San Joaquin River Restoration Program
Seepage & Conveyance Technical Feedback Meeting
Friday, January 14, 2011
San Luis Canal Company
11704 Henry Miller Avenue, Dos Palos

Meeting Notes

Attendees:

Roger Burnett	Reclamation
Dan Burns	Landowner
Steve Chedester	SJR Exchange Contractors Water Authority
Alicia Forsythe	Reclamation
Sarge Green	California Water Institute
Steven Hangen	Mitigation Lands Trust
Richard Harizak	Harizak Brothers (landowner)
Katrina Harrison	Reclamation
Randy Houk	Columbia Canal Company
Chase Hurley	San Luis Canal Company
Mari Martin	RMC
Scott McBain	SJRRP Technical Advisory Committee
Palmer McCoy	San Luis Canal Company
Rod Meade	SJRRP Restoration Administrator
Cannon Michael	Bowles Farming Co/SLCC
David Mooney	Reclamation
Craig Moyle	MWH
Alejandro Paolini	San Luis Canal Company
Steve Phillips	USGS
Patti Ransdell	CirclePoint
Rhonda Reed	National Marine Fisheries Service
Paul Romero	DWR
Dan Royer	Wolfsen, Inc
Monty Schmitt	NRDC
Mike Stearns	Landowner
Peter Vorster	The Bay Institute
Ali Warren	Reclamation
Bill Weir	UCCE
Chris White	Central California Irrigation District
Anne Willis	Landowner
Michael Willis	Landowner
Beth M. Wrege	National Marine Fisheries Service

Attendance via Conference Line

DeeDee D'Adamo	Office of Representative Dennis Cardoza
Tom Berliner	RMC

Introductions, Meeting Objectives and Agenda
Charles Gardiner, facilitator, opened the meeting with introductions and the group reviewed the agenda. There were no comments from meeting attendees on the agenda or the purpose of the meeting.

Technical Feedback Group Purpose and Charter
Charles reviewed the updated Charter for the Seepage and Conveyance TFG. Three issues related to process and charter were discussed:

- A request to call into the meeting had been made by Congressman Cardoza's office and Tom Berliner (attorney for San Joaquin River Resources Management Coalition). A phone line will be made available on an as needed basis, but the group would prefer in-person attendance.

- The Restoration Administrator clarified that the recommendation regarding flow levels comes from him after he has consulted with the Technical Advisory Committee and others.

- The group reviewed the list of parking lot items identified in the first meeting.

- The action items from the previous meeting were reviewed.

Action Item

1. Improve links on the website to connect groundwater information to the Seepage and Conveyance TFG.

Monitoring Approach and Potential Improvement Actions
Dave Mooney, Reclamation, provided an overview of the monitoring approach and potential improvements that could be made to better understand seepage impacts. Attendees had the following questions and offered the following suggestions:

- The group discussed the Locations of Known Risks for the long-term Restoration Flows and the iterative process for Seepage Management. Reclamation wants to understand in any given year what the known risks are. The focus now is on understanding the risks for Interim Flows, with the long-term goal of establishing conveyance capacities for full Restoration Flows that avoid seepage impacts.

- A meeting participant noted that fluctuation of the water table above historical levels is a problem for almond trees. The Program should consider historical levels for mature trees, particularly on the west side of Reach 3.
- The group discussed use of the Heat Unit Index for seepage management. The Heat Unit Index is regularly recorded and broadcasted on public radio stations in the region. Cooling soils (from evaporation) affect the root profiles of some plants. This can be a germination issue for row crops. For permanent crops, it can have an impact on long-term productivity.
- The group discussed the use data from different aquifers in the same plot for developing groundwater gradients. Some of the Program wells may not assist in setting seepage thresholds as these wells are deeper wells rather than shallow wells. The group discussed identifying priority wells for more frequent monitoring in setting seepage thresholds.
- The group requested that Reclamation provide a ground profile along the river showing water surface elevations and ground surface elevations in fields, perhaps 100-200 feet from the river.
- The group identified additional wells to fill the monitoring gaps on private lands in Reach 4B1.
- The group discussed real-time telemetry. The group would like priority wells fitted with telemetry and posted on the SJRRP website.
- The group discussed evaluating the soil types at priority wells also to see how the wells are functioning.

Soil Temperature

Dave Mooney noted that Reclamation needs more information on how to incorporate soil temperature concerns into operations decisions and tie information to the release of flows:

- Meeting participants responded that the UC Cooperative Extension should have information related to soil temperature for both tomatoes and cotton.
- One participant commented that if the temperature of a cotton seed reaches 55 degrees or lower, the seed becomes irreparably damaged. When this occurs, farmers generally stop irrigating to allow the soil temperatures to warm up.

Action Item(s)

2. Review and consider the information in the UC Cooperative Extension IPM Report and update the root zone buffer. Reclamation will work to complete this by 2/18/11.
3. Add field level profile along the toe of the levee and groundwater level plots in the DWR graph shown on slide 20. Reclamation will work to complete this by 1/21/11.
4. Identify priority wells for determining seepage thresholds/triggers (other wells are for other purposes). Provide the list of priority wells. Reclamation will work to complete this by 1/21/11.

Impact Thresholds

Dave Mooney led the discussion on Impact Thresholds in the Draft Monitoring Well Technical Memorandum dated January 2011. The purpose of thresholds is to identify a conservative groundwater level triggering a site visit by Reclamation. The group identified the following questions and additional data needs and potential resources:

- The group discussed the need for mitigation projects to be completed before long-term flows can be increased.
- The group discussed the relationship between Figure 1-1 and the calculations and data in the tables later in the document.
- The group discussed consulting with the UC Davis system and the incorporation of IPM data into developing thresholds.

Crop Root Zones

- The group discussed the effects of historical groundwater depths for almond trees root zones. Landowner experience showed that root zones may be around 6-8 feet below the ground surface. When groundwater levels rise to 3 feet from the ground surface, approximately 50 percent of the orchard died.
- Fluctuation of the water table is a problem for almond trees since they grow roots to the groundwater table. Attendees suggested keeping groundwater levels consistent beneath crops with deep root zones – west side of Reach 3.
- Pistachios are a permanent crop and should be in the 6 foot root zone section.

Ground Surface Objectives

- During the review of the Ground Surface Objectives section, the group discussed the accuracy of the LIDAR data set. The Reclamation and DWR explained the verification of the LIDAR data set and how the techniques for seepage management incorporate variability in measurements into a conservative elevation.
- The group discussed the LIDAR data set works on permanent crops. Reclamation and DWR described the process for obtaining ground surface and the data verification process for the LIDAR surveys and the use of ground surveys in areas of thick foliage.
- The group discussed the timing for reviewing the monitoring response plan and that the plan will be reviewed at the next meeting (February 10).

Irrigation Buffer

- The group discussed the difference between filling pore spaces and the measurement of water in determining the one foot irrigation buffer to allow drainage of pre-irrigation water and applied water.
- It was suggested that the irrigation buffer needs to be specific to the crop type.

Capillary Fringe Objectives

Roger Burnett explained that the capillary rise information was determined by soil type and based on soil moisture observations from field auger readings at 85 locations during soil salinity testing.

- The group discussed Table 2-5 and some landowners felt the measured values appeared too low. The group discussed sharing the raw data used to reach the averages.
- The group discussed installing tensiometers to measure the suction of water through soils and incorporate a seasonal component to the monitoring of the tensiometers.
- The group discussed comparing capillary fringe data before, during, and after irrigation and crop growth.

- The group discussed setting a different capillary rise buffer for each soil type, rather than a single buffer for all soil types.
- The group discussed comparing the root zone to the capillary fringe data to set crop-specific capillary rise buffers.

Action Items

5. Provide the raw data/report from hand auger field work on the capillary fringe. Reclamation will work to complete this as soon as possible, but it may take a few months due to contracting considerations.
6. Identify additional tensiometer work to develop more data on capillary fringe. Stephen Lee and Sarge Green to develop work plan by February 2011 that includes the installation of tensiometers and incorporates a seasonal component to the monitoring of the tensiometers.

Historical Groundwater Levels

Reclamation explained their preliminary approach to determining historical groundwater levels, using interpolated data based on CCID and DWR well databases.

- The group discussed the use of averages. Individual farmers will likely be sensitive to their site/crop specific information.
- The group discussed the timing for using historical groundwater measurements to estimate baseline conditions. Limited historical data is available in August because DWR does not take groundwater measurements and because irrigation is still occurring.
- The group discussed the need to filter data on groundwater taken when irrigation was underway.
- The group discussed the components of the CCID dataset.
- The group had questions on where the components of the ground water/ ground surface buffer data come from.
- The group discussed linking the historical depth of groundwater and monitoring well data to the flows in the river.
- The group discussed data collection during the current flood releases.
- The group discussed asking landowners can help indentify some areas that will need to be double checked and can provide feedback to Reclamation.

Action Items

7. Obtain documentation for the methods used to report data in CCID wells. Reclamation and Chris White by 2/18/11.
8. Update CCID well elevations to tie them to a specific datum. Reclamation and Chris White; no due date established.
9. Landowners with sensitivities re: specific crop information should contact Reclamation with updated historical groundwater data.
10. Identify landowners that can provide information on historical groundwater data and provide feedback to Reclamation.
11. Based on meeting discussions, Reclamation asked the landowners to do help identify and provide feedback on areas that will need to be double checked re: Historical

Groundwater levels.

Information & Data Exchange
During this portion of the meeting the group reviewed issues and topics that had been identified in previous meetings for discussion and data exchange.

Wet Weather Practices

- The group discussed current conditions. It was noted that farmers are not currently taking any water and they are pulling boards on dams to keep water flowing (so there is not unnecessary pooling). The sustained period of Interim Flows results in different groundwater effects than short-duration spring flood flows. The first few weeks of precipitation have local, flashing flows. Flood flows caused by snowmelt runoff have more challenging sustained highs. Most of what is happening right now from flood flows is happening underground.
- Attendees suggested Program staff should be getting groundwater measurements right now. W91 would be a good well to get data from right now.

Additional Impacts

- The group discussed access to river crossings when there are higher flows, which could cause growers to add significant distance to equipment movement during growing season.

Operating Criteria and Triggers
Dave Mooney discussed triggers – Flow Bench Evaluations, Daily Seepage Evaluations, and Seepage Hotline calls – and the process of developing operating criteria.

- The group discussed asking Landowners to identify actions to provide a response (in the event a response is needed).
- The group discussed preparing landowners for the types of data collection needs that have to be addressed immediately during a site visit.
- The group discussed current flows and groundwater levels to identify the river stage that would be of concern for groundwater levels.

Next Steps and Follow-through

The next meetings are currently scheduled for:

February 10, 2011
8:30-12:30 at the San Luis Canal Company, 11704 Henry Miller Avenue, Dos Palos

February 22, 2011
8:30-12:30 at the San Luis Canal Company, 11704 Henry Miller Avenue, Dos Palos

Compiled Action Items

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3. Add field level profile along the toe of the levee and groundwater level plots in the DWR graph shown on slide 20. Reclamation will work to complete this by 1/21/11.
4. Identify priority wells for determining seepage thresholds/triggers (other wells are for other purposes). Provide the list of priority wells. Reclamation will work to complete this by 1/21/11.
5. Provide the raw data/report from hand auger field work on the capillary fringe. Reclamation will work to complete this as soon as possible, but it may take a few months due to contracting considerations.
6. Identify additional tensiometer work to develop more data on capillary fringe. Stephen Lee and Sarge Green to develop work plan by February 2011 that includes the installation of tensiometers and incorporates a seasonal component to the monitoring of the tensiometers.
7. Need to resolve differences in casing-to-ground surface distances for CCID wells. Reclamation and Chris White by 2/18/11.
8. Update CCID well elevations to tie them to a specific datum. Reclamation and Chris White; no due date established.
9. Landowners with sensitivities re: specific crop information should contact Reclamation with updated historical groundwater data.
10. Based on meeting discussions, Reclamation asked the landowners to do help identify and provide feedback on areas that will need to be double checked re: Historical Groundwater levels.