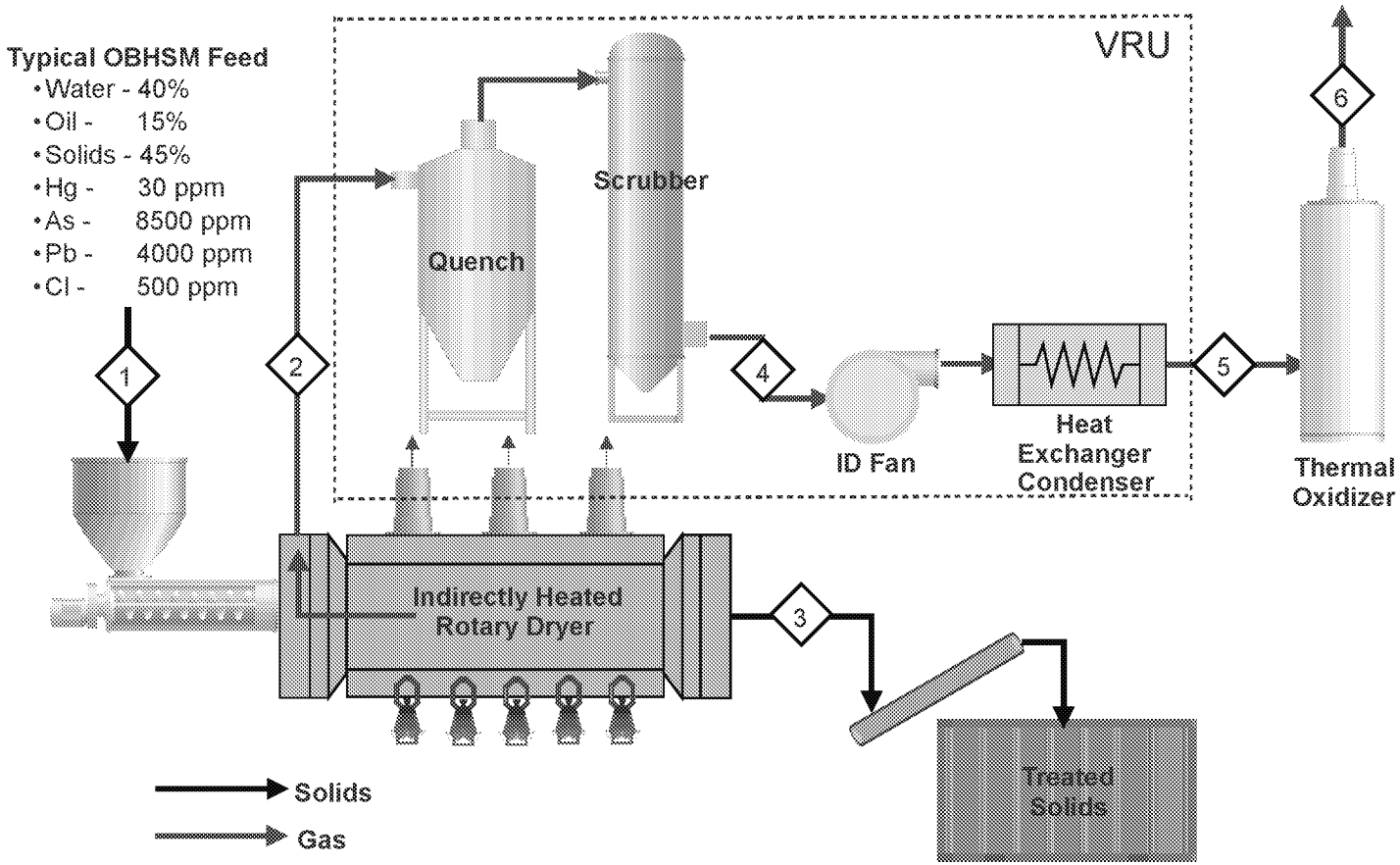
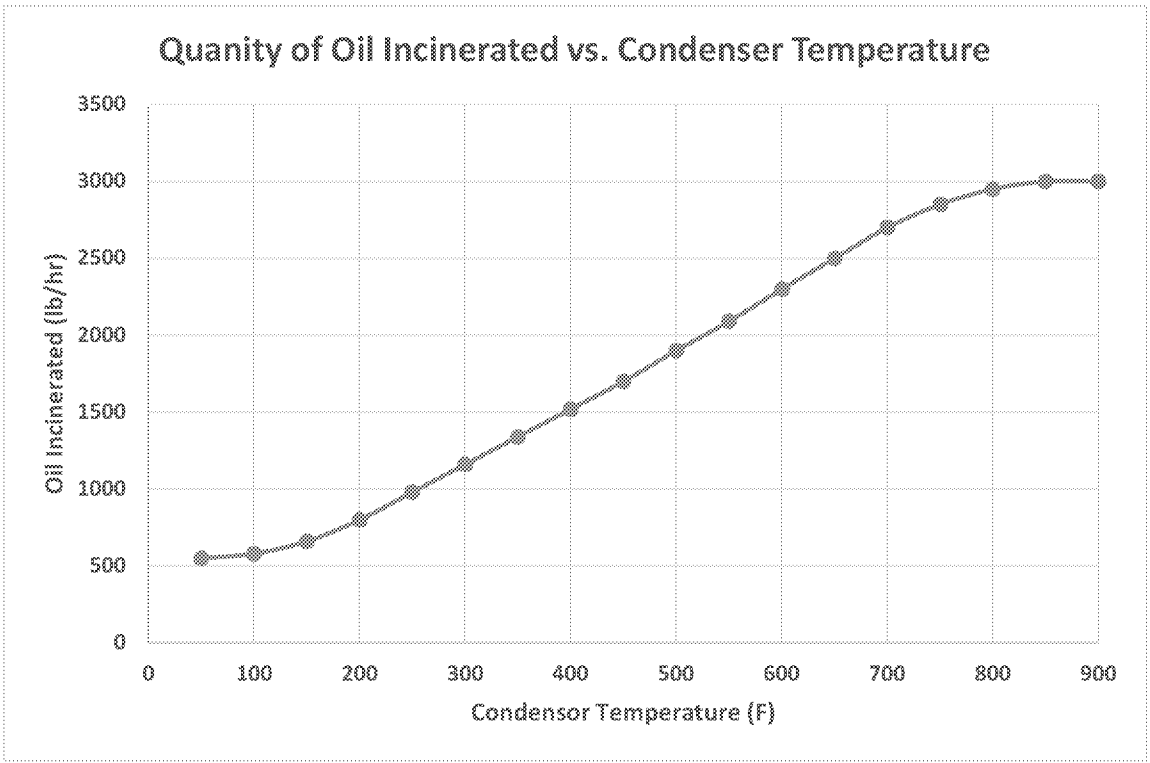
Thermaldyne Process



STREAM NO. / COMPONENT		1	2	3	4	5	6
		SLUDGE FEED TO DRYER	DRYER VENT GAS	DRYER SOLIDS	SCRUBBER EXHAUST GAS	HEAT EXCHANGER EXHAUST GAS	THERMAL OXIDIZER EXHAUST GAS
CO2	LB/HR						2,041
O2	LB/HR		521		521	521	2,530
N2	LB/HR		1,729		1,729	1,729	15,472
H2O	LB/HR	8,000	8,017		9,303	369	1,236
SOLIDS / PARTICULATE	LB/HR	9,000	450	8,550	2.3	2.3	2.3
OIL / HYDROCARBONS	LB/HR	3,000	3,000		800	800	6
TOTAL MASS FLOW	LB/HR	20,000	13,717	8,550	12,355	3,221	21,286
VOLUMETRIC FLOW	ACFM		7,452		5,495	971	18,715
LIQUID FLOW	GPM						
TEMPERATURE	°F	70	400	850	198	130	1600
PRESSURE	IN. W.C.	0.0	-1.0	0.0	-25.0	2.0	0.0
ENTHALPY	MM BTU/HR	0.1	10.8	1.7	10.6	0.5	10.3

Stack Emissions (6)	Units	MACT EEE	Thermaldyne	LDEQ Air Permit
Particulate Matter	gr/dscf	0.0016	0.09	No Limit
Dioxins and Furans	ng/dscm	0.2	2.2	No Limit
Mercury	ug/dscm	8.1	55,086	No Limit
Arsenic	ug/dscm	23	3,558	No Limit
Lead	ug/dscm	10	1,674	No Limit
HCl	ppmV	21	122	No Limit
Particulate Matter	lb/hr	0.040	2.28	No Limit
Dioxins and Furans	lb/hr	2.18E-09	2.40E-08	No Limit
Mercury	lb/hr	0.00009	0.6	No Limit
Arsenic	lb/hr	0.00025	0.039	No Limit
Lead	lb/hr	0.00011	0.018	No Limit
HCl	lb/hr	0.35	2.0	No Limit

The PFD and emissions estimates presented on the previous page assumed a conservative condenser outlet temperature of 130°F (Stream 5). But Section 3.2.4 of the Thermaldyne document "Verified Reclamation Facility Operation Description" describes the operation of the Vapor Recovery Unit as follows:

After the vent gas reaches the condenser (indirect heat exchanger), the gas temperature is reduced to less than 300°F to remove residual hydrocarbon vapors (the lighter hydrocarbons) from the gas stream. After gas exits the condenser, it is routed through a flame arrester before being discharged into the thermal oxidizer for final polishing prior to discharge to the atmosphere.

The quantity of hydrocarbon vapor that will be incinerated in the thermal oxidizer is a direct function of this condenser operating temperature as approximated in the following figure. At an OBHSM feed rate of 10 ton/hr and a condenser temperature of 300°F, over 1,100 lb/hr of oil contained in the feed will be incinerated in the thermal oxidizer. Since the permit does not impose any operating restrictions or temperature limits of any kind, there is actually no limit on the amount of oil that may be incinerated at the proposed Port Allen facility.