



Memorandum

January 20, 1996
IP-RES-96-015

TO: D. Mayer

FROM: L. Dauer

A handwritten signature in black ink, appearing to read 'L. Dauer'.

SUBJECT: Waste Neutralization Tank Discharge Line Excavation
and Local Storm Drain Sediment

Waste Neutralization Tank Discharge Line Excavation

In December, 1995, excavation was required near the waste neutralization tank discharge area in the yard north of the water factory. This was the result of an erosion hole collapse of soil and asphalt in the area. This area has been previously excavated to repair a collapsed storm drain (May, 1993).

During the previous excavation work, soil samples were taken and analyzed in accordance with the soil program. The results indicated an average Cs-137 concentration of $1.7E-6$ uCi/g. A dose pathway analysis using this level of activity shows that the potential dose is only 2/3 of our previously determined screening level of 5 mrem/year at decommissioning. (See Attached Evaluation Summary).

Because of the awareness of this previously identified contamination, the following actions were initiated for the December, 1995 excavation work (as noted in IP-RES-96-006):

- construction services supervisors were made aware of the issue and discussions were held with the contractors
- Health Physics and Waste Management supported the separation of the asphalt from the soil, ensured that the soil was covered with appropriate tarping to preclude erosion and direct access, and posted the soil as Radioactive Material - Contact HP Prior to Moving.

Storm Drain Sediment

As part of the evaluation of the cause of the recent collapse at the discharge line connection to the storm drain, an investigation of the storm drain line (line B on the attached sketch) revealed that water backup was occurring due to excessive amounts of sediment in the line (about 1/4 to 1/3 of the line diameter is full of sediment). This

water backup poses a serious problem for the storm drain line repair effort. In addition, it is felt that the water backup may be contributing to the failure of the waste neutralization tank discharge line 'T' connection.

Because these storm drain lines are known to contain sediment with elevated levels of Cs-137, a meeting was held (See attendee list on page 4) to discuss the concerns associated with this repair. The following method was agreed upon:

- Divert any local runoff water as necessary
- Begin construction or installation of temporary berm structure to hold removed sediment
- Use vendor supplied vacuum truck to pump the wet soil around the 'T' to allow increased shoring of the excavation site and access for the repair
- As necessary, skim the water off the collected material in the truck and divert this runoff to a downstream storm drain
- Perform repair at the 'T'
- Place the waste neutralization tank discharge line back into service
- Clean up the sediment in the storm drain line as much as possible using the vacuum truck
- Transfer the sediment sludge to the temporary berm

Subsequent to this meeting, the job was postponed due to rainfall and safety concerns, but is currently scheduled to begin on Tuesday, Jan. 23, 1996.

Review of Activity Levels in Storm Drain System

Historical levels of Cs-137 activities in the range of $\sim 5E-5$ uCi/g are well documented for the storm drain system. In 1978, four cases of contaminated soil were discovered outside of the radiologically controlled area of the plant, as discussed in J.J. Kelly memorandum of 10-27-78. In IP-DQ-15839, Dec. 21, 1981, Quinn to File 3-342, an investigation of the contamination at IP3 is documented due to a spill of radioactive resin at Indian Point 2 on 6-28-91. This memo documents storm drain sediment activity levels as high as $5E-5$ uCi/g that were attributable to: a) BIT cell draining directly to the transformer yard adjacent to the storm drain B, b) the FSB/VC pit contamination and draining through the corrugated metal drainage pipe to the storm drain B, c) the unfinished room leaking through the foundation into the storm drain B (a condition which existed from construction till 1986). Later, in 1991, as a result of the routine storm drain sampling program results, an investigation of storm drain contamination was performed. In IP-CHM-91-027, December 1991, Kerns to Distribution, a source of short lived radioisotope was identified as the Primary Aux Building to Vapor Containment expansion joint. The activity migrated into the storm drain system B from the PAB pipe penetration floor through the expansion joint into the transformer yard. A repair in September, 1991 eliminated this pathway.

Recommendations Concerning Storm Drain Sediment

To support any required sediment removal, the following radiation protection related recommendations are made:

- *Remediation*

A dose pathway analysis of typical storm drain sediment activity (see attached) shows that the potential dose is well above the soil remediation program screening level of 5 mrem/yr at decommissioning. In fact, the estimated value is around 95 mrem/yr at decommissioning, which is about 10x higher than the pre-determined limit level of 10 mrem/yr. In accordance with the recommendations of TID 95-002 (Decommissioning Planning: Soil Characterization and Remediation, 11/95), the storm drain sediment should be remediated to a level below 5 mrem/yr at decommissioning, unless complete remediation is not feasible. In this case, the latter is probably true: complete remediation is not feasible at this time. Therefore, 10CFR50.75g information will be filed to ensure proper final remediation at decommissioning.

- *Instructions to Workers*

Consistent with 10CFR19.12, Health Physics should hold briefings with any contractors or site workers that are involved with the sediment cleanout effort.

- *Control of Material*

Any removed sediment must be controlled as radioactive material. Radiological control practices including waste minimization by preventing the spread of the material (through the use of an appropriate berm and by covering the material, etc.). In addition, representative samples of any removed material must be obtained in accordance with RE-CCI-037, to provide for subsequent evaluations and documentation.

- *Postings*

Any removed sediment must be posted as 'Radioactive Material' and should include notification to 'Contact HP prior to Moving'.

- *Tools and Equipment*

Tools and equipment that come in contact with the sediment should be flushed with water to remove excess sediment material. Tools and equipment should be released in accordance with procedure RE-CON-3-4.

- *Disposition of Material*

The removed sediment material should be used as fill for the excavation site after the repairs to the storm drain connections are made, and should be covered with asphalt. This will afford a greater degree of control over this elevated activity material.

Radioactive Waste

Any soil or sediment that is not able to be returned to the excavation site should be considered radioactive waste and will need ultimate disposition decisions. Because of the uncertainty of the job at this time, we are not able to make accurate estimates of the potential volume (if any) of waste material that may need to be dealt with.

Attachments:

**Dose Pathway Results
Storm Drain System - Sketch**

**cc: D. Quinn
M. Kerns
R. Deschamps
N. Lizzo
N. Nilsen
HP Technicians
IP3 Records
DER 96-0113 File**

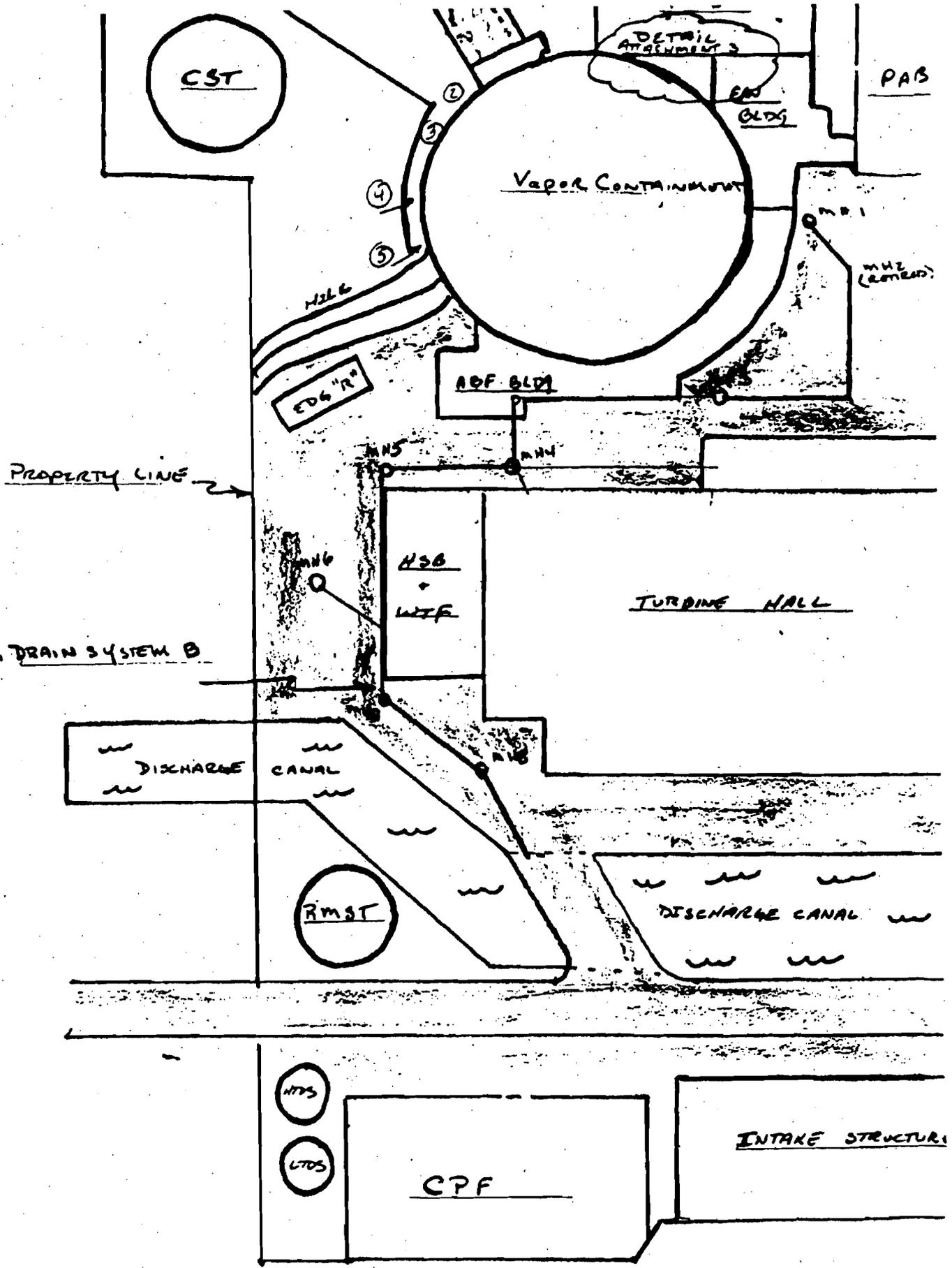
1/19/96 Discussion Meeting Attendees:

**R. Drake
S. Guarnaccia
J. LePere
E. Maset
L. Barnes, NPS
R. LaVera
R. Tagliamonte
D. Mayer
L. Dauer**

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SOIL SAMPLING RESULTS EVALUATION CALCS

Area: Waste Neutralization Tank Discharge Line Excavation Soil

May, 1993 Sample Results

Nuclide	Avg. pCi/g	Relative Abundance	mrem/yr per pCi/g *	x DCF	Abundance	DCF			Sample	Subsurface
						5 mrem/yr	10 mrem/yr	2 x the		
					Screen Lvl	Limit Lvl	Limit Lvl	Max		
	pCi/g	Abundance	pCi/g *	x DCF	pCi/g	pCi/g	pCi/g	pCi/g	pCi/g	pCi/g

Cs-137	1.70E+00	1.00E+00	1.89	1.89E+00	2.65E+00	5.29E+00	1.06E+01	2.43E+00	n/a
Co-60	0.00E+00	0.00E+00	0.97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

Total Act = 1.70E+00 wtd DCF = 1.89E+00

mrem/yr = 3.21E+00

* Dose at yr 2016 from RESRAD Calculation based on discovery during 1996 and no cover

SOIL SAMPLING RESULTS EVALUATION CALCS

Area: Waste Neutralization Tank Discharge Line Excavation

Local Storm Drain Historical Activities

Nuclide	Avg. pCi/g	Relative Abundance	pCi/g *	x DCF	DCF			Sample	Subsurface
					mrem/yr per Abundance	Screen Lvl	Limit Lvl		
					5 mrem/yr	10 mrem/yr	2 x the Limit Lvl	Max	
Cs-137	5.00E+01	1.00E+00	1.89	1.89E+00	2.65E+00	5.29E+00	1.06E+01	7.00E-05	n/a
Co-60	0.00E+00	0.00E+00	0.97	0.00E+00	0.00E+00	0.00E+00	0.00E+00		

Total Act = 5.00E+01 wtd DCF = 1.89E+00

mrem/yr = 9.45E+01

* Dose at yr 2016 from RESRAD Calculation based on discovery during 1996 and no cover