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SDA Trench Leachate Elevation Update

Citizen Task Force Meeting

January 24, 2018

CTF Update Discussion

- Update the CTF on changes in Trenches 14, 1, and 3.
- All changes are small, slow increases that do not represent a public health and safety issue, and are not a compliance issue.
- Hydrologic evaluations and field investigation.
- Leachate sampling.

State-Licensed Disposal Area

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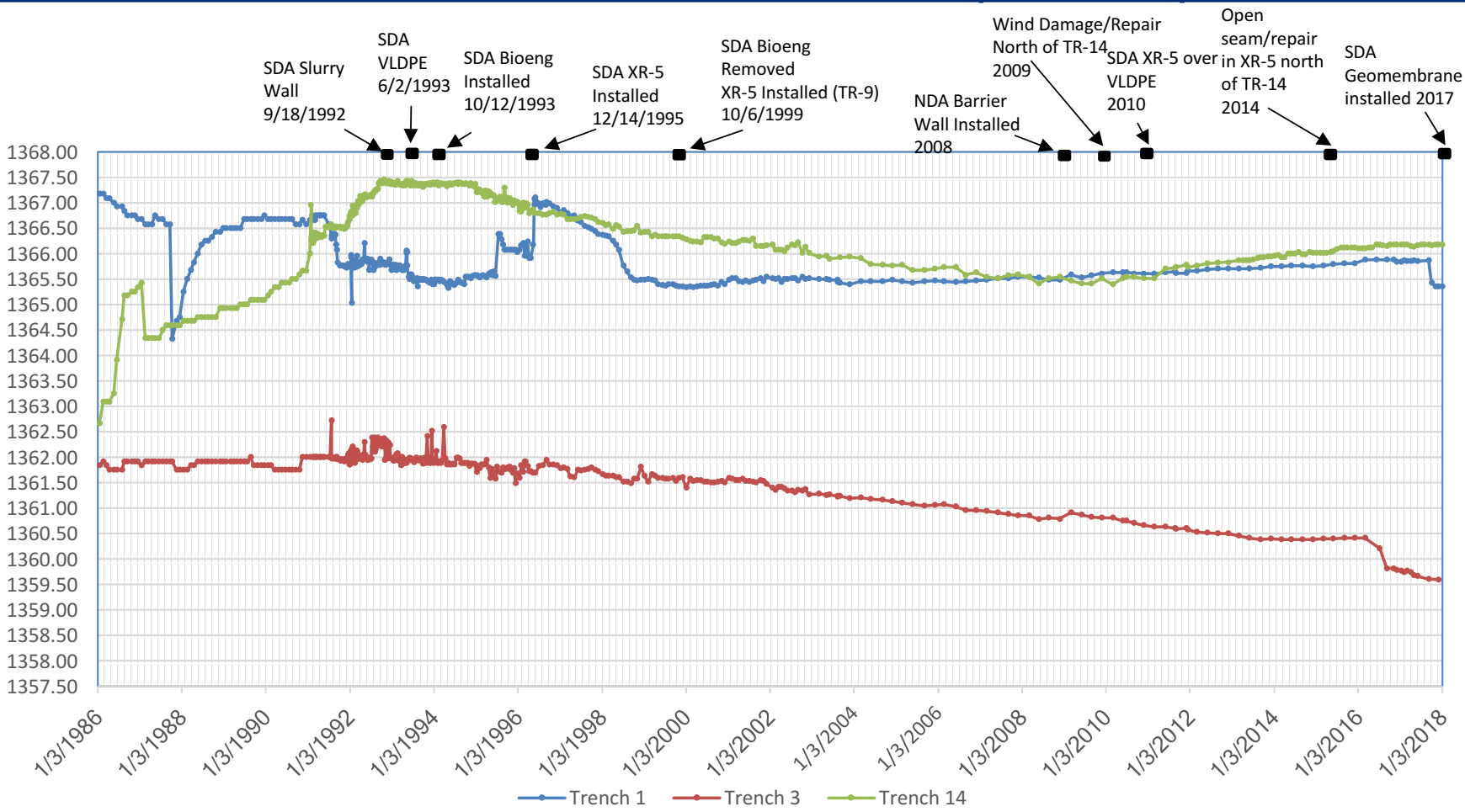
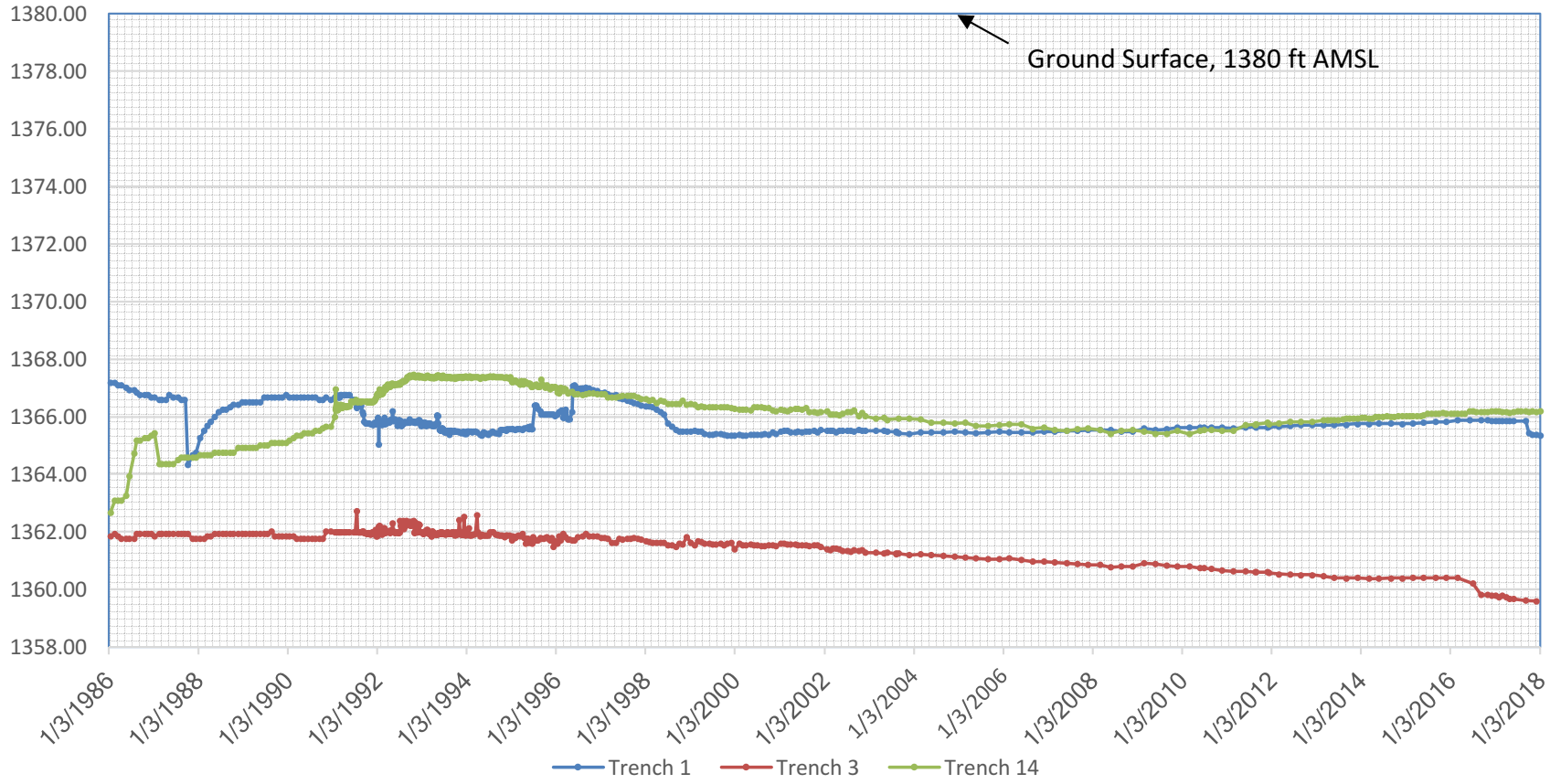
Leachate Elevations for Trenches 1, 3 and 14 (ft. AMSL) – 1986 to Current



Evaluation of Physical Changes

1992-1996:	NYSERDA installed infiltration controls (i.e., geomembrane covers and slurry wall) to prevent groundwater from entering the trenches.
2008:	Installation of subsurface barrier wall and geomembrane cover at NDA.
2009:	SDA cover (north of Trench 14) was damaged due to wind and repaired within three months.
2010:	Installation of new geomembrane XR-5 cover on Trenches 12, 13, and 14, and drainage system replacement.
2013-on:	Continuing to evaluate and investigate potential changes in environmental conditions.
2014:	Identification of 30-foot seam opening in XR-5 near SMW-1, north of Trench 14, and subsequent repair.
2017:	Installation of new geomembrane cover on north and south trenches (excluding Trenches 12, 13, and 14); and new drainage system placed.

Leachate Elevations Relative to Ground Surface for Trenches 1, 3 and 14 (ft. AMSL)



Recent Observations in Trench 14

- Leachate elevations have been generally decreasing since infiltration controls were installed in 1992-1993.
- Increases were noted in early 2011.
- 2011-2015 data show small increases continued.
- 2016 to current data show stabilization.
- Total increase since 2011 is 0.67 feet (8.04 inches).
- Change does not represent a public health and safety issue.

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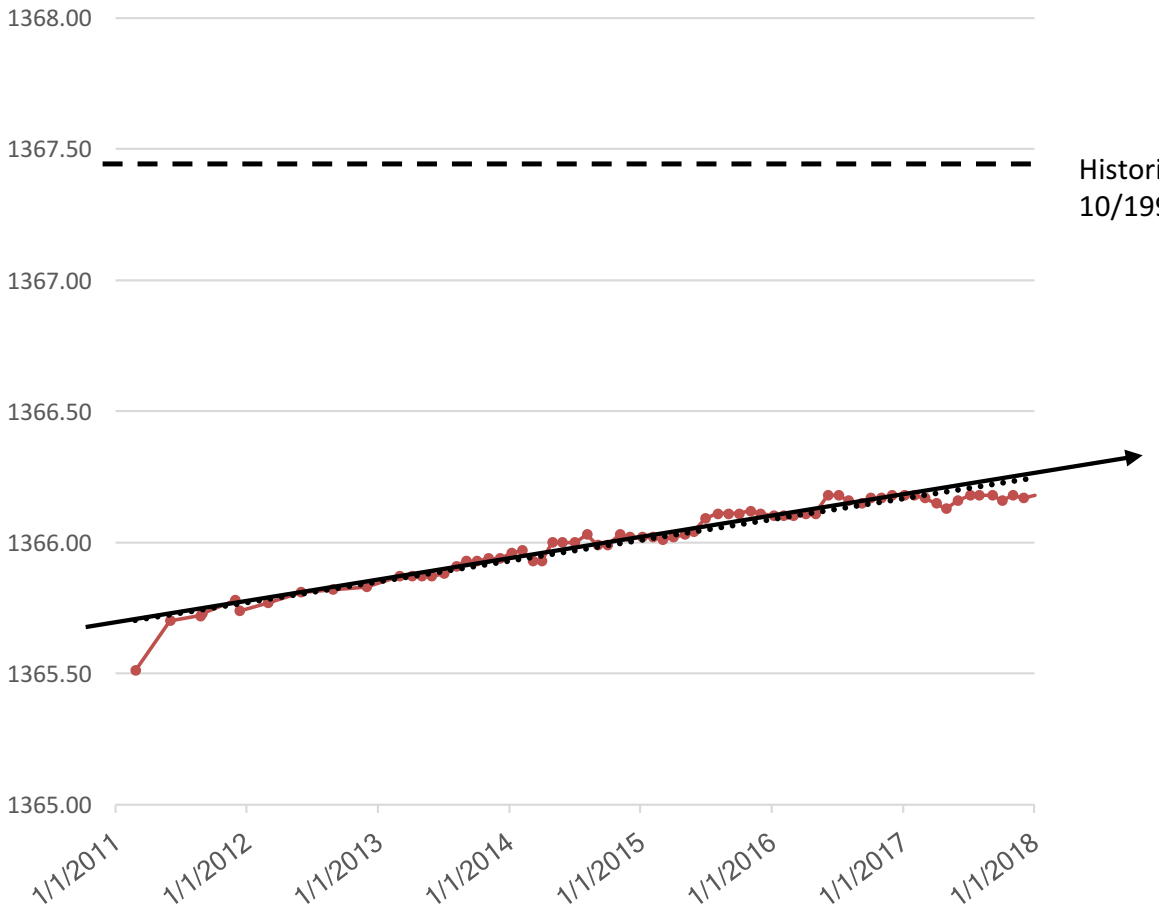
Trench 14 Projection – Leachate Elevation (ft. AMSL) 2011 to Current



Historic High: 1367.46', 10/1992

Current increase 2011 to present: 0.12' per year

Years to reach historic high:
11 years

Years to reach ground surface:
118.6

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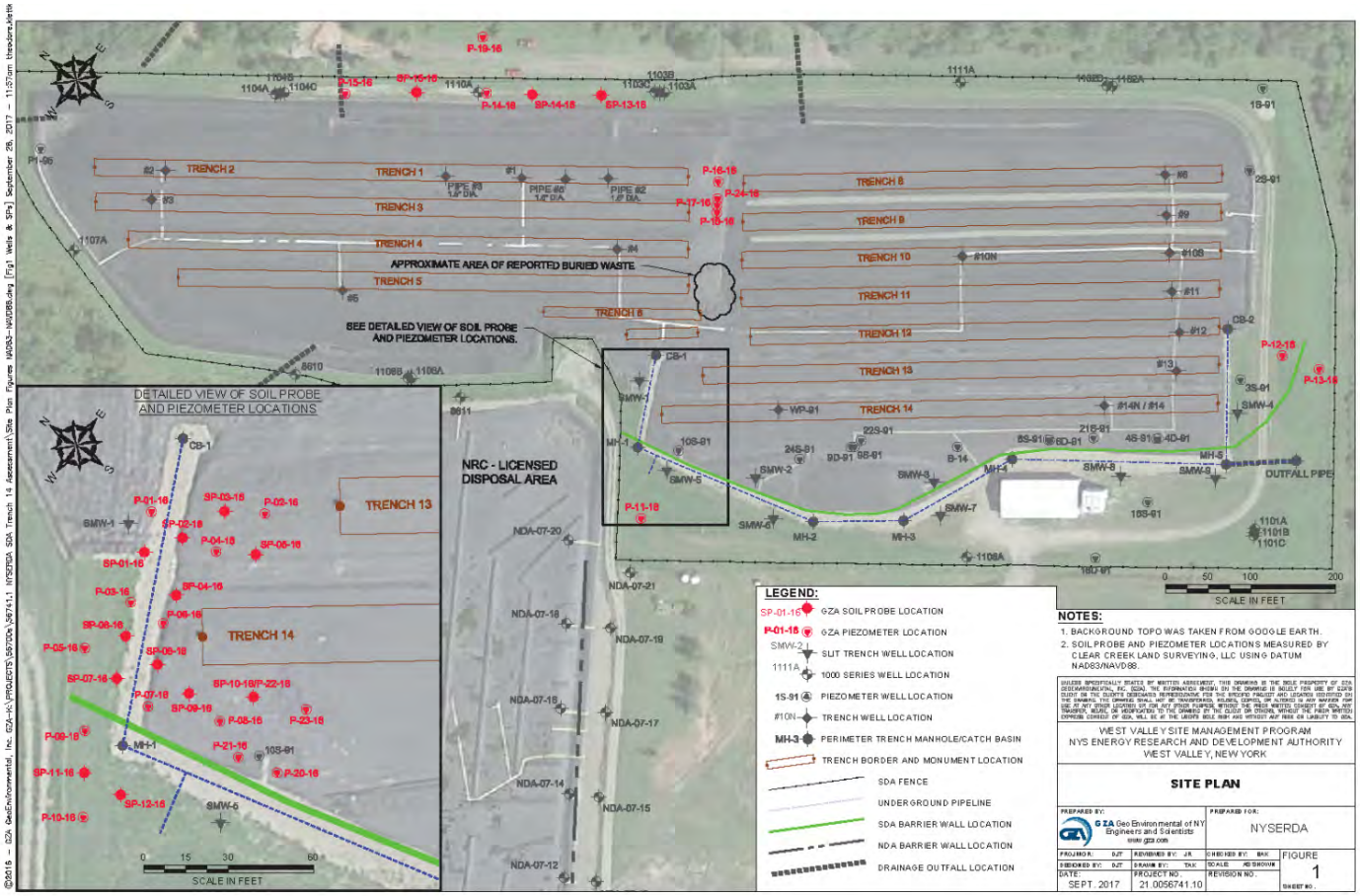
Evaluation of Hydrologic Conditions in the Trenches:

- Ichimura Report (March 2015): Evaluation of the increases in Trenches 14 and 1 as compared to groundwater elevation and precipitation rates. Report did not identify a specific pathway or source for the increases.
- GZA Findings and Recommendations Report (October 2015): A more detailed evaluation to identify areas where additional investigation was warranted for the increases within both Trenches 14 and 1, and to present findings and recommendations for mitigation of the increases. Areas where additional investigation was warranted were identified (as discussed in previous slides).
- GZA Work Plan (March 2016): A work plan to implement the findings and recommendations presented in the October 2015 report. Field activities included installation of soil probes and piezometers in the perimeter of the SDA (focused around Trench 14 and east of Trench 1), soil sampling and pumping tests. Soil probes were also added to evaluate change in leachate elevation in Trench 3.
- GZA Final Report (est. March 2018): An preliminary evaluation of the results from the 2016 field activities indicates that the increases in Trench 14 are likely due to an influence on the north end of the trench, that groundwater is not infiltrating Trench 1 from the east or south side of the trench and that groundwater is not infiltrating Trench 3 from the south end of the trench.

GZA Soil Probe and Piezometer Location Plan



GZA Subsurface Investigation Results:

- Installation of 38 soil borings and 24 piezometers.
- Field measurements for radiological components and volatile organic compounds.
  - No field measurements for radiological or chemical parameters demonstrated concentrations above background.
- Geologic stratigraphic logging of all soil boring locations.
- Collection of grab samples from each new piezometer for the analysis of tritium.
  - P-22-16 and P-23-16 exhibited elevated tritium and were sampled with the trench sumps in 2017.
- Piezometer development and development purge water sampling for radiological and chemical parameters.
  - All piezometer purgewater sample results were below the criteria for radiological or hazardous designations.
- Piezometer groundwater sampling for radiological and chemical parameters.
  - All piezometer groundwater sample results were below the criteria for radiological or hazardous designations.

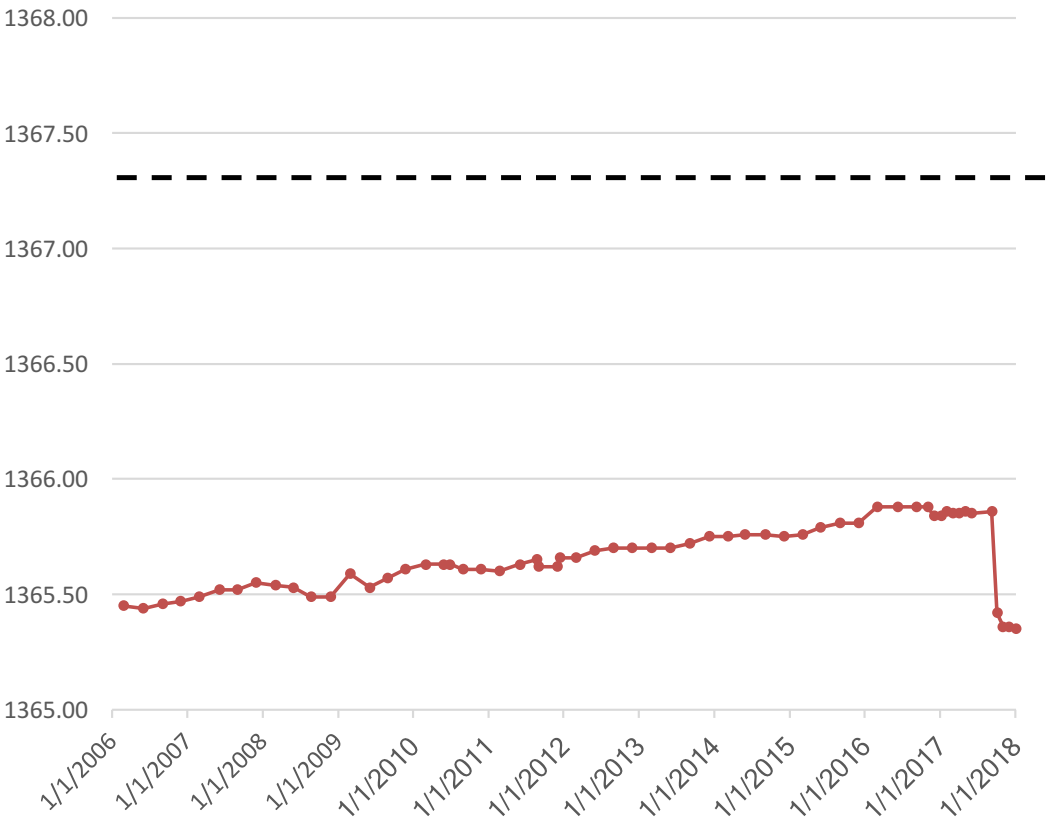
GZA Subsurface Investigation Results (cont.):

- Installation of Telog groundwater elevation measurement devices at select piezometers.
- Ongoing bi-weekly collection of water level measurements at all new piezometers.
- Recommendation to focus additional subsurface activities on the north end of Trench 14 due to the presence of a groundwater “high” area.
- GZA currently working on a work plan to further address the area north of Trench 14 for installation of additional piezometers for soil screening, geology, groundwater sampling, and groundwater elevation monitoring.

Recent Observations in Trench 1

- Leachate elevation had been generally decreasing since 1996.
- Increases were noted in 2006.
- 2006-2017 data show small increases continued.
- Leachate sampling in September 2017 indicate that fluid in the area of the sump is likely localized. Further investigation is being considered.
- Change does not represent a public health and safety issue.

Trench 1 Projection - Leachate Elevation (ft. AMSL) 2006 to Current



Historic High: 1367.10', 6/1996

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Trench Leachate and Groundwater Sampling:

- Sampling was conducted August/September 2017.
- Leachate samples were collected from each trench sump and WP-91, with groundwater samples collected at B-14, P-22-16, and P-23-16 for radiological and chemical parameters. Field screening for radiological parameters and volatile organic compounds was conducted during the sampling activities. No concentrations in the field screening exceeded background.
- Data is currently being validated and will be completed by the end of January 2018. Data will then be reviewed and shared with the New York State Department of Environmental Conservation.

Recent Observations in Trench 3

- Leachate elevations have been generally decreasing since infiltration controls were installed in 1995-1996.
- Stabilization was noted in early 2014 and continued into 2016.
- Probe malfunction suspected; probe replaced in July 2016; decreasing trend continued and is consistent with early 2014 values.
- No additional follow-up action required.

Summary

- Based on 2016 soil probe and piezometer installation and monitoring:
  - groundwater does not appear to be entering Trench 14 from the west or the south, but appears to be entering from northern area near the NDA Hardstand.
  - groundwater does not appear to be entering Trench 1 from the south, west, or east sides. Based on the leachate sampling activities, the Trench 1 sump is likely not representative of Trench 1.
- Leachate levels in Trench 3 are consistent with the historical trend since the replacement of the failed water-level probe.
- None of the leachate level changes currently represent a public health and safety issue, and are not a compliance issue.

Upcoming Updates

- Additional focused piezometers will be installed and monitored during the 2018/2019 field season to further pinpoint the exact source of this groundwater.

- After evaluation of the data collected from the 2018-2019 field activities, NYSERDA will provide an update to the CTF.