76095

22

TELECOM/CONVERSATION

Washington/PMC Los Alamos Team
Los Alamos, New Mexico

CALL TO: William David Moss
ORGANIZATION: FWO-WFM
Phone No.: (505) 667-4301

DATE: 9/11/03
Page ____ of ____

CALL FROM: Kevin Sagez
ORGANIZATION: WETI
Phone No.: (505) 662-1351

Time: 15:30

	Apperson, C.		Funk, A.		Logan, V.		Thompson, D
	Banar, A.		Germain, N.		Lowry, B.		Toya, A.
	Beck, C.		Geise, J.		Martorello, D.		Wald-Hopkins, M.
	Benson, T.		Gillespie, K		Neeper, D.		Williams, D.
	Calhoun, S.		Gleason, L.		Newell, D.		
	Causey, L.		Gomez, L.		Przybyski, M.		
	Crocker, J.		Granus, M.		Purdue, S.		
	Crowder, A.		Haaker, R.	✓	Sagez, K.		
	DeJoia, J.		Hill, D.		Sanchez, S.		
	Drakos, P.		Hogg, M.		Schultz, C.		
	Evans, R.		Kisiel, K.		Shepard, M.		
	Everett, M.		LaOrange, M. (DYN)		Smiroldo, C.		
	Fraley, D.		Law, J.		Steven, D.		

TOPIC: Summary of waste at TA-21

SUMMARY OF CONVERSATION:

The conversation with David moss was to inquire about waste disposal from TA-21-257 from 1984 to present.

COMMENTS MADE/ACTION REQUIRED:

Conversation was for accuracy of historical records

RECEIVED
OCT 30 2003
By EK

10767

REFERENCES (Documents, Contract, etc.)

RLWTF - summary of operations and flow summaries from annual reports 1983 to 2002

TASK CODE: _____

6. Summary of CY 2002 Operations at the TA-21 RLWTP

The TA-21 Radioactive Liquid Waste Treatment Plant (RLWTP) historically treated radioactive liquid waste from a number of facilities at TA-21. Presently, the TA-21 RLWTP treats limited volumes of radioactive liquid waste generated from tritium research at TA-21 using three (3) treatment processes (clarifier, sand filter and sludge vacuum filtration). The TA-21 plant is physically separated from the radioactive liquid waste collection system, which conveys water to the main TA-50 RLWTF.

During CY 2002, the TA-21 RLWTP received 30,280 liters of influent wastewater. The plant was operated only once during CY 2002, in January, and treated 37,000 liters of radioactive liquid waste at that time. The volumes of received and treated water are not identical due to stored volumes of RLW in the influent tanks at the TA-21 RLWTP. The water treated water in CY 2002 is presently in the effluent tanks at the TA-21 RLWTP. Sludge was not treated in the vacuum filter at TA-21 during CY 2002. As a result, no drums of dewatered sludge were generated or shipped to TA-54 for disposal.

Effluent from the TA-21 RLWTP is normally trucked to the TA-50 RLWTF for additional treatment to remove alpha particle radioactivity. During CY 2002 no treated effluent from the TA-21 RLWTP was trucked to the TA-50 RLWTF.

Tables 6-1, 6-2, 6-3 and 6-4 summarize the radiological, mineral, VOC and SVOC constituents in the 37,000 liters of water treated at the TA-21 RLWTP during January 2002. The "Total (Ci)" column in Table 6-1 and the "Total (kg)" column in Table 6-2 display zeroes for each radioisotope and each mineral constituent. This is because the influent flow meters at the TA-21 RLWTP recorded no flow during January 2002. The 37,000 liters of RLW treated in January 2002 came from the TA-21 RLWTP influent holding tanks. The total curies of radioisotopes and the total kilograms of mineral constituents can be determined by multiplying the activities and concentrations of constituents in Tables 6-1 and 6-2 by 37,000 liters.

Table 4-1
TA-21 RLWTF Flow Summary
(January 2001 through December 2001)

Date	Influent	Treated	Transfer
January 2001	50,203	85,281	40,664
February 2001	23,377	0	0
March 2001	31,918	0	0
April 2001	26,310	0	0
May 2001	83,220	105,454	128,441
June 2001	121,879	138,918	35,022
July 2001	39,838	127,013	146,871
August 2001	212	0	0
September 2001	0	0	0
October 2001	0	0	0
November 2001	0	0	0
December 2001	31,264	0	0
Totals	408,221	456,666	350,998

* All volumes in liters

TA50 MONTHLY FLOWS (liters)

JAN-2001 through DEC-2001

	Influent	Treated	Time (hrs)	Rate (liters/min)	Effluent	DP	Misc	Recirc	Sludge	Caustic	Acid
NOV-2001											
Total	577,898	645,675	65.85		584,658	0	42,006	0	0	0	0
Maximum/Day	84,877	122,819	6.833	342.116	73,236						
Minimum/Day	7,172	17,219	4.017	46.164	72,006						
Average/Day	19,263	53,806	5.487	163.093	73,082						
DEC-2001											
Total	659,383	642,519	43.767		585,282	0	0	0	11,730	0	0
Maximum/Day	65,807	104,288	7.3	362.479	73,236						
Minimum/Day	10,310	28,051	2.183	193.929	72,630						
Average/Day	21,270	64,252	4.377	248.994	73,160						
SUMMARY											
Total	13,558,873	13,817,010	1217.933		13,613,448	395,207	178,920	294,999	69,062	7,196	7,409
Maximum/Month	1,641,245	1,531,374			1,541,613	191,080	42,006	121,991	36,629	5,124	7,409
Minimum/Month	577,898	642,519			584,658	35,022	15,363	28,743	8,494	20	7,409
Average/Month	1,129,906	1,151,418	101.494	189.077	1,134,454	32,934	14,910	24,583	5,755	600	617

TA-50 WM-1

FLOW SUMMARY (megaliters)

JAN-2000 through DEC-2000

Date	Influent	TA-21 Transfer	Discharged
JAN-2000	1.549	0.0	1.399
FEB-2000	1.905	0.0	1.914
MAR-2000	2.276	0.0	2.282
APR-2000	1.792	0.009	1.914
MAY-2000	1.255	0.071	1.252
JUN-2000	1.516	0.177	1.62
JUL-2000	1.57	0.089	1.841
AUG-2000	1.541	0.067	1.62
SEP-2000	1.154	0.0	1.174
OCT-2000	1.405	0.0	1.454
NOV-2000	1.112	0.0	1.094
DEC-2000	0.783	0.0	1.069
TOTAL	17.858	0.413	18.632

TA-50 WM-1

FLOW SUMMARY (megaliters)

JAN-1999 through DEC-1999

Date	Influent	TA-21 Transfer	Room 60 caustic	Room 60 acid	Discharged
JAN-1999	2.074	0.0			2.135
FEB-1999	1.985	0.0			2.214
MAR-1999	2.159	0.0	0.001	0.013	2.372
APR-1999	1.656	0.0			1.265
MAY-1999	1.526	0.0			1.423
JUN-1999	1.494	0.0	0.002		1.502
JUL-1999	1.605	0.0			1.107
AUG-1999	1.604	0.045		0.004	1.897
SEP-1999	1.617	0.0		0.007	1.739
OCT-1999	1.668	0.0		0.012	1.739
NOV-1999	1.587	0.0			1.265
DEC-1999	1.49	0.0			1.369
TOTAL	20.465	0.045	0.003	0.036	20.026

TA-50 WM-1

FLOW SUMMARY (megaliters)

JAN-1998 through DEC-1998

Date	Influent	TA-21 Transfer	Room 60 caustic	Room 60 acid	Discharged
JAN-1998	1.808	0.012			1.823
FEB-1998	1.806	0.0			1.897
MAR-1998	1.677	0.0	0.001	0.013	1.581
APR-1998	1.409	0.038			1.66
MAY-1998	1.362	0.165			1.423
JUN-1998	1.614	0.038	0.002		1.739
JUL-1998	2.078	0.0			2.134
AUG-1998	2.23	0.0		0.004	2.214
SEP-1998	2.28	0.0		0.007	2.369
OCT-1998	2.108	0.07		0.012	2.056
NOV-1998	2.159	0.039			2.372
DEC-1998	1.775	0.005			1.976
TOTAL	22.307	0.367	0.003	0.036	23.245

TA-50 WM-1

RADIONUCLIDE SUMMARY

JAN, 1997 through DEC, 1997

	RAW Average	Maximum	Minimum	Count	Total (Ci)		FINAL Average	Maximum	Minimum	Count	Total (Ci)
ALPHA	6.2e-8	2.7e-7	5.8e-9	12.0	1.011		3.27e-10	8.2e-10	1.6e-10	12.0	0.006
Am-241	1.584e-8	6.7e-8	9.9e-10	12.0	0.258		1.309e-10	2.3e-10	5.8e-11	12.0	0.002
BETA	2.828e-9	7.6e-9	3.2e-11	12.0	0.046		4.927e-10	1.4e-9	7.0e-11	12.0	0.009
Cs-137	1.262e-10	7.0e-10	3.0e-10	12.0	0.002		1.52e-10	8.0e-10	3.0e-10	12.0	0.003
GAMMA	1.491e-9	1.0e-8	3.0e-9	12.0	0.024		6.516e-10	4.0e-9	3.0e-9	12.0	0.011
Na-22	No Data			0.0			7.24e-11	8.0e-10	8.0e-10	1.0	0.001
Pu-238	1.263e-8	2.4e-8	2.9e-10	12.0	0.206		7.663e-11	1.3e-10	2.1e-11	12.0	0.001
Pu-239	2.135e-8	9.0e-8	3.7e-10	12.0	0.348		4.576e-11	1.2e-10	2.0e-11	12.0	7.994e-4
Sr-89	1.316e-10	9.0e-10	1.0e-11	12.0	0.002		5.34e-11	3.0e-10	1.0e-11	12.0	9.33e-4
Sr-90	4.796e-11	1.4e-10	4.0e-12	12.0	7.817e-4		2.712e-11	6.0e-11	2.0e-12	12.0	4.739e-4
TOTAL_PLUTONIUM	3.398e-8	1.14e-7	6.6e-10	12.0	0.554		1.224e-10	2.5e-10	6.0e-11	12.0	0.002
TRITIUM	No Data			0.0			8.103e-8	2.4e-7	1.1e-10	12.0	1.416
U-234	4.094e-10	2.1e-9	4.7e-12	12.0	0.007		3.524e-12	1.2e-11	2.5e-12	12.0	6.157e-5
U-235	9.104e-11	2.0e-10	2.6e-11	12.0	0.001		3.64e-13	1.6e-12	2.0e-13	12.0	6.359e-6

Volume of Flow: Influent = 16,298,612.0 liters Final = 17,471,848.0 liters

TA-50 WM-1

FLOW SUMMARY (megaliters)

From JAN 1996 through DEC 1996

Date	Influent	TA-21 Transfer	Room 60 caustic	Room 60 acid	Discharged
JAN	1.262	0.043			1.2
FEB	1.134	0.0			1.265
MAR	1.202	0.06	0.001	0.013	1.186
APR	1.328	0.157			1.581
MAY	1.049	0.0			1.107
JUN	1.4	0.05	0.002		1.265
JUL	1.503	0.195			1.818
AUG	1.502	0.173		0.004	1.739
SEP	1.268	0.149		0.007	1.423
OCT	1.303	0.054		0.012	1.423
NOV	1.137	0.08			1.186
DEC	1.248	0.02			1.344
TOTAL	15.336	0.98	0.003	0.036	16.537

	Influent	Treated	Run Time	Trmt Rate	Filt Run	Filt Rate	Transfer	Misc	Recirc
November, 1995									
Total	55962	0	0.00		0.00		52857	0	0
Maximum	18970						34286		
Minimum	106						18571		
Average	1865			0.00		0.00	223		
December, 1995									
Total	51796	61861	2.83		2.75		9498	0	0
Maximum	8553								
Minimum	106								
Average	1671	5624	0.26	33.12		8.31	35		
From January, 1995 to December, 1995									
Total	606443	569599	25.65	0.00	22.55	0.00	520728	155385	0
Maximum	90672	173069					141410	102400	
Minimum	12933	30604					9498	4947	
Average	50537	47467	0.26	370.11	0.25	102.68	43394	12949	

TA-21 DP-257
FLOW SUMMARY
****
From January, 1994 to December, 1994

26-Jun-1995 08:22 AM

	Influent	Treated	Run Time	Trmt Rate	Filt Run	Filt Rate	Transfer	Misc	Recirc
November, 1994									
Total	38207	61207	2.27		2.18		33770	0	0
Maximum	9000								
Minimum	1000								
Average	1274	5101	0.19	37.45		9.51	165		
December, 1994									
Total	22000	0	0.00		0.00		44323	0	0
Maximum	3000								
Minimum	1000								
Average	710			0.00		0.00	201		
From January, 1994 to December, 1994									
Total	715007	709162	31.78	0.00	27.34	0.00	707051	22155	0
Maximum	147526	130857					146686	17000	
Minimum	22000	46433					6332	5155	
Average	59584	59097	0.00	371.91	0.00	105.44	58921	1846	

SUMMARY OF OPERATIONS
TA-21-DP-257
INFLUENT

CALENDAR YEAR, 1993

MON	FLOW (Liters)	OPER (Hrs)	TRMT RATE (LMP)	GROSS ALPHA (Curies)	GROSS BETA (Curies)	^{3}H (Curies)	^{89}Sr (Curies)	^{90}Sr (Curies)	^{137}Cs (Curies)	^{234}U (Curies)	^{238}Pu (Curies)	^{239}Pu (Curies)	^{241}Am (Curies)
JAN	51,000	0*	--	--	--	--	--	--	--	--	--	--	--
FEB	56,972	5.17	367.41	2.35 E-4	2.56 E-4	9.17 E-2	5.13 E-7	6.27 E-7	2.28 E-5	5.70 E-6	1.82 E-5	7.98 E-5	1.31 E-4
MAR	60,207	2.87	355.44	8.76 E-5	3.91 E-5	0.19	5.42 E-7	4.82 E-7	2.41 E-5	4.03 E-6	8.43 E-6	4.27 E-5	3.19 E-5
APR	60,000	0*	--	--	--	--	--	--	--	--	--	--	--
MAY	62,037	4.38	293.17	3.08 E-4	1.18 E-2	0.11	6.20 E-7	4.96 E-7	2.48 E-5	2.92 E-6	1.18 E-4	7.44 E-5	1.12 E-4
JUN	71,705	3.00	392.81	1.36 E-4	5.52 E-4	0.23	1.15 E-6	6.45 E-7	2.87 E-5	6.45 E-6	7.89 E-6	4.95 E-5	7.17 E-5
JUL	167,096	9.62	387.60	3.44 E-4	1.84 E-3	0.30	1.34 E-6	1.17 E-6	6.68 E-5	1.00 E-5	4.68 E-5	1.17 E-4	1.67 E-4
AUG	163,853	5.60	445.99	6.61 E-4	6.39 E-4	0.13	1.97 E-6	9.83 E-7	6.55 E-5	4.92 E-6	1.47 E-4	2.95 E-4	2.13 E-4
SEP	72,711	3.12	400.25	5.90 E-5	3.85 E-5	5.82 E-2	6.54 E-7	5.82 E-7	2.91 E-5	1.16 E-6	1.67 E-5	3.56 E-5	5.09 E-6
OCT	51,765	1.37	641.91	7.70 E-5	4.81 E-5	4.45 E-2	5.18 E-7	3.11 E-7	2.07 E-5	2.59 E-6	8.28 E-6	1.40 E-5	5.18 E-5
NOV	52,981	4.42	278.55	9.20 E-5	5.19 E-4	5.83 E-2	3.71 E-7	3.71 E-7	2.12 E-5	4.24 E-6	1.17 E-5	3.34 E-5	4.24 E-5
DEC	25,323	2.88	256.50	4.07 E-5	7.85 E-4	4.28 E-2	1.77 E-6	5.06 E-7	1.01 E-5	2.03 E-6	3.55 E-6	9.62 E-6	2.53 E-5
TOT	895,650	42.43		2.04 E-3	1.65 E-2	1.26	9.45 E-6	6.17 E-6	3.14 E-4	4.40 E-5	3.87 E-4	7.51 E-4	8.51 E-4
MON AVG	74,638	3.54	370.26	1.70 E-4	1.38 E-3	0.11	7.88 E-7	5.14 E-7	2.62 E-	3.67 E-6	3.23 E-5	6.26 E-5	7.09 E-5

* Plant was not operated, no sample.

SUMMARY OF OPERATIONS
TA-21-DP-257
INFLUENT

CALENDAR YEAR, 1992

MON	FLOW (Liters)	OPER (Hrs)	TRMT RATE (LMP)	GROSS ALPHA (Curies)	GROSS BETA (Curies)	^{3}H (Curies)	^{89}Sr (Curies)	^{90}Sr (Curies)	^{137}Cs (Curies)	^{234}U (Curies)	^{238}Pu (Curies)	^{239}Pu (Curies)	^{241}Am (Curies)
JAN	90,756	2.97	509.29	1.09 E-4	5.92 E-5	0.14	7.82 E-7	6.71 E-7	4.47 E-5	2.68 E-6	1.45 E-5	7.60 E-5	1.56 E-5
FEB	219,502	8.52	429.39	1.65 E-2	2.25 E-3	0.27	1.28 E-6	9.63 E-7	6.42 E-5	8.03 E-5	1.46 E-4	3.37 E-4	1.59 E-2
MAR	136,134	5.48	414.03	1.24 E-2	1.12 E-3	0.31	1.32 E-6	1.13 E-6	7.57 E-5	6.43 E-5	1.32 E-3	3.40 E-3	7.57 E-3
APR	237,443	10.32	383.47	3.79 E-4	6.09 E-4	0.36	1.33 E-6	1.14 E-6	7.62 E-5	7.24 E-6	2.48 E-5	2.13 E-5	3.24 E-4
MAY	91,811	4.13	370.50	2.97 E-4	6.37 E-4	0.19	7.20 E-7	6.17 E-7	4.11 E-5	1.64 E-6	1.23 E-5	1.54 E-5	2.67 E-4
JUN	151,963	6.05	418.63	1.72 E-4	3.53 E-4	0.28	1.49 E-6	1.12 E-6	7.44 E-5	1.30 E-6	7.62 E-5	1.92 E-5	7.44 E-5
JUL	189,954	8.03	394.26	7.57 E-3	9.64 E-4	0.39	1.89 E-6	4.19 E-6	8.39 E-5	2.31 E-5	3.77 E-4	2.31 E-4	6.92 E-3
AUG	78,092	3.20	406.73	2.77 E-3	4.48 E-4	0.21	8.33 E-7	1.04 E-6	4.16 E-5	8.33 E-6	1.15 E-4	4.27 E-5	2.60 E-3
SEP	117,138	4.55	429.08	6.45 E-4	1.98 E-4	0.14	8.81 E-7	1.32 E-6	4.41 E-5	4.85 E-6	1.87 E-4	3.19 E-5	4.19 E-4
OCT	75,982	3.32	381.44	5.99 E-5	7.85 E-5	0.03	2.44 E-7	1.89 E-7	1.08 E-5	1.08 E-6	5.41 E-6	1.54 E-5	3.79 E-5
NOV	75,982	3.13	404.59	1.23 E-4	1.98 E-5	0.06	5.52 E-7	5.06 E-7	1.84 E-5	1.52 E-6	6.44 E-6	6.90 E-5	4.60 E-5
DEC	40,101	1.83	365.22	3.50E-4	2.78 E-4	0.07	5.91 E-7	4.73 E-7	2.36 E-5	5.32 E-6	3.13 E-5	2.07 E-4	1.06 E-4
TOT	1,504,858	61.53		4.14 E-2	7.01 E-3	2.44	1.19 E-5	1.34 E-5	5.99 E-4	2.02 E-4	2.32 E-3	4.47 E-3	3.43 E-2
MON AVG	125,405	5.13	407.62	3.45 E-3	5.84 E-4	0.20	9.92 E-7	9.50 E-7	4.99 E-5	1.68 E-5	1.93 E-4	3.73 E-4	2.86 E-3

SUMMARY OF OPERATIONS
TA-21-DP-257
INFLUENT

CALENDAR YEAR, 1991

MON	FLOW (Liters)	OPER (Hrs)	TRMT RATE (LPM)	GROSS ALPHA (Curies)	GROSS BETA (Curies)	TRITIUM (Curies)	^{89}Sr (Curies)	^{90}Sr (Curies)	^{137}Cs (Curies)	^{234}U (Curies)	^{238}Pu (Curies)	^{239}Pu (Curies)	^{241}Am (Curies)
JAN	72,816	2.53	479.05	9.46E-5	1.52E-4	0.12	1.33E-6	0	0	0	3.60E-5	4.84E-5	8.34E-6
FEB	168,848	5.83	482.70	2.87E-5	5.48E-5	0.11	0	2.02E-6	0	2.31E-6	8.84E-6	6.92E-6	5.00E-6
MAR	126,636	4.83	436.98	1.49E-4	1.29E-4	0.23	0	0	0	3.64E-6	4.80E-5	8.45E-5	1.33E-5
APR	170,959	6.08	468.64	2.00E-4	5.10E-5	0.34	0	0	0	3.87E-6	6.86E-5	1.13E-4	9.33E-6
MAY	161,461	6.00	448.50	9.41E-5	6.60E-5	0.20	0	0	0	5.06E-6	2.92E-5	4.45E-5	6.14E-6
JUN	167,793	5.93	471.59	1.28E-4	1.45E-4	0.26	0	0	0	0	4.31E-5	8.42E-5	0
JUL	229,000	8.72	437.69	1.16E-4	1.35E-4	0.43	0	3.33E-6	0	0	2.91E-5	4.78E-5	0
AUG	218,447	8.55	425.82	1.22E-4	2.80E-5	0.99	1.86E-6	0	0	1.36E-5	3.17E-5	2.24E-5	5.41E-5
SEP	250,106	10.28	405.49	9.24E-5	7.44E-5	0.47	0	3.78E-6	0	6.30E-6	1.26E-5	3.99E-5	3.36E-5
OCT	240,608	11.98	334.74	9.18E-4	1.93E-4	0.26	0	4.50E-6	0	4.24E-5	1.32E-4	4.24E-4	3.18E-4
NOV	154,074	6.08	422.35	6.17E-5	1.32E-4	0.14	0	0	0	7.82E-6	1.54E-5	0	1.54E-5
DEC	123,470	4.97	414.05	1.66E-4	0	0.19	0	1.21E-6	0	1.46E-5	1.70E-5	1.34E-4	0
MON AVG	173,685	6.82	424.76	1.81E-4	9.67E-5	0.31	2.66E-7	1.24E-6	-	8.30E-6	3.93E-5	8.75E-5	3.86E-5
TOT	2,084,218	81.78		2.17E-3	1.16E-3	3.74	3.19E-6	1.48E-5	-0-	9.96E-5	4.74E-4	1.05E-3	4.63E-4

SUMMARY OF OPERATIONS
TA-21-DP-257
INFLUENT

CALENDAR YEAR, 1990

MON	FLOW (Liters)	OPER (Hrs)	TRMT RATE (LPM)	GROSS ALPHA (Curies)	GROSS BETA (Curies)	TRITIUM (Curies)	^{89}Sr (Curies)	^{90}Sr (Curies)	^{137}Cs (Curies)	^{234}U (Curies)	^{238}Pu (Curies)	^{239}Pu (Curies)	^{241}Am (Curies)
JAN	160,406	5.68	470.67										
FEB	164,627	5.67	483.91	4.15E-5	1.70E-4	0.95				3.31E-6	8.61E-6	1.77E-5	1.19E-5
MAR	235,332	8.12	483.03	7.60E-5	1.01E-4	0.22			1.71E-4	2.96E-6	1.03E-5	3.66E-5	2.61E-5
APR	165,682	5.83	473.65	3.55E-4	8.31E-5	0.15				3.88E-6	2.95E-5	2.77E-4	4.43E-5
MAY	162,516	5.73	472.71	1.06E-4	2.21E-4	0.20	3.22E-6				1.73E-5	8.05E-5	8.45E-6
JUN	243,774	8.52	476.87	2.03E-4	1.59E-4	0.15				1.74E-6	7.85E-5	7.94E-5	4.46E-5
JUL	234,277	8.33	468.74	2.07E-4	2.76E-4	0.55			1.15E-4	2.99E-6	8.06E-5	1.06E-4	1.77E-5
AUG	166,737	5.88	427.61	9.64E-5	1.87E-4	0.17	5.82E-6				5.82E-5	3.81E-5	
SEP	154,074	5.55	462.68	1.07E-4	7.44E-5	0.13				1.72E-6	3.43E-5	6.30E-5	8.30E-6
OCT	59,097	2.30	428.24	9.63E-5	5.77E-5	0.11	2.07E-6				4.65E-5	4.39E-5	5.85E-6
NOV	158,295	5.67	465.30	1.77E-4	5.74E-5	0.25	2.15E-6			7.17E-6	7.35E-5	8.07E-5	1.51E-5
DEC	140,355	4.87	480.34	8.54E-5	5.96E-4	0.06				2.63E-6	3.64E-5	3.71E-5	9.28E-6
MON AVG	170,431	6.01	472.43	1.29E-4	1.65E-4	0.24	1.11E-6	-	2.38E-5	2.20E-6	3.95E-5	7.17E-5	1.60E-5
TOT	2,045,171	72.15		1.55E-3	1.98E-3	2.93	1.33E-5	-0-	2.86E-4	2.64E-5	4.74E-4	8.60E-4	1.92E-4

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SUMMARY OF OPERATIONS
TA-21-DP-257
INFLUENT

CALENDAR YEAR, 1989

MON	FLOW (Liters)	OPER (Hrs)	TRMT RATE (LPM)	GROSS ALPHA (Curies)	GROSS BETA (Curies)	TRITIUM (Curies)	^{89}Sr (Curies)	^{90}Sr (Curies)	^{137}Cs (Curies)	^{234}U (Curies)	^{238}Pu (Curies)	^{239}Pu (Curies)	^{241}Am (Curies)
JAN	160,747	4.35	493.28	5.80E-5	8.52E-5	0.24	0	0	7.72E-5	1.77E-5	1.06E-5	2.97E-5	0
FEB	144,350	4.98	533.30	1.86E-4	4.33E-4	0.06	0	0	6.35E-5	5.77E-6	3.32E-5	1.11E-4	3.61E-5
MAR	212,934	7.46	532.84	3.51E-4	1.34E-3	0.07	6.18E-6	2.77E-6	1.58E-4	7.88E-6	5.32E-5	1.00E-4	1.90E-4
APR	221,775	8.72	465.93	7.98E-5	5.77E-4	0.19	0	3.99E-6	1.29E-4	6.65E-6	1.33E-5	2.88E-5	3.10E-5
MAY	157,537	5.07	489.14	8.12E-5	7.72E-4	0.08	0	2.68E-6	6.30E-5	1.01E-5	6.64E-6	2.52E-5	3.17E-5
JUN	130,295	5.55	475.36	1.14E-4	5.08E-4	0.46	2.22E-6	0	7.43E-5	4.69E-6	2.22E-5	4.17E-5	4.56E-5
JUL	182,576	4.99	482.89	3.94E-3	4.56E-4	0.58	2.74E-6	3.10E-6	1.15E-4	3.83E-4	2.74E-3	3.10E-4	4.93E-4
AUG	418,512	13.45	508.69	5.02E-4	2.59E-4	0.72	0	2.39E-5	2.59E-4	4.19E-5	2.18E-4	1.46E-4	9.63E-5
SEP	221,498	8.55	464.91	7.00E-4	3.77E-4	0.13	3.99E-6	0	1.48E-4	1.33E-5	2.44E-4	3.77E-4	6.64E-5
OCT	160,631	5.19	467.67	2.14E-4	1.46E-4	0.68	0	0	1.17E-4	7.07E-6	7.71E-5	8.51E-5	4.50E-5
NOV	147,073	5.33	481.78	1.19E-4	2.65E-4	0.84	1.91E-5	0	4.56E-5	0	3.53E-5	7.50E-5	8.82E-6
DEC	171,971	5.22	488.57	3.96E-5	5.85E-5	1.51	0	0	1.38E-4	0	6.88E-6	2.41E-5	8.60E-6
TOT	2,329,899	78.86		6.38E-3	5.28E-3	5.55	3.42E-5	3.64E-5	1.39E-3	4.98E-4	3.46E-3	1.35E-3	1.06E-3
MON AVG	194,158	6.57	491.12	5.32E-4	4.40E-4	0.46	2.85E-6	3.04E-6	1.16E-4	4.15E-5	2.88E-4	1.13E-4	8.77E-5

SUMMARY OF OPERATIONS
TA-21-257
INFLUENT

CY, 1988

MON	FLOW (Liters)	OPER Hrs	TRMT RATE (LPM)	GROSS ALPHA (Curies)	GROSS BETA (Curies)	TRITIUM (Curies)	^{89}Sr (Curies)	^{90}Sr (Curies)	^{137}Cs (Curies)	^{234}U (Curies)	^{238}Pu (Curies)	^{239}Pu (Curies)	^{241}Am (Curies)
JAN	1.597E5	2.40	586	4.60E-4	1.31E-4	0.12	0	0	0	3.51E-5	3.99E-5	1.76E-4	2.08E-4
FEB	1.517E5	8.45	479	8.17E-4	2.58E-5	0.04	4.10E-6	0	8.95E-5	1.67E-5	7.28E-5	6.52E-4	7.28E-5
MAR	1.995E5	6.59	555	2.12E-4	1.56E-5	2.09	3.39E-6	0	0	4.16E-5	2.79E-5	9.58E-5	4.13E-5
APR	1.895E5	4.50	598	1.27E-4	4.74E-5	0.54	0	0	0	1.42E-5	1.89E-5	6.63E-5	2.73E-5
MAY	2.588E5	10.29	487	7.94E-4	1.29E-4	0.19	0	0	0	2.28E-4	1.58E-4	1.42E-4	2.59E-4
JUN	5.544E5	18.87	497	4.97E-4	2.16E-4	0.17	2.22E-6	0	0	1.16E-4	7.76E-5	1.22E-4	1.77E-4
JUL	4.269E5	13.68	523	2.13E-3	3.17E-4	0.09	1.28E-5	0	0	1.45E-4	2.43E-4	4.10E-4	1.32E-3
AUG	5.074E5	18.37	517	1.01E-3	7.10E-4	0.36	1.01E-5	0	2.84E-4	4.06E-5	9.13E-5	5.58E-4	3.20E-4
SEP	4.930E5	15.56	491	4.22E-4	5.92E-4	0.24	0	0	2.42E-4	2.02E-5	6.41E-5	2.71E-4	6.56E-5
OCT	2.141E5	7.42	474	2.44E-3	3.21E-4	0.07	6.42E-6	0	1.26E-4	2.14E-3	4.71E-5	1.11E-4	2.78E-5
NOV	1.697E5	9.37	372	2.63E-4	1.12E-3	0.47	1.19E-5	0	0	1.31E-4	2.38E-5	5.26E-5	4.92E-5
DEC	1.293E5	5.66	466	2.29E-5	4.40E-4	0.05	1.03E5	0	7.76E-5	1.68E-5	1.42E-6	4.65E-6	0
TOT	3.454E6	121		9.20E-3	4.12E-3	4.43	6.13E-5	0	8.19E-4	2.95E-3	8.66E-4	2.66E-3	2.57E-3
MON AVG	2.878E5	10.10	496	7.67E-4	3.43E-4	0.37	5.11E-6	-	6.83E-5	2.46E-4	7.22E-5	2.22E-4	2.14E-4

SUMMARY OF OPERATIONS

TA-21-DP-257

INFLUENT

CY, 1987

MON	FLOW (Liters)	OPER (Hrs)	TRMT RATE (LPM)	Gross Alpha (Curies)	Gross Beta (Curies)	Tritium (Curies)	^{89}Sr (Curies)	^{90}Sr (Curies)	^{137}Cs (Curies)	^{234}U (Curies)	^{238}Pu (Curies)	^{239}Pu (Curies)	^{241}Am (Curies)
JAN	6.35E5	16.53	575.64	4.09E-4	3.54E-4	1.84E-2	8.25E-6	0	0	1.52E-4	1.02E-4	1.20E-4	3.49E-5
FEB	4.89E5	15.26	588.97	7.86E-4	8.12E-4	4.40E-2	4.40E-6	0	0	8.32E-5	2.50E-4	3.38E-4	1.15E-4
MAR	5.56E5	14.66	581.88	8.26E-4	2.43E-4	6.79E-1	1.34E-5	0	0	8.57E-5	1.06E-4	5.56E-4	7.84E-5
APR	5.13E5	15.62	597.91	9.04E-4	4.53E-4	2.41E-1	0	0	0	1.19E-4	2.46E-4	3.39E-4	2.00E-4
MAY	5.31E5	13.87	587.12	3.45E-4	1.54E-4	1.91E-1	0	0	0	7.96E-5	7.96E-5	1.22E-4	6.37E-5
JUN	2.46E5	10.83	519.69	4.29E-4	6.54E-5	7.76E-2	0	0	0	6.14E-5	7.37E-5	1.20E-4	1.74E-4
JUL	1.76E5	5.48	513.53	4.09E-3	5.19E-4	4.08E-2	0	0	0	4.04E-4	4.40E-4	4.40E-4	2.81E-3
AUG	1.94E5	5.86	492.23	1.76E-3	2.04E-4	1.67E-1	0	3.88E-6	0	2.04E-5	2.13E-4	1.90E-4	1.34E-3
SEP	1.11E5	2.82	499.55	1.69E-4	5.35E-5	6.06E-2	0	1.11E-6	6.02E-5	1.56E-5	2.45E-5	4.23E-5	8.69E-5
OCT	1.28E5	5.37	461.82	2.06E-4	7.54E-5	4.32E-2	0	3.07E-6	5.50E-5	2.17E-5	4.73E-5	9.20E-5	4.47E-5
NOV	1.38E-5	5.52	519.37	1.74E-4	1.64E-5	2.48E-2	5.80E-6	6.90E-7	7.31E-5	1.10E-5	4.00E-5	2.07E-5	1.02E-4
DEC	1.23E5	5.10	424.19	2.22E-2	3.32E-4	2.09E-1	8.60E-6	0	0	2.23E-5	2.09E-5	7.12E-5	1.57E-5
TOT	3.84E6	116.92		3.32E-2	3.28E-3	1.80	4.04E-5	8.75E-6	1.88E-4	1.08E-3	1.64E-3	2.43E-3	5.07E-3
MON AVG	3.	9.74	553.89	2.69E-3	2.73E-4	1.50E-1	3	7.29E-7	1.57E-5	8.97E-5	1.37E-4	2.03E	2E-4

SUMMARY OF OPERATIONS
TA-21-DP-257
INFLUENT

CALENDAR YEAR 1986

MON	FLOW (Liters)	OPER (Hrs)	TRMT RATE (LPM)	Gross Alpha (Curies)	Gross Beta (Curies)	Tritium (Curies)	Sr 89 (Curies)	Sr 90 (Curies)	Cs 137 (Curies)	U 234 (Curies)	Pu 238 (Curies)	Pu 239 (Curies)	Am 241 (Curies)
JAN	1.492×10^5	6.21	472.98	1.94E-4	4.61E-5	0.112	0	1.19E-6	1.49E-6	8.36E-5	5.07E-5	3.13E-5	7.61E-5
FEB	1.966×10^5	7.14	458.85	3.32E-2	1.97E-4	1.49	8.85E-6	3.93E-5	1.38E-5	2.36E-3	1.18E-2	1.10E-2	1.47E-2
MAR	2.235×10^5	9.60	388.00	4.47E-3	0	0.581	1.79E-6	4.47E-7	0	7.82E-4	3.80E-4	3.58E-4	1.56E-3
APR	3.315×10^5	10.73	506.37	1.47E-3	1.21E-3	0.139	1.53E-6	3.98E-6	2.09E-4	1.03E-4	6.31E-4	5.31E-4	6.97E-4
MAY	4.199×10^5	14.63	485.30	1.77E-3	2.96E-4	0.357	1.26E-6	0	6.72E-5	2.06E-4	2.10E-4	1.72E-4	5.46E-4
JUN	3.70×10^5	8.80	681.82	2.28E-3	3.60E-3	0.169	1.85E-6	3.70E-7	2.96E-5	6.66E-5	2.22E-4	1.81E-4	1.63E-4
JUL	6.10×10^5	13.77	706.85	2.93E-3	0	8.43E-2	5.49E-6	0	6.10E-5	2.44E-4	2.44E-4	3.97E-4	1.10E-4
AUG	5.12×10^5	14.14	617.63	1.09E-3	1.03E-4	0.140	3.07E-6	0	1.48E-4	1.08E-4	1.02E-4	1.59E-4	2.25E-4
SEP	6.09×10^5	15.06	561.09	1.77E-3	6.70E-4	0.128	9.74E-6	0	0	1.34E-4	1.77E-4	2.44E-4	4.26E-4
OCT	6.80×10^5	20.08	574.37	7.34E-4	2.73E-4	0.182	1.36E-5	0	0	1.63E-4	3.81E-4	4.35E-4	1.16E-4
NOV	5.16×10^5	14.61	559.78	4.75E-4	3.87E-5	3.97E-2	0	0	0	2.63E-4	9.65E-5	2.03E-4	3.20E-5
DEC	5.662×10^5	18.51	509.81	2.85E-3	8.49E-5	3.57E-2	0	2.83E-6	0	6.74E-5	2.32E-4	3.17E-4	4.47E-5
TOT	5.184×10^6	153.28		5.32E-2	6.52E-3	3.46	4.72E-5	4.81E-5	5.30E-4	4.58E-3	1.45E-2	1.40E-2	1.87E-2
MON AVG	4.320×10^5	12.77	563.67	4.44E-3	5.43E-4	0.288	3.93E-6	4.01E-6	4.42E-5	3.83E-4	1.21E-3	1.17E-3	1.56E-3

1985 ANNUAL SUMMARY OF OPERATIONS TA 21-257 INFLUENT

nth	Hrs of Operation	Flow	Ave Trmt Factor	Removal Factor (Gross α)	Am^{241}	Cs^{137}	Pu^{238}	Pu^{239}	Sr^{89}	Sr^{90}	Gross α	Gross β	U^{234}	^{3}H
	Hrs.	Liters $x10^3$			mCi	mCi	mCi	mCi	mCi	mCi	mCi	mCi	mCi	mCi
n.	13.45	$2.14x10^5$	356.2	99.30%	0.47	0.0064	0.64	0.21	0	0.03	2.14	0.21	1.28	-
b.	14.24	$3.18x10^5$	340.9	99.99%	156.00	0.092	7.00	11.78	0.024	0.38	209.78	3.50	14.64	-
rch	11.80	$238x10^5$	297.1	99.98%	357.29	0.023	15.48	21.20	0.083	1.14	433.51	8.34	38.11	-
ril	15.72	$3.37x10^5$	353.0	99.96%	53.94	0.26	6.40	11.46	0.098	0.88	82.25	5.39	7.42	-
y	9.95	$2.58x10^5$	495.6	99.17%	2.07	0.007	0.26	0.26	0.00	0.013	3.36	2.07	0.47	-
me	9.83	$2.48x10^5$	435.2	99.81%	47.04	0.040	6.68	10.65	0.030	0.20	69.08	4.46	4.70	-
ly	8.60	$2.96x10^5$	527.7		7.11	0.012	0.89	1.19	0.015	0.015	9.18	0.59	0.71	-
g.	10.66	$3.23x10^5$	411.7		0.48	0.019	0.27	2.26	0.0013	0.0032	4.20	2.90	0.32	-
pt.	9.98	$2.42x10^5$	502.5		5.49	0.018	0.65	0.97	0.0016	0.029	6.78	0.97	0.45	-
t.	10.34	$3.18x10^5$	525.7		0.57	0.0035	0.14	0.12	0	0.029	1.08	0.95	1.02	-
v.	6.23	$2.09x10^5$	503.7		0.36	0.0027	0.046	0.19	0	0.0094	0.84	0	0.052	-
c.	2.88	$1.31x10^5$	536.8		0.08	0.0015	0.01	0.0065	0	0	0.56	0	0.01	-
tal	113.7	$3.13x10^6$			630.90	0.49	38.47	60.30	0.25	2.73	822.76	29.38	69.18	-
thly rage	9.5	$2.61x10^5$	459.04	99.70%	52.58	0.04	3.21	5.02	0.021	0.23	68.56	2.45	5.77	-

1984 ANNUAL SUMMARY OF OPERATIONS TA-21-257 INFLUENT

MONTH	Hr. of Oper.	FLOW Ltrs x10^3	Ave. Trmt. Rate LPM	Vol. Red. fact.	Am^{241} mCi	Cs^{137} mCi	Pu^{238} mCi	Pu^{239} mCi	Sr^{89} mCi	Sr^{90} mCi	Gross α mCi	Gross β mCi	U^{234} mCi	^3H mCi
Jan.	17.5	453.5	431.9	540	8.0	0	1.0	3.7	0.06	0.02	59.9	9.4	0.31	–
Feb.	34.2	398.2	194.1	105	32.3	0.050	1.4	2.3	0.020	0.11	51.3	3.1	21.5	–
March	21.8	360.4	275.5	95	9.9	0.030	3.9	2.1	0.006	0.003	18.8	1.9	13.0	–
April	19.5	200.4	171.3	53	5.3	0.010	0.4	0.8	0	0.03	15.5	3.0	11.7	–
May	14.8	211.3	238.0	28	13.3	0.007	1.3	1.9	0.001	0.06	25.0	0	14.3	–
June	32.9	592.8	300.3	157	8.8	0.010	1.3	4.3	0	0.07	20.9	0	10.9	–
July	18.3	167.1	152.2	*	0.5	0.0008	0.30	0.2	0.020	0.004	1.3	0.18	0.23	–
Aug.	22.9	458.0	333.3	121	12.6	0.030	2.1	3.9	0.010	0.03	27.4	0.74	12.4	–
Sept.	10.4	99.5	159.5	*	2.3	0.006	0.36	0.31	0	0.07	3.9	0	0.85	–
Oct.	17.1	166.0	161.8	*	0.8	0.006	0.15	0.15	0.002	0.002	1.0	0	0.67	–
Nov.	10.5	107.5	170.6	*	3.7	0.003	0.19	0.34	0.009	0.003	6.4	0.73	0.58	–
Dec.	10.4	243.3	390.0	*	2.6	0.004	0.11	0.11	0.010	0.001	4.0	0.66	0.328	–
TOTAL	230.3	3458.0	2978.5	*	100.1	0.157	12.51	20.11	0.138	0.403	235.6	19.7	86.8	–
MONTHLY AVERAGE	19.2	288.2	248.2	*	8.3	0.013	1.04	1.68	.012	0.034	19.6	1.6	7.2	–

* Vacuum Filter Not Operated Sept. - Dec.

1983 ANNUAL SUMMARY OF OPERATIONS TA 21-257 INFLUENT

Month	Hrs of Operation	Flow	Curie Input Rate	Volume Reduction Factor	Am^{241}	Cs^{137}	Pu^{238}	Pu^{239}	Sr^{89}	Sr^{90}	Gross α	Gross β	U^{234}	^{3}H
		Liters x10^3			mCi	mCi	mCi	mCi	mCi	mCi	mCi	mCi	mCi	mCi
Jan.	10.9	292.2	446.8	—	52.48	0.43	6.99	30.32	0.01	1.05	169.09	16.56	4.78	-
Feb.	8.09	118.7	244.5	—	28.34	1.71	1.55	2.14	5.35	6.41	38.50	0.90	5.13	-
March	9.4	315.5	326.2	—	2.98	4.97	0.57	1.13	0.01	6.11	16.91	1.79	13.50	-
April	12.4	184.0	247.3	—	1.57	2.48	0.06	0.58	0.008	2.40	10.77	0.72	9.11	-
May	12.6	266.1	352.0	—	3.23	2.75	0.84	2.87	0.01	4.07	21.93	1.65	25.17	-
June	12.5	250.6	334.1	66	1.13	2.93	0.34	0.79	0.001	2.25	8.96	6.17	11.29	-
July	23.8	406.6	284.7	324	49.45	4.39	2.01	8.06	0.01	0.13	67.03	1.98	27.47	-
Aug.	26.6	488.1	305.8	86	3.96	8.35	2.86	14.51	0.002	3.30	58.70	6.84	20.66	-
Sept.	24.8	343.6	231.0	182	7.25	6.64	1.43	11.76	0.004	2.72	36.85	4.06	12.80	-
Oct.	26.3	477.1	302.3	42	10.53	4.94	0	9.02	0.006	2.15	15.00	1.28	4.94	-
Nov.	48.8	648.8	221.6	69	189.96	0.17	11.40	20.45	0.02	0.67	252.50	7.36	27.18	-
Dec.	37.8	555.8	245.0	37	30.04	8.51	2.25	3.50	0.05	0.04	35.80	3.45	19.53	-
Total	263.1	4347.1	3,271.3	—	380.92	48.27	30.3	104.86	5.48	31.30	732.04	52.76	181.56	-
Monthly Average	21.92	362.26	272.6	115	31.74	4.02	2.52	8.74	0.45	2.60	61.00	4.40	15.13	-