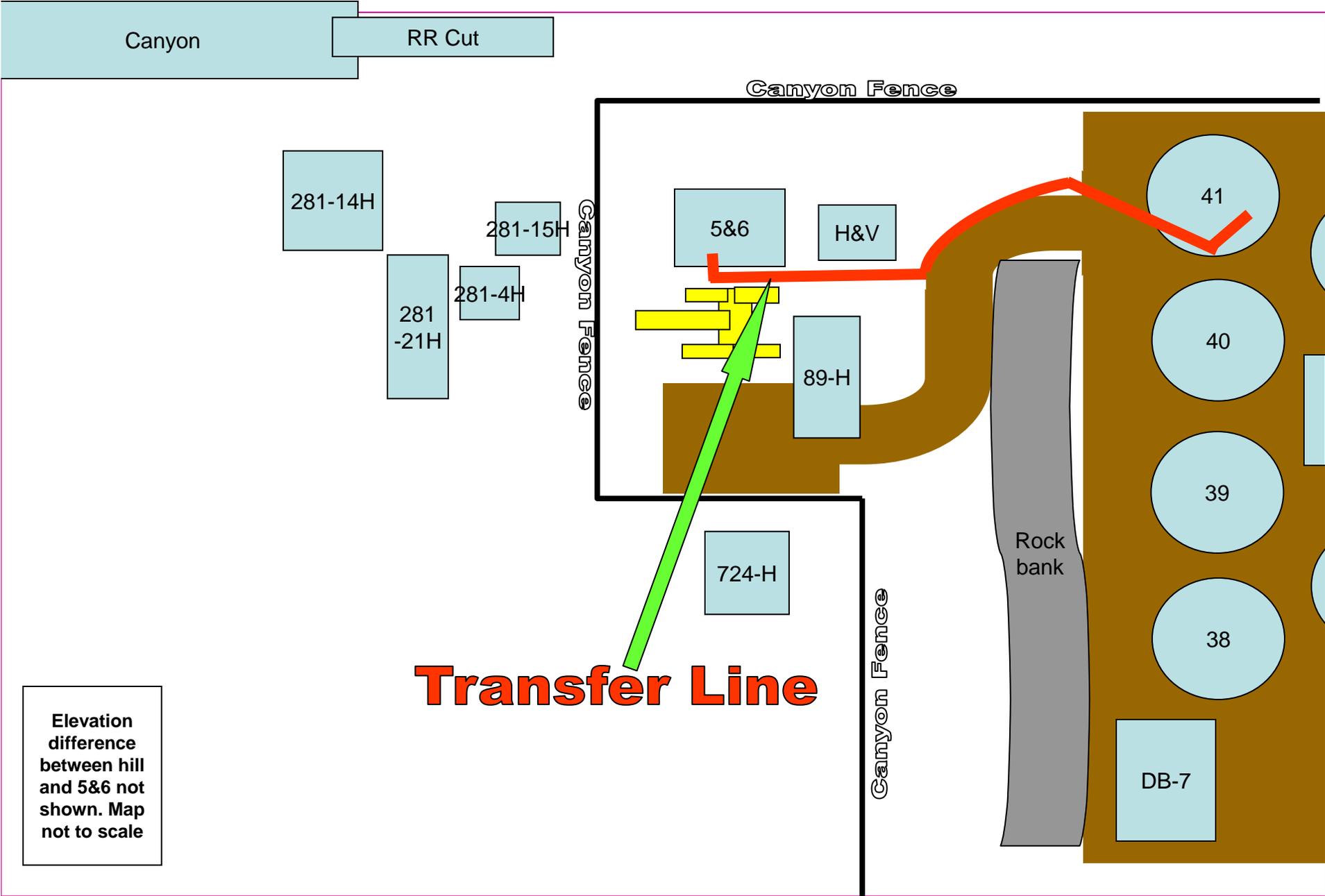


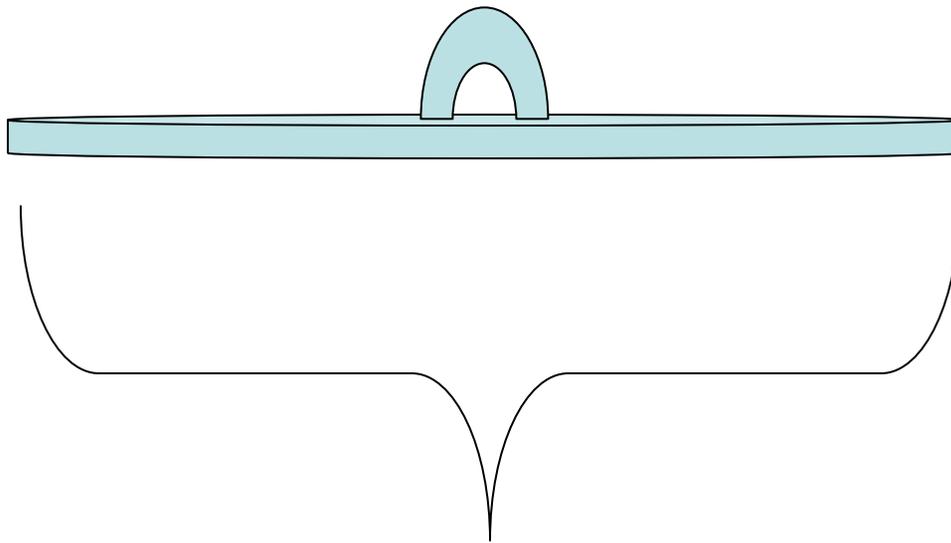
HEU Above Ground Line



Pump Tank 6 Agitator Removal



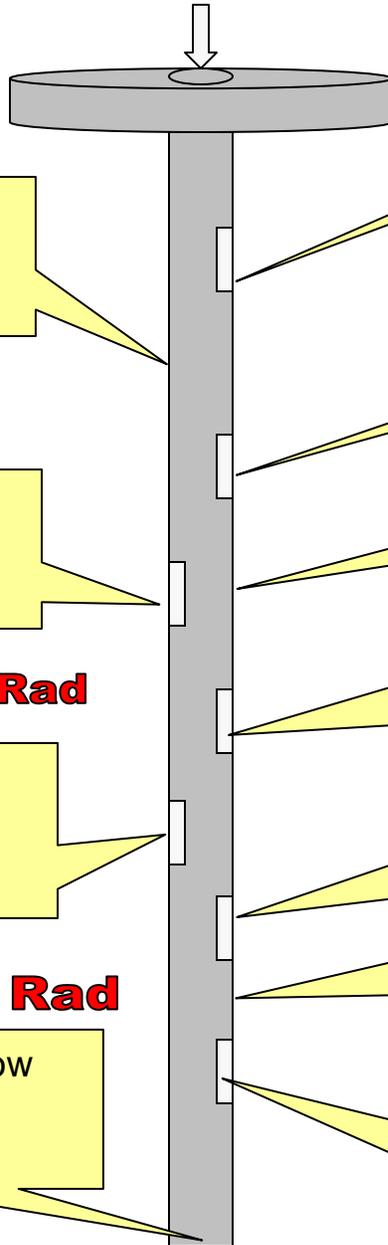
Pump Tank 6 Cover Plate



**Plate diameter is 5ft. Dose rates from bottom of plate
at 3 ft 150 mr/hr and ~30 RAD/hr.**

PT-6 Dosimetry Array Log sheet

DRY-WELL Facing Agitator →



Open window
TLD#
EPD#

76 R
2774 Rad
EPD readings

Closed window
TLD#
EPD#

EPD readings

Open Window
TLD#
EPD#

38 R
4260 Rad
EPD readings

Open window
TLD#
EPD#

EPD readings
101 R 14,000 Rad

Closed window
TLD#
EPD#

EPD readings

Open window
TLD#
EPD#

EPD readings

Open Window
TLD#
EPD#

EPD readings
79 R 4900 Rad

Open window
TLD#
EPD#

40 R
3145 Rad
EPD readings

Closed window
TLD#
EPD#

EPD readings

Bottom closed window
TLD#
EPD#

EPD readings
140 R

Open window
TLD#
EPD#

EPD readings

Pump Tank 6 Agitator Removal



Projected Agitator Dose Rates



Agitator w/ 0.1cm Cs-137 at 21 Ci/gal
Unshielded Dose Rates

ft	mrem/hr	rad/hr
1	12,000	3,600
3	3,300	660
5	1,250	125
10	340	
20	90	
40	22	
80	6.0	
100	4.0	
120	2.8	
140	2.0	
160	1.6	
180	1.2	
200	1.0	
250	0.6	
280	0.5	
300	0.4	
350	0.3	
400	0.3	
450	0.2	
500	0.2	
550	0.1	

Blade w/ 1 cm of Cs-137 at 21 Ci/gal

ft	mrem/hr	rad/hr
0.167	110,000	44,000
1	6,400	1,920
3	1,400	280
5	628	
10	189	

Pump Tank 6 Agitator Removal



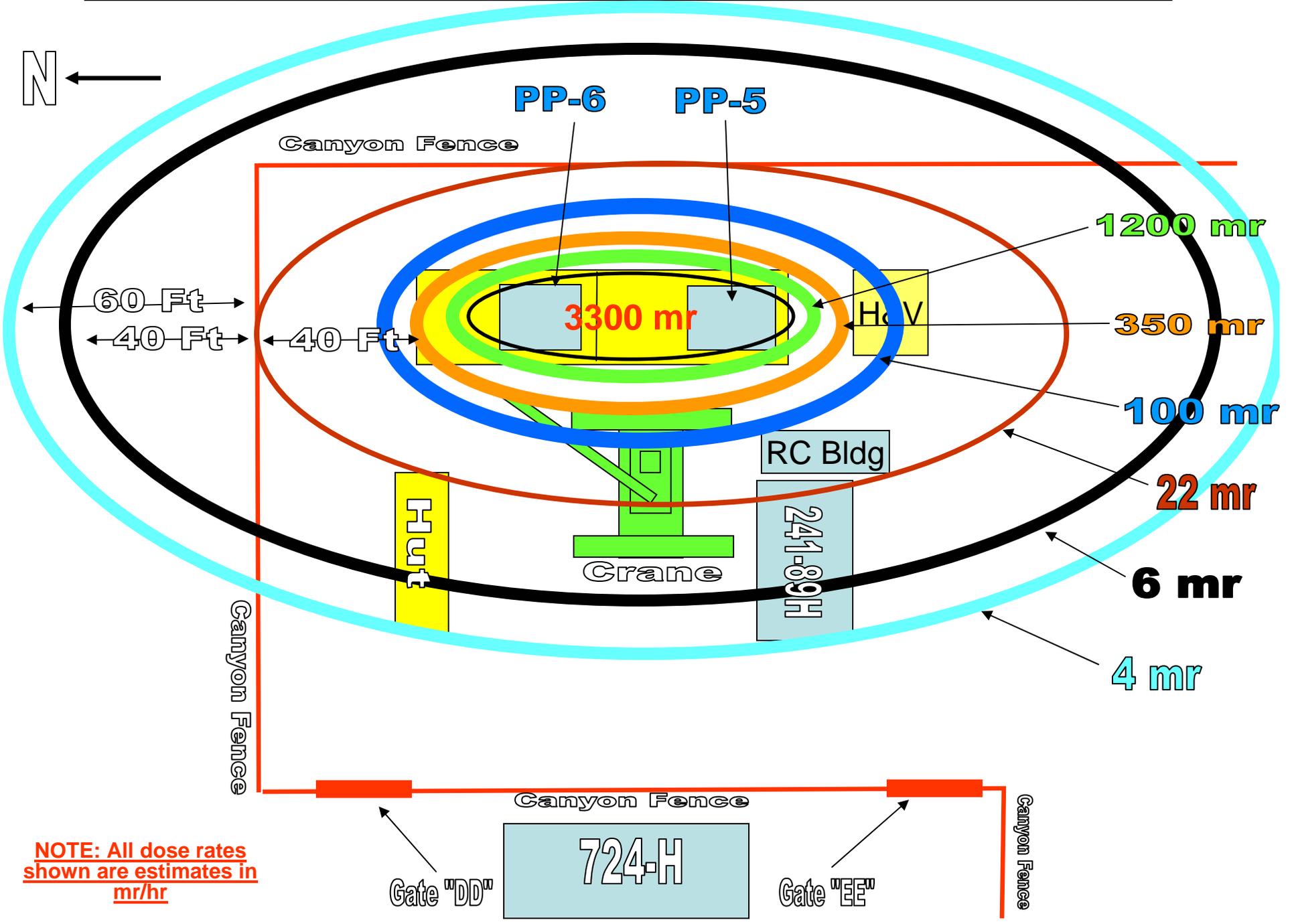
Pump Tank 6 Agitator Removal



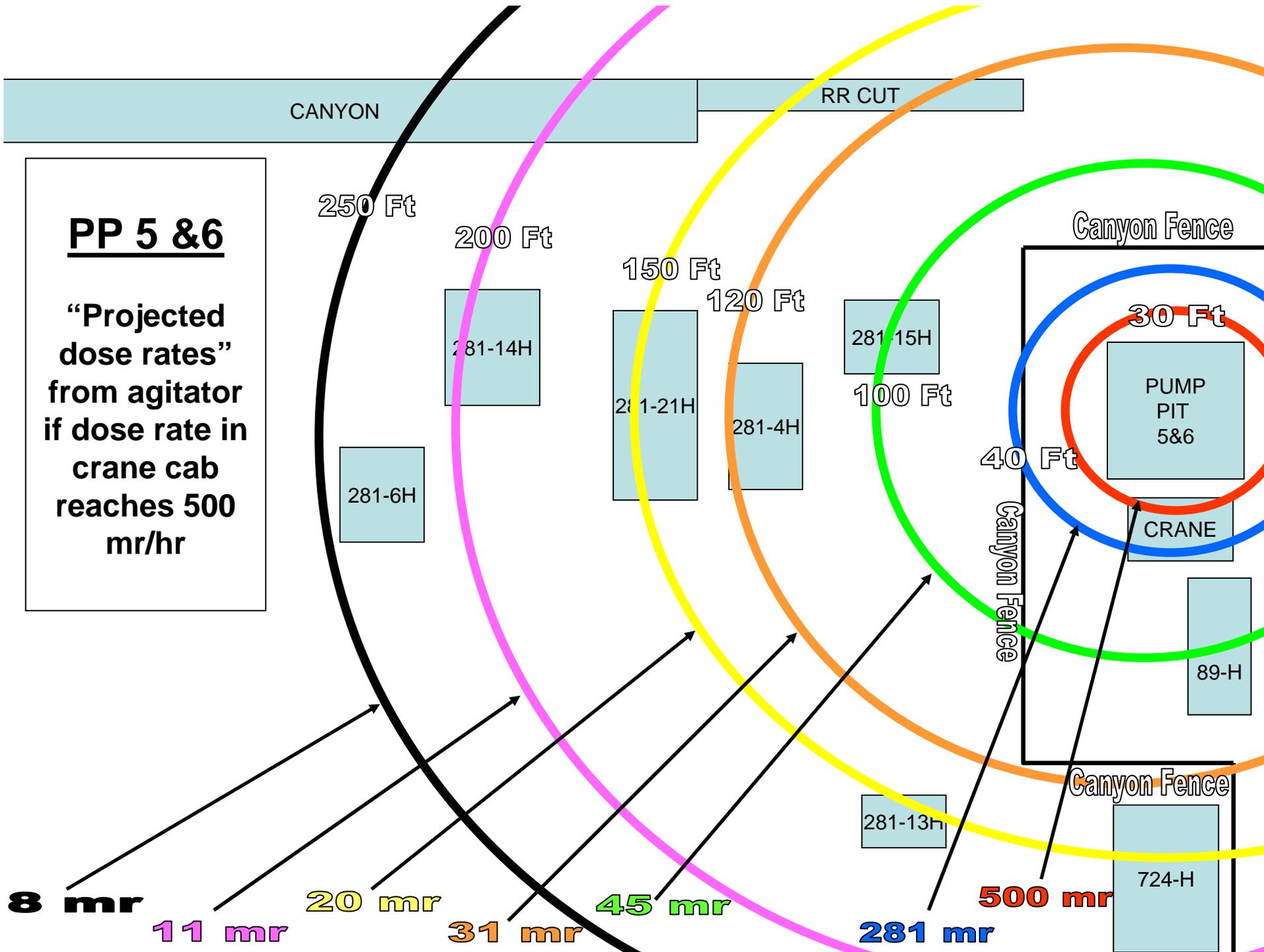
Pump Tank 6 Agitator Removal



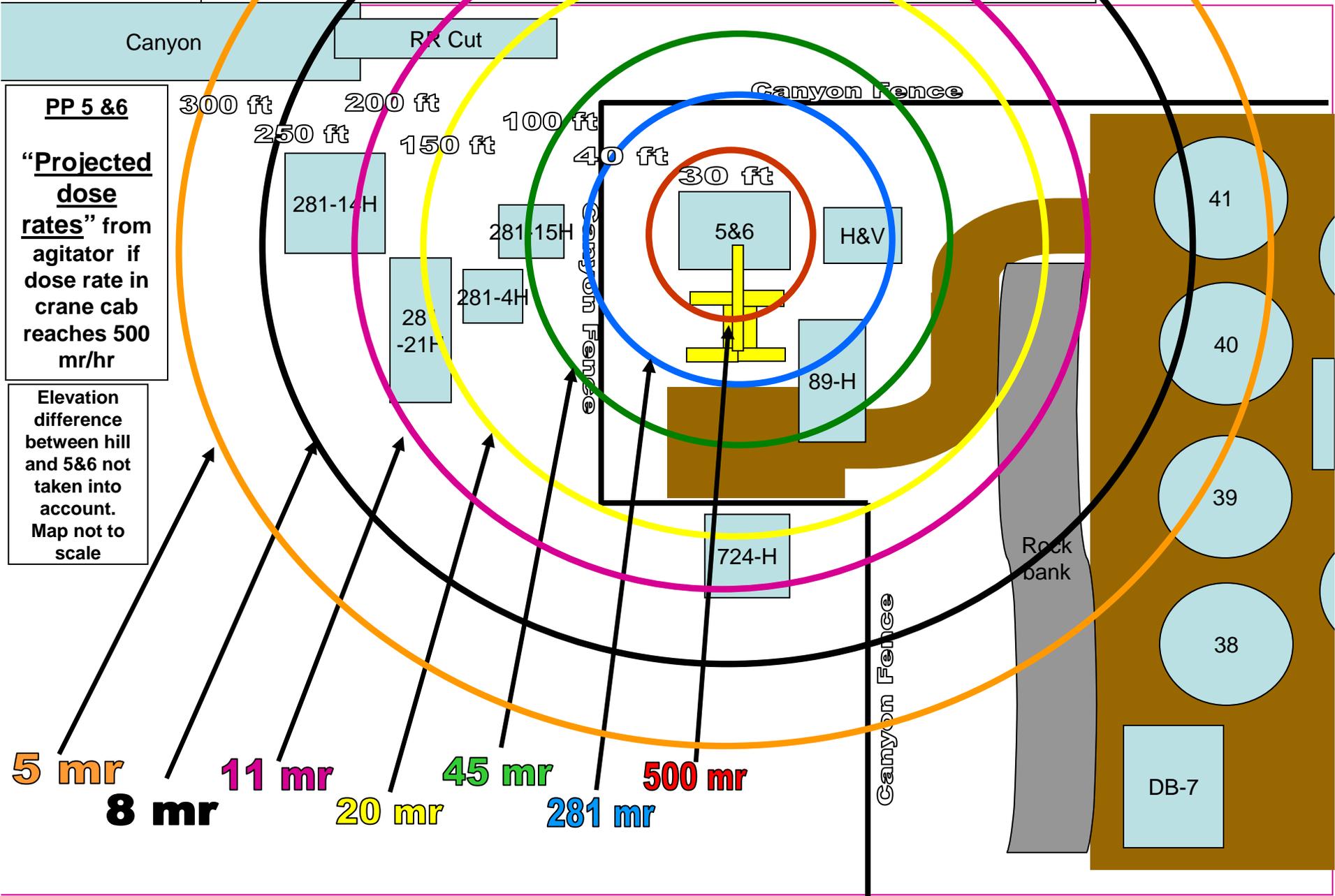
Pump Pit 6 Agitator Removal Dose Rate Overview (EXPECTED RATES)



NOTE: All dose rates shown are estimates in mr/hr



PP 5&6 Projected Dose Rates



PP 5 & 6
“Projected dose rates” from agitator if dose rate in crane cab reaches 500 mr/hr

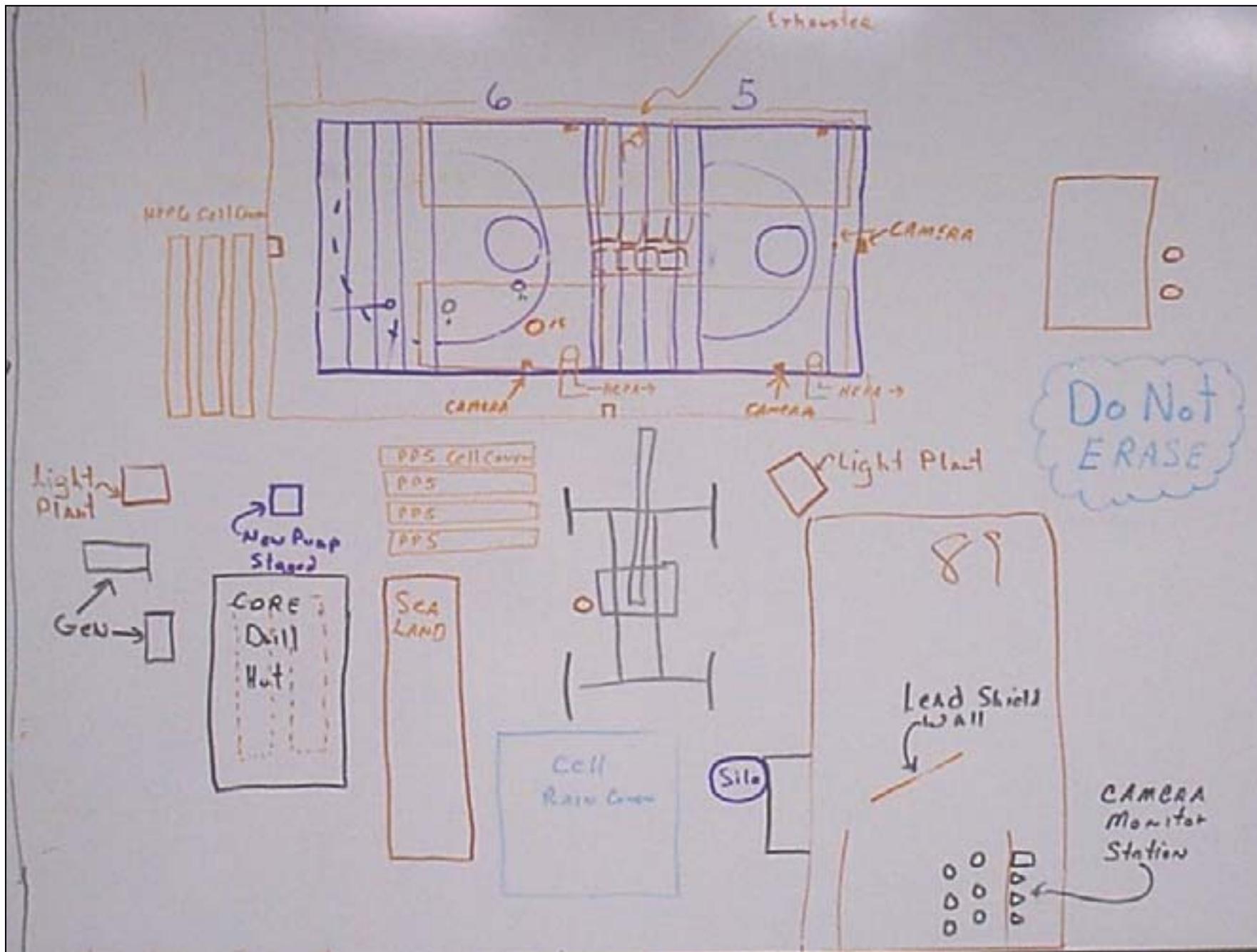
Elevation difference between hill and 5&6 not taken into account. Map not to scale

5 mr
 8 mr
 11 mr
 20 mr
 45 mr
 281 mr
 500 mr

41
 40
 39
 38
 DB-7



PP 5& 6 Layout



PP 5 & 6 Important Notes

- Prior to initiating agitator removal activities the crane shall be roped as a CA.
- RC HOLD POINTS SHOULD BE CLEARLY UNDERSTOOD PRIOR TO INITATING AGITATOR REMOVAL
- On the agitator removal night no less than 12 EPDs with Teletrak will be required. Two will be placed on the bottom of the silo. Two will be placed interior of the Windbreak to access rates prior to re-entry. The remainder will be on the limited number of personnel at the work site.
- After the agitator has been rigged to personnel are to prepare to exit the windbreak. Cameras will be checked for proper function. Agitator may be lifted approximately 2 feet when ALL personnel must exit the windbreak.
- RCO WILL PROBE ALL FILTER PAPERS (interior & exterior to windbreak) IMMEDIATELY PRIOR TO AGITATOR REMOVAL AND DOCUMENT RESULTS.
- ALL agitator movement activities will be performed remotely from this point on. NO one will be in the windbreak.

PP 5 & 6 Important Notes

- **A corded RO7 will be placed in the cell to a depth of 15 ft. During agitator removal as the blades approach the probe if dose rates in excess of 19R are observed the agitator is to be lowered back into the tank**
- **There will be a team consisting of 1 RCI and 1 Rigger staged behind the H&V Bldg during agitator movement activities to respond to unexpected events only as directed by the PIC and RCO.**
- **During agitator movement activities unnecessary personnel are to be not to be closer than 150 feet from the work area.**
- **At the scene there will be the following personnel:**
 - **Crane Operator (in crane with 1 RCI checking dose rates)**
 - **PIC (89H)**
 - **Smart Group (2) (89H)**
 - **Rigging (2)(FLM in 89H, Rigger staged behind H&V Bldg)**
 - **RCO (3 RCI's(1 with crane operator, 1 behind H&V Bldg, 1 in 89H, RC FLM, RC FAC. MGR)**
 - **DOE**
 - **ALL personnel outside 89H during agitator movement will have EPDs with Teletrak.**

PP 5 & 6 Important Notes

- After agitator has been lowered into Pump Tank #5 RCO Personnel will smear their way towards the air samplers and probe filter papers on the exterior of the windbreak. Report these results to the RC FLM.
- RCO personnel will enter the windbreak to access conditions after agitator movement after the data from the EPD's with teletrak in the windbreak is understood.
- Personnel will re-enter the windbreak only after conditions are understood
- After agitator has been lowered into Pump Tank #5 Personnel may return to area ONLY after cursory surveys indicate it is safe to do so.



PP 5&6 Engineering Controls

- Pit ventilation was supplemented by installing 2 HEPA filtered copus blower units. These units increased the flow from the windbreak atmosphere into the pit.
- Blue Fog solution was aerosolized and applied to the pit interior in order to stabilize transferable contamination
- Constructed a mobile containment device (missile silo) to move the agitator from PT-6 to PT-5. This eliminated the need for personnel to be near the agitator during removal.
- Installed a traveling ventilation duct on the missile silo in order to reduce the likelihood of contaminants escaping during transit between the two pits.

PP 5&6 Engineering Controls

- Installed EPD's with tele-trak capability to monitor dose rates during agitator removal. Installed a R07 probe on a cable as an additional layer of monitoring. "GO-NO GO" was to be decided based on dose rates observed.
- Blue Fog solution was aerosolized and applied to the pit interior in order to stabilize transferable contamination
- Performed all agitator movement activities remotely. The crane operator used 6 cameras to monitor movement.

PP 5&6 Engineering Controls

- Performed an “in tank flush” of the agitator prior to removal from the tank. This in tank flush was necessary in order to prevent compromising the Blue Fog capture coating in the cell. This flush was accomplished by installing a flush well in a spare port on the pump tank. As the agitator was lifted the weight of the agitator caused the wire rope to twist. This resulted a thorough flushing of the agitator blades. Much like a dishwasher the agitator rotated around slowly as the flush well sprayed the entire blade assembly.

PP 5&6 Engineering Controls

- During removal of the agitator from the tank a capture solution of blue fog material (liquid) was applied to the blades and shaft via a spray nozzle attached to the flush well. This material was chosen due to its ability to stabilize the remaining contaminants on the blades while also having minimal impact on the blue fog capture coating material that had been applied earlier within the cell.