USDA

United States Department of Agriculture

Natural Resources Conservation Service

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Irrigated Lands Regulatory Program

Well Decommissioning with NRCS

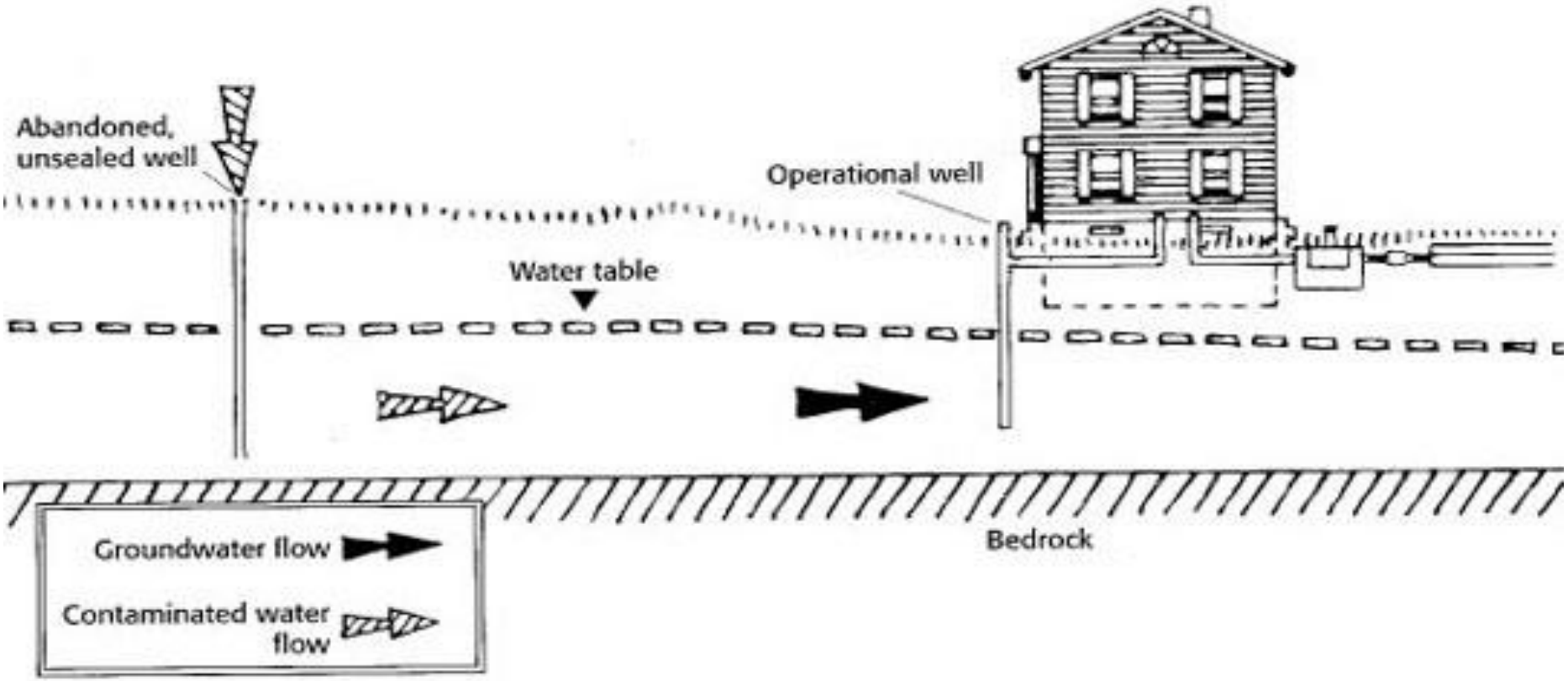
January 24, 2023

Natural Resources Conservation Service

nrcs.usda.gov/


NRCS provides one-on-one, personalized technical assistance for voluntary conservation
NRCS helps people make investments in their operations and local communities to address resource concerns
NRCS generates, manages and shares the data, technology, and standards to help producers make informed decisions

Why protect a wellhead or decommission an abandoned well?



Wellhead Protection

Step by Step Instructions

The Farm Evaluation has 4 components:

- **Section 1:** Whole Farm Evaluation
- **Section 2:** Irrigation Well Information
- **Section 3:** Sediment & Erosion Control Practices
- **Section 4:** Farm Map(s)

Step 2: Section 2: Complete the Wellhead Protection Practices table and/or Abandoned Well Practices table for all irrigation and abandoned wells on your property. Give each well a unique identifier (Well ID) and list them in the first column of the table. Complete the table by marking which Wellhead Protection Practices or Abandoned Well Practices apply to each of your wells. Mark the location of all in-use wells (irrigation and drinking water supply wells), abandoned wells, and off farm surface water discharge points on a Farm Map. Wells should be marked with the Well ID noted on the Farm Evaluation. Keep the map in your files (do not return to the Coalition). The map(s) with well identifiers must be produced if you have a Regional Water Board compliance inspection. *If your land does not contain irrigation wells or abandoned wells, check the appropriate box above the Wellhead Protection Practices table and/or the Abandoned Well Practices Table.*

Section 2 – Irrigation Well and Abandoned Well Information

Member Name: _____ **Coalition Member ID#:** _____

1. **Irrigation Wells**: Create a unique Well ID for each irrigation well. For each well, fill in the table below with the Well ID and mark an "X" under the practices that apply to the individual well. Mark the location of your wells on the provided Farm Map(s) or your own farm map using the unique Well ID.

☐ Check this box if you have no irrigation wells on your parcel(s).						
	Wellhead Protection Practices					
Well ID (A unique name of your choice)	Ground Sloped Away from Wellhead	Standing water avoided around wellhead	Good Housekeeping Practices*	Air Gap (for non-pressurized systems)	Backflow Preventive / Check Valve	Cement Pad

*Good housekeeping practices include keeping the area surrounding the wellhead clean of trash, debris and any empty containers.

Comments: _____

2. **Abandoned Wells**: Create a unique Well ID for each abandoned well. Mark the location of your wells on the provided Farm Map(s) or your own farm map using the unique Well ID. Indicate the year the well was abandoned (write "UNK" if the year is unknown; approximation is okay) and mark how the well was destroyed with an "X" under the appropriate practice.

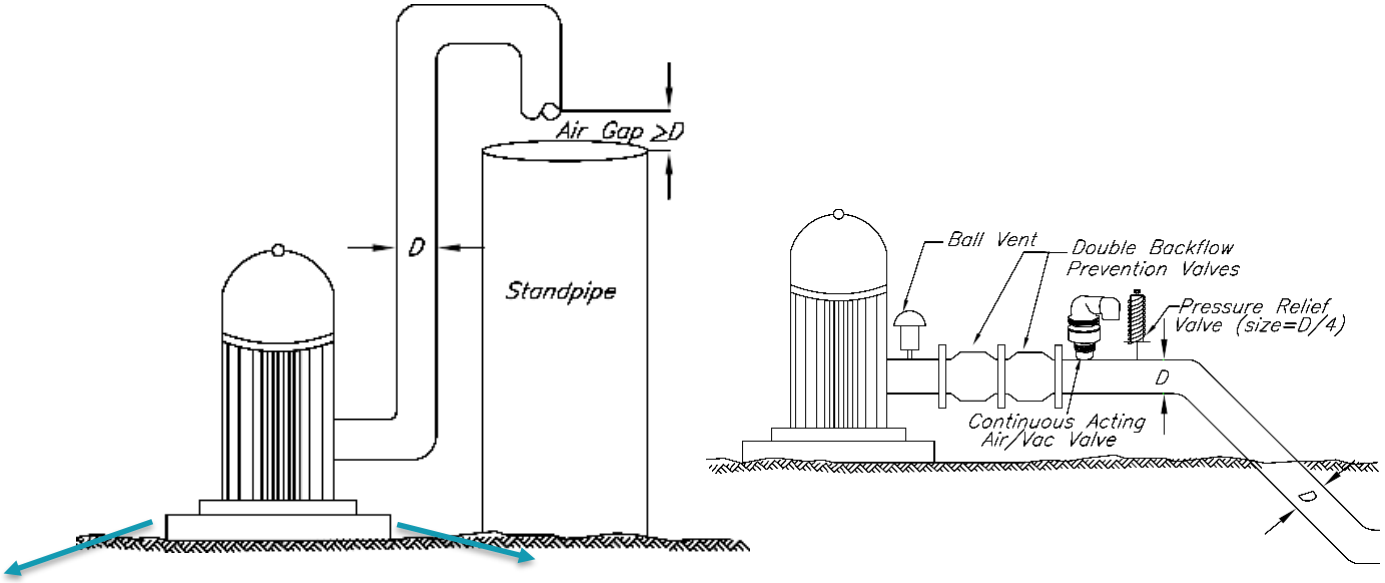
☐ Check this box if you have no abandoned wells on your parcel(s)				
	Abandoned Well Practices			
Well ID (A unique name of your choice)	If abandoned, year abandoned	Destroyed – certified by county	Destroyed by licensed professional	Destroyed - Unknown method

Comments: _____

Wellhead Protection

Well ID (A unique name of your choice)	Wellhead Protection Practices					
	Ground Sloped Away from Wellhead	Standing water avoided around wellhead	Good Housekeeping Practices*	Air Gap (for non-pressurized systems)	Backflow Preventive / Check Valve	Concrete ~~Cement~~ Pad

*Good housekeeping practices include keeping the area surrounding the wellhead clean of trash, debris and any empty containers.



Well ID (A unique name of your choice)	Abandoned Well Practices			
	If abandoned, year abandoned	Destroyed – certified by county	Destroyed by licensed professional	Destroyed - Unknown method

Solano County Specifics

Solano County Code has adopted CA DWR Bulletin 74-81 "Water Well Standards: State of California" with the addition of county-specific requirements for Chapter 13.10-14 (d) Drilling Waste and (e) Mud pits and 13.10-19 Inspections)

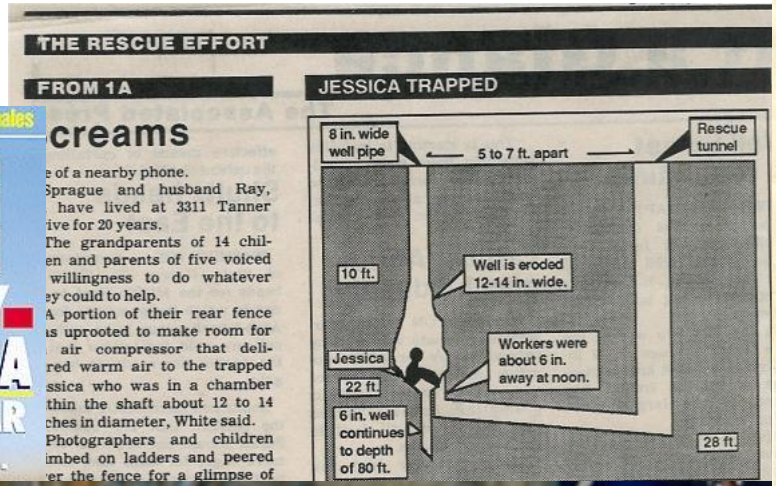
Abandoned Wells

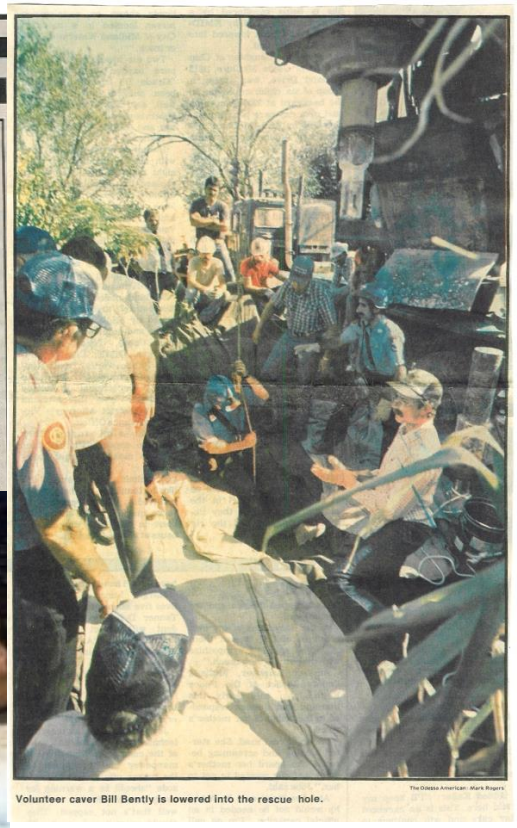
What's considered "abandoned"?

A well is considered "abandoned" or permanently inactive if it has not been used for one year unless the owner demonstrates intention to use the well again.

Why decommission my abandoned well?

"Baby Jessica", October 1987, Midland TX





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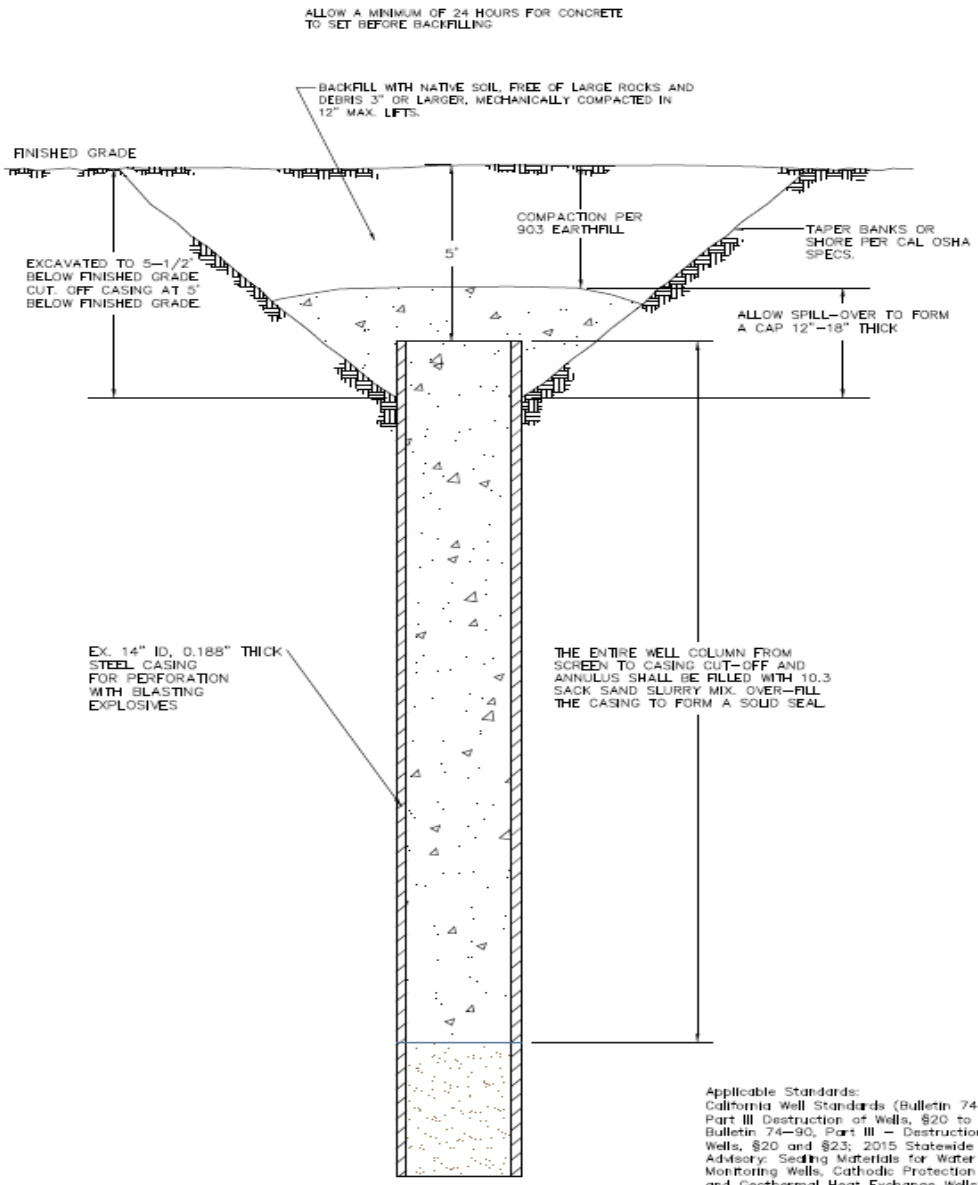
Well Decommissioning (351)

- **Definition** – The sealing and permanent closure of an inactive, abandoned, or unusable water or monitoring well.
- **Purposes** – Protect ground water from surface water contamination. Protect the aquifer water quality. Restore the natural hydrogeologic conditions.
- **Procedure** as outlined in the NRCS Conservation Practice Standard (CPS) 351
    - Data Collection
    - Permitting, Applications, & Bids
    - NRCS Implementation Requirements (IR) Development
        - Requires approval by NRCS State Conservation Engineer
    - Well Preparation
    - Disinfection
    - Casing Removal/Perforation/Blasting/Grouting
    - Sealing Material
    - Fill (plugging) Material
    - Surface Seal (mushroom cap)
    - Surface Soil Backfilling
    - Final Reporting

Solano County Specifics

Solano County Code has adopted CA DWR Bulletin 74-81 "Water Well Standards: State of California“ with the addition of county-specific requirements for Chapter 13.10-14 (d) Drilling Waste and (e) Mud pits and 13.10-19 Inspections)



Applicable Standards:
California Well Standards (Bulletin 74-81, Part III Destruction of Wells, §20 to §23; Bulletin 74-90, Part III – Destruction of Wells, §20 and §23; 2015 Statewide Advisory: Sealing Materials for Water Wells, Monitoring Wells, Cathodic Protection Wells, and Geothermal Heat Exchange Wells1) Solano County Code Chapter 13.10 (including, but not limited to, Chapter 13.10-14 (d) Drilling Waste and (e) Mud pits and 13.10-19 Inspections) and NRCS Well Decommissioning (351).

Example from 2022 – preparation, grout and charge placement:

Example from 2022 – grout and charge placement completion:

Example from 2022 – final concrete “mushroom cap” and finished site:

NRCS Well Decommissioning Assistance

- **Tentative Payment Rates FY 2023**
  - Drilled Well > 300 FT ($17.75/FT)
  - Drilled Well < 300 FT ($34.23/FT)
  - Shallow Well > 20 FT ($708.73/CY)
  - Shallow Well < 20 FT ($626.31 /CY)
- **NRCS Financial Assistance Programs for Well Decommissioning include:**
  - Environmental Quality Incentives Program (EQIP)
  - Agricultural Conservation Easement Program (ACEP) - Wetland Reserve Enhancement (WRE) Program
  - Wetland Reserve Enhancement Program (WRP)

Caveats

- Payment rates are higher for Historically Underserved (HU) producers and those in identified Source Water Protection zones
- Payment rates shown are tentative for FY 2023 and are subject to change
- Final payment amounts will be based on the well decommissioning completion report submitted to the County and NRCS

Other NRCS Assistance

- **Slow It**
  - Provide a rougher, more vegetated surface that slows down water flow.
- **Spread It**
  - Prevent flow accumulation by widening the flow path.
- **Sink It**
  - Create a soil surface that allows water infiltration into unconfined shallow and/or deep aquifers.
- **Store It**
  - Create a healthy, biologically active soil profile with organic matter that acts more as a sponge.

- **NRCS' Field Office Technical Guide (eFOTG)**
  - https://efotg.sc.egov.usda.gov/#/state/CA/documents/section=4

How?

By slowing, spreading, sinking, and storing rainwater on your field(s), availability of early season soil water can be increased and recharge of groundwater and reliance on pumped groundwater can be reduced.

Slow It, Spread it, Sink It, and Store It

- **Conservation Cover (327)**
  - Definition – Establishing and maintaining permanent vegetative cover.
  - Applicable purposes include – Reduce sheet, rill, and wind erosion and sedimentation. Reduce ground and surface water quality degradation by nutrients and surface water quality by sediment. Improve soil health.
- **Cover Crop (340)**
  - Definition – Crops including grasses, legumes, and forbs for seasonal cover and other conservation purposes.
  - Applicable purposes include – Reduce erosion from wind and water. Increase soil organic matter content. Capture and recycle or redistribute nutrients in the soil profile. Promote biological nitrogen fixation and reduce energy use. Manage soil moisture. Minimize and reduce soil compaction.
- **Residue and Tillage Management, No Till (329)**
  - Definition – Limiting soil disturbance to manage the amount, orientation, and distribution of crop and plant residue on the soil surface year-round.
  - Applicable purposes include – Reduce sheet, rill, and wind erosion and excessive sediment in surface waters. Maintain or increase soil health and organic matter content. Increase plant available moisture.
- **Residue and Tillage Management, Reduced Till (345)**
  - Definition – Managing the amount, orientation, and distribution of crop and other plant residue on the soil surface year-round while limiting soil-disturbing activities used to grow and harvest crops in systems where the field surface is tilled prior to planting. .
  - Applicable purposes include – Reduce sheet, rill, and wind erosion and excessive sediment in surface waters. Improve soil health and maintain or increase organic matter content.

How?

These full- or partial-field practices reduce flow concentration and raindrop impact while enhancing nitrogen fixation and the soil microbiome. They can provide additional root penetrations that help to improve water infiltration while increasing the soil's ability to act as a sponge.

Slow It

- **Field Border (386)**
  - Definition – A strip of permanent vegetation established at the edge or around the perimeter of a field.
  - Applicable purposes include – Reduce erosion from wind and water and reduce excessive sediment to surface waters. Reduce sedimentation offsite and protect water quality and nutrients in surface and ground waters.
- **Filter Strip (393)**
  - Definition - A strip or area of herbaceous vegetation that removes contaminants from overland flow.
  - Applicable purposes include - Reduce suspended solids and associated contaminants in runoff and excessive sediment in surface waters. Reduce dissolved contaminant loadings in runoff. Reduce suspended solids and associated contaminants in irrigation tailwater and excessive sediment in surface waters.
- **Grassed Waterway (412)**
  - Definition – A shaped or graded channel that is established with suitable vegetation to convey surface water at a non-erosive velocity using a broad and shallow cross section to a stable outlet.
  - Applicable purposes include - Convey runoff from terraces, diversions, or other water concentrations without causing erosion or flooding. Prevent gully formation. Protect/improve water quality.
- **Hedgerow Planting (422)**
  - Definition – Establishment of dense vegetation in a linear design to achieve a natural resource conservation purpose.
  - Applicable purposes include – To provide substrate for predaceous and beneficial invertebrates as a component of integrated pest management. To intercept airborne particulate matter. To reduce chemical drift and odor movement. To increase carbon storage in biomass and soils.
- **Mulching (484)**
  - Definition – Applying plant residues or other suitable materials to the land surface.
  - Applicable purposes include – Improve the efficiency of moisture management. Improve the efficient use of irrigation water. Reduce concentrated flow erosion. Reduce sheet, rill, and wind erosion. Maintain or increase organic matter content.

How?

These practices can slow and filter water running on and off of fields.

Spread It

- **Diversion (362)**
  - Definition – A channel generally constructed across the slope with a supporting ridge on the lower side.
  - Applicable purposes include – Break up concentrations of water on long slopes, on undulating land surfaces and on land that is generally considered too flat or irregular for terracing.
- **Waterspreading (640)**
  - Definition - A system of diverting or collecting runoff from natural watercourses and spreading the runoff over relatively flat areas.
  - Applicable purposes include - Reduce the potential for flooding and ponding. Reduce the potential for gully formation. Manage natural precipitation more efficiently. Facilitate ground water recovery.

How?

NRCS practices can, on a case-by-case basis, be employed to spread out concentrated flows to increase infiltration and reduce the erosive power of water.

Sink It – Interim Groundwater Practices

- **Groundwater Recharge Basin or Trench (815)**
  - Definition – An off-channel impoundment with a permeable base underlain by an unconfined aquifer.
  - Purpose – To recharge a specific aquifer to reduce the risk of natural resource degradation, or limitation to land use caused by groundwater depletion.
- **On-Farm Recharge (817)**
  - Definition – The periodic application of surface or stormwater to cropland with connectivity to an unconfined aquifer.
  - Purpose – To recharge a specific aquifer to reduce the risk of natural resource degradation, or limitation to land use caused by groundwater depletion.

Caveat

As of FY 2022, these practices are limited for funding to pilot projects in **Madera, Merced, Tulare, and Kern** Counties and is expected to remain so until the evaluation period for the interim practices is complete.

Store It

- **Soil Carbon Amendment (808)**
  - Definition – Using carbon-based amendments to increase soil carbon and improve the physical, chemical, and biological properties of the soil.
  - Applicable purposes include – Maintain, increase, or improve soil organic matter quantity and quality. Maintain or improve soil aggregate stability. Maintain or improve habitat for soil organisms. Improve plant productivity and health. Improve the efficient use of irrigation water.

How?

The addition of soil carbon and organic matter can increase the ability of the soil to soak up and retain water, allowing it to percolate deeper into the soil profile after rainfall events.

Other NRCS Practices

- Microirrigation System (441)
- Irrigation Water Management (449)
- Nutrient Management (590)
- Pest Management Conservation System (595)
- Denitrifying Bioreactor (605)

How?

Many of NRCS' other available practices may be employed to assist with conserving irrigation water, managing nutrient and/or pesticide applications, and managing excess irrigation water and/or nitrogen applications.

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Q&A will be at the end of the workshop.

Contact your local NRCS Office at

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