



*SODIUM AND POTASSIUM
VALUATION*

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Solids & Geothermal CAM

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COURSE OUTLINE

- **Royalty Revenues**
- **Nature of sodium/potassium minerals**
 - geology
 - chemistry
- **Mining methods**
- **Processing**
- **Products**

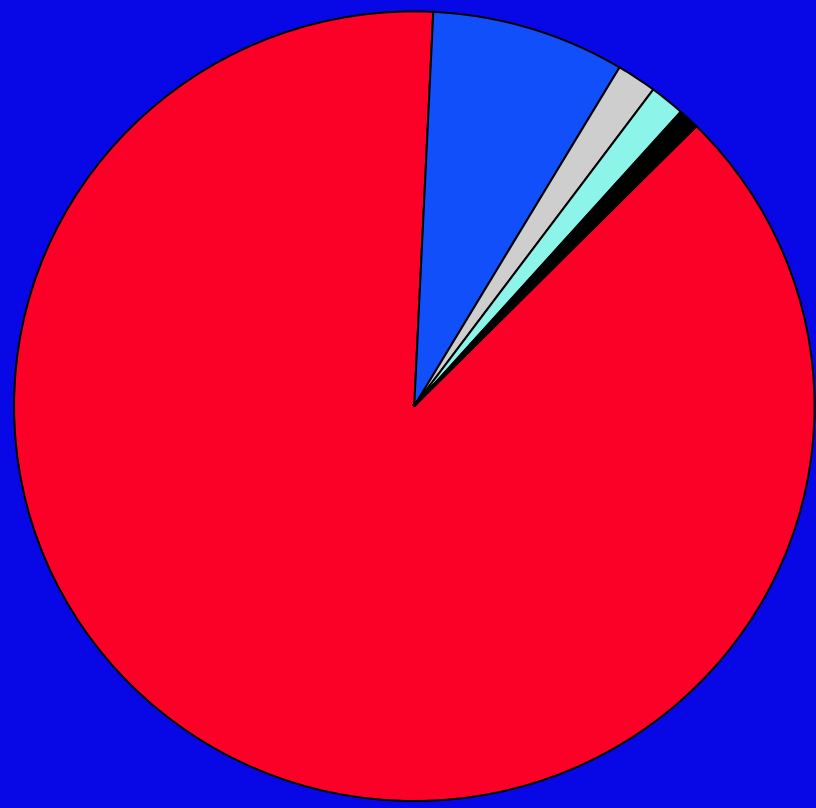


COURSE OUTLINE (CONT.)

- **Producing Regions**
- **Statutory Authority**
- **Regulatory Authority**
- **Lease Terms**
- **Guidelines**
- **Valuation Principles**
 - **Important Court and IBLA Decisions**
- **Summation and Rules of Thumb**

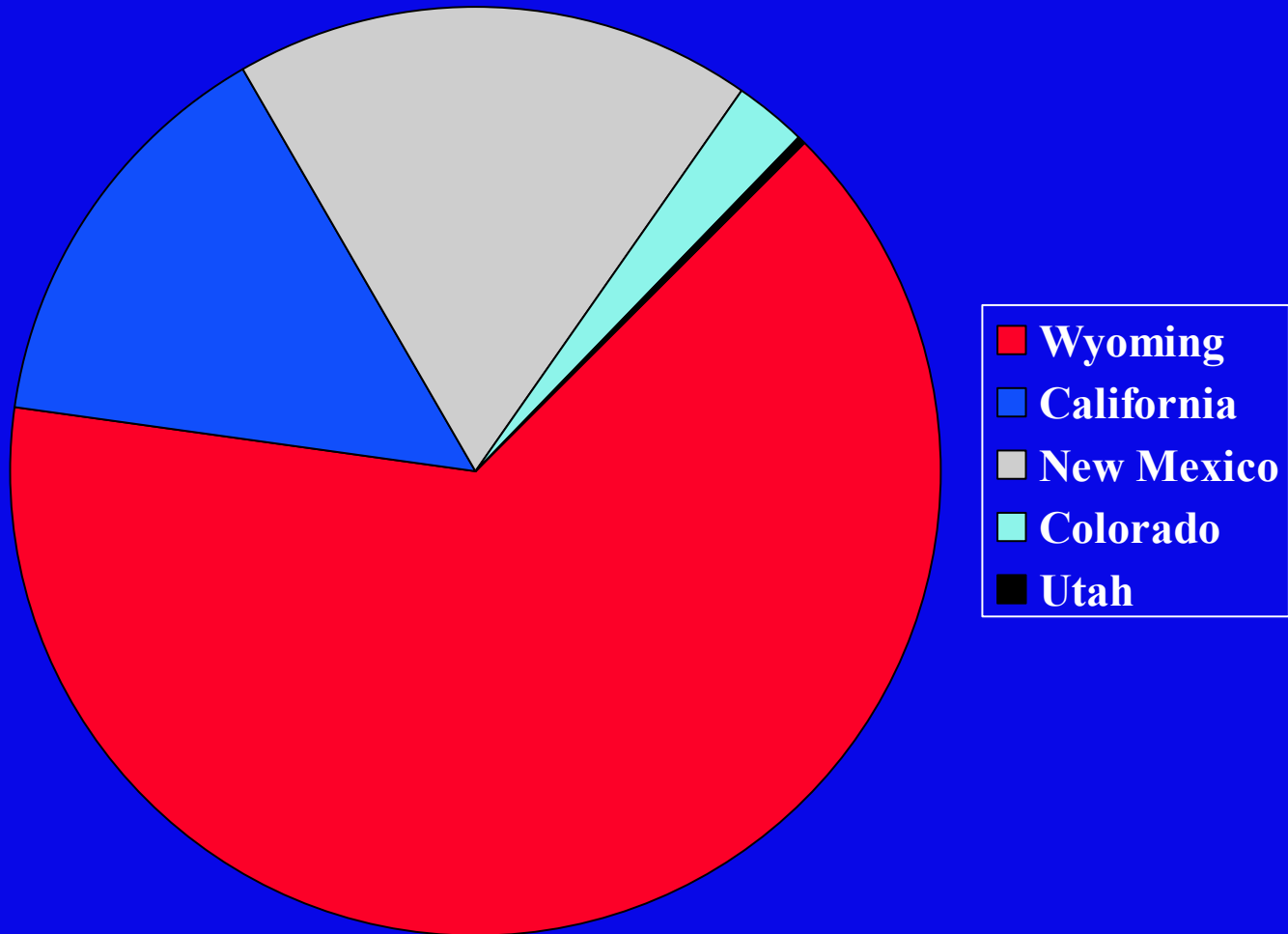


SOLID MINERAL ROYALTIES BY PRODUCT TYPE--2001



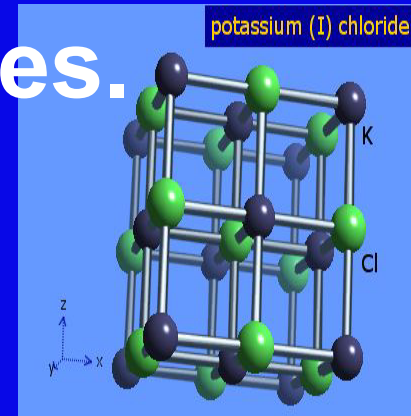
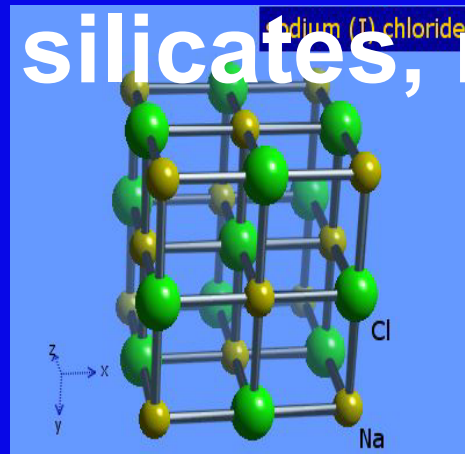
- coal
- sodium
- PB/Zn/Cu
- phosphate
- potassium
- limestone
- gilsonite
- clay

SODIUM AND POTASSIUM ROYALTIES BY STATE--2001



SODIUM AND POTASSIUM COMPOUNDS

- Sodium/Potassium not found alone.
- Very reactive
- Always with other elements
- Chlorides, sulfates, carbonates, borates, silicates, nitrates.



GEOLOGY

- Deposited in salty lakes and shallow seas
- Chemicals in the water are concentrated through evaporation
- Evaporite minerals
- Also called saline minerals or salts



(c)Water Feller



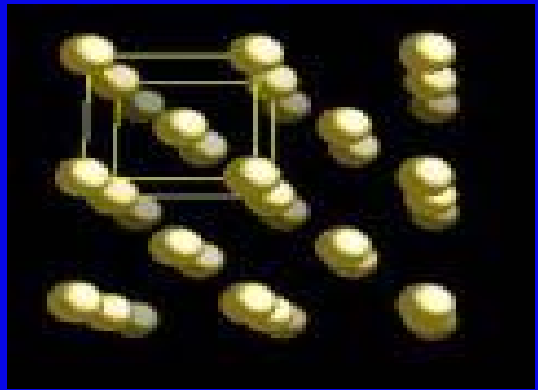
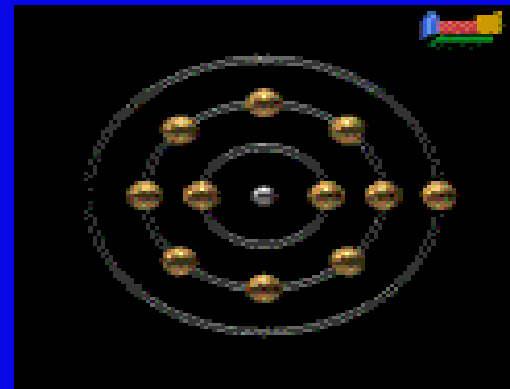
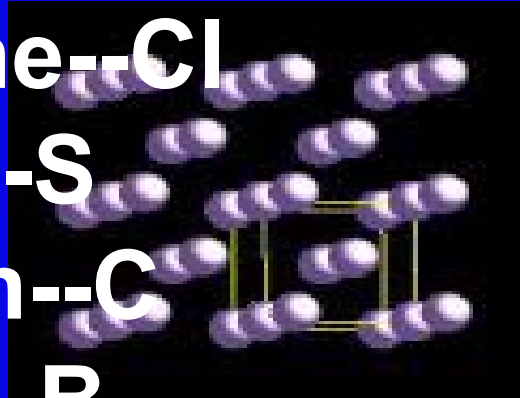
CHEMISTRY

Symbols for elements

- potassium--K
- sodium--Na
- lithium--Li
- magnesium--Mg



- chlorine--Cl
- Sulfur--S
- Carbon--C
- Boron--B
- silicon--Si



CHEMISTRY

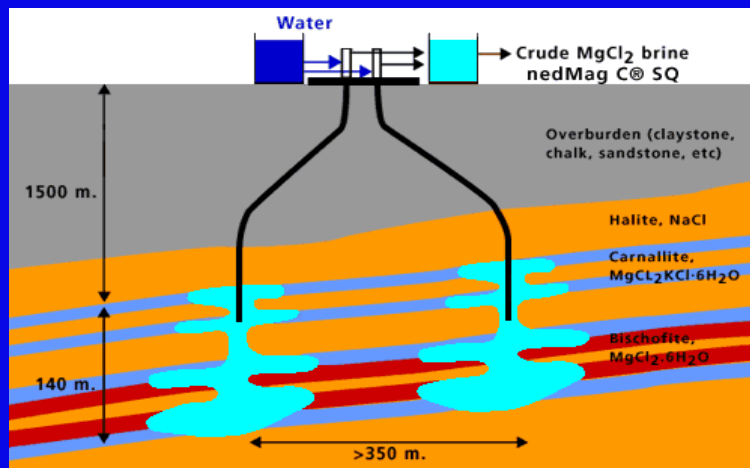
Symbols for compounds

- **NaCl--table salt, halite**
- **$\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$ --borax**
- **$\text{Na}_2\text{CO}_3 \cdot \text{NaHCO}_3 \cdot 2\text{H}_2\text{O}$ —trona**
- **NaHCO_3 --Nahcolite**
- **KCl--Sylvite, potash**
- **$\text{K}_2\text{SO}_4 \cdot 2\text{MgSO}_4$ -- Langbeinite**
- **K_2SO_4 — potassium sulfate**



MINING METHODS

- Solid
- Solution
- Brine



PROCESSING

Physical

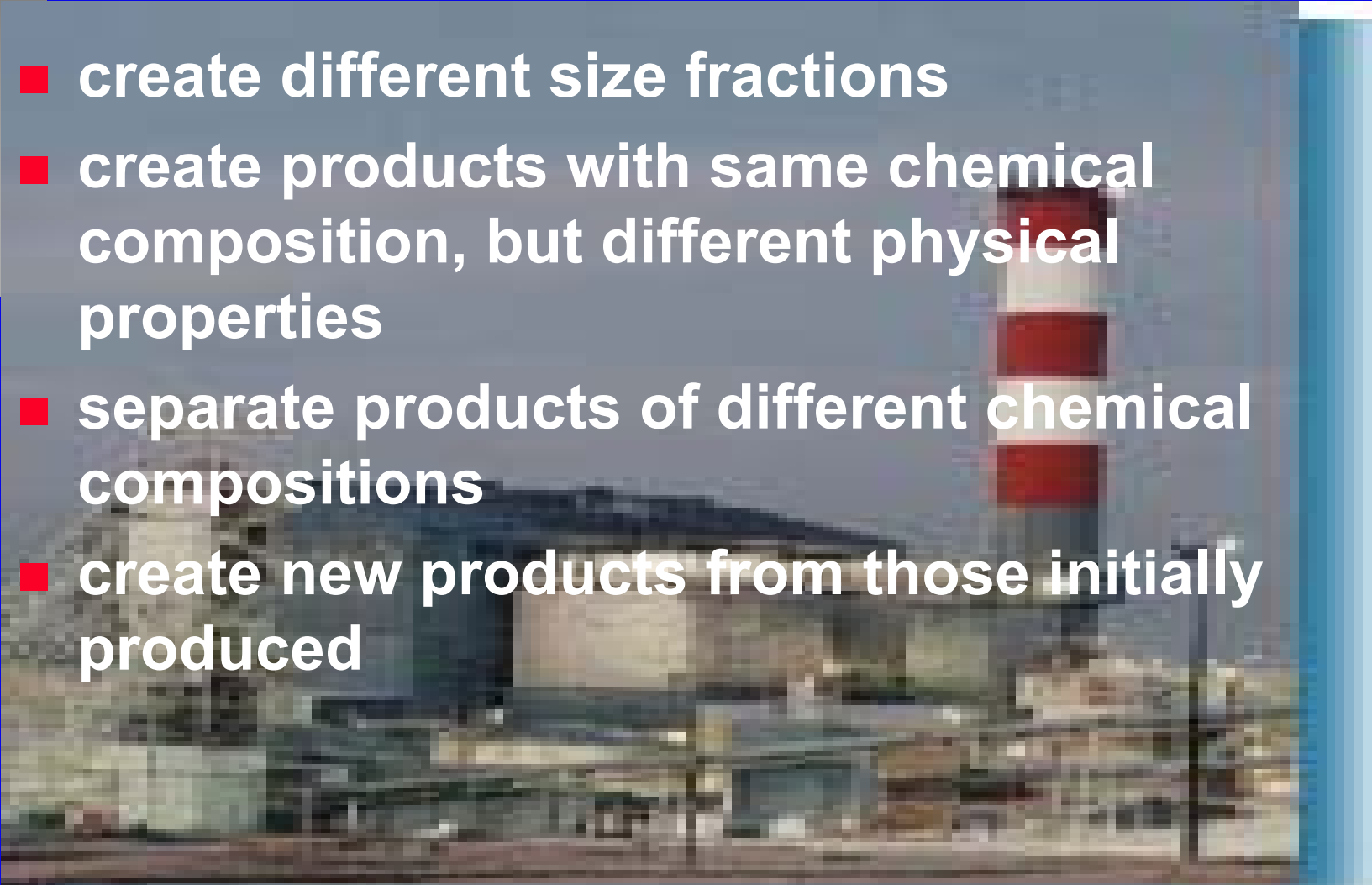
- **crush**
- **dry**
- **size**
- **remove impurities**
- **concentrate**



PROCESSING

Chemical

- create different size fractions
- create products with same chemical composition, but different physical properties
- separate products of different chemical compositions
- create new products from those initially produced



PRODUCTS

- The raw ore and brine
- Naturally occurring components of the ore and brine
- Incompletely processed products
- Refined products
- Associated and related minerals



PRODUCTS

Primary

- **Primary products include those products which are naturally occurring components of the ore or brine.**
- **Primary products are the first marketable products produced from processing the raw ore or brine.**
- **Incompletely processed and refined products.**

PRODUCTS

Primary--Reagents

- Reagent is defined as a chemical (or a component of a chemical) used in processing ore.

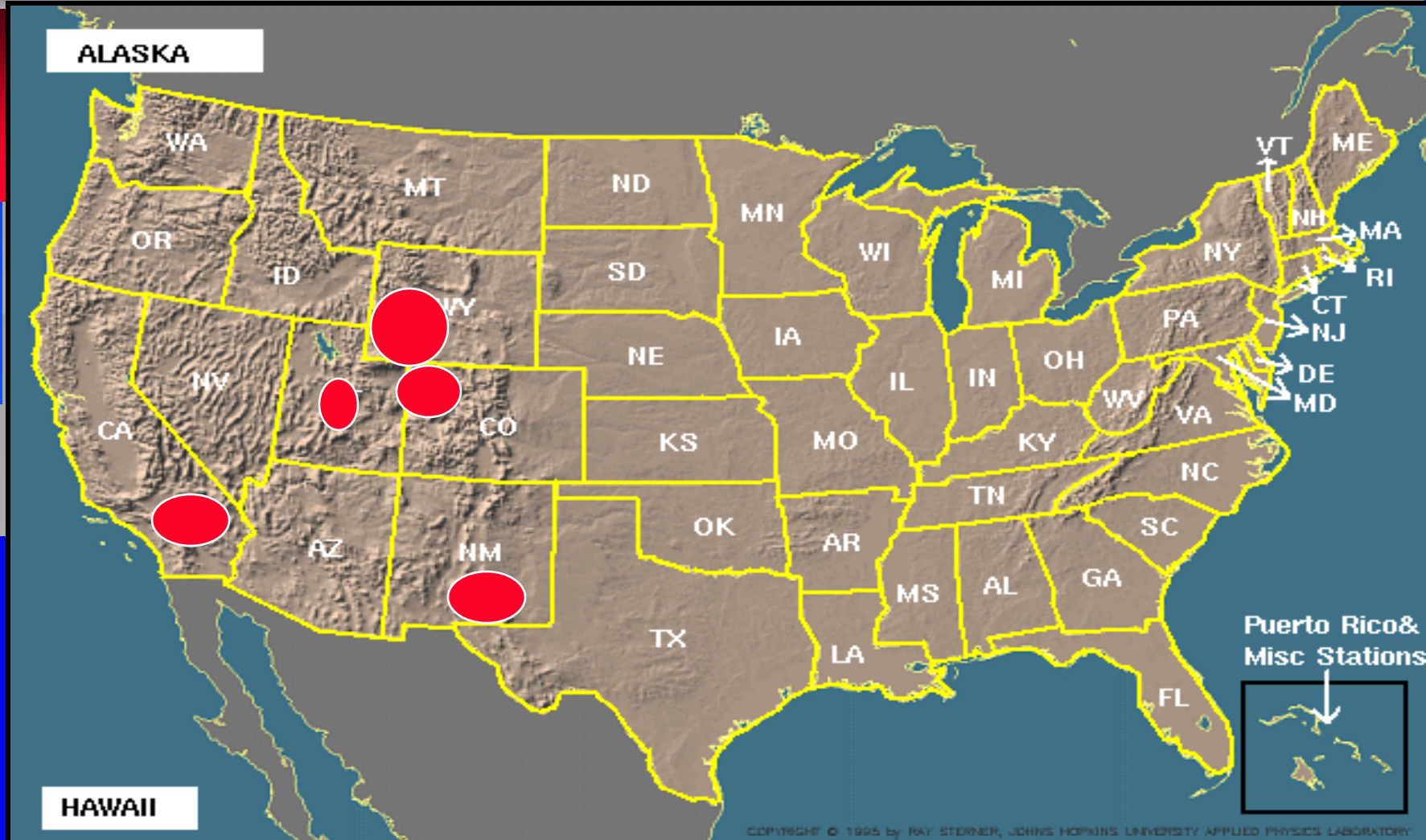


PRODUCTS

Secondary

- When a primary product undergoes chemical processing and is used to make another salable compound, the result is a secondary product.
- If a secondary product is consumed to make another salable compound, the result is a tertiary product.

MAIN PRODUCING REGIONS



MAIN PRODUCING REGIONS

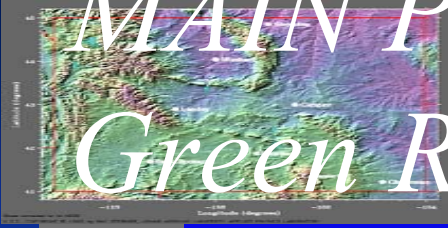
Piceance Basin, NW CO-Products

- Ore mineral nahcolite, NaHCO_3
- Sodium bicarbonate, NaHCO_3
- Soda ash, Na_2CO_3
- Carbon dioxide, CO_2



MAIN PRODUCING REGIONS

Green River, SW WY--Products



- Crude trona (alkaten), primary
 $\text{Na}_2\text{CO}_3 \cdot \text{NaHCO}_3 \cdot 2\text{H}_2\text{O}$
- Sodium sesquicarbonate, primary
 $\text{Na}_2\text{CO}_3 \cdot \text{NaHCO}_3 \cdot 2\text{H}_2\text{O}$
- Sodium carbonate (soda ash), primary,
 Na_2CO_3
 - light
 - dense

MAIN PRODUCING REGIONS

Green River--Products (cont.)

- Sodium bicarbonate, secondary, NaHCO_3
- Sodium tripolyphosphate (STP), secondary $\text{Na}_5\text{P}_3\text{O}_{10}$
- Tetrasodium pyrophosphate (TSP), secondary $\text{Na}_4\text{P}_2\text{O}_7$
- Sodium hydroxide, secondary, NaOH

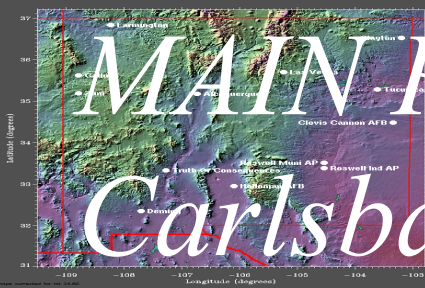


MAIN PRODUCING REGIONS

Green River--Products (cont.)

- Sodium sulfite, secondary, Na_2SO_3
- Sodium cyanide, tertiary, NaCN
- Purge liquor, primary
- Mine water, primary





MAIN PRODUCING REGIONS

Carlsbad area, SE NM--Products

- **Ore minerals and products:**
 - halite, NaCl (salt)
 - sylvite, KCl (potash)
 - langbeinite, $K_2SO_4 \cdot 2MgSO_4$



MAIN PRODUCING REGIONS

Carlsbad--Products (cont.)

- **Potassium sulfate, primary, K_2SO_4**
- **Potash (potassium muriate)**
 - **chemical**
 - **industrial**
 - **soluble**
 - **standard**
 - **fine**
 - **coarse**
 - **granular**





MAIN PRODUCING REGIONS

Great Salt Lake, Utah--Products

- Brines contain potassium, sodium, and magnesium
- Potassium chloride (potassium muriate), primary, KCl
- Potassium sulfate (sulfate of potash), primary, K_2SO_4



MAIN PRODUCING REGIONS

Great Salt Lake--Products (cont.)

- Sodium chloride, primary, NaCl
- Sodium sulfate, primary, Na₂SO₄
- Magnesium chloride brine, primary, MgCl₂ in water



MAIN PRODUCING REGIONS

Searles Lake, S CA--Products

- Ore minerals:

- trona, $\text{Na}_2\text{CO}_3 \cdot \text{NaHCO}_3 \cdot 2\text{H}_2\text{O}$

- borax, $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$

- halite, NaCl

- hanksite, $9\text{Na}_2\text{SO}_4 \cdot 2\text{Na}_2\text{CO}_3 \cdot \text{KCl}$

- nahcolite, NaHCO_3



MAIN PRODUCING REGIONS

Searles Lake--Products (cont.)

- **Crude trona, primary**
- **Sodium chloride, primary, NaCl**
- **Sodium carbonate (soda ash), primary, Na₂CO₃**
- **Sodium bicarbonate, primary, NaHCO₃**
- **Sodium sulfate (salt cake), primary and secondary, Na₂SO₄**

MAIN PRODUCING REGIONS

Searles Lake--Products (cont.)

- Borax, primary, $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$, (deca)
- Borax, primary, $\text{Na}_2\text{B}_4\text{O}_7 \cdot 5\text{H}_2\text{O}$, (penta)
- Boric acid, primary and secondary, H_3BO_3
- Anhydrous borax, (pyrobor), secondary, $\text{Na}_2\text{B}_4\text{O}_7$
- Boric oxide, secondary, B_2O_3

STATUTORY AUTHORITY

Sodium and potassium

- Sodium is a leasable “mineral” covered by the Mineral Leasing Act of 1920.
- Potassium is a leasable “mineral” covered by the Potassium Act of 1927.



STATUTORY AUTHORITY

Sodium--30 USC § 261-263

- “chlorides, sulphates, carbonates, borates, silicates, or nitrates of sodium”
- “royalty of not less than 2 per centum of the quantity of gross value of the output of sodium compounds and other related products at the point of shipment to market”



STATUTORY AUTHORITY

Potassium--30 USC § 281-287

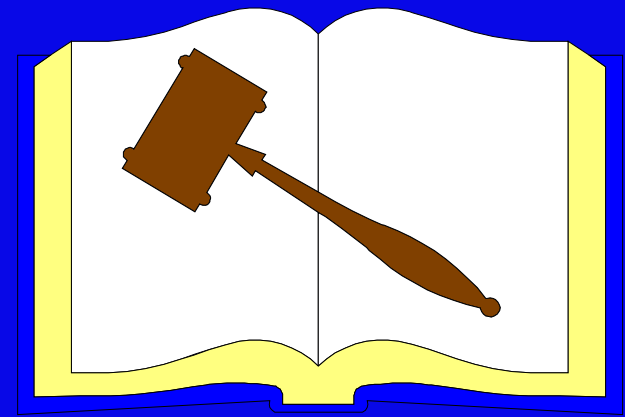
- “chlorides, sulphates, carbonates, borates, silicates, or nitrates of potassium”
- “royalty of not less than 2 per centum of the quantity or gross value of the output of potassium compounds and other related products, except sodium, at the point of shipment to market”



REGULATORY AUTHORITY

30 CFR §206.301

- **Value basis for royalty computation**
- **Royalty value depends on the disposition of primary products:**
 - Royalty on primary products sold under arm's-length conditions will be based on their sales prices.**

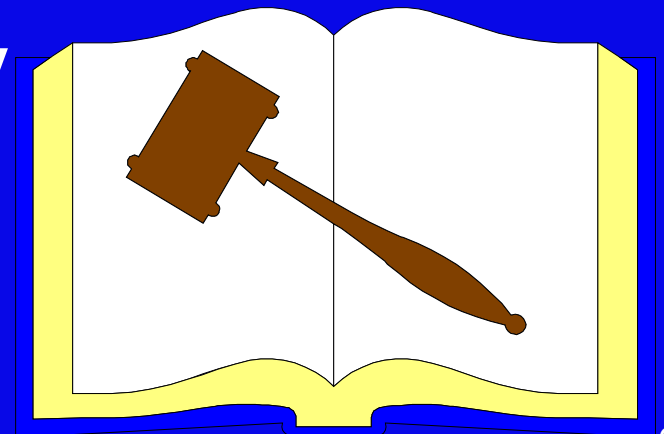


REGULATORY AUTHORITY

30 CFR § 206.301 (cont.)

- **--Royalty for primary products:**
 - **sold under non-arm's-length conditions, or**
 - **sold for considerations in lieu of or in addition to sales price, or**
 - **consumed by lessee**

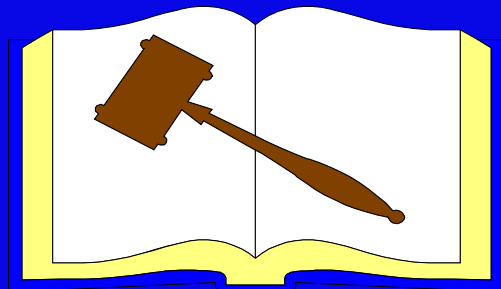
**will be determined by
an authorized officer.**



REGULATORY AUTHORITY

30 CFR §206.301 (cont.)

- **Authorized officer will generally be:**
 - Deborah Gibbs Tschudy, Assistant Program Director, Onshore, Offshore Compliance, or**
 - Robert Davidoff, Supervisor Solids & Geothermal CAM.**



REGULATORY AUTHORITY

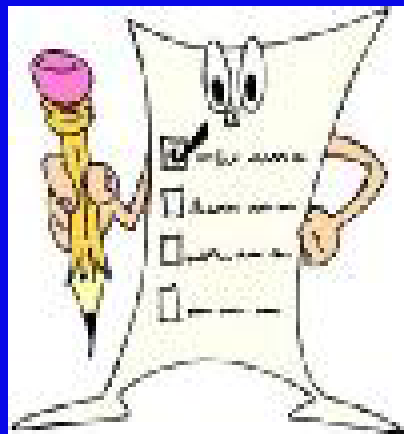
30 CFR § 206.301 (cont.)

- **Authorized officer must take into account:**
 - prices lessee receives for arm's-length sales**
 - prices paid for like-quality commodities in area**
 - other relevant factors.**



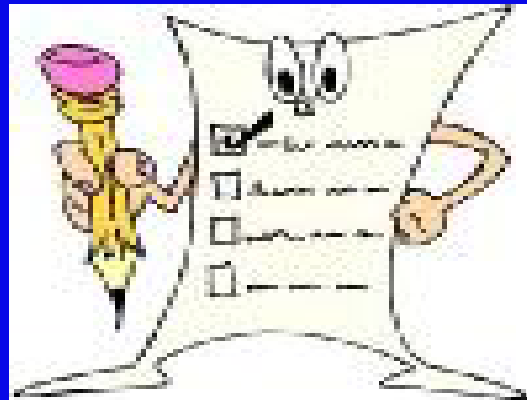
COMMON LEASE TERMS

- Older leases (before 1980)
- 5% ad valorem royalty
- Gross output of the lease deposits
- At the point of shipment to market



COMMON LEASE TERMS

- **Newer leases (after 1980)**
- **5% ad valorem royalty**
- **Gross output of the lease deposits**
- **At the point of shipment to market and/or the place of consumption**



COMMON LEASE TERMS

Future and renewing leases

- **In Wyoming only**
- **8% ad valorem royalty for new sodium leases**
- **6% ad valorem royalty for renewing sodium leases**
- **Gross output of the lease deposits**
- **At the point of shipment to market and/or the place of consumption**
- **Diligence clause**

GUIDELINES

- **“Guidelines for Determining the Value to be Used to Compute Royalty on Federal Potassium and Sodium Leases”**
- **1977 Guidelines**
- **Assistant Secretary - Energy and Minerals**



VALUATION PRINCIPLES

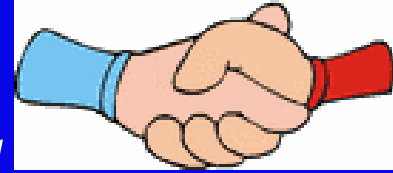


Primary products

- **Primary products include those products which are naturally occurring components of the ore or brine.**
- **Primary products are the first marketable products produced from processing the raw ore or brine.**
- **Other primary products may be unprocessed or incompletely processed products.**

VALUATION PRINCIPLES

Primary products--A-L sales



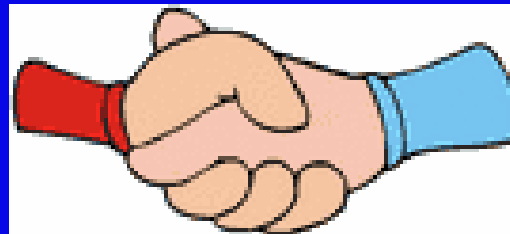
- **Royalty on primary products will be based on gross value of primary product sales.**
- **Gross value of primary products sold by lessees will be contract value of products sold under arm's-length conditions, f.o.b. mine.**

VALUATION PRINCIPLES

Primary products--A-L sales



- **Value for royalty purposes will be sales or contract unit price (f.o.b. mine) times number of units sold.**



VALUATION PRINCIPLES

Primary products-gross proceeds

- **Value for royalty purposes may not be based on less than gross proceeds accruing to lessee for primary products sold.**
- **Gross proceeds is defined as total moneys and other consideration accruing to lessee for disposition of primary products.**



VALUATION PRINCIPLES

Primary products-gross proceeds

- **If sales value includes considerations other than sales price, those considerations are part of gross proceeds.**
- **Dollar equivalent value of those considerations must be included in gross value for royalty purposes.**

VALUATION PRINCIPLES

Primary products--transportation

- **Where sales or contract price includes cost of transporting product from mine to distant sales point, lessee will be permitted transportation deduction.**



VALUATION PRINCIPLES

Primary products--example



- 800 tons bulk ash @ \$80/ton (weighted average), at mine
- 300 tons bulk ash @ \$98/ton, at dest.
\$16/ton out-of-pocket transportation cost
- Royalty values:
 - 800 tons bulk ash @ \$80/ton, at mine
 - 300 tons bulk ash @ \$82/ton, at mine
- Weighted average sales price:
 $(800 \times \$80 + 300 \times \$82) / 1100 = \$80.54$
- Roy = $1100 \times 80.54 \times .05 = \$4,429.7$

VALUATION PRINCIPLES

Primary products--transportation

- **Under no circumstances may sales price less permitted transportation costs be less than average gross value of specific product, f.o.b. mine.**
- **No transportation allowance is permitted for cost of transporting ore from mine to processing plant.**

VALUATION PRINCIPLES

Primary products--example

- 2500 tons bulk ash @ \$80/ton (w.a), at mine
- 300 tons bulk ash @\$94/ton, at dest. \$16/ton transportation cost = \$78 f.o.b < \$80, use \$80/ton
- 200 tons bulk ash @\$98/ton, at dest. \$16/ton transportation cost = \$82/ton, at mine
- Royalty values:
 - 2500 tons bulk ash @ \$80/ton, at mine
 - 200 tons bulk ash @ \$82/ton, at mine
 - 300 tons bulk ash @ \$80/ton, at mine
- Weighted ave. sales price: \$80.13/ton
- Roy = 3000 x 80.13 x .05 = \$12,019.5

VALUATION PRINCIPLES

Primary products--transportation

- On the P&R form, we require reporters to include the allowed transportation cost.
- The system will compute the transportation deduction by lease.

VALUATION PRINCIPLES

Primary products--transportation

- **Example: 200 tons bulk sold at weighted ave: \$80/ton f.o.b.-mine**

200 tons at \$86/ton with out-of-pocket transp. \$8/ton. Allowable transportation deduction: \$6/ton

400 tons at \$89.5/ton and out-of-pocket transp. \$11/ton. Allowable transportation deduction: \$9.5/ton

Allowable transportation costs on P&R

$$200 \times \$6/t = \$1,200$$

$$400 \times \$9.5/t = \$3,800. \text{ Total} = \$5,000.$$

Lease-level data input page

Volume and Value Allocation for Lease 1:

[Log Out of P&R](#)

[Help](#)

Mine Name	Business Unit	Sales Month/Year	Sales Point	Product
Mine No. 1	Federal/State/Fee	November, 2003	Mine	Gilsonite

P & R Original

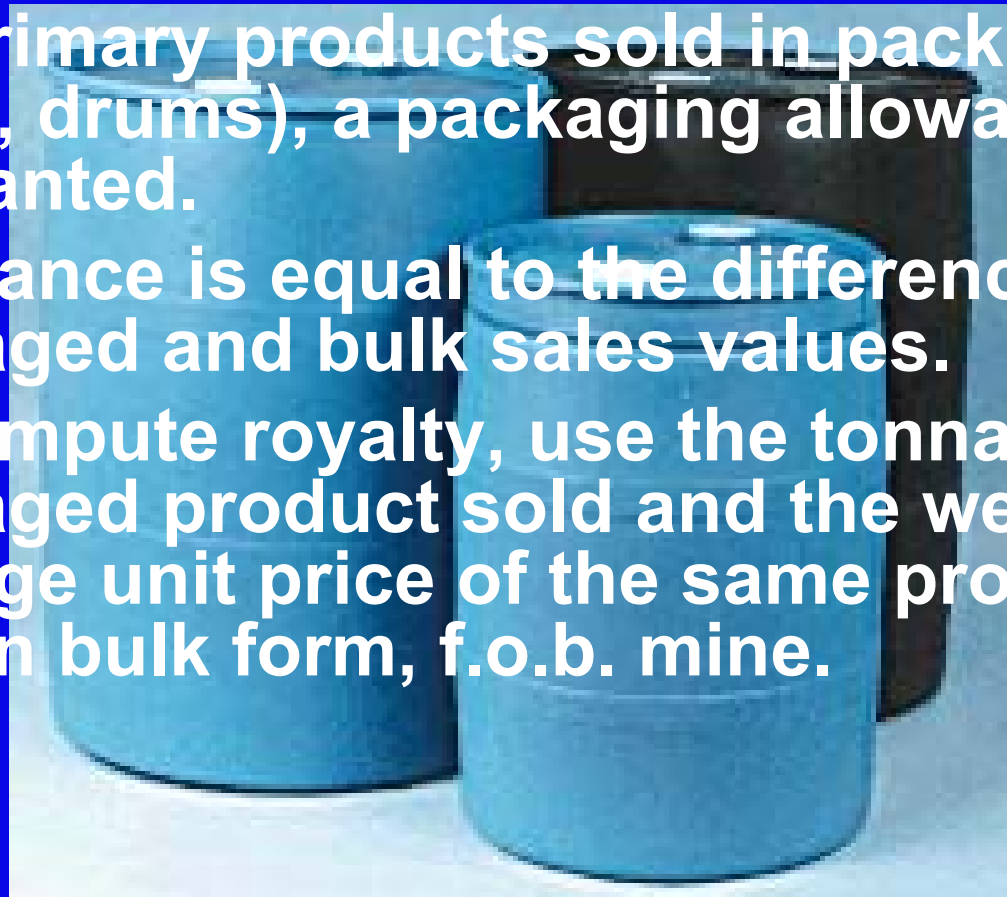
Total Units Sold:	<input type="text" value="800"/>	Total Units Transferred:	<input type="text" value="50"/>	<input type="button" value="Allocate Volume"/>
Total Gross Proceeds:	<input type="text" value="\$ 69000"/>	Total Allowed Processing Cost:	<input type="text" value="\$ 1000"/>	<input type="button" value="Allocate Value"/>
Total Allowed Transportation Cost:	<input type="text" value="\$ 5000"/>			<input type="button" value="Calculate Royalty Due"/>
				<input type="button" value="Save Before Submitting"/>

Lease Number: <input type="text" value="UTU XXX1"/>		Royalty Rate/Fixed Rate: 10%		Land Class: FED	
Beginning Inventory:	Inventory/Volume Adjustment:	Units Produced:	Production Available for Sale:	Units Transferred:	Units Sold:
862	<input type="text" value="-10"/>	<input type="text" value="48"/>	<input type="text" value="900"/>	<input type="text" value="30"/>	<input type="text" value="300"/>
Ending Inventory:	Gross Proceeds:	Allowed Transportation Cost:	Allowed Processing Cost:	Royalty Before Allowance:	Royalty Payment:
<input type="text" value="570"/>	<input type="text" value="\$ 25875"/>	<input type="text" value="\$ 1875"/>	<input type="text" value="\$ 375"/>	<input type="text" value="\$ 2588"/>	<input type="text" value="\$ 2362"/>

VALUATION PRINCIPLES

Primary products--allowances

- **Packaging allowances:**
- For primary products sold in packages (bags, drums), a packaging allowance will be granted.
- Allowance is equal to the difference of packaged and bulk sales values.
- To compute royalty, use the tonnage of packaged product sold and the weighted average unit price of the same product sold in bulk form, f.o.b. mine.



VALUATION PRINCIPLES



Primary products--allowances

- If lessee has no or insignificant A-L bulk sales, royalty value will be based on packaged sales price less packaging costs.
- In the case of insignificant bulk sales, that royalty value can be no less than the calculated value using the unit price received for same product sold in bulk form.



VALUATION PRINCIPLES

Primary products--allowances

- On the P&R form, reporters enter the total actual or computed allowable packaging cost. The entry is made in the Processing Cost box.
- The system will compute the packaging allowance by lease.



VALUATION PRINCIPLES

Primary products--allowances

- If the lessee tracks actual packaging costs, he can request that MMS approve his claiming packaging allowances based on those actual costs (AL or NAL).
- Royalty will be based on packaged sales price less actual packaging costs.

VALUATION PRINCIPLES

Primary products--NAL sales

- **Primary products may also be:**
 - sold under NAL conditions
 - consumed internally by lessee.
- **Generally, royalty value will be based on sales price lessee receives in comparable arm's-length sales.**
 - Use the weighted average of all AL sales of the same product.
- **Gross proceeds comparison.**

VALUATION PRINCIPLES

Primary products--NAL sales

- **Application of gross proceeds comparison:**
 - **If the NAL f.o.b mine price is less than the lowest comparable AL f.o.b mine price of the same product, use the weighted average of all AL sales for computing royalty.**
 - **If the NAL f.o.b mine price is equal to or greater than the lowest (within the range or higher) of comparable AL f.o.b mine prices of the same product, use the NAL f.o.b mine price for computing royalty.**

VALUATION PRINCIPLES

Primary products--NAL example

- **What is the royalty value of soda ash consumed internally by the lessee?**
- **His arm's-length sales are:**
 - 100 tons bulk ash @ \$80/ton, at mine**
 - 200 tons bulk ash @ \$98/ton, at dest.**
 - \$16/ton out-of-pocket transportation cost =**
 - \$82/ton at mine**

VALUATION PRINCIPLES

Primary products--NAL example

- Answer: based on arm's-length sales
- Royalty values:
 - 100 tons bulk ash @ \$80/ton, at mine
 - 200 tons bulk ash @ \$82/ton, at mine
- AL sales weighted average is \$81.33/ton

VALUATION PRINCIPLES

Primary products--NAL sales

- **If lessee makes insignificant or no arm's-length sales of a particular product, use the regional weighted average sales value, reported to MMS, to calculate royalties for that product.**
- **In case of comparable products, if the NAL sales price is higher, use the NAL sales price.**

VALUATION PRINCIPLES

Domestic and Foreign Sales

- **Same valuation rules**
- **Separate and equal:**
 - **Use averages of only domestic sales to value other domestic sales**
 - **Use averages of only foreign sales to value other foreign sales**

VALUATION PRINCIPLES

Foreign Sales

- **ANSAC (American Natural Soda Ash Co. A cartel of producers for foreign sales)**
 - sales are arm's-length**
 - make sure that the price received by ANSAC is that used for royalties**
 - no deductions other than transportation, if applicable**
 - make sure to use actual quarterly/yearly payments.**

VALUATION PRINCIPLES

Primary products--Reagents



- **Primary products may be produced with or without use of lessee-introduced reagents.**
- **Reagent is defined as a chemical (or a component of a chemical) used in processing ore.**

VALUATION PRINCIPLES

Primary products--Reagents



- If the reagent becomes part of a marketed product, we grant lessee royalty deductions (reagent allowances) for value of reagent.
- However for reagent allowance to be permitted, elements of reagent may not occur naturally in ore in same or greater quantity as in product sold.

VALUATION PRINCIPLES

Primary products-Reagent allow.



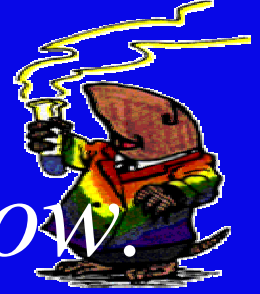
- **Value and weight:**

- Reagent value is actual sales price of product reagent is a part of.

- Weight of reagent used in determining reagent allowance is weight of reagent entering product sold or consumed, not weight of reagent used by lessee.

VALUATION PRINCIPLES

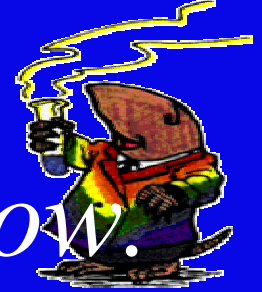
Primary products-Reagent allow.



- *Example: sodium bicarbonate*
- *2 trona ---> 3 soda ash + 1 CO₂ + 5 H₂O*
- *3 soda ash + 3 H₂O + 3 CO₂ --->6 bicarb*
- $$\frac{\text{Molecular Weight } 2 \text{ CO}_2}{\text{Molecular Weight } 6 \text{ bicarb}} = 0.175$$

VALUATION PRINCIPLES

Primary products-Reagent allow.



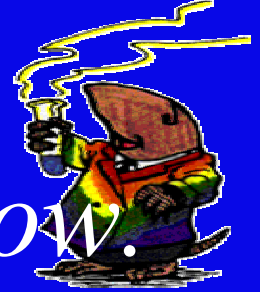
- **Example: sodium bicarbonate (cont.)**

- **Royalty tonnage:**

$$100 \text{ tons} \times (1 - 0.175) = 82.5 \text{ tons}$$

VALUATION PRINCIPLES

Primary products-Reagent allow.



■ **Example: sodium bicarbonate (cont.)**

■ **Product royalty:**

100 tons of sodium bicarbonate

\$140/ton

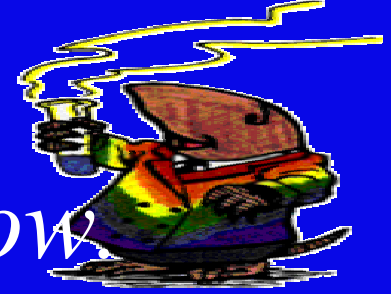
5% royalty rate

Roy = tons x price x rate

Roy = [100(1 - .175)] x 140 x .05 = \$577

VALUATION PRINCIPLES

Primary products-Reagent allow



- On the P&R form, reporters enter the total reagent value. The entry is made in the Processing Cost box (summed with any packaging cost).
- System will compute the reagent allowance (or combined reagent/packaging allowance) by lease.

VALUATION PRINCIPLES

Primary products--allowances

- **Except for reagent allowances, no other processing deductions may be claimed for the cost of producing primary products.**

VALUATION PRINCIPLES

Primary products--higher grades

- **When primary product undergoes supplemental treatment or additional refining to produce higher grades or different particle sizes of same compound, resulting product is also primary.**
- **If conditions warrant, and at MMS' discretion, MMS may designate such a product a secondary product.**



VALUATION PRINCIPLES

Secondary products



- When a primary product undergoes chemical processing and is used to make another salable compound, the result is a secondary product.



VALUATION PRINCIPLES

Secondary prods.--royalty values

- **Royalty on secondary products will be based on:**
 - tonnage of primary product consumed to produce the secondary product sold**
 - sales price of primary product consumed to produce secondary product sold.**



VALUATION PRINCIPLES

Secondary prods.--royalty values

■ **Royalty value equals:**

$T_s / Ef_s \times Cf \times P_p$ where

T_s = Secondary product tons sold

Ef_s = Secondary product process efficiency factor

Cf = Molecular weight conversion factor between primary and secondary products

P_p = Weighted average price of primary product

VALUATION PRINCIPLES



Secondary prods.--royalty values

- **Molecular weight conversion factor:**
$$\frac{\text{MW primary product consumed}}{\text{MW secondary product produced}}$$
- **Expl: Soda ash is used to make TSP**
$$2 \text{ soda ash} + 2 \text{ phos. acid} \rightarrow \text{TSP} + \text{CO}_2 + \text{H}_2\text{O}$$
- $$2 \text{ MW Soda ash} / \text{MW TSP} = 2 \times 105.989 / 265.904 = 0.797$$

VALUATION PRINCIPLES



Secondary prods.--royalty values

- **Example: 100 tons of TSP**
- **$Ef_s = 98.9\%$**
 - $P_p = \$70/\text{ton}$**
 - $Cf = 0.797$**
 - $RR = 5\%$**
- **$Roy = (100 / 0.989) \times .797 \times 70 \times .05$**
 $Roy = \$282$



VALUATION PRINCIPLES

Secondary prods.--royalty values

- *Exception to the previous rule.*
- *In those cases where:*
 - *only a secondary product is actually produced or,*
 - *the primary product is not marketable as produced and is processed to a secondary product,*
- *Royalty is based on value of the secondary product less a reagent allowance.*

VALUATION PRINCIPLES

Precedent Setting Decisions



- **U.S. v. Southwest Potash Corp.**
 - sold unprocessed ore to another potash producer who produced finished product
 - Southwest Potash paid royalties on value of unprocessed ore
- **Issue: What is the correct royalty value?**
- **Decision: Royalty value must be the same as if Southwest Potash had produced the finished product**

VALUATION PRINCIPLES

Southwest Potash Decision (cont)



- **Based on lease and statute provisions:**
 - Secretary may establish minimum values, taking into consideration like quality products from the same general area
 - Royalty is due on output of the lease at the point of shipment to market

VALUATION PRINCIPLES

Southwest Potash Decision (cont)



- **Market provision carries with it the implied requirement that lessee must place leased mineral in marketable condition at no cost to lessor**
- **There is a difference between marketing and merely selling; marketing requires a clearly defined market for the product**

VALUATION PRINCIPLES

Precedent Setting Decisions



- **IBLA decision 79-205, FMC Corp.**
 - consumed soda ash to make a secondary product**
 - soda ash was not a finished product when it was consumed; it was in slurry form**
- **Issue: What is the correct royalty value?**
- **FMC wanted the royalty value to be based on a price less than soda ash.**

VALUATION PRINCIPLES

FMC Corp-IBLA Decision (cont)



- Decision: same value as finished soda ash.
- IBLA decided royalty should be based on the customary product sold to the marketplace--soda ash.
- To base royalty on value less than soda ash price would be granting a processing allowance.

VALUATION PRINCIPLES

Precedent Setting Decisions



- **IBLA decis. 77- 41, Foote Mineral Co.**
 - lithium/sodium chloride brine
 - product is lithium carbonate
 - two reagents used to process
- **Issue: They paid royalty for**
 Li_2CO_3
- **Claimed two reagent allowances**

VALUATION PRINCIPLES

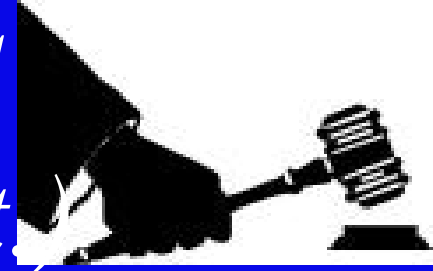
Footnote--IBLA Decision (cont.)



- **USGS concluded:**
 - Li_2CO_3 is the first marketable product.
 - Because it is made with a purchased chemical reagent, it is a secondary product.
 - Because lime reagent did not enter marketed product, no reagent allowance for lime.

VALUATION PRINCIPLES

Foote--IBLA Decision (cont)



- **Foote appealed to U.S. Court of Claims.**
- **Court decided:**
 - Since sodium does not have a value, the lithium in the deposit is not leasable.**
 - The lithium is a locatable mineral, and no royalties are due on lithium production.**

SUMMATION AND RULES OF THUMB--Things to look for



- **Bagged products--royalty price may not be less than bulk price.**
- **Destination sales price--royalty price may not be less than f.o.b. mine price.**
- **Make sure royalty is paid on losses of inventory stored at remote sites.**

SUMMATION AND RULES OF THUMB--Things to look for



- **Timing of royalty payments**
- **Monthly royalties on primary and secondary products are due no later than month following month primary or secondary product was sold.**

SUMMATION AND RULES OF THUMB--Things to look for



- **Secondary products**
 - make sure conversion efficiencies and molecular weight factors are used.
- **Partnerships and joint ventures:**
 - are generally NAL sales.

SUMMATION AND RULES OF THUMB--Things to look for



- Under the P&R, AL and NAL sales are not distinguished.
- You'll have to use the data in the Sales Summaries to discern the NAL sales.
- Look at Royalty Computation Worksheet.

SUMMATION AND RULES OF THUMB--Things to look for



- **NAL sale royalty values--making the gross proceeds comparison**
 - Compare sales of the same product under comparable contracts.**
 - Compare each NAL sale with the range of AL values for the same product under comparable contracts.**

SUMMATION AND RULES OF THUMB--Things to look for



- **NAL sale royalty values--using an AL value, continued**
 - make sure that foreign and domestic sales are treated separately.**

SUMMATION AND RULES OF THUMB--Things to look for



- **NAL sale royalty values--using an AL value**
 - prices to use to compute weighted average AL price are generally:
 - all bulk sales, f.o.b. mine
 - all bulk sales at destination (transportation deduction)
 - all packaged sales: bulk price
 - all sales through ANSAC (for foreign sales).

SUMMATION AND RULES OF THUMB--Things to look for



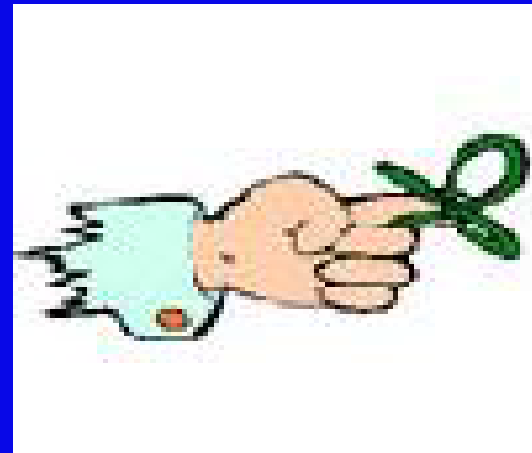
NAL sales:

If the lessee has no or insignificant AL sales of primary products, MMS will have to develop a valuation method, possibly taking into account:

- **regional sales values, and**
- **actual packaging allowances.**

SUMMATION AND RULES OF THUMB--Things to look for

- **Items of expense specifically non-deductible for royalty computation are:**
 - **analysis charges**
 - **demurrage at point of shipment or at destination**
 - **sales commissions, and**
 - **tariffs.**



THE END

