

Practice: 351 - Well Decommissioning

Scenario: #1 - Shallow Well less than 20 ft deep

Scenario Description: A licensed well driller will seal and permanently close an inactive, abandoned, or unusable water well to prevent excess nutrients in surface and groundwater and to eliminate pesticides transported to surface and ground water. Well will be cleared of all equipment and materials. Residual water column must be treated with chlorine concentration of >50 ppm or according to local, State, Tribal, or Federal regulations.

Before Situation: Shallow well or hand dug well that is less than 20 feet deep. Assume 24" diameter casing. Well will be cleared of all equipment and materials. Residual water column must be treated with chlorine concentration of >50 ppm or according to local, State, Tribal, or Federal regulations.

After Situation: Procedures and sealing materials shall conform to ASTM D5299 and be compatible with all local, State, Tribal, and Federal requirements. Backfill shall be placed and compacted in a manner that minimizes segregation and bulking to prevent surface subsidence. Associated practices: 342 Critical Area Seeding

Scenario Feature Measure: Length of well casing

Scenario Unit: Foot

Scenario Typical Size: 15

Total Scenario Cost: \$973.78

Scenario Cost/Unit: \$64.92

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
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Materials

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic Yard	\$32.13	1.5	\$48.19
Chlorine	1335	Liquid chlorine bleach. Includes materials only.	Gallon	\$2.74	1	\$2.74
Grout, cement	1333	Cement grout meeting ASTM specifications for well sealing. Includes both neat-cement grout and bentonite grout mixtures. Includes materials, equipment and labor to place.	Cubic Yard	\$800.87	0.6	\$480.52

Equipment Installation

Backhoe, 80 HP	926	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$62.09	1	\$62.09
Earthfill, Manually Compacted	50	Earthfill, manually compacted, includes equipment and labor	Cubic Yard	\$5.91	0.6	\$3.54

Labor

Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$24.55	1	\$24.55
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$34.38	2	\$68.76

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$283.39	1	\$283.39
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Practice: 351 - Well Decommissioning

Scenario: #2 - Shallow Well greater than 20 ft deep

Scenario Description: A licensed well driller will seal and permanently close an inactive, abandoned, or unusable water well to prevent excess nutrients in surface and groundwater and to eliminate pesticides transported to surface and ground water.

Before Situation: Shallow or hand dug well that is greater than 20 feet deep. Assume 24" diameter casing.

After Situation: Procedures and sealing materials shall conform to ASTM D5299 and be compatible with all local, State, Tribal, and Federal requirements. Backfill shall be placed and compacted in a manner that minimizes segregation and bulking to prevent surface subsidence. Associated practices: 342 Critical Area Seeding

Scenario Feature Measure: Length of well casing

Scenario Unit: Foot

Scenario Typical Size: 30

Total Scenario Cost: \$1,005.91

Scenario Cost/Unit: \$33.53

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
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Materials

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic Yard	\$32.13	2.5	\$80.32
Chlorine	1335	Liquid chlorine bleach. Includes materials only.	Gallon	\$2.74	1	\$2.74
Grout, cement	1333	Cement grout meeting ASTM specifications for well sealing. Includes both neat-cement grout and bentonite gout mixtures. Includes materials, equipment and labor to place.	Cubic Yard	\$800.87	0.6	\$480.52

Equipment Installation

Backhoe, 80 HP	926	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$62.09	1	\$62.09
Earthfill, Manually Compacted	50	Earthfill, manually compacted, includes equipment and labor	Cubic Yard	\$5.91	0.6	\$3.54

Labor

Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$24.55	1	\$24.55
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$34.38	2	\$68.76

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$283.39	1	\$283.39
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Practice: 351 - Well Decommissioning

Scenario: #3 - Drilled well less than 300 ft deep

Scenario Description: A licensed well driller will seal and permanently close an inactive, abandoned, or unusable water well to prevent excess nutrients in surface and groundwater and to eliminate pesticides transported to surface and ground water.

Before Situation: Drilled well that is less than 300 feet deep. Assume 6" diameter casing.

After Situation: Procedures and sealing materials shall conform to ASTM D5299 and be compatible with all local, State, Tribal, and Federal requirements. Backfill shall be placed and compacted in a manner that minimizes segregation and bulking to prevent surface subsidence. Associated practices: 342 Critical Area Seeding

Scenario Feature Measure: Length of well casing

Scenario Unit: Foot

Scenario Typical Size: 200

Total Scenario Cost: \$815.97

Scenario Cost/Unit: \$4.08

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
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Materials

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic Yard	\$32.13	1.5	\$48.19
Chlorine	1335	Liquid chlorine bleach. Includes materials only.	Gallon	\$2.74	1	\$2.74
Grout, cement	1333	Cement grout meeting ASTM specifications for well sealing. Includes both neat-cement grout and bentonite gout mixtures. Includes materials, equipment and labor to place.	Cubic Yard	\$800.87	0.4	\$320.35

Equipment Installation

Backhoe, 80 HP	926	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$62.09	1	\$62.09
Earthfill, Manually Compacted	50	Earthfill, manually compacted, includes equipment and labor	Cubic Yard	\$5.91	1	\$5.91

Labor

Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$24.55	1	\$24.55
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$34.38	2	\$68.76

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$283.39	1	\$283.39
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Practice: 351 - Well Decommissioning

Scenario: #4 - Drilled well greater than 300 ft deep

Scenario Description: A licensed well driller will seal and permanently close an inactive, abandoned, or unusable water well to prevent excess nutrients in surface and groundwater and to eliminate pesticides transported to surface and ground water.

Before Situation: Drilled well that is greater than 300 feet deep. Assume 6" diameter casing.

After Situation: Procedures and sealing materials shall conform to ASTM D5299 and be compatible with all local, State, Tribal, and Federal requirements. Backfill shall be placed and compacted in a manner that minimizes segregation and bulking to prevent surface subsidence. Associated practices: 342 Critical Area Seeding

Scenario Feature Measure: Length of well casing

Scenario Unit: Foot

Scenario Typical Size: 500

Total Scenario Cost: \$1,138.80

Scenario Cost/Unit: \$2.28

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
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Materials

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic Yard	\$32.13	3	\$96.38
Chlorine	1335	Liquid chlorine bleach. Includes materials only.	Gallon	\$2.74	1	\$2.74
Grout, cement	1333	Cement grout meeting ASTM specifications for well sealing. Includes both neat-cement grout and bentonite gout mixtures. Includes materials, equipment and labor to place.	Cubic Yard	\$800.87	0.7	\$560.61

Equipment Installation

Backhoe, 80 HP	926	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$62.09	1	\$62.09
Earthfill, Manually Compacted	50	Earthfill, manually compacted, includes equipment and labor	Cubic Yard	\$5.91	1	\$5.91

Labor

Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$24.55	1	\$24.55
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$34.38	3	\$103.14

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$283.39	1	\$283.39
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Practice: 351 - Well Decommissioning

Scenario: #5 - Handdug Well

Scenario Description: A licensed well driller/ or contractor will seal and permanently close an inactive, abandoned, or unusable hand dug water well to prevent excess nutrients in surface and groundwater and to eliminate pesticides transported to surface and ground water. Well will be cleared of all equipment and materials. Residual water column must be treated with chlorine concentration of >50 ppm or according to local, State, Tribal, or Federal regulations. Associated practices: 342 Critical Area Seeding

Before Situation: Existing shallow well or hand dug well location allows for potential surface or near surface nutrient runoff to enter and contaminate ground water.

After Situation: A 25' deep by 30" diameter hand dug well, water level 10' down to be sealed. Procedures and sealing materials shall conform to ASTM D5299 or applicable NRSC guidelines that are compatible with all local, State, Tribal, and Federal requirements. Backfill shall be placed and compacted in a manner that minimizes segregation and bulking to prevent surface subsidence. Included will be sealing zone and capping.

Scenario Feature Measure: Depth of well

Scenario Unit: Foot

Scenario Typical Size: 25

Total Scenario Cost: \$705.55

Scenario Cost/Unit: \$28.22

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
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Materials

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic Yard	\$32.13	4	\$128.51
Bentonite	41	Bentonite, includes materials (50# bag)	Each	\$20.45	20	\$408.92

Equipment Installation

Earthfill, Manually Compacted	50	Earthfill, manually compacted, includes equipment and labor	Cubic Yard	\$5.91	1	\$5.91
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$24.13	1	\$24.13

Labor

Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$24.55	1	\$24.55
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$34.38	2	\$68.76
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$44.78	1	\$44.78