



Audit of the Limerock Mining Lease Agreement

Project #18-09

Prepared by
Office of the Inspector General

J. Timothy Beirnes, CPA, Inspector General
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SOUTH FLORIDA WATER MANAGEMENT DISTRICT

January 31, 2020

Governing Board Members

Re: Audit of the Limerock Mining
Lease Agreement - *Project No.*
18-09

This audit was performed pursuant to the Inspector General's authority set forth in Chapter 20.055, F.S. Our audit objective primarily focused on determining whether the District is receiving royalty payments from limerock mining operations that are accurately calculated and are in accordance with the lease agreement terms. Dan Sooker and I prepared this report.

Sincerely,

A handwritten signature in blue ink, reading "J. Timothy Beirnes".

J. Timothy Beirnes, CPA
Inspector General



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BACKGROUND

The District owns land adjacent to a limerock mining operation in the Lake Belt area of Miami-Dade County that is leased to White Rock Quarries (WRQ). The District entered into a ten-year lease agreement that includes 3 five-year extensions with WRQ on April 12, 2006 to allow the company to mine, quarry, and process limerock on District land, which is used for road construction, asphalt pavement, and ready-mix concrete products. The District purchased the majority of this land on December 9, 1996, for \$2,350,000.



WRQ mining operation - A dragline excavating limerock

The lease agreement required WRQ to pay the District a prepaid royalty production payment of \$75,000 annually until permits and approvals were obtained or February 28, 2009, whichever occurred first, and \$125,000 annually thereafter, until mining operations cease. During mining operations, WRQ is required to make quarterly royalty payments based on limerock sold or extracted from the quarry. The unit rate per ton is adjusted annually for changes to the Producer Price Index (PPI) for construction sand, gravel and crushed stone. All royalty payments are creditable against prepaid royalty production payments. These quarterly payments may be adjusted after completion of an annual survey to measure the amount of limestone excavated during the year less certain reductions.

The Board of Trustees of the Internal Improvement Fund of the State of Florida (TIIFT) and WRQ own land adjacent to District parcels that is also being mined (the Leased Premises¹). The District, TIIFT and WRQ entered into a Memorandum of Agreement dated October 29, 2007, that is attached as Exhibit B to the lease agreement, under which the Parties established a cooperative process to consolidate title to the land and develop a mutually beneficial mining plan. The Parties also agreed to a royalty payment calculation and disbursement methodology based on each Parties' land ownership percentage as follows:

Entity	Number of Acres	% Ownership
District	192	25.40%
TIITF	432	57.27%
WRQ	131	17.33%
Total	755	100%

An audit by our office titled, *Audit of Lease Compliance*, Project Number 12-16 dated December 13, 2012, identified discrepancies in the number of acres owned by the District in the Leased Premises. The lease agreement indicated that the District's ownership percentage of 25.4% is based on parcels totaling 192 acres. Exhibit D of the same agreement indicated District ownership in the Leased Premises is 202 acres. We recommended that the District determine the correct acreage and amend the agreement, if necessary, to accurately reflect the District's ownership percentage in the Lease Premises. However, according to Real Estate Leasing and Support staff, the Parties decided to leave the ownership percentages unchanged. Upon completion of mining operations, WRQ has agreed to convey its parcels to the District.

¹ See Appendix 1 for a map of the District, TIIFT and WRQ parcel ownership of Leased Premises.

OBJECTIVE, SCOPE, AND METHODOLOGY

Our primary objective was to determine whether the District is receiving royalty payments from limerock mining operations at the Leased Premises that are accurately calculated and in accordance with agreement terms. To accomplish our objectives, we performed the following:

- Reviewed the lease agreement between the District and WRQ.
- Reviewed the Memorandum of Agreement executed by the District, TIIFT and WRQ.
- Reviewed the annual agreed upon procedures reports prepared by Richmond and Company, CPAs, and the annual surveys certified by Fortin, Leavy and Skiles, Inc.
- Reviewed various WRQ reports supporting extracted limerock quantities.
- Visited the mining site.
- Discussed the WRQ accounting and recordkeeping process with company staff and the District project manager.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

AUDIT RESULTS

Executive Summary

WRQ initiated mining operations on the Leased Premises in December 2015. Mining is expected to continue for 10 or more years but changes in economic conditions may impact the length of future operations. From the inception of mining operations through June 30, 2018, the District has received \$6.9 million in royalty payments from WRQ.

WRQ has primary oversight responsibility to manage the annual audit of accounts and records related to mining operations and surveying the quarry. We found that WRQ engaged a CPA firm to perform agreed upon procedures engagements for the periods ended April 10, 2016 through April 10, 2018, which are significantly less in scope than an audit and do not meet the intent of audit requirements in Section 2(i) of the lease agreement. Agreed upon procedures engagements only require the CPA to present their results as “findings”, but do not require attesting to those findings. Hence, the accountant’s reports for the periods ending April 10, 2016 through April 10, 2018 do not express an opinion on the royalty payments and as a result we did not place any reliance on the accountant’s report. (See Appendices 2 through 4). It should further be noted that the accountant’s report is based on the survey data contained in the engineers reports but does not attest to the reliance of such data, which is normal in these situations since such knowledge is beyond an accountant’s expertise. Nonetheless, based on our own calculations (which were also based on the engineer’s survey data), we found the findings in the accountant’s report are reasonable.



Excavated above ground limerock pile

WRQ engaged the engineering firm, Fortin, Leavy & Skiles, Inc., to conduct the annual surveys and calculate the net tonnage of limerock mined. The annual survey for the periods ended April 10, 2016 through April 10, 2018, contained numerous engineering estimates and conversion factors to calculate net tonnage, which is used to verify that the proper amounts of annual royalty payments were made to the District. District staff verified quantity of tons reported in the annual surveys conducted by the engineering firm of Fortin, Leavy & Skiles. Inc.

Since the royalty payments are based on tons, the engineering annual survey uses a conversion factor of 1.30 to convert yards to tons. In order to determine how significant the conversion factor is to total royalty payments, we performed a sensitivity analysis and found that the conversion factor has a material effect on total royalty payments. For example, cumulative royalty payments to the District, since inception, would have been \$500,000 higher using a conversion factor of 1.40 instead of 1.30, just one-tenth of a point higher. The estimated total royalty payments over the entire life of the quarry using a 1.40 conversion factor would be approximately \$3,000,000 higher.

Our discussion with the WRQ management team revealed that the cubic yards to tons conversion factor of 1.30 is based on the WRQ's historical data that was supported with calculations based on ASTM Standard C29/C29-09, which measures the bulk density of aggregate in a compacted or loose condition and voids at the WRQ mining operation for the 3-year period, January 2016 – August 2019. Based on these calculations, WRQ maintains that the 1.30 conversion factor is reasonable. A District engineer reviewed the methodology and determined that ASTM Standard C29/C29-09 is an acceptable methodology but its use requires regular sampling of the mining quarry. Industry expertise would be needed to verify the reasonableness of the conversion factor by determining whether ASTM Standard C29/C29-09 has been properly and consistently applied in establishing the conversion factor.

PPI Index Properly Calculated

WRQ initiated mining operations on the Leased Premises in December 2015. From the lease inception on April 12, 2006 through June 30, 2018, the District has received \$6.9 million in royalty payments. Mining operations are projected to continue for 10 or more years contingent on future economic conditions. According to the lease agreement, the total annual royalty payment due to the District is the greater of:

- 1) limerock sold during the year multiplied by the royalty rate, or
- 2) Ninety percent² of net tonnage of limerock extracted from the mine as determined by an annual survey multiplied by the royalty rate. Net tonnage is defined as gross tons of limerock extracted less all limerock used to improve the Leased Premises including construction of roads, pads and all onsite mitigation and reclamation requirements.

The mined materials are initially stockpiled on the edge of the quarry until they are moved to the processing plant, where they are comingled with materials from other adjacent mines owned by others. There are no scales between the quarry and the rock processing plant; thus, option 2, measuring the volume of extracted materials, is the only feasible method of determining the quantity of materials for calculating the royalty payment amounts.

The District receives quarterly royalty payments from WRQ based on the tons of limerock extracted from the Lease Premises in accordance with ownership percentages, multiplied by a royalty rate that is adjusted annually for changes to the Producer Price Index (PPI) for construction sand, gravel and crushed stone published by the U.S. Department of Labor. If the PPI for a lease year is different when compared to the March 2006 “Base Period Index” of \$0.95, the royalty rate for the next year will be changed upward or downward by the same percentage up to a maximum of 5%. During the period of time from the lease execution in April 2006 through June 30, 2018, the royalty rate has increased from \$0.95 to \$1.51, or 59%.

² During the mining process a certain amount of waste is estimated to occur and approximately 90% of the limerock excavated will be usable per the agreement.

Accountant’s Report Calculations and Findings are Reasonable

The lease agreement includes audit and survey provisions that are meant to verify and ensure the accuracy of royalty payments to the District. WRQ has primary oversight responsibility to manage the annual audit of accounts and records related to mining operations and surveying the quarry; however, Section 13 of the lease agreement provides the District authorization to independently inspect and examine the mining operation and surveys of limerock output independently by conducting an audit and/or a survey with the full cooperation of the lessee at any time during the lease period.

WRQ engaged Richmond & Company, CPAs, (Richmond & Company) a West Virginia CPA firm, to fulfill the agreement’s audit requirement. Richmond & Company obtained a temporary Florida license to conduct the audits from the state of Florida’s Division of Business and Professional Regulation. However, in lieu of an audit Richmond & Company, at the direction of WRQ management, conducted agreed upon procedures engagements for the periods ended April 10, 2016 through April 10, 2018, which is significantly less in scope than an audit and does not meet the intent or audit requirements of Section 2(i) of the lease agreement. Agreed upon procedures engagements only require the CPA to present their results as “findings”, but do not require attesting to those findings. Hence, Richmond & Company’s reports for the periods ending April 10, 2016 through April 10, 2018 do not express an opinion on the royalty payments. (See Appendices 2 through 4). For this reason, we did not place any reliance on the accountant’s



Limerock processing plant area

report. It should further be noted that the accountant's report is based on the survey data contained in the engineers reports but does not attest to the reliance of such data, which is normal under such situations since such is beyond an accountant's expertise. Nonetheless, based on our own calculations (which were also based on the engineer's survey data), we found the findings in the accountant's report are reasonable.

Factors Used to Calculate Tons Extracted Could Use Additional Monitoring and Verification

WRQ engaged the engineering firm of Fortin, Leavy & Skiles. Inc. to conduct the annual surveys and calculate the net tonnage of limerock mined for the periods ended April 10, 2016 through April 10, 2018. The annual surveys contain numerous engineering estimates and conversion factors to calculate net tonnage. Our review of the annual engineering surveys revealed the following:

- The survey shows the total volume of materials extracted during the year. District staff verified quantities reported in the annual surveys conducted by the engineering firm, Fortin, Leavy & Skiles. Inc.
- The surveys show annual inventory adjustment, which are also reflected in the accountant's reports. The lease agreement is based on extracted quantities and contains no provision for adjusting for stockpiled materials that have not yet been moved to the processing plant. Based on our discussion with WRQ's management, they consider the material extracted from the mine when it has been moved from the property to the processing plant, and therefore account for the material stockpiled beside the mine quarry through inventory adjustments. We estimated this adjustment resulted in WRQ reduced royalty payments by approximately \$120,000 since inception; however, this reduction will correct over time and have little effect, if any, on total District royalties. The District will eventually be paid for the stockpiled inventory when the mine is completely depleted. Further, the District will likely benefit from the upward trend of the PPI for construction sand, gravel and crushed stone index when royalties are paid on all the stockpiled inventory at the end of the lease term.
- The lease agreement royalty unit price is based on weight (tons), whereas the engineering survey of extracted materials must be measured in volume (yards); thus, the engineering

annual survey uses a conversion factor of 1.3 to convert yards to tons. In order to determine how significant the conversion factor is to total royalty payments, we performed a sensitivity analysis and found that the conversion factor has a material effect on total royalty payments. For example, cumulative royalty payments to the District, since inception, would have been \$500,000 higher using a conversion factor of 1.40 instead of 1.30, just one-tenth of a point higher. The estimated total royalty payments over the entire life of the quarry using a 1.40 conversion factor would be approximately \$3,000,000 higher.

Our discussion with the WRQ management team revealed that the cubic yards to tons conversion factor of 1.30 is based on internal historical data. WRQ provided support for the conversion factor with calculations based on ASTM Standard C29/C29-09, which measures the bulk density of aggregate in a compacted or loose condition and voids at the WRQ mining operation in the Lake Belt area of Miami-Dade County for the 3-year period, January 2016 – August 2019. Their test results indicated that the 1.30 conversion factor was reasonable. A District engineer's review of the methodology found that the ASTM Standard C29/C29-09 is an acceptable methodology but its use requires regular sampling of the mining pit. They added that annual surveys and good internal controls over limerock sales can mitigate risk related to conversion factors. Industry expertise would be needed to verify the reasonableness of the conversion factor by determining whether ASTM Standard C29/C29-09 has been properly and consistently applied in establishing the conversion factor. To further verify WRQ's conversion calculations, consider obtaining test sample documentation from WRQ to support these estimates.



Limerock loaded into dump trucks from inventory and sold. Trucks are weighed at the mine exit to determine quantity

Recommendation

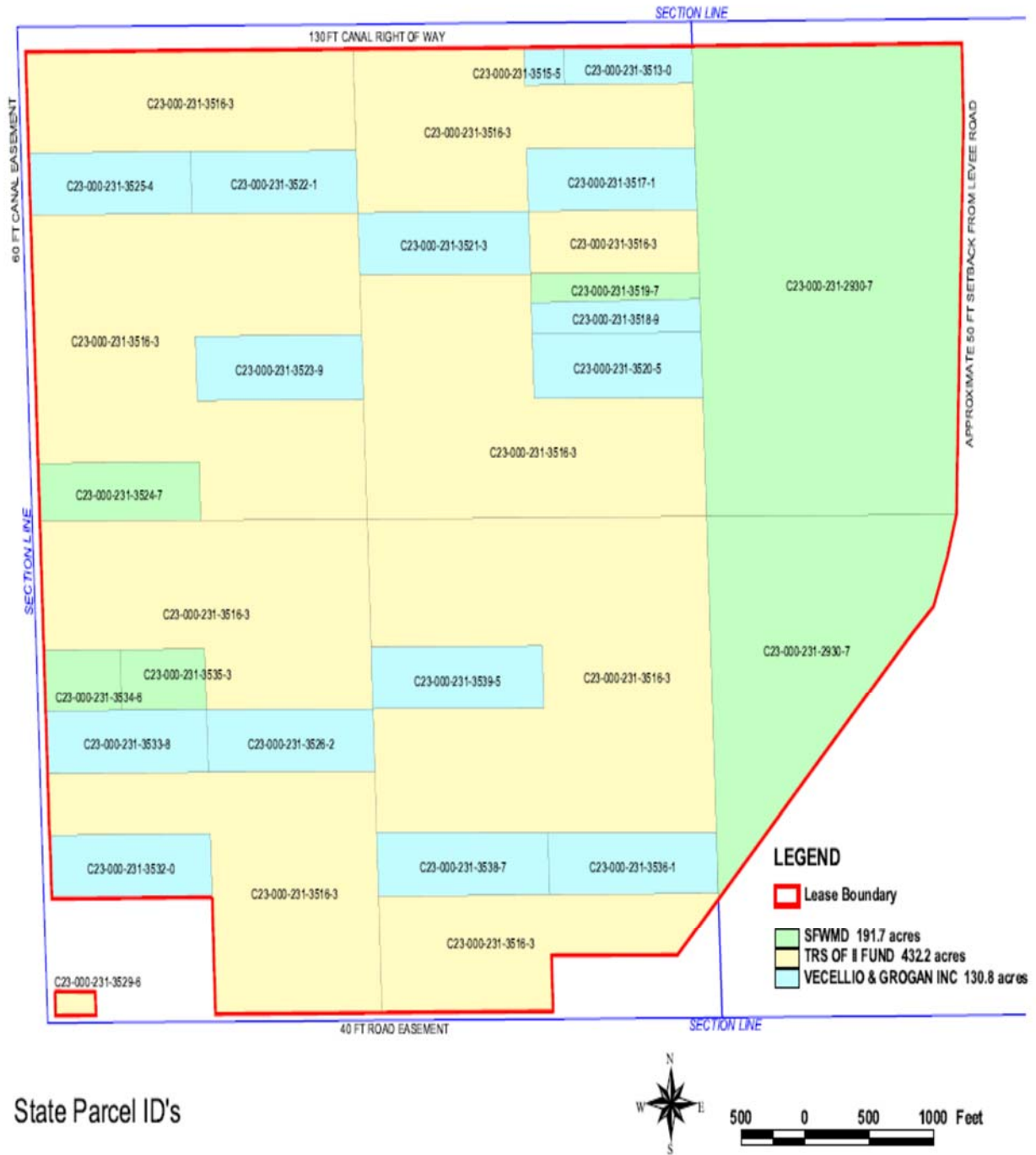
- 1. Going forward, consider obtaining and reviewing test sample documentation from WRQ to support the 1.3 conversion factor and obtain external expert assistance, if deemed necessary.**

Management Response: Staff will make inquiries to determine the extent and cost effectiveness of hiring an external rock mining expert or entity to review available WRQ test sample documentation supporting the 1.30 conversion factor used to calculate rental income from the mining lease. Staff recommendation on whether to proceed with hiring such external expertise will be provided to District Management and the Office of Inspector General within the estimated completion period.

Responsible Division: Real Estate and Management Division

Estimated Completion: June 30, 2020

The District, TIIFT and WRQ Ownership of Lake Belt Mining Parcels



VECELLIO & GROGAN, INC. dba WHITE ROCK QUARRIES
Quantity Survey and Royalty Information - Sections 4 & 5
Lease year ended April 10, 2016

Data From Survey:

Cubic Yards extracted (per survey)	1,838,845
Conversion factor	1.3
Tons Mined (per survey)	<u>2,390,499</u>
Less: Above ground material - Pile A (per survey)	(439,783)
Above ground material - Pile B (per survey)	(3,241)
Main pad (per survey)	(583,597)
Road pad (per survey)	(85,656)
Net tonnage removed from Sections 4 & 5	<u><u>1,278,222</u></u>

State of Florida/TIITF:

Net tonnage removed from Sections 4 & 5	1,278,222
TIITF percentage	57.27%
	<u>732,038</u>
Royalty rate per ton	1.34
Adjusted royalty for period ended April 10, 2016	<u><u>\$ 980,931</u></u>

SFWMD:

Net tonnage removed from Sections 4 & 5	1,278,222
SFWMD percentage	25.40%
	<u>324,668</u>
Royalty rate per ton	1.34
Adjusted royalty for period ended April 10, 2016	<u><u>\$ 435,055</u></u>

VECELLIO & GROGAN, INC. dba WHITE ROCK QUARRIES
Survey and Royalty Information - Sections 4 & 5
Lease year ended April 10, 2017

Cubic Yards extracted (per survey)	8,166,683
Conversion factor	1.3
Tons Mined (per survey)	10,616,688
Net tonnage removed from Sections 4 & 5 prior to April 11, 2016	(1,278,222)
Tons Mined in current lease year	9,338,466
Less: Above ground material - Pile A (per survey)	(201,726)
Above ground material - Pile B (per survey)	(127,433)
Main pad (per survey)	(597,611)
Road pad (per survey)	(48,825)
Net tonnage removed from Sections 4 & 5, April 11, 2016 - April 10, 2017	8,362,871
90% of net tonnage removed	7,526,584

Minimum Yield Test

TIITF:

90% of net tonnage removed from Sections 4 & 5	7,526,584
TIITF percentage	57.27%
	4,310,475
Royalty rate per ton	\$ 1.41
Minimum royalty for period ended April 10, 2017	\$ 6,077,769.75
Royalty paid	(6,455,565.15)
	\$ (377,795.40)

Balance owed is zero because the Royalty paid exceeds the Minimum royalty due.

SFWMD:

90% of net tonnage removed from Sections 4 & 5	7,526,584
SFWMD percentage	25.40%
	1,911,752
Royalty rate per ton	\$ 1.41
Minimum royalty for period ended April 10, 2017	\$ 2,695,570.32
Royalty paid	(2,863,133.31)
	\$ (167,562.99)

Balance owed is zero because the Royalty paid exceeds the Minimum royalty due.

VECELLIO & GROGAN, INC. dba WHITE ROCK QUARRIES
Survey and Royalty Information - Sections 4 & 5
Lease Year Ended April 10, 2018

Cubic Yards extracted (per survey)	14,537,300
Conversion factor	1.3
Tons Mined (per survey)	18,898,490
Net tonnage removed from Sections 4 & 5 prior to April 11, 2017	(9,641,093)
Tons Mined in current lease year	9,257,397
Less: Above ground material - Pile to pad (per survey)	(355,105)
Pad to cap rock (per survey)	(910,000)
Net tonnage removed from Sections 4 & 5, April 11, 2017 - April 10, 2018	7,992,292
90% of net tonnage removed	7,193,063

Minimum Yield Test

TIITF:

90% of net tonnage removed from Sections 4 & 5	7,193,063
TIITF percentage	57.27%
	4,119,467
Royalty rate per ton	\$ 1.46
Minimum royalty for period ended April 10, 2018	\$ 6,014,421.82
Royalty paid	(6,467,483.18)
	<u>\$ (453,061.36)</u>

Balance owed is zero because the Royalty paid exceeds the Minimum royalty due.

SFWMD:

90% of net tonnage removed from Sections 4 & 5	7,193,063
SFWMD percentage	25.40%
	1,827,038
Royalty rate per ton	\$ 1.46
Minimum royalty for period ended April 10, 2018	\$ 2,667,475.48
Royalty paid	(2,868,412.36)
	<u>\$ (200,936.88)</u>

Balance owed is zero because the Royalty paid exceeds the Minimum royalty due.