#	Series 600 W.P. 2000#	Series 900 W.P. 3000#	Series 1500 W.P. 5000#
Pumping Oil				
Single Flanged	13,000	15,060	15,670	25,570
Single Threaded	11,445	13,080	13,580	21,800
Dual Flanged	22,895	26,560	28,125	28,450
Dual Threaded		20,445		
Flowing Oil & Gas				
Single Flanged	15,000	18,830	24,535	24,565
Single Threaded	12,000	17,245	22,200	22,400
Dual Flanged	20,810	25,245	29,750	29,765
Dual Threaded	13,575	19,235	21,600	21,655
Injection - Air, Gas or Water				
Flanged	15,060	18,830	24,975	24,980
Threaded	11,900	17,245	22,540	22,400
Injection - Steam				
Flanged	32,865	32,870	32,870	32,870
Steam Injection & Pumping				
Flanged	46,950	47,025	46,980	46,880
Tubingless (Casing Head)				
Flanged	11,890	13,125	13,000	13,250
Threaded	7,925	8,425	8,765	8,975

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Well Head Assembly**

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**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Pumping Units**

**Conventional and Hydrabeam**

This is the typical horsehead or grasshopper counterbalance unit. The rods are raised by carrier bar at the horsehead end of the waling beam. On the downstroke, the weight of the rod assembly is counterbalanced by large weights. The picot point of the assembly is in the middle of the walking beam.

Rates

The rates for conventional and hydrabeam pumping units are in dollars per unit.

Gear Box Torque Rating (x 1000) (lb.)	Without Prime Mover(2)	Electric Prime Mover (1)		Gas Prime Mover (1)	
		Rate	Range (hp)	Rate	Range (hp)
25	31,260	45,675	5	75,200	9-12
40	34,680	48,500	6	77,500	9-12
57	41,900	57,390	5-10	88,980	9-12
80	44,800	61,300	5-10	98,060	9-19
114	75,150	92,900	7.5-15	133,370	13-19
160	81,550	101,780	15-25	146,780	20-29
228	96,620	119,330	20-40	175,690	20-39
320	113,960	142,450	30-60	214,090	30-59
456	143,890	175,060	40-75	258,065	40-99
640	168,050	200,255	50-75	312,570	60-99
912	195,920	231,430	60-100	370,580	60-149
1280	320,200	356,550	70-125	497,550	100-199

Rates include:

- prime mover where noted
- belt
- rod rotator
- concrete base
- bottom hole pump
- frame extension and side rails
- polish rod
- beam chemical injector at 50%
- counter weights
- pressure switch
- stuffing box
- installation

NOTE:

- 1) Costs include:
  - per electrified site - \$8,395
  - per gas operated site - propane vessel and/or scrubber with self-feed gas @ \$10,280
- 2) Cost without Prime Mover:
  - electrical and propane vessel costs are not included and must be added if these rates are used.
  - apply these rates to non-typical installations
- 3) Strap jacks and slant jacks:
  - increase conventional pumping unit cost by 19%

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Pumping Units**

**Unitorque and Air-Balanced Beam**

The entire walking beam for unitorque and air-balanced beam pumping units moves up and down with the pivot point at the end of the beam. Unitorque pumping units have a counterweight system similar to conventional pumping units. The air-balanced beam pumping units have no counterweights. The downstroke is cushioned by a very large air-supplied “shock absorber”. There will be a small compressor mounted on the pumping unit to feed the unit.

Rates

The rates for unitorque and air-balanced beam pumping units are dollars per unit.

Gear Box Torque Rating (x 1000) (lb.)	Without Prime Mover(2)	Electric Prime Mover (1)		Gas Prime Mover (1)	
		Rate	Range (hp)	Rate	Range (hp)
114	82,200	100,980	7.5-15	135,450	13-19
160	100,380	121,460	15-25	167,330	20-29
228	115,410	140,930	20-40	196,240	20-39
320	138,680	168,170	30-60	241,140	30-59
456	162,960	195,210	40-75	279,740	40-99
640	181,250	214,460	50-75	328,670	60-99
912	222,670	259,940	60-100	401,340	60-149
Rates include: <ul style="list-style-type: none"> <li>- prime mover where noted</li> <li>- belt</li> <li>- rod rotator</li> <li>- concrete base</li> <li>- bottom hole pump</li> <li>- frame extension and side rails</li> <li>- polish rod</li> <li>- beam chemical injector at 50%</li> <li>- counter weights</li> <li>- pressure switch</li> <li>- stuffing box</li> <li>- installation</li> </ul>					
NOTE: 1) Costs include: <ul style="list-style-type: none"> <li>- per electrified site - \$8,395</li> <li>- per gas operated site - propane vessel and/or scrubber with self-feed gas @ \$10,280</li> </ul> 2) Cost without Prime Mover: <ul style="list-style-type: none"> <li>- electrical and propane vessel costs are not included and must be added if these rates are used</li> <li>- apply these rates to non-typical installations</li> </ul>					

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Pumping Units**

**Submersible Pumping  
Equipment**

Submersible pumps have the major working system suspended at the bottom of the well bore inside the tubing. This system is identified on the surface by heavy electric cable emerging from the top of the wellhead.

Motor Rates

The motor rates for submersible pumping equipment are in dollars per unit.

Rating (hp)	Rate		
	375 4½"	456 5½"	540 6⅝"
7.5	33,150	30,440	
10	39,030	32,590	
15	43,900	36,360	
19.5	47,090	40,100	
22.5	49,770	42,780	
25	56,150	44,420	
30		48,120	38,040
40		55,530	41,130
50		63,130	46,480
60		66,220	52,850
70		73,200	57,170
80		80,200	62,000
90		87,190	66,320
100		94,190	70,020
110		101,595	74,855
120		108,580	79,585
130			84,420
150			93,050
160			97,890
180			106,935
200			116,500
225			126,680
NOTE: 1) Series number refers to outside diameter size of motor or pump, eg. series 456 is 4.56 inches O.D. 2) Motors and pumps can be stacked, eg. in 4½" casing, to achieve 100 hp, 4 - 25 hp motors are stacked. 3) Generally, the pump is a the value of the motor. This can be used as a guide if proper size information is not available.			

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Pumping Units**

Pump Rates

The pump rates for submersible pumping equipment are in dollars per unit.

Stages	Length (ft.)	Rate			
		338 400-1500 4½"	400 280-4000 5½"	540 2000-7000 6 <sup>5</sup> / <sub>8</sub> "	540 10000 6 <sup>5</sup> / <sub>8</sub> "
≤ 20	2.1	11,140	11,030	10,960	10,915
21-40	3.5	13,910	11,235	14,300	19,870
41-60	4.9	16,765	13,195	16,630	23,260
61-80	6.3	19,575	15,440	18,860	26,665
81-100	7.8	22,385	17,544	21,200	29,970
101-120	9.1	25,090	19,625	23,450	34,645
121-140	10.5	27,900	21,770	25,750	36,755
141-160	11.9	30,715	23,790	27,975	40,030
161-180	13.3	33,530	25,915	30,315	43,355
181-200	14.7	36,345	28,080	32,545	46,730
201-220	16.1		30,160	34,860	50,190
221-240	17.5		32,305	37,175	53,550
241-260	18.9			41,660	56,925
261-280	20.4			44,075	60,355
281+	21.8			46,600	63,760

Switchboards

The switchboard rates for submersible pumping equipment are in dollars per unit.

Rating (hp)	Rate
25	12,000
50	13,480
100	15,570
200	23,700
1000	39,395
1500	40,460
2000	41,550

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Pumping Units**

Transformers

The transformer rates for submersible pumping equipment are in dollars per unit.

Size (kVA)	Rate
50	9,840
75	10,385
100	13,660
125	14,755
150	18,035
200	25,690
250	27,870

Cable

The cable rates for submersible pumping equipment are in dollars per linear foot.

Size	Power (hp)	Rate
1	>200	27.00
2	150 to 200	23.60
4	<150	17.65

**Progressive Cavity**

Pump Rates

The pump rates for progressive cavity pumping equipment are in dollars per unit.

Size m <sup>3</sup> /100 rpm	Rate
10	60,005
12	61,465
15	63,425
28	66,575
54	71,880
64	78,020
80	80,615
95	82,290
120	97,830
Rates Include: <ul style="list-style-type: none"> <li>- drive system (gas or electric prime mover, hydraulic or electric skid)</li> <li>- Bottom hole pump (rotor, stator)</li> <li>- installation</li> </ul>	

**Variable Frequency Drive**

The rate for a variable frequency drive shall be \$43,800 per unit.

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Pumping Units**

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**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Prime Movers**

**Description**

Prime movers include electric and gas motors used to provide power to pumping units.

**Triple-Rated Motors**

The triple-rated motor prime mover rates are in dollars per unit.

Size		Controller Size	Rate
(hp)	(kw)		
10/7.5/5	7.5/5.6/3.7	1	6,835
15/10/7.5	11.2/7.5/5.6	2	9,050
20/15/10	14.9/11.2/7.5	2	10,145
25/20/15	18.6/14.9/11.2	2	11,680
30/22/15	22.4/18.6/11.2	3	13,010
40/30/20	29.8/22.4/14.9	3	16,100
50/40/30	37.3/29.8/22.4	3	18,455
60/50/40	44.8/37.3/29.8	4	21,455
75/60/50	56/44.8/37.3	4	23,400
100/75/60	74.6/56/44.8	4	26,750
125/100/75	93.3/74.6/56	4	28,250
Rates include: - 3 phase - 1200 RPM - fan-cooled motor - 60 Hz - class F insulation - controller - 460 volt - totally enclosed - installation			

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Prime Movers**

**Single-Rated Motors**

The single-rated motor prime mover rates are in dollars per unit.

Size (hp)	Rate
1-2	5,090
3-5	5,290
7.5-10	5,950
15-20	7,960
25-30	10,390
40	12,350
50	13,100
60	15,650
75	17,450
100	23,790
125	27,250
150	30,680
200	41,630
250	49,820
Rates include: - 3 phase - 1200 RPM - fan-cooled motor - 60 Hz - class F insulation - controller - 460 volt - totally enclosed - installation	

**Gas Engines**

The gas engine prime mover rates are in dollars per unit.

Group #	Size (hp)	Rate
1	9-12	32,160
2	13-19	40,320
3	20-29	54,200
4	30-39	67,890
5	40-59	88,640
6	60-99	102,200
7	100-149	162,200
8	150-199	166,740
NOTE: Deduct \$3,140 if no electric start in groups #1 to #4.		
Rates include: - twin-disk clutch - condensing radiator with fan - pressure lubrication - combination gas-gasoline carburetor - adjustable sub-base - miscellaneous pipe fittings - power take off - heavy flywheel - regulator - air cleaner - engine starter - installation		

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Tubing and Rods**

**Description**

The bottom hole pump is suspended from the surface by a series of 20 foot steel or fibreglass rods that are threaded together. The most common size for the tubing is 2½ inches (plain) in diameter and for the rod it is 1 inch in diameter.

**Rates**

The rates for tubing and rods are dollars per lineal foot.

Tubing

Size (in.)	Steel		Plastic
	Plain	Lined	
≤ 1½	4.91		0.53
2	5.46		
2¾	5.91	6.60	
2 7/8	6.75	11.95	
3½	9.42	12.97	
4	12.62	16.23	

Rods

Size (in.)	Rate
5/8	2.36
¾	2.94
7/8	3.71
1	4.46

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Tubing and Rods**

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Section: Oil & Gas Well Resource Production Equipment

Resource Production Equipment

Subject: Separators and Treater

**Description**

A separator is a vertical, spherical or horizontal vessel through which the emulsion is passed to split liquids and gases. Centrifugal action created by baffles inside the unit causes the split to occur.

**Vertical Two-Phase Separators**

A treater is a vessel that heats the emulsion to finalize the field separation cycle.

The rates for separators are in dollars per unit.

Diameter (in.)	Height (ft.)			
	5	7.5	10	15
125-260 psi Working Pressure				
≤ 16	18,865	19,865	20,840	22,700
24	32,230	33,850	35,690	38,655
30	43,450	44,295	46,500	50,720
36	45,575	54,780	57,510	62,625
42	62,020	65,180	68,485	74,650
48	71,970	75,690	79,480	86,635
54	81,935	86,115	90,455	98,685
60	91,965	96,615	101,485	110,650
500-1000 psi Working Pressure				
≤ 16	22,200	23,365	24,515	26,795
24	37,010	40,230	42,215	46,020
30	51,980	52,945	55,680	60,540
36	62,490	65,590	68,855	75,060
42	74,580	78,290	82,130	89,580
48	96,780	90,925	95,490	104,100
54	98,745	103,625	122,045	118,605
60	110,580	116,220	126,825	133,145
1200-1440 psi Working Pressure				
≤ 16	23,940	25,200	26,470	28,840
24	20,210	43,945	46,200	50,415
30	55,235	57,565	60,980	66,570
36	67,050	70,470	74,035	82,630
42	82,060	86,250	90,555	98,790
48	95,505	100,335	105,360	114,900
54	108,875	114,435	120,125	131,100
60	122,280	128,540	135,015	147,220
Rates include:				
<ul style="list-style-type: none"> <li>- 1 oil dump valve</li> <li>- 1 liquid level controller</li> <li>- 1 pilot gas supply regulator</li> <li>- 1 gauge glass assembly</li> <li>- 1 safety relief valve</li> <li>- 1 pressure gauge</li> </ul>				



Section: Oil & Gas Well Resource Production Equipment

Resource Production Equipment

Subject: Separators and Treaters

**Horizontal Two-Phase Separators**

The rates for horizontal two-phase separators are in dollars per unit.

Diameter (in.)	Length (ft.)		
	8	10	15
125-260 lb Working Pressure			
≤ 16	30,050	30,795	32,315
20	32,465	33,240	34,950
24	36,980	37,830	39,880
30	37,080	40,175	42,335
36	44,900	45,995	48,430
42	48,965	50,130	52,870
48	53,335	54,600	57,470
54	57,605	59,060	62,380
60	61,970	63,535	67,080
500-1000 lb. Working Pressure			
≤ 16	30,990	31,815	33,665
20	32,710	35,280	37,160
24	39,215	40,175	42,335
30	42,060	43,135	45,405
36	49,780	50,880	53,625
42	54,455	55,680	58,700
48	59,735	61,190	64,525
54	65,120	66,690	70,335
60	70,505	72,200	76,080
1200-1440 lb. Working Pressure			
≤ 16	37,225	38,040	39,600
20	46,530	47,440	49,330
24	47,040	47,990	50,100
30	54,765	55,840	58,185
36	70,610	72,015	75,060
42	76,725	78,280	81,600
48	85,850	87,595	91,360
54	94,990	96,920	100,975
60	104,135	106,260	110,750
Rates include:			
- 1 oil dump valve		- 1 gauge glass assembly	
- 1 liquid level controller		- 1 safety relief valve	
- 1 pilot gas supply regulator		- 1 pressure gauge	

Section: Oil & Gas Well Resource Production Equipment

Resource Production Equipment

Subject: Separators and Treaters

**Horizontal Three-Phase Separators**

The rates for horizontal three-phase separators are in dollars per unit.

Diameter (in.)	Length (ft.)		
	8	10	15
<b>125-260 lb Working Pressure</b>			
≤ 16	32,310	35,670	43,480
20	36,780	40,455	49,455
24	43,075	47,420	57,920
30	26,025	50,575	61,810
36	52,015	57,230	69,950
42	62,930	69,385	84,880
48	67,500	74,340	90,910
54	74,140	81,520	99,705
60	8,070	88,800	108,600
<b>500-1000 lb. Working Pressure</b>			
≤ 16	31,800	35,000	42,745
20	40,535	44,550	54,505
24	44,700	49,150	60,125
30	49,480	54,355	66,470
36	57,280	62,980	77,060
42	73,640	83,870	102,505
48	80,360	88,310	108,195
54	89,605	98,305	120,260
60	98,465	108,340	132,425
<b>1200-1440 lb. Working Pressure</b>			
≤ 16	41,250	37,650	45,305
20	52,365	57,555	70,355
24	52,520	57,825	70,765
30	61,260	67,400	82,320
36	77,760	85,555	100,525
42	88,290	97,180	123,430
48	97,430	107,190	131,100
54	108,015	118,800	145,315
60	118,580	130,500	159,490
<b>Rates include:</b> - 2 oil and water dump valves      - 1 gauge glass assembly - 1 oil level controller                - 1 safety relief valve - 1 pilot gas supply regulator        - 1 pressure gauge - 1 water level controller			

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Separators and Treater**

**Spherical Separators**

The rates for spherical separators are in dollars per unit.

Working Pressure (lb.)	Diameter (in.)	Rate
125	36	26,895
	42	30,040
260	36	30,185
	42	33,635
	48	39,850

**Rollo Metering Separators**

The rates for rollo metering separators are in dollars per unit.

Rollo Metering - Vertical: 125 lb. working pressure		
Size (in. x ft.)	Rate Without Automatic Sampler	Rate With Automatic Sampler
24x6	21,055	22,865
30x6	24,500	26,685
36x6	28,080	30,640
48x6	32,695	35,910
Rates include: - separator - recorder - meter - installation Pounds (force) per sq.in. x 6.894757 = kpa rating		

**Treater Accessories**

The rates for treater accessories are in dollars per unit.

Ignition System

Type	Rate
Automatic	16,690
Manual	2,795

Desand System

Length (ft)	Rate	
	Automatic	Manual
≤ 25	73,020	10,435
23-35	94,750	34,455
36-45	116,495	58,040
≥ 46	138,270	

Burner

The rate for a burner shall be \$51,780 per unit.

Section: Oil & Gas Well Resource Production Equipment

Resource Production Equipment

Subject: Separators and Treaters

**Atmospheric Treater -  
Coalescer Wash Tank**

The rates for atmospheric treaters – coalescer wash tanks are in dollars per unit.

Size (barrels)	Rate
≤ 400	97,220
750	129,610
900	140,430
1,000	145,840
1,500	189,010
2,000	199,830
2,500	232,280
3,000	253,920
3,500	270,045
4,000	280,860
≥ 5,000	297,190
Rates include: <ul style="list-style-type: none"> <li>- burn and heating equipment including 2 firetubes</li> <li>- lining</li> <li>- gas regulators and scrubbers</li> <li>- fittings</li> <li>- cone bottoms</li> <li>- stacks</li> <li>- flame arrestors</li> <li>- all piping</li> <li>- valves and meters</li> <li>- baffles and all necessary materials</li> <li>- installation</li> </ul>	

Section: Oil & Gas Well Resource Production Equipment

Resource Production Equipment

Subject: Separators and Treaters

**Horizontal Mechanical  
Coalescer Treater**

The rates for horizontal mechanical coalescer treaters are in dollars per unit.

Diameter (in.)	Length (ft.)			
	4	6	8	10
15-50 lb. Working Pressure				
15.5	177,905	196,180	246,205	246,205
20	211,330	211,330	280,045	280,150
22	217,765	271,765	287,100	304,125
25	227,935	227,935	295,400	363,290
30	244,335	244,335	330,490	434,185
75 lb. Working Pressure				
20		216,830	286,895	411,340
22		294,370	294,370	418,615
25		303,090	303,090	429,615
30		340,245	340,035	445,665
44		389,240	389,240	490,130
45		415,810	415,810	504,245
50		441,965	441,065	519,400
Rates include: - single firetube - fuel gas system c/w burning equipment - ladder and crownsnest - thermometer - water and oil outlet valve - relief valve - flame arrestor and stack anodes - insulation - water syphon - pressure gauge and gauge glass - gas back pressure valve - water meter - installation - scrubber				

Section: Oil & Gas Well Resource Production Equipment

Resource Production Equipment

Subject: Separators and Treaters

**Vertical Treater**

The rates for vertical treaters are in dollars per unit.

Diameter (in.)	Length (ft.)				
	3	4	6	8	10
50 lb. Working Pressure					
20	102,710	120,000	128,650	161,375	187,725
24	104,110	122,740	133,175	170,020	198,220
28	105,075	125,560	137,700	177,430	207,280
30	105,925	127,410	139,550	181,380	212,830
75 lb. Working Pressure					
20	102,240	122,265	135,955	175,470	205,425
24	120,000	127,825	143,260	185,455	217,360
28	132,765	133,765	148,615	194,000	227,750
30	135,440	135,440	151,905	198,630	233,215
Rates include: - single firetube - fuel gas system c/w burning equipment - ladder and crownsnest - thermometer - water and oil outlet valve - relief valve - flame arrestor and stack anodes - insulation - water syphon - pressure gauge and gauge glass - gas back pressure valve - water meter - installation - scrubber					

Section: Oil & Gas Well Resource Production Equipment

Resource Production Equipment

Subject: Separators and Treater

**Horizontal Electrostatic  
Coalescer Treater**

The rates for horizontal electrostatic coalescer treaters are in dollars per unit.

Diameter (in.)	Length (ft.)		
	6	8	10
50 lb. Working Pressure			
20	282,275	364,330	446,800
25	323,195	423,625	494,400
30	364,330	453,275	542,230
40	446,800	546,805	637,510
50	529,270	635,750	732,215
75 lb. Working Pressure			
20	289,170	373,520	515,075
25	331,970	435,320	537,200
30	373,520	465,180	556,625
40	458,800	534,430	610,065
50	543,255	594,410	645,560
Rates include: <ul style="list-style-type: none"> <li>- single firetube, flame arrestor &amp; stack</li> <li>- gas out scrubber dome</li> <li>- high temperature shutdown</li> <li>- 1 oil and 1 gas outlet valve</li> <li>- instrument air manifold c/w regulators</li> <li>- water meter</li> <li>- pressure gauge and thermometer</li> <li>- gauge glasses</li> <li>- pre-piping to skid edge c/w valves</li> <li>- ladder and transformer platformer</li> <li>- fuel gas manifold c/w burning equipment</li> <li>- low level shutdown</li> <li>- oil and water level controller</li> <li>- 2 water outlet valves</li> <li>- relief valve</li> <li>- scrubber</li> <li>- transformer circuit breaker</li> <li>- skid</li> <li>- anodes</li> <li>- insulation</li> <li>- installation</li> </ul>			

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Separators and Treaters**

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Section: Oil & Gas Well Resource Production Equipment

Resource Production Equipment

Subject: Dehydrators

**Description**

Dehydrators remove liquid from the gas to prevent corrosion or plugging of the flow.

**Glycol Absorber Tower  
(600# ANSI Rating)**

The rates for Glycol absorber towers are in dollars per unit.

Size Diameter (in.) x Length (ft.)	Rate		
	Standard Unit	Including 2-Phase Inlet Scrubber	Including 3-Phase Inlet Scrubber
1400 #DWP			
12x12	23,675	35,560	41,860
12x14	24,605	36,140	42,720
12x16	25,520	37,530	43,925
12x18	26,335	38,420	44,765
12x20	27,265	39,310	45,610
12x30	31,310	42,985	50,515
1420 #DWP			
16x12	28,695	42,170	50,495
16x14	30,115	43,345	51,650
16x16	31,290	44,455	53,090
16x18	32,710	45,610	54,200
16x20	33,820	46,990	55,675
16x30	39,190	53,670	62,515
1400 #DWP			
20x12	36,735	52,495	61,385
20x14	38,420	54,200	63,090
20x16	40,165	55,940	64,825
20x18	41,860	57,620	66,840
20x20	43,925	59,425	68,575
20x30	52,230	67,600	77,210
1380 #DWP			
24x12	45,610	68,575	79,280
24x14	49,615	72,280	82,875
24x16	53,345	76,055	86,910
24x18	57,100	79,720	90,355
24x20	60,800	83,720	94,380
24x30	78,820	101,590	112,280

Section: Oil & Gas Well Resource Production Equipment

Resource Production Equipment

Subject: Dehydrators

Size Diameter (in.) x Length (ft.)	Rate		
	Standard Unit	Including 2-Phase Inlet Scrubber	Including 3-Phase Inlet Scrubber
1400 #DWP			
30x12	73,955	109,365	122,585
30x14	79,120	114,500	127,730
30x16	84,355	119,705	133,200
30x18	89,785	125,145	138,395
30x20	94,385	130,425	143,295
30x30	119,100	155,420	168,160
36x12	96,100	139,270	153,370
36x14	102,460	145,930	159,975
36x16	108,730	152,210	166,290
36x18	110,890	158,840	172,650
36x20	122,005	165,170	179,090
36x30	152,580	195,995	209,765
42x20	149,575	193,765	206,825
42x30	180,185	223,560	237,380
<p>Rates include:</p> <ul style="list-style-type: none"> <li>- knitted 304 stainless wire mesh mist extractor</li> <li>- glycol gas heat exchanger in upper section</li> <li>- liquid level controller with supply gas regulator</li> <li>- diaphragm operated liquid discharge valve with shut-off ball valve</li> <li>- fuel gas shut-off valve</li> <li>- reflex gauge column assembly with safety cocks</li> <li>- thermometer with thermowell</li> <li>- pressure gauge with isolating valve</li> <li>- ASME safety relief valve 1" threaded</li> <li>- skid and building</li> <li>- gas outlet line to skid edge</li> </ul>			
<p>Integral scrubber includes:</p> <ul style="list-style-type: none"> <li>- liquid level controller with supply gas regulator (2 or 3 phase)</li> <li>- diaphragm operated liquid discharge valve with shut-off ball valve (2 or 3 phase)</li> <li>- gauge column assembly with safety cocks (reflex)</li> <li>- cold weather coil</li> <li>- phase drain valve (Apollo)</li> </ul>			
<p>NOTE: DWP refers to design working pressure</p>			

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Dehydrators**

**Standard Glycol  
Reconcentrator Units**

The rates for standard glycol reconcentrator units are in dollars per unit.

<b>Heat Output (BTU/hr.)</b>	<b>Reboiler Size Diameter(in.) x Length(ft.)</b>	<b>Surge Tank Size Diameter(in.) x Length(ft.)</b>	<b>Rate</b>
100,000	18 x 3.5	18 x 3	58,175
155,000	18 x 5.5	18 x 3.5	64,890
235,000	18 x 5.5	18 x 3.5	76,150
375,000	24 x 6.5	24 x 6	108,165
545,000	30 x 6.5	30 x 6	137,370
750,000	30 x 15	30 x 12.5	156,235
1,000,000	50 x 15	30 x 15	186,530
1,250,000	50 x 17.5	30 x 15	230,070

Rates include:

- glycol pump
- flame arrestor
- glycol filter
- gas firing accessories
- thermostats
- still column
- equipment mounted on structural steel skid
- installation

Rates do not include:

- ladders
- gas or electric pumps
- stand-by pumps
- gas sparging or stripping accessories for high concentration glycol

**Accessories (Lump Sum)**

<b>Description</b>	<b>Rate</b>
Skid	
8' x 16'	7,975
9' x 22'	12,185
Ladder	5,125
Gas sparging or stripping accessories	5,290

**CaCl Rollo Units**

<b>Tower Size Diameter (in.) x Length (ft.)</b>	<b>Rate</b>
22 x 15	57,400
24 x 15	62,800
26 x 15	64,875
22 x 17	62,070
24 x 17	65,660
26 x 17	69,255
24 x 24	73,105
30 x 24	86,700

Rates include: - pipes - fittings  
- valves - installation

Rates do not include meters and chemical injectors

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Dehydrators**

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**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Gas Boots**

**Description**

A gas boot is a vapour recovery system that draws gases that are being released in storage tanks.

**Rates**

The rates for gas boots are in dollars per unit.

<b>Size Diameter (in.) x Length (ft.)</b>	<b>Rate</b>
16 x 5	7,110
16 x 10	9,975
16 x 20	15,635
16 x 40	29,340
16 x 50	30,835
24 x 10	22,455
24 x 20	24,590
24 x 40	26,795
24 x 50	32,240
30 x 20	43,825
30 x 40	59,735
30 x 50	67,675
36 x 35	59,445
36 x 50	75,040
NOTE: For 30 in. or 36 in diameter no ladder or platform included with rates - add \$10,725 if present	
Rates include: - miscellaneous pipe - valves - fittings - installation	

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Gas Boots**

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**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Flare Stacks**

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**Description**

A flare stack is used to burn off excess gas.

**Rates**

The rates for flare stacks are in dollars per stack.

Height (ft.)	Rate (Diameter) (in.)		
	4	6	8
30-60	16,350	19,950	25,020
70-100	17,660	21,665	27,465

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Flare Stacks**

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**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Flare, Drain and Market Lines**

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**Description**

These are lines of pipe used to flare gas, or transport oil and gas products from a well site to a battery or gas handling site or from a battery or gas handling site to a pipeline or truck depot.

**Rates**

Flare, drain and market lines are valued at \$ 5,520 per line.

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Flare, Drain and Market Lines**

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**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Gas Scrubbers**

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**Description**

The gas passes through this vessel to remove liquids. It functions as a small scale separator.

**Fuel Gas Scrubber**

The rate for fuel gas scrubbers is in dollars per unit.

	<b>Rate</b>
All sizes	4,204
Rates include: - shut-off valve - pressure gauge - relief valve - installation	

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Gas Scrubbers**

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**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Heater and Heat Exchanger**

**Description**

Heaters and heat exchangers are used to prevent line and equipment from freezing.

**Heaters**

The rates for direct and indirect heaters are in dollars per unit.

Output Range (BTU)	Rate	
	Indirect	Direct
50,000 – 170,000	38,615	33,710
171,000 - 375,000	39,445	34,850
376,000 - 625,000	42,340	36,600
626,000 - 875,000	48,020	39,445
876,000 - 1,250,000	56,590	48,035
1,251,000 - 1,750,000	67,075	58,504
1,751,000 - 2,500,000	78,515	61,370
2,501,000 - 3,500,000	95,630	89,935
3,501,000 - 4,500,000	118,465	93,125
Rates include: <ul style="list-style-type: none"> <li>- fire tube</li> <li>- thief hatch</li> <li>- skid</li> <li>- temperature control and high temperature shut down</li> <li>- flame arrestor and stack</li> <li>- expansion pot c/w instruments</li> <li>- soil (not included with direct)</li> <li>- fuel gas manifold c/w burning</li> <li>- installation</li> </ul>		

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Heater and Heat Exchanger**

**Tubular and Rectangular  
Plate Heat Exchangers**

The rates for tubular and rectangular plate heat exchangers are in dollars per cubic foot.

Face Area (sq.ft.)	Rate (\$/cu.ft.)
≤ 2	2,015
3	1,935
4	1,880
6	1,740
8	1,600
10	1,470
12	1,375
14	1,195
Rates include: - standard unit stainless steel plates - installation	
Sample Calculation: Face Area = 3 ft. x 4 ft. Length = 8 ft. Area = 3 ft. x 4 ft. x 8 ft. = 96 cu.ft. Rate = \$1,600/cu.ft. Value = Area x Rate = 96 cu.ft. x \$1,600/cu.ft. = \$153,600	

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Meters**

**Description**

Meters are used to calibrate the pressure and volume of gas flowing through a flow line or at a gas well.

**Dry Flow Meters**

The rates for dry flow meters are in dollars per unit.

Type	Rate
Gas, Dry Flow Recorder Chart 100" ( $\leq$ 1000 psi)	
1 or 2 pen	5,375
3 pen	6,795

**Orifice Fittings and Meter Runs**

The rates for orifice fittings and meter runs are in dollars per unit.

Size (in.)	Rate
Senior Quick Change (100 - 600 psi)	
2	7,250
3	8,455
4	10,090
6	12,800
8	15,525
10	18,250
Simplex (150 - 600 psi)	
2	2,140
3	2,695
4	3,225
6	4,945
8	6,220
10	7,625
Rates include: - orifice fittings - regulator - pipes - valves and fitting for meter run - installation	

**Net Oil Computer and Micro Motion Meter**

Inlet Size (in.)	Rate
2	37,310
3	40,105
4	43,110
Rates include: - capacitance probe - indicator - installation	

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Meters**

**Positive Displacement  
Meter**

The rates for positive displacement meters are in dollars per unit.

<b>Line Size (in.)</b>	<b>Rate</b>
Floco Meter	
≤ 2	5,020
3 to 4	7,405
Sampler	2,835
Sales Meter	
≤ 2	11,805
3 to 6	38,810
≥ 8	65,825
Ticket printer	2,925
Temperature	3,270
Brine Meters	
≤ 2 Low (pressure)	2,530
2 High (pressure)	3,705
3 Low (pressure)	4,150
3 High (pressure)	4,490
Digital Meter	
1	6,045
2 w/cubic meter readout	8,235

**Turbine Meters and  
Totalizer**

The rates for turbine meters and totalizers are in dollars per unit.

<b>Size (in.)</b>	<b>Rate</b>
≤ 2	11,110
3	12,225
Rates include:	
- meter	- fittings
- pipes	- miscellaneous valves
- totalizer	- installation

**Vortex Liquid Gas or  
Steam Meters**

The rates for vortex liquid gas or steam meters are in dollars per unit.

<b>Size (in.)</b>	<b>Rate</b>
2	5,035
6	8,625
8	13,705
Rates include:	
- meter	- analog amplifier or enhancer
- meter run	- miscellaneous valves
- fittings	- installation

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Meters**

**Transmitters**

The rates for transmitters are in dollars per unit.

Type	Rate
Pressure or flow transmitter	8,670
Temperature transmitter	5,200

Additives

Type	Rate per Readout
Computer Assist	1,045

**Weighmatic**

The rates for weighmatic are in dollars per unit.

Description	Rate
Weighmatic - crude oil production rate test system Complete unit	112,095
Rates include: <ul style="list-style-type: none"> <li>- separator</li> <li>- valves and fittings</li> <li>- computer related equipment</li> <li>- installation</li> <li>- installation</li> </ul> Rates do not include gas metering equipment.	

**Cabinet Type Meter  
Housing**

Type	Cost
Meter Cabinet	16,875
Includes: <ul style="list-style-type: none"> <li>-1-2 pen dry flow recorder</li> <li>-2 door shed</li> <li>-small separator and associated equipment</li> <li>-lines, valves, meters, gauges, etc</li> <li>-installation</li> <li>-freight</li> </ul>	

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Meters**

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**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Valves and Controls**

**Description**

A valve is a device used to control the rate of flow in a line, to open or shut off a line completely, or to serve as an automatic or semi-automatic safety device.

**Valves**

The rates for valves are in dollars per unit.

Gate Valves

Size (in.)	Rate
	1500 Working Pressure (lb.)
2	8,030
3	10,790
4	13,150

Ball Valves

Size (in.)	Rate	
	Working Pressure (lb.)	
	< 2000	≥ 2000
2	4,210	5,220
3	5,560	6,775
4	7,170	10,450
6	10,140	14,200
8	18,420	26,450

Water Check Valves

Size (in.)	Rate		
	Working Pressure (lb.)		
	150	300	600
< 4	1,370	1,690	1,980
6 to 8	2,440	3,345	5,005
10	4,550	5,840	8,725
12	6,165	7,245	10,800

Check Valves

Size	Rate
< 4	2,200
6	7,440
8	12,600

Section: Oil & Gas Well Resource Production Equipment

Resource Production Equipment

Subject: Valves and Controls

Desurgers

Size (in.)	Rate
≤ 2	7,150
3	9,695
4	11,940

Pneumatic and Electric

Size (in.)	Rate	
	2-Way	3-Way
Pneumatic		
≤ 2	5,530	8,295
3	7,565	11,900
4	9,880	14,200
6	15,995	
Electric		
≤ 2	8,000	8,550
3	10,020	10,760
Rates include: - valve - actuator - installation		
NOTE: High-low pressure shutdown, rate at \$1,694. Intermitter (time cycle control), rate at \$ 2,280.		

Surface Safety Valves

Type	Typical Model	Rate
Self actuating	Willis B-15 & B-20	9,800
	Willis C-15	9,800
Hydr/Elect. actuating	Willis HYG 20 3000#	14,750
	Willis HYG 30 3000#	14,750
	Willis HYG 40 3000#	14,750
Pneumatic actuating	Willis PG 20 3000#	22,250
	Willis PG 30 3000#	22,250
	Willis PG 40 3000#	22,250
Rates include: - valve - actuator and fittings - installation		

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Valves and Controls**

Pressure Control Switch

Type	Rate
Presco, Murphy	1,100

**Choke**

The rates for chokes are in dollars per unit.

Type	Size (in.)	Rate
Low pressure and low volume	≤ 2	1,260
High pressure and high volume	3 to 6	10,700

**Lease Automatic Custody Transfer Unit**

The rates for lease automatic custody transfer units are in dollars per unit.

Size (in.)	Rate	
	150 & 300 ANSI	600 ANSI
2	96,800	105,900
3	116,000	126,950
4	144,500	168,300
6	192,500	231,850
8	239,200	305,700
Rates include: - meter - pipe fittings - sampler - BS&W monitor - valves - skid - strainer - installation - pressure indicator Rates do not include booster and shipping pumps.		

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Valves and Controls**

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**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Pumps**

**Description**

A pump is used to increase the pressure on a fluid in order to move the fluid through a pipe.

**Rates**

The rates for pumps are in dollars per unit.

Centrifugal Pump

Inlet Size (in.)	Rate
1	3,870
2	4,550
3	5,130
4	5,470
5	6,400
6	7,610

Gear Pump

Inlet Size (in.)	Rate
2	3,980
3	4,970
4	8,610
6	9,515

Progressive Cavity

Inlet Size (in.)	Rate
1	3,915
2	5,625
3	7,240
4	11,000
6	12,860
8	17,010
<p>NOTE:</p> <p>1) Add for prime movers</p> <p>2) The rates above are for 1 stage pumps. Increase rate by 12% per stage for 2 and 3 stage pumps</p>	
<p>Rate include: - pump - base - valves and fittings - installation</p>	

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Pumps**

Reciprocating (Plunger) Pumps

Input (hp)	Rate			
	Simplex	Duplex	Triplex	Quintuplex
3	24,275	31,650		
5	26,820	32,270		
10	34,100	35,570		
< 21			38,370	45,760
21-40			48,500	57,880
41-70			70,070	113,340
71-100			102,540	123,420
101-150			126,050	186,400
151-250			174,650	192,400
> 250			312,645	314,650
Rates include: - pump - base - prime mover - installation				

Transformer and Injection Pumps

Size (hp)	Rate
10	78,100
20	82,500
30	87,000
50	95,750
100	117,800
250	184,250
500	294,650
750	405,100
1000	515,700
Rates include: - motor - thrust chamber - intake section - pump - shutdown switches - skid - installation	

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Chemical Injectors**

**Description**

Chemical injectors are used to add chemicals to prevent freezing, plugging or corrosion or to assist in whatever process is being carried out in the treatment or other cycle.

**Rates**

The rates for chemical injectors are in dollars per unit.

<b>Description</b>	<b>Size (hp)</b>	<b>Rate</b>
Electric motor driven (add for tanks > 60 gallons)	≤ 2	6,815
	3 and 5	17,295
Multiple head proportioning		7,075
Air/gas driven		3,975
Alcohol drip (9 gal. tank)		1,405

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Chemical Injectors**

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**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Compressors**

**Description**

Compressors are used to supply air pressure to operate valves, fire flood wells and to transport gas in a flow line.

**Utility Air Compressors**

The rates for utility air compressors are in dollars per unit.

Size		Rate
(hp)	(KW)	
½ - 1	0.37	7,050
1½ - 3	2.20	12,400
5	3.70	14,980
Rates include: - air receiver - motor - installation		

**Instrument Air Compressors**

The rates for instrument air compressors are in dollars per unit.

Size		Rate
(hp)	(KW)	
< 10	0.37	30,250
11-15	7.46-11.19	41,650
16-20		56,540
> 20		61,350
Rates include: - air receiver - explosion-proof motor - dryer and after cooler - installation		

**Injection Air Compressors**

The rates for injection air compressors are in dollars per unit.

Size (hp)	Rate
400	980,400
550	1,256,000
1000	2,000,900
2000	2,267,900
3000	2,695,000
4000	3,178,900
Rates include: - air intake, coolers - fittings and equipment - engine or electric motor - miscellaneous pipes - metering and controls - valves - concrete base - installation	

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Compressors**

**Natural Gas Compressors**

The rates for natural gas compressors are in dollars horsepower per unit.

<b>Description</b>	<b>Rate</b>
Turbine engine/centrifugal (gas plant)	6,950
Reciprocating engine (gas plants)	4,920
Reciprocating or electric (field gathering)	3,259
Rates include: <ul style="list-style-type: none"> <li>- building</li> <li>- gauge board</li> <li>- filters</li> <li>- electrical equipment</li> <li>- atmospheric-type jacket water cooler</li> <li>- free air and exhaust duct</li> <li>- scrubber</li> <li>- supports</li> <li>- electrical substation</li> <li>- skid or concrete base</li> <li>- suction or discharge bottles</li> <li>- compressor</li> <li>- conductors and conduit</li> <li>- central panel</li> <li>- pumps</li> <li>- intake or exhaust silencer</li> <li>- main switchboard</li> <li>- installation</li> </ul>	

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Cathodic Protection Rectifiers**

**Description**

Cathodic protection uses a rectifier with a network of wires and anodes installed to create an electric field around flow lines and casing in corrosion prevention.

**Rates**

The rates for cathodic protection rectifiers are in dollars per unit.

<b>Size (amperage)</b>	<b>Rate</b>
Single well (12 to 16)	12,060
Field system (17 to 25)	18,080
Rates include: <ul style="list-style-type: none"> <li>- rectifier</li> <li>- conduit and fittings</li> <li>- 2" x 60" steel anodes</li> <li>- cadwelds and handicap</li> <li>- cables</li> <li>- splice kits and connectors</li> <li>- installation</li> </ul>	

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Cathodic Protection Rectifiers**

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**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Control Panels**

**Description**

Control panels are switches and other devices used to start, stop, measure, monitor or signal the operation of equipment.

**Rates**

The rates for control panels are in dollars per unit.

<b>Power Rating</b>		<b>Rate</b>
<b>(hp)</b>	<b>(KW)</b>	
≤ 50	< 37	27,100
51-450	38-336	60,370
451-850	337-634	105,250
851-1500	635-1119	180,240
1501-2500	1120-1865	241,200
2501-4000	1866-2984	300,850
Rates include: - relays - control circuit gauges - installation		

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Control Panels**

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**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Steam Generators**

**Description**

Steam generators are used to inject steam to the producing formation for enhanced oil recovery systems.

**Rates**

The rates for steam generators are in dollars per unit.

<b>Description</b>	<b>Rate</b>
10,000,000 BTU/hr. unit generator	947,830
water softener and filter	75,110
trailer	105,115
building (on trailer)	71,250
<b>Total for Unit</b>	<b>1,199,305</b>
18,500,000 BTU/hr. unit generator	956,465
water softener	75,180
2 trailers (soft and gen)	164,865
2 buildings (on trailer)	122,825
<b>Total for unit</b>	<b>1,319,335</b>
22,000,000 BTU/hr. unit generator	971,395
water softener and filter	84,060
2 trailers (soft and gen)	194,745
2 buildings (on trailer)	128,895
<b>Total for unit</b>	<b>1,379,095</b>
25,000,000 BTU/hr. unit generator	1,109,175
water softener and filter	90,135
1 trailer	164,860
1 building	75,190
<b>Total for unit</b>	<b>1,439,360</b>
50,000,000 BTU/hr. unit schedule 80 to 160 1,750 to 2,400 psi	5,189,465
<b>Rates include:</b> <ul style="list-style-type: none"> <li>- softeners</li> <li>- filters</li> <li>- accessories</li> <li>- installation</li> </ul>	

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Steam Generators**

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**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Filters**

**Description**

Filters are used for cleaning water.

**Sand Filter**

The rates for sand filters are in dollars per tank unit.

Tank Size (in.)	Gallons per Minute	Pipe Size (in.)	Rate
20 x 54	30	1½	15,300
24 x 54	40	1½	17,750
30 x 60	60	2	24,200
36 x 60	90	2½	31,780
42 x 60	120	3	49,265
48 x 60	150	3	59,765
60 x 60	250	4	87,625
72 x 60	420	6	133,520
84 x 60	580	6	177,560

**Carbon Filter**

The rates for carbon filters are in dollars per tank unit.

Tank Size (in.)	Gallons per Minute	Pipe Size (in.)	Rate
20 x 54	10	1½	13,970
24 x 54	15	1½	16,500
30 x 60	25	2	20,250
36 x 60	35	2	27,110
42 x 60	50	2½	39,185
48 x 60	65	2½	46,490
60 x 60	100	3	63,520
Rates include: - concrete base - miscellaneous pipes - valves and fittings - installation			

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Filters**

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**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Industrial Water Softeners**

**Description** Water softeners are used to soften the water for steam generators.

**Rates** The rates for industrial water softeners are in dollars per tank unit.

Single Unit

Softener Tank Width (in.) x Height (in.)	Brine Tank Width (in.) x Height (in.)	Gallons per Minute	Pipe Size (in.)	Rate	
				Single Units	Duplex Units
20 x 54	24 x 80	55	2	21,610	43,250
24 x 54	30 x 48	75	2½	25,400	50,830
30 x 60	38 x 48	125	3	34,600	69,200
36 x 60	42 x 48	175	4	45,900	91,850
48 x 60	48 x 60	150	3	53,100	106,125
54 x 60	54 x 60	275	4	62,450	124,860
60 x 60	60 x 60	400	4	70,760	141,550
72 x 60	72 x 60	560	6	108,450	216,880
84 x 60	84 x 60	760	6	144,350	288,785

Rates include:

- time clock control
- specific gravity meter
- injectors
- valves and fittings
- liquid level control
- hardness monitor
- concrete base
- water meters
- chemical
- miscellaneous pipes
- installation

Rates do not include pumps and motors.

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Industrial Water Softeners**

---

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Flow Lines and Service Lines**

**Description**

A flow line is a line of pipe used to transport or conduct oil or gas from a well site to a tank, battery, satellite, gas plant, compressor station, or other facility at which the oil or gas is prepared for pipeline transport.

A service line is a line of pipe used to transport water from a water source well, or to transport water, steam, air, oxygen, acid or carbon dioxide to enhance the recovery of oil from an oil well.

**Oil, Gas, Water and Air Lines**

The rates for oil, gas, water and air lines are in dollars per lineal foot.

Line Size (in.)	Rate		
	Plastic (L)	Steel (N)	Fibreglass (F)
1	7.20	16.95	
2	8.45	18.65	17.00
3	11.60	22.45	22.10
4	15.25	25.80	29.65
6	25.90	35.20	52.40
8		47.65	82.00
10		64.20	99.90
12		77.85	122.25
14		84.45	144.60
Rates include: <ul style="list-style-type: none"> <li>- construction contract</li> <li>- land right-of-way</li> <li>- pipe</li> <li>- exterior coating</li> <li>- damages and pre-staking</li> <li>- engineering</li> <li>- radiographic inspection</li> <li>- legal survey</li> </ul>			

**Internal Coated Pipes**

The rates for internal coated pipes are in dollars per lineal foot.

Pipe Size (in.)	Rate (C)
2	44.30
3	54.85
4	66.80
6	98.75
8	130.65

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Flow Lines and Service Lines**

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**Steel Pipe with  
Polyethylene Liner**

The rates for steel pipe with polyethylene liner are in dollars per lineal foot.

<b>Pipe Size (in.)</b>	<b>Rate</b>
2	39.80
3	44.75
4	50.75
6	69.50
8	86.50
10	108.00
12	136.65
14	162.40

**Steam Service Lines**

The rates for steam service lines are in dollars per lineal foot.

<b>Pipe Size (in.)</b>	<b>Rate</b>
1	57.50
2	65.35
3	67.20
4	70.25
6	91.10
8	109.85

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Manifolds**

**Description**

Manifolds are above ground connections where flow lines can be tapped for measurement.

**Rates**

The rates for manifolds are in dollars per manifold.

Production

Size (in.)	Rate	
	Manual	Automatic
1	2,580	8,980
2	6,402	11,980
3	9,235	17,760
4	12,650	22,300
6	18,280	28,245

Injection

Size (in.)	Rate		
	Water	Air & Gas	Steam
2	7,745	8,400	9,980
3	10,800	11,600	13,900
4	14,080	15,010	17,955
Rates include: - pipe - fittings - valves - installation			

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Manifolds**

---

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Scraper Traps**

**Description**

Scraper traps are used to insert scrapers to clean out the flow lines and service lines.

**Rates**

The rates for scraper traps are in dollars per trap or injection unit.

Receiving and Launching Traps

Line Size (in.)	Rates	
	With Bypass	Without Bypass
2	9,790	4,422
3	11,825	5,420
4	13,745	6,280
6	20,355	
8	26,255	
10	37,675	
12	47,735	

Automatic Pig Injection

Line Size (in.)	Rate
2	13,600
3	22,020
4	36,090
Rates include: - valves - miscellaneous pipe and fittings - installation	

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Scraper Traps**

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**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Truck Scales**

---

**Description**

In heavy oil areas, oil is often trucked to the battery where it is measured by weight and dumped into a receiving pit.

**Rates**

Balance scales are the typical platform-type scale that allow the complete vehicle to be weighed. Load cells scales weight one set of axles at a time. The rates for scales are in dollars per unit.

<b>Type</b>	<b>Rate</b>
Balance scale	176,565
Load cell scale	134,050

**Section: Oil & Gas Well Resource Production Equipment**

**Resource Production Equipment**

**Subject: Truck Scales**

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**Section: Mine Resource Production Equipment**

**Resource Production Equipment**

**Subject: General Rules**

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**Summary**

This section describes the formulas, rules and principles for determining the assessed value of mine resource production equipment.

**Definitions**

Mine resource production equipment is the fixtures, machinery, tools, railroad spur tracks, and other appliances used to extract and produce the ore but does not include equipment used to process or refine the ore.

Shaft linings, safety equipment, shop tools for maintenance service, spare parts, and surplus equipment are not resource production equipment by which a mine is operated.

**Formulas, Rules and Principles**

The assessed value of mine resource production equipment shall be determined by the replacement cost method established in this section. The replacement cost new shall be determined using the unit-in-place method or the trended original cost method.

The replacement cost of continuous belt conveyors over 1,000 feet in length, and solution mining resource production equipment shall be determined by the unit-in-place method. The unit-in-place base rates account for all direct and indirect costs. No additional adjustments shall be made to the base rates.

The unit-in-place base rates for solution mining resource production equipment shall be determined in accordance with the rates schedules in Chapter 4 – Resource Production Equipment, Section 4.1 – Oil and Gas Well Resource Production Equipment.

The trended original cost shall include all direct and indirect costs. Direct costs include materials, labour, supervision, equipment rentals, and utilities. Indirect costs include architectural and engineering fees, building permits, title and legal fees, insurance, interest and fees on construction loans, taxes incurred during construction, advertising and sales expense, and overhead and profit. Trended original costs shall be determined FOB the mine site as of January 1, 2011.

Depreciation shall be determined by calculating the amount of physical deterioration using the lifetime depreciation method. Functional and economic obsolescence shall not be accounted for in the calculation of depreciation. No additional allowance shall be made for depreciation except as may be accounted for in the downtime allowance factor.

The downtime allowance and the downtime allowance factor for mine resource production equipment shall be determined by the schedule of rates method. The downtime allowance and the downtime allowance factor shall account for all the loss in value due to under-utilization of the resource production equipment. This includes any loss in value due to differences in replacement cost and difference in the amount of depreciation, that have not been taken into account using the procedures in this manual.

**Section: Mine Resource Production Equipment**

**Resource Production Equipment**

**Subject: General Rules**

---

**Replacement Cost New**

The following mine resource production equipment shall be valued:

- Head frame and head house including mechanical and electrical equipment;
- Service and production hoists c/w cages, skips, pulleys, cables, guide ropes and rails, skip load and dump facilities;
- Water control – pipes, pumps, motors;
- Compressed – air service – piping, compressors, motors, controls;
- Personnel and service vehicles;
- Mobile and overhead cranes, forklifts;
- Ventilation systems, fans, ducts;
- Heating and cooling facilities;
- Warning system;
- Production equipment – miners, drag lines, loaders, loading shovels, front-end loaders, ore trucks, ore haulers, scoop trams, conveyor systems and numerous ancillary and auxiliary equipment;
- Drills and blasting equipment;
- Feeders and crushers;
- Roof and floor maintenance equipment, rock bolters, graders, scraper haulers;
- Crawler and wheel tractors c/w dozers and/or buckets;
- Electrical wiring and equipment required to operate plant and equipment; and
- Any other equipment used in the mining operation that is not listed as an exclusion.

The following mine resource production equipment shall not be valued:

- Shaft linings – concrete, steel, wood, etc. (tubing and cribbing);
- Safety equipment – fire, personal, etc.;
- Sharp tools for maintenance and service;
- Spare parts; and
- Surplus equipment.

Unit-In-Place Method

The replacement cost of new conveyors and solution mining resource production equipment shall be determined as follows:

1. Determine the type of resource production equipment using the rating guide.
2. Determine the features requiring unit-in-place adjustment.
3. Calculate the replacement cost of the resource production equipment by adjusting the base rate by the unit-in-place adjustments.

**Section: Mine Resource Production Equipment**

**Resource Production Equipment**

**Subject: General Rules**

---

Trended Original Cost Method

The replacement cost new shall be determined as follows:

1. Determine the original construction cost of all the resource production equipment at the facility.
2. Determine the direct and indirect costs requiring and adjustment.
3. Determine the comparative cost index for mine resource productions equipment required to adjust construction costs to January 1, 2011.
4. Calculate the construction cost of all the resource production equipment at the facility at adjusting the original construction cost for any direct or indirect costs requiring adjustment and multiplying the adjusted original construction cost by the comparative cost index.
5. Determine replacement cost of conveyors and solution mining resource production equipment that is valued by the unit-in-place method.
6. Calculate the replacement cost new of the resource production equipment by subtracting the replacement cost new of conveyors and solution mining resource production equipment from the construction cost of all the resource production equipment in the facility.

**Accrued Depreciation**

Lifetime Depreciation Method

The amount of physical deterioration shall be 40 percent. When calculating replacement cost less depreciation no additional allowance shall be made for depreciation.

**Downtime Allowance**

Schedule of Rates Method

The downtime allowance for all mine resource production equipment shall be 10 percent.

**Downtime Allowance  
Factor**

Schedule of Rates Method

The downtime allowance factor shall be determined for mine resources production equipment that is not used for 30 days or more in the 12 month period proceeding January 1<sup>st</sup> of the year to which the assessment roll relates.

Periods of time less than 7 consecutive days during which mine resource production equipment is not used shall not be included in the calculation of the number of down days.

The downtime adjustment factor shall be determined by application of the following formula:

$$DAF = 1 - \frac{DD - 30}{365}$$

where: DAF = downtime adjustment factor  
DD = number of down days

**Section: Mine Resource Production Equipment**

**Resource Production Equipment**

**Subject: General Rules**

**Calculation Procedure**

<b>Description</b>	<b>Document No.</b>	<b>Page No.</b>
a) Conveyor Base Rate	4.2.3	1-2
b) Unit-in-Place Resource Production Equipment	4.2.1	2
c) Trended Original Cost Resource Production Equipment	4.2.1	3
d) Replacement Cost New = (a + b + c)		
e) RCN less Physical Deterioration and Downtime Allowance = d x (1 - (e <sub>1</sub> + e <sub>2</sub> ))		
e <sub>1</sub> . Physical Deterioration	4.2.1	3
e <sub>2</sub> . Downtime Allowance	4.2.1	3
f) Downtime Adjustment Factor	4.2.1	3
g) Assessed Value (e x f)		

**Section: Mine Resource Production Equipment**

**Resource Production Equipment**

**Subject: Comparative Cost Factor**

---

<b>Description</b>	The comparative cost factors are used to determine the replacement cost new of mine resource production equipment valued by the Trended original cost method.
<b>Application</b>	The trended original cost method shall be used when the individual components of resource production equipment cannot be determined or estimated. The trended original cost method shall not be used to determine the replacement cost of conveyors or solution mining resource production equipment.
<b>Comparative Cost Factor</b>	The comparative cost factor shall be used to calculate the replacement cost new of resource production equipment as of January 1, 2011.
<b>Factors</b>	This information is not available for viewing due to licensing with Marshall and Swift. This information is available for purchase by contacting:

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**Section: Mine Resource Production Equipment**

**Resource Production Equipment**

**Subject: Comparative Cost Factor**

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**Section: Mine Resource Production Equipment**

**Resource Production Equipment**

**Subject: Conveyors**

**Description**

Conveyors are used to transport ore within a mine facility.

**Application**

The rate schedule shall be applied to continuous belt conveyors over 1,000 feet in length. Continuous belt conveyors less than 1,000 feet in length and all special design, tripper automatic loading and unloading, extensible, mobile bridge and bridge conveyors shall be valued by the trended original cost method.

**Continuous Belt Conveyor**

The rates for conveyors are in dollars per linear foot.

<b>Belt Width (in.)</b>	<b>Rate (\$/linear foot)</b>
24	193
30	227
36	265
42	286
48	356
54	400
60	428
72	509
Rates include: - belting - drives - structure - hardware	

**Section: Mine Resource Production Equipment**

**Resource Production Equipment**

**Subject: Conveyors**

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