



## Well Decommissioning and Special Projects Pre-Approval

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### Contact the Agriculture Knowledge Centre

Toll Free Number: 1-866-457-2377

Phone (866) 457-2377

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View all contacts in the directory

Pre-approval is required for well decommissioning activities and special water development projects.

Applicants are encouraged to assess their project against the program criteria and determine program eligibility.

### Funding

Well Decommissioning projects are eligible for a rebate of 90 per cent of eligible costs to a maximum payment of \$10,000 per project.

Special projects are eligible for a maximum rebate of 50 per cent of pre-approved eligible costs to a maximum payment of \$150,000.

## Eligibility

Eligible applicants:

- Agricultural Producers
- Agri-Businesses (including Value-Added Processing)
- First Nations
- Saskatchewan Rural Municipalities

All applicants must demonstrate an agricultural use for the water (crop spraying, livestock watering or greenhouse production) in addition to meeting the following criteria:

- Producers who own, lease or rent property where livestock and poultry are grown, bred, kept, raised, displayed, assembled or disposed of require a Saskatchewan Premises Identification (PID) number.

Projects on land not owned by the applicant will require written authorization from the land owner.

Applicants must meet all regulatory requirements for water development projects. This may include:

- Saskatchewan Water Security Agency Groundwater and/or Surface Water Approval.
- Aquatic Habitat Protection Permit from Water Security Agency prior to commencing the project if the work will occur in or near water bodies.
- Canadian Environmental Assessment Act compliance.
- Approval from the rural municipality if a pipeline crosses road allowances.
- Any other standards or approvals as required by law.

A Water Rights Licence from the Water Security Agency is required for:

- Water development projects where annual usage exceeds 5,000 cubic metres.

- Pipeline projects where the point of diversion (water source) or point of use (water distribution) is not on land owned or controlled by the applicant.

## Eligible Items

### Well Decommissioning

Eligible activities include:

- Excavation (removing casing).
- Bentonite, chlorine.
- Gravel or clay (must be third party purchase).
- Costs related to well decommissioning including sealing and capping waterwells by a registered well driller.

The following eligibility parameters also apply:

- Small diameter wells must be decommissioned by a registered well driller with expertise in well decommissioning and comply with Water Security Agency (WSA) recommended practices and comply with Water Security Agency (WSA) recommended practices.
- Large diameter or bored well decommissioning pre-approval worksheet must be completed and attached to FRWIP application.
- A post-construction WSA Well Decommissioning worksheet must be completed and submitted with FRWIP claim and signed by the landowner.

### Special Projects

A special project is defined as a project to develop a secure and sustainable water supply that is not a typical dugout, pipeline or well project. The special projects stream is not an alternative for producer applicants whose standard water development projects exceed the rebate maximum. Applicants must submit a clear description and rationale for the project.

Examples of projects that may be considered are:

- Rural water connections (multi-user pipelines where dugouts and wells are not feasible or of sufficient water quality):
  - A maximum program payment of \$15,000 per eligible applicant (multi-user pipeline subscription/ connection fees) per approved project;



- Potable or non-potable water for agricultural use (livestock watering, value-added processing, etc.) will be considered and approved on a case by case basis when justified; and
- 
- Community water development projects for agricultural use (i.e. small-diameter and large-diameter wells in conjunction with a community tank loading facility, dugouts in conjunction with a community tank loading facility, increasing storage capacity at an existing community tank loading facility to reduce tank loading times);
  - SaskPower service and associated electrical costs to a maximum rebate of \$20,000 per approved project.

## Ineligible Items

Ineligible items include:

- Water resources developed solely for household use or washing machinery.
- Projects commencing prior to October 1, 2017.
- Power service installation, hook-up, electrical wiring, generators, electrical panels, breakers, electrical connectors and other electrical devices or hardware.
- Taxes, financing fees, interest or legal fees.
- Materials from inventory.
- Used material and infrastructure – to be eligible new items and infrastructure must be purchased from a reputable dealer.
- Water meters, water storage tanks under 1000 US gallons/3700 litres and water storage tanks not connected to the project infrastructure.
- Gas/diesel powered water pumps.
- Seismic testing/water witching.
- In-kind freight.
- In-kind materials such as rocks, gravel or clay.
- In-kind payment (e.g. trading) for third party services/supplies.
- Water quality enhancement systems (e.g. aeration systems, filtration systems, chlorinators, reverse osmosis, etc.).
- Materials and construction costs for pump houses.
- Removal and disposal of above ground structures.
- Purchase of land/property or payment of easements.
- Replacement of existing water infrastructure such as water appliances, storage tanks or water troughs.
- Above ground pipelines and dams.

- Landscaping or removal/hauling dugout spoil piles.
- Hauling or pumping water to fill/empty dugouts.
- Non-permanent fencing (e.g. corral panels, bale feeders, etc.).

## Deadlines

Well-decommissioning and special project (pre-approval) applications and claims are accepted on an ongoing basis. All applications must be submitted for approval on or before August 1, 2022.

Projects must have started on or after October 1, 2017 and completed 18 months following approval or by December 31, 2022.

## Apply

**Note:** it is recommended that this application form is saved to your computer before entering in your information.

### **Download the Pre-Approval Application Form**

### **Download the WSA Bored Well Decommissioning Pre-approval Worksheet**

Completed application packages can be submitted by email or mail to:

[agprograms@gov.sk.ca](mailto:agprograms@gov.sk.ca)

or

Ministry of Agriculture, Programs Branch

329 – 3085 Albert Street Regina SK S4S 0B1

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**DEADLINE:** Applications for pre-approval projects must be received on or before **AUGUST 31, 2022**.

Claim forms **MUST** be received the earlier of 18 months from written project approval or before **DECEMBER 31, 2022**.

#### **PROGRAM INFORMATION**

##### **ELIGIBLE APPLICANTS:**

- Saskatchewan producers, farmers, ranchers, value-added agricultural businesses, Saskatchewan Rural Municipalities and Saskatchewan First Nation communities.
- 18 years of age and file income tax demonstrating a minimum of \$50,000 gross farm income or income derived from processing primary agricultural commodities in the year preceding or in the year of application in Saskatchewan.
- Have an agricultural or eligible value-added business use for the water.
- Producers who own, lease or rent property where livestock and poultry are grown, bred, kept, raised, displayed, assembled or disposed of require a Saskatchewan Premises Identification (PID) number.

##### **ELIGIBLE PRE-APPROVAL PROJECTS:**

- Well Decommissioning
  - For large diameter or bored wells, a Water Security Agency (WSA) Bored Well Decommissioning Pre-approval Worksheet is required.
  - Small diameter wells must be decommissioned by a registered well driller and comply with WSA recommended practices.
- Special Projects (a solution to a water issue that because of the complex nature and scope, cannot be addressed by a typical dugout, pipeline or well) must include a compelling business case to be considered for pre-approval. Examples include, but not limited to:
  - Community water development.
  - Development of or connecting to rural water utilities (special circumstances apply).

##### **FUNDING:**

- Costs related to well decommissioning (pre-approval project) are funded at 90% of eligible costs to a maximum program payment of \$10,000 per project.
- Costs related to special projects (pre-approval project) are funded at 50% of eligible costs, to a maximum program payment of \$150,000 over life of the program.
- Program payments are subject to a minimum rebate of \$250; minimum claim amount is \$500.

**ELIGIBLE COSTS:** See Component Guidelines

##### **LIMITATIONS ON ELIGIBLE EXPENSE ITEMS:**

- In-kind labour \$20/hr.
- In-kind machinery/equipment, utilize rates established in the Farm Machinery Custom Rate and Rental Guide for class of machinery used.
- Installation of power associated with a community water development project to a maximum program payment of \$20,000 per approved project.
- Subscription or hook-up fees to a multi-user pipeline to a maximum program payment of \$15,000 per approved project.
- Any other amount and maximum program payment as determined and approved by the Ministry.

##### **INELIGIBLE ITEMS INCLUDE:**

- Seismic testing/water witching.
- Water quality enhancement system.
- Taxes, financing fees, interest or payment of easements.
- Above ground pipelines.
- In-kind freight and in-kind payment (e.g. trading) for third party services/supplies.
- Any item in any amount as determined by the Ministry.

Submit your completed claim within 18 months of receiving project approval or before **DECEMBER 31, 2022**, whichever is earlier.

By mail: Farm and Ranch Water Infrastructure Program  
Ministry of Agriculture, Programs Branch  
329 – 3085 Albert Street Regina SK S4S 0B1



Note: it is recommended that this application form is saved to your computer before entering in your information.

OFFICE USE

**Part 1 - APPLICANT INFORMATION**

**APPLICANT TYPE (select ONE)**

☐ INDIVIDUAL ☐ CORPORATION ☐ CO-OPERATIVE ☐ SASKATCHEWAN FIRST NATION COMMUNITIES

**BUSINESS NAME** (CORPORATION, CO-OPERATIVE, SASKATCHEWAN FIRST NATION COMMUNITIES) (BLANK FOR INDIVIDUAL APPLICANT TYPE)

**LAST NAME** (INDIVIDUAL APPLICANTS OR CONTACT FOR NON-INDIVIDUAL APPLICANTS)

**FIRST NAME** (INDIVIDUAL APPLICANTS OR CONTACT FOR NON-INDIVIDUAL APPLICANTS)

**MIDDLE NAME (S)**

**MAILING ADDRESS** (CIVIC, RURAL ROUTE, STN, SITE, BOX, ETC.)

**CITY/TOWN**

**PROVINCE**

**POSTAL CODE**

**TELEPHONE** (555-555-5555)

**CELLULAR PHONE** (555-555-5555)

**DATE OF BIRTH** (FOR INDIVIDUAL & JOINT APPLICANTS ONLY)

**SOCIAL INSURANCE NUMBER** (FOR INDIVIDUAL & JOINT APPLICANTS ONLY)

**BUSINESS NUMBER** (FIRST 9 DIGITS OF GST, CRA ETC.) (TREATY, BAND)

**ALTERNATE CONTACT (OPTIONAL) LAST NAME**

**FIRST NAME**

**TELEPHONE** (555-555-5555)

**GROSS FARM INCOME**

**EMAIL ADDRESS** (INCLUDING WILL MAKE CORRESPONDENCE BY E-MAIL THE PRIMARY WAY OF CONTACT)

**BUSINESS PROFILE - COMPLETE THE ITEMS THAT BEST DESCRIBE YOUR AGRICULTURAL OPERATION OR BUSINESS**

**A) LIVESTOCK** (INCLUDE ALL LIVESTOCK CURRENTLY OWNED, LEASED OR CUSTOM FED):

☐ CATTLE ☐ HOGS ☐ POULTRY ☐ OTHER

# OF HEAD

# OF HEAD

# OF BIRDS

DESCRIPTION

# OF HEAD

**B) PREMISES IDENTIFICATION (PID)**

**C) LAND BASE**

+

=

OWNED ACRES

LEASED ACRES

TOTAL ACRES

**D) INTENSIVE AGRICULTURAL OPERATIONS** (CHECK ALL THAT APPLY):

☐ FEEDLOT ☐ DAIRY ☐ HOG BARN ☐ POULTRY ☐ GREENHOUSE ☐ MARKET GARDEN

OTHER (SPECIFY)

**E) VALUE-ADDED AGRICULTURAL BUSINESS** (CHECK ALL THAT APPLY):

☐ SLAUGHTER ☐ GRAIN PROCESSING ☐ FRUIT/VEG PROCESSING ☐ OTHER (SPECIFY)

**HOME QUARTER LOCATION**

**DO YOU LIVE AT THIS LOCATION?** ☐ YES ☐ NO

RM

QUARTER SECTION TOWNSHIP RANGE MERIDIAN

**PROJECT LOCATION** WATER END USE LOCATION IF PROJECT ON MORE THAN ONE QUARTER

RM

QUARTER SECTION TOWNSHIP RANGE MERIDIAN

**Part 2 - PROJECT INFORMATION**

WILL THIS PROJECT BE USED FOR AGRICULTURAL PURPOSES? ☐ Yes ☐ No

**PROJECT TYPE** (CHECK ONLY ONE; A SEPARATE APPLICATION FORM IS REQUIRED FOR EACH PROJECT TYPE):

- ☐ Well Decommissioning - Small Diameter 3" - 17"
- ☐ Well Decommissioning - Bored/Large Diameter 18" - 48" (attach Bored Well Decommissioning Pre-approval Worksheet)
- ☐ Special Project (provide a brief description)

**PURPOSE OF PROJECT** (CHECK ALL THAT APPLY)

- ☐ Collapsed well ☐ Safety hazard ☐ Environmental ☐ New development
- ☐ Horticultural ☐ Value-added processing ☐ Other - specify \_\_\_\_\_

**WATER RELATED PROBLEM OR ISSUE** (CHECK ALL THAT APPLY AND EXPLAIN)

- ☐ New development ☐ Unreliable supply ☐ Collapsed well ☐ Seasonal shortages ☐ Poor quality
- ☐ Other - specify \_\_\_\_\_

**PROJECT DESCRIPTION** - for special projects, provide a complete plan, project diagrams and detailed description of the project  
- list any additional legal land descriptions included in this project (attach additional sheets if needed)

**PROJECT LOCATION** (CHECK ALL THAT APPLY)

- ☐ Owned ☐ Cultivated land or yard site ☐ Crown or leased land ☐ Native Prairie
- Authorization to Construct required

**Part 3 - PROJECT BUDGET** LIST THE PROJECT COMPONENTS AND ESTIMATED COSTS  
(THIS SECTION MUST BE COMPLETED IN ORDER TO PROCESS YOUR APPLICATION)

Project Components	Estimated Costs(\$)
1	
2	
3	
4	
5	
6	
7	
8	
9	
Total Estimated Project Cost	



**Part 4 - STATEMENT OF CERTIFICATION** PLEASE SIGN USING INK

1. I certify that I am the Applicant or that I am authorized to sign on behalf of the Applicant (attach documents establishing the authority to sign on behalf of the applicant). I agree that all references to "I" in this Statement of Certification shall be deemed to read the "Applicant"; with the necessary grammatical changes required; and, that by my signature and delivery of this document to the program, I agree to be legally bound to adhere to the program policies as outlined in the attached guidelines.
2. I certify that:
  - (a) the eligible project was started after October 1, 2017;
  - (b) in the case of an individual, the individual is a Saskatchewan resident who is at least 18 years of age;
  - (c) in the case of a corporation, partnership or co-operative, the corporation, partnership or co-operative has its head office in Saskatchewan or carries on business in Saskatchewan; and
  - (d) the person, partnership or co-operative filed or will file an income tax return respecting farm or business income in Saskatchewan for the year preceding the year for which an application is made, or for the year for which an application is made, that shows or will show a minimum of \$50,000 of income derived from farming or a minimum of \$50,000 of business income related to processing primary agricultural commodities.
3. I declare that no other claim has been made, or is to be made, for the eligible expenditures that are the subject of this project, to the Farm and Ranch Water Infrastructure Program or any other government grant, rebate or assistance program unless otherwise disclosed in Part Three.
4. I certify that the eligible project meets the requirements set out in the program guidelines and that no other grant(s) with respect to this project will be received unless otherwise disclosed to program administration.
5. I agree to provide further information, including income tax returns or access to our project records, that the program may reasonably require and to inform the program administration of any changes to the application information for the purpose of administering this application. I further authorize:
  - (a) the program to request information about the Applicant or the Applicant's project from any federal or provincial government department or agency, or from any third party including, but not limited to, Saskatchewan Water Security Agency (WSA), Saskatchewan Crop Insurance Corporation (SCIC), Agriculture and Agri-Food Canada (AAFC), and to disclose any information contained in this application or provided in relation to the Applicant, to any such department, agency or third party for the purposes of processing this application or administering this program;
  - (b) any department, agency or third party mentioned above, who is requested to verify or provide information, to disclose that information to the program; and
  - (c) this program to disclose information in relation to the Applicant or the Applicant's project to any such department, agency or third party for the purposes of the administration of the program by the Ministry of Agriculture.
6. I agree to provide the Ministry of Agriculture with a program evaluation survey, original receipts, proof of payment for costs claimed and photos of the completed, eligible project upon request.
7. I understand that there is no liability with respect to the Ministry of Agriculture or other government agencies regarding the construction of an approved project. Neither the Ministry of Agriculture, nor the Government of Saskatchewan, shall be liable to indemnify the Applicant for any liabilities the Applicant incurs in the performance of the work undertaken by it in this project. The Applicant shall hold the Minister, the Government of Saskatchewan, and all government employees, agents and representatives, past or present, harmless from and against all claims, liabilities, losses, damages, costs, expenses and causes of action, including claims:
  - (a) arising out of any breach or failure by the Applicant to perform of any of its obligations under this program;
  - (b) relating to injury (including death) to persons or loss of or damage to property arising out of the negligence or willful misconduct of the Applicant, its contractors, officers, agents or employees; or
  - (c) arising out of the work undertaken by the Applicant pursuant to this project including, but not limited to, claims for builders' liens, workers' compensation, employment insurance, holidays, back pay or any rates or charges.
8. I agree that the Ministry of Agriculture or its designated representatives are authorized to enter the premises identified on the application or any other premises operated by the Applicant in order to conduct an inspection of the eligible project that is subject of this application.
9. I acknowledge that I am responsible for any cost overruns or expenditures in excess of the amounts contributed by the Ministry of Agriculture under the program.
10. I acknowledge that the provision of false, misleading or fraudulent information may result in this application and any other past, current or future applications being deemed ineligible and any payments issued being deemed an overpayment.
11. I understand that the Ministry has the right to offset all or any portion of a rebate payment against any debt I have owing to the Government of Saskatchewan.
12. I certify that the information included in this application is true and correct in every respect.

☐ I acknowledge and accept the terms and conditions as set out above.

☐ I confirm if this project is located on lands protected under AHPP, WHPA, identified as Critical Habitat or has a Crown Conservation Easement registered on title that proper approval has been obtained in advance of commencing the project.

Dated: \_\_\_\_\_

Applicant Signature \_\_\_\_\_

If submitting by e-mail, please type your name below.

If submitting by mail, please sign the printed form.

By email: [agprograms@gov.sk.ca](mailto:agprograms@gov.sk.ca)

For more information: 1-866-457-2377

[Saskatchewan.ca/CAP](http://Saskatchewan.ca/CAP)

By mail: Farm and Ranch Water Infrastructure Program  
Ministry of Agriculture, Programs Branch  
329 - 3085 Albert Street Regina SK S4S 0B1

The personal information in this application is collected under the authority of The Agriculture Administration Act and is protected by and is subject to the provisions of The Freedom of Information and Protection of Privacy Act (FOIP Act) and Federal Privacy Act. Saskatchewan Agriculture (SA) will use the information from this form to determine your benefit under the Farm and Ranch Water Infrastructure Program. SA will also use your information for the administration of all other programs delivered by SA, to advise you about SA programs and services, for policy and program development and evaluation, and for research and statistical purposes. SA may share your information with Agriculture and Agri-Food Canada for the administration of other agriculture programs, for policy and program development and evaluation, and for research and statistical purposes. If you have any questions about the collection or use of this information, please contact the Privacy Officer, SA at (306) 787-5141 or 226 - 3085 Albert St., Regina SK, S4S 0B1.





## Bored Well Decommissioning Pre-approval Worksheet

Must be completed as part of your Farm and Ranch Water Infrastructure Program (FRWIP) application.

Name of Land Owner(s): \_\_\_\_\_ Telephone No.: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Land Location: (QTR sec. - Twp. - Rge W\_\_) \_\_\_\_\_ Lat/Long: \_\_\_\_\_

### 1: Well Details (see Table 1 and abbreviations on reverse side of page)

Water Well Driller Report Number	Casing Diameter (in)	Casing Radius (ft)	Well Depth (ft)	Water Level (ft)	Well Pit (Y/N)	Casing Material

### 2: Material Requirements (conversions and example on reverse side of page)

Bentonite requirements are based on 1 foot thick sections with 1 foot (ft) thick bentonite plugs to be placed at the bottom of the well and at the top of the perforated section. Wells deeper than 40 ft require additional plugs every 20 ft.

Volume per foot of casing =	$3.14 \times (\text{casing radius ft.})^2 \times 1 \text{ ft.} =$	_____ cu. ft. (A)
<b>Bentonite Required</b>		<b>Diagram of Proposed Well Decommissioning</b>
Volume per bag: (assume 50 lb bag contains 0.7 cu.ft. of bentonite)	0.7 (B)	
No. of 1 ft thick plugs (min. 2) (refer to Fact Sheet for location requirements)	(C)	
Determine the bentonite quantity plugs: [ _____ (A) x _____ (C) ] ÷ 0.7 (B)	bags (D)	
Bentonite Topseal (based on casing diameter refer to Table 2 on reverse side)	bags (E)	
Total bags of bentonite needed: (D+E)	bags	
<b>Granular Material Required</b>		
(Depth of well in ft – 10 ft) x A) + 30% = ( _____ ft – 10 ft) x _____ A) + 30% = _____ cu. ft. (F) _____ cu. ft (F) ÷ 27 cu. ft /cu. yd. = _____ cu. yd.		
<b>Chlorine Required</b>		
Length of Water Column: (well depth – water level) _____ (G) (ft)		
Quantity of Chlorine to Obtain Target Concentration: (Obtain from Table 3 on reverse side of page) _____ (H) (litres/ft)		
Total Volume of Chlorine for Disinfection: _____ G x _____ H _____ (litres)		
Comments: _____ _____ _____ _____ Signature of Land Owner _____ Date _____ Signature of Contractor _____ Date _____		

For technical assistance on determine how to decommission the well please contact the Water Security Agency at 306.694.3900 or email at [groundwater@wsask.ca](mailto:groundwater@wsask.ca).





Saskatchewan Association  
of Rural Municipalities

## Agricultural Insurance Programming Survey 2019

### Cattle/Calf Price Programs

14. The **Calf Price Insurance** program provides coverage at a market-driven forward price designed to take into account the main risk factors for cow-calf producers. **Feeder Cattle Coverage** is coverage driven by market-price, designed to take into account the main risk factors for cattle feeder. Please provide any comments you may have on the Calf/Cattle insurance programs.

☐ N/A

Comments

Table 1: Casing Measurements

Casing diameter		Casing Radius	Volume per foot casing
inches	feet	feet	cubic feet
4	0.33	0.17	0.087
5	0.42	0.21	0.136
6	0.50	0.25	0.196
7	0.58	0.29	0.267
8	0.67	0.33	0.348
24	2.00	1.00	3.136
30	2.50	1.25	4.900
36	3.00	1.50	7.056

Table 2: Bentonite for Topseal

Casing Diameter (inches)	Number of Bags *
4, 5, 6	2
24	18
30	23
36	28

\*Based on typical 50 lb bag containing 0.7 cu.ft per bag

### Conversions/Abbreviations:

1 cu. ft. = 28.32 litres  
 1 litre = 0.22 imp. gal.  
 1 imp. gal. = 4.54 litres  
 1 ft = 0.3048 meters  
 1 cu. yard = 27 cu. ft.  
 ft = foot  
 in = inches  
 cm = centimetres  
 m = metres  
 cu. ft = cubic feet  
 cu. ft = cu. foot.

### Volume of a Cylinder

$$V = \pi \times \text{radius}^2 \times \text{height}$$

Where:

Radius = 0.5 X diameter  
 $\pi = \text{pi} = 3.14$

Table 3: Chlorine Calculation to Obtain 250 mg/l

Casing Diameter	* 5.25% Domestic Chlorine Bleach (Javex)	12% Industrial Sodium Hypochlorite	** 70% Granular Calcium Hypochlorite
	Litres needed per 1 foot (30 cm) of water in casing	Litres needed per 1 foot (30 cm) of water in casing	Grams dry weight needed per 1 foot (30 cm) of water in casing
Inches	Litres	Litres	Grams
4	0.012	0.005	0.9
5	0.018	0.008	1.4
6	0.026	0.012	2.0
7	0.036	0.016	2.7
8	0.047	0.020	3.5
24	0.424	0.185	31.7
30	0.667	0.292	50.0
36	0.952	0.417	71.3

\* Domestic bleach has a relatively low concentration of 5.25%, which decreases over time as the product is stored. For this reason, its effectiveness for disinfection may be limited.

\*\* If dry chemical is used, it should be mixed with warm water to form a chlorine solution prior to placing in the well.

\*\*\*Always follow the manufactures recommended handling precautions.

1: Well Details (see Table 1 and abbreviations on reverse side of page)

Water Well Driller Report Number	Casing Diameter (in)	Casing Radius (ft)	Well Depth (ft)	Water Level (ft)	Well Pit (Y/N)	Casing Material
123456	30	1.5	45	12	N	Steel

2: Material Requirements (conversions and example on reverse side of page)

Bentonite requirements are based on 1 foot thick sections with 1 foot (ft) thick bentonite plugs to be placed at the bottom of the well and at the top of the perforated section. Wells deeper than 40 ft require additional plugs every 20 ft.

Volume per foot of casing =	$3.14 \times (\text{casing radius ft.})^2 \times 1 \text{ ft.} =$	<u>4.9</u> cu. ft. (A)
<b>Bentonite Required</b>		
Volume per bag: (assume 50 lb bag contains 0.7 cu.ft. of bentonite)	0.7 (B)	
No. of 1 ft thick plugs (min. 2) (refer to Fact Sheet for location requirements)	2 (C)	
Determine the bentonite quantity plugs:	14 bags (D)	
Bentonite Topseal (based on casing diameter refer to Table 2 on reverse side)	23 bags (E)	
Total bags of bentonite needed: (D+E)	37 bags	
<b>Granular Material Required</b>		
(Depth of well in ft - 10 ft) x A + 30% = $(45 - 10) \times 4.9 + 30\% = 222.9$ cu. ft. (F) $222.9$ cu. ft. (F) ÷ 27 cu. ft./cu. yd. = <u>8.3</u> cu. yd.		
<b>Chlorine Required</b>		
Length of Water Column: (well depth - water level)	<u>33</u> (G)	Comments: <u>well casing is in poor condition</u>  Signature of Land Owner _____ Date _____ Signature of Contractor _____ Date _____
Quantity of Chlorine to Obtain Target Concentration: (Obtain from Table 3 on reverse side of page)	<u>0.292</u> (H)	
Total Volume of Chlorine for Disinfection:	<u>9.6</u> (litres)	
<u>33</u> G x <u>0.292</u> H		

For technical assistance on determine how to decommission the well please contact the Water Security Agency at 306.694.3900 or email at groundwater@wsask.ca.





Saskatchewan Association  
of Rural Municipalities

## Agricultural Insurance Programming Survey 2019

### Risk

15. What do you consider the greatest risk to your agricultural operation?

- ☐ Production risk (weather, climate changes, disease, pests)
- ☐ Financial risk (availability of capital ability to meet cash flows)
- ☐ Marketing risk (price, variability, access to markets)
- ☐ Human resources (employee management, transition planning)
- ☐ Legal risk (regulation, business organization, contracts)