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NRC STAFF EXHIBIT 52

License Application

for the American Centrifuge Plant

in Piketon, Ohio

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SECY-02

Table 9.2-1 American Centrifuge Plant Action Levels for Radionuclide Effluents

Weekly Sample Results		Required Actions [b]
Uranium [a]	Technetium [a]	
BEQ	BEQ	Review release data for previous six months for trends, and estimate probable impact over calendar year. Evaluate whether additional controls would significantly reduce public exposure.
10 x BEQ or 2 x BEQ averaged over 6 months	80 x BEQ or 16 x BEQ averaged over 6 months	Determine whether increased releases are ongoing or a single spike. Initiate investigation into cause(s) of increased releases. Evaluate whether mitigative and/or corrective measures are necessary to reduce public dose. Implement mitigative and/or corrective measures as needed.
EPA Reportable Quantity[c] (RQ) (0.1 Ci in 24 hours)	EPA RQ[c] (10 Ci in 24 hours)	Notify Operations Supervisor Trace source of abnormal releases and establish control or shutdown as needed. If releases cannot be mitigated within 24 hours, elevate to next level.
1 Ci[d]	8 Ci[d]	Close affected discharge points until control of releases is re-established.

[a] Uranium has an approximately 8-fold greater dose rate response than ^{99}Tc over air dominated exposure pathways. Uranium dose response completely dominates ^{99}Tc over water dominated exposure pathways.

[b] Required actions for any level include required actions listed under lower emission levels.

[c] RQ does not include permitted emissions. The ACP is regulated under 40 CFR Part 61, Subpart H for release of airborne radionuclides from the entire reservation up to the equivalent of 10 mrem/year TEDE to the most exposed member of the public.

[d] 1 Ci or 8 Ci in one weekly sample analysis.

Note: The Operations Supervisor has the authority to allow a restart.

Table 9.2-2 Baseline Effluent Quantities for American Centrifuge Plant Discharges

Release Point	Total Uranium	Technetium
Vents		
X-3001 North Vent	0.2 mCi/week	0.1 mCi/week [a]
X-3001 South Vent	0.2 mCi/week	0.1 mCi/week [a]
X-3002 North Vent	0.2 mCi/week	0.1 mCi/week [a]
X-3002 South Vent	0.2 mCi/week	0.1 mCi/week [a]
X-3346 Feed Area Vent	0.02 mCi/week	0.1 mCi/week [a]
X-3346 Customer Services Area Vent	0.02 mCi/week	0.1 mCi/week [a]
X-3356 Tails Area Vent	0.02 mCi/week	0.1 mCi/week [a]
X-3356 Product Area Vent	0.02 mCi/week	0.1 mCi/week [a]
X-7725 Gas Test Stands Vent	0.01 mCi/week	0.1 mCi/week [a]
Outfalls		
LEC Effluents [b]	3×10^{-7} μCi/ mL or 0.1 Ci/year	6×10^{-5} μCi/ mL or
X-2230N West Holding Pond (NPDES 012)	2.5×10^{-8} μCi/ mL	1.0×10^{-7} μCi/ mL
X-2230M Southwest Holding Pond (NPDES 013)	2.5×10^{-8} μCi/ mL	1.0×10^{-7} μCi/ mL
TWC System Blowdown	5.9×10^{-8} μCi/ mL	1.0×10^{-7} μCi/ mL

[a] Technetium BEQs for vents are based on five times the MDA.

[b] LEC effluents are characterized before being discharged to the site sanitary sewer. The 100 mCi/yr standard includes uranium and technetium isotopes discharged to the site sanitary sewer during a calendar year.

Table 9.2-3 Anticipated Gaseous Effluents

Discharge Point	Total Uranium [a]		Technetium	
	μCi/ mL [b]	mCi/wk [c]	μCi/ mL [b]	mCi/wk [c]
X-3346 Feed and Customer Services Building (2 vents)	$<3.2 \times 10^{-15}$	<0.04	1.2×10^{-16}	0
X-3001 and X-3002 Process Buildings (4 vents)		<0.8		0
X-3356 Product and Tails Withdrawal Building Vent (2 vents)		<0.04		0
X-7725 Gas Test Stands Vent		<0.01		0
XT-847 Glovebox Vent		0.0004		0.005
Laboratory Hoods [d]		0.17		0.035
10 CFR Part 20, App. B, Table 2	3×10^{-12}	------	8×10^{-9}	------

[a] Since uranium isotopes present at the ACP have the same discharge limit, uranium isotope activities are combined into a Total Uranium activity for simplify comparison to the Table 2 limits.

[b] Anticipated concentrations are maximum ambient concentrations at the DOE reservation boundary due to emission sources and are based on emission estimates and atmospheric dispersion modeling. Anticipated technetium concentration is based on no detectable releases from the X-7725 facility and X-3000 series buildings.

[c] Anticipated discharges are measured at the vent and, by definition, are less than the Baseline Effluent Quantities. Anticipated technetium discharges from the X-7725 facility and X-3000 series buildings are zero.

[d] Bounding case for associated analytical services.

Table 9.2-4 Anticipated Liquid Effluents [a]

Discharge Point	Total Uranium [b] μCi/ mL	Technetium μCi/ mL
LEC Effluents	$<3 \times 10^{-7}$ and <0.1 Ci/yr	$<2 \times 10^{-8}$ (<MDA)
TWC System Blowdown	$<3 \times 10^{-8}$	$<2 \times 10^{-8}$ (<MDA)
X-2230N West Holding Pond (NPDES Outfall 012) [c]	$<1 \times 10^{-8}$	$<2 \times 10^{-8}$ (<MDA)
X-2230M Southwest Holding Pond (NPDES Outfall 013) [c]	$<1 \times 10^{-8}$	$<2 \times 10^{-8}$ (<MDA)
Sanitary wastewater (excluding LEC effluents)	$<3 \times 10^{-8}$	$<2 \times 10^{-8}$ (<MDA)
North Cylinder Pad Runoff	$<1 \times 10^{-8}$	$<2 \times 10^{-8}$ (<MDA)
10 CFR Part 20, App. B, Table 2	3×10^{-7}	6×10^{-5}
10 CFR Part 20, App. B, Table 3	3×10^{-6}	6×10^{-4}

[a] ACP contributions only. Combined effluents from other site operations remain the responsibility of the individual operator.

[b] Since uranium isotopes present at the ACP have the same discharge limit, uranium isotope activities are combined into a Total Uranium activity to simplify comparison to the Table 2 limits.

[c] By definition, anticipated activity discharges are less than the BEQ.

[d] LEC effluents are characterized prior to discharge. One Ci/yr limit applies to combined uranium and technetium activities.

[e] Anticipated concentrations are annual averages based on monthly grab samples from 1995 through 2000.

Table 9.2-5 Environmental Baseline Activities/Concentrations 1998-2002

	Total Uranium µg/g	Technetium pCi/g	Gross Alpha pCi/g	Gross Beta pCi/g
Reservation (9 Sampling Locations) Soil				
Num. of Samples	117 (0)	117 (93)	117 (59)	117 (64)
Average	2.8	<0.2	<8	<14
Minimum	0.6	<0.1	<2	8
Maximum	4.4	1.5	21	36
Vegetation				
Num. of Samples	116 (113)	116 (103)	-----	-----
Average	<0.25	<0.3	-----	-----
Minimum	<0.04	<0.1	-----	-----
Maximum	0.9	7.3	-----	-----
Off Reservation (6 Sampling Locations) Soil				
Num. of Samples	74 (0)	74 (32)	74 (38)	74 (41)
Average	2.9	<0.2	<7	<14
Minimum	0.7	<0.1	<2	<8
Maximum	4.6	3.8	14	47
Vegetation				
Num. of Samples	73 (73)	73 (61)	-----	-----
Average	<0.24	<0.3	-----	-----
Minimum	<0.05	<0.1	-----	-----
Maximum	<0.34	3.3	-----	-----

The "number of samples" shows the total number of samples collected, including replicate and duplicate samples collected for quality assurance (QA) purposes, followed by the number of samples that were lower than the Minimum Detectable Concentration in parentheses. QA sample locations for soil and vegetation are assigned independently, so the number of samples in each group does not necessarily match.

Table 9.2-5 Environmental Baseline Activities/Concentrations 1998-2002

	Total Uranium µg/g	Technetium pCi/g	Gross Alpha pCi/g	Gross Beta pCi/g
Remote (12 Sampling Locations) Soil				
Num. of Samples	139 (0)	139 (133)	139 (73)	139 (77)
Average	3.0	<0.2	<7	<14
Minimum	0.7	<0.1	<3	<7
Maximum	5.9	0.8	16	22
Vegetation				
Num. of Samples	137 (80)	137 (128)	-----	-----
Average	<0.23	<0.2	-----	-----
Minimum	0.08	<0.1	-----	-----
Maximum	<0.28	<0.5	-----	-----
Background (4 Sampling Locations) Soil				
Num. of Samples	40 (0)	40 (36)	40 (17)	40 (26)
Average	3.5	<0.2	<8	<14
Minimum	1.7	<0.1	<5	<8
Maximum	6.8	0.5	16	25
Vegetation				
Num. of Samples	40 (23)	40 (37)	-----	-----
Average	<0.24	<0.2	-----	-----
Minimum	<0.14	<0.1	-----	-----
Maximum	0.28	0.5	-----	-----

The "number of samples" shows the total number of samples collected, including replicate and duplicate samples collected for QA purposes, followed by the number of samples that were lower than the Minimum Detectable Concentration in parentheses. QA sample locations for soil and vegetation are assigned independently, so the number of samples in each group does not necessarily match.

Table 9.2-6 Environmental Baseline Activities/Concentrations 1998 - 2002

	Total Uranium µg/L	Technetium pCi/L	Gross Alpha pCi/L	Gross Beta pCi/L
Surface Water/Upstream Big Run Creek				
Num. of Samples	60 (56)	60 (60)	60 (57)	60 (39)
Average	<1.3	<15	<5	<13
Minimum	<0.1	<6	<1	<6
Maximum	23.5	<28	<8	30
Surface Water/Downstream Big Run Creek				
Num. of Samples	118 (68)	118 (116)	118 (106)	118 (82)
Average	<1.5	<15	<6	<13
Minimum	0.2	<6	1	6
Maximum	23.2	<28	<140	33
Surface Water/Upstream Little Beaver Creek				
Num. of Samples	60 (59)	60 (60)	60 (56)	60 (41)
Average	<0.9	<15	<5	<11
Minimum	<0.1	<6	<1	<6
Maximum	1.3	<28	<12	<22
Surface Water/Downstream Little Beaver Creek				
Num. of Samples	321 (34)	322 (246)	322 (182)	322 (101)
Average	<1.7	<16	<6	<15
Minimum	<0.6	<8	2	<7
Maximum	9.4	43	44	78
Surface Water/Upstream Big Beaver Creek				
Num. of Samples	60 (36)	60 (58)	60 (48)	60 (25)
Average	<1.2	<16	<5	<14
Minimum	0.3	<8	2	<7
Maximum	5.8	<28	37	62

The "number of samples" shows the total number of samples collected, including replicate and duplicate samples collected for QA purposes, followed by the number of samples that were lower than the Minimum Detectable Concentration in parentheses.

Table 9.2-6 Environmental Baseline Activities/Concentrations 1998 - 2002

	Total Uranium µg/L	Technetium pCi/L	Gross Alpha pCi/L	Gross Beta pCi/L
Surface Water/Downstream Big Beaver Creek				
Num. of Samples	60 (50)	60 (58)	60 (51)	60 (36)
Average	<1.1	<16	<6	<14
Minimum	<0.1	<6	<1	<6
Maximum	5.2	<28	72	108
Surface Water/Upstream Scioto River				
Num. of Samples	261 (8)	261 (251)	261 (213)	261 (151)
Average	<1.9	<15	<6	<13
Minimum	<1.0	<6	2	<6
Maximum	32.6	<28	<13	40
Surface Water/Downstream Scioto River				
Num. of Samples	261 (6)	261 (254)	261 (206)	261 (156)
Average	<1.8	<16	<6	<13
Minimum	<1.0	<6	2	<7
Maximum	9.5	<29	86	34
Surface Water/Background Creeks				
Num. of Samples	240 (214)	240 (237)	240 (223)	240 (179)
Average	<1.0	<16	<4	<11
Minimum	<0.1	<6	<1	<6
Maximum	6.9	114[a]	11	46

The "number of samples" shows the total number of samples collected, including replicate and duplicate samples collected for QA purposes, followed by the number of samples that were lower than the Minimum Detectable Concentration in parentheses.

[a] One sample from a background location was analyzed at 114 picocuries per liter (pCi/L) of technetium, a beta emitter, but only 12 pCi/L of gross beta activity. The technetium activity is believed to be a case of cross contamination. The next highest technetium activity at the background locations was 28 pCi/L.

Table 9.2-7 Environmental Baseline Activities/Concentrations 1998 - 2002

	Total Uranium µg/g	**Technetium** pCi/g	**Gross Alpha** pCi/g	**Gross Beta** pCi/g
Sediment/X-2230M Southwest Holding Pond Discharge				
Num. of Samples	10 (0)	10 (6)	10 (4)	10 (4)
Average	3.8	<0.2	<9	<16
Minimum	1.8	<0.1	<4	<7
Maximum	6.2	0.3	18	<36
Sediment/X-2230N West Holding Pond Discharge				
Num. of Samples	13 (0)	13 (4)	13 (4)	13 (11)
Average	3.2	<0.3	<7	<11
Minimum	2.3	<0.1	<3	<7
Maximum	4.9	0.6	10	<17
Sediment/Upstream Little Beaver Creek				
Num. of Samples	15 (0)	15 (13)	15 (6)	15 (11)
Average	2.8	<0.1	<7	<13
Minimum	1.5	<0.1	<4	<7
Maximum	5.7	0.2	11	18
Sediment/X-230J-7 Discharge				
Num. of Samples	17 (0)	17 (0)	17 (7)	17 (4)
Average	5.9	7.1	<16	<32
Minimum	2.7	0.7	<5	<7
Maximum	21.2	31.3	83	170
Sediment/Downstream Little Beaver Creek				
Num. of Samples	28 (0)	28 (6)	28 (3)	28 (9)
Average	7.0	<64.5	<17	<85
Minimum	1.8	<0.1	<5	<10
Maximum	35.1	801[a]	61	924

The "number of samples" shows the total number of samples collected, including replicate and duplicate samples collected for QA purposes, followed by the number of samples that were lower than the Minimum Detectable Concentration in parentheses.

Table 9.2-7 Environmental Baseline Activities/Concentrations 1998 - 2002

	Total Uranium µg/g	Technetium pCi/g	Gross Alpha pCi/g	Gross Beta pCi/g
Sediment/Upstream Big Beaver Creek				
Num. of Samples	10 (0)	10 (2)	10 (4)	10 (6)
Average	2.1	<0.3	<7	<13
Minimum	0.9	<0.1	<5	<7
Maximum	4.6	0.7	9	25
Sediment/Downstream Big Beaver Creek				
Num. of Samples	10 (0)	10 (0)	10 (1)	10 (2)
Average	4.0	4.7	<11	<18
Minimum	2.8	1.1	<6	<12
Maximum	5.5	14.6	33	24
Sediment/Upstream Big Run Creek				
Num. of Samples	11 (0)	11 (8)	11 (3)	11 (8)
Average	3.8	<0.2	<7	<13
Minimum	2.3	<0.1	4	9
Maximum	4.8	<0.2	13	<17
Sediment/Downstream Big Run Creek				
Num. of Samples	29 (0)	29 (6)	29 (6)	29 (18)
Average	4.1	<0.8	<9	<14
Minimum	1.1	<0.1	<4	<7
Maximum	5.9	2.7	33	28
Sediment/Upstream Scioto River				
Num. of Samples	11 (0)	11 (11)	11 (7)	11 (8)
Average	2.1	<0.1	<7	<12
Minimum	0.9	<0.1	3	<7
Maximum	4.6	<0.2	<9	<17

The "number of samples" shows the total number of samples collected, including replicate and duplicate samples collected for QA purposes, followed by the number of samples that were lower than the Minimum Detectable Concentration in parentheses.

Table 9.2-7 Environmental Baseline Activities/Concentrations 1998 - 2002

	Total Uranium µg/g	Technetium pCi/g	Gross Alpha pCi/g	Gross Beta pCi/g
Sediment/Downstream Scioto River				
Num. of Samples	10 (0)	10 (8)	10 (5)	10 (6)
Average	2.1	<0.2	<9	<14
Minimum	1.4	<0.1	5	<8
Maximum	4.4	0.4	17	19
Sediment/Background Creeks				
Num. of Samples	40 (0)	40 (37)	40 (22)	40 (25)
Average	3.2	<0.2	<6	<13
Minimum	1.3	<0.1	<3	<7
Maximum	6.8	2.7	13	24

The "number of samples" shows the total number of samples collected, including replicate and duplicate samples collected for QA purposes, followed by the number of samples that were lower than the Minimum Detectable Concentration in parentheses.

[a] In Fall 2002, duplicate samples taken at the RM8 sample point contained 689 and 801 pCi/g of technetium. A replicate sample taken at the same time and a few yards away contained only 13 pCi/g of technetium. The RM8 sample taken the following spring contained only 13 pCi/g, which is consistent with previous samples.

Table 9.2-8 Environmental Baseline Radiation Levels 1998-2002

Area of Readings	Average	Minimum	Maximum
Reservation (includes 518, 737, 862, 906, 933, 1404A, A35, A36, and A40)	10.5 µRad/hr	6.4 µRad/hr	17.9 µRad/hr
X-746 Cylinder Yard (includes 874)	70.5 µRad/hr	60.1 µRad/hr	82.3 µRad/hr
Boundary (includes A3, A8, A9, A12, A15, A23, A24, and A29)	10.5 µRad/hr	6.2 µRad/hr	22.6 µRad/hr
Piketon (includes A6)	9.6 µRad/hr	7.4 µRad/hr	13.9 µRad/hr
Camp Creek (includes A28)	10.4 µRad/hr	7.8 µRad/hr	14.9 µRad/hr

Note: Locations ACP-1, ACP-2, ACP-3, ACP-4, and ACP-5 are new monitoring locations that will be established as the ACP is built.