

Jeffrey Island Alternative Screening Level Evaluation | Status Update | December 1, 2014



Preliminary Information

Background Information

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- Studied numerous alternatives;
 Selected J-2 Project based on overall scoring
- Jeffrey Island Alternative not included in 2010 Study
- In response to Public Comment, performed this screening level study



Location









Identify and evaluate key technical issues
Develop reasonable concepts
Identify key project issues
Develop opinion of approximate cost



Design Criteria

• Similar criteria as used for J-2 Project:

- Provide 18,000 ac-ft of regulation capacity
- Regulate routine return flows (up to 500cfs)
- Release 2,000 cfs for three consecutive days (SDHF)
- Convey 1,675 cfs from Supply canal to reservoir
- Convey at least 1,000 cfs from reservoir to Phelps Canal
- Two Reservoir Cells





Perform site visit and identify key issues
Develop a feasible concept for reservoirs
Develop a feasible concept for flow conveyance
Develop opinion of costs

Technical Issues - Floodplain





Site Visit and Key Issues



 Flat topography – need ring dams • Predominately sands; silts or clays (fines) are scarce High-permeability Highly erodible Need low-permeability soils to manage seepage • River flows impact perimeter of island differently Need access to reservoirs during high flows

Concept Overview





Inverted Siphon Concept





Concept Evaluation







• Cost for aqueduct is 40% more than siphon & bridge separately. Therefore RJH dismissed.

Embankment Concept





Seepage Management Concept



• Evaluated three alternatives

- Geosynthetic liner over \$40 Million
- Amend with off site fines and bentonite—over \$70 Million
- Amend with off-site fines about \$35 Million (need near-by source of fine-grained soils)







Possible Locations of Fine-Grained Borrow



Assumed that clayey layer is 6 feet deep. Need about 500 Acres of land

Approx. 500 Acres

Preliminary Information

Cost Estimate

- Develop costs for comparison
 - Used unit costs from J-2 Project-2012 dollars
 - Use AACE recommended contingency to account for uncertainty.
 - Screening Level: Approximately 5% designed
 - Early Class IV estimate: 25-30% contingency
 - Project costs are in the range of \$195 Million





Conclusions



Appears to be Technically feasible (can be engineered)

- Concept achieves operational objectives yet Jeffrey Island has less operational flexibility
- Significant risks and permitting issues remain
 FEMA floodplain, FERC dam safety, USFWS, USACE
- Need to find and prove borrow source
- Need to replace land along river for current FERC license
- Cost is about \$120 Million higher than current J-2 concept (250%)

Recommendations



Complete the current evaluation and report
Do not continue to study the Jeffrey Island alternative
Risks, costs, and operational constraints are not favorable
Continue to develop the J-2 Project in accordance with current schedule.