EMERGENCY RESPONSE BENEFITS

Attach a description of the amount or share of water to be provided. Define conditions under which water would be made available. Define conditions under which water would be made available. Describe how applicant can commit to conditions when benefit will be available.

For the proposed Kern Fan Groundwater Storage Project, project proponents IRWD, Rosedale and DRWD plan to operate the project to provide multiple benefits included Emergency Response. The Project will be operated to provide water for Emergency Response under an extended drought and for Emergency Response under a Delta Failure.

Emergency Response under an Extended Drought:

A major benefit of the Project is that it will provide supplemental water to IRWD, Rosedale, and DRWD in the event of extreme drought, when other water resources are at their most expensive or may be limited. Groundwater stored as part of the project will be available to call on during a drought emergency or as an alternative supply in the case of a local supply outage. According to the WSIP Technical Guidance an emergency is defined as a critical year that occurs in the 3rd or later year of consecutive drought.

Per MBK’s model, IRWD and Rosedale’s accounts would receive 4,500 AF per year of water on an average annual basis under 2030 future conditions and 4,100 AF per year would be received on an average annual basis during 2070 future conditions. One-third of the water in the IRWD and Rosedale storage accounts will be dedicated to Emergency Response during extended droughts and two-thirds will be dedicated for water supply during other dry year conditions. The water used for Emergency Response purposes will be physically extracted from the Project utilizing the Phase 1 and Phase 2 recovery wells at the 3rd or later year of a multi-year drought. The Project recovery wells will have sufficient capacity to recover this emergency response drought water.

For detailed information see:
Feasibility and Implementation Risk Tab, Attachment 1 – Technical Feasibility (MBK Engineers, 2017)
Benefit Calculation, Monetization and Resiliency Tab, Attachment 2 (Preliminary Operations Plan)
Benefit Calculation, Monetization and Resiliency Tab, Attachment 3 and Attachment 5 (M.Cubed, 2017)
**Emergency Response under a Delta Failure:**

A separate emergency response benefit of the Project is the water supply that the Project could provide in the event of a levee failure in the Delta that curtails water project deliveries. The WSIP Technical Guidance explains that an emergency response to Delta Failure should be assumed to occur once, 30 years into the project operation period—2056 for this project.

According to MBK’s analysis, under historical hydrologic conditions, the Project can provide Emergency Response benefits during a Delta levee failure by storing water south of the Delta that can be extracted and made available after a failure event. The probability of water being stored in the Project in any year is one measure of potential Emergency Response benefit. MBK found that the Project is likely to have 20,000 AF of water available for Emergency Response after 30 years of operation. MBK Engineering also explored how using the 20,000 acre-feet of water 30 years into the project life would affect other Project benefits. MBK found that the ecosystem pulse flows north of the Delta could be affected. To be conservative in the analysis of these affects, the availability of pulse flows north of the Delta were assumed to be reduced in the economic benefit analysis due to the need for water for Emergency Response.

For detailed information see:
- **Feasibility and Implementation Risk Tab, Attachment 1 – Technical Feasibility** (MBK Engineers, 2017)
- **Benefit Calculation, Monetization and Resiliency Tab, Attachment 2** (Preliminary Operations Plan)
- **Benefit Calculation, Monetization and Resiliency Tab, Attachment 3 and Attachment 5** (M.Cubed, 2017)