



Levee Patrol Plan

District Incident Commander will coordinate patrol schedule and sectors. Upon receipt of a DWR prediction that stages at Vernalis Gauge will exceed Monitor Stage (EL+24.5 feet), develop tentative schedules and assignments for 12 hour and hourly patrols. Upon reaching 24.5 feet at Vernalis Gauge, RD2075 will initiate 12 hour patrols. Upon reaching 26.5 feet at Vernalis Gauge, District will initiate hourly patrols. District officials anticipate requesting mutual aid for levee patrols if hourly patrols continue without break for more than two weeks or if RD2094 levee fails.

Patrols will meet at command post at Cardoza Hay Barn. Communications will be with personal cellular telephones.

Lath Protocol
 Red - Soil/Seepage
 Blue - Rock Slippage
 White - Slope/Levee Distress

Survey Information

Basis of Elevations - Almondwood, McMullin, River Junction and Trahern Dry Land Levees
 Bearings and Distances shown are based on the North American Datum of 1983 (NAD 83) converted to the California Coordinate System of 1983, Zone 3 (CCS83-4) as referenced by available NGS published control monuments. All distances are grid distances. Units shown are based on the U.S. Survey Foot, Epoch date 1997.30.

- Elevations are based on the North American Vertical Datum of 1988 (NAVD88)
- 100-Year Flood Elevations Source: 2009 FEMA Firm
- Levee Crown, Contours, and Spot Elevations Source: 2007 DWR LIDAR

Survey Data
 The survey points provided for Almondwood, Manteca Road, and Trahern Dryland Levees Profile were surveyed in August, 2005. Horizontal and vertical positions were recorded by GPS RTK, from established site control points.

0 2,500 5,000
 Feet
 1 inch = 1,500 feet

Time/Date of Start of Incident
 Map Version

- Legend**
- 100 Year Flood Elevation
 - Logistics Base
 - Delivery Point
 - Supply Staging Area
 - Water Landing
 - Helibase
 - Helispot
 - Historic Seepage Area
 - Historic Levee Breach
 - Relief Cut
 - Historic Erosion Area
 - Historic Slope Stability Area
 - Levee Access
 - Emergency Berm
 - Dryland Levee
 - Dryland Levee Critical Section
 - Levee
 - Levee Crown Elevation
 - Spot Elevation
 - Levee Mile-River Mile Station
 - Pump Station - Private Drainage
 - Pump Station - Municipal Storm
 - Pump Station - Emergency Pump Out
 - Pump Station - Municipal Sanitary
 - Structure (A-Agriculture, R-Residence, S-School)
 - Water Well
 - Sanitary Sewer Lines
 - Storm Drain Lines
 - Water Lines
 - Overhead Transmission Line
 - Underground Fiber Optics
 - Underground Lines
 - Command Post
 - District Boundary
 - Elevation Contour
 - Waterways/Channels

Flood Fight History
 Stanislaus River Impacts

1906	Flood broke out of the river east of Ripon and flowed down Jack Tone Road toward Stockton and west around the City of Ripon.
1928	Stanislaus River overtopped the levee on the Hard Ranch near South Austin Road on March 25th. Approximately 6,000 acres flooded generally along Stanislaus River and within RD2064. Water reached depths of nearly 10 feet in areas.
1950	Stanislaus River flows reached 68,000 cfs. Extensive rains on Thanksgiving Day caused a general flood of area. Flood peaked at 68,000 cfs. Flood waters broke out south of intersection of Mohler and Monrovia Roads and extended north of Mohler and Monrovia roads nearby to Hutchinson. Water movement north of those roads was caused by the existence of open irrigation ditches which served to back up water to north. Flood waters traveled west to cross levee along Manteca Road and then north along that levee to West Ripon Road and then into Walthall Slough. Levee broke on south side of river near Mapes Ranch which lowered water levels considerably. (Interview with Merlin Mohler and Ken Mohler)
1951	Local Interest Private Levee (LIP) extending from Reuss Road to East end of Caswell Park built through cooperative agreement among affected landowners. Height of levee was built to handle 1950 flood levels which prevailed for most of the winter. Flows on Stanislaus River were not significant since the new New Melones Reservoir was still in the process of initially filling.
1955	Stanislaus River flows reached 55,000 cfs. Stanislaus River levee failed upstream from Manteca Road. Stanislaus River flows reached 55,000 cfs. Water levels came within inches of the top of the LIP Levee. Landowners subsequently raised the LIP levee by 30 inches in 1956. Landowners also subsequently removed all cross levees to facilitate flow and reduce flow depths. (Interview with Merlin Mohler)
1964	Stanislaus River flows reached 36,000 cfs in Spring flood in June. Levees held although considerable paroling and remedial work was necessary.
1983	31.5' at Vernalis Gauge, normal flows in the Stanislaus River. Spring flood was occurring in San Joaquin River due to El Nino weather pattern that prevailed for most of the winter. Flows on Stanislaus River were not significant since the new New Melones Reservoir was still in the process of initially filling.
1997	34' at Vernalis Gauge before levee failure: District officials feel that water level in district after break on Stanislaus River reached 35-36' above sea level. San Joaquin River flows estimated to reach 70,000 cfs. Stanislaus River flows held at 6,000 cfs. Over a 3-day period centered on January 1, 1997 warm moist winds from the southwest blowing over the Sierra Nevada poured more than 30 inches of rain into watersheds that were already saturated by one of the wettest Decembers on record. By January 2, 1998 Don Pedro Reservoir and Millerton Lake at Friant Dam releases were much above channel capacity. Don Pedro water, in particular, caused a dramatic surge in San Joaquin River stages by early morning of January 4, 1997. Stanislaus river flows were near channel capacity because of greatly increased releases from New Melones Reservoir. District officials feel that restricted capacity of channel at Airport Way bridge caused these high flows to back up further. Numerous boils were reported to during the next 36 hours. At approximately 2:00 p.m. on Sunday January 5, San Joaquin levee failed one-fourth of a mile above Airport Way bridge near where flood fight work was in progress. At approximately 4:00 p.m. on the same day Stanislaus River project levee failed near Sturgeon Bend, one-quarter mile upstream from junction with San Joaquin River. Flows on Stanislaus River reached 8,000 cfs which caused levee to reach LIP Levee level of 1,000 feet of levee in anticipation of potential higher flows. No major problems were experienced on LIP Levee at 8,000 cfs flows. (Baldwin and interviews with District Officials)

Flood Fight History
 Impacts on East Bank of San Joaquin River south of Mossdale

1950	Failure of levee on Thanksgiving Day near junction with Hays Road near present location of district pumps. River broke back into main channel near Hays Road and then into main channel near Manteca Road. Primary levee is now much higher than Almondwood Dryland Levee and so this would not happen again. Instead water level rose and water continued to move north as it did in 1997. Stanislaus River flows reached 69,000 cfs.
1952	Levee failed downstream of 1997 break in June probably as a result of poor maintenance and inadequate paroling (Alex Hays Road)
1955	Rapid rise on San Joaquin River on Christmas Day caused failure of RD2075 levee in the area of the pocket. Stanislaus River reached 55,000 cfs which caused levee upstream from Manteca Road to fail. Stanislaus River water flow moved south of Manteca Road to River Junction. Water then went along West Ripon Road into Walthall Slough. Area around Brandy Road near the intersection of Manteca Road and Brandy Road flooded deep but water did not back up to the levee. Break on south side of Stanislaus River at Mapes Ranch caused rapid drop in water levels. (Merlin Mohler)
1983	RD2075 conducted floodfight on Trahern Levee to prevent northward movement of water after levee failure in RD2064. This flood fight was successful. RD2075 also dealt with a problem on primary levee near junction with Hays Road. Failure of the primary levee was prevented. (Baldwin)
1997	Over a 3-day period centered on January 1, 1997 warm moist winds from the southwest blowing over the Sierra Nevada poured more than 30 inches of rain into watersheds that were already saturated by one of the wettest Decembers on record. By Thursday, January 2, Don Pedro Reservoir and Millerton Lake at Friant Dam releases were much above channel capacity. Don Pedro water, in particular, caused a dramatic surge in San Joaquin River stages by early morning of Saturday, January 4. Following levee failure in RD2094 on January 5, 1997 Department of Water Resources and RD2075 officials began a flood fight on the Trahern Dryland Levee to prevent water from flowing northward. District official Lloyd Hayward closed gates one-quarter mile west of Airport Way to prevent water from flanking the Trahern Levee. Corps of Engineers under PL99 were requested to flood fight Trahern Dryland Levee which was approved. Corps of Engineers contractors placed a rock line rock rock on levee to prevent water wash damage. Water levels reached top of levee where previously placed gravel prevented washout from slight overtopping flow. By afternoon of Monday, January 6, trucks and heavy equipment could not access top of levee. Private drag line used to try to maintain access. COE ceased flood fight on Trahern Dryland Levee. District officials feel that Trahern Levee would have failed if break further downstream had not occurred early next morning. During the time of the flood fight on the Trahern Dryland Levee, Stanislaus River flows reached 8,000 cfs. Water reached Almondwood Dryland Levee around 5:30 a.m. Water reached Wetherbee Lake by 7:00 a.m. that morning. Levee breach occurred at nearly a dozen sites but no levees failed. Extensive seepage flooded numerous fields and some structures and seepage continued to hinder farm operations into the summer. (Baldwin after interview with Art Hironaka)
2006	Spring flood occurred on San Joaquin River due to sustained rains in March that saturated ground culminating in a very heavy rainfall event on April 2nd-4th which forced reservoirs to make large releases. Initial predictions of a 3Z stage at Vernalis, combined with a forecasted additional large precipitation event, initiated a large flood fight operation. Precipitation events failed to occur and subsequent peak flow crest at 35,000 cfs at Vernalis Gauge causing a peak stage of 29.3'. Erosion protection and seepage control work was necessary at nearly a dozen sites but no levees failed. Extensive seepage flooded numerous fields and some structures and seepage continued to hinder farm operations into the summer. (Baldwin after interview with Art Hironaka)

Delivery Points and Supply Staging Areas

Pre-Planned Delivery Points
 DP-01 Intersection of Airport and Airport Court 121°15'06.45"W 37°42'58.03"N

CDEC Gauge

California Data Exchange Center (CDEC) Website
<http://cdec.water.ca.gov>

San Joaquin River Near Vernalis Gauge
 Monitor Stage: 24.5'
 Flood Stage: 29.0'
 Danger Stage: 29.5'

Flood Contingency Options
 Reclamations Districts 2064, 2075, 2094, 2096

Highwater Event and Failure of Primary District Levees
 The general strategy in a high water event is to establish effective levee patrol, coordinate response through South Delta Unified Flood Fight Command, and prepare to take additional emergency actions.

Actions

- Establish levee patrols in accordance with district plans.
- Involved districts and local, State, and Federal agencies provide representatives to South Delta Unified Flood Fight Command to coordinate response to levee problems.
- Identify equipment to make pre-planned relief cuts if needed.
- Determine advisability of providing pro-active wave wash protection on some or all dryland levees within districts as a precautionary measure.

Failure of RD 2064 Primary Levee
 The general flood fight strategy will be to flood fight the Trahern Dryland Levee, make the Lower Cardoza Relief Cut, and protect interior levees.

Actions

- Coordinate with P.G.&E. to cut power to flooded sections.
- Position equipment at Lower Cardoza Relief Cut if levee failure is probable. Upon failure of primary levees, make relief cut to just above water level of river. As monitored waters build up to the level of river water, complete cut.
- Monitor outflow from first relief cut and elevation of impounded water to determine need for a second relief cut to stabilize water elevation. If appropriate, make Upper Cardoza Relief Cut to stabilize elevation of impounded waters and assist flood fight operations.
- Flood fight Trahern Dryland Levee. Close gates through Trahern Dryland Levee at Walthall Slough and other culverts to prevent water from penetrating or flanking east end of levee.
- Protect interior slopes of district levees.

Failure of Trahern Dryland Levee or RD 2075 Primary Levee
 The general flood fight strategy will be to make Mizuno Farms Relief Cut and protect interior of district levees. Support activity by RD17 to flood fight Woodward Dryland Levee on north side of RD2094.

Actions

- Position equipment to make Mizuno Farms Relief Cut. Upon failure of primary levee, make cut to just above water level of river. Monitor elevation of impounded flood waters and complete cut when elevation of impounded waters reach elevation of river waters.
- Protect interior slopes of district levees.
- Support RD17 flood fight of Woodward Dryland Levee.

Failure of Stanislaus River Levees East of Manteca Road Dryland Levee
 The general flood fight strategy will be to flood fight Manteca Road Dryland Levee, make Brocchini Farm Relief Cut, and install emergency pumps at mouth of Walthall Slough to evacuate flood waters that may move north and west into Walthall Slough.

Actions

- Coordinate with P.G.&E. to cut power to areas impacted by flood waters.
- Flood fight Manteca Dryland Levee. Close Melton and Perrin Roads with emergency berms.
- Extend Almondwood Dryland Levee if needed to control any flow towards Walthall Slough.
- Position equipment at Brocchini Farms Relief Cut. If impounded floodwaters elevations exceed elevation of river water complete relief cut.
- Install emergency pumps at mouth of Walthall Slough to pump flood waters entering slough back into river.

RECLAMATION DISTRICT 2096
 WETHERBEE LAKE (1962)
 Walthall Dryland Levee (100-Year Flood Protection Certified)

RECLAMATION DISTRICT 2094
 WALTHALL TRACT (1959)

RECLAMATION DISTRICT 2095
 PARADISE

RECLAMATION DISTRICT 2075
 MCMULLIN RANCH (1927)

RECLAMATION DISTRICT 2064
 RIVER JUNCTION (1923)

RECLAMATION DISTRICT 2085
 KASSON

RECLAMATION DISTRICT 2064
 BLEWETT

Dewatering Plan

If Lower Cardoza relief cut is made, relief cut will remain open to allow impounded waters to exit district as river returns to normal elevations. Once flood waters will no longer drain through relief cut, the cut will be repaired along with breach. After levee failure has been repaired, place emergency pumping station on levee at site shown for flood dewatering, if impounded waters remain. Continue to monitor and protect interior primary levee slopes and dryland levees.

Tactical Plans (Preliminary Engineering Designs)

P.E.D.s have not been prepared for RD 2075.
 For tactical informationations refer to the Flood Contingency Options text box.

Flood Contingency Options
 Upper Stanislaus

Highwater Event
 The general strategy will be to flood fight Local Interest Private Levee (LIP) along river and prepare to implement emergency actions.

Actions

- Establish levee patrols with affected property owners. Closely monitor levee reach at east end of Monrovia Road where direct river flow impinges on levee.
- Monitor water levels at Jack Tone Golf Course bluff.
- Identify equipment to make Brocchini Farms Relief Cut in the event of a breach.
- Property owners and City of Ripon designate representatives to South Delta Unified Flood Fight Command.

Threatened Movement of Water North of Jack Tone Golf Course Bluff
 The general flood fight strategy will be to implement Jack Tone Golf Emergency Flood Protection Plan.

Actions

- Identify equipment and material to implement plan while monitoring water on golf course and river flow predictions.
- Implement Jack Tone Golf Emergency Flood Protection Plan in event flood waters threaten to move north of bluff.

Failure of Stanislaus River LIP Levee East of Manteca Road Dryland Levee
 The general flood fight strategy will be to facilitate movement of water west to minimize extension of water to north and make Brocchini Farms Relief Cut if conditions warrant.

Actions

- Position equipment to make Brocchini Farm Relief Cut. Upon failure of LIP levee, monitor elevation of impounded flood waters and complete cut when and if impounded waters reach elevation of river waters at relief cut site.
- If breach is to east of Mohler and Monrovia Roads intersection, cut road embankment at that point to facilitate westward flow of flood waters.

RECLAMATION DISTRICT 2096
 WETHERBEE LAKE (1962)

RECLAMATION DISTRICT 2094
 WALTHALL TRACT (1959)

RECLAMATION DISTRICT 2095
 PARADISE

RECLAMATION DISTRICT 2075
 MCMULLIN RANCH (1927)

RECLAMATION DISTRICT 2064
 RIVER JUNCTION (1923)

RECLAMATION DISTRICT 2085
 KASSON

RECLAMATION DISTRICT 2064
 BLEWETT

Dewatering Plan

If Lower Cardoza relief cut is made, relief cut will remain open to allow impounded waters to exit district as river returns to normal elevations. Once flood waters will no longer drain through relief cut, the cut will be repaired along with breach. After levee failure has been repaired, place emergency pumping station on levee at site shown for flood dewatering, if impounded waters remain. Continue to monitor and protect interior primary levee slopes and dryland levees.

Tactical Plans (Preliminary Engineering Designs)

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Flood Contingency Options
 Upper Stanislaus

Highwater Event
 The general strategy will be to flood fight Local Interest Private Levee (LIP) along river and prepare to implement emergency actions.

Actions

- Establish levee patrols with affected property owners. Closely monitor levee reach at east end of Monrovia Road where direct river flow impinges on levee.
- Monitor water levels at Jack Tone Golf Course bluff.
- Identify equipment to make Brocchini Farms Relief Cut in the event of a breach.
- Property owners and City of Ripon designate representatives to South Delta Unified Flood Fight Command.

Threatened Movement of Water North of Jack Tone Golf Course Bluff
 The general flood fight strategy will be to implement Jack Tone Golf Emergency Flood Protection Plan.

Actions

- Identify equipment and material to implement plan while monitoring water on golf course and river flow predictions.
- Implement Jack Tone Golf Emergency Flood Protection Plan in event flood waters threaten to move north of bluff.

Failure of Stanislaus River LIP Levee East of Manteca Road Dryland Levee
 The general flood fight strategy will be to facilitate movement of water west to minimize extension of water to north and make Brocchini Farms Relief Cut if conditions warrant.

Actions

- Position equipment to make Brocchini Farm Relief Cut. Upon failure of LIP levee, monitor elevation of impounded flood waters and complete cut when and if impounded waters reach elevation of river waters at relief cut site.
- If breach is to east of Mohler and Monrovia Roads intersection, cut road embankment at that point to facilitate westward flow of flood waters.

Flood Fight History
 Impacts vicinity of East Bank of San Joaquin near Stanislaus River Junction

1935	Snowmelt flood caused a break on San Joaquin River a short distance above the Durham Ferry road bridge at 2:30 a.m. on Friday, May 31st. Approximately 3,000 acres were flooded. Break reached 400 feet but a relief cut was promptly made approximately 1 mile below the bridge. A renewed rise of the San Joaquin and Stanislaus Rivers on Tuesday, June 4th occurred due to hot weather in the mountains rapidly melting the snow pack. This hindered attempts to close the break. (News article from Merlin Mohler)
1983	Spring flood was occurring on San Joaquin River due to El Nino weather pattern that prevailed for most of the winter. Flows on Stanislaus River were not significant since the new New Melones Reservoir was still in the process of initially filling. San Joaquin levee failed approximately one-fourth mile upstream from current Airport Way Bridge at approximately 7:45 a.m. on March 6, 1983. Water level at Vernalis Gauge was 31.5 feet. Relief cut made at 3 p.m. On March 6 by District officials above Cardoza Village at location shown on dam map. Cut was delayed by objections from Corps of Engineers. District officials had to travel to Sacramento to obtain permission to make cut. By this time it was almost too late to save the Trahern Dryland Levee. Small initial cut with back hoe widened naturally to 200'. Second cut was unnecessary since this cut widened fast enough to prevent overtopping of Trahern Levee. RD2075 officials conducted flood fight on Trahern Dryland Levee to prevent movement of water northward. District officials, with materials and crews from Department of Water Resources, laid vaguine wave wash protection and raised levee with sandbags. Once PL99 assistance was approved by COE, that agency did work all night to raise levee with fill and rock the water side. Dairy farmer at Trahern levee flood fight primary levee until its failure next day. (Baldwin and interviews with District Officials)
1997	Over a 3-day period centered on January 1, 1997 warm moist winds from the southwest blowing over the Sierra Nevada poured more than 30 inches of rain into watersheds that were already saturated by one of the wettest Decembers on record. By January 2, 1998 Don Pedro Reservoir and Millerton Lake at Friant Dam releases were much above channel capacity. Don Pedro water, in particular, caused a dramatic surge in San Joaquin River stages by early morning of January 4, 1997. Stanislaus river flows were near channel capacity because of greatly increased releases from New Melones Reservoir. District officials feel that restricted capacity of channel at Airport Way bridge caused these high flows to back up further. Numerous boils were reported to during the next 36 hours. At approximately 2:00 p.m. on Sunday January 5, San Joaquin levee failed one-fourth of a mile above Airport Way bridge near where flood fight work was in progress. At approximately 4:00 p.m. on the same day Stanislaus River project levee failed near Sturgeon Bend, one-quarter mile upstream from junction with San Joaquin River. Flows on Stanislaus River reached 8,000 cfs which caused levee to reach LIP Levee level of 1,000 feet of levee in anticipation of potential higher flows. No major problems were experienced on LIP Levee at 8,000 cfs flows. (Baldwin and interviews with District Officials)
2006	See text box at right.

Special Considerations

Drainage
 Reclamation districts covered by this map have several pumping stations as shown for day-to-day drainage of reclaimed land. Cement culverts and gates are in place as shown to allow gravity flow drainage back into the river if impounded water levels are high enough. In the event of flooding, districts would use culverts at low end of RD2094 and RD2096 (end of Walthall Slough) to drain areas by gravity flow once river water elevations have subsided. Drainage pumps would be used to drain remaining ponded water.

RD 2064
 District generally inaccessible to barges from downstream.

Communications Plan

Field Command Posts
 RD 2075 South Delta Unified, Cardoza Hay Barn 121°15'06.45"W 37°42'58.03"N

Communications Equipment
 The District does not own communications equipment.

Internal Communications
 Means of internal communications among district staff and levee patrols will be personal cellular telephones. Telephone numbers will be assigned for response functions at the time of activation.

Communications with outside Jurisdictions
 Primary means of communications with outside jurisdictions will be personal cellular telephones. Secondary means of communications will be attendance at the South Delta Unified Flood Fight Command meetings.

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SAN JOAQUIN COUNTY
 OFFICE OF EMERGENCY SERVICES

RECLAMATION DISTRICT 2075 FLOOD SAFETY PLAN
 Annex A - McMullin Ranch Flood Contingency Map

FIGURE A1