PDR WM-33

DAWN MINING COMPANY
P.O. BOX 25
FORD, WASHINGTON 99013

August 12, 1980

Mrs Nancy Kirmer
DSHS - Radiation Control Section
Mail Stop LD-11
Olympia, WA 98504

Dear Mrs. Kirmer:

We have reviewed the D.S.H.S. Draft Environmental Impact Statement for The Proposed Dawn Mining Company Mill Tailings Expansion Project and offer the following general and specific comments on the various sections of that Document:

General

Dawn is pleased that the D.S.H.S. agrees that the "no-action" alternative would actually have higher environmental costs than approval of the project. The D.E.I.S. document is evidence of a large amount of time and effort spent on this project by the D.S.H.S. The Company appreciates this and the timely manner in which its been carried out since our meetings in February of this year.

The Company does have some specific comments on portions of the D.E.I.S and they are addressed under the section headings listed below.

2.12 Natural Resources
Rate of Use

The D.E.I.S. states "Implementation of the proposed project would not alter either the materials utilized or their rates of consumption". Dawn's previous statements to this effect are no longer true. The new requirement to recycle solutions to the mill has forced a change in the elution cycle in IX. The new procedure does not use Ammonium Nitrate, consumes only minimal quantities of Caustic Soda, and uses roughly twice the Lime used previously.

3.1.1 Mill Circuit

The flow diagram (Fig. 3.1) shown is for a mill using solvent extraction for solution treatment. Dawn's mill uses Ion Exchange (IX). A new Figure 3.1 is provided for your information.

Mill Wastes and Effluents

The levels of radionuclides given for tailings in page 3.2 are not typical of the actual values measured at Dawn. We suggest that actual values should be used. A comparison of the two follows:

	U.E.I.S.	DAWN
U_{238}	450 pCi/g	350 pCi/g
U_{234}	450 pCi/g	350 pCi/g
Th 230	450 pCi/g	235 pCi/g
Ra 226	450 pCi/g	215 pCi/g
Pb 210	450 pCi/g	500 pCi/g

Acid Leach Process - Sands

The D.E.I.S. gives ranges of 25 pCi/g to 100 pCi/g for radium and 70 pCi/g to 500 pCi/g for thorium in sands. Dawn's tailings have been measured at 100 pCi/g of radium and 105 pCi/g thorium.

Acid Leach Process - Slimes

The D.E.I.S. gives ranges of 150 pCi/g to 400 pCi/g for radium and 70 pCi/g to 500 pCi/g for thorium in slimes. Dawn's tailings have been measured at 200 pCi/g of radium and 395 pCi/g for thorium.

Acid Leach Process - Liquid

Listed in the D.E.I.S. as common constituents in tailings solution are kerosene and other organics. These are products of solvent extration processes. Dawn uses Ion Exchange. The D.E.I.S. gives radium levels in solutions as 20 pCi/l to 7500 pCi/l. Dawn's solutions run 300 pCi/l. Other constituents of the wastes are given in Table 3.1. Rather than using a model mill approach, Dawn suggests actual determinations of Dawn's wastes be used. The following is a comparison of the two:

Comparison D.E.I.S. and Dawn

Chemical and Radiological Properties of Tailings Wastes

Table 3.1

Parameter	D.E.I.S. Value	Dawn Value
Dry Solids		
U_3O_8, wt%	0.011	.005
U nat, pCi/g[b]	63	27
Ra 226, pCi/g	450	150
Th 230, pCi/g	430	250
Tailings Liquid		
pH	2	1.82
Aluminum, g/L	0.0	.82
Ammonia, g/L	0.5	.138
Arsenic, g/L	2×10^{-4}	9.5×10^{-4}
Calcium, g/L	0.5	.102
Carbonate, g/L	---	.025
Cadmium, g/L	2×10^{-4}	1.02×10^{-4}
Chloride, g/L	0.3	.102
Copper, g/L	0.05	.002
Fluoride, g/L	5×10^{-3}	1.1×10^{-4}
Iron, g/L	1.0	1.97
Lead, g/L	7×10^{-3}	1.09×10^{-3}
Manganese, g/L	0.5	.301
Mercury, g/L	7×10^{-5}	2×10^{-7}
Molybdenum, g/L	0.1	.0002
Selenium, g/L	0.02	<.00001
Sodium, g/L	0.2	.063
Sulfate, g/L	30.0	21.9
Vanadium, g/L	1×10^{-4}	2.8×10^{-4}
Zinc, g/L	0.08	.016
Total dissolved solids, g/L	35.0	25.4
U nat, pCi/L	5.4×10^3	9.8×10^3
Ra 226, pCi/L	4×10^2	3×10^2
Th 230, pCi/L	1.5×10^5	1.26×10^5
Pb 210, pCi/L	4×10^2	1.53×10^4
Po 210, pCi/L	4×10^2	1.8×10^3
Bi 210, pCi/L	4×10^2	N/A

3.1.3 Radioactive Wastes

Table 3.2 gives estimates of emissions generated daily by a model mill of 1800 MT/day. Dawn's mill is rated at 450 MT/day. Perhaps it would be more appropiate to use actual measured emmissions levels. The following is a comparision of the two:

Comparison D.E.I.S. and Dawn

Emissions Generated Daily by the Model Mill
Table 3.2

Emission	Emission Source	D.E.I.S. Daily Rate	Dawn Daily Rate
Ore Dust	Ore storage & crushing/grinding	3.4 kg	.37 kg
U_3O_8	Product drying & packaging	0.7 kg	0.6 kg
Tailings dust	Tailings pile	1080 kg	32 kg*
Organic solvent (92% Kerosene)	Solvent extraction ventilation system	70 kg	-0-
Sulfur dioxide and sulfuric acid fumes	Acid leach tank vent system	1 kg	.25kg
SO_2	Burning of fuel oil	22 kg	N/A
NO_2	Burning of fuel oil	5 kg	N/A
Domestic sewage	Washrooms, showers, etc.	30,000 L	12,000 L

*Based on 97% effective control with wood chips and wetting.

(NOTE: Insufficient data is available at Dawn to compare Table 3.3 to actual measured levels)

4.31 Surface Water

Operation

The D.E.I.S. discusses in this section environmental impacts resulting from tailings pond seepage. One of the prime objective of this project is to eliminate seepage from the operating ponds thereby improving Chamokane Creek water quality. This beneficial environmental impact is not mentioned. In the unlikely event that the membrane integrity fails, the expected seepage will still be of much smaller magnitude than from the present operation. The possibility of pools forming downgradient from the ponds and of salt deposits forming due to seepage as discussed under items # 2 and 3 are not likely occurances. In twenty years of operation with larger volumes of seepage solutions no such phenomena have been observed.

4.6.1 Terestial Biota

Operations

The D.E.I.S. cites "Additional impacts to terrestial Biota from continued operations would be...increase road traffic, increased hunting pressure and physical obstructions, such as electrical transmission towers and lines that can pose hazards to raptors". These types of environmental impacts would not be present or increase during the operations phase since no change from existing conditions is planned. The comment about the area being devoid of observation perches is not correct. The area surrounding the project is heavily wooded with an abundance of perches.

Post Operations

As discussed earlier, no saline deposits have been observed after twenty years of operation. It is not likely that any reduction of food resources would occur from this source. Deposition of windblown tailings is also cited in this section as a continuing environmental impact. This would not be the case. Tailings reclamation requirements will insure that the tailings are properly stabilized under three meters of cover.

5.1.3 Environmental Effects of Accidents

Large Release

The cited tailings dam failure could not occur since the new facility is subgrade and not a surface dam.

7.1.4 Soils

Operations

The adverse impacts cited in this section are not likely to occur due to the lined nature of the pond and the stabilization of old tailings areas. Neither seepage or wind blowing of tailings should occur. In addition, reclamation requirements will ensure that the tailings themselves will be covered with three meters of soil.

7.1.5 Terrestial Biota

Post Operation

The comments on section 7.1.4 also apply to this portion of the D.E.I.S.

Summary

The project under consideration was specifically designed to mitigate just such impacts. This should be acknowledged.

7.1.6.1 Radiological - Air Quality

The D.E.I.S. comments on the hazards of unrestrained tailings and radon emanation in this section do not take into consideration the reclamation requirements of full stabilization with three meters of cover, reduction of gamma radiation to background and reduction of radon emanation to less than 2 $pCi/m^2/sec$. The suggestion that arrangements for financing long term surveilance must be devised ignores the fact that the State of Washington Mill Tailings Licensing and Perpetual Care Act of 1979 already has addressed this need by establishing the "Perpetual Care and Maintenance Fund" funded by a tax on Dawn's production of U_3O_8.

7.1.6.4 Soils

The comments on section 7.1.4 also apply to this portion of the D.E.I.S.

Yours truly,

DAWN MINING COMPANY

Jack E. Thompson

J. E. Thompson
Resident Manager

cc: Dan Guillen, N.R.C.
File

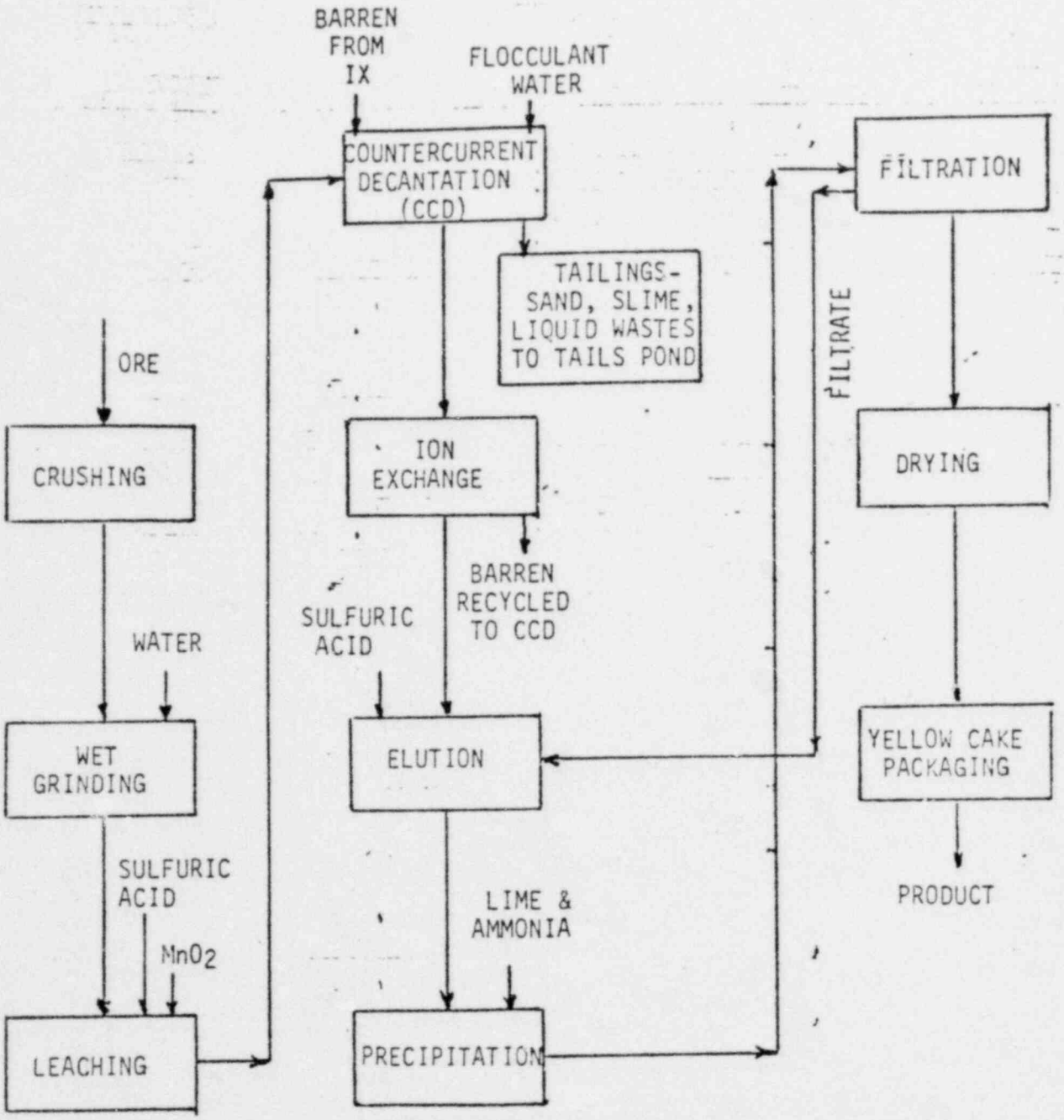

Figure 3.1 Dawn Mining Company

Flow Diagram for the Acid-Leach Process