

## Niagara Falls Storage Site – Environmental Surveillance Program

### NFSS Environmental Surveillance Program

Environmental surveillance activities initiated in 1981 have evolved over the years to ensure that radioactive residues and wastes buried within the IWCS, as well as other on-site soil and groundwater contamination, are not a threat to human health and the environment. Environmental media currently monitored by the Corps include groundwater, surface water, and streambed sediment for radiological and chemical parameters and air for radon and external gamma radiation dose.

Currently, the Corps performs:

- Annual Radon-222 monitoring through the placement of radon flux canisters on the IWCS protective cap.
- Semi-annual radon and external gamma radiation monitoring through the placement of detectors around the IWCS and the perimeter of the site.
- Semi-annual surface water and sediment sampling at points along the west drainage ditch, central drainage ditch, and east (upstream) of the central drainage ditch.
- Semi-annual groundwater monitoring for radiological, metals, anions, and water quality parameters.
- Semi-annual groundwater monitoring on select wells for volatile organic compounds (VOCs).
- Quarterly water level measurements in groundwater wells throughout the site to monitor the groundwater flow directions in the upper and lower water-bearing zones. As additional data is collected through the ESP and site investigations, the Corps reassesses the scope of the ESP to ensure that the IWCS is functioning as designed and is fully protective of human health and the environment.
- Quarterly groundwater, surface water and sediment sampling at: one upper and lower water bearing zone well located north of the IWCS and one surface water/sediment location in the central drainage ditch, directly north east of the IWCS.

The following table summarizes the number of unique sample locations where data was collected in 2011. Dozens of radiological and chemical parameters were investigated at each surface water, ground water, and sediment location.

2011 Environmental Surveillance Program				
Event	Number of Unique Locations Sampled			
	Spring	Summer	Fall	Winter
RadTrack	-	27	-	27
TLD	-	54	-	54
Radon Flux	-	183	-	-
Well Depth Measurement	101	101	101	101
Upper Water Bearing Zone	26	1	26	1
Lower Water Bearing Zone	13	1	13	1
Surface Water	11	1	11	1
Sediment	11	1	11	1
Total	162	369	162	186
Unique Locations Sampled/Monitored in 2011			879	

The results of ESP activities and a detailed analysis of ESP data are presented in an Annual ESP Technical Memorandum that the Corps posts to the following website:

<http://www.lrb.usace.army.mil/fusrap/nfss/index.htm#Documents>



# Sampling Locations

## TLD (Total 54) and RadTrack (Total 27)





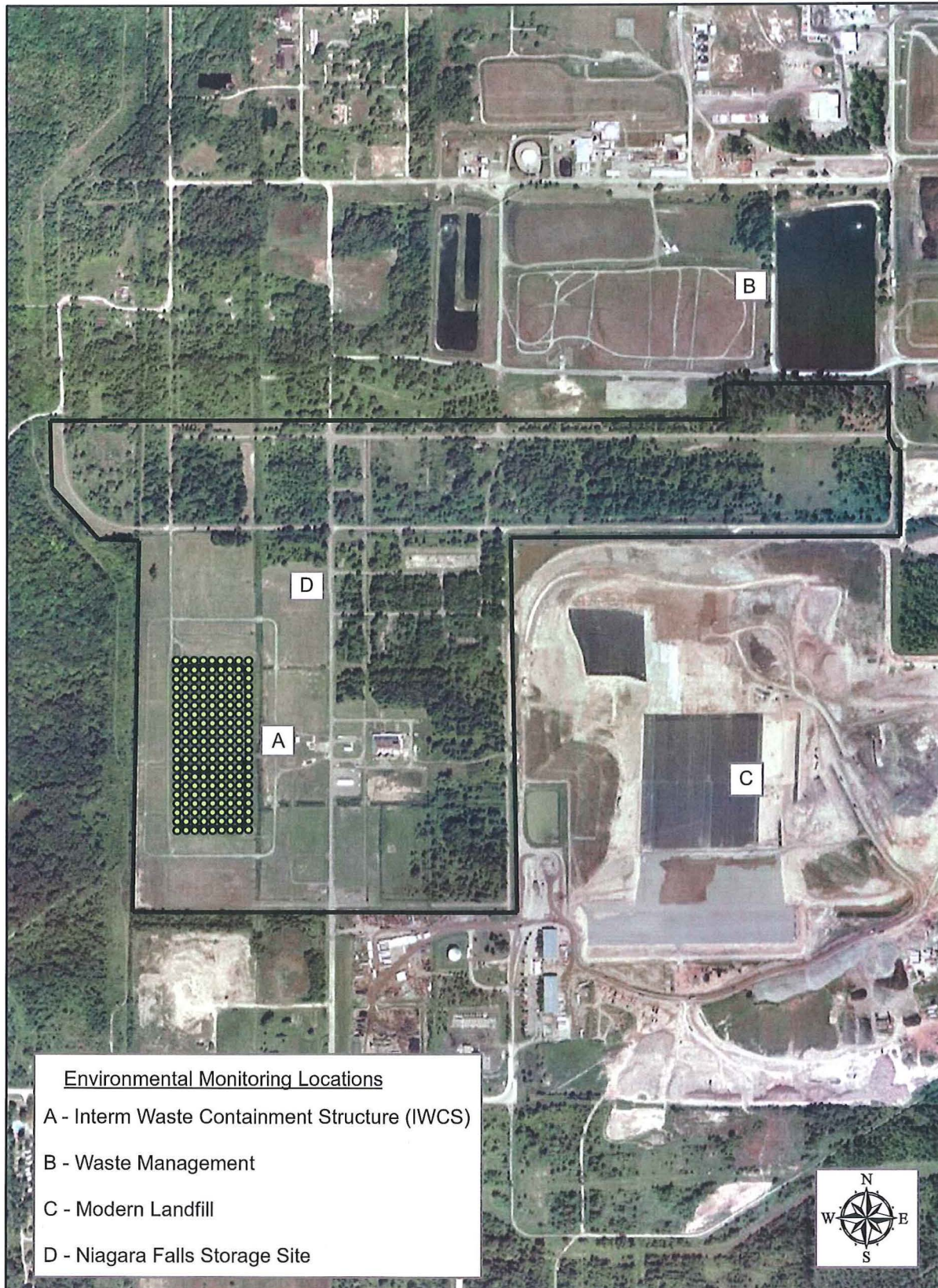
# On-Site Sampling Locations TLD and RadTrack





# On-Site Sampling Locations

## Radon Flux Locations (180 on IWCS and 3 Background)





# On-Site Sampling Locations All Groundwater Wells (101 Total)





# On-Site Sampling Locations

## Sampled Groundwater Locations (39 Total)





# On-Site Sampling Locations

## Surface Water and Sediement Locations (11 Total)

