


# Hanford 100 BC Area Record of Decision


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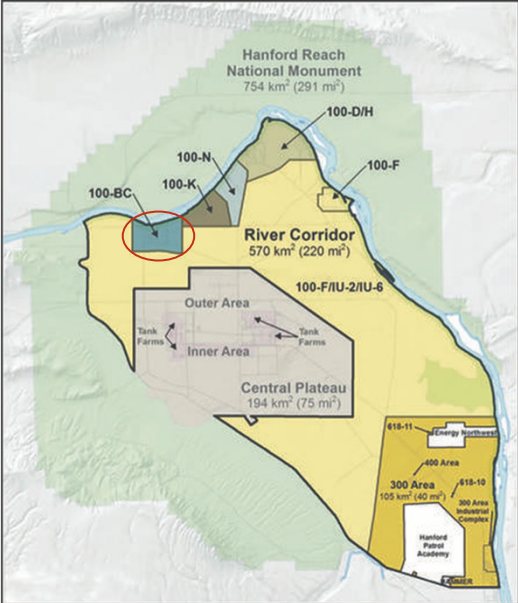
## 100 BC Area



B Reactor

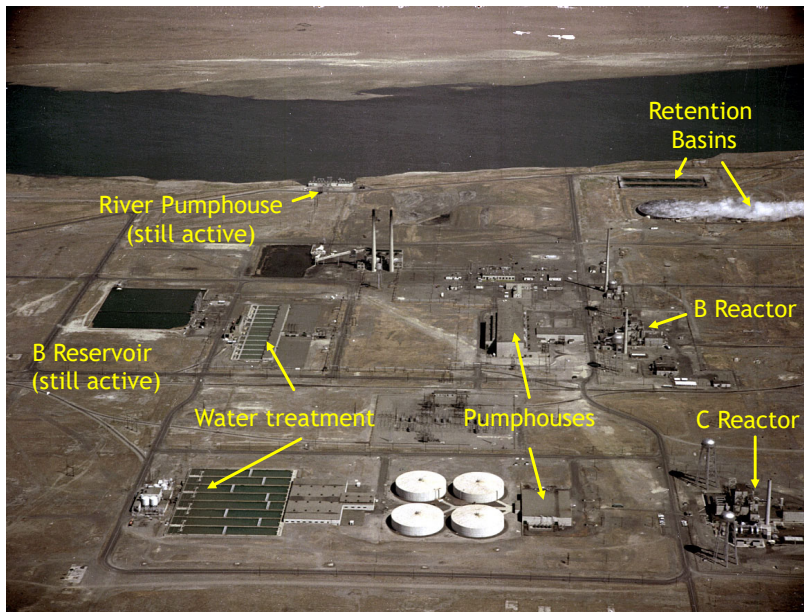


C Reactor



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## BC Area Historical Operations (1944-1969)



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## Soil Cleanup to Date

- Over 3 million tons of hazardous waste disposed of at Hanford landfill



2003



1999



2012

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## Proposed Plan-Overview

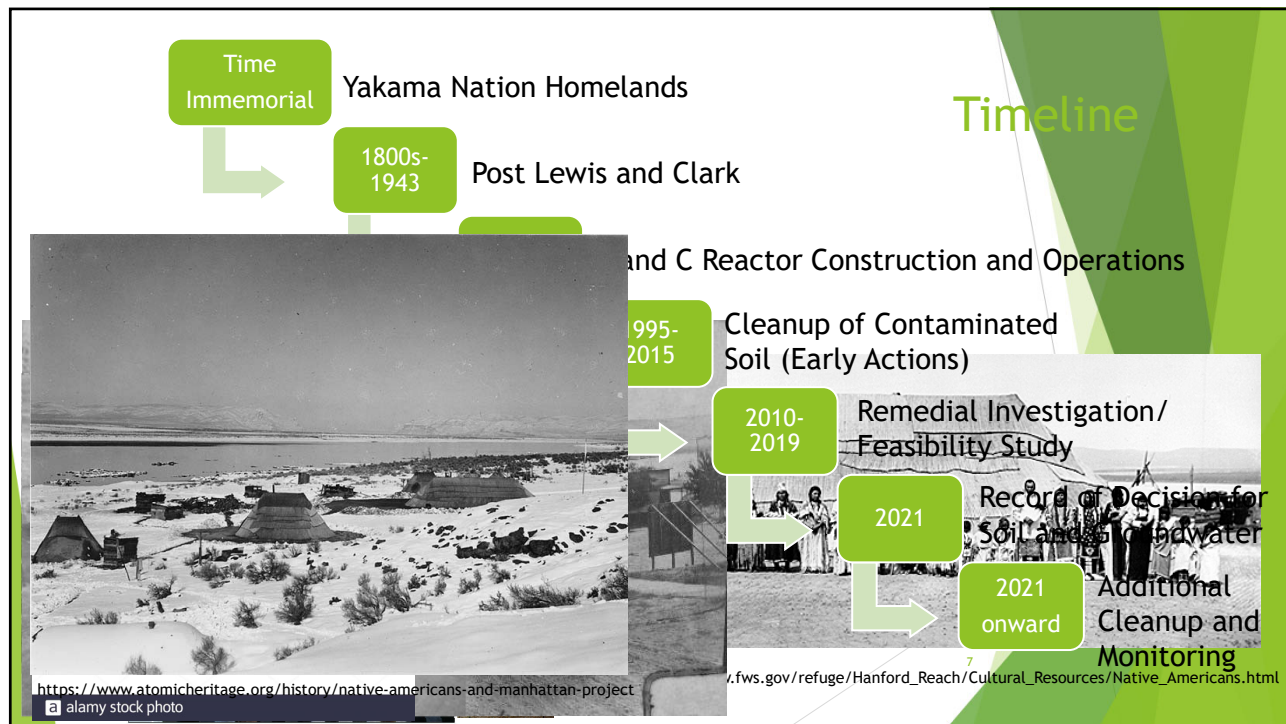
- ▶ Proposed Plan for 100-BC was released Fall of 2019
- ▶ The Yakama Nation submitted several comments, some of those comments directly related to CERCLA Threshold Criteria for acceptance of a ROD
- ▶ Yakama Nation send letter to EPA Superfund and Emergency Management Division Director asking for revised Proposed Plan and a new public comment period
- ▶ While EPA did not agree to a revised Proposed Plan, EPA did commit to work with the Yakama Nation and DOE to determine what changes could be made to the ROD to address the comments, in particular:
  - ▶ National Historic Preservation Act (MTCA) Section 106 review of chosen remedy
  - ▶ Model Toxics Control Act (MTCA) groundwater point of compliance
  - ▶ Groundwater monitoring and modeling
  - ▶ Risk the Columbia River due to ongoing releases of Cr(VI) upwelling from groundwater

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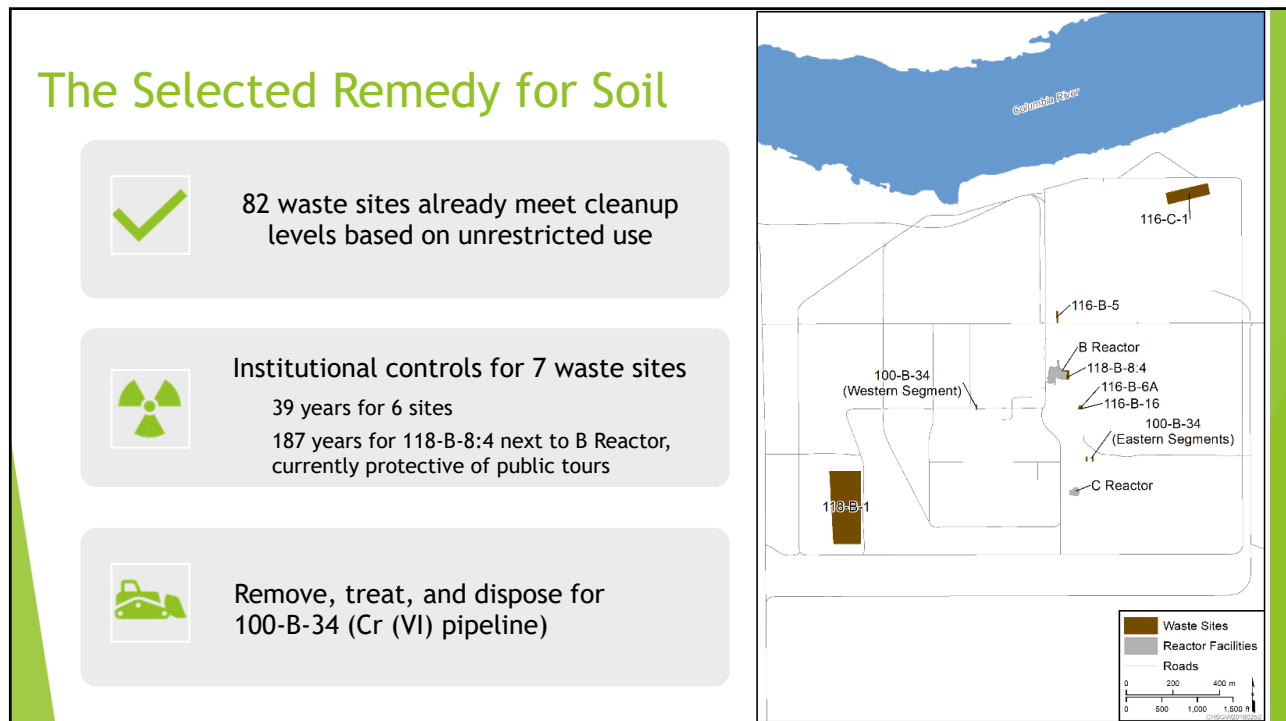
## Keys to Collaboration

- ▶ Focused on the key technical and legal issues
- ▶ Virtual meeting technology made it easier to meet frequently to work through comments (thanks COVID!)
- ▶ Collaboration was at technical level. We were each charged by our senior managers to work together to resolve the key issues.
- ▶ YN, EPA, and DOE worked together, not making EPA the go between. We saw each other as equal partners and respect each other.

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## The Selected Remedy for Groundwater

### Monitored Natural Attenuation with Institutional Controls

-  Groundwater Performance Monitoring, including installation of new wells
-  Biological Studies and Monitoring

Contaminant	Time to Meet Cleanup Level (bold) and Other Risk Based Concentrations
Hexavalent Chromium (Cr (VI))	<b>110 years throughout plume (10 µg/L)</b> 10 years to meet human health protection in aquifer (48 µg/L) 60 years to meet surface water protection at Columbia River (10 µg/L)
Strontium-90	<b>70 years for human health protection in aquifer</b> Currently protective at Columbia River
TCE	<b>20 years for human health protection in aquifer</b> Currently protective at Columbia River

Total Cost of Remedy: \$23 M

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## Changes in the ROD

Topic	Process	Change
ARAR Compliance-MTCA and NHPA	Significant technical and legal discussions between Yakama Nation, EPA, Ecology and DOE.	The MTCA ARAR was included and cleanup level is the surface water standard (10 µg/L) throughout the plume, not just at the river.  The NHPA ARAR compliance process is still ongoing.
Aquifer Characterization/Fate and Transport Modeling	Series of technical meetings with EPA, Yakama Nation, and DOE to discuss uncertainties in characterization and modeling.	Added language stating sampling would be conducted to refine the vertical extent of contamination.
Ecological Risk Assessment and Biological Monitoring	Group effort from Yakama Nation, EPA, DOE technical staff and risk assessors to come to common understanding of all available data.  Project managers then worked together on exact ROD language.	Changed language from “no unacceptable Cr (VI) risk” to “potential for adverse effects to benthic aquatic invertebrates exposed to Cr (VI)”.  Added biological studies as a requirement.

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## Moving Forward with the RD/RA Work Plan

### Old Process

- DOE would discuss part of work plan with EPA
- DOE would draft work plan
- DOE would formally transmit draft work plan to EPA and copy Tribes
- Tribes would send comments, maybe discuss them with EPA, maybe push for discussion with DOE

### New Process

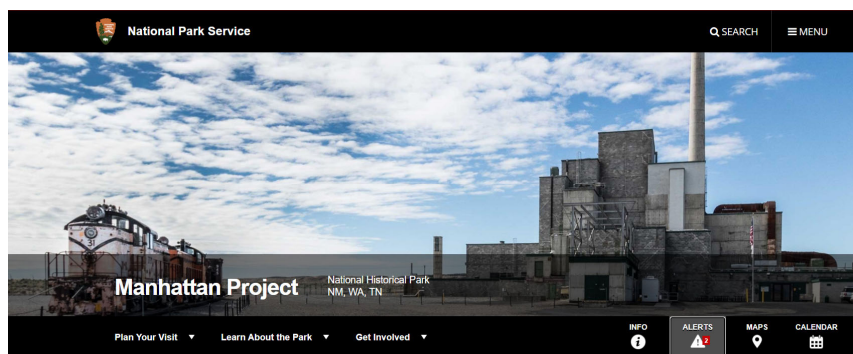
- Early collaboration with DOE, EPA, and Tribes, including brainstorming, DQO discussions, sampling approach, project planning
- DOE will still formally transmit draft work plan to EPA and copy Tribes
- Comments will be discussed collectively

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## Final Thoughts

- ▶ Tribes are all independent governments. What worked with the Yakama Nation at this point in time will not always work for Yakama Nation in the future, or for any other Tribe
- ▶ Work with your Tribal counterpart at the technical level!



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## Questions and Discussion

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## Timeline Slides



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Time Immemorial

Yakama Nation Homelands

Timeline

Record of Decision for Soil and Groundwater

[https://www.fws.gov/refuge/Hanford\\_Reach/Cultural\\_Resources/Native\\_Americans.html](https://www.fws.gov/refuge/Hanford_Reach/Cultural_Resources/Native_Americans.html)

<https://www.atomicheritage.org/history/native-americans-and-manhattan-project>

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Time Immemorial

Yakama Nation Homelands

Timeline

1800s-1943

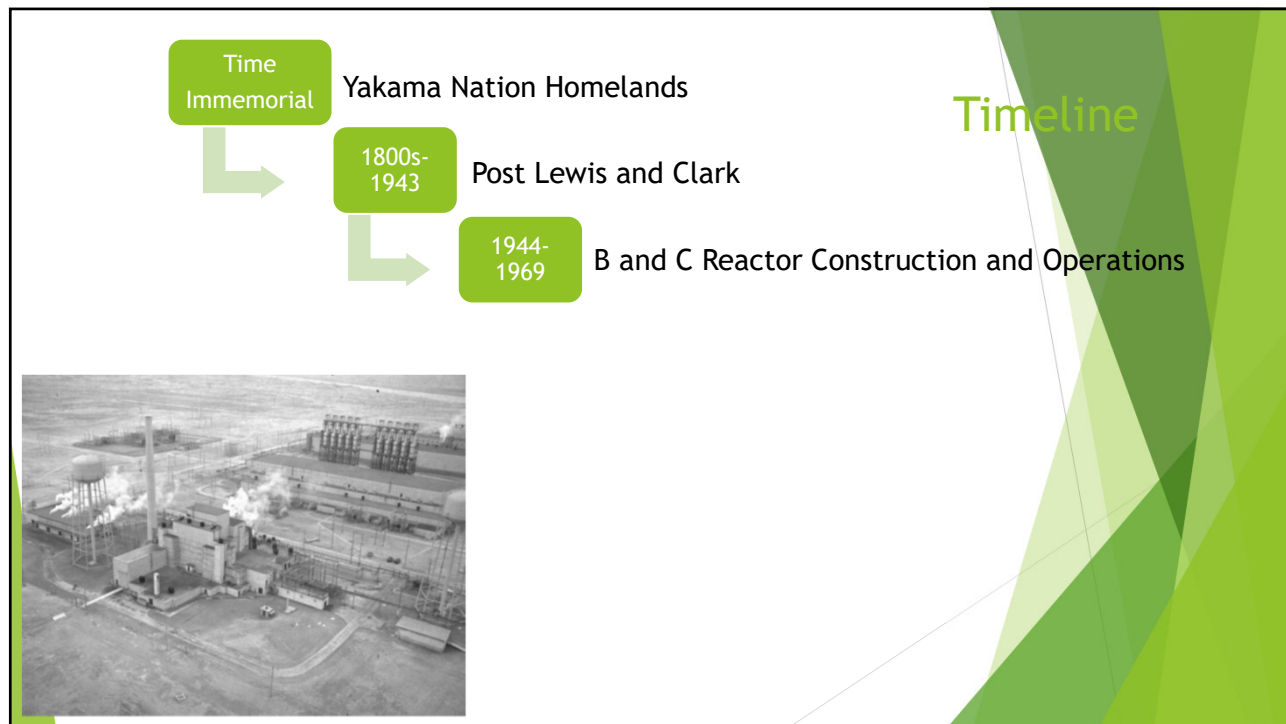
Post Lewis and Clark



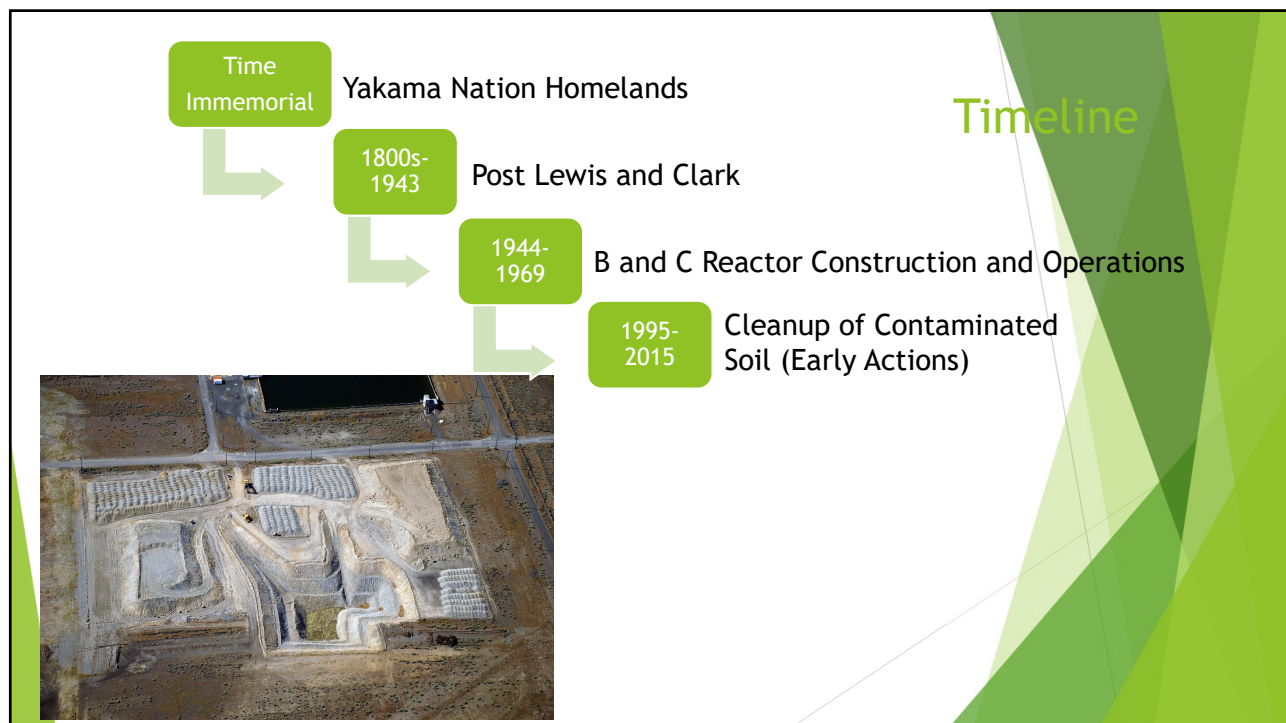
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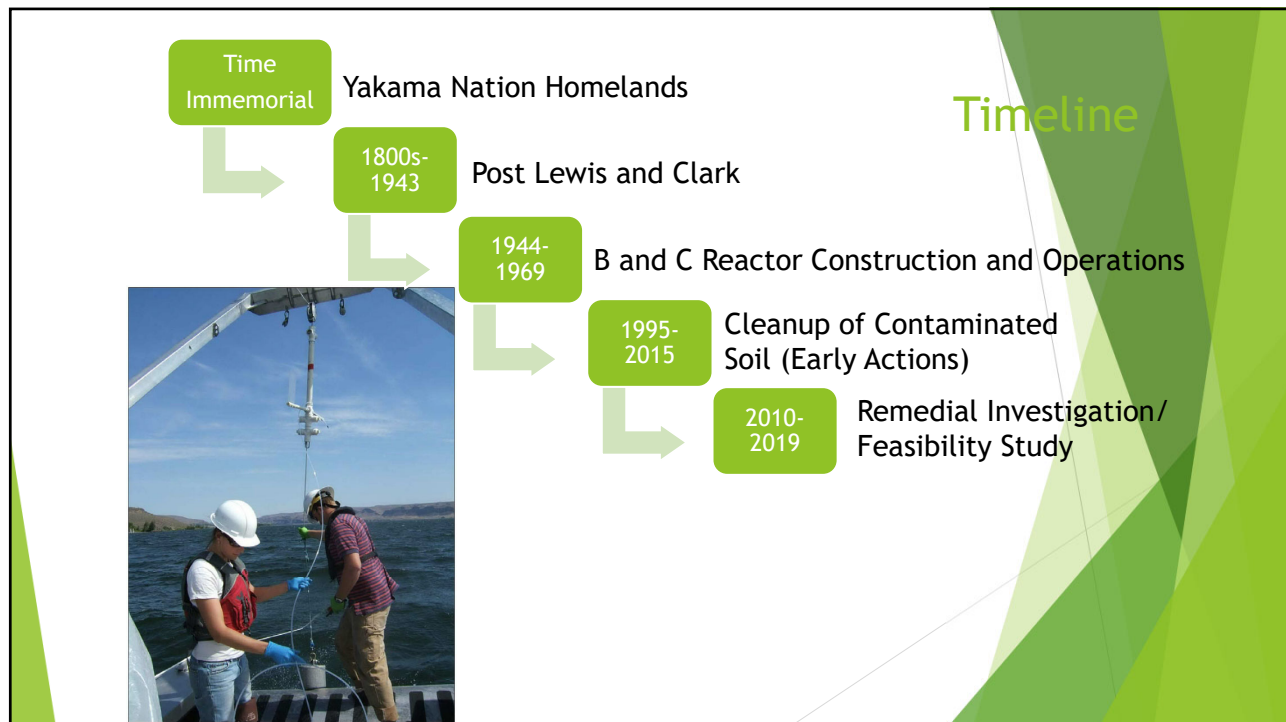




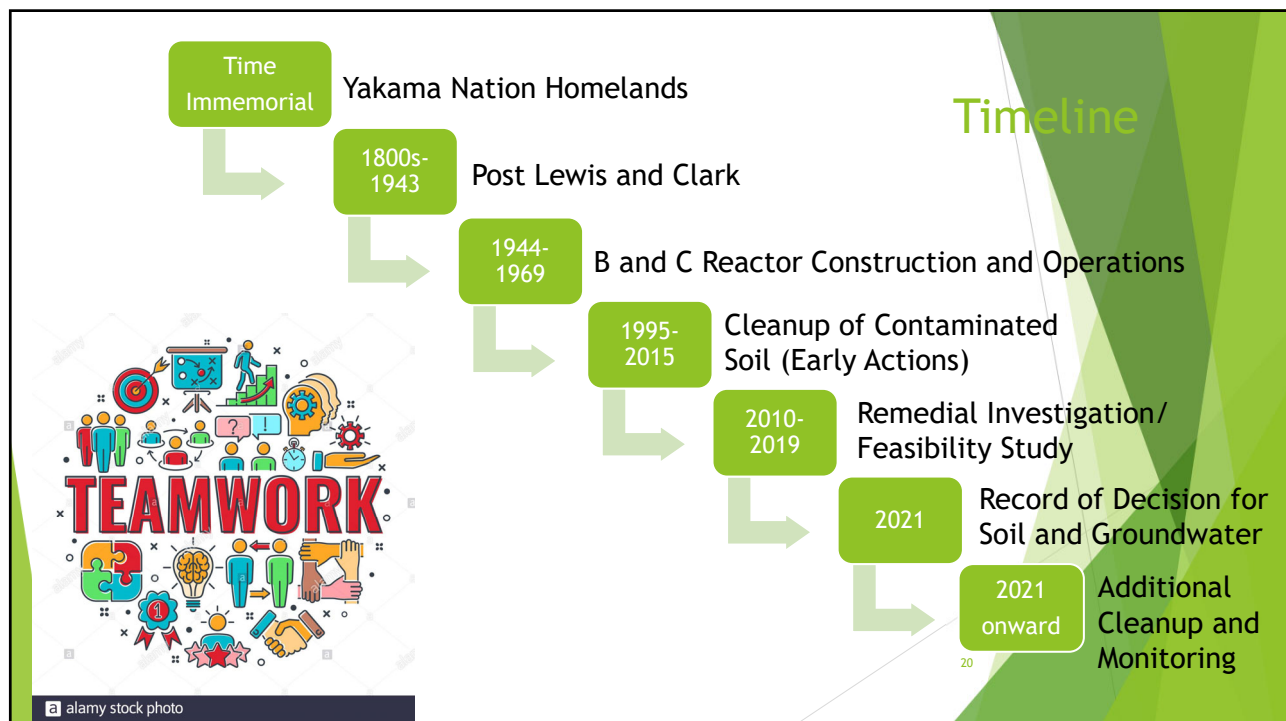
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