Residuals Quantities, Characteristics and Disposal Options

Tom Sorg
USEPA
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Residuals

- Backwash Water
- Spent Media

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Backwash Water

- Quantity
- Characteristics
- Disposal Options

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Backwash Water

- Quantity (Life of Media)
  - Frequency – dependent on quality of raw water and adsorptive media

    Several days to several months
  - Quantity per backwash

    10 – 15 BV

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Backwash Water

- Quantity (10 /15 BV)

Vessel 63” D x 86” H

80 cu ft media

BWW = 6000 / 9000 gallons

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Backwash Water

- Quantity of BW Water

Stevensville, MD

2 vessels (80 cu ft media/vessel)

7 gpm/ft^2 for 30 minutes

4536 gallons/vessel = 7.5 BV

9072 gallons for system

Frequency – 1/Month

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Backwash Water

- Quantity
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Backwash Water

- Characteristics

Backwash water:

Liquid fraction – dependent on quality of backwash water

Solids fraction – dependent on the solids filtered out of the source water by media

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Backwash Water

- Characteristics – Brown City, MI

Parameter	Units	Raw Water	Backwash Water			
			Unit 1	Unit 2	Unit 3	Unit 4
Turbidity	NTU	_	28	27	38	39
TDS	mg/L	_	648	1010	864	678
Arsenic	**ug/L**	**10-14 (T)**	**5 (S)**	**6 (S)**	**7 (S)**	**7 (S)**
Iron	ug/L	126-260 (T)	<25 (S)	<25 (S)	<25 (S)	<25 (S)
Manganese	ug/L	13-18 (T)	12 (S)	13 (S)	15 (S)	14 (S)

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Backwash Water

- Characteristics – RHC, MI (ADI G2 Media)

Parameter	Units	Raw Water	Backwash Water (filtered sample)
Arsenic	ug/L	35-40	2
Iron	mg/L	**1.2-1.4**	0.003
Manganese	ug/L	23-25	7
Silica	mg/L	20	17

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Backwash Water

- Characteristics – RHC, MI

Parameter	Raw Water mg/L	Solids ug/g	ug element / mg Fe
Arsenic (As)	**0.037 – 0.041**	**3,550** **5,545**	**19.7** **21.1**
Iron (Fe)	**1.2 -1.4**	**201,471** **262,592**	------- -------
Manganese (Mn)	0.02	2,558 3,532	------- -------
Silica (SiO_2)	19 -20	1,971 871	9.8 3.3
Calcium (Ca)	80 - 85	135,697 62,303	------- -------
Magnesium (Mg)	33 - 36	10,285 9,209	------- -------
Phosphorus (P)	<0.065	292 303	1.4 1.2

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Backwash Water

- Quantity
- Characteristics
- Disposal Options

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Backwash Water

Disposal Options

Dependent on:

1. State regulations

2. Site specific conditions
   - Sewer (POTW)
   - Holding pond
   - Land discharge
   - Stream discharge
   - Recycle of liquid fraction & solids disposal

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Backwash Water

Arsenic Demonstration Project, Round 1
Nine Adsorption Technology Projects

Backwash water disposal

- 2 Recycle
- 2 Pond
- 1 Ditch
- 4 POTW

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Anthony, NM Disposal Pond

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Residuals

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Spent Media

- Landfill

  Hazardous/non-hazardous

- Recycle

The End!

Thank You!

Questions!