



**Seepage and Conveyance Technical  
Feedback Group**

April 29, 2011  
541 H Street  
Los Banos, CA

---

---

---


---

---

---

---

---



**Agenda**

- Introductions and Technical Feedback Group (TFG) Purpose
- Action Item Review and Update
- 2011 Interim Flows
- Release of Draft PEIS/R
- Site Evaluation Process
- Site Specific Influences
- Information & Data Exchange
- Next Steps and Follow Through

2

---

---

---

---

---

---

---

---

Review and Context

**TECHNICAL FEEDBACK  
GROUP OBJECTIVES**

3

---

---

---


---

---

---

---

---



### TFG Objectives

- Convey Interim and Restoration Flows while avoiding seepage impacts
- Identify potential projects that would avoid seepage impacts
- Identify locations for projects with potential for seepage impacts
- Set evaluation criteria for projects
- Develop a common understanding of the process, procedures and expectations for projects

4

---

---

---


---

---

---

---

---



### Process & Decision-making

- Monthly Meetings
  - Focused on Seepage Project Handbook and identifying projects to avoid seepage impacts
- Additional topics and meetings identified and considered as we proceed
  - Update Charter in September 2011
- Reclamation and its partner agencies retain decision authority for Program implementation

5

---

---

---


---

---

---

---

---



### Discussion Topics

Mar	Apr	May
<b>Projects Intro</b>		
Introduction Background Purpose Potential Projects	<b>Site Evaluation</b> Data Collection Investigations Groundwater Soil Salinity Conductivity Water Quality	<b>Plan Formulation</b> Project Types Site-Specific Considerations Selection Criteria

6

---

---

---

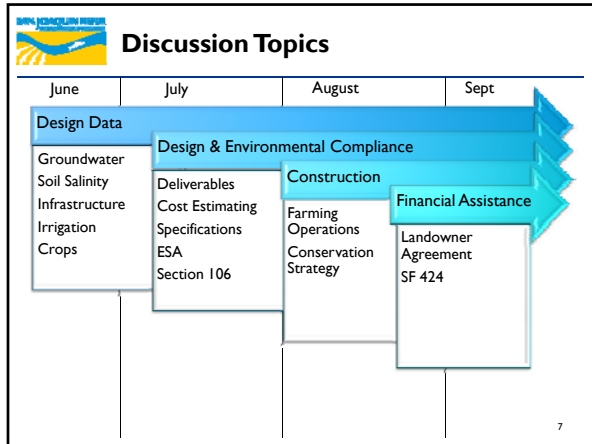
---

---

---

---

---




---

---

---

---

---

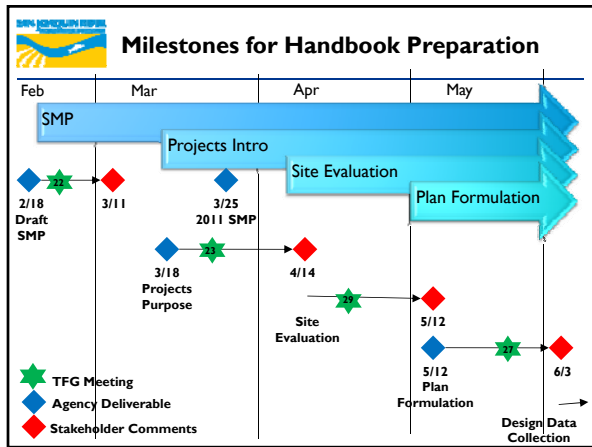
---

---

---

---

---




---

---

---

---

---

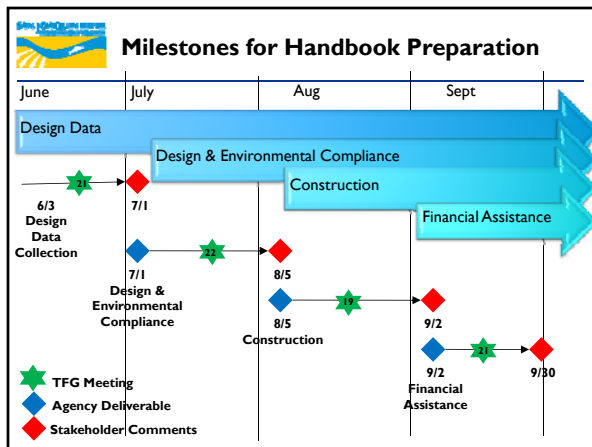
---

---

---

---

---




---

---

---

---

---

---

---

---

---

---

Review and Update

# ACTION ITEMS

10

---

---

---

---

---

---

---

---

**Recently Closed Action Items**

- Soil temperature operations
- Soil logs from hand augered boreholes for capillary fringe data




---

---

---

---

---

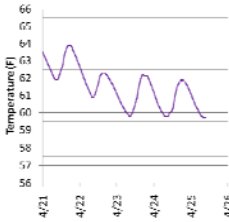
---

---

---

**Soil Temperature – RMC Comments**

- No short-term soil temperature issue
- Potential need for monitoring after Mendota Pool bypass is built
  - Watch Sack Dam gaging station temp sensor
  - Soil temp monitoring stations at well sites
  - UC Co-op yield comparison



Date	Temperature (°F)
4/21	62
4/22	64
4/23	61
4/24	62
4/25	60
4/26	61

12

---

---

---

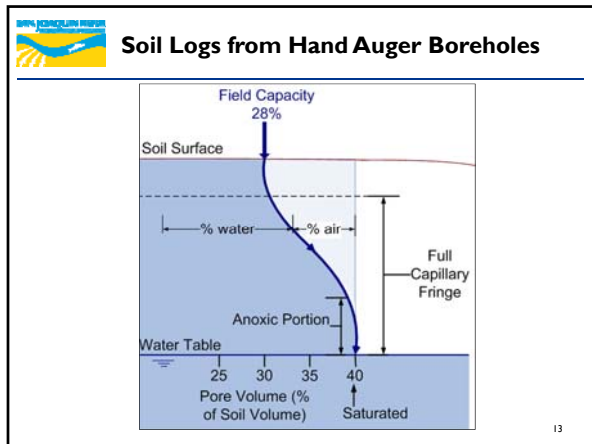
---

---

---

---

---



13



Sample No.	Depth (Feet)	Soil Type	Moisture (%)	pH	ECe	Notes
1	0-6	L	30			1/2 Particle granular
2	6-18	L	30			2/3 Particle granular
3	18-42	LFS	3			1/2 Particle
4	42-55	L	37			Capillary Fringe
5	55-65	SLC	30			Saturated
6	65-75	SLC	30			Saturated

14



Sample No.	Depth (Feet)	Soil Type	Moisture (%)	pH	ECe	Notes
1	0-6	L	30			1/2 Particle granular
2	6-18	L	30			2/3 Particle granular
3	18-42	LFS	3			1/2 Particle
4	42-55	L	37			Capillary Fringe
5	55-65	SLC	30			Saturated
6	65-75	SLC	30			Saturated

15



**Open Action Items**

Open Action Items	ID'ed	Due	Assigned to:	Status
1. Work Plan for additional tensiometer work to develop more data on capillary fringe.	1/14/11	February 2011	Lee & Green	Need updated due date from Sarge.
2. Provide Monty and Chris with the excel files that the graphs are based on	2/10/11	3/10/11	Harrison	Pending
3. Add river mile station to river profile to link wells to locations	2/10/11	3/10/11	Harrison	Pending
4. Explore partnering on the cultural resources survey to expand the scope to go out beyond the levee to collect information that would help evaluate projects	2/10/11	3/10/11	Forsythe & White	Discussions underway with DWR.
5. Provide data to Reclamation regarding funding	3/22/11	5/2/11	Houk	Complete
6. Check that right of first refusal is offered to landowner	3/22/11	5/2/11	Mooney	

16

---

---

---

---

---

---

---

---

---

---

---

---

Dave Mooney

## 2011 INTERIM FLOWS

17

---

---

---

---

---

---

---

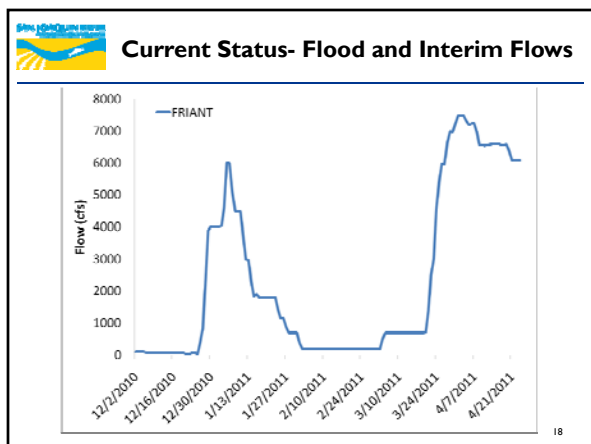
---

---

---

---

---




---

---

---

---

---

---

---

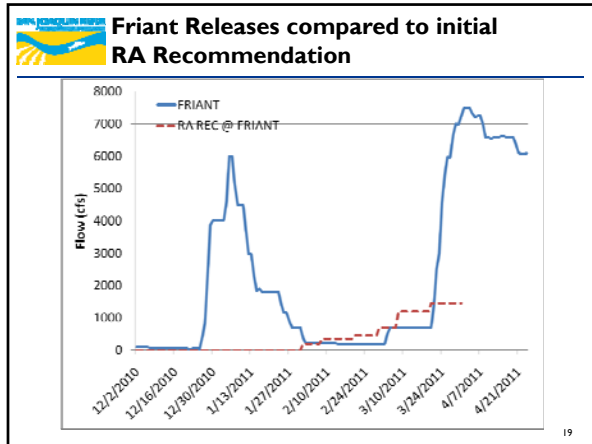
---

---

---

---

---




---

---

---

---

---

---

---

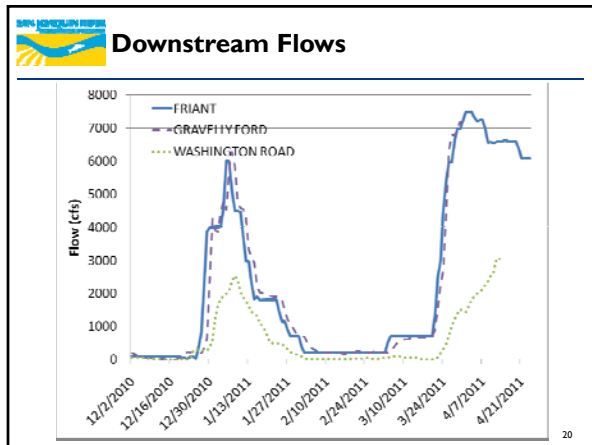
---

---

---

---

---




---

---

---

---

---

---

---

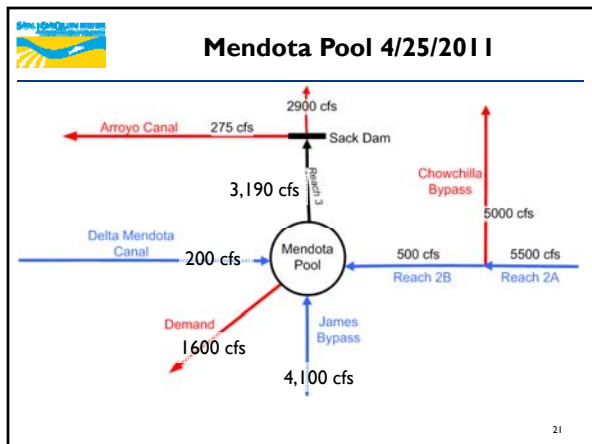
---

---

---

---

---




---

---

---

---

---

---

---

---

---

---

---

---



---

---

---


---

---

---


---

---



### Hotline Calls

- Flood flows controlling, no hotline calls
- Several concerns raised regarding data collection during flood flows
- Site visits conducted
- Well locations staked
- Soil texture logged
- Salinity measurements made
- Monitoring well round #5 in Fall 2011



23

---

---

---

---

---

---

---

---

Ali Forsythe

## RELEASE OF DRAFT PEIS/R

24

---

---

---

---


---

---

---


---





### Draft PEIS/R

- Released April 22, 2011
- Restoresjr.net → Program Docs
- [http://www.usbr.gov/mp/nepa/nepa\\_projdetails.cfm?Project\\_ID=2940](http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=2940)
- If you would like to request a CD containing the document, please contact:
  - Ms. Margaret Gidding
  - 916-978-5461
  - [mgidding@usbr.gov](mailto:mgidding@usbr.gov)




---

---

---

---

---


---

---

---

---

---



### Copies available for public review

- Merced County, Los Banos Public Library, 1312 S. 7th Street, Los Banos
- Bureau of Reclamation, South-Central California Area Office, 1243 N Street, Fresno
- California Department of Water Resources, South Central Region Office, 3374 East Shields Avenue, Fresno
- Central Branch, 2420 Mariposa Street, Fresno
- Visalia Branch Library, 200 West Oak Avenue, Visalia

---

---

---

---

---

---

---

---

---

---



### Public Hearings

- Visalia**
- Tuesday, May 24, 2011, 10 a.m. - 12:30 p.m.**
- Lamp Liter Inn, Ballroom
- 3300 West Mineral King Ave, Visalia, CA 93291
- Fresno**
- Tuesday, May 24, 2011, 6 p.m. - 8:30 p.m.**
- Piccadilly Inn – University, Grand Ballroom
- 4961 North Cedar Ave, Fresno, CA 93726
- Los Banos**
- Wednesday, May 25, 2011, 6 p.m. - 8:30 p.m.**
- Merced County Fairgrounds, Germino Room
- 403 "F" Street, Los Banos, CA 93635
- Sacramento**
- Thursday, May 26, 2011, 1:30 p.m. - 4 p.m.**
- Holiday Inn Capitol Plaza, John Q. Ballroom
- 300 J Street, Sacramento, CA 95814

---

---

---

---

---


---

---

---

---

---



### Comment Period

- Comments due by June 21, 2011
- 60 day comment period
- Send written comments on the Draft PEIS/R to:  
Michelle Banonis  
SJRRP Natural Resources Specialist  
Bureau of Reclamation  
2800 Cottage Way, MP-170  
Sacramento, CA 95825
- or via email at [PEISRComments@restoresjr.net](mailto:PEISRComments@restoresjr.net).

28

---

---

---


---

---

---

---

---



### Selected Chapters

- Chapter 10: Geology and Soils
- Chapter 11: Hydrology – Flood Management
- Chapter 12: Hydrology – Groundwater
- Chapter 13: Hydrology – Surface Water Supplies and Facilities Operations
- Chapter 14: Hydrology – Surface Water Quality
- Chapter 16: Land Use Planning and Agricultural Resources

29

---

---

---

---

---

---

---

---

Katrina Harrison

## SITE EVALUATION PROCESS

30

---

---

---

---

---

---

---

---

**Elements of the Seepage Project Handbook**

- Introduction
- Site Evaluation ← Today
- Plan Formulation
- Data Collection
- Design
- Environmental Compliance
- Construction
- Financial Assistance

31

---

---

---

---

---

---

---

---

**Site Evaluation Physical Processes**

32

---

---

---

---

---

---

---

---

**Salinity Sources**

- Irrigation Water
- Fertilizer
- Natural Soil Minerals
- Shallow Groundwater Rise

33

---

---

---


---

---


---

---

---

 **Groundwater Rise Sources**

- Rainfall
- Irrigation
- Canal Seepage
- Flood Flow Seepage
- SJRRP Seepage



34

---

---

---


---

---

---

---

---

 **Site Evaluation Process**

- 1) Records Review
- 2) Data Collection
- 3) Analysis
- 4) Reporting

35

---

---

---


---

---

---

---

---

 **Existing Records Review**

Reclamation has:	Landowner may have:
• Precipitation Records	• Yield Data
• Historic Aerial Photos	• Irrigation Records
	• Fertilizer Applications
Reclamation may have:	• Aerial Photos
• Soil Texture	• Soil Texture
• Soil Salinity Sampling	• Soil Salinity
• Groundwater Monitoring	• Infrastructure
• Surface Water Monitoring	

36

---

---

---

---

---

---

---

---



### Data Collection

- Salinity Sampling via hand augers
- EM 38
- Water Quality Sampling
- Staff Gages
- Monitoring Wells
- Hydraulic Conductivity Tests

37

---

---

---

---

---

---

---

---



### Soil Salinity Sampling



---

---

---

---

---

---

---

---



### EM 38 Readings

- Vertical and horizontal Electrical Conductivity
- Calibration to soil temperature



39

---

---

---


---


---

---

---

---

 **Water Quality Sampling**



40

---

---

---


---

---

---

---

---

 **Staff Gages**



41

---

---

---

---

---

---

---

---

 **Monitoring Wells**



42

---

---

---

---

---

---

---

---

 **Hydraulic Conductivity Tests**

---



The left photograph shows a drilling rig with a person operating it in a field. The right photograph shows a person standing next to a wellhead with various hoses and equipment on the ground.

---

---

---


---

---

---

---

---

 **Analysis**

---

- Cross-sections
- Water surface vs. groundwater profiles
- Flow nets
  - Soil texture
  - Hydraulic conductivity
- Site-specific influences

44

---

---

---


---

---

---

---

---

 **Report**

---

- Provides for landowner input – are we considering all relevant data?
- Gathers site-specific soil and water data together for future landowner use
- Sets initial alternatives for further analysis

45

---

---

---

---

---

---

---

---

Katrina Harrison

## SITE-SPECIFIC INFLUENCES

46

---

---

---


---

---

---

---

---

 **Purpose**

- Initial screening step
- Identify list of Initial Alternatives

47

---

---

---


---

---


---

---

---

 **Site Specific Influences**

- Infrastructure
- Soil texture
- Water quality of potential effluent
- Cultural resources
- Endangered species
- Historical hydrology
- Potential Crops



48

---

---

---

---

---

---

---

---



 **Infrastructure**

- Effective existing tile drains
  - May lean towards tile drains as a project
- Lack of adjacent canals for tile drain effluent blending
  - May rule out tile drains as a project



49

---

---

---

---

---

---

---

---

 **Soil Texture**

- Very fine soils
  - May decrease effectiveness or increase costs of drainage projects
- Sand stringers
  - May require further analysis or specialized solutions for drainage projects



50

---

---

---


---

---

---

---

---

 **Water Quality**

- High EC drain water (does this term need to be defined?)
  - May not be allowed to enter San Joaquin River; may require drainage to irrigation district for blending
- Heavy Metals
  - May impact fish populations; may require drainage to irrigation district for blending

51

---

---

---

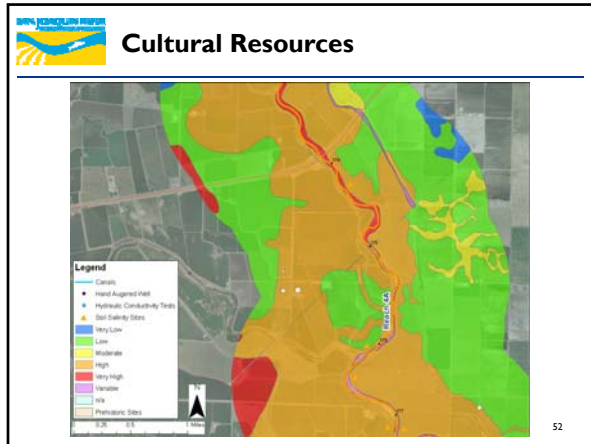
---

---

---

---

---



---

---

---

---

---

---

---

---

**Endangered Species**

- Excavation in BNLL habitat if there is State involvement
  - May be adverse effects to species; may not choose that project

53

---

---

---

---

---

---

---

---

**Historical Hydrology**

- Frequent flooding
  - Lands historically flooded may not be considered for tile drains

54

---

---

---

---

---

---

---

---

 **Potential Crops**

- Lands unsuitable for permanent crops
  - Projects on these lands may not be designed to allow permanent crops



55

---

---

---


---

---

---

---

---

 **Site Evaluation**

- Ensure all appropriate data has been considered
- List of Initial Alternatives
- Unreasonable projects screened out

56

---

---

---


---

---

---

---

---

 **Projects Next Steps**

- Plan Formulation
- Selection Criteria
- Weighting
- Final Alternative(s)

57

---

---

---

---

---

---

---

---

Dave Mooney

## INFORMATION & DATA EXCHANGE

58

---

---

---


---

---

---

---

---

 **Feedback on Project Types**

- Are we missing any?
- Real Estate
  - Easements
  - Acquisition
- Physical
  - Tile drains
  - Slurry walls
  - Drainage ditches
  - Shallow well pumping
  - Conveyance improvements

59

---

---

---

---

---

---

---

---

 **Ideas to Solve Challenges**

- Ownership
- Operations and Maintenance
- Water Discharge
- Water Rights
- Long-term Monitoring
- Cost-share
- Terms of an Agreement



60

---

---

---

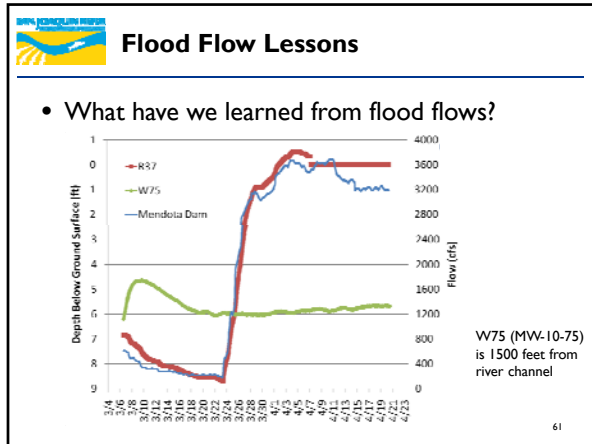
---

---

---

---

---




---

---

---

---

---

---

---

---

---

---

Patti Ransdell

**NEXT STEPS AND FOLLOW-THROUGH**

---

---

---

---

---

---

---

---

---

---

**Next Steps**

- Feedback from Landowners on Draft Site Evaluation process & data – May 12
- Set Next Meeting Dates:
  - May 27
  - June 21

---

---

---

---

---

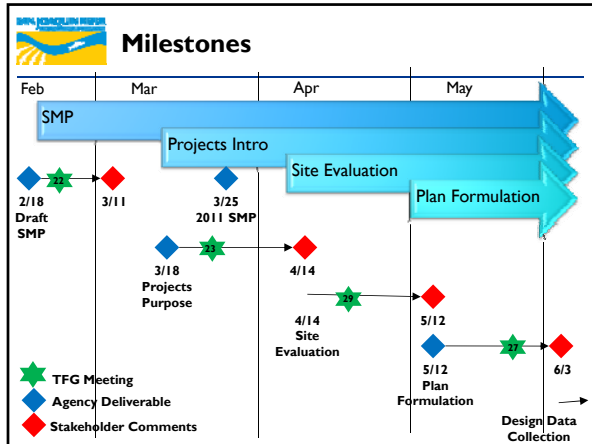
---

---

---

---

---



---

---

---

---

---

---

---

---

**Action Items and Review**

- Update Action Items
  - Revised Actions
  - New Actions

---

---

---

---

---

---

---

---

**Contact**

- Technical Feedback Group – David Mooney
  - 916-978-5458
  - [dmmooney@usbr.gov](mailto:dmmooney@usbr.gov)
- Seepage Concerns – Seepage Hotline
  - 916-978-4398
  - [interimflows@restoresjr.net](mailto:interimflows@restoresjr.net)

---

---

---

---

---

---

---

---