

Appendix A

How ACAT Developed the Solid Waste Emission Factors they Used

Appendix A: How ACAT Developed the EFs Used

ACAT used five resources in developing an EF: The EPA AP 42 Background Document (May 1993), the EPA "Inventory of Dioxin Sources" (April 1998), United Nations Environmental Program Dioxin Toolkit (January 2001), EPA Dioxin Assessment (September 2000), and two stack tests done by Alaska Department of Environmental Cooperation (1989). These are abbreviated in the discussion below as EPA 1993, EPA 1998, UNEP, Exxon barge, and Sitka.

The AP 42 background document put out by the EPA in 1993 describes how they got EFs. Since ACAT is only interested in the types of incinerators used in Alaska, they only reviewed information on Mod SA and Mod EA units.

The 1993 EPA report received test data from four Mod EA facilities:

Mod EA incinerator with ESP control	Pigeon Point, DE
Mod EA incinerator with ESP control	Pope/Douglas, MN
Mod EA incinerator with FF control	St. Croix, WI

The 1993 EPA report received test data from seven Mod SA facilities, but only two facilities tested for dioxins. One facility, in Oswego County, had several incinerators; Oneida County had only one data point, for an incinerator with ESP.

The actual concentrations of dioxins and furans found during testing are listed below:

Mod EA, ESP	Pigeon Point, DE	0.105 ug/dscm
Mod EA, ESP	Pope/Douglas, MN	0.446 ug/dscm
Average		0.276 ug/dscm
Mod SA, UNC	Oswego County, NY	0.195 ug/dscm
Mod SA, UNC	Oswego County, NY	0.359 ug/dscm
Mod SA, UNC	Oswego County, NY	0.732 ug/dscm
Mod SA, UNC	Oswego County, NY	0.175 ug/dscm
Average		0.365 ug/dscm
Mod SA, ESP	Oneida County, NY	0.462 ug/dscm
Mod SA, ESP	Oswego County, NY	0.819 ug/dscm
Mod SA, ESP	Oswego County, NY	0.353 ug/dscm
Mod SA, ESP	Oswego County, NY	0.301 ug/dscm
Mod SA, ESP	Oswego County, NY	0.412 ug/dscm
Average, Oswego County		0.471 ug/dscm
Average, all		0.467 ug/dscm

In addition to these, we have emission test data from two Alaska sources (neither still in use):

Oily Waste Incinerator barge, Prince William Sound, AK	model?	0.35 ug/dscm
Sitka Waste to Energy plant, Sitka AK	Mod EA, DSI/ESP	0.03 ug/dscm

This is all the raw data we have. Note that the EF that the EPA put out to be used nationally (as of 1998) for Mod EAs is based only on two tests. NO tests were done on Mod EAs that did not have pollution controls; apparently, most come standard with pollution controls because EAs put out more emissions, just by design, than SAs. It is assumed that all the units tested by the EPA had two combustion chambers. A popular incinerator in Alaska is, however, an excess air method using a single combustion chamber, with no pollution controls. These are called "burn boxes".

It is important to note that on average, Mod SA's with ESPs release *more* dioxin than if they did not have ESPs.

Although concentrations are listed, the amount of waste being fed into the incinerator during the tests is not known. What we want to know is how much dioxin is emitted per ton of waste in different types of combustors with different pollution control systems. This “amount of dioxin per ton of waste” is called the Emission Factor (EF) and is usually expressed as pounds of dioxin per ton of waste (lb/ton) or micrograms of dioxin per ton of waste (ug/ton). So to get an Emission Factor (how much pollutant is generated by each ton of waste), we need to do use the “F factor” system the EPA designed.

Remember, you can find the EF in two ways:

1. Stack test can give actual concentration of dioxin being emitted.

Concentration emitted during test(ug) / Amount of Waste (tons) = ug of dioxin emitted per ton of waste

2. If you do not know the amount of waste fed during the test, then you can use the “F factor” system developed by the EPA.

In order to develop EF, the EPA used the following conversions:

“F factor” gas volume of pollutants/ heating value of fuel
 = determined to be an average of 9570 dscf/million BTU

Heating value of Waste = determined to be an average of 4500 Btu/lb

Now you are able to convert ug/dscm to lb/ton.

For example, if actual data show a concentration of 0.276 ug/dscm of dioxins:

$$0.276 \text{ ug/dscm} \times \text{m}^3 / 35.31 \text{ ft}^3 \times \text{g} / 10^6 \text{ ug} \times \text{lb} / 454 \text{ g} \times 9570 \text{ dscf} / 10^6 \text{ Btu} \times 4500 \text{ Btu/lb} \times 2000 \text{ lb/ton}$$

$$= 1.48 \times 10^{-6} \text{ lb/ton}$$

To convert to ug/ton (which is what dioxin EF is listed as in UNEP):

multiply lb/ton by 454 x 10⁶ ug/lb

So (1.48 x 10⁻⁶ lb/ton) x (454 x 10⁶ ug/lb) = 672 ug dioxin/ton waste

The first important thing to recognize is that some information is presented with EF as the concentration of TOTAL dioxins and furans, while other is presented with the EF as TEQ, ie, the potency of the emissions comparable to 2,3,7,8 TCDD. Since we are interested in the potency or toxicity of emissions, we want to use the TEQ EF.

The only raw data we have that includes both total dioxin and furan and TEQ is with the Alaska information. The raw data on the barge listed each dioxin and furan congener, with its actual concentration and with concentration adjusted to 7% oxygen. By looking at the TEQ for each congener (usually 0.1 or 0.01), we can easily calculate the TEQ and the TEQ EF. The data from the Sitka plant did not list raw data by congener, but from the information we can get a good estimate of the TEQ EF.

Actual data taken from a barge incinerating oily waste during the Exxon Valdez oil spill cleanup in 1989 showed a concentration of TOTAL dioxin and furan as 351.35 ng/dscm = 0.35 ug/dscm

Using the above conversions, we get EF = 1.88 x 10⁻⁶ lb/ton or 854 ug/ton

The barge data also lists the TEQ as 3.33 ng/dscm = 0.03 ug/dscm at 7% oxygen.

Using the above conversions, we get EF = 7.3 TEQ ug/ton

The next thing we want to do is gather up all the information we have on concentrations, total EF, and TEQ EF. This is listed below:

Combustor	Total EF	TEQ EF	concentration
Exxon oily waste barge	854 ug/ton	7.3 ug/ton	0.351 ug/dscm
Sitka Waste-Energy plant	73.2	0.7 ug/ton*	0.03 ug/dscm

**difficult to tell TEQ, for Sitka as 7% oxygen info on dioxin concentration not listed by congener*

From EPA 1993:

Avg of 2 Mod EA, ESP	1008 ug/ton (2.22 x 10 ⁻⁶ lb/ton)	not given	0.276 ug/dscm
Avg of 1 Mod EA, FF	28 ug/ton (6.23 x 10 ⁻⁸ lb/ton)	not given	0.008 ug/dscm
Avg of 4 Mod SA, UNC	1335 ug/ton (2.94 x 10 ⁻⁶ lb/ton)	not given	0.365 ug/dscm
Avg of 5 Mod SA, ESP	1707 ug/ton (3.76 x 10 ⁻⁶ lb/ton)	not given	0.467 ug/dscm

From EPA 1998 and 2000:

Bolded are models with actual emissions tests. Unbolded were assigned EFs with no testing.

Mod SA, C-ESP	not given	16 ug/ton	not given
Mod SA, H-ESP	not given	79 ug/ton	not given
Mod SA, unc	not given	0.03 ug/ton	not given
Mod SA, DSI/FF	not given	0.03 ug/ton	not given
Mod EA, C-ESP	not given	16 ug/ton	not given
Mod EA, H-ESP	not given	118 ug/ton	not given
Mod EA, unc	not given	0.03 ug/ton	not given

From UNEP 2001:

Low tech, no APC	not given	3500 ug/ton	not given
Controlled combustion,			
Minimal APC	not given	350 ug/ton	not given
Good APC	not given	30 ug/ton	not given
Hi tech, sophist. APC	not given	0.5 ug/ton	not given

There are two things we get from this:

1. EPA assigned EFs to some models of incinerators without actually testing them:
 - MOD SA C-ESP was assumed to be the same as MOD EA C-ESP
 - MOD SA UNC was assumed to be the same as MOD SA DSI/FF
 - MOD EA UNC was assumed to be the same as MOD SA DSI/FF

While ACAT does not dispute that MOD SA and EA with C-ESPs perform similarly, they do dispute setting an incinerator with *no emission controls* to the same emission factor as one that *has both particle and gas controls* on it. In particular, it is obvious from 1993 data that a modular incinerator with a fabric filter (FF) puts out MUCH less dioxin than one with no controls at all -- so it makes no sense to give them both the same emission factor in 1998/2000.

2. We cannot compare any one set of data to another without more information. EPA 1993 did not give TEQ EF; EPA 1998/2000 did not give total EF. UNEP does not get specific about models, and does not give us any idea of what the total concentration of dioxin/furan was that led to their TEQ EF.

If we wanted to be able to compare these different sets of numbers, we would want to get them

all in TEQ EF. The only information we have that gives us any idea of how total and TEQ EF compare is the information from the Alaska sources. We can see from them that the TEQ EF is ROUGHLY 1% of the total EF. That is, 7.3 ug/ton is roughly 1% of 854 ug/ton and 0.7 ug/ton is roughly 1% of 73.2 ug/ton.

Although this is VERY ROUGH, it does give us a potential way to get all the information into the same TEQ format.

By taking all total dioxin EF information and multiplying by 1% to find roughly the TEQ EF, we get:

Combustor	TEQ EF	Concentration
From EPA 1993:		
Mod EA, ESP	10.1 ug/ton	0.276 ug/dscm
Mod EA, FF	0.7	0.008 ug/dscm
Mod SA, UNC	13.4	0.365 ug/dscm
Mod SA, ESP	17.1	0.467 ug/dscm
From Alaska Data, 1989:		
Sitka Mod EA, ESP/DSI	0.7	0.03 ug/dscm
Exxon, model unknown	7.3	0.351 ug/dscm
From EPA 1998/2000: <i>(bolded is models with actual emissions tests)</i>		
Mod EA, UNC	0.03	
Mod EA, C-ESP	16	
Mod EA, H-ESP	118	
Mod SA, UNC	0.03	
Mod SA, C-ESP	16	
Mod SA, H-ESP	79	
Mod SA, DSI/FF	0.03	
UNEP 2001:		
Low tech, minimal APC	3500	
Controlled combustion, min APC	350	
Controlled combustion, good APC	30	

This information is somewhat confusing, especially regarding uncontrolled (no APCD) units, which is what virtually all of the incinerators in Alaska are. Looking at the actual concentrations (and consequent EF) for Mod SA's in 1993, we see that Uncontrolled Mod SA put out slightly less dioxin than units with ESPs. Since we know that ESPs promote the formation of dioxin at the same time that they are removing some dioxin, this seems reasonable that the two numbers are pretty close. The incinerators tested were in the same counties: four uncontrolled and five ESP units were tested.

However, setting the uncontrolled emissions from SA's and EA's as the same seems completely unreasonable, since we know that simply by design EA's put out more dioxin.

Also, assuming that MODs with no controls put out the same emissions as MODs with FF particle filters and DSI gas controls does not seem reasonable, especially given the 1993 data.

Lastly, it is very difficult to compare EPA figures to UNEP figures, since UNEP doesn't give us a good idea of what category the modular units would fall under.

Now we re-arrange the above chart so we can view it by types of units:

Combustor	Alaska	EPA 1993	EPA 1998	UNEP 2001
Sitka Mod EA, ESP/DS	0.7 ug/ton			
Mod EA, UNC	no info	no info	0.03	350? Or 30?
Mod EA, ESP	no info	10.1	16 – 188	350? Or 30?
			Cold – hot	
Mod EA, FF	no info	0.2	0.03 – 16	30?
			DSI/FF DS/FF	
Mod SA, UNC	no info	13.4	0.03	350? Or 30?
Mod SA, ESP	no info	17.1	16 – 79	350? Or 30?
			Cold hot	
Mod SA, FF	no info	no info	16	30?

What ACAT proposes is to provide an EF range.

- Single chambered modulars need to be considered as having the potential to emit much more than dual chambered.
- The UNEP information needs to be considered.
- Uncontrolled modulars need to be considered as having the potential to emit as much as units with ESPs (from 1993 data).

ACAT set a range of EFs at:

Two Chambered Modulars

MOD SA, UNC	0.03 - 40 ug/ton	
MOD SA, C-ESP	16 - 30 ug/ton	
MOD SA, H-ESP	30 - 79 ug/ton	
MOD SA, ESP, not known if it is hot or cold ESP		16 - 79 ug/ton
MOD EA, UNC	0.03 - 90 ug/ton	
MOD EA, C-ESP	16 - 30 ug/ton	
MOD EA, H-ESP	30 - 180 ug/ton	
MOD EA, ESP, not known if it is hot or cold ESP		16 - 180 ug/ton

The reasoning:

MOD SA, UNC	0.03 is the EPA EF 40 is half the H-ESP, which takes into account the fact that uncontrolled MODs may put out as much as some incinerators with some ESP designs; it also covers the UNEP EF of 30 ug/ton for “Good” incinerators.
MOD SA, C-ESP	16 is the EPA EF; 30 is the UNEP EF for “good” models
MOD SA, H-ESP	30 is the UNEP EF; 79 is the EPA EF
MOD EA, UNC	0.03 is EPA EF; 90 is half the H-ESP EF.
MOD EA, C-ESP	16 is the EPA EF; 30 is the UNEP EF.
MOD EA, H-ESP	30 is the UNEP EF; 180 is the EPA EF

Single Chambered Modulars

The only single chambered modulars in Alaska are MOD EAs with no pollution controls.

MOD EA, UNC	350 ug/ton
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The reasoning:

EPA has not tested single chambered modulars. We know single chambered designs emit a great deal more than dual or triple chambered. A single chambered excess air unit with no pollution control would probably fall under the UNEP classification of “Controlled combustion, minimal Air Pollution Controls”. The UNEP EF for this is 350 ug/ton.

In the Section III, we apply the above EFs to individual incinerators in Alaska.

Appendix B
Fact Sheets on Alaska's
Solid Waste Incinerators

Fact Sheet: USA Waste Channel Island MSW

Location: Juneau, AK
 SIC code: 4953 Refuse Systems
 Permit Number: 304TVP01
 Permit dates: April 4, 2000 - April 3, 2005
 Owner: USA Waste of Alaska, Inc 6301 Rosewood Anchorage, AK 99518
 Facility contact: Ms. Judy Peterson, Mr. Glenn Thompson (907) 780-7800

Governed by the following pertinent regulations:

18 AAC 50.325 (b) (2) due to HCl
 18 AAC 50.325 (c)
 18 AAC 50.300 (b) Facility contains incinerators with combined capacity 1000 lb/hr+
 18 AAC 50.300 (f) Hazardous Air Contaminant Major Facility (10+ tpy of HCl)

Notes on the facility:

Although this operates as a solid waste incinerator, it is suspected they may burn medical waste from the local hospital (Bartlett Memorial) and clinics in Southeast. When asked directly if they burned waste from Bartlett, they never gave a direct answer to DEC. They burn at least 10% medical waste, but they could be burning more.

- Facility has two incinerators
- Other air pollution sources listed on permit: 3 fuel storage tanks, 3 oil fired furnaces.
- Air contaminants allowed under permit: PM10, SO_x, NO_x, CO, VOC, As, Cd, Cr, HCl, Pb, dioxin, furans.

Pollutant:	NO _x	CO	PM10	SO ₂	HCl
Potential Emissions (tpy)	43.2	11.2	3.6	25.9	72

Notes on the incinerators:

Model: Both are Consumat Model CS-1600 Step Grate with dual ESP
MOD SA, H-ESP. UNEP class: "good".

Capacity: 36 tons per day each = 72 tons per day total
 DEC assessed capacity is 21,600 tpy (72 ton/day x 300 days) maximum
 ACAT assesses capacity as 85% of potential: 85% x 21,600 = **18,400 tpy**

Operation: Operates continuously for 6 - 10 days, then is shut down for 1 - 2 days for maintenance and ESP clean out. Operates about 300 days/year.
 Secondary chamber is required (by permit) to be at 1650+F.

APCD: Emissions from both incinerators are routed through a common duct to a dual stage ESP, installed 1986. It operates at 650 - 800F when both incinerators are operating, and may be as low as 350 F with only one.

Dioxin control: Second chamber helps control. H-ESP does not help. No acid gas controls.

Waste burned: MSW from residences and businesses in Juneau, petroleum contaminated soil, cruise ship waste in summer.
 medical waste: 300 lbs/month (1.8 tpy) medical waste

EF: 18,400 tpy based on solid waste; 2 tpy based on MWI

Ash disposal: Capitol landfill, Juneau, has solid waste permit to take waste ash. Receives 35 tons of incineration ash every day (probably from this incinerator and Juneau SSI). Ash is mixed bottom and fly ash with a neutralizing agent.

ACAT ASSESSMENT:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced ug/yr
MOD SA, H-ESP	18,400 tpy	Air: 30 - 80	550,800 - 1,472,000 ug
UNEP "good"		Ash: 200	3,680,000 ug
		MSW Total	4,230,800 - 5,152,000 ug/yr
MOD SA, H-ESP	2 tpy	Air: 45 - 525	90 - 1050 ug
over 200 lb/hr		Ash: 920	1840 ug
		MWI Total	1930 - 2890 ug/yr

Fact Sheet: North Slope Borough Service Area #10 MSW

Location: Prudhoe Bay, AK
 SIC code: 4953 Refuse Systems
 Permit number: 187TVP01 October 23, 2001 - October 22, 2006
 Owner: North Slope Borough Pouch 340044 Prudhoe Bay, AK 99737-0044
 Facility Contact: Joe Singleton and Jack Azzeh (907) 659-0102

Governed by the following regulations:

18 AAC 50.350 (b)
 18 AAC 50.325 (b) (2) due to HCl
 18 AAC 50.325 (c)
 18 AAC 50.300 (b) (3) Facility contains incinerators with combined capacity 1000 lb/hr+
 18 AAC 50.300 (f) Hazardous Air Contaminant Major Facility (10+ tpy of HCl)

Notes on the facility:

- In addition to incinerator, these air pollution sources are listed on permit-- 2 diesel/natural gas boilers, 2 diesel generators.

- Air contaminants allowed under permit: NO_x, CO, PM 10, SO₂, VOC, HCl, H₂S

Pollutant:	NO _x	CO	PM10	SO ₂	VOC	HCl
Potential to emit (tpy)	36.4	33.4	22.5	38.5	14.0	28.0
Actual emit, 2000 (tpy)	14.7	4.0	0.9	5	3.7	7.1

Notes on the incinerator:

Model: Basic Pulse Hearth Boiler Model 5000, natural gas for supplemental fuel. Low velocities and near stoichiometric air flow in primary chamber, high turbulence in secondary and tertiary chambers. Re-burn tunnels to burn off gases. Flue gases routed through economizer and boiler for heat recovery. **MOD EA, ESP.** UNEP class "good".

Installation: 1981. Remodeled in 1996.

Capacity: 2500 lb/hr (=1.25 tons/hr) according to permit.
 1.25 ton/hr x 24 hr/day x 365 days/yr = 10,950 tpy maximum.
 ACAT assumes 300 days/yr, incinerator operating at 85% of total capacity:
 1.25 ton/hr x 85%=1 ton/hr. 1 tph x 24 hr/day x 300 days/yr = **7200 ton/yr**
 Product literature lists capacity as 8800 lb/hr of solid waste, 4660 lb/hr of medical waste, 3200 lb/hr of used tires, or 1820 lb/hr of plastic waste. Incinerator used to be rated at 5,000 lb/hr but had work done on it by the manufacturer to de-rate it to 2500 lb/hr in February 1996.

Operation: No information on the number of days/yr or hours per day it operates.

APCD: ESP. Probably operated hot, but no definite information on that.

EF: EF range will be entire range for both hot and cold ESPs.

Dioxin control: ESP for particles. No acid gas control. Three chambers helps control. Permit requires dioxin control by controlling CO (cannot exceed 100 ppm) and high temperatures in combustion zone (1500+ F).

Waste burned: MSW, oily waste, DEC suspects some medical waste (not confirmed)

Ash disposal: Oxbow landfill, Deadhorse, has solid waste permit to take waste ash.

ACAT ASSESSMENT:

Combustor	Waste burned	EF (ug/ton)	Dioxins produced ug/yr
MOD EA, ESP	7200 tpy	Air: 16 - 180	115,200 - 1,296,000
UNEP "good"		Ash: 200	1,440,000
		Total:	1,555,200 - 2,736,000 ug/yr

Fact Sheet: Airline Support, Inc. (Hacor) MSW

Location: Anchorage, AK
 SIC code: 4700
 Permit number: 194TVP01 April 5, 2000 - April 4, 2005
 Owner: Airline Support, Inc. 4450 West 50th St. Anchorage, AK 99502
 Facility Contact: Mark Flaker, Donald Tulin (907) 272-2211

Governed by the following regulations:

- 18 AAC 50.350 (b)
- 18 AAC 50.325 (c)
- 18 AAC 50.300 (b) (3) Facility contains incinerators with combined capacity 1000 lb/hr+

Notes on the facility:

• Air contaminants allowed under permit: NO_x, CO, PM 10, SO₂, VOC, HCl, As, Cd, Cr, Pb, dioxin, furans.

Pollutant:	NO _x	CO	PM10	SO ₂	VOC	HCl
Potential to emit (tpy)	7.6	0.7	8.3	7.2	7.2	5.2

Notes on the incinerator:

Model: Consumat Model C-225P. Two chambers; four gas-fired 1/2 million Btu/hr burners in primary chamber and one 1.5 million btu/hr burner in secondary chamber. In primary chamber, air is limited to less than that required for complete combustion; in secondary chamber, gases pas through turbulent mixing zone where air is added. **MOD SA, UNC.** UNEP class "good".

Installation: Installation date not known

Capacity: Rated at 13.2 ton/day.
 DEC assessable capacity is 1000 hrs/yr at 500 lbs/hr = 250 tpy
 ACAT assesses it at 1 ton/batch x 4 batches/wk x 52 wk/yr is about **210 tpy**

Operation: 3 to 4 hours/batch, 3 - 4 batches/ week (832 hr/yr) About 1 ton/batch.

APCD: None

Dioxin control: 2 chambers helps control. No particle or gas controls.

Waste burned: Waste generated from food service aboard domestic and international flights.

EF: EF is based on municipal waste, rather than food waste (biomass EF) because plastic and paper will be part of the waste, not just food.
 The range for a Mod SA with no pollution controls is used: 13 - 30 ug/ton

Ash disposal: Possibly MatSu Borough landfill, which has a solid waste permit for ash.
 Anchorage Regional landfill does not have a permit for waste ash.

ACAT ASSESSMENT:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD SA, UNC	210 tpy	Air: 0.03 - 40 ug/ton	6 - 8,400 ug
UNEP "good"		Ash: 200 ug/ton	42,000
Total			42,006 - 50,400 ug/yr

Fact Sheet: Trident Seafood Processing Plant MSW, Akutan

Location: Akutan Island, AK (Aleutian Islands, Bering Sea)
 SIC code: 2091 codfish, salted; 2092 fish fillets and frozen shellfish
 Permit number: 231TVP01 August 9, 2000 - August 8, 2005
 Owner: Trident Seafoods Corp. 5011 Jewel Lake Rd #203 Anchorage, AK 99502
 Facility Contact: Mr. Doug Donegan (907) 243-3166

Governed by the following pertinent regulations:

- 18 AAC 50.350 (b)
- 18 AAC 50.325 (b) (1) Facility with pte of 100+ tpy of regulated air contaminant
- 18 AAC 50.325 (b) (3)
- 18 AAC 50.325 (c)

Notes on the facility:

This facility is in a remote location and needs to be self sufficient. The incinerator is a minor part of the operations. The plant unloads raw fish and crab and processes them: cod is salted, pollock is made into surimi, crab is frozen. Waste from fish processing is converted into fish meal, and is not put in incinerator.

- Additional air pollution sources listed in permit: 7 diesel generators, 6 boilers, 1 furnace, 2 diesel engines, 6 fuel storage tanks.

- Air contaminants allowed under permit: NOx, CO, PM 10, SO₂, VOC

Pollutant:	NOx	CO	PM10	SO ₂	VOC
Potential to emit (tpy)	220	108	12	87	113

Notes on the incinerator:

Model: Trash incinerator, model not listed. Too large a capacity to be a Smart Ash; it is likely dual chambered, and we would assume **MOD EA, UNC**. UNEP class "good".

Installation: Installed January 1992.

Capacity: Rated at 2000 tpy.
 ACAT assesses it at 2000 tpy x 85% of capacity = **1700 tpy**

Operation: Operation conditions not mentioned. Probably as needed.

APCD: None listed in permit.

Dioxin control: None. Not subject to PM standards, but needs to comply with 20% opacity.

Waste burned: Trash. Expect this includes solid waste and oily waste.

EF: EF is based on municipal waste.

Ash disposal: Not known.

ACAT ASSESSMENT:

<i>Combustor</i>	<i>Waste burned</i>	<i>EF range (ug/ton)</i>	<i>Dioxins produced (ug/yr)</i>
MOD EA, UNC	1700 tpy	Air: 0.03 - 90 ug/ton	51 - 153,000 ug
UNEP "minimal"		Ash: 200 ug/ton	340,000 ug
		Total	340,051 - 493,000 ug/yr = 0.34 - 0.49 grams/yr

Fact Sheet: Forest Oil, W. McArthur River Unit, solid waste

Location: Cook Inlet, AK
SIC code: 1311 Crude Oil Production
Permit number: 276TVP01 August 28, 2001 - August 27, 2006
Owner: Forest Oil Corporation 310 K St, Suite 700 Anchorage, AK 99501
Facility Contact: Kriss Wegemer, Production/Services Engineer (907) 258-8600

Governed by the following pertinent regulations:

18 AAC 50.350 (b)
18 AAC 50.325 (b) (1) Facility with pte of 100+ tpy of regulated air contaminant
18 AAC 50.325 (c)
18 AAC 50.300 (b) (2)
18 AAC 50.300 (c) (1) PSD Major Facility--pte 250+ tpy of a regulated air contaminant
(limits on operations requested to avoid PSD trigger levels)

Notes on the facility:

This facility is in a remote location; it is an oil and gas production facility that transfers processed oil to Unocal's Trading Bay Production Facility. Crude oil is brought up by hydraulic pumps powered by electric driven pumps at the surface. Turbines running on natural gas generate the electrical power. The incinerators are a minor part of the operations.

- Facility has two incinerators.
- Additional air pollution sources listed in permit: 2 gas fired pumps, 4 diesel generators, 3 gas fired turbines, one diesel turbine, 2 boilers, one flare, 4 gas fired heaters.
- Air contaminants allowed under permit: NO_x, CO, PM 10, SO₂, VOC, 1,3 butadiene, acetaldehyde, Sb, acrolein, As, Be, Benzene, Cd, Co, Cr, Cr VI+, ethylbenzene, ethylene glycol, formaldehyde, isomers of xylene, naphthalene, Mn, Hg, Ni, P, PAH, Se, toluene, H₂S

Pollutant:	NO _x	CO	PM10	SO ₂	VOC
Potential to emit (tpy)	215	119	13	95	17
Actual tpy, 1996 -1997	59	23	3	0.2	4

Notes on the incinerators:

Model: No model mentioned. 2 multiple chambered refuse incinerators. Since they are multiple chambers, we assume **MOD SA, UNC**. UNEP class "good".
Installation: Smaller one installed 1994; larger one installed 2000.
Capacity: Smaller one is rated at 141 lb/hr (618 tpy); larger one rated at 198 lb/hr (867 tpy) but is limited in DEC permit to 7.5 tpy to avoid PSD trigger.
ACAT assessed capacity: (618 tpy + 7.5 tpy) x 85% capacity = about **500 tpy**
Operation: No information is given on operation.
APCD: None listed in permit.
Dioxin control: Secondary chamber helps control.
Waste burned: Trash.
EF: EF is based on municipal waste.
Ash disposal: Location not known.

ACAT ASSESSMENT:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD SA, UNC	500 tpy	Air: 0.03 - 40 ug/ton	15 - 20,000 ug
UNEP "good"		Ash: 200 ug/ton	100,000 ug
		Total	100,015 - 120,000 ug/yr

Fact Sheet: Clear Air Force Station, Solid Waste Incinerator

Location: Anderson, AK
 SIC code: 9711
 Permit number: 318TVP01 January 21, 2000 - January 20, 2005
 Owner: United States Air Force
 Facility Contact: Station Commander 13SWS/CC PO Box 40013 Clear AFS, AK 99704-0013

Governed by the following pertinent regulations:

- 18 AAC 50.335 (e) (4) (A)
- 18 AAC 50.325 (b) (1-2) Facility with pte of 100+ tpy of regulated air contaminant
- 18 AAC 50.325 (c)
- 18 AAC 50.300 (b) (1) (A-B)
- 18 AAC 50.300 (b) (2, 4)
- 18 AAC 50.300 (c) (1-2) PSD Major Facility--pte 250+ tpy of a regulated air contaminant
- 18 AAC 50.300 (f) Hazardous Air Contaminant Major Facility

Notes on the facility:

This facility is 78 miles southwest of Fairbanks and has 120 military and 250 civilians based on it. It's main mission is to detect and provide early warning of a ballistic missile attack, and to monitor satellites and space objects using radar detectors. The base is divided into 3 areas: Camp (engineering/maintenance), Composite (admin/living area), and Operations (radar and technical equipment). The Operations section contains the power plant that provides electricity to the station and radars. Coal fired boilers provide power. Although it is a PSD Major Facility, it has not undergone a PSD review because power plant was in full operation before 1977. Although the facility emits about 70 tons of hazardous air pollutants (HAPs) a year (mostly HCl), there are no regulations limiting or requiring monitoring of HAPs; it is not subject to best available technology regulations for HAPs. HAPs mostly come from halides in the coal which runs the boilers.

- Additional air pollution sources listed in permit: 3 large coal fired boilers, 4 diesel generators, 3 diesel water pumps, 23 oil fired heaters.

- Air contaminants allowed under permit (these mostly originate from coal-fed boilers, not the incinerator): HCl, NOx, CO, PM 10, SO₂, VOC, 1,3 butadiene, acetaldehyde, Sb, acrolein, As, Be, Benzene, Cd, Co, ethylbenzene, ethylene glycol, formaldehyde, isomers of xylene, naphthalene, Mn, Hg, Se, toluene, H₂S, Pb, asbestos, **vinyl chloride**, carbon tetrachloride, 1,1 trichloroethane, 1,1,2,2 tetrachloroethane, 1,1,2 trichloroethane, 1,2 butylene oxide, 1,1 dichloroethane, 2 ethoxyethanol, 2 ethoxyethyl acetate, acrylonitrile, aniline, antimony dialkyldithiocarbamate, bis (2 ethyl hexyl) phthalate, butyl benzyl phthalate, carbonyl sulfide, chloroform, cumene, dioxane, ethylene glycol monobutyl ether, ethylene glycol monobutyl ether acetate, ethylene oxide, hexane, hydroquinone, lead chromate VI, lead sulfate, methanol, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, NN dimethylformaldehyde, sodium chromate VI, styrene, tetrachloroethylene, trichloromethylen, vinyl acetate, hydrogen fluoride.

- Regulated air contaminants with pte 250+ tons tpy: NOx, CO, PM10, SO₂

Pollutant:	NOx	CO	PM10	SO ₂	VOC
Potential to emit (tpy)	2280	800	250	1140	
Incinerator emissions:	nl	nl	nl	0.4	nl

nl = not listed

Facility: Clear AFS, continued

Notes on the incinerators:

Model: No model mentioned. Listed as a trash incinerator. Too large to be a Smart Ash; assume dual chamber. Assume **MOD EA, UNC**.
 UNEP class "good"

Installation: Installation date not listed.

Capacity: Rated at 320 lb/hr
 Maximum capacity: 320 lb/hr x 24 hr/day x 365 days = 1402 tpy
 DEC limits fuel consumption to 14,000 gallons/year because there is not enough trash to use it more often, but they do not list how many gallons/hr the incinerator uses.
 ACAT capacity assessment: By reviewing specs on various small Mod EA, Unc units put out by Therm-Tec and Advanced Combustion Systems, Inc, units with capacities of 250 - 500 lbs/hr, diesel fuel use ran from 14 - 17 gallons per hour. If the trash incinerator at Clear AFS uses 14 gallons/hr, and is limited to 14,000 gallons/yr, then it is limited to 1,000 hrs/yr. In 1,000 hrs, it can burn 320,000 lbs (160 tons) of waste. The capacity ACAT uses in their assessment is: **160 tpy**

Operation: No information is given on operation.

APCD: None listed in permit.

Dioxin control: None.

Waste burned: Trash.

EF: EF is based on municipal waste.

Ash disposal: Clear AFS landfill has a solid waste permit for waste ash.

ACAT ASSESSMENT:

<i>Combustor</i>	<i>Waste burned</i>	<i>EF range (ug/ton)</i>	<i>Dioxins produced (ug/yr)</i>
MOD EA, UNC	160 tpy	Air: 0.03 - 90 ug/ton	5 - 14,400 ug
UNEP "minimal"		Ash: 200 ug/ton	<u>32,000 ug</u>
		Total	32,005 - 46,400 ug/yr = 0.03 - 0.05 grams/yr

Note:

According to TRI, the entire Clear AFS reported emissions of 125,000 ug/yr = 0.125 g/yr

Fact Sheet: Northern Victor Seafood Processing, solid waste

Location: Udaga Bay, Unalaska Island, AK (Aleutian Islands, Bering Sea)
 SIC code: 2077 Fish meal and fish oil; 2091 codfish, salted;
 2092 fish fillets and frozen shellfish; 5142, 5146 frozen fish, wholesale
 Permit number: 416TVP01 August 28, 2001 - August 27, 2006
 Owner: Icicle Seafoods Corp. PO Box 79003 Seattle, WA 98119
 Facility Contact: Robert Parsons or Mike Clutter (206) 282-0988

Governed by the following pertinent regulations:

18 AAC 50.325 (b) (3)

18 AAC 50.325 (c)

Notes on the facility:

This is a processing ship which has been moored in Udaga Bay since 1998.

• Additional air pollution sources listed in permit: 4 diesel generators, 2 steam boilers, a fish meal exhaust filter, and a burn basket for open burning of trash.

• Air contaminants allowed under permit: NO_x, CO, PM 10, SO₂, VOC,

Pollutant:	NO _x	CO	PM10	SO ₂	VOC
Potential to emit (tpy)	225	40	32	62	15
Actual tpy, 1999	181	40	13	24	5

Notes on the incinerators:

Model: No model listed. Listed as "solid waste incinerator". Too large for Smart Ash. Assume dual chamber **MOD EA, UNC**. UNEP class "good"

Installation: 1990

Capacity: Rated at 200 lb/hr.

Maximum capacity: 200 lb/hr x 24 hr/d x 365 d/yr = 876 tpy

ACAT assessed capacity: 85% of 200 lb/hr = 170 lb/hr

It is probably a batch fed unit; assume 12 hr/day operation.

if operated 300 days/yr: 170 lb/hr x 12 hr/day x 365 d/yr = about **375 tpy**

Operation: No information about operation. No limits except it must emit less than 0.75 tpy of PM10 and less than 160 mg (160,000 ug) of dioxins and furans; if these limits exceeded, they need to monitor and record emissions. (Since we can see that source tests in 1999 showed they exceeded this level for PM10, would assume they are monitoring PM emissions.)

APCD: None listed in permit.

Dioxin control: None.

Waste burned: Trash.

EF: Municipal waste EF for Mod EA, UNC used.

Ash disposal: Disposal site not known.

ACAT ASSESSMENT:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD EA, UNC	375 tpy	Air: 0.03 - 90 ug/ton	11 - 33,750 ug
UNEP "minimal"		Ash: 200 ug/ton	75,000 ug
		Total	75,011 - 108,750 ug/yr = 0.08 - 0.11 grams/yr

Fact Sheet: Ft. Knox Mine, solid waste

Location: Fairbanks, AK
SIC code: 1041 Metal mining, gold ore
Permit number: 53TVP01 October 19, 2000 - October 18, 2005
Owner: Fairbanks Gold Mining, Inc. PO Box 73726 Fairbanks, AK 99707-326
Facility Contact: William Jeffress, Manager, Environmental Services (907) 488-4653

Governed by the following pertinent regulations:

18 AAC 50.350 (b)
18 AAC 50.325 (b) (1) Facility with pte of 100+ tpy of regulated air contaminant
18 AAC 50.325 (b) (3)
18 AAC 50.300 (b) (1) (A)

Notes on the facility:

This facility is an open pit mine for mining and refining gold ore. It avoids PSD classification by putting limits on sources to keep emissions of nitrogen oxides down.

- Additional air pollution sources listed in permit: 4 diesel generators, 8 fuel-oil fired boilers, 2 waste-oil fired boilers, 12 heaters, 3 fuel storage tanks.
- Air contaminants allowed under permit: NO_x, CO, PM 10, SO₂, VOC, 1,3 butadiene, acetaldehyde, acrolein, As, Be, Benzene, Cd, Co, Cr, formaldehyde, hexane, Pb, naphthalene, Mn, Hg, Ni, toluene, xylenes.

Pollutant:	NO _x	CO	PM10	SO ₂	VOC
Potential to emit (tpy)	135	28	25	61	4

Notes on the incinerators:

Model: Shenandoah P-16-20-T. According to product literature, it has 2 chambers. Literature says secondary chamber has baffles. There are two burners, each 325,000 btu, each use 2.5 gallons/hr diesel, suggesting excess air method. Waste is fed in batches. **MOD EA, UNC.** UNEP "good".

Installation: October 31, 1996

Capacity: Rated at 100 lb/hr.
Maximum capacity: 100 lb/hr x 24 hr/day x 365 day/yr = 438 tpy
ACAT assessed capacity: 85% of 100 lb/hr = 85 lb/hr
85 lb/hr x 24 hr/day x 365 day/yr = about **375 tpy**

Operation: A limit of 2920 hours of operation per year (8 hours/day for 365 days) and 292 tons of waste per year was originally set in the permit, but then dropped at the owners verbal request, who argued that the incinerator does not produce enough emissions to be significant.

APCD: None listed in permit.

Dioxin control: Secondary chamber helps control.

Waste burned: Trash.

EF: EF is based on municipal waste.

Ash disposal: Ft. Knox Inert Waste landfill has solid waste permit for waste ash.

ACAT ASSESSMENT:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD EA, UNC	375 tpy	Air: 0.03 - 40 ug/ton	11 - 15,000 ug
UNEP "good"		Ash: 200 ug/ton	75,000 ug
		Total	75,011 - 90,000 ug/yr

Fact Sheet: Bethel Power Plant, solid waste

Location: Bethel, AK
 SIC code: 4911 Electrical Services
 Permit number: 205TVP01 December 28, 2000 - December 27, 2005
 Owner: Bethel Utilities Corp. 3380 C St. Suite 210 Anchorage, AK 99503
 Facility Contact: Lenny Welch (907) 562-2949

Governed by the following pertinent regulations:

- 18 AAC 50.350 (b)
- 18 AAC 50.325 (b) (1) Facility with pte of 100+ tpy of NOx, SOx, and CO
- 18 AAC 50.325 (b) (3)
- 18 AAC 50.300 (b-f) PSD Major Facility due to NOx and CO emissions

Notes on the facility:

This is a power generation plant using diesel electric generators to provide power to residents and businesses in the Bethel area. Although it is a PSD Major Facility, it has never undergone a PSD review since it was in operation before 1977.

- Additional air pollution sources listed in permit: 6 diesel generators, 2 fuel storage tanks.

- Air contaminants allowed under permit: NOx, CO, PM 10, SO₂, VOC

Pollutant:	NOx	CO	PM10	SO ₂	VOC
Potential to emit (tpy)	979	41	32	164	29
Actual tpy, 1999 - 2000	627	26	20	15	18

Notes on the incinerators:

Model: Smart Ash incinerator. Product literature describes Smart Ash incinerators as units in which a 55 gallon drum is used as the “combustion chamber”. A lid is clamped onto it and air applied by electricity and blowers. It is designed to burn paper waste, wood, rags, used filters, and absorbents. This is low technology, batch fed, **MOD EA, UNC** system. UNEP “minimal”.

Installation: 1994

Capacity: Rated at 64 lb/hr.

Maximum capacity: 64 lb/hr x 24 hr/day x 365 day/yr = 280 tpy

Operation: DEC notes that the incinerator has the potential to be a significant source of emissions if use significantly increases. If that occurred, monitoring and record keeping would be required. The permit notes that this would be triggered if the incinerator burned 23 tpy of waste. Since DEC found that, as of 2000, the incinerator was an insignificant source, it must currently be burning less than 23 tpy of waste. This limitation means it must be operating at about 2 hours/day (if operated every day of the year).

ACAT assessed capacity: **23 tpy**

APCD: None listed in permit.

Dioxin control: None.

Waste burned: Trash.

EF: EF is based on municipal waste.

Ash disposal: Disposal location not known

ACAT ASSESSMENT:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD EA, UNC	23 tpy	Air: 350 ug/ton	8,050 ug
UNEP “minimal”		Ash: 500 ug/ton	11,500 ug
		Total ug/yr	19,550 ug/yr

Fact Sheet: UniSea Seafood Processing Plant, solid waste

Location: Amaknak Island (Dutch Harbor), AK (Aleutian Islands, Bering Sea)
SIC code: 2092 Fresh or Frozen Fish and Seafood
Permit number: 088TVP01 March 28, 2001 - March 27, 2006
Owner: UniSea Inc. PO Box 97019 Redmond, WA 98073-9719
Facility Contact: Mr. Steve Price (425) 861-5209

Governed by the following pertinent regulations:

18 AAC 50.325 (b) (1) Facility with pte of 100+ tpy of NOx

18 AAC 50.325 (c)

18 AAC 50.300 (c)(1) PSD Major Facility due to NOx emissions

Notes on the facility:

This is a seafood processing plant that unloads fish and crab and processes fish them.

Byproducts and waste are converted into fish meal. The incinerator is considered an insignificant source of emissions. Although this is a PSD Major Facility, it has never undergone a PSD review since it was in operation before 1977.

• Additional air pollution sources listed in permit: 9 diesel generators, 6 boilers, 3 hot air dryers, 3 fuel storage tanks.

• Air contaminants allowed under permit: NOx, CO, PM 10, SO₂, VOC

Pollutant:	NOx	CO	PM10	SO ₂	VOC
Potential to emit (tpy)	660	68	10	31	15
Estimated actual tpy, 1996 - 97	706	61	9	24	14

emissions estimates are based on data provided in operating permit, not source tests

Also, emissions estimate did not include emissions from incinerator.

Notes on the incinerators:

Model: Smart Ash incinerator. Product literature describes Smart Ash incinerators as units in which a 55 gallon drum is used as the "combustion chamber". A lid is clamped onto it and air applied by electricity and blowers. It is designed to burn paper waste, wood, rags, used filters, and absorbents. This is low technology, batch fed, **MOD EA, UNC** system. UNEP "minimal".

Installation: Installation date not mentioned.

Capacity: Rated at 50 lb/hr.

Maximum capacity: 50 lb/hr x 24 hr/day x 365 day/yr = 219 tpy

Batch type incinerator cannot be operated 24 hr/day. Assume 16 hr/day.

Assume it operates at 85% of rated capacity: 85% of 50 lb/hr = 43 lb/hr

ACAT assessed capacity: 43 lb/hr x 16 hr/day x 365 day/yr = **125 tpy**

Operation: No information.

APCD: None listed in permit.

Dioxin control: None.

Waste burned: Trash.

EF: EF is based on municipal waste.

Ash disposal: Disposal location not known

ACAT ASSESSMENT:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD EA, UNC	125 tpy	Air: 350 ug/ton	43,750 ug
UNEP "minimal"		Ash: 500 ug/ton	62,500 ug
		Total	106,250 ug/yr

Fact Sheet: Alyeska Pump Station #1, solid waste

Location: North Slope, AK
 SIC code: 4612 Crude Oil Pipelines
 Permit number: 072TVP01 permit pending
 Owner: Amerada Hess Pipeline, BP Pipeline, Exxon Mobile Pipeline, Phillips
 Alaska Transportation, Unocal Pipeline, Willims Alaska Pipeline
 Facility Contact: PSI Operations and Maintenance Supervisor (907) 787-4105

Governed by the following pertinent regulations:

- 18 AAC 50.325 (b) (1,3) Facility with pte of 100+ tpy of NOx
- 18 AAC 50.325 (c)
- 18 AAC 50.300 (b) (2)
- 18 AAC 50.300 (c)(1) PSD Major Facility due to NOx emissions
- 18 AAC 50.040 (a) (G)

Notes on the facility:

This is a crude oil pumping facility. This facility is the northern terminus of the Trans-Alaska pipeline. Although this is a PSD Major Facility, it has never undergone a PSD review since it was in operation before 1977.

- Additional air pollution sources listed in permit: 15 gas turbines, 1 diesel engine driver, 4 fired heaters, flare.
- Air contaminants allowed under permit: NOx, CO, PM 10, SO₂, VOC, xylene, 1,3 butadiene, acrolein, toluene, phenol, formaldehyde, 2,2,4 trimethylpentane, benzene, acetaldehyde, naphthalene, ethylene glycol, hexane, PAH, carbonyl disulfide, As, Be, Cr, Co, Pb, Hg, Halon 1301, hydrogen sulfide, methanol, ethylbenzene, dichlorodifluoromethane, chlorodifluoromethane, chlorotrifluoromethane.

Pollutant:	NOx	CO	PM10	SO ₂	VOC
Potential to emit (tpy)	771	543	120	39	28

Notes on the incinerators:

Model: Therm Tec solid waste incinerator. Therm Tec produces both Mod SA and Mod EA incinerators; both types have 2 chambers. Assume **MOD EA, UNC**. UNEP class “good”.

Installation: Pre-1980.

Capacity: Rated at 300 lb/hr.
 Maximum capacity: 300 lb/hr x 24 hr/day x 365 day/yr = 1300 tpy
 ACAT assessed capacity: Assume it operates at 85% of rated capacity:
 85% of 1300 tpy=**1100 tpy**

Operation: It must keep records of how much medical waste it incinerates to ensure it stays below 10% of total. If it goes above 10% of total, it will be regulated as an MWI.

APCD: None listed in permit.

Dioxin control: Secondary chamber helps control.

Waste burned: Solid waste.

EF: EF is based on municipal waste.

Ash disposal: Oxbow landfill, Deadhorse, has solid waste permit for waste ash.

ACAT ASSESSMENT:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD EA, UNC	1100 tpy	Air: 0.03 - 90 ug/ton	33 - 99,000 ug
UNEP “good”		Ash: 200 ug/ton	220,000 ug
		Total	220,033 - 319,000 ug/yr

Fact Sheet: Alyeska Pump Station #2, solid waste

Location: 55 miles south of Prudhoe Bay
 SIC code: 4612 Crude Oil Pipelines
 Permit number: 073TVP01 permit pending
 Owner: Amerada Hess Pipeline, BP Pipeline, Exxon Mobile Pipeline, Phillips
 Alaska Transportation, Unocal Pipeline, Willims Alaska Pipeline
 Facility Contact: PSI Operations and Maintenance Supervisor (907) 787-4105

Governed by the following pertinent regulations:

18 AAC 50.325 (b) (1,3) Facility with pte of 100+ tpy of NOx, CO
 18 AAC 50.325 (c)
 18 AAC 50.300 (b) (2)
 18 AAC 50.300 (c)(1) PSD Major Facility due to NOx and CO emissions

Notes on the facility:

This is a crude oil pumping facility. Although this is a PSD Major Facility, it has never undergone a PSD review since it was in operation before 1977.

- Additional air pollution sources listed in permit: 5 gas turbines, 2 diesel engines, 2 heaters.
- Air contaminants allowed under permit: NOx, CO, PM 10, SO₂, VOC, xylene, 1,3 butadiene, acrolein, toluene, phenol, formaldehyde, 2,2,4 trimethylpentane, benzene, acetaldehyde, naphthalene, ethylene glycol, hexane, PAH, carbonyl disulfide, As, Be, Cr, Co, Pb, Hg, Halon 1301, hydrogen sulfide, methanol, ethylbenzene, dichlorodifluoromethane, chlorodifluoromethane, chlorotrifluoromethane.

Pollutant:	NOx	CO	PM10	SO ₂	VOC
Potential to emit (tpy)	608	748	33	12	64

Notes on the incinerators:

Model: Therm Tec solid waste incinerator. Therm Tec produces both Mod SA and Mod EA incinerators; both types have 2 chambers. Assume **MOD EA, UNC**. UNEP class "good".
 Installation: Pre-1980.
 Capacity: Rated at 300 lb/hr.
 Maximum capacity: 300 lb/hr x 24 hr/day x 365 day/yr = 1300 tpy
 ACAT assessed capacity: Assume it operates at 85% of rated capacity: 85% of 1300 tpy=**1100 tpy**
 Operation: No information.
 APCD: None listed in permit.
 Dioxin control: Secondary chamber helps control.
 Waste burned: Solid waste.
 EF: EF is based on municipal waste.
 The range for a Mod SA with no pollution controls is used: 13 - 30 ug/ton
 Ash disposal: Oxbow landfill, Deadhorse, has solid waste permit for waste ash.

ACAT ASSESSMENT:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD EA, UNC	1100 tpy	Air: 0.03 - 90 ug/ton	33 - 99,000 ug
UNEP "good"		Ash: 200 ug/ton	220,000 ug
		Total	220,033 - 319,000 ug/yr

Fact Sheet: Alyeska Pump Station #4, solid waste

Location: 155 miles south of Prudhoe Bay
 SIC code: 4612 Crude Oil Pipelines
 Permit number: 075TVP01 permit pending
 Owner: Amerada Hess Pipeline, BP Pipeline, Exxon Mobile Pipeline, Phillips
 Alaska Transportation, Unocal Pipeline, Willims Alaska Pipeline
 Facility Contact: PSI Operations and Maintenance Supervisor (907) 787-4105

Governed by the following pertinent regulations:

18 AAC 50.325 (b) (1,3) Facility with pte of 100+ tpy of NOx, CO
 18 AAC 50.325 (c)
 18 AAC 50.300 (b) (2)
 18 AAC 50.300 (c)(1) PSD Major Facility due to NOx and CO emissions

Notes on the facility:

This is a crude oil pumping facility. This is a PSD Major Facility, with modifications made to it in 1990. DEC determined that facility could continue to operate without PSD review unless equipment was installed that increased pte by: 13.2 tpy NOx, 22.7 tpy SO₂

- Additional air pollution sources listed in permit: 7 diesel generators, 2 diesel heaters, diesel pump.

- Air contaminants allowed under permit: NOx, CO, PM 10, SO₂, VOC, xylene, 1,3 butadiene, acrolein, toluene, phenol, formaldehyde, 2,2,4 trimethylpentane, benzene, acetaldehyde, naphthalene, ethylene glycol, hexane, PAH, carbonyl disulfide, As, Be, Cr, Co, Pb, Hg, Halon 1301, hydrogen sulfide, methanol, ethylbenzene, dichlorodifluoromethane, chlorodifluoromethane, chlorotrifluoromethane.

Pollutant:	NOx	CO	PM10	SO ₂	VOC
Potential to emit (tpy)	626	400	97	45	8

Notes on the incinerators:

Model: Therm Tec solid waste incinerator. Therm Tec produces both Mod SA and Mod EA incinerators; both types have 2 chambers.
 Assume **MOD EA, UNC**. UNEP class "good".

Installation: 1988.

Capacity: Rated at 200 lb/hr.

Maximum capacity: 200 lb/hr x 24 hr/day x 365 day/yr = 875 tpy

ACAT assessed capacity: Assume it operates at 85% of rated capacity:
 85% of 875 tpy = **745 tpy**

Operation: No information.

APCD: None listed in permit.

Dioxin control: Secondary chamber helps control.

Waste burned: Solid waste.

EF: EF is based on municipal waste.

Ash disposal: Oxbow landfill, Deadhorse, has solid waste permit for waste ash.

ACAT ASSESSMENT:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD EA, UNC	745 tpy	Air: 0.03 - 90 ug/ton	22 - 67,050 ug
UNEP "good"		Ash: 200 ug/ton	149,000 ug
		Total	149,022 - 216,050 ug/yr

Fact Sheet: Alyeska Pump Station #5, solid waste

Location: South of Prudhoe Bay
 SIC code: 4612 Crude Oil Pipelines
 Permit number: 098TVP01 permit pending
 Owner: Amerada Hess Pipeline, BP Pipeline, Exxon Mobile Pipeline, Phillips
 Alaska Transportation, Unocal Pipeline, Willims Alaska Pipeline
 Facility Contact: Don Mark Anthony (907) 787-7652

Governed by the following pertinent regulations:

18 AAC 50.335 (e) (4) (a)
 18 AAC 50.325 (b) (1,3) Facility with pte of 100+ tpy of NO_x, SO₂
 18 AAC 50.325 (c)
 18 AAC 50.300 (b) (2)

Notes on the facility:

This is a crude oil pumping facility in a remote location. Solid waste produced on site is burned in the incinerator.

- Additional air pollution sources listed in permit: 6 diesel turbines, 2 diesel heaters, 2 diesel boilers

- Air contaminants allowed under permit: NO_x, CO, PM 10, SO₂, VOC, xylene, 1,3 butadiene, acrolein, toluene, phenol, formaldehyde, 2,2,4 trimethylpentane, benzene, acetaldehyde, naphthalene, ethylene glycol, hexane, PAH, carbonyl disulfide, As, Be, Cr, Co, Pb, Hg, Halon 1301, hydrogen sulfide, methanol, ethylbenzene, dichlorodifluoromethane, chlorodifluoromethane, chlorotrifluoromethane.

Pollutant:	NO _x	CO	PM10	SO ₂	VOC	HAPs
Potential to emit (tpy)	245	10	5	228	0.1	4

Notes on the incinerators:

Model: Therm Tec solid waste incinerator. Therm Tec produces both Mod SA and Mod EA incinerators; both types have 2 chambers.
 Assume **MOD EA, UNC**. UNEP class "good".

Installation: 1981

Capacity: Rated at 300 lb/hr.
 Maximum capacity: 300 lb/hr x 24 hr/day x 365 day/yr = 1300 tpy
 ACAT assessed capacity: Assume it operates at 85% of rated capacity:
 85% of 1300 tpy= **1100 tpy**

Operation: Keep records to show that they are burning less than 10% medical waste.

APCD: None listed in permit.

Dioxin control: Secondary chamber helps control.

Waste burned: Solid waste.

EF: EF is based on municipal waste.

Ash disposal: Location for ash disposal not known. Alyeska has permits to dispose of ash at Paxson, Sagwon, Wiseman.

For ACATs purposes of general assessment of emissions:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD EA, UNC	1100 tpy	Air: 0.03 - 90 ug/ton	33 - 99,000 ug
UNEP "good"		Ash: 200 ug/ton	220,000ug
		Total	220,033 - 319,000 ug/yr

Fact Sheet: Alyeska Pump Station #12, solid waste

Location: Near Tonsina, AK
 SIC code: 4612 Crude Oil Pipelines
 Permit number: 081TVP01 permit pending
 Owner: Amerada Hess Pipeline, BP Pipeline, Exxon Mobile Pipeline, Phillips
 Alaska Transportation, Unocal Pipeline, Willims Alaska Pipeline
 Facility Contact: Don Mark Anthony (907) 787-7652

Governed by the following pertinent regulations:

- 18 AAC 50.335 (e) (4) (a)
- 18 AAC 50.325 (b) (1,3) Facility with pte of 100+ tpy of NOx, CO, SO₂
- 18 AAC 50.325 (c)
- 18 AAC 50.300 (b) (2)
- 18 AAC 50.300 (c)(1) PSD Major Facility due to NOx, CO, and SO₂ emissions

Notes on the facility:

- Additional air pollution sources listed in permit: 5 diesel generatos, 2 diesel heaters
- Air contaminants allowed under permit: NOx, CO, PM 10, SO₂, VOC, xylene, 1,3 butadiene, acrolein, toluene, phenol, formaldehyde, 2,2,4 trimethylpentane, benzene, acetaldehyde, naphthalene, ethylene glycol, hexane, PAH, carbonyl disulfide, As, Be, Cr, Co, Pb, Hg, Halon 1301, hydrogen sulfide, methanol, ethylbenzene, dichlorodifluoromethane, chlorodifluoromethane, chlorotrifluoromethane.

Pollutant:	NOx	CO	PM10	SO ₂	VOC	HAPs
Potential to emit (tpy)	1196	458	95	576	39	6

Notes on the incinerators:

Model: Therm Tec solid waste incinerator. Therm Tec produces both Mod SA and Mod EA incinerators; both types have 2 chambers. Assume **MOD SA, UNC**. UNEP class “good”.

Installation: 1981

Capacity: Rated at 300 lb/hr.
 Maximum capacity: 300 lb/hr x 24 hr/day x 365 day/yr = 1300 tpy
 ACAT assessed capacity: Assume it operates at 85% of rated capacity:
 85% of 1300 tpy= **1100 tpy**

Operation: Keep records to show that they are burning less than 10% medical waste.

APCD: None listed in permit.

Dioxin control: Secondary chamber helps control.

Waste burned: Solid waste.

EF: EF is based on municipal waste.

Ash disposal: Location for ash disposal not known. Alyeska has permits to dispose of ash at Paxson, Sagwon, Wiseman.

ACAT ASSESSMENT:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD EA, UNC	1100 tpy	Air: 0.03 - 90 ug/ton	33 - 99,000 ug
UNEP “good”		Ash: 200 ug/ton	220,000 ug
		Total	220,033 - 319,000 ug/yr

Fact Sheet: Unocal Trading Bay Platform, solid waste

Location: Cook Inlet, AK
SIC code: 1311 Crude Oil and Natural Gas
Permit number: 66TVP01 September 18, 2002 - September 17, 2007
Owner: Union Oil Company of California
PO Box 196247 Anchorage, AK 99519-6247
Facility Contact: Dean Geisert, Foreman (907) 776-6855

Governed by the following pertinent regulations:

18 AAC 50.325 (b) (1) Facility with pte of 100+ tpy of NO_x, CO
18 AAC 50.325 (c)
18 AAC 50.300 (b) (2)

Notes on the facility:

Facility is a crude oil processing facility, where fluid from 5 Trading Bay offshore platforms are separated into water, gas, and oil. Oil and natural gas are processed and pumped through an underwater pipeline to the Production Facility. Heater treaters and flow splitters remove water from oil/water mix. Facility has been operating since 1972.

• Additional air pollution sources listed in permit: 10 heater treaters, 2 Uniflux, 1 hot oil heater, 3 flow splitters, 3 generator drives, 2 diesel generators, 2 flares

• Air contaminants allowed under permit: NO_x, CO, PM 10, SO₂, VOC

Pollutant:	NO _x	CO	PM10	SO ₂	VOC
Potential to emit (tpy)	186	172	25	81	25

Notes on the incinerators:

Model: Model not mentioned. Manufacturer is Mid-Continent Refuse. Too large for Smart Ash. Assume dual chamber **MOD EA, UNC**. UNEP class "good".

Installation: pre-1980

Capacity: Rated at 300 lb/hr.

Maximum capacity: 300 lb/hr x 24 hr/day x 365 day/yr = 1300 tpy

ACAT assessed capacity: Assume it operates at 85% of rated capacity:

85% of 1300 tpy= **1100 tpy**

Operation: Required to record amount of waste and fuel burned.

APCD: None listed in permit.

Dioxin control: None.

Waste burned: Solid waste.

EF: EF is based on municipal waste.

Ash disposal: Location for ash disposal not known.

ACAT ASSESSMENT:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD EA, UNC	1100 tpy	Air: 0.03 - 90 ug/ton	33 - 99,000 ug
UNEP "good"		Ash: 200 ug/ton	220,00 ug
		Total	220,033 -319,000 ug/yr
			0.22 - 0.32 grams/yr

Fact Sheet: Unocal Granite Point Platform, solid waste

Location: Upper Cook Inlet, AK
 SIC code: 1300 Oil and Gas Extraction
 Permit number: 58TVP01 permit pending
 Owner: Union Oil Company of California
 PO Box 196247 Anchorage, AK 99519-6247
 Facility Contact: Dusty Rhodes (907) 776-6650

Governed by the following pertinent regulations:
 18 AAC 50.325 (b) (1,3) Facility with pte of 100+ tpy of NOx, CO, VOC, SO₂
 18 AAC 50.325 (c)
 18 AAC 50.300 (b) (2)
 18 AAC 50.300 (c)(1) PSD Major Facility due to NOx, CO, VOC

Notes on the facility:
 Facility is an offshore oil and gas production platform that produces natural gas and oil from the wells. Gas and oil is transported from platform to tank farm on shore for additional processing and distribution.

- Additional air pollution sources listed in permit: 3 natural gas turbines, 7 diesel engines, 2 natural gas flares, 4 natural gas boilers.
- Air contaminants allowed under permit: NOx, CO, PM 10, SO₂, VOC

Pollutant:	NOx	CO	PM10	SO ₂	VOC
Potential to emit (tpy)	670	1179	53	174	456
Estimated actual tpy, 1996 - 97	229	57	11	4	19

based on facility data

Notes on the incinerators:

Model: Model not mentioned. Runs on natural gas.
 Assume dual chamber **MOD EA, UNC**. UNEP class “good”.

Installation: 1970

Capacity: Rated at 800 lb/hr.
 Maximum capacity: 800 lb/hr x 24 hr/day x 365 day/yr = 3500 tpy
 ACAT assessed capacity: Assume it operates at 85% of rated capacity:
 85% of 3500 tpy= **3000 tpy**

Operation: In 1993, either the old incinerator was replaced or a new one installed; unclear from draft permit. When updates were made, hourly limits were put on the incinerator and 3 turbines in order to avoid triggering PSD. In the mid-90s, hourly restrictions were removed and instead facility wide annual emissions limits were set.

APCD: None listed in permit.

Dioxin control: None.

Waste burned: Solid waste.

EF: EF is based on municipal waste.

Ash disposal: Location for ash disposal not known.

ACAT ASSESSMENT:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD EA, UNC	3000 tpy	Air: 0.03 - 90 ug/ton	90 - 270,000 ug
UNEP “good”		Ash: 200 ug/ton	600,000 ug
		Total	600,090 - 870,000 ug/yr = 0.60 - 0.87 grams/yr

Fact Sheet: Chugach Electric Beluga River Power Plant, solid waste

Location: 40 miles west of Anchorage, AK
 SIC code: 4911 Electric Services
 Permit number: 106TVP01 August 29, 2002 - August 28, 2007
 Owner: Chugach Electric Inc. PO Box 196300 Anchorage, AK 99519-6300
 Facility Contact: Carl Harmon (907) 762-4739

Governed by the following pertinent regulations:
 18 AAC 50.325 (b) (1,2) Facility with pte of 100+ tpy of NOx, CO, VOC, PM10
 18 AAC 50.325 (c)
 18 AAC 50.300 (b) (2)
 18 AAC 50.300 (c) (1,2) PSD Major Facility due to NOx, CO, PM10, VOC
 18 AAC 50.300 (f) Defines Hazardous Air Contaminant Major Facility

Notes on the facility:

Power generation plant. Natural gas is supplied via pipeline from Beluga gas suppliers. Although this is a PSD Major Facility, it has not gone through a PSD review. It is also considered a Hazardous Air Contaminant Facility.

- Additional air pollution sources listed in permit: 6 natural gas turbines, 1 natural gas generator
 - Air contaminants allowed under permit: NOx, CO, PM 10, SO₂, VOC, HAPs
- | | | | | | | |
|-------------------------|--------|-------|------|-----------------|-----|------|
| Pollutant: | NOx | CO | PM10 | SO ₂ | VOC | HAPs |
| Potential to emit (tpy) | 10,957 | 2,742 | 491 | 62 | 651 | 43 |

Notes on the incinerators:

Model: Therm Tec G30M. This is a batch load incinerator; rated capacity is based on 2 - 3 batch loads/day (8-10 hours), according to product literature. Has a secondary chamber. Therm Tec makes both SA and EA versions of the G30. They come with APCD, but don't say what kind. **Assume MOD EA, H-ESP.** UNEP class "good".

Installation: 1991

Capacity: Rated at 300 lb/hr.
 Maximum capacity: 300 lb/hr x 24 hr/day x 365 day/yr = 1300 tpy
 Manufacturer rates this model at 3000 lb/day (=548 tpy)
 ACAT assessed capacity: Assume it operates at 85% of rated capacity:
 85% of 1300 tpy= **1100 tpy**

Operation: Report type and amount of waste burned.

APCD: None listed in permit.

Dioxin control: Secondary chamber helps control. ESP removes particles but favors dioxin formation.

Waste burned: Solid waste.

EF: EF is based on municipal waste.

Ash disposal: Possibly MatSu Borough landfill, which has solid waste permit for ash.

ACAT ASSESSMENT:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD EA, H-ESP	1100 tpy	Air: 30 - 180 ug/ton	33,000 - 198,000 ug
UNEP "good"		Ash: 200 ug/ton	220,000 ug
		Total	253,000 - 418,000 ug/yr

Fact Sheet: Calder Limestone Facility, solid waste

Location: Prince of Wales Island, AK
 SIC code: 1422 Crushed Limestone
 Permit number: 483TVP01 July 24, 2002 - July 23, 2007
 Owner: Seacal, LLC One Sealaska Plaza, Suite 400 Juneau, AK 99801
 Facility Contact: Robert Wysocki, VP (907) 586-1512

Governed by the following pertinent regulations:
 18 AAC 50.325 (b) (1,3) Facility with pte of 100+ tpy of NOx
 18 AAC 50.325 (c)
 18 AAC 50.300 (b) (1)

Notes on the facility:

Limestone crushing facility that provides high grade limestone for paper and paints.

- Facility has 2 incinerators.
- Additional air pollution sources listed in permit: 6 generator, 2 fuel storage tanks
- Air contaminants allowed under permit: NOx, CO, PM 10, SO₂, VOC, 1,3 butadiene, acetaldehyde, acrolein, As, benzene, Be, Cd, Cr, Co, formaldehyde, hexane, Pb, Mn, Hg, naphthalene, Ni, toluene, xylenes.

Pollutant:	NOx	CO	PM10	SO ₂	VOC
Potential to emit (tpy)	230	50	13	16	16

Notes on the incinerators:

Model: 1. Therm Tec G8M. This is a batch load incinerator; rated capacity is based on 2 - 3 batch loads/day (8-10 hours), according to product literature. Has a secondary chamber. Therm Tec makes both SA and EA versions of the G8. They come with APCD, but don't say what kind. Assume **MOD EA, H-ESP**. UNEP "good".
 2. Smart Ash. This is a batch load incinerator which is basically a 55 gallon drum with a cover; air is blown in and trash ignited. **MOD EA, UNC**. UNEP "minimal".

Installation: Both installed 1998.

Capacity: Therm Tec rated capacity (based on 2-3 batches, 8-10 hours/day)=800 lb/day
 Smart Ash rated capacity 50 lb/hr. If based on 10 hour day, 500 lb/day
 ACAT assessed capacity, ThermTec: 85% of 800 lb/day = 680 lb/day
 ACAT assessed capacity, Smart Ash: 85% of 500 lb/day = 425 lb/day
 680 lb/day x 365 days = **125 tpy** 425 lb/day x 365 days = about **75 tpy**

Operation: No information, except to limit each incinerator to 100 lb/hr.

APCD: None listed on permit, but Therm Tec G8 comes standard with APCD.

Dioxin control: ESP on one incinerator probably does not help much, but having a secondary chamber helps. No dioxin control other. No acid gas control.

Waste burned: Trash.

EF: EFs are based on municipal waste. 2 EFs are used because 2 different incinerator models are used.

Ash disposal: Location not known.

ACAT ASSESSMENT:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD EA, H-ESP	125 tpy	Air: 30 - 180 ug/ton	3750 - 10,000 ug
UNEP "good"		Ash: 200 ug/ton	25,000 ug
MOD EA, UNC	75 tpy	Air: 350 ug/ton	26,250 ug
UNEP "minimal"		Ash: 500 ug/ton	37,500 ug
		Total	92,500 - 98,750 ug/yr

Fact Sheet: Kensington Gold Project, solid waste

Location: 45 miles northwest of Juneau, AK
 SIC code: 1041 Gold mining
 Permit number: 111TVP01 permit pending
 Owner: Coeur Alaksa, Inc. 3031 Clinton Dr. Suite 202 Juneau, AK 99801
 Facility Contact: Eric Klepfer (907) 789-1591

Governed by the following pertinent regulations:

18 AAC 50.325 (b) (1,23) Facility with pte of 100+ tpy of NOx
 18 AAC 50.300 (c) (1) PSD Major Facility due to
 18 AAC 50.300 (h) Must apply for a permit as a PSD facility

Notes on the facility:

Facility has been in existence since 1988. Modifications to the facility in the 1990s caused it to exceed the PSD trigger for NOx by 249 tpy pte. Therefore DEC is requesting that they apply for a construction permit as a PSD facility. While other facilities in Alaska release much greater quantities of contaminants than this facility, since this one was modified after August 1980, it must comply with PSD regulations if it emits more than 250 tpy of a regulated air contaminant. Original operating permit request did not include emissions from 2 Cummins engines, 2 Cat engines, and 3 fuel storage tanks. Once those were included, facility exceeded PSD for NOx. At this time, the facility is in violation of emission standards, since it is emitting more than 250 tpy of NOx without a PSD.

- Additional air pollution sources listed in permit: 4 generators, 6 Cat or Cummins engines, 2 crusher with baghouse, 2 ore conveyor system, cement transfer with baghouse, screening plant, 1 propane heater, 3 diesel storage tanks.

- Air contaminants allowed under permit: NOx, CO, PM 10, SO₂, VOC, 1,3 butadiene, acetaldehyde, acrolein, As, benzene, Be, Cd, Cr, Co, Formaldehyde, hexane, Pb, Mn, Hg, naphthalene, Ni, toluene, xylenes

Pollutant:	NOx	CO	PM10	SO ₂	VOC
Potential to emit (tpy), partial <i>generators, 2 engines, incinerator, crushers, conveyors, screening plant, heater</i>	247	38	29	215	29
Potential to emit (tpy), all sources	453	81	40	243	42

Notes on the incinerators:

Model: No model mentioned. Too large to be Smart Ash.
 Assume single chamber **MOD EA, UNC**. UNEP “good”.

Installation: 1989

Capacity: Rated at 500 lb/hr. Permit limits operation to 2000 lb/day = 1 ton/day
 ACAT assessment capacity: 1 ton/day x 365 days = about **350 tpy**

Operation: In order to avoid PSD trigger levels, owner has requested limits on the incinerator and other equipment. Limited to burning no more than 2000 lb/day. Amount/type of waste must be recorded. PM monitored.

APCD: None listed in permit.

Dioxin control: None.

Waste burned: Solid waste, less than 10% sewage sludge.

EF: EF is based on 90% municipal waste and 10% SSI.

Ash disposal: Not known. Capitol landfill and ash monofill in Juneau are permitted for waste ash.

ACAT ASSESSMENT:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD EA, UNC	350 tpy	Air: 0.03 - 90 ug/ton	10 - 31,500 ug
UNEP “good”		Ash: 200 ug/ton	70,000 ug
		Total	70,010 - 101,500 ug/yr = 0.07 - 0.10 grams/yr

Fact Sheet: Entech Alaska Commercial Incinerator, solid waste

Location: Anchorage, AK
 SIC code: 4953 Refuse systems
 Permit number: **has not applied for permit**
 Owner:
 Facility Contact:

Governed by the following pertinent regulations:
 20% opacity.
 Cannot burn more than 10% medical waste.

Notes on the facility:

Complaints about the facility from Anchorage residents prompted ACAT to bring suit against Entech, requesting that DEC regulate it as a medical waste incinerator. DEC determined that it was indeed incinerating over 10% medical waste, and was operating in violation of the law unless they were regulated as an MWI. On September 15, 2001, Entech shut down one of its two incinerators, dropping its capacity from 800 lb/day to 300 lb/day. It quit burning medical waste, and claims it burns only exempt medical waste now (pathological, low level radioactive, chemotherapeutic); exempt medical waste can be burned without restriction in solid waste incinerators. The facility has a permit with the Municipality of Anchorage. They have not applied for an air permit with the state DEC, but have just reached a settlement agreement with them. The settlement expires in two years. They are currently setting themselves up so that they will not need a Title V permit. Information provided below is from burn records 2001 - 2002 provided by Entech.

	NOx	SO ₂	CO	PM10	HCl	Cr	Pb
Emission s, tpy	0.05	0.02	0.06	0.21	0.11	0.0001	0.005
<i>August 15 2001 - May 30 2002</i>							
Emissions, tpy	0.07	0.03	0.07	0.25	0.13	0.0002	0.006
<i>Expected August 15 2001 - August 15 2002</i>							

Notes on the incinerators:

Model: ATCO 325. Has two chambers. Primary chamber operates at lower temperatures (from burn records), indicating **MOD SA, UNC** unit. UNEP class "good".

Installation:

Capacity: Entech burn records show they burn about 36 hours/wk. Capacity 300 lb/hr. ACAT assessment capacity: 300 lb/hr x 36 hr/wk x 52 wks = about **300 tpy**

Operation: Incinerator operates 36 hr/wk on average. Temperatures in primary chamber run 1250 - 1550 F; in secondary chamber 1750 - 1920 (according to burn records). CO emissions run 0 - 2 ppm.

APCD: None.

Dioxin control: Secondary chamber helps control.

Waste burned: 38% oily waste, 51% confidential material, 11% exempt medical waste.

EF: EF is based on 90% municipal waste and 10% medical waste. Although it is exempt medical, it is expected to have high levels of plastics and PVCs.

Ash disposal: Anchorage Regional Landfill accepts ash in sealed, leakproof containers.

ACAT ASSESSMENT:

Combustor	Waste burned	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD SA, UNC	MSW 270 tpy	Air: 0.03 - 40 ug/ton	8 - 10,800 ug
UNEP "good"		Ash: 200 ug/ton	54,000 ug
		MSW Total	54,008 - 64,800 ug/yr
MOD SA, UNC	MWI 30 tpy	Air: 525 - 1860 ug/ton	15,750 - 55,800 ug
under 200 lb/hr		Ash: 920 ug/ton	27,600 ug
for red bag waste		MWI Total	43,350 - 83,400 ug/yr

Fact Sheet: SafetyWaste Commercial Incinerator, solid waste

Location: Wasilla, AK
 SIC code: 4953 Refuse systems
 Permit number: has applied for permit
 Owner: Safety Waste Mile 11 Knik Goose Bay Road Wasilla
 Facility Contact:

Governed by the following pertinent regulations:

20% opacity
 Must burn less than 10% medical waste.

Notes on the facility:

This is a commercial incinerator similar to Entech. It is applying for a solid waste air permit, saying that it burns less than 10% medical waste and is therefore not subject to being regulated as a medical incinerator. This is called an “exemption”. SafetyWaste is currently stuck in a permitting loop, where the EPA won’t issue them an exemption until the state DEC gives them enforceable owner-requested limits. The state does not want to put limits in the permit until they have an exemption from EPA. SafetyWaste has been applying for a permit since September 15, 2000.

Notes on the incinerators:

Model: Model not known. Assume dual chamber **MOD SA, UNC** unit, like Entech. UNEP class “good”.
 Installation: Date not known.
 Capacity: Capacity is 300 lb/hr. If they have a burn schedule similar to Entech, then we can assume they burn: 300 lb/hr x 36 hr/wk x 52 wk = 300 tpy. However, they have the capacity to burn as much as 1300 tpy (24 hr/day, 365 days).
 ACAT assessment capacity: 300 lb/hr x 48 hr/wk x 52 wks = about 400 tpy
 ACAT assessment capacity: 90% solid waste = **360 tpy** 10% MWI = **40 tpy**
 Operation: No information.
 APCD: No information.
 Dioxin control: No information.
 Waste burned: Burns solid waste, and less than 10% medical waste. The amount of exempt medical waste it burns is not known.
 EF: EF is based on 90% municipal waste and 10% medical waste.
 Ash disposal: Possibly at MatSu Borough Landfill, which has solid waste permit for ash.

ACAT ASSESSMENT:

<i>Combustor</i>	<i>Waste burned</i>	<i>EF range (ug/ton)</i>	<i>Dioxins produced (ug/yr)</i>
MOD SA, UNC	MSW 360 tpy	Air: 0.03 - 40 ug/ton	11 - 14,400 ug
UNEP “good”		Ash: 200 ug/ton	54,000 ug
		MSW Total	54,011 - 68,400 ug/yr
MOD SA, UNC	MWI 40 tpy	Air: 525 - 1860 ug/ton	21,000 - 74,400 ug
under 200 lb/hr		Ash: 920 ug/ton	36,800 ug
for red-bag waste		MWI Total	57,800 - 111,200 ug/yr

Fact Sheet: Envirotech, Nikiski, solid waste

Location: Nikiski, AK
 SIC code: 4953 Refuse Systems
 Permit number: has applied for permit
 Owner: Envirotech LLC 6645 Kenai Spur Highway Kenai, AK
 Facility Contact: (907) 776-8766

Governed by the following pertinent regulations:

Notes on the facility:

Although they have applied for a permit, they have not been clear on the type and amount of waste. In one permit, they mentioned that they burn medical waste (possibly from Central Peninsula hospital in Soldotna and South Peninsula in Homer?), in another application there was no mention of medical waste. On September 1, 2002, they stopped all incineration and are working with DEC for a “compliance order by consent” or a permit. When they start up, DEC will require them to keep one of their two incinerators shut down.

Notes on the incinerators:

Model: INSPCO Model DAC 1800L. Assume **MOD SA, UNC** unit.
 Assume dual chamber; UNEP “good” class.
 They have also been operating a Consumat C75 (75 lb/hr), which DEC will require to be removed or disabled before facility is allowed to start up.

Installation: Date not known.

Capacity: Rated capacity is 980 lb/hr = max capacity of 4292 tpy.
 ACAT assessed capacity: 85% of 4292 = about 3650 tpy
 If they burn 10% medical waste = **365 tpy**; 90% solid waste = **3285 tpy**

Operation: No information.

APCD: No information.

Dioxin control: No information.

Waste burned: Burns solid waste, and probably at least some medical waste.

EF: EF is based on 90% municipal waste and 10% medical waste.

Ash disposal: Not known.
 Possibly at MatSu Borough Landfill, which has solid waste permit for ash.

ACAT ASSESSMENT:

<i>Combustor</i>	<i>Waste burned</i>	<i>EF range (ug/ton)</i>	<i>Dioxins produced (ug/yr)</i>
MOD SA, UNC	MSW 3300 tpy	Air: 0.03 - 40 ug/ton	99 - 132,000 ug
UNEP “good”		Ash: 200 ug/ton	6 60,000 ug
		MSW Total	660,099 - 792,000 ug/yr = 0.66 - 0.79 grams/yr
MOD SA, UNC	MWI 365 tpy	Air: 525 - 1680 ug/ton	191,625 - 613,200 ug
over 200 lb/hr		Ash: 920 ug/ton	335,800 ug
for red-bag waste		MWI Total	527,425 - 949,000 ug/yr = 0.53 - 0.95 grams/yr

Fact Sheet: Chignik Lagoon (landfill), solid waste

Location: Chignik Lagoon, AK
Population: 68

Notes on the area:

Chignik Lagoon is a remote, isolated town in Southwest Alaska, on the peninsula between the Gulf of Alaska and the Bering Sea. The towns of Chignik Lake (pop. 136) and Chignik City (pop. 103) are in the same area. Large numbers of fishermen come to the area in the summer to seine for reds, and several 90' boats work out of Chignik in the winter to fish for pollock and cod. A seafood processing plant is located in Chignik, and houses about 100 workers.

Notes on the incinerator:

Model: ACSI* CA-200. Dual chambered MOD SA with APCD.
Contact: Mike Milnes (360 - 676 - 6005) (manufacturers agent)
Weight: 8,000 lbs
Cost (FOB Anchorage): \$37,383
Accessories needed: Concrete pad, utility hookup, transfer station.

Capacity: Rated at 125 - 250 lb/hr = maximum 548 - 1095 tpy at 24 hr/day.
With a population of 68, it is unlikely that it is used more than 24 hr/wk in the winter. Population probably increases in summer.
Capacity is more likely 250 lb/hr x 24 hr/wk x 36 wk = about 100 tpy
250 lb/hr x 60 hr/wk x 16 wks (summer) = 120 tpy
Total capacity probably about 220 tpy

Maintenance: Ash removal as needed

Fuel: Diesel, 40 gallons/batch or 11.4 gallons/hr

Can burn used oil? Yes

Energy Recovery Available? Yes

Operation: Starved air model with two chambers, fed in batches. Each batch takes 6 - 8 hours to burn. Temperatures are 2500 - 2700 F in the primary chamber, and 2900 F in the secondary.

APCD: Yes. Type not mentioned. Assumed ESP.

Meets Air Quality Opacity Standards? Likely meets.

Dioxin control: Secondary chamber acts to reduce dioxin; ESP may or may not help.
Do not know if it comes with gas control.

Can burn used oil? Yes

Can burn sewage sludge? Not recommended

Can burn medical waste? Yes

EF: Use the EF for MOD SA, ESP, dual chambers. UNEP class "good".

Ash disposal: Chignik Lagoon landfill has permit for ash.

ACAT ASSESSMENT:

<i>Combustor</i>	<i>Waste (tpy)</i>	<i>EF range (ug/ton)</i>	<i>Dioxins produced (ug/yr)</i>
MOD SA, ESP	220 tpy	Air: 16 - 80 ug/ton	3520 - 17,600 ug/ton
UNEP "good"		Ash: 200 ug/ton	44,000 ug/ton
		Total	47,520 - 61,600 ug/ton

*ACSI is Advanced Combustion Incineration Systems.

Fact Sheet: Kotzebue, solid waste

Location: Kotzebue, AK
Population: 2,932

Notes on the area:

Kotzebue is a large, hub town located on the Bering Sea in coastal Northwest Alaska on the Seward Peninsula, north of Nome. The population increases somewhat during the summer tourist season, but not significantly. Kotzebue uses the same size incinerator as Chignik Lagoon, despite the large population difference. ACAT does not know whether this incinerator is in use at the landfill or has another use.

Notes on the incinerator:

Model: ACSI* CA-200. Dual chambered MOD SA with APCD.
Contact: Mike Milnes (360 - 676 - 6005) (manufacturers agent)
Weight: 8,000 lbs
Cost (FOB Anchorage): \$37, 383
Accessories needed: Concrete pad, utility hookup, transfer station.

Capacity: Rated at 125 - 250 lb/hr = maximum 548 - 1095 tpy at 24 hr/day.
With a large population, this incinerator would run 4 - 5 days a week.
250 lb/hr x 24 hr/day x 4 day/wk x 52 wk/y = 625 tpy
250 lb/hr x 24 hr/day x 5 day/wk x 52 wk/yr = 780 tpy

Maintenance: Ash removal as needed
Fuel: Diesel, 40 gallons/batch or 11.4 gallons/hr
Can burn used oil? Yes
Energy Recovery Available? Yes
Operation: Starved air model with two chambers, fed in batches. Each batch takes 6 - 8 hours to burn. Temperatures are 2500 - 2700 F in the primary chamber, and 2900 F in the secondary.
APCD: Yes. Type not mentioned. Assumed ESP.
Meets Air Quality Opacity Standards? Likely meets.
Dioxin control: Secondary chamber acts to reduce dioxin; ESP may or may not help.
Do not know if it comes with gas control.
Can burn used oil? Yes
Can burn sewage sludge? Not recommended
Can burn medical waste? Yes
EF: Use the EF for MOD SA, ESP, dual chambers. UNEP class "good".
Ash disposal: Not known.

ACAT ASSESSMENT:

<i>Combustor</i>	<i>Waste (tpy)</i>	<i>EF range (ug/ton)</i>	<i>Dioxins produced (ug/yr)</i>
MOD SA, ESP	625 - 780 tpy	Air: 16 - 80 ug/ton	10,000 - 62,400 ug/ton
UNEP "good"		Ash: 200 ug/ton	125,000-156,000 ug/ton
		Total	135,000 - 218,400 ug/ton

*ACSI is Advanced Combustion Incineration Systems.

Fact Sheet: Ft. Yukon, solid waste

Location: Fort Yukon, AK
Population: 570

Notes on the area:

Fort Yukon is a remote village in interior Alaska. There is no significant summer population increase.

Notes on the incinerator:

Model: ACSI* CA-100. Dual chambered MOD SA with APCD.
Contact: Mike Milnes (360 - 676 - 6005) (manufacturers agent)
Weight: 4,100 lbs
Cost (FOB Anchorage): \$27, 136
Accessories needed: Concrete pad, utility hookup, transfer station.

Capacity: Rated at 65 - 125 lb/hr = maximum 285 - 548 tpy at 24 hr/day.
This is a smaller incinerator than the one in Chignik Lagoon, even though the population is much larger.
If it is used for solid waste: a population of 570 will produce about 625 tons of waste per year. This one incinerator is not big enough to burn all the waste. If operated at 100 lb/hr for 12 - 36 hours/wk, capacity would be: 30 - 90 tpy.

Maintenance: Ash removal as needed
Fuel: Diesel, 40 gallons/batch or 11.4 gallons/hr
Can burn used oil? Yes
Energy Recovery Available? Yes
Operation: Starved air model with two chambers, fed in batches. Each batch takes 6 - 8 hours to burn. Temperatures are 2500 - 2700 F in the primary chamber, and 2900 F in the secondary.
APCD: Yes. Type not mentioned. Assumed ESP.
Meets Air Quality Opacity Standards? Likely meets.
Dioxin control: Secondary chamber acts to reduce dioxin; ESP may or may not help. Do not know if it comes with gas control.
Can burn used oil? Yes
Can burn sewage sludge? Not recommended
Can burn medical waste? Yes
EF: Use the EF for MOD SA, ESP, dual chambers. UNEP class "good".
Ash disposal: Not known.

ACAT ASSESSMENT:

<i>Combustor</i>	<i>Waste (tpy)</i>	<i>EF range (ug/ton)</i>	<i>Dioxins produced (ug/yr)</i>
MOD SA, ESP	30 - 90 tpy	Air: 16 - 80 ug/ton	480 - 7200 ug/ton
UNEP "good"		Ash: 200 ug/ton	6,000 - 18,000 ug/ton
		Total	6480 - 25,200 ug/ton

*ACSI is Advanced Combustion Incineration Systems

Fact Sheet: Petersburg, solid waste

Location: Petersburg, AK
 Population: 3,415

Notes on the area:

Petersburg is a fishing community in Southeast Alaska. It's population significantly increases in the summer when fishermen and fish processing workers arrive. There is a hospital in Petersburg (Petersburg General), and it is expected that this incinerator burns at least some medical waste. It is possible that it is actually located at the hospital; this same model is also located in Nome, and it is known that Norton Sound Regional Hospital has an incinerator on site. Until it can be definitely ascertained that this incinerator is located at a hospital, ACAT will assume it is burning 90% solid waste and 10% medical waste.

Notes on the incinerator:

Model: ACSI* CA-100. Dual chambered MOD SA with APCD.
 Contact: Mike Milnes (360 - 676 - 6005) (manufacturers agent)
 Weight: 4,100 lbs
 Cost (FOB Anchorage): \$27, 136
 Accessories needed: Concrete pad, utility hookup, transfer station.

Capacity: Rated at 65 - 125 lb/hr = maximum 285 - 548 tpy at 24 hr/day.
 If operated at 100 lb/hr for 36 - 60 hours/wk, capacity would be:
 94 - 156 tpy. If 10% of this is medical waste, then:
 85 - 140 tpy of solid waste; 10 - 15 tpy of medical waste.

Maintenance: Ash removal as needed
 Fuel: Diesel, 40 gallons/batch or 11.4 gallons/hr
 Can burn used oil? Yes
 Energy Recovery Available? Yes
 Operation: Starved air model with two chambers, fed in batches. Each batch takes 6 - 8 hours to burn. Temperatures are 2500 - 2700 F in the primary chamber, and 2900 F in the secondary.
 APCD: Yes. Type not mentioned. Assumed ESP.
 Meets Air Quality Opacity Standards? Likely meets.
 Dioxin control: Secondary chamber acts to reduce dioxin; ESP may or may not help.
 Do not know if it comes with gas control.
 Can burn used oil? Yes
 Can burn sewage sludge? Not recommended
 Can burn medical waste? Yes
 EF: Use the EF for MOD SA, ESP, dual chambers. UNEP class "good". Based on 90% solid waste and 10% medical waste.
 Ash disposal: Not known.

ACAT ASSESSMENT:

<i>Combustor</i>	<i>Waste (tpy)</i>	<i>EF range (ug/ton)</i>	<i>Dioxins produced (ug/yr)</i>
MOD SA, ESP	85 - 140 tpy	Air: 16 - 80 ug/ton	1360 - 11,200 ug/yr
UNEP "good"		Ash: 200 ug/ton	17,000 - 28,000 ug/yr
		MSW Total	18,360 - 39,200 ug/yr
			= 0.02 - 0.04 grams/yr
MOD SA, ESP under 200 lb/hr	10 - 15 tpy	Air: 45 - 525 ug/ton	450 - 7875 ug/yr
		Ash: 920 ug/ton	9200 - 13,800 ug/yr
		MWI Total	9,650 - 21,675 ug/yr
			= 0.009 - 0.022 grams/yr

Fact Sheet: Ketchikan Borough, solid waste

Location: not known where in the borough this is operated.

Population: entire borough is 13,961

Notes on the area:

The Ketchikan Borough is located along the Inside Passage of Southeast Alaska. There are many small towns, fishing lodges, and lumber camps in the area. Two incinerators are operating in the Ketchikan Borough; this is one of them. The location of this incinerator is not known; location and size of the other incinerator is not known.

Notes on the incinerator:

Model: ACSI* CA-500. Dual chambered MOD SA with APCD.

Contact: Mike Milnes (360 - 676 - 6005) (manufacturers agent)

Weight: 19,700 lbs

Cost (FOB Anchorage): \$54, 405

Accessories needed: Concrete pad, utility hookup, transfer station.

Capacity: Rated at 335 - 625 lb/hr = maximum 1467 - 2737 tpy at 24 hr/day.
This is a large incinerator, and we would expect that it is operated on a regular basis, probably 4 - 5 days a week at 12 hours a day. This gives us a capacity of 400 - 975 tpy.

Maintenance: Ash removal as needed

Fuel: Diesel, 40 gallons/batch or 11.4 gallons/hr

Can burn used oil? Yes

Energy Recovery Available? Yes

Operation: Starved air model with two chambers, fed in batches. Each batch takes 6 - 8 hours to burn. Temperatures are 2500 - 2700 F in the primary chamber, and 2900 F in the secondary.

APCD: Yes. Type not mentioned. Assumed ESP.

Meets Air Quality Opacity Standards? Likely meets.

Dioxin control: Secondary chamber acts to reduce dioxin; ESP may or may not help.
Do not know if it comes with gas control.

Can burn used oil? Yes

Can burn sewage sludge? Not recommended

Can burn medical waste? Yes

EF: Use the EF for MOD SA, ESP, dual chambers. UNEP class "good".

Ash disposal: Long Island near Ketchikan has solid waste permit for ash.

ACAT ASSESSMENT:

Combustor	Waste (tpy)	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD SA, ESP	400 - 975 tpy	Air: 16 - 80 ug/ton	6400 - 78,000 ug/ton
UNEP "good"		Ash: 200 ug/ton	80,000 - 195,000 ug/ton
		Total	86,400 - 273,000 ug/ton

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Fact Sheet: Red Dog, solid waste

Location: Red Dog, AK. Located in the Northwest Arctic, north of Kotzebue.
 Population: 55+

Notes on the area:

Red Dog is located in the Northwest Arctic, north of Kotzebue. It is not on the coast. Located near the town is the Red Dog mine, one of the largest zinc mines in the world. It's population is only listed as 55, but would be much higher if people working at the mine were included.

Notes on the incinerator:

Model: ACSI* CA-500. Dual chambered MOD SA with APCD.
 Contact: Mike Milnes (360 - 676 - 6005) (manufacturers agent)
 Weight: 19,700 lbs
 Cost (FOB Anchorage): \$54, 405
 Accessories needed: Concrete pad, utility hookup, transfer station.

Capacity: Rated at 335 - 625 lb/hr = maximum 1467 - 2737 tpy at 24 hr/day.
 This is a large incinerator, and we would expect that it is operated on a regular basis, probably 4 - 5 days a week at 12 hours a day. This gives us a capacity of 400 - 975 tpy.

Maintenance: Ash removal as needed

Fuel: Diesel, 40 gallons/batch or 11.4 gallons/hr

Can burn used oil? Yes

Energy Recovery Available? Yes

Operation: Starved air model with two chambers, fed in batches. Each batch takes 6 - 8 hours to burn. Temperatures are 2500 - 2700 F in the primary chamber, and 2900 F in the secondary.

APCD: Yes. Type not mentioned. Assumed ESP.

Meets Air Quality Opacity Standards? Likely meets.

Dioxin control: Secondary chamber acts to reduce dioxin; ESP may or may not help.
 Do not know if it comes with gas control.

Can burn used oil? Yes

Can burn sewage sludge? Not recommended

Can burn medical waste? Yes

EF: Use the EF for MOD SA, ESP, dual chambers. UNEP class "good".

Ash disposal: Not known.

ACAT ASSESSMENT:

Combustor	Waste (tpy)	EF range (ug/ton)	Dioxins produced (ug/yr)
MOD SA, ESP	400 - 975 tpy	Air: 16 - 80 ug/ton	6400 - 78,000 ug/ton
UNEP "good"		Ash: 200 ug/ton	80,000 - 195,000 ug/ton
		Total	86,400 - 273,000 ug/ton

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Fact Sheet: Kodiak Borough, solid waste

Location: Probably Kodiak Borough Landfill.
Population: Kodiak city has 6,893 people; the borough has 13,989.

Notes on the area:

We know that this model of incinerator is in use in the Kodiak Borough, and we know there is an incinerator at the Kodiak Landfill. There is also one at Katmai (a Park Service camp). We do not know for certain if this is the model in use at the landfill, but it is a good speculation. We also do not know if there is more than one model in use in the Borough.

Notes on the incinerator:

Model: ACSI* CA-300. Dual chambered MOD SA with APCD.
Contact: Mike Milnes (360 - 676 - 6005) (manufacturers agent)
Weight: 14,000 lbs
Cost (FOB Anchorage): \$45,370
Accessories needed: Concrete pad, utility hookup, transfer station.

Capacity: Rated at 200 - 375 lb/hr = maximum 876 - 1642 tpy at 24 hr/day.
If operated 3 - 5 days a week x 52 wks/yr at 350 lb/hr:
328 - 550 tpy

Maintenance: Ash removal as needed

Fuel: Diesel, 40 gallons/batch or 11.4 gallons/hr

Can burn used oil? Yes

Energy Recovery Available? Yes

Operation: Starved air model with two chambers, fed in batches. Each batch takes 6 - 8 hours to burn. Temperatures are 2500 - 2700 F in the primary chamber, and 2900 F in the secondary.

APCD: Yes. Type not mentioned. Assumed ESP.

Meets Air Quality Opacity Standards? Likely meets.

Dioxin control: Secondary chamber acts to reduce dioxin; ESP may or may not help.
Do not know if it comes with gas control.

Can burn used oil? Yes

Can burn sewage sludge? Not recommended

Can burn medical waste? Yes

EF: Use the EF for MOD SA, ESP, dual chambers. UNEP class "good".

Ash disposal: Afognak Native Corporation landfill is permitted for waste ash.

ACAT ASSESSMENT:

<i>Combustor</i>	<i>Waste (tpy)</i>	<i>EF range (ug/ton)</i>	<i>Dioxins produced (ug/yr)</i>
MOD SA, ESP	325 - 550 tpy	Air: 16 - 80 ug/ton	5248 - 44,000 ug/yr
UNEP "good"		Ash: 200 ug/ton	65,000 - 110,000 ug/yr
		Total	70,848 - 154,000 ug/yr = 0.07 - 0.15 grams/yr

Note: The National Park Service runs an incinerator at Katmai, near Kodiak. Katmai is known for it's brown bears that come in groups to fish the McNeill River during the summer fish run. A limited number of tourists are allowed to view the bears, and biologists man the camp.

*ACSI is Advanced Combustion Incineration Systems

Fact Sheet: English Bay/Nanwalek, solid waste

Location: English Bay (also known as Nanwalek), AK
Population: 170

Notes on the area:

Nanwalek is located across the Bay from Homer, and is quite close to the village of Port Graham (pop. 178). Nanwalek is known to have a burn box (45 - 65 lb/hr) in addition to this incinerator.

Notes on the incinerator:

Model: ACSI* CA-300. Dual chambered MOD SA with APCD.
Contact: Mike Milnes (360 - 676 - 6005) (manufacturers agent)
Weight: 14,000 lbs
Cost (FOB Anchorage): \$45,370
Accessories needed: Concrete pad, utility hookup, transfer station.

Capacity: Rated at 200 - 375 lb/hr = maximum 876 - 1642 tpy at 24 hr/day.
If operated 1 - 3 days a week at 350 lb/hrr: 100 - 325 tpy

Maintenance: Ash removal as needed

Fuel: Diesel, 40 gallons/batch or 11.4 gallons/hr

Can burn used oil? Yes

Energy Recovery Available? Yes

Operation: Starved air model with two chambers, fed in batches. Each batch takes 6 - 8 hours to burn. Temperatures are 2500 - 2700 F in the primary chamber, and 2900 F in the secondary.

APCD: Yes. Type not mentioned. Assumed ESP.

Meets Air Quality Opacity Standards? Likely meets.

Dioxin control: Secondary chamber acts to reduce dioxin; ESP may or may not help.
Do not know if it comes with gas control.

Can burn used oil? Yes

Can burn sewage sludge? Not recommended

Can burn medical waste? Yes

EF: Use the EF for MOD SA, ESP, dual chambers. UNEP class "good".

Ash disposal: Not known.

ACAT ASSESSMENT:

<i>Combustor</i>	<i>Waste (tpy)</i>	<i>EF range (ug/ton)</i>	<i>Dioxins produced (ug/yr)</i>
MOD SA, ESP	100 - 325 tpy	Air: 16 - 80 ug/ton	1600 - 26,000 ug/ton
UNEP "good"		Ash: 200 ug/ton	20,000 - 65,000 ug/ton
		Total	21,600 - 91,000 ug/ton

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Fact Sheet: Auke Bay, solid waste

Location: Auke Bay, AK
Population: not listed

Notes on the area:

Auke Bay is a small community outside of Juneau. Located in Auke Bay is a National Marine Fisheries research lab; as a fisheries lab, it is not expected to generate large amounts of plastic like a medical research facility would. It is known that there is an incinerator in Auke Bay, but it is not known whether it is at the Auke Bay labs, or what it is used for.

Notes on the incinerator:

Model: ACSI* CA-150. Dual chambered MOD SA with APCD.
Contact: Mike Milnes (360 - 676 - 6005) (manufacturers agent)
Weight: 6,200 lbs
Cost (FOB Anchorage): \$31,806
Accessories needed: Concrete pad, utility hookup, transfer station.

Capacity: Rated at 100 - 175 lb/hr = maximum 438 - 767 tpy at 24 hr/day.
If operated at 150 lb/hr 12 - 36 hr/wk for 52 weeks/yr:
about 50 - 150 tons of medical waste burned each year.

Maintenance: Ash removal as needed
Fuel: Diesel, 40 gallons/batch or 11.4 gallons/hr
Can burn used oil? Yes
Energy Recovery Available? Yes
Operation: Starved air model with two chambers, fed in batches. Each batch takes 6 - 8 hours to burn. Temperatures are 2500 - 2700 F in the primary chamber, and 3000 F in the secondary.
APCD: Yes. Type not mentioned. Assumed ESP.
Meets Air Quality Opacity Standards? Likely meets.
Dioxin control: Secondary chamber acts to reduce dioxin; ESP may or may not help.
Do not know if it comes with gas control.
Can burn used oil? Yes
Can burn sewage sludge? Not recommended
Can burn medical waste? Yes
EF: Use EF for medical waste, MOD SA, ESP, dual chambers, under 200 lbs/hr.
Ash disposal: Capitol landfill in Juneau is permitted for waste ash.

ACAT ASSESSMENT:

<i>Combustor</i>	<i>Waste (tpy)</i>	<i>EF range (ug/ton)</i>	<i>Dioxins produced (ug/yr)</i>
MOD SA, ESP	50 - 150 tpy	Air: 16 - 80 ug/ton	800 - 12,000 ug/ton
UNEP "good"		Ash: 200 ug/ton	10,000 - 30,000 ug/ton
		Total	10,800 - 42,000 ug/ton =0.010 - 0.042 g/ton

*ACSI is Advanced Combustion Incineration Systems