Future Compliance Monitoring Under CEPP

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Technical Oversight Committee

by:
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Objective

• Describe Monitoring Plans
  – L-67A Culverts & L-67C Interim Gap (Contract 1)
  – S-333/S-333N (Contract 3a)

• Look-ahead to Appendix A Monitoring Requirements
CEPP South Overview

<table>
<thead>
<tr>
<th>Contract</th>
<th>Award</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2020</td>
<td>4 years</td>
</tr>
<tr>
<td>2</td>
<td>2022</td>
<td>4 years</td>
</tr>
<tr>
<td>3a</td>
<td>2018</td>
<td>2 years</td>
</tr>
<tr>
<td>3b</td>
<td>2023</td>
<td>2 years</td>
</tr>
<tr>
<td>5</td>
<td>2024</td>
<td>3 years</td>
</tr>
<tr>
<td>6</td>
<td>2025</td>
<td>3 years</td>
</tr>
</tbody>
</table>

**Contract Award Duration**

- 1: 2020, 4 years
- 2: 2022, 4 years
- 3a: 2018, 2 years
- 3b: 2023, 2 years
- 5: 2024, 3 years
- 6: 2025, 3 years

**Legend:**
- Pump
- Gated Structure
- Levee
- Levee Removal
- Road Removal

**Technical Notes:**

2. S-632: Gated Culvert, delivers water from WCA 3A to 3B, west of L-67D Levee.
5. S-359W: Gated Spillway, maintains water deliveries to eastern L-29 Canal.
6. L-67D: Blue Shanty Levee, ~8.5 miles, connecting from L-67A to L-29 (6 feet high, 14-foot crest width, 2:1 side slopes).
8. L-67C: L-67C Levee Removal, complete removal of ~8 miles from New Blue Shanty Levee (L-67D) to intersection of L-67A, L-67C; L-67C Canal is not backfilled.
10. L-67: Levee Extension Levee Removal and Canal Backfill, complete removal of ~5.5 miles of remaining L-67 Extension, including S-346 culvert.
11. S-333N: Gated Spillway at new canal, delivers water from L-67A Canal to L-29 Canal; supplements existing S-333 gated spillway.
13. Removal of ~6 miles of roadway west of L-67 Extension.
CEPP South L-67A/L-67C & S-333/S-333N

• L-67A/L-67C (CEPP South Contract 1)
  – 3 x 500 cfs gated culverts
  – Agricultural ditch backfill (~1.4 of 4.0 miles)
  – L-29 temporary pumps (200 cfs)
    • Vegetation management
• S-333 (Existing C&SF Feature)
  – 1,350 cfs gated spillway
• S-333N (CEPP South Contract 3a)
  – 1,150 cfs gated spillway
CEPP South Operations

• “Interim operations during construction”: S-631, S-632, S-633 operated consistent with existing DPM criteria
  - Limit WCA-3B inflows to cumulative 750 cfs
  - All structures closed when projected total phosphorus > 10 ppb
  - All structures closed if WCA-3A (Site 69W) < 7.5 ft NGVD, or WCA-3B (Site 71 or SRS-1) > 8.5 ft NGVD

• Include temporary pumps across L-29 due to phased construction (L-29 Levee removal starts in 2025)
  - Up to 200 cfs combined between 2 locations
  - L-29 pump capacity limited to ½ of combined CEPP WCA-3B inflows (pumps off when combined inflows < 100 cfs)
  - Off when L-29 stage limit of 8.5 ft NGVD, or other COP constraints, are exceeded

• Operations coordinated with USACE and interagency CEPP AM and DPM teams
  - Regional operations governed by AUG 2020 COP
<table>
<thead>
<tr>
<th>Station</th>
<th>Method</th>
<th>Frequency</th>
<th>Parameter ACODES</th>
</tr>
</thead>
<tbody>
<tr>
<td>S631, S632, S633</td>
<td>Grab</td>
<td>Biweekly Recorded Flow</td>
<td>Total Nitrogen (TN), Total Phosphorous (TP)</td>
</tr>
<tr>
<td>S-633-AMI-P1, S-152-AMI-P2</td>
<td>In-situ</td>
<td>Biweekly Recorded Flow</td>
<td>Dissolved Oxygen (DO), pH, Specific Conductance (SCOND), Temperature (TEMP)</td>
</tr>
<tr>
<td>CA3BS</td>
<td>Grab</td>
<td>Monthly</td>
<td>TP</td>
</tr>
<tr>
<td></td>
<td>In-situ</td>
<td>Monthly</td>
<td>Dissolved Oxygen (DO), pH, Specific Conductance (SCOND), Temperature (TEMP)</td>
</tr>
</tbody>
</table>
CEPP South Operations

• S-333/S-333N
  – Both SFWMD gated spillways from L-67A to L-29
  – Both included in COP WCP
  – S-333N being finalized for operation
  – S-333N will operate per FDEP permit (CERPRA)
    • Current permit is for emergency operations (7/30/2018)
    • Permit mod requests COP WCP operations with downstream constraints (e.g., S-356 priority)
      – Use in conjunction with S-333 to convey water from WCA 3A to ENP per TTFF subject to L-29 constraint
S-333 and S-333N
From downstream looking northwest to WCA-3A
S-333N Monitoring Location

From L-67A looking south

From S-333N looking north

S-333N Platform

S-333N Inflow

S-333N Platform
## SA/Permit Compliance CEPP South
### S-333/S-333N

<table>
<thead>
<tr>
<th>Station</th>
<th>Method</th>
<th>Frequency</th>
<th>Parameter ACODES</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-333 S-333N</td>
<td>Grab</td>
<td>*Weekly Recorded Flow Otherwise Monthly</td>
<td>TPO$_4$, OPO$_4$, TN, NO$_x$, TSS, Cl, Ca</td>
</tr>
<tr>
<td>S-333 S-333N</td>
<td>In-situ</td>
<td>*Weekly Recorded Flow Otherwise Monthly</td>
<td>Dissolved Oxygen (DO), pH, Specific Conductance (SCOND), Temperature (TEMP)</td>
</tr>
<tr>
<td></td>
<td>Grab</td>
<td>*Quarterly Recorded Flow</td>
<td>SO$_4$, TURB</td>
</tr>
</tbody>
</table>

*Notes:*
- While weekly TP grabs are collected, only bi-weekly are used for SRS Appendix A compliance.
- Although permit-required frequencies can vary, bi-weekly TP at all SRS inflows on same day will continue.
Appendix A SRS Considerations

• **S-333/S-333N**
  - S333 continues operation and monitoring
  - S-333N pending operation, monitoring underway
  - Increases potential volumes to Northeast SRS

• **New L-29 Pumps “temporary” ENP inflow**
  - ~25,000 to 55,000 ac-ft (assumes 4-6 month operational window per DPM Phase 2)
    - Projected COP inflow to L-29 is 711,000 ac-ft
    - Releases counted as part of COP Tamiami Trail Flow Formula (TTFF) target flow accounting for releases to ENP from WCA 3A
  - Monitoring strategy considers information required for SRS compliance calculation
  - New inflow could begin ~July to December 2021 and continue to 2025-2026 (start of Contract 6)
Shark River Slough Compliance
Method 1.5 (current)

Annual Long-term Limit (sum of all FWY days)

\[ = S12s + S333 + S355A + S355B + \text{MIN}(S356, S335) \]

TP FWMC calculation (bi-weekly compliance sampling events):

- Volume for FWMC (sampling events) = S12s + S333 + S355A + S355B + \text{MIN}(S356, S335) - S334
- Sampling event TP FWMC = sum of the following divided by “Volume for FWMC”
  - S12A TP * S12A flow; S12B TP * S12B flow; S12C TP * S12C flow; S12D TP * S12D flow
  - S333 TP * S333 flow * fraction of L-29E inflows to SRS
  - S355A TP * S355A flow * fraction of L-29E inflows to SRS
  - S355B TP * S355B flow * fraction of L-29E inflows to SRS
  - S356 TP * \text{MIN}(S356, S335) * fraction of L-29E inflows to SRS
  - Fraction of L-29E to SRS = (total flow to L-29 – S334)/(total flow to L-29)
Shark River Slough Compliance

For Discussion of Future Conditions

Annual Long-term Limit (sum of all FWY days)

\[ = S12s + S333 + S355A + S355B + \text{MIN}(S356, S335) + \text{more terms here?} \]

TP FWMC calculation (bi-weekly compliance sampling events):

- Volume for FWMC (sampling events) = \( S12s + S333 + S355A + S355B + \text{MIN}(S356, S335) - S334 \)
- Sampling event TP FWMC = sum of the following divided by “Volume for FWMC”
  - \( S12A \) TP * \( S12A \) flow; \( S12B \) TP * \( S12B \) flow; \( S12C \) TP * \( S12C \) flow; \( S12D \) TP * \( S12D \) flow
  - \( S333 \) TP * \( S333 \) flow * fraction of L-29E inflows to SRS
  - \( S355A \) TP * \( S355A \) flow * fraction of L-29E inflows to SRS
  - \( S355B \) TP * \( S355B \) flow * fraction of L-29E inflows to SRS
  - \( S356 \) TP * MIN(\( S356 \), \( S335 \)) * fraction of L-29E inflows to SRS
  - Add more terms here? Representative monitoring? L-29 Levee degrade?
  - Fraction of L-29E to SRS = (total flow to L-29 – S334)/(total flow to L-29)
S-333/S-333N TP
Future Evaluation?

Graph showing TP Concentration (mg/L) and Daily Mean Flow (100 cfs)/Stage (feet) from October 2018 to September 2020.
Questions