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AZ-301 Condensate Waste Designation and Loading Station

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Abstract: In conformance with Ecology's direction, sampling and analysis of characteristic and criteria analytes was conducted on Tank Farm HEPA filters. The results were used as the basis for waste designation. Ecology's 2003 direction to use this analysis for designation purposes further affirms the determination that the ventilation stream and equipment that comes into contact with it, are not listed waste since analysis would not be required if the ventilation stream was considered to be a listed waste.

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Overview

- Condensate Generation
- Waste Designation
- Loading Station
- Conclusion

Condensate Generation

Condensate Origination

- AY and AZ Tank Farms contain high heat tanks.
- An exhaust system is used to prevent buildup of flammable gas and for cooling of the tank waste. Vapors are drawn from the headspace into exhaust ducting and routed through HEPA filters and out the exhaust stack.
- A condenser and a demister are used to remove water vapor from the air stream to keep the HEPA filters within their operating parameters.
- The collected moisture in the exhaust system drains to Tank AZ-301 which was placed into service in 2005 as brand-new equipment.
- Historically, condensation was transferred from AZ-301 back to AZ-102 or AY-101. However, due to DST capacity issues and isolation of AY-102 from receipt of additional waste, alternate disposition options had to be pursued.

Waste Designation

- Listed waste determination based on new point of generation due to application of the "uncontained gas" principle.

- Characteristic and criteria determination based on sampling and analysis results.

Waste Designation (cont.)

Supporting History

- EPA's stance on vent streams and non-containerized gases has not changed since the December 1989 preamble [54 FR 50973], except where specific actions are taken to conduct reclamation or treatment activities related to the un-contained gas or vapor (e.g. thermal treatment and landfill gases)
  - These gases and vapors are not hazardous wastes because they are not classified as solid wastes and therefore, the RCRA statute implicitly excludes them

Waste Designation (cont.)

Supporting History

- EPA's logic is discussed in McCoy's RCRA Unraveled Section 14.5.
  - "Gases/vapors flowing through pipes and ductwork are not a 'solid waste' subject to RCRA management" and therefore cannot be considered a hazardous waste. "Any liquid condensate from such a gas/vapor, however ***may be*** subject to RCRA regulation if it meets the definition of a solid and hazardous waste."
  - Gases/vapors emanating from storage of tank waste have not been treated. Alternately, "thermal treatment after a material becomes a hazardous waste (i.e., heating it to a gaseous state) is fully regulated under RCRA" (e.g., 242-A Process Condensate).
  - When condensates form from these gases/vapors, the listed waste codes do not attach to the waste designation of the condensate because no treatment has occurred.
  - When condensates form from these gases/vapors, the listed waste codes do not attach to the waste designation of the condensate because they are not created from a waste treatment process.
  - EPA reaffirmed the 1989 guidance was still current on 5/31/2011 (RO14819).

Waste Designation (cont.)

Supporting History

- Silver Working Group (Ecology and DOE) in 1995 evaluated Non-permitted, Storage, and Disposal Facilities.
  - Specific actions were identified and were specified by structure
  - Several condensate tanks were listed (e.g. 241-A-417 and 241-AZ-151)
  - Specified required actions for 241-AZ-151 were "Perform waste designation sampling of AZ-151. If the waste does NOT designate as hazardous/dangerous waste, the tank will no longer be regulated under WAC 173-303."

- AZ-301 replaced 241-AZ-151.

- If the waste was considered to be a listed waste, no analytical data would have been required to substantiate that the condensate was regulated under WAC 173-303 (F listed determinations are based upon process knowledge, and not analytical results).

Waste Designation (cont.)

Supporting History

- On June 4, 2003, Bob Wilson (Ecology) issued a letter regarding the inspection of hazardous waste accumulation areas that supported implementation of sampling/analysis to confirm designation of the HEPA filter waste stream.
  - The letter documented a commitment by the CH2M Hill Hanford Group to sample the HEPA filter stream according to a specified sampling and analysis plan that was attached to the letter. Section 1.3.3 stated "used HEPA filters determined to be low-level nonregulated waste will be disposed of in the low-level waste burial grounds".

- In conformance with Ecology's direction, sampling and analysis of characteristic and criteria analytes was conducted on Tank Farm HEPA filters. The results were used as the basis for waste designation

- Ecology's 2003 direction to use this analysis for designation purposes further affirms the determination that the ventilation stream and equipment that comes into contact with it, are not listed waste since analysis would not be required if the ventilation stream was considered to be a listed waste.

Waste Designation (cont.)

Characteristics and Criteria Determination of the Condensate

- AZ-301 condensate was representatively sampled and analyzed.
- Sample results showed constituents were below waste designation levels.
- Latest sample results are consistent with historical analyses of AZ-151 (data reviewed back to 1999).
- AZ-301 has only served to collect condensate from the AY and AZ Tank Farms.
- Based on multiple analytical results, the condensate collected in AZ-301 does not exhibit any characteristics or criteria for which it would be designated a dangerous waste.

Waste Designation (cont.)

Toxic Characteristic Analytes Above Detection Limits

Dangerous Waste Number	Contaminant	CAS #	DW Concentration (mg/L)	AZ-301 Analytical Results (mg/L)
D022	Chloroform	67-66-3	6	0.000142
D035	Methyl ethyl ketone	78-93-3	200	0.019

Loading Station

Waste from AZ-301 will be transferred into a tanker truck via a hose-in-hose transfer line. As required (approximately every 20-30 days), the truck will be driven to the 200 Area Effluent Treatment Facility/Liquid Effluent Retention Facility in the 200 East area to be emptied.

- The transfer of non-dangerous low level waste is not subject to the requirements of WAC 173-303
- Since the condensate is a non-dangerous waste and the movement of such waste would be an onsite transfer, the requirements of WAC 173-303-395(4) do not apply to the filling of the tanker truck.

Conclusions

- The waste in AZ-301 has been designated according to WAC 173-303-070(3) and (5) as non-dangerous low-level radioactive waste.

- Dangerous waste regulations do not apply to the AZ-301 condensate.