

R12 Characterization Model

HU	Stratigraphy	Classification	Status/Discussion
HU1	Qal, Ql	Qal confined to areas near Ohio River and along local streams and drainage. Loess (HU1/Ql) discretized based on vertical continuity of silt/clay from shallowest occurrence to to a change in material at depth bgs. Base of loess unit identified by more than trace of sand +/- gravel noted in interval (generally 10-20' bgs). At depths > 16' bgs material property changes were used in absence of sand/gravel in interval notes.	
HU2	Qss	<u>Hydrogeologic Unit 2 discretized into 3 zones:</u> 1) HU2 = UCD material immediately below Loess but above first encounter of UCD coarse material (Sand/Gravel) being the primary interval material; 2) HU2A = first horizon of UCD coarse material occurring as the primary interval material encountered below Loess; & 3) HU2B = UCD change to finer material (vf-f sand, MI or CI) immediately below HU2A horizon. Bottom of HU2B is top of HU3 (fine material contiguous to top of RGA)	Further discretization of HU2B coarse material horizons spatially may be possible. % Sand/Gravel (coarse materials) vs. % Silt/Clay (fine materials) was calculated for HU2 materials from 1) base of Loess to top of HU3; and 2) HU2 + HU3 from base of Loess to top of HU4/5.
HU3	Qss	HU3 discretized as silt/clay ~ clay/silt (MI +/- CI) intervals immediately above and contiguous to top of coarse material comprising top of aquifer. As aquitard, HU3 is not a single silt/clay, clay/silt interval, lithology or unit. Instead, HU3 is comprised of coincidentally contiguous intervals above RGA material. Unit discretized up from the top of RGA to the base of coarse materials in lower HU2 (HU2B).	Vertical definition of HU3 in database is based on contiguous vertical occurrence of MI +/- CI intervals above LCD materials at a specific location.
HU4T	QTc	Discretization of HU4T (Tertiary colluvium) into two horizons: 1) HU4T = coarse material overlying Porters Creek Clay on upper & lower PCC terrace south of PGDP (generally 340+' amsl and above), and; 2) HU4Tlwr (lower) which occurs on the lower PCC Terrace east and south, southeast of PGDP industrial area.	At their lowest elevations of occurrence in the vicinity of the off-site Northeast Plume, HU4T lower gravels and sands overlap upper extent elevations of LCD gravel and sand north of the terrace .
HU4	UCD/LCD	HU4 materials characterized as as UCD basal sand (silty) +/- 'clean' uppermost LCD sand.	Deprecate UCD basal sand characterization and combine with LCD HU4 sand material. Provenance of 'basal sand' not defined. Spatial evaluations have not indicated mappable trend between 'UCD basal sand (silty sand) and clean upper 'LCD' sand in HU4.
HU5	LCD	HU5 comprises main body of RGA and includes LCD gravel/sand and sand/gravel material intervals.	LCD Gravel/Sand + Sand/Gravel intervals mapped with HU4/5A as 'Regional Gravel Aquifer (RGA)' and without HU4/5A as 'RGA Gravel'
HU5A	LCD/TKcm	HU5A is comprised of sands and random gravel that occurs immediately below and contiguous to HU5 materials and above fine upper McNairy Formation and Porters Creek Clay materials.	Provenance of all HU5A materials not clearly identified in site documents and literature
HU6	TKcm/Tpc	1) HU6 = defined as upper McN Formation/Porters Creek Clay fines underlying coarse materials of aquifer. Includes upper McNairy Formation vf-f sand/silty sand below fines; The top of HU6 is comprised of the fine materials acting as aquitard underlying RGA which includes Cretaceous upper McNairy Formation fines and lower Tertiary Porters Creek Clay fines as noted in site literature & PGDP project	Possible reclassification of HU6 to distinguish upper McN Formation Sd, SM, CI and Gr above Levings Member. Consideration of identification of Cretaceous Owl Creek Formation and Cretaceous-Tertiary Clayton Formation material types along with 'PCC Residuum'.
HU6B	TKm	Levings Member;	
HU6C	TKm	HU6C = Lower McNairy Formation;	
HU6D	TKm	as Rubble Zone.	
HU7	MLs	Mississippian Limestone Bedrock	Not further characterized