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**Department of Energy**

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SEP 08 1994

Mr. A. W. Conklin, Head  
 Air Emissions and  
 Defense Waste Section  
 State of Washington  
 Department of Health  
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 Olympia, Washington 98504-0095

**UO<sub>3</sub> PLANT STORM WATER MODIFICATION INFORMATION**

Enclosed is the UO<sub>3</sub> Plant Storm Water Modification Information. The information is being provided as requested during the meeting held on July 27, 1994, to propose a new approach to storm water management at the UO<sub>3</sub> Plant, through the utilization of a modified 207-U Retention Basin System. This information is being submitted in lieu of a conventional Notice of Construction, as previously agreed during the July 27, 1994, meeting.

Your approval to proceed with this plan is requested due to the change in use of the 207-U Retention Basins and the potential for increased emissions from this emission point.

Should you have any questions, please contact me or Mr. S. D. Stites of my staff on (509) 376-8566.

Sincerely,

James E. Rasmussen, Acting Program Manager  
 Office of Environmental Assurance,  
 Permits, and Policy

EAP:SDS

Enclosure

cc w/encl:  
 Administrative Records  
 B. Burke, CTUIR  
 R. Jim, YIN  
 D. Powaukee, NPT

cc w/o encl:  
 W. Dixon, WHC  
 N. Homan, WHC



UO<sub>3</sub> PLANT STORM WATER MODIFICATION INFORMATION

On July 27, 1994, representatives from the State of Washington Department of Health (DOH), the U.S. Department of Energy, Richland Operations Office, and Westinghouse Hanford Company, met to discuss the proposed UO<sub>3</sub> Plant Storm Water Management Plan. In general, storm water from surface contaminated areas at the UO<sub>3</sub> Plant currently drains to nearby soil, to the 216-U-14 Ditch via the 207-U Retention Basins, or is transferred to the C-2 Uranium Recycle Concentrator. Figure 1 illustrates current storm water management. The proposed routings include drains to nearby soil, in situ evaporation on location, and in situ evaporation at the 207-U Basins. Figure 2 illustrates the proposed strategy.

Each source and route were discussed. Of the proposed changes to the routings, it was determined that the only area for potential increase in emissions was at the 207-U Basins. This potential primarily comes from the water currently going to the C-2 Concentrator that would be rerouted to the 207-U Basins.

The meeting ended with:

1. All parties agreeing in principle with the proposed storm water routings.
2. DOH requesting additional information on the 207-U Basins, specifically; projected discharges, condition of the basins, and future monitoring.
3. DOH agreeing that a formal Notice of Construction was not necessary, and that this letter providing the additional information on the 207-U Basins would be adequate for final concurrence.

The following, then, is provided in response to the above requested information.

Currently, the C-2 Uranium Recycle Concentrator in the UO<sub>3</sub> Plant processes storm water collected from surface contaminated areas at the facility. The storm water is boiled off in the C-2 Concentrator with the overheads becoming part of the process condensate stream which is neutralized and sent to the 216-U-17 Crib. Nonvolatile storm water contaminants which remain in the C-2 Concentrator are periodically trucked to Plutonium-Uranium Extraction Facility for disposal.

The  $UO_3$  Plant Deactivation Project proposes to eliminate storm water processing in the C-2 system by draining these portions of storm water to existing diked enclosures for solar evaporation. This will allow the  $UO_3$  Plant to cease discharges to the 216-U-17 Crib, the 216-U-14 Ditch, and to discontinue operation of the C-2 Concentrator, which, in turn, will also eliminate the 296-U-4 gaseous effluent discharge.

The 207-U Basins presently discharge to the 216-U-14 Ditch. The proposal is to isolate the basins from the ditch and allow the storm water to evaporate from the basins. Current non-storm water discharges to the basins (non-contact cooling water and steam condensate) will be discontinued due to plant shutdown and suspension of C-2 processing. This configuration will result in the basins being dry most of the time, depending on weather conditions. The basins were lined with high-density polyethylene in December 1992. Current radiological surveys (June-July 1994) of the liner show no detectible contamination.

Decontamination efforts at the  $UO_3$  Plant have and will continue to decrease the amount of surface contamination that will come in contact with storm water. The storm water to be transferred to the 207-U Basins is projected to contain an estimated 5 to 50 grams of Uranium annually. Based on the isotopic composition of uranium from the  $UO_3$  Plant, the resulting offsite dose from 50 grams per year of the uranium mixture can be determined, and is shown in Table 1. Unit dose factors are taken from the, "Unit Dose Calculation Methods Summary of Facility Effluent Monitoring Plan Determinations," previously supplied to DOH. (November 1991, WHC-EP-0498)

Table 1. 207-U Retention Basins Projected Offsite Dose Calculations for 50 g per year of Uranium Mixture

Isotope	Isotope Composition Ci/g of Uranium Mixture	Physical State Factor	Isotope Ci/yr	Unit Dose Factor mrem/Ci	Offsite Dose mrem/yr
U-238	3.33 E-07	1.00 E-03	1.67 E-08	1.69	2.81 E-08
U-236	4.72 E-08	1.00 E-03	2.36 E-09	1.79	4.22 E-09
U-235	1.81 E-08	1.00 E-03	9.05 E-10	1.76	1.59 E-09
U-234	5.63 E-07	1.00 E-03	2.82 E-08	1.89	5.32 E-08
Total Offsite Dose					8.08 E-08

To verify there is no substantial impact from the use of the 207-U Basins for evaporation of storm water from the  $UO_3$  Plant, routine ambient air samples at location N-155, approximately 100 yards from the basins, and annual soil samples of the area surrounding the basins will be continued.

Figure 1. Current Routes of UO<sub>3</sub> Plant Storm Water

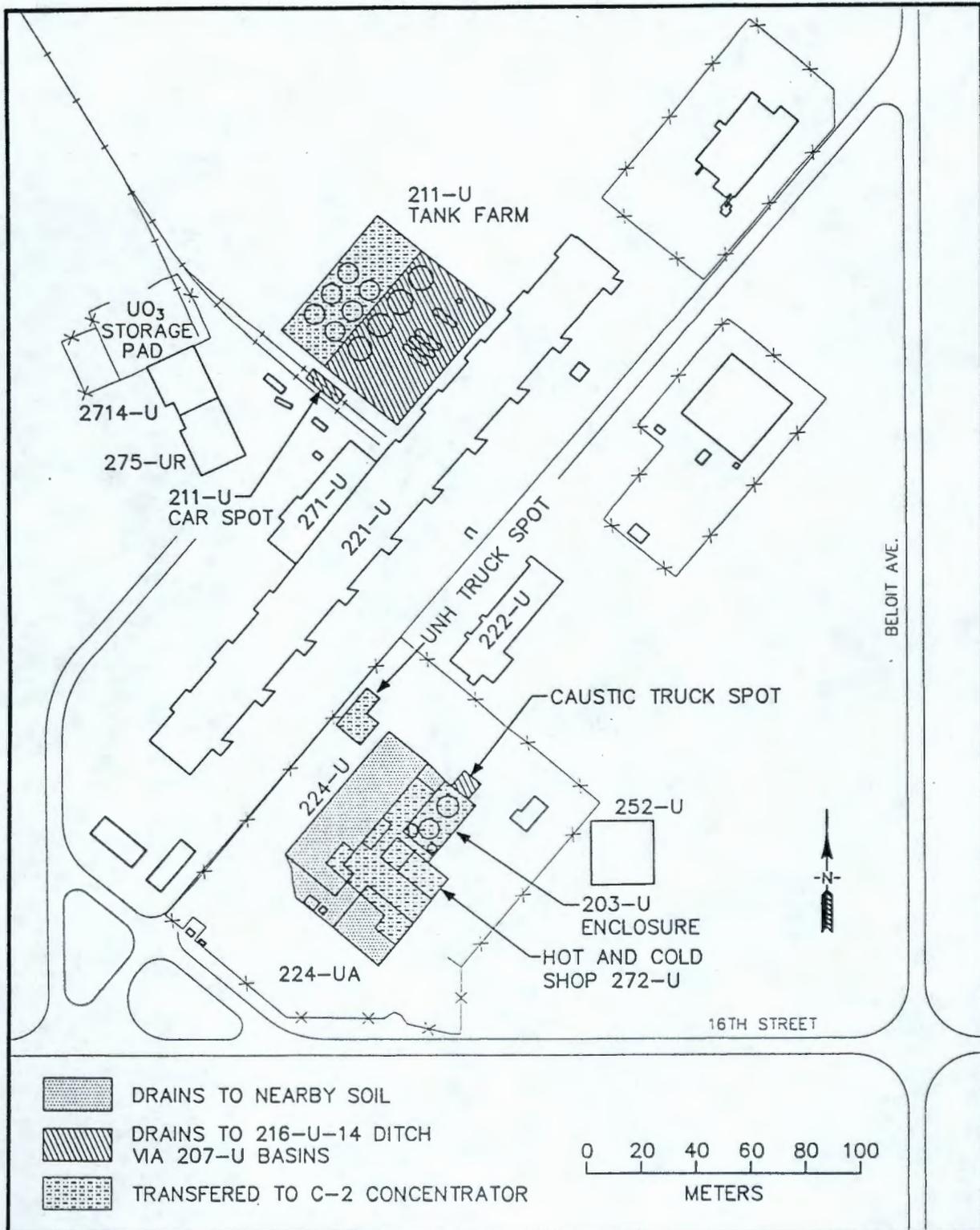
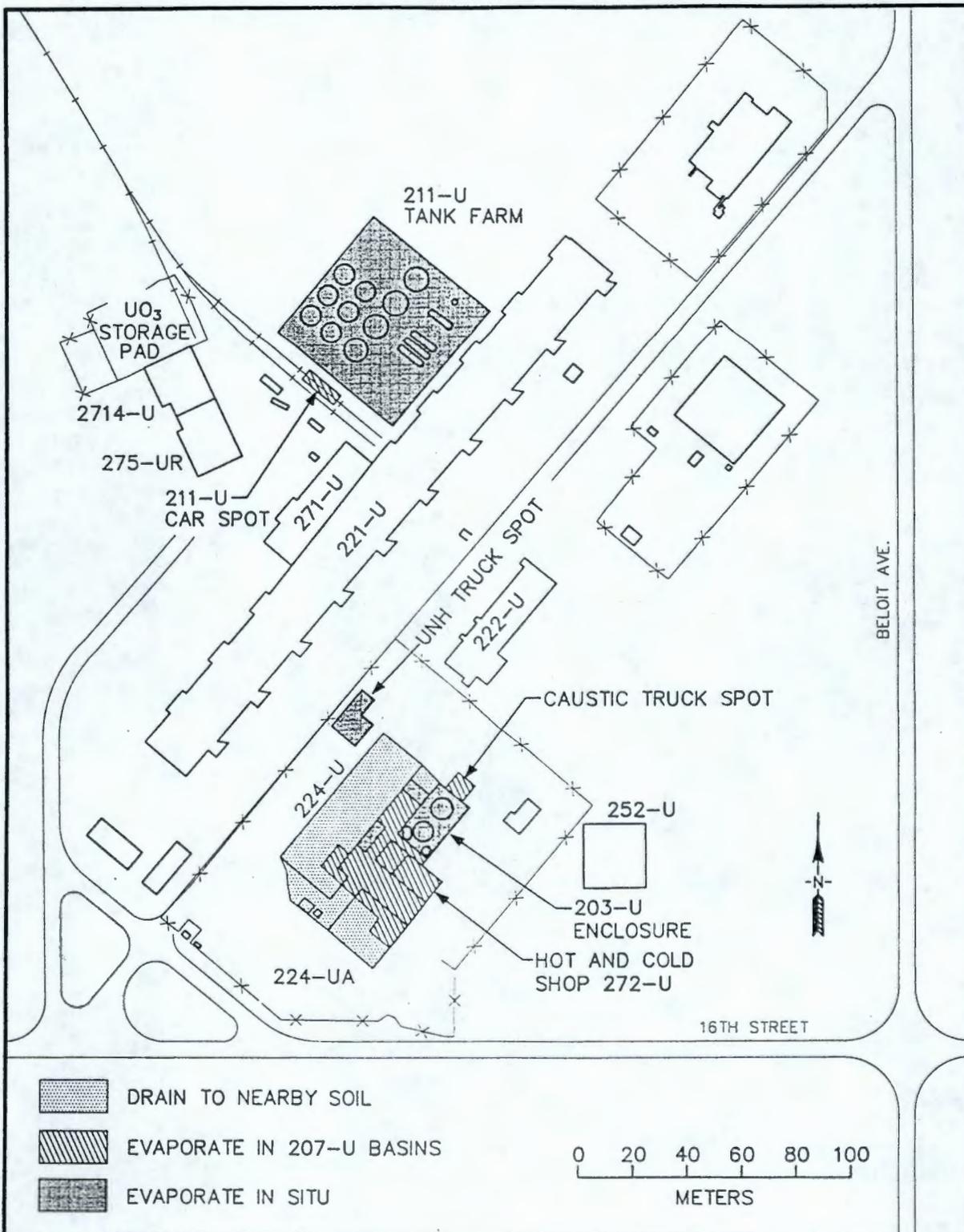


Figure 2. Proposed Routes of UO<sub>3</sub> Plant Storm Water



## CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
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Subject: UO<sub>3</sub> PLANT STORM WATER MODIFICATION INFORMATION

## INTERNAL DISTRIBUTION

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