Utah Division of Air Quality
New Source Review Section

Form 9
Scrubbers & Wet Collectors

Company _____
Site/Source_____
Date _____

Equipment Information

1. Provide diagram of internal components (attachment)	2. Manufacturer:_____ Model no._____
3. Date installed:	4. Emission Equipment served:
5. Type of pollutant(s) controlled: Particulate (type)_____ SO_x _____ Odor_____ Other _____	6. Type of Scrubber: ☐ Spray Chamber ☐ Venturi ☐ Cyclone ☐ Packed Tower Type ☐ Orifice ☐ Mechanical

7. Gas Stream Characteristics

Flow rate (acfm)		Gas Stream Temperature (^oF)		Particulate Grain Loading (grains/scf)	
Design Maximum	Average Expected	Inlet	Outlet	Inlet	Outlet

8. Particulate size: _____ microns (mean geometric diameter)

Scrubbing Liquid Characteristics

9. Scrubbing Liquid
PH _____ Range _____ - _____

Composition	Wt. %
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____

10. Liquid Injection Rate (gpm)

Design Maximum	Average Expected

11. Pressure at Spray Nozzle: _____ (psia)	12. Pressure Drop thru Scrubber _____ (inches of water)

Data for Venturi Scrubber		Data for Packed Towers	
13. Throat Dimensions (Specify Units)	14. Throat Velocity (ft/sec)	15. Type of Packing	16. Superficial Gas Velocity through Bed

Form 9 Scrubbers & Wet Collectors - Continued

Data Stack/Exhaust Exit

17. Height: _____feet	18. Temperature of exhaust stream: _____ ^{o}F	19. Inside dimensions: _____feet diameter or _____feet x _____feet

20. Monitoring Equipment

Type	Manufacturer	Model	Range	Units
Gas Pressure	_____	_____	_____	inches of water column
Water Flow	_____	_____	_____	gallons per minute
Water Pressure	_____	_____	_____	pounds per square inch

Settling Ponds

21. Dimensions of settling pond:
    Width:
    Length:
    Depth:

22. Flow rate through settling pond:

23. Residence time of water in pond:

Emissions Calculations (PTE)

24. Calculated emissions for this device

PM_{10} _____Lbs/hr_____ Tons/yr $PM_{2.5}$ _____Lbs/hr_____ Tons/yr

NO_x _____Lbs/hr_____ Tons/yr SO_x _____Lbs/hr_____ Tons/yr

CO _____Lbs/hr_____ Tons/yr VOC _____Lbs/hr_____ Tons/yr

HAPs_____Lbs/hr (speciate)_____Tons/yr (speciate)

Submit calculations as an appendix.

Instructions – Form 9 Scrubbers & Wet Collectors

NOTE: 1. **Submit this form in conjunction with Form 1 and Form 2.**
2. Call the Division of Air Quality (DAQ) at **(801) 536-4000** if you have problems or questions in filling out this form. Ask to speak with a New Source Review engineer. We will be glad to help!

1. Supply an assembly drawing, dimensioned and to scale of the interior dimensions and features of the equipment. Please include inlet and outlet liquid and gas flow directions and temperatures, and demister section.
2. Specify the manufacturer and model number of equipment.
3. Please indicate the date that the equipment was installed.
4. Specify what type of equipment or process the scrubber is being used for.
5. Specify what pollutant is being controlled by the scrubber/wet collector.
6. Specify the type of scrubber.
7. Supply the specifications for the gas stream including the flow rate at the design maximum and expected average, inlet and outlet temperatures, and particulate grain loading at inlet and outlet.
8. Supply the particulate mean geometric diameter.
9. Supply the composition of the scrubbing liquid used in the equipment.
10. Indicate what the liquid injection rate is for the design maximum and the expected average in gallons per minute.
11. Indicate the pressure at the spray nozzle.
12. Identify what the pressure drop through the scrubber is.
13. Indicate what the throat dimensions are for a venturi scrubber.
14. Indicate what the throat velocity is for a venturi scrubber.
15. Indicate what the type of packing is in a packed tower.
16. Specify what the gas velocity is through the bed in a packed tower.
17. Indicate what the stack height is of the scrubber.
18. Indicate the temperature of the exhaust gas.
19. Supply the inside dimensions of the stack.
20. Supply specifications of any monitoring equipment which is used in the system.
21. Specify the dimensions of the settling pond.
22. Indicate the flow rate of the water through the settling pond.
23. Supply the residence time of the water in the settling pond.
24. Supply calculations for all criteria pollutants and HAPs. Use AP42 or Manufacturers data to complete your calculations.