Sampling Strategy Plan
Sector 1 Other Sampling
(Prior to Flowable Fill Install)

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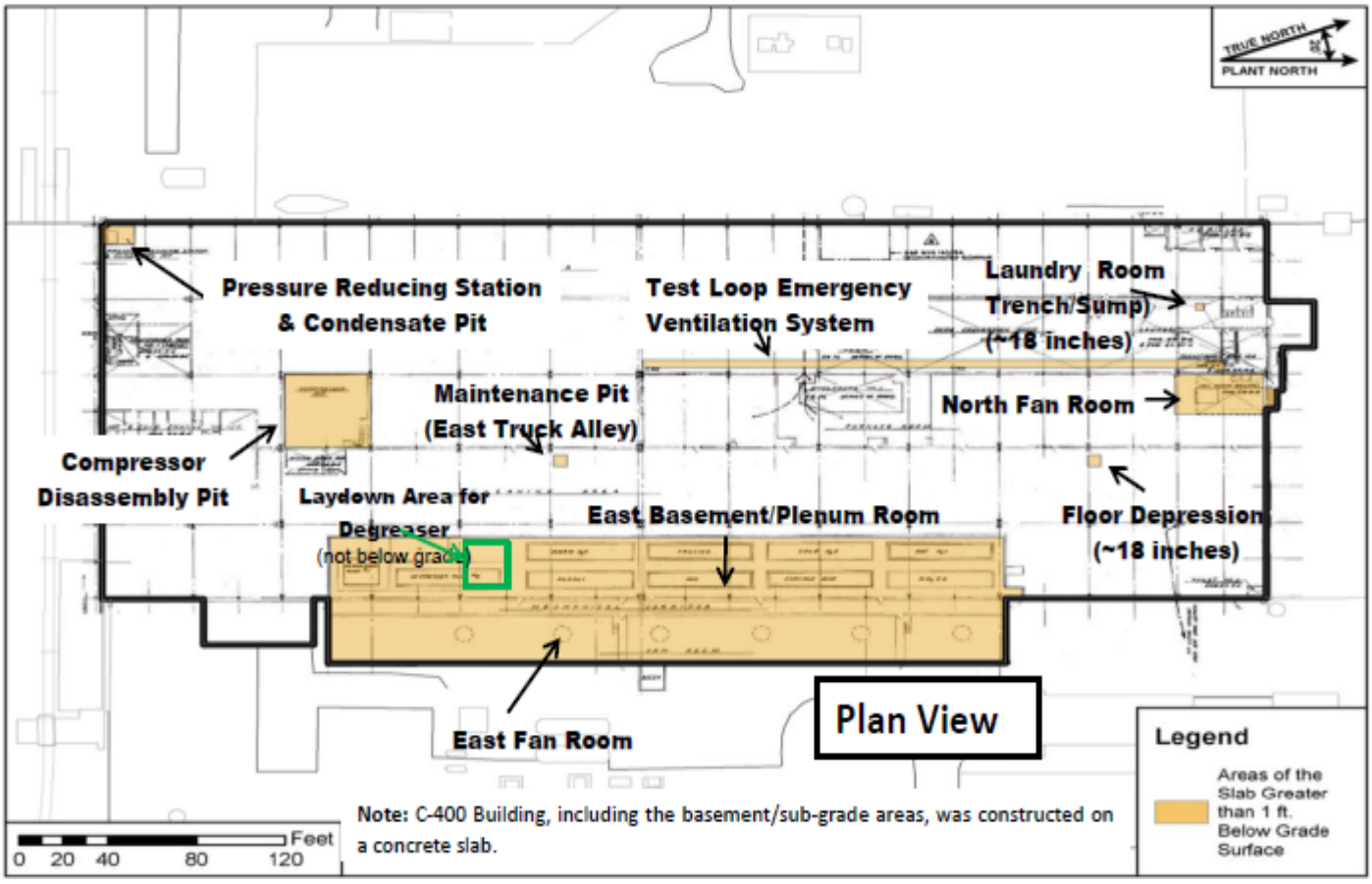
Location


TRUE NORTH
PLANT NORTH
Pressure Reducing Station & Condensate Pit
Test Loop Emergency Ventilation System
Laundry Room Trench/Sump (~18 inches)
Maintenance Pit (East Truck Alley)
North Fan Room
Compressor Disassembly Pit
Laydown Area for Degreaser (not below grade)
East Basement/Plenum Room
Floor Depression (~18 inches)
East Fan Room
Plan View
Legend
Areas of the Slab Greater than 1 ft. Below Grade Surface
Feet
0 20 40 80 120
Note: C-400 Building, including the basement/sub-grade areas, was constructed on a concrete slab.

Area History

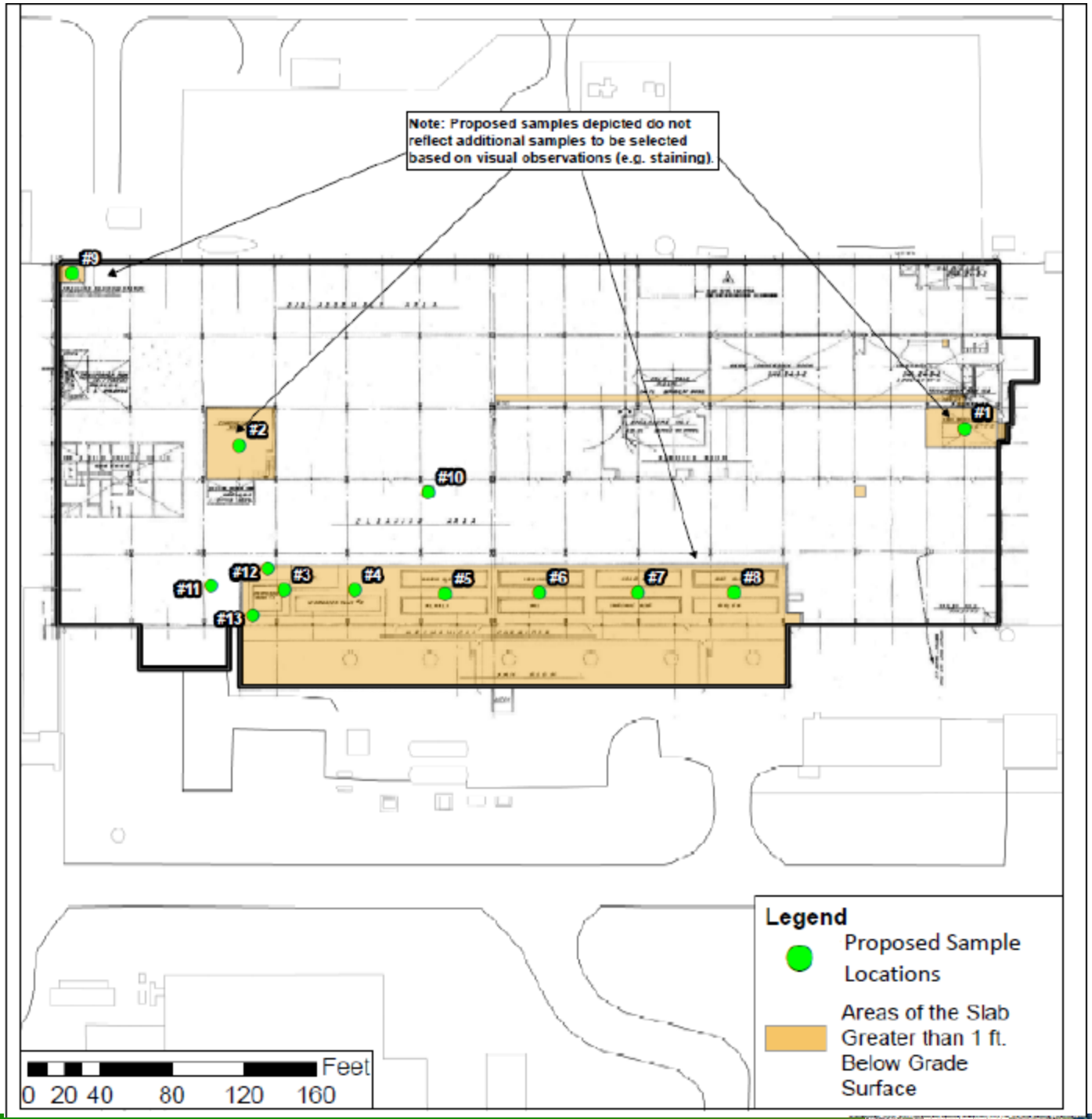
Table 1. Sub-grade Area Process History

Basement/Area	Process History
East Basement/Plenum	The Plenum Room is a partial basement area that lies directly beneath and houses the sub-grade portion of the dip tanks, degreaser tank, and associated piping. The dip tanks were operated as open-top vats used to clean and pickle metal parts. Each tank was designed with a skirt around the top of the tank that drew a vacuum to remove fumes from the surface of the tank down to the underlying Plenum Room and into the east exhaust fan room where the fumes then were vented through several stacks to the outside. Direct discharges from the dip tanks would travel through the underlying piping and discharge to the acid drain system and ultimately to the C-403 Neutralization Pit in the northeast corner of the C-400 Complex. Any overflow or leaks from the dip tanks would discharge to the underlying Plenum Room and flow into the Plenum Room floor drains that also discharged to the acid discharge system. The East Basement area historically housed the TCE product storage and the sub-grade portion of TCE degreasing tank/equipment. A basement sump is located next to the base of the TCE degreaser that discharged to the storm sewer system located on the southeast corner of the C-400 Cleaning Building.
East Fan Room	Houses ventilation fans and motors and is adjacent to the plenum. Exhausts vapors from the Plenum Room to the building's large stacks.
Compressor Disassembly Pit	Disassemble, clean, and rebuild compressors and equipment.
Pressure Reducing Station & Condensate Pit	Pit captured building steam condensate and sent it C-600 Steam Plant for recycle.
Maintenance Pit (East Truck Alley)	Used to allow maintenance worker to work on elevated equipment from below.
North Fan Room/Ventilation System	Housed emergency fan and equipment to evacuate air from the diffusion test loop.
Laundry Room Floor Trench/sump	Concrete floor trench that received laundry water that discharged to the laundry room sump.
Floor Depression	No known uses (approximately 18-inch depression).
Laydown Area for Degreaser (Main Ground-Level Slab)	Degreased equipment was laid in these areas to drain. Any spills and/or releases from the equipment would go to floor drains piped to the acid discharge system.

Approach

- Sampling will include:
  - Sampling concrete floors and walls (including stained areas)
  - Surface coatings on walls, floors, and equipment
  - Caulk
  - Floor drain piping (if material is present)
- The approach also will include collection of field parameters, video borescopes, sampling methodologies, and analytical methods prior to adding flowable fill and initiating demolition (Removal Action) of the C-400 Cleaning Building at PGDP
- Results of this sampling is planned to be included in a Preliminary Characterization Summary/Report (secondary document) and then formally transmit the document as an appendix to the D1 RI/FS Work Plan (primary document)

Proposed Sampling Locations



Sampling Summary

	Subject(s) of Sampling	Sample Type	Planned Analyte Family
Concrete	Basement, Subgrade Pit Concrete Floors	Crushed Concrete Core	VOCs, Metals, PCBs, SVOCs, Radionuclides,
	Detrex Laydown Area and Degreaser Sump	Crushed Concrete Core	PCBs
	Visual Stains on Basement and Subgrade Pit Walls, Floors, and Piers	Crushed Concrete Core	PCBs, Radionuclides
Construction Coatings	Basement and Subgrade Pit Walls and Floors	Waterproof Coating	PCBs, Metals, Radionuclides
	Basement and Subgrade Pit Walls, Floors, and Piers and Remaining Equipment	Paint	PCBs, Metals, Radionuclides
Caulking Compounds	Basement and Subgrade Pit Walls, Floors, and Piers and Remaining Equipment	Material	PCBs
Sludge	Floor Drain Pipes	Sludge (Liquid/Solids)	VOCs, Radionuclides, Metals, SVOCs, PCBs

Notes:
[a] Selected by visual observation in the field (e.g., staining)

Sector 1 (Other Sampling) Analyses

Targeted Sampling Approach

- Metals (chromium as total chromium)
- PCBs
- Radionuclides
- SVOCs
- VOCs (includes toluene)

Adaptation of Table 2.1 Significant Chemicals and Radionuclides of Potential Concern at PGDP

from *Methods for Conducting Risk Assessments and Risk Evaluations at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*

DOE/LX/07-0107&D2/R8/V1

Inorganic Chemicals		Organic Compounds				Radionuclides	
Analyte	CAS Number	Analyte	CAS Number	Analyte	CAS Number	Analyte	CAS Number
Aluminum	7429-90-5	Acenaphthene	83-32-9	~~Total Dioxins/Furans~~	~~1746-01-6~~	Americium-241	14596-10-2
Antimony	7440-36-0	Acenaphthylene	208-96-8	~~2,3,7,8-HpCDD~~	~~37871-00-4~~	Cesium-137+D	10045-97-3
Arsenic	7440-38-2	Acrylonitrile	107-13-1	~~2,3,7,8-HpCDF~~	~~38998-75-3~~	Neptunium-237+D	13994-20-2
Barium	7440-39-3	Anthracene	120-12-7	~~2,3,7,8-HxCDD~~	~~34465-46-8~~	Plutonium-238	13981-16-3
Beryllium	7440-41-7	Benzene	71-43-2	~~2,3,7,8-HxCDF~~	~~55684-94-1~~	Plutonium-239	15117-48-3
Boron	7440-42-8	Bromodichloromethane	75-27-4	~~OCDD~~	~~3268-87-9~~	Plutonium-240	14119-33-6
Cadmium	7440-43-9	Carbazole	86-74-8	~~OCDF~~	~~39001-02-0~~	Technetium-99	14133-76-7
~~Chromium III~~	~~16065-83-1~~	Carbon tetrachloride	56-23-5	~~2,3,7,8-PeCDD~~	~~36088-22-9~~	Thorium-230	14269-63-7
~~Chromium VI~~	~~18540-29-9~~	Chloroform	67-66-3	~~1,2,3,7,8-PeCDF~~	~~57117-41-6~~	Uranium-234	13966-29-5
Total Chromium	7440-47-3	1,1-Dichloroethene	75-35-4	~~2,3,4,7,8-PeCDF~~	~~57117-31-4~~	Uranium-235+D	15117-96-1
Cobalt	7440-48-4	1,2-Dichloroethane	107-06-2	~~2,3,7,8-TCDD~~	~~1746-01-6~~	Uranium-238+D	7440-61-1
Copper	7440-50-8	1,2-Dichloroethene (mixed)	540-59-0	~~2,3,7,8-TCDF~~	~~5127-31-9~~		
Fluoride	16984-48-8	trans-1,2-Dichloroethene	156-60-5	Total Carcinogenic PAHs	50-32-8		
Iron	7439-89-6	cis-1,2-Dichloroethene	156-59-2	Benz(a)anthracene	56-55-3		
Lead	7439-92-1	Dieldrin	60-57-1	Benzo(a)pyrene	50-32-8		
Manganese	7439-96-5	Ethylbenzene	100-41-4	Benzo(b)fluoranthene	205-99-2		
Mercury	7439-97-6	Fluoranthene	206-44-0	Benzo(k)fluoranthene	207-08-9		
Molybdenum	7439-98-7	Fluorene	86-73-7	Chrysene	218-01-9		
Nickel	7440-02-0	Hexachlorobenzene	118-74-1	Dibenz(a,h)anthracene	53-70-3		
Selenium	7782-49-2	Naphthalene	91-20-3	Indeno(1,2,3-cd)pyrene	193-39-5		
Silver	7440-22-4	2-Nitroaniline	88-74-4	Total PCBs	1336-36-3		
Thallium	7440-28-0	N-Nitroso-di-n-propylamine	621-64-7	Aroclor 1016	12674-11-2		
Uranium	NA	~~Pentachlorophenol~~	~~87-86-5~~	Aroclor 1221	11104-28-2		
Vanadium	7440-62-2	Phenanthrene	85-01-8	Aroclor 1232	11141-16-5		
Zinc	7440-66-6	Pyrene	129-00-0	Aroclor 1242	53469-21-9		
		Tetrachloroethene	127-18-4	Aroclor 1248	12672-29-6		
		Toluene	108-88-3	Aroclor 1254	11097-69-1		
		1,1,1-Trichloroethane	71-55-6	Aroclor 1260	11096-82-5		
		1,1,2-Trichloroethane	79-00-5	Vinyl chloride	75-01-4		
		Trichloroethene	79-01-6	Xylenes (Mixture)	1330-20-7		
				p-Xylene	106-42-3		
				m-Xylene	108-38-3		
				o-Xylene	95-47-6		

[1] This list of chemicals, compounds, and radionuclides was compiled from COPCs retained as COCs in baseline risk assessments performed at PGDP between 1990 and 2013 (i.e., DOE 1996a; DOE 1996b; DOE 1999a; DOE 1999b; DOE 2000a; DOE 2001; DOE 2005; DOE 2008; DOE 2010; DOE 2013).

[2] List may be added to during project scoping based on additional information.

Yellow cells with ~~strikethrough text~~ indicate COPCs that will not be analyzed for C-400 RI/FS.

Green cells indicate additional analytes, not identified as COPCs, that will be analyzed for C-400 RI/FS.

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