NIKO VILLANUEVA, PE

Education

B.S., Civil & Environmental Engineering, University of Illinois at Chicago, 2013

Professional Licenses

Professional Engineer – Illinois

Specialty Certifications

Troxler Nuclear Gauge Safety plus HAZMAT Technician Certified
American Red Cross First Aid and CPR Certified

Professional Experience

As a Civil Engineer, Mr. Villanueva provides engineering and drafting support for environmental and waste management solutions including municipal solid waste landfills, coal combustion residual landfills, and composting facilities for compliance with local, state, and federal regulatory agencies. He performs engineering modeling and analyses for various landfill systems such as leachate and gas collection and control systems, leachate generation analyses, foundation analysis, pipe strength calculations, bearing capacity calculations, and storm water management. He also develops cost estimates and material quantities for construction and engineering projects. Additionally, Mr. Villanueva performs field technician duties including CQA officer tasks and responsibilities, and field monitoring for landfill bottom liner systems, final cover systems, landfill gas management systems, leachate management systems, and groundwater sampling.

Municipal Solid Waste Landfills

Zion, Illinois, Landfill Expansion Design. Designed the storm water management system for a vertical and horizontal landfill expansion using HydroCAD storm water modeling software. The storm water management plan included storm water terrace bench and ditch design, basin design, and staged-discharge culvert design. Mr. Villanueva also assisted in drafting design and hydrogeologic drawings and details of the final permit application submittal.

Effingham County, Illinois, Landfill Design. Assisted in drafting the design and hydrogeologic investigation drawing sets using AutoCAD Civil 3D for a new landfill permit application. Also assisted in leachate collection system design and storm water design for the new landfill. Utilized the Hydrologic Evaluation of Landfill Performance (HELP) modeling software to analyze leachate generation rates in the landfill, as well as HydroCAD software to prepare a hydrologic model of existing and proposed site conditions.

Davis Junction, Illinois, Landfill Expansion Design. Developed the storm water management system for a vertical and horizontal landfill expansion design. Prepared the storm water management plan and design for a landfill permit application. Tasks performed in the design of the storm water management plan included using TR-55 and HydroCAD to calculate runoff from delineated on- and off-site watershed areas, using discharge amounts derived from TR-55 and HydroCAD to determine diversion and conveyance network sizes and locations, using TR-55 and HydroCAD to calculate volume of the detention basin and design the staged-discharge system based on calculated allowable release rate and runoff from the site. The storm water management plan included storm

water ditch design, detention basin design, and staged-discharge culvert design. Also assisted in drafting design drawings and details for the permit application.

Peoria County, Illinois, Landfill Expansion Design. Involved in the design and geotechnical analysis of a horizontal and vertical landfill expansion. Utilized the HELP modeling software to analyze leachate generation rates in the landfill, as well as foundation stability calculations, bearing capacity calculations, and settlement analysis using SLIDE software. Assisted in cost analysis of expansion activities such as soil cut-fill volume, construction activities, and associated unit costs. Additionally, he assisted in drafting the application design drawing set using AutoCAD Civil 3D.

Webb County, Texas, Landfill Design. Prepared the storm water management plan and design for a new landfill siting application. Tasks performed in the design of the storm water management plan included using HydroCAD to calculate runoff from delineated on- and off-site watershed areas, using discharge amounts derived from TR-55 and HydroCAD to determine diversion and drainage channel sizing, and using TR-55 and HydroCAD to calculate detention basin volume based on calculated allowable release rate and runoff from the site. Assisted in creating application figures in demonstration of redesigned storm water management features.

Kent County, Michigan, Landfill Closure Plan and Gas Management. Prepared the soil staging plan and design for re-graded final cover at the legacy landfill (pre-Subtitle D). Tasks performed included using AutoCAD for volumetric analysis of final cover grading requirements, developing soil staging plan, preparing site construction schedule, preparing CQA and erosion control plans, and using AutoCAD for drafting the proposed final cover design drawing set. Also worked as part of a team to design a temporary gas collection system.

Napa County and Santa Cruz County, California, Non-Water Release Corrective Action Plans. As part of the non-water release corrective action plan (NWR-CAP) efforts, performed seismic characterizations, seismic hazard evaluations, and stability analyses of two municipal solid waste landfills to determine impacts due to a "Maximum Credible Earthquake" (MCE) event. Based on the results of these evaluations, prepared Seismic Characterization Reports (SCR) and developed cost estimates for corrective actions as part of the NWR-CAP required by the Regional Water Quality Control Board.

Hillside, Illinois, Field Monitoring. Experienced in Leachate Liquid Level monitoring for monthly reporting. Developed potentiometric maps from liquid level monitoring events in order to evaluate leachate elevation within the landfill. Assisted Senior Project Managers in high heat/pressure event data management and trend analysis. Utilized AutoCAD Civil 3D software to analyze and model settlement rates in the landfill to assist in monthly assessment reports.

Industrial Waste Sites

Lawrence, Kansas, Landfill Design. Responsible for the development of the base liner system and final cover system, as well as geotechnical calculations for a Coal Combustion Residual (CCR) disposal facility design modification to achieve compliance with the CCR Rule (40 CFR Part §257) and state regulations. The calculations consisted of several analyses including slope stability, bearing capacity, waste and foundation settlement, and geosynthetic stress and strain evaluations. Slope stability analyses were performed using SLIDE software and numerous calculations were performed using Microsoft Excel. Used AutoCAD Civil 3D to design the base liner and final cover systems for future waste cells.

Lawrence, Kansas, Construction Quality Assurance (2021). Served as the on-sight CQA officer responsible for the oversight of the Cell 1 and Cell 2 Berm and Final Cover construction activities, as well as the site storm water conveyance feature construction at the CCR disposal facility. Duties

included Nuclear Density Gauge calibration and moisture/density tests; Shelby Tube sample collection; organization of material testing of soils (proctors, hydraulic conductivity, soil type, grain size, etc.); and conformance with the CQA plan and design parameters. Also responsible for CQA acceptance reporting.

Lawrence, Kansas, Construction Quality Assurance (2018). Served as the on-sight CQA officer responsible for the oversight of the Cell 2 and Cell 3 Berm and Final Cover construction activities, as well as the Cell 4 base liner development at the CCR disposal facility. Duties included Nuclear Density Gauge calibration and moisture/density tests; Shelby Tube sample collection; organization of material testing of geosynthetics and soils (proctors, hydraulic conductivity, soil type, grain size, shear strength parameters, interface friction testing); conformance with the CQA plan and design parameters; oversight of geomembrane installation, seaming, seam testing and repairs; and CQA acceptance reporting.

St. Marys, Kansas, Construction Quality Assurance (2021). Served as the on-sight CQA officer responsible for the oversight of the Phase 1 A/B Berm and Final Cover construction activities at the CCR disposal facility. Duties included general construction oversight; Shelby Tube sample collection; organization of material testing of soils (proctors, hydraulic conductivity, soil type, grain size, etc.); and conformance with the CQA plan and design parameters. Also responsible for CQA acceptance reporting.

Bradford County and Susquehanna County, Pennsylvania, Impoundment Design. Responsible for the development of and assistance with the application submittal for two residual waste storage permits for Oil and Gas wastewater Impoundments. Responsibilities included the design of the base liner, sump, and leachate collection systems, as well as compiling cost estimates and bid quantities for construction activities. Additionally, performed site drainage analyses in HydroCAD and designed site storm water features to improve facility drainage conditions. Calculations included the evaluation of runoff from delineated on- and off-site watershed areas, using discharge amounts derived from TR-55 and HydroCAD to determine diversion and drainage conveyance feature sizing, and using TR-55 and HydroCAD to calculate peak discharge rates and runoff from the site.