SMP Peer Review

Objectives

The objective of the Seepage Management Plan (SMP) Peer Review is to provide Reclamation with confirmation of the processes described in the SMP and, where appropriate, guidance on revisions to the document to increase the document's technical accuracy.

***Note**: All questions listed below are intended to address the direct concern for seepage of Interim and/or Restoration flows from the San Joaquin River (SJR) and its impact to adjacent lands as part of the San Joaquin River Restoration Program (SJRRP).*

General/Overarching

1. Are there changes that should be made to the SMP to meet the expectation established in the purpose and objectives as stated in the document?
2. Would additional or alternate language better communicate the potential problems associated with seepage and provide adequate response and avoidance mechanisms?
3. Are there additional or alternative ways to make the analysis processes described in the SMP clear to a layperson if they are not already?
4. Is there a better or alternate approach to evaluate and manage seepage effects if the current approach is not sufficient?
5. What additional or alternate language would more clearly define the process by which the SMP revised in response to new information if it is not currently clear in the SMP?
6. If it is not clear in the SMP, what additional or alternate language could be added to clearly describe the development of the SMP (i.e., authors, reviewers, stakeholder input)?

Appendix A: Seepage Effects

7. Is the list of potential adverse effects of seepage comprehensive and accurate? Are there additional or alternate effects or data gaps that are not presented? If so, how should this Appendix be improved?

Appendix B: Areas Potentially Vulnerable to Seepage Effects

8. What other methods, if any, should be used to assess groundwater levels to define areas of potential seepage? How could any important data gaps for future analysis be filled?

Appendix C: Historic Groundwater Levels and Surface Water Flow

9. Are there additional data sources or information to develop groundwater levels to assess seepage concerns if the current data sources are not sufficient? Are there additional available monitoring locations or other data activities that would enhance the groundwater database if it is not currently sufficient?
10. Is the surface water database network and methodology used to develop river flow/stage sufficient to assess seepage concerns? Are there future monitoring or data activities that would enhance the surface water database?

Appendix D: Sediment Texture and Other Data

11. Are there alternate or additional sediment data to assess seepage associated with Interim and Restoration Flows if the sediment data discussed in the SMP are not sufficient? Are there any data omissions that would help to better convey the role different sediments play with seepage concerns? Are there additional or alternate ways this data could be presented to better inform the seepage process?

Appendix E: Operations

12. Does this Appendix clearly describe how triggers will be used to identify seepage problems in real time? If not, how could the language of this Appendix be improved?
13. Does the flow bench analysis use the best available information to make operational decisions? Are there additional or alternative considerations that could be implemented to improve the usefulness of this analysis?
14. Flow bench analysis currently uses a conservative one-to-one relationship with river stage and groundwater levels. As data becomes available in the future, the SJRRP will adjust flow bench analysis levels to match real field data and the USGS's Central Valley Hydrologic Model (CVHM) modeled groundwater/surface water data. Given this information, how can these bench mark values best be developed in the future to be protective of agriculture using more reasonable operational assumptions?
15. Are there additional or alternate processes or tools (e.g., hand auger holes to identify depth to groundwater) to respond to real and anticipated seepage problems, document these problems, and develop response actions within the appropriate timeframe, if the identified methods are not the best available?

Appendix F: Monitoring Well Network Plan and Other Seepage-Related Monitoring

16. Are there alternate or additional monitoring methods or locations that should be used to assess seepage from Interim or Restoration flows if the current monitoring well network and approach are not sufficient? Are there data gaps where future monitoring is needed?
17. Is the electromagnetic survey coupled to selective field calibration testing of soil/water samples an appropriate method to assess soil salinity? Are there additional or alternate available methods that should be considered?

Appendix G: Development of Soil Salinity Thresholds

18. Affects to both the root zone and plow layer for salinity are set at conservatively low levels to be protective of the most sensitive crop known to be grown in each reach. Are these soil salinity thresholds appropriate? Should the thresholds be revised? If so, how? Do the references cited for these salinity affects represent best available science?

Appendix H: Development of Groundwater Level Thresholds; Responses to Threshold Comments

19. Are there additional or alternate available approaches or variations of the three generalized approaches used to establish groundwater level thresholds to protect crops that could also be used to obtain better results?
20. Are there additional or alternate references used to develop capillary rise for the agricultural practices method that would represent better available science, if the current references are not sufficient?
21. Are there additional or alternate references used to develop root zone depth for the agricultural practices method that would represent better available science, if the current references are not sufficient?
22. Are there additional or alternate references used to develop a leeching buffer for the agricultural practices method that would represent better available science, if the current references are not sufficient?
23. Are there additional or alternate informational sources that might enhance the thresholds presented in the SMP?
24. Are the thresholds presented in Table H-8 reasonable for the purpose of protecting agriculture from seepage effects? If not, what are recommended values?

Appendix J: Modeling

25. How best can the proposed refinements to the CVHM help to manage future potential seepage? Are there additional or alternative modeling tools or methods that could be utilized?

Appendix K: References

26. Are there additional or alternative references that would help to define and manage seepage concerns that are omitted from the current reference list?

Deliverable

The peer review panel should deliver a single report to Reclamation and the SCTFG that answers the questions outlined above and provides an explanation for the findings.