

**CALENDAR ITEM  
C35**

A 34

12/17/09  
PRC 5464.1  
G. Pelka  
V. Perez

S 18

**CONSIDER AN APPLICATION FOR THE RENEWAL AND  
AMENDMENT OF STATE MINERAL EXTRACTION LEASE  
FOR MINERALS OTHER THAN OIL, GAS AND  
GEOTHERMAL RESOURCES ON  
STATE SOVEREIGN LANDS AT OWENS LAKE,  
INYO COUNTY**

**APPLICANT:**

U.S. Borax Inc.  
Attn.: Mr. Paul Lamos  
P. O. Box 37  
Lone Pine, CA 93545

**AREA, LAND TYPE, AND LOCATION:**

State Mineral Extraction Lease No. PRC 5464.1 contains 16,120 acres, more or less, of State sovereign land located on the dry lake bed of Owens Lake in west-central Inyo County. The State parcels on Owens Lake are situated along the east side of U. S. Highway 395, approximately five miles south of the city of Lone Pine.

**BACKGROUND:**

On April 10, 2008, California State Lands Commission (Commission) staff received an application from U. S. Borax Inc. (Borax) requesting the exercise of its option for the first of four (4) possible ten-year renewals, and for an amendment of the subject mineral lease (see Exhibit C, attached hereto). If granted, the renewal will extend the existing mineral lease for a ten-year term, retroactive from August 1, 2008 through July 31, 2018. The requested lease amendment would (1) reduce the number of acres leased by Borax in order to allow the City of Los Angeles Department of Water and Power (LADWP) to use a portion of the land for dust abatement, and (2) provide for a modification of the royalty.

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Borax mines the lease area for the extraction of the mineral trona. The mineral occurs as a surface deposit with thicknesses varying from a few inches to about nine feet. Trona is composed of a hydrated double-salt of sodium carbonate and sodium bicarbonate. The trona is used as a chemical reagent in the processing of sodium and calcium borates at Borax's operation site in Boron, CA.

State Mineral Extraction Lease No. PRC 5464.1 was originally issued to Lake Minerals in 1978, for an initial term of twenty (20) years, with an option to renew for three (3) successive periods of ten (10) years each. The lease was amended in 1980, increasing the leased acreage from 7,440 acres to 16,120 acres, increasing the performance bond to \$30,000, and increasing the minimum annual royalty from \$80,000 to \$120,000. In 1998, Lake Minerals assigned the lease to Borax, and the lease was renewed for a ten-year period until August 1, 2008. Since August 1, 2008, the lease has been in hold-over status pending Borax's request to exercise its option to renew for another ten-year period.

On November 1, 2004, the lease was amended to provide the following:

1. Renewal Options: Lessee was granted options to renew the lease for four (4) successive ten-year periods following July 31, 2008.
2. Authorization to Construct: On April 28, 2004, the Inyo County Planning Commission certified a new Environmental Impact Report filed with the State Clearing House as document SCH #2003041127. The permitted activities are limited to the Conditional Use Permit No. 2002-13/U. S. Borax as well as Reclamation Plan No. 2002-1/U.S. Borax, also approved by Inyo County Planning Commission on April 28, 2004. These documents authorized the drilling and completion of a water well, wash plant, and calcining facility. However, these facilities have yet to be constructed.
3. Bonding: The financial security was increased to \$60,000.

**REQUESTED LEASE AMENDMENTS:**

**CHANGE OF ACREAGE:**

Lease No. PRC 5464.1 currently covers 16,120 acres of land on the dry surface of Owens Lake. Changes to the leased acreage, if approved, will reduce this area by approximately 420 acres. About 200 acres will be eliminated from the

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Borax lease and may be considered for addition to LADWP's existing lease from the Commission for dust abatement projects. Additionally, staff has determined that the area leased is 220 acres less than previously thought. Therefore, an additional 220 acres will be eliminated from the lease area. The new lease area will be approximately 15,700 total acres (refer to the Map and Legal Description on Exhibits A and B, attached hereto).

**ROYALTY FORMULA:**

Section 3 of the lease addresses the royalty formula pursuant to which the State is paid for the tonnage of **raw and processed** trona extracted from the surface of Owens Lake. The original royalty formula did not have a means of indexing the royalty to adjust for inflation. With this amendment, royalty will be based upon many factors including the tonnage of raw trona produced and shipped, the result of the chemical analysis to determine purity and value of the material, and the CO<sub>2</sub> value (equivalent carbonate) of the mineral content adjusted annually by the Bureau of Labor Statistics, Producer Price Index (PPI) Series ID WPU06130301 for Natural Sodium Carbonate and Sulfate beginning August 1, 2009. The royalty will be calculated by using the PPI established in 1995 as the base line value at \$106.24 per short ton of CO<sub>2</sub>. The current value as of August 1, 2009 using that index is \$167.72 per short ton of CO<sub>2</sub>. The value will be adjusted annually by dividing the prior year's PPI value with that of the proceeding year's value to establish a ratio of which to multiply the CO<sub>2</sub> value. Unprocessed product will continue to bear a royalty of 10 percent (10%). Additionally, the royalty for processed product will be increased to seven percent (7%) from the current five percent (5%). ("Processed" product is defined as raw trona resources that have been extracted and enhanced by a wash plant or calcining facility. Neither of which has been constructed as noted above.)

**STATUTORY AND OTHER REFERENCES:**

- A. Public Resources Code sections 6890, et seq.
- B. Public Resources Code sections 21000, et seq.
- C. Title 14, California Code of Regulations, Chapter 3, section 15096.

**OTHER PERTINENT INFORMATION**

- 1. Inyo County, as lead agency, prepared an EIR (SCH #2003041127) for this project and certified it on April 28, 2004. The California State Lands Commission staff has reviewed this EIR and Mitigation Monitoring Program adopted by Inyo County.

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2. Findings made in conformance with the State CEQA Guidelines (Title 14, California Code of Regulations, sections 15091 and 15096) are on file in the Sacramento Office of the California State Lands Commission.
3. This activity involves lands which have NOT been identified as possessing significant environmental values pursuant to Public Resources Code sections 6370, et. seq. However, the Commission has declared that all lands are "significant" by nature of their public ownership (as opposed to "environmentally significant"). Since this declaration of significance is not based upon the requirements and criteria of Public Resources Code Sections 6370, et. seq., use classifications for such lands have not been designated. Therefore, the finding of the project's consistency with the use classification as required by Title 2, California Code of Regulations, Section 2954 is not applicable.
4. The applicant has submitted the required filing fee and reimbursement agreement and has been negotiating with Commission staff in good faith.
5. Commission staff conducted an inspection of Borax's operation on Owens Lake on December 3, 2007, and found it to be in good operating condition. During this inspection, staff members viewed the trona extraction panels on the dry lake surface and were provided detailed explanations of the method used in obtaining representative samples of trona ore for ore grading and chemical analysis. The lake inspection was followed by a visit of the analytical lab to witness the process used in the chemical analysis of the trona samples. Ore grade is one of many factors applied to the royalty formula in the determination of royalty payment to the State for the extraction of trona. On June 10, 2009, Commission staff met with Borax staff in Long Beach to discuss the lease renewal, the lease amendment, royalty formulation and existing trona extraction operations on Owens Lake. Staff and Borax reached agreement on these issues in September 2009.
6. U. S. Borax has an existing bond in the amount of \$60,000 on file with the Commission to ensure performance under the terms of the lease.
7. In August of 2009, Inyo County Planning Department conducted its annual inspection of the U.S. Borax Owens Lake Mine and found it to be in compliance with the current mining and reclamation plan. U.S. Borax has a financial assurance posted with Inyo County in the amount of \$81,407

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based upon the current level of mining and disturbance.

8. U.S. Borax will provide the State evidence of financial liability insurance in an amount of not less than \$2,000,000 and add the State to its policy as an additional insured.

**APPROVALS OBTAINED:**

Pursuant to Public Resources Code section 6890, the lease renewal and amendment were approved as to form by the Office of the Attorney General.

**EXHIBITS:**

- A. Lands Description
- B. Location Map
- C. Lease Amendment
- D. Trona Analysis

**PERMIT STREAMLINING ACT DEADLINE:**

N/A (not a "development project" subject to the Act)

RECOMMENDED ACTION

**IT IS RECOMMENDED THAT THE COMMISSION:**

**CEQA FINDINGS:**

1. FIND THAT AN EIR (SCH #2003041127) WAS PREPARED FOR THIS PROJECT BY INYO COUNTY AND CERTIFIED ON APRIL 28, 2004, AND THAT THE COMMISSION HAS REVIEWED AND CONSIDERED THE INFORMATION CONTAINED THEREIN.
2. ADOPT THE FINDINGS MADE IN CONFORMANCE WITH TITLE 14, CALIFORNIA CODE OF REGULATIONS, SECTIONS 15091 AND 15096 (h), ON FILE IN THE SACRAMENTO OFFICE OF THE CALIFORNIA STATE LANDS COMMISSION.
3. ADOPT THE MITIGATION MONITORING PROGRAM ON FILE IN THE SACRAMENTO OFFICE OF THE CALIFORNIA STATE LANDS COMMISSION.

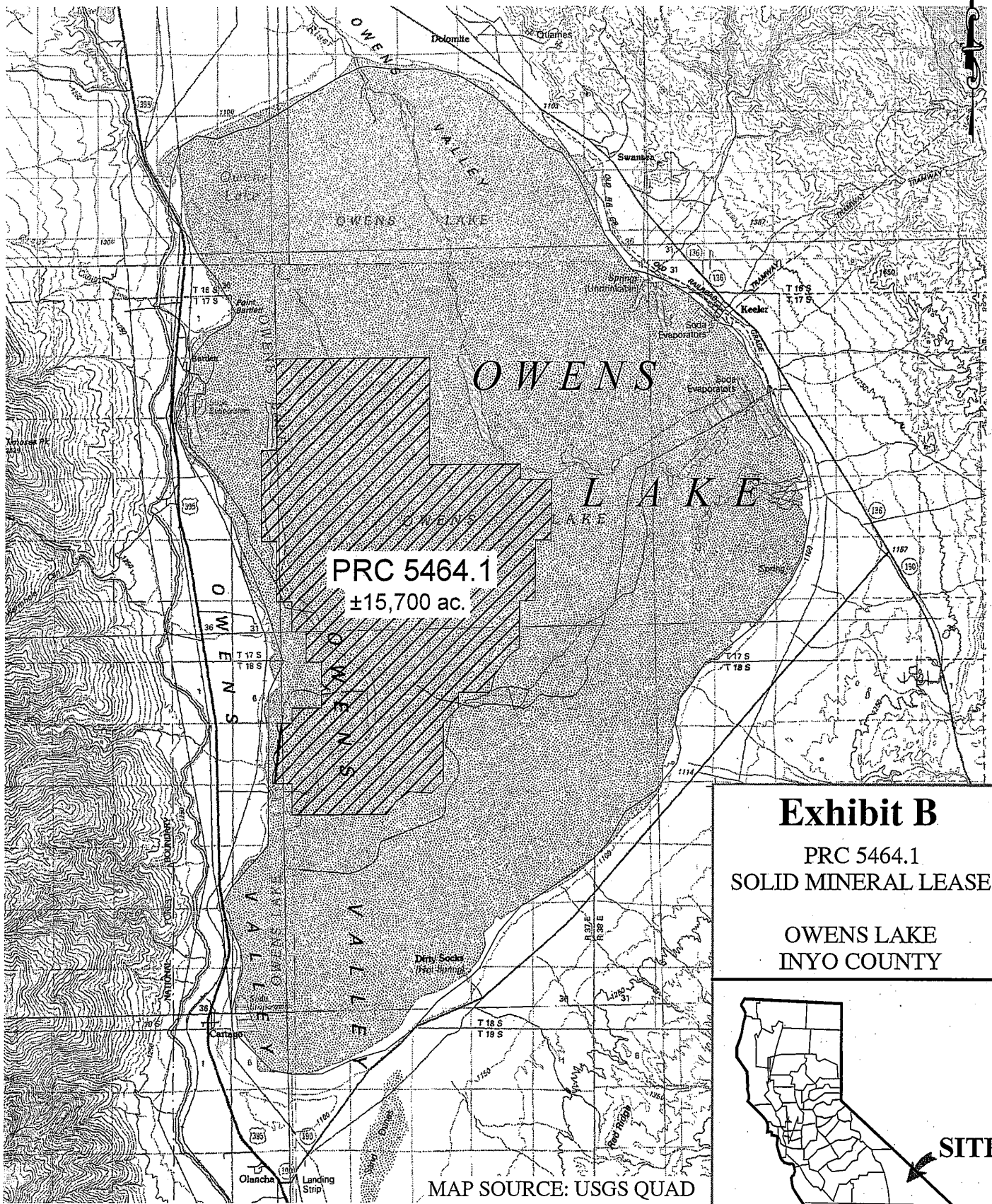
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**AUTHORIZATION:**

1. AUTHORIZE THE RENEWAL OF STATE MINERAL EXTRACTION LEASE NO. PRC 5464.1 FOR A TEN-YEAR PERIOD FROM AUGUST 1, 2008 THROUGH JULY 31, 2018.
2. AUTHORIZE THE AMENDMENT OF STATE MINERAL EXTRACTION LEASE NO. PRC 5464.1 UPON THE TERMS AND CONDITIONS AS OUTLINED IN THIS CALENDAR ITEM AND IN THE FORM OF THE EXECUTED LEASE AMENDMENT DOCUMENT ON FILE IN THE LONG BEACH OFFICE OF THE CALIFORNIA STATE LANDS COMMISSION.
3. AUTHORIZE THE EXECUTIVE OFFICER OR HIS DESIGNEE TO EXECUTE ANY DOCUMENTS NECESSARY TO IMPLEMENT THE COMMISSION'S ACTION.

NO SCALE

# SITE



**PRC 5464.1**  
 ±15,700 ac.

## Exhibit B

PRC 5464.1  
 SOLID MINERAL LEASE

OWENS LAKE  
 INYO COUNTY



MAP SOURCE: USGS QUAD

This Exhibit is solely for purposes of generally defining the lease premises, is based on unverified information provided by the Lessee or other parties and is not intended to be, nor shall it be construed as, a waiver or limitation of any State interest in the subject or any other property.

**Exhibit D**

**Trona Analysis for Determination of State Royalty**

Trona from Owens Lake is consumed by U.S. Borax Inc. (Borax) at its Boron facility as a chemical reagent in the processing of borate minerals. The majority of the borate minerals produced are *sodium* borates that are more soluble and easier to process than the lesser amounts of *calcium* borates. Without the use of about 1% trona in the borate mix, the dissolved calcium reacts with the liquor to form a mineral called probertite. Probertite forms scale in the piping which is difficult to remove. The trona also improves crystal structure that is recovered in U.S. Borax’s borate products.

The formula for trona is  $\text{Na}_2\text{CO}_3 \cdot \text{NaHCO}_3 \cdot 2\text{H}_2\text{O}$ . The state’s royalty calculation is based upon the  $\text{CO}_2$  content as this is the valuable component used in the processing of borate minerals. The trona dissociates with the Na ion when added to the solution with the borate minerals while the  $\text{CO}_2$  molecule latches onto the Ca ion from the calcium borates and precipitates as a waste product in the form of Calcium Carbonates ( $\text{CaCO}_3$ ), which is discharged with the tailings.

The table below shows the formulas of the chemical compounds associated with trona and the percentage by weight of both  $\text{CO}_2$  and  $\text{Na}_2\text{O}$ .

<u>Name</u>	<u>Formula</u>	<u>Molecular Weights</u>	<u>Percent <math>\text{CO}_2</math></u>	<u>Percent <math>\text{Na}_2\text{O}</math></u>
Trona	$\text{Na}_2\text{CO}_3 \cdot \text{NaHCO}_3 \cdot 2\text{H}_2\text{O}$	$106+84+2 \times 18=226$	$88/226=38.9\%$	$1.5 \times 62/226=41.2\%$
Sodium Carbonate	$\text{Na}_2\text{CO}_3$	$23 \times 2+12+16 \times 3=106$	$44/106=41.5\%$	$62/106=58.5\%$
Sodium Bicarbonate	$\text{NaHCO}_3$	$23+1+12+16 \times 3=84$	$44/84=52.4\%$	$.5 \times 62/84=36.9\%$
Carbon Dioxide	$\text{CO}_2$	$2+16 \times 2=44$		
Sodium Oxide	$\text{Na}_2\text{O}$	$23 \times 2+16=62$		

Table 1-Chemical compounds of the mineral Trona

The following is a description of how the trona is prepared for a composite sample in the determination of the  $\text{CO}_2$  percentage for State Royalty calculations.



1. Each truckload (about 26 tons) of trona shipped from Owens Lake is sampled at the Lone Pine laboratory.
2. Composite samples are prepared that represent 24 truckloads (10 loads minimum, 29 loads maximum). The sampling periods are typically the 1<sup>st</sup> to the 15<sup>th</sup> of each month, and the 16<sup>th</sup> to the end of each month. The trucks are weighed at the Boron plant, and those weights are correlated to the delivery tickets. Two invoices are typically prepared each month, and they are used to assemble the quarterly royalty report.
3. The composite samples are typically analyzed using a Mettler T-50 titrimer. The samples are weighed, dissolved, filtered and titrated with hydrochloric acid. The titration has dual endpoints.
4. The samples once dissolved have a pH greater than ten due to the alkaline chemistry of the trona. Hydrochloric acid (HCl) is added until a pH of about 8.3 is achieved.  $\text{Na}_2\text{CO}_3 + \text{HCl} \rightarrow \text{NaHCO}_3 + \text{NaCl}$       **pH 10 → pH 8.3 (first end point)**. At this point all of the sodium carbonate has been converted to sodium bicarbonate.
5. Then the titration continues to a pH of about 4.  $\text{NaHCO}_3 + \text{HCl} \rightarrow \text{NaCl} + \text{CO}_2 + \text{H}_2\text{O}$       **pH 8.3 → pH 4 (second end point)**
6. By measuring the amount of HCl required of reach each endpoint the ratio of sodium carbonate and sodium bicarbonate is determined. It takes two molecules of HCl to neutralize each sodium carbonate molecule and one molecule of HCl for the sodium bicarbonate molecule.

The pure mineral trona is composed of 38.9% Sodium Carbonate ( $\text{Na}_2\text{CO}_3$ ), 41.2% Sodium Bicarbonate ( $\text{NaHCO}_3$ ), with the remainder being Water. However on Owens Lake, the trona contains impurities such as NaCl,  $\text{NaSO}_4$  and other minerals, listed below, that render the percent of  $\text{CO}_2$  and  $\text{Na}_2\text{O}$ . Below is an example of the detailed laboratory analysis that is required to determine the purity, value and State royalty.

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>I</u>	<u>J</u>		
	<u>USB #</u>	<u>Tons</u>	<u>%Na<sub>2</sub>CO<sub>3</sub></u>	<u>%NaHCO<sub>3</sub></u>	<u>%NaCl</u>	<u>%Na<sub>2</sub>SO<sub>4</sub></u>	<u>%Insols</u>		<u>Na<sub>2</sub>O</u>	<u>CO<sub>2</sub></u>	<u>CO<sub>2</sub></u>	<u>Na<sub>2</sub>O</u>
Month								<u>%H<sub>2</sub>O</u>			<u>Tons</u>	<u>Tons</u>
January	4721	645.89	35.36	25.86	5.57	3.87	6.41		30.23	28.22	(J x B)	(I x B)
	4722	631.42	35.00	25.66	6.20	4.70	4.88		29.94	27.97		
	4723	775.32	36.20	26.89	5.66	3.01	5.82		31.10	29.11		
	4724	645.62	34.67	25.41	6.19	3.03	6.78		29.66	27.70		
	4725	649.75	32.93	24.52	3.51	2.59	6.67		28.31	26.51		
	4726	531.49	33.43	24.84	4.52	3.95	5.32		28.72	26.89		
	4727	291.96	31.56	23.10	2.65	2.00	7.77		26.98	25.20		
<b>Total wt avg.</b>		<b>4171.45</b>	<b>34.46%</b>	<b>25.42%</b>	5.12	3.39	6.12	25.49	<b>29.54%</b>	<b>27.62%</b>	<b>1152.20</b>	<b>1232.23</b>

Table 2: Laboratory analysis

To calculate the total amount of CO<sub>2</sub> in a shipment of trona, the following mathematical operations are performed, using the above CO<sub>2</sub> percentages and the laboratory sample percentages.

1. Multiply the percentage of sampled Na<sub>2</sub>CO<sub>3</sub> (34.46%) by the percentage of CO<sub>2</sub> above (41.5%).  $34.46\% \times 41.5\% = 14.31\%$
2. Multiply the percentage of samples NaHCO<sub>3</sub> (25.42%) by the percentage of CO<sub>2</sub> above (52.4%).  $25.42\% \times 52.4\% = 13.31\%$
3. Add the products of (1) and (2) for total CO<sub>2</sub> percentage.  $14.3\% + 13.3\% = 27.62\%$
4. Total tons of CO<sub>2</sub> = Total Gross Tonnage x % CO<sub>2</sub>.  $4171.45 \text{ tons} \times 27.62\% = 1152.20 \text{ tons}$

If in the future, U.S. Borax sells trona products on the open market, then the trona may be valued for its Na<sub>2</sub>O content, and the same process would be used to determine the Na<sub>2</sub>O  $(34.43\% \times 58.5\%) + (25.42\% \times 36.9\%) = 29.54\%$ .

For the lease quarter beginning August 1, 2009, U.S. Borax will pay the State \$167.72/short ton of CO<sub>2</sub>. \$167.72 per ton of CO<sub>2</sub> will be adjusted in accordance with the Bureau of Labor Statistics Producer Price Index, Series ID WPU06130301 for natural sodium carbonate and sulfate. Therefore, for the example cited above for the month of January, **1152.20 tons** of CO<sub>2</sub> (Table 2: JxB) were produced from unprocessed product. Unprocessed product bears a royalty of 10% of the gross. Therefore, the example royalty to the State for the month of January would be:

$1152.20 \text{ tons of CO}_2 \times \$167.72/\text{short ton CO}_2 = \$193,246.98$

The State's 10% royalty for this month would be  $\$193,246.98 \times 10\% = \underline{\$19,324.69}$ .