

Unit 3 Closure

OUTSTANDING ITEMS WITH EGLE

- Separate Work Plan for Clean-up of perimeter road outside the former Unit 3 Impoundments boundary.
- Analytical Limits agreement.
- Clean clay liner left in place to protect against contact water reaching the underlying beneficially placed ash and historical MSW.
- Alternate Source Demonstration regarding the statistically significant levels (SSL)s noted in wells that surround the former Unit 3 Impoundments.
 - We have demonstrated that the source of groundwater impacts is not from Unit 3. If EPA and EGLE feel it necessary, we can take an additional step and collect source material from the comingled waste and ash fill material at various locations. This will provide additional confirmation that comingled waste and fill material is the source of groundwater impacts.
- Post Closure Monitoring Plan may not be required based on results of the ASD for Unit 3. Monitoring will instead be focused on additional wells for detection and assessment for Units 1 and 2 and/or historical waste/ash fill source.

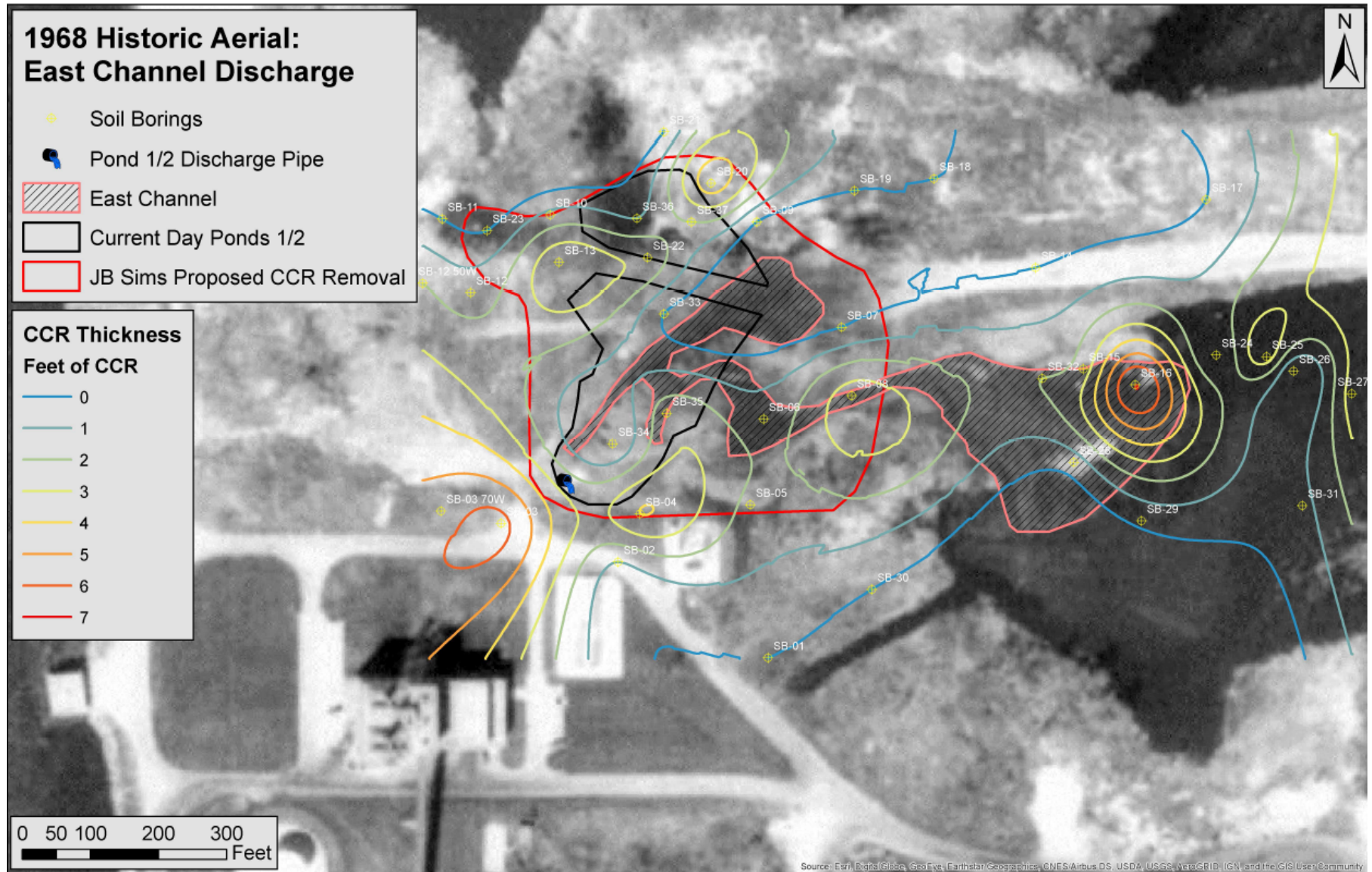
Units 1 and 2 Impoundment Revised Delineation

UNDERSTANDING OF METHODS

- Original Units 1 and 2 Impoundment boundary included.
- Historical channel to the north included.
- Eastern ash that was sluiced and deposited in water “ash in water” included (CCR Rule reference).
- Excludes areas where ash was placed as beneficial fill for roads, building foundations, foundation under the former Unit 3 Impoundments, etc.
- Delineation based on existing and historical data.

Units 1 and 2 Impoundment

1968 AERIAL FROM EPA (CAN WE AGREE ON PINK BOUNDARY?)



Units 1 and 2 Impoundment Closure Method Options

CCR RULE

Option 1 - CCR and other impacted materials remains in place and/or consolidated using material stabilization methods and a cap (where appropriate and applicable), designed according to regulations, is installed over the delineation boundary area for the Units 1 and 2 Impoundment.

Option 2- CCR and other impacted materials remains in place without ash stabilization and/or consolidated and a cap, designed according to the regulations, is installed over the entirety of the delineation boundary area for the Units 1 and 2 Impoundment with an additional barrier wall surrounding the unit, and dewatering prior to closure.

Option 3 - The CCR is removed to clean closure from the delineation boundary area for the Units 1 and 2 Impoundment under the current high-water level conditions or at normal water level conditions. Comprehensive dewatering and treatment will be needed along with barrier wall surrounding unit.

Units 1 and 2 Impoundment Closure Methods Options

COMPLICATIONS

- Harbor Island is flooded due to historically high-water levels in the Grand River.
- Underlying historical municipal solid waste (MSW) is comingled with ash.
- MSW material composition is unknown.
- Geochemical concerns from unknown historical MSW.
- Downstream receptors (Grand Haven Water Treatment Plant intake is downstream at the mouth of Grand River meeting Lake Michigan).
- Wetlands permitting requirements under wet conditions.
- NPDES Discharges is dewatering is need for the closure.

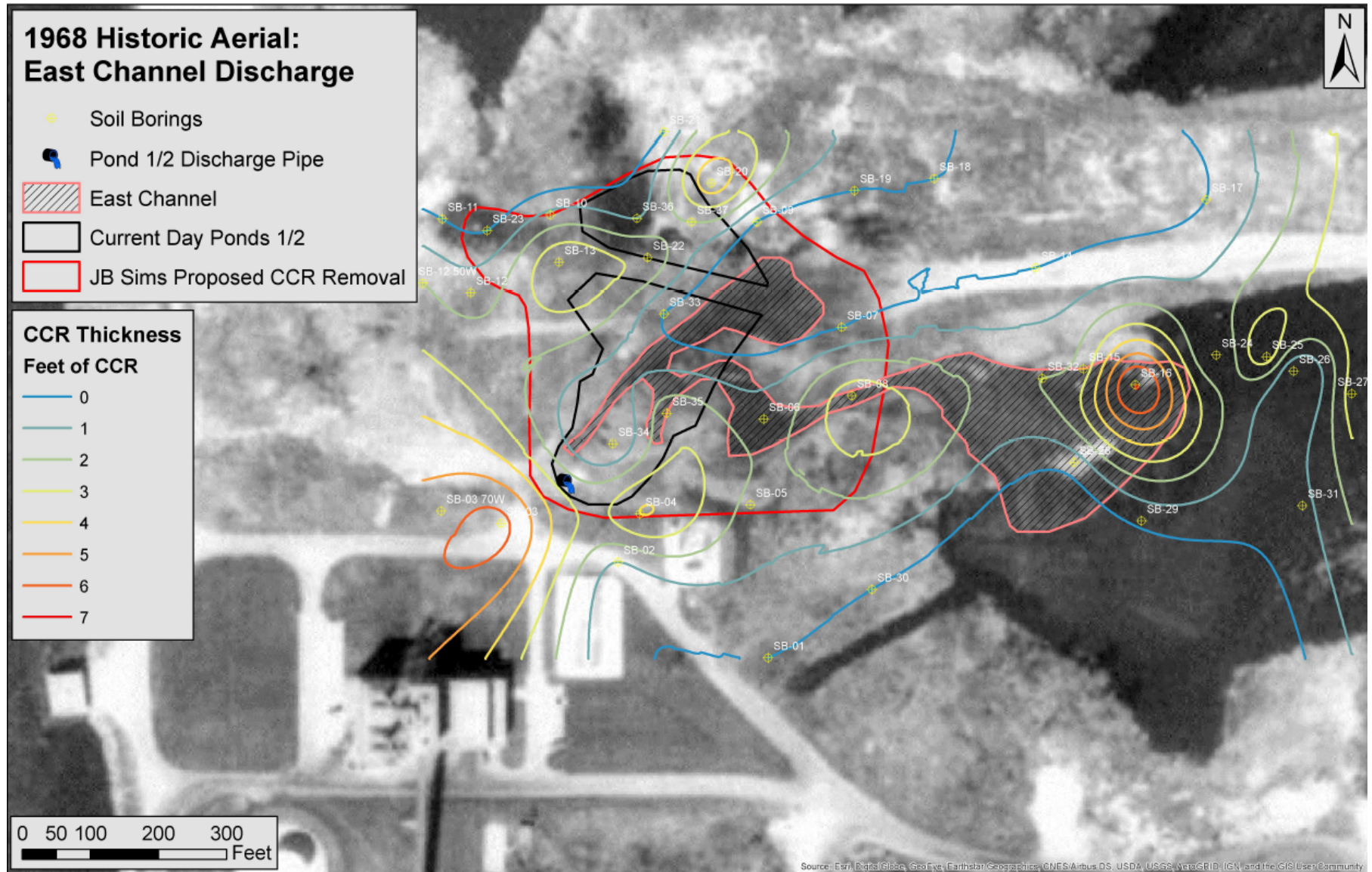
Units 1 and 2 Impoundment Groundwater Monitoring Network

UNDERSTANDING

- Plan to add piezometers along southern limits of delineation boundary area for the Units 1 and 2 Impoundment to better define groundwater contours.
- Placement of Detection Wells at proposed revised boundary (once finalized).
 - To further characterize groundwater quality for the revised Unit ½ boundary, we will install additional upgradient well(s). We will attempt to install wells at the unit boundary (likely hindered by historic ash fill and comingled waste) and wetland. We will step out as appropriate for safety and to find native material for well installation.
- Placement of Assessment Wells at water edges (i.e., Grand River).
 - Additional assessment monitoring wells will be installed at the island boundary, along the water's edge. Some wells will be utilized for water levels to further characterize groundwater flow. Additional assessment monitoring wells will be utilized for long term monitoring to ensure protection to human health and the environment utilizing the protection standards outlined in Part 201 (i.e., GSI criteria).
- Complication – Wells cannot be installed in waste/ash (beneficial placement or MSW).
- Complication – Change in groundwater flow due to high water levels in the Grand River and Lake Michigan.

Units 1 and 2 Impoundment

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