C-400 Building Basement Strategy
TSCA & Radiological Surveys

March 26, 2018

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TSCA/PCB Approach for C-400 Basement

- **Basement Fill:** C-400 basement area is proposed to receive "fill" as part of the deactivation process to support the following:
  - Prevent pooling of storm water during and after building demolition
  - Provide a stable working surface for safe operation of RI field equipment

- **Proposed RI Basement Scoping Samples:** Prior to adding "fill" to the basement area, preliminary RI scoping samples will be conducted of the concrete floor in the basement at select locations to support the following:
  - Determine if the basement floor contains sufficient contamination to serve as a source to the underlying environment media
  - Access ports will also be installed into the concrete floor to support future environmental sampling during RI sampling activities

- **Equipment Removal:** Prior to adding "fill", all equipment in the basement area will be removed (e.g., exhaust fans, ventilation duct work/gaskets)

RI/FS Scoping Samples

- No PCB equipment containing **PCBs ≥ 50 ppm** are known to have operated in the basement area (i.e., exhaust fan room, test loop area, etc.).
- Limited PCB samples exist with data quality uncertainties. Based on sample results identified to date, the only documented PCBs include the following:
  - Ventilation duct gaskets in basement have been/are being sampled for PCBs; results to date are low (**< 50 ppm**) but above the quantitation level for PCBs
  - Historic sampling data from applied paint on the walls indicate PCBs **> 50 ppm** are present (i.e., **bulk product waste**)
  - Historic sample results (lab qualified data) of a small quantity of sludge-like material obtained from one basement sump contains PCBs less than **< 50 ppm.** The sump sludge will be removed, containerized, and appropriately dispositioned prior to sampling concrete floor in basement and adding the fill.
- Basement "fill" will not preclude future sampling during RI field sampling if such data is needed to support remedy selection under the ROD.

TSCA/PCB Approach for C-400 Basement

- The basement slab/fill will remain after building demo until a final cleanup decision is made.
- The basement slab/fill and the underlying environmental media will be subject to a final remedial decision/ROD under CERCLA following the RI/FS.
- The ARARs for both the CERCLA removal action for building demo and the final CERCLA remedial action will have the option for pursuing risk-based disposal under the following:
  - PCB Remediation Waste – 40 CFR 761.61(c)
  - PCB Bulk Product Waste – 40 CFR 761.62(c)

TSCA/PCB Approach for C-400 Basement (cont.)

- The TSCA CA identifies the C-400 Building as containing gaskets as having PCBs **> 500 ppm** – the limited data identified/collected to date does not confirm the presence of the PCBs in gaskets in the basement **> 50 ppm**.
- The TSCA CA provides for leaving PCB-contaminated **(>50 ppm but <500 ppm)** slabs in place longer than the work completion date (e.g., 10 years after the work initiation date for each building):
  - The TSCA CA requires PCB contaminated slabs be maintained according to the requirements of 40 CFR 761.30 except for historical spills as defined in Section 2(C) shall be maintained in accordance with Section 2(C) of the TSCA CA.
- The proposed sampling will be used to confirm that no PCB-contaminated slabs are present in the basement with PCBs greater than **50 ppm**.
- TCSA CA/regulations allow for sampling and disposal under CERCLA using a risk-based approach

Radiological Surveys

- FRNP has evaluated the proposed detector/meter for large area alpha/beta/gamma survey
- In lieu of using the proposed detector/meter, FRNP will perform basement survey(s) of the areas planned for fill using current radiological instruments once material/equipment planned for removal has been completed.
- Radiological Surveys are primarily for health and safety, not necessarily for characterization
- Surveys provide indicator if the location is radiologically contaminated
- Survey data can be considered screening data to confirm concrete coring location (near floor drains) are “worst case”

Radiological Surveys (Cont.)

- Floors are considered more representative of the past spills as the process tanks were suspended from the floor not attached to the walls. Therefore the collection/concentration of material would have accumulated under the tanks. In addition, there were gaps between the tanks and the wall.

- Core samples will be cut from the locations using physical means which limit the disruption of the contamination on the surfaces (i.e. cold-cutting methods to avoid the loss of contaminants by volatilization at high temperatures).

C-400 Building Concrete Core/Slab Sampling in Areas Planned for Fill

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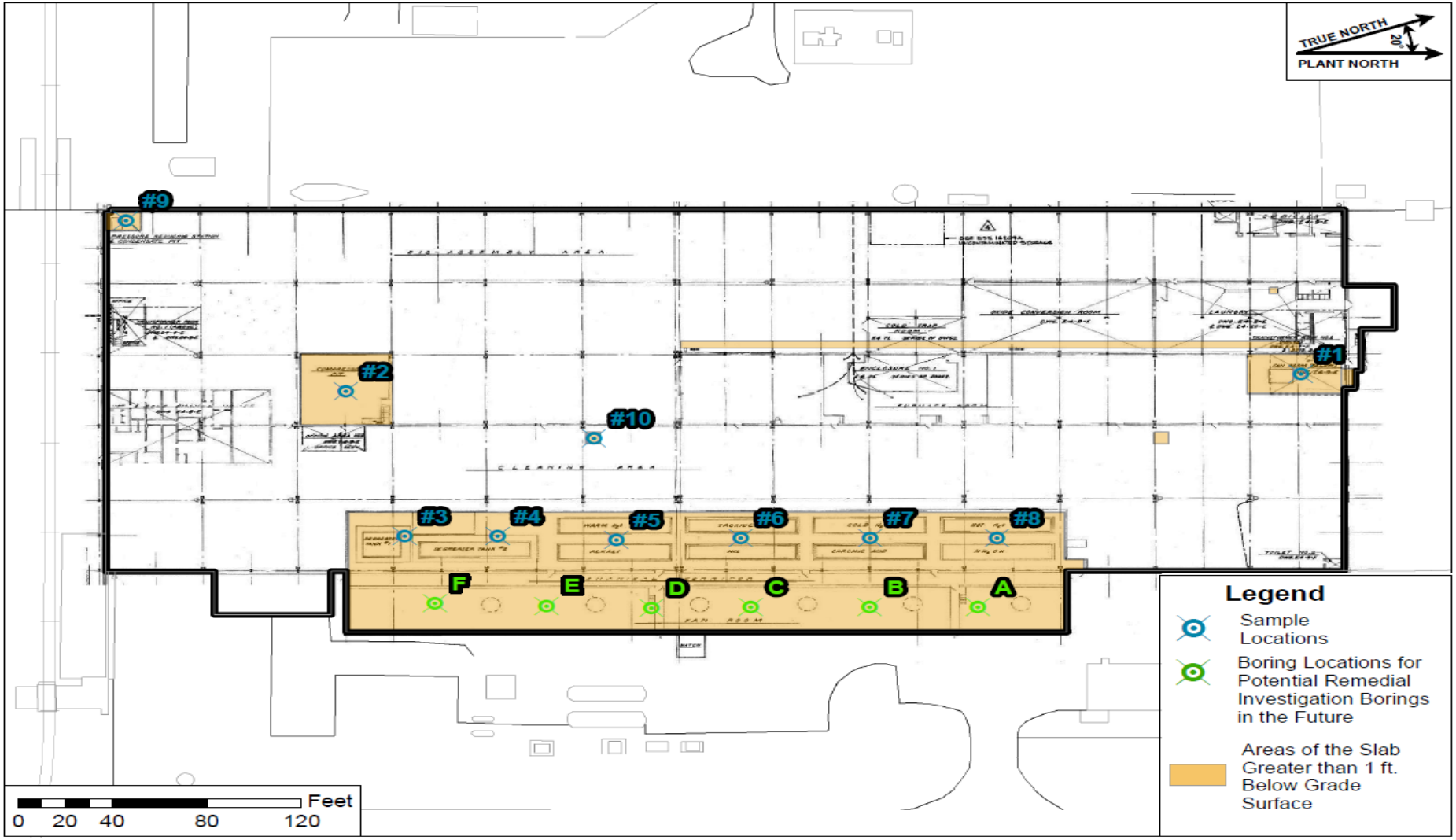
Proposed Sampling Locations



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Significant Chemicals and Radionuclides of Potential Concern at PGDP (Table 2.1 of Risk Methods Document)

- Utilize analytical list from Risk Methods Document with the following exceptions:
  - Analysis for Total chromium (i.e., not Chromium III and Chromium VI)
  - Remove pentachlorophenol
  - Remove dioxins/furans
  - Add toluene

Table 2.1. Significant Chemicals and Radionuclides of Potential Concern at PGDP[1,2]

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

Proposed Sampling Locations

- **Sample Point #1 -**
  - Furnace Area Fan Room
  - Analyze for Metals, PCBs, and Radionuclides as discussed on previous slides (Slides 10 & 11)
- **Sample Point #2 –**
  - Compressor Disassembly Pit Area
  - Analyze for VOCs, SVOCs, Metals, PCBs, and Radionuclides as discussed on previous slides (Slides 10 & 11)
- **Sample Point #3 –**
  - Degreaser Pit Area
  - Analyze for VOCs, SVOCs, Metals, PCBs, and Radionuclides as discussed on previous slides (Slides 10 & 11)

Proposed Sampling Locations

- **Sample Point #4 –**
  - Degreaser Pit Area
  - Analyze for VOCs, SVOCs, Metals, PCBs, and Radionuclides as discussed on previous slides (Slides 10 & 11)
- **Sample Point #5 –**
  - Near floor drain between warm H_20 and alkali dip tanks (Plenum room)
  - Analyze for VOCs, SVOCs, Metals, PCBs, and Radionuclides as discussed on previous slides (Slides 10 & 11)
- **Sample Point #6 –**
  - Near floor drain between Troxide® dip tanks (Plenum room)
  - Analyze for VOCs, SVOCs, Metals, PCBs, and Radionuclides as discussed on previous slides (Slides 10 & 11)

Proposed Sampling Locations

- **Sample Point #7 –**
  - Near floor drain between cold H_20 and chromic acid dip tanks (Plenum room)
  - Analyze for VOCs, SVOCs, Metals, PCBs, and Radionuclides as discussed on previous slides (Slides 10 & 11)
- **Sample Point #8 –**
  - Near floor drain between HCL and rinse dip tanks (Plenum room)
  - Analyze for VOCs, SVOCs, Metals, PCBs, and Radionuclides as discussed on previous slides (Slides 10 & 11)
- **Sample Point #9 -**
  - Pressure/Condensation Pit
  - Analyze for VOCs, SVOCs, Metals, PCBs, and Radionuclides as discussed on previous slides (Slides 10 & 11)
- **Sample Point #10 –**
  - Maintenance Area Pit
  - Analyze for VOCs, SVOCs, Metals, PCBs, and Radionuclides as discussed on previous slides (Slides 10 & 11)

Proposed Boring Locations
Used for Future Remedial Investigative Efforts

- **Boring Locations A, B, C, D, E, and F**
  - Shown on Slide #9

- **No Concrete Core Sampling**

- **Used for Future Remedial Investigative Efforts**
  - Support future sub slab sampling efforts
  - Step outs in the event of hitting refusal of Sample Points 3, 4, 5, 6, 7, and 8 in the East basement /Plenum room