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FACTUAL INVESTIGATION REPORT

Date: June 25, 2013

To: Butch Tongate, Deputy Secretary
and Acting Director, Resource Protection Division
Tom Blaine, Director, Environmental Health Division

Through: James Hogan, Bureau Chief, Surface Water Quality Bureau
Stephanie Stringer, Acting Bureau Chief, Drinking Water Bureau

From: Carol M. Parker, Director of Environmental Policy & Planning and
Assistant General Counsel
Mike Coffman, Team Leader, Operator Certification Program

Re: Report of Factual Investigation Concerning the Village of Ruidoso
Grindstone Water Treatment Plant—Allegation of Falsified Turbidity Data

On June 8, 2012, staff from the New Mexico Environment Department (“NMED”) Drinking Water Bureau (“DWB”) visited the Village of Ruidoso (“VOR” or “Village”) Grindstone Water Treatment Plant (“Grindstone Plant”). During that visit, NMED staff discovered that a cartridge filter had been installed on the inlet for the turbidimeter for the clearwell.¹ Such a filter would have the effect of artificially reducing the turbidity recorded by the turbidimeter, which could then be reported to NMED’s DWB on the required Monthly Operating Report (“MOR”). See 20.7.10.100 NMAC (incorporating 40 C.F.R. Subpart P §§ 141.170 to 141.175 (requiring, among other things, that certain water systems report to the State monthly the number of turbidity measurements and the percentage of the measurements that exceed certain turbidity limits)).

¹ The “clearwell” is the point in the treatment process where chlorine is added before the water goes out to the distribution.

About three and a half months later,² on September 20, 2012, Joseph Savage (“Mr. Savage”) NMED DWB District IV Area Manager submitted to Mike Coffman (“Mr. Coffman”), of NMED’s Surface Water Quality Bureau (“SWQB”), a “Request to investigate suspected tampering and falsification of data submitted to the state by a certified water operator.” Mr. Savage’s request resulted in an investigation by NMED’s Office of General Counsel. This report summarizes the facts developed as the result of that investigation.

I. Executive Summary

This investigation developed evidence that turbidity measurements from the clearwell of the Grindstone Plant in Ruidoso were altered through the installation of a filter on the official turbidimeter used for reporting turbidities to NMED. The Water Production Manager for the Village of Ruidoso, Tom Stewart, (“Mr. Stewart”), who is a Level 4 certified operator, directed that the filter be installed and Gary Goss, (“Mr. Goss”), who is also a Level 4 operator, reported knowingly altered turbidity data to NMED for the June 2012 MOR.

II. Background

A. NMED Drinking Water Staff Discovery of a Filter on a Turbidimeter at the Village Grindstone Plant

On June 6, 2012, Randall Camp (“Mr. Camp”), the Village Utilities Director and Mr. Stewart, the Village Water Production Manager for the Village drinking water system visited the NMED Ruidoso Field Office. They met with John Pijawka (“Mr. Pijawka”), NMED Water System Specialist. Mr. Savage, participated by phone. Mr. Camp and Mr. Stewart reported that the Village Grindstone Plant was not meeting turbidity requirements at the end of May 2012. Mr. Savage told Mr. Camp and Mr. Stewart that a site visit to the Grindstone Plant would be scheduled as soon as possible. Exhibit A, *Request to Investigate Suspected Tampering and Falsification of Data Submitted to the State by a Certified Water Operator*, Submitted by John Pijawka, NMED Drinking Water Specialist, Ruidoso Field Office and Joseph Savage, NMED DWB District IV Area Manager to Mike Coffman, NMED (Sep. 20, 2012) [hereinafter referred to as “*Request for Investigation*”].

The meeting on June 6, 2012 was at the insistence of Mr. Camp. In this case, Mr. Stewart had come to Mr. Camp, his supervisor, toward the end of May to report that the Grindstone Plant was exceeding turbidity standards. Mr. Camp then insisted on meeting with DWB staff to let them know about the situation. Mr. Camp explained in his witness interview for this investigation that he had overseen environmental compliance for Wal-Mart for many years and had learned through that experience that it is always better to keep a regulator informed of problems rather than allow the regulator to discover them.

It is important to note at the outset that Mr. Savage’s *Request for Investigation* contained a key error—it referred to the “1720D” turbidimeter as the one with the filter installed on its inlet. In fact, that turbidimeter is a “1720C.” For clarity, where necessary, the turbidity data from the filtered 1720C turbidimeter will be described as from the “Filtered Turbidimeter.” The other turbidimeter at the Grindstone Plant is a 1720E Hach turbidimeter and will be sometimes referred to, for clarity, as the “Unfiltered Turbidimeter.”

² It is understood that the delay in requesting the investigation was due to the Little Bear Fire and the potential post-fire flooding threat that was the Department’s highest priority.

On June 7, 2012, Mr. Pijakwa met with Mr. Stewart at the clearwell building for the Grindstone Plant. During this meeting, Mr. Pijakwa noticed two turbidimeters, one reading 0.4 NTU and one reading 0.9 Nephelometric Turbidity Units (“NTU”).³ Mr. Stewart reported to Mr. Pijakwa that he thought the turbidity problems were related to chlorine demand and color which was caused by manganese in the water. *Id.*

On June 8, 2012, Mr. Savage and Mr. Pijakwa visited the Grindstone Plant. A plant operator, Albert Mendez (“Mr. Mendez”), told Mr. Pijakwa that a filter had been attached to one of the clearwell turbidimeters sometime in May. Mr. Pijakwa entered the clearwell building and confirmed that a filter had been installed on the inlet⁴ line from the clearwell to the 1720C turbidimeter. Mr. Savage took two photos⁵ of the Filtered Turbidimeter which were attached to his *Request for Investigation*. *Id.* Such a filter would have the effect of artificially reducing the turbidity recorded on the turbidimeter which could then be reported to NMED’s DWB on the required MOR. *See* 20.7.10.100 NMAC (incorporating 40 C.F.R. Subpart P §§ 141.170 to 141.175).

Mr. Savage notified Mr. Camp that tampering appeared to have occurred. Mr. Camp and Mr. Stewart both arrived at the Grindstone Plant and entered the clearwell building with Mr. Goss, another Plant Operator. Mr. Savage asked for an explanation why the filter was installed. Mr. Stewart explained that it was an “experiment” to see what was causing the high turbidity readings at the clearwell. *Request for Investigation*. Mr. Stewart stated at that time that the filter had only been on the turbidimeter for 24 hours. Exhibit L.⁶ Later it would be learned that the filter had been installed at Mr. Stewart’s direction on May 25, 2012, two weeks earlier. Mr. Stewart also stated on June 8, 2012 that there was no cartridge in the filter housing at that time. *Request for Investigation*. Mr. Savage asked Mr. Stewart to open the filter housing, and when it was opened, there was a cartridge in the filter housing.

There was a second turbidimeter on the clearwell at the Grindstone Plant: a newer Hach 1720E. Both turbidimeters were reading above 0.3 NTU; the 1720E was receiving water which was not artificially reduced with a filter and was reading higher than the 1720C turbidimeter. Mr. Savage asked which turbidimeter was being used for reporting turbidities to be submitted to the state on the MOR. Mr. Stewart said that it was the 1720C. Mr. Goss concurred, stating that he had been instructed⁷ to report the filtered data to the state. Mr. Savage confirmed, by examining the MOR in process, that it reflected the artificially reduced (filtered) data from the 1720C. Mr. Savage also examined the data reported by the 1720E for the latter part of May and confirmed that those turbidity numbers were significantly higher.

³ Turbidity is a measure of the degree to which water loses its transparency due to the presence of suspended particulates. It is used to assess drinking water quality because it is an easily measured and cost-effective proxy for the ease with which the water can be disinfected—the more turbid the water, the harder it is to disinfect. Thus, the turbidity of water provided to customers is a key indicator of its safety for compliance purposes. *Importance of Turbidity*, §§ 7.1-7.3, available at http://www.epa.gov/ogwdw/mdbp/pdf/turbidity/chap_07.pdf.

⁴ The “inlet” is the side of the turbidimeter before the meter; the “outlet” is the other side where the water leaves the turbidimeter after its turbidity has been measured.

⁵ OGC labeled these photos “A” and “B” for use in the later recorded witness interviews.

⁶ As will be explained below, the documents gathered during this investigation are compiled in three binders containing Exhibits A through L. Exhibit L was received from Randall Camp, the Village of Ruidoso Utilities Director and consists of an October 2, 2012 personnel action he received from the Village of Ruidoso with his responses to the allegations in bold.

⁷ Mr. Savage and Mr. Pijakwa did not specify in the Request for Investigation who instructed Mr. Goss to use the filtered data for reporting to the state.

The Village had not yet submitted its MOR for May 2012 to NMED. Mr. Savage directed that the readings from the Unfiltered Turbidimeter, 1720E, should be reported to the state and both Mr. Camp and Mr. Stewart agreed that the data from the Unfiltered Turbidimeter were more representative of the quality of the water sent into the distribution system than the data from the Filtered Turbidimeter.

On June 9, 2012, the Little Bear Fire became uncontrolled; the fire became everyone's main priority for several months and further investigation was deferred to later. The Village did not submit its May 2012 MOR until July 12, 2012. On September 20, 2012, Mr. Savage and Mr. Pijawka submitted the *Request for Investigation* to Mr. Coffman, of NMED's SWQB, copied to Tom Blaine ("Mr. Blaine"), Director of Field Operations and Infrastructure Division,⁸ Margaret Ryan, NMED DWB Chief,⁹ and John Pijawka. The *Request for Investigation* contained photographs taken of the two turbidimeters at the Grindstone Plant on June 8, 2012, the May 2012 MOR for the Grindstone Plant, and a memo written by Mr. Mendez to Mr. Goss on June 1, 2012 objecting to the installation of the filter on the 1720C turbidimeter.¹⁰

Mr. Savage's *Request for Investigation* was forwarded to James Hogan, the acting Bureau Chief for the Surface Water Quality Bureau, who discussed the request with then Resource Protection Division Director, Jim Davis on September 24, 2012. Based on this discussion, Mr. Davis decided that this was, first and foremost, a DWB issue and that the DWB should be the lead Bureau on any investigation. The SWQB, through its Utility Operator Certification Program, would support the investigation. This decision was followed by a legal request submitted by Mr. Blaine,¹¹ Division Director of the Field Operations and Infrastructure Division.¹² This legal request led to an investigation by NMED's Office of General Counsel ("OGC").

Notwithstanding Mr. Savage's submission of the *Request for Investigation* on September 20, 2012, he met with Debi Lee ("Ms. Lee"), the Village of Ruidoso Manager, and the Mayor of the Village on September 6, 2012 and explained his allegations to them. Exhibit L.

B. *OGC Investigation*

On October 30, 2012, Carol Parker ("Ms. Parker"), NMED Assistant General Counsel, filed a "Notice of Investigation and Request for Subpoena" on behalf of the SWQB pursuant to the Uniform Licensing Act, NMSA 61-1-4(A), among other statutory provisions. See Exhibit B. The subpoena was issued to the Village and sought copies of the chart recordings for the

⁸ Now called the Environmental Health Division.

⁹ Margaret Ryan has since retired from NMED.

¹⁰ Mr. Mendez's memo was addressed to Gary Goss, Chief Plant Operator, and CC'd to Justin King, Randall Camp, Utilities Director and NMED. However, Mr. Mendez stated in his interview that he only gave it to Mr. Goss and expected Mr. Goss to forward it to the other addressees at his discretion. Mr. Goss was Mr. Mendez's supervisor. Mr. Goss stated in his interview that he placed the memo on Mr. Camp's desk but Mr. Camp denied receiving it. Mr. Camp was not Mr. Goss's immediate supervisor, Mr. Stewart was. Mr. Goss did not give Mr. Stewart a copy of the memo at that time. NMED was not given a copy of the memo at that time, although it is listed in the "Cc:" on the memo. Instead, Mr. Goss just placed the memo in his files and took no further action.

¹¹ Shortly after Mr. Blaine submitted his legal request, he recused himself from the investigation because he had a relationship with someone working in the Village of Ruidoso Administrative Offices. Since then, that person has left employment with the Village and Mr. Blaine is no longer recused from the investigation.

¹² The Drinking Water Bureau is in the Field Operations and Infrastructure Development Division, now known as the Environmental Health Division.

1720D¹³; an electronic download and printed copy of the data from the 1720E turbidimeter; all draft MORs for May and June 2012, and all final MORs submitted to NMED for May and June 2012; all reprimands issued to any person relating to the operation of the Grindstone Plant in the months of May, June or July 2012; and any other documents related to the operation of the Grindstone Plant. *See* Exhibit C. The subpoena was served on Randall Camp personally the following day.

On October 31, 2012, Ms. Parker and Mr. Coffman traveled to Ruidoso and interviewed five individuals employed by the Village: (1) Mr. Mendez, the Level 4 certified operator who had alerted NMED to the installation of the filter on June 8th; (2) Tim Amadeo (“Mr. Amadeo”), another Level 4 certified operator who worked at the Grindstone Plant; (3) Mr. Goss, a Level 4 certified operator who supervised Mr. Mendez and Mr. Amadeo, among other people and who was responsible for the reporting of the Grindstone Plant compliance data to NMED; (4) Mr. Stewart, a Level 4 certified operator who had directed that the filter be installed where it was installed; and (5) Mr. Camp, the Village Utility Director. Those interviews were recorded with the consent of each gentleman. *See* Exhibit D, Recordings. After the interviews were completed, Ms. Parker and Mr. Coffman toured the Grindstone Plant. The filter and its housing were no longer installed on either of the two turbidimeters measuring the clearwell turbidity.

In response to the subpoena, the Village provided two binders of materials, via the Village counsel. Exhibits E1 and E2. However, the document production appeared incomplete. On November 29, 2012, OGC sent a letter identifying missing responsive materials documents to the Village’s legal counsel, Dan Bryant. Exhibit F. No further response was initially received. On December 26, 2012, OGC sent an Inspection of Public Records request to the Village requesting the same documents. Exhibit G. Additional documents were received from the Village on January 15, 2013. Exhibit H.

A central question to be answered by this investigation is whether turbidity results which had been altered through the use of an in-line filter were reported to NMED for compliance purposes. To answer this question, the turbidity of the clearwell was analyzed using different data sources provided by the Village in response to OGC’s subpoena.

The sources of turbidity data obtained and analyzed were as follows: (1) the electronic spreadsheet in which operators entered daily turbidity data for preparation of the MOR for the VOR Grindstone Plant at the end of each month, *Figure 1*; (2) the operator log book for the VOR Grindstone Plant, which usually contained only one turbidity reading for each day, typically read first thing each morning, *Figure 2*; (3) the MORs submitted to NMED for the Grindstone Plant, *Figure 3*; (4) the turbidity readings from the 1720E datalogger (the Unfiltered Turbidimeter), *Figure 4*, with each four hour block of turbidity data analyzed to create a “synthetic” MOR from the data; (5) and the turbidities from the chart recorder on the 1720C turbidimeter (the Filtered Turbidimeter), *Figure 5*, similarly analyzed each four hours. These five sets of data for the Grindstone Plant turbidities are collectively referred to as “Turbidity Datasets.”

OGC used the date range from May 20, 2012 to June 15, 2012 in analyzing and comparing turbidity readings. This covered a few days before the filter was installed on May 25, 2012 and continued through to one week after the filter was removed after the NMED visit to the Grindstone Plant on June 8, 2012.

¹³ The subpoena erroneously sought the chart recordings for the 1720D turbidimeter due to Mr. Savage’s erroneous description in his *Request for Investigation*. The Village of Ruidoso legal counsel notified OGC of the error and provided the correct chart recordings in response to the subpoena.

Some of the Turbidity Datasets may not be directly comparable to each other. For example, the operator log book only contains a complete dataset for a morning turbidity reading, not six readings each day covering each four hour period, so the operator log book would not be expected to result in the same turbidity chart as the spreadsheet or the MORs. The 1720C chart recorder (the Filtered Turbidimeter) appears to have used days that began at noon and ended the following day at 11:59 a.m. This is a common practice used when operators are not at the plant in the middle of the night to change the chart paper. In contrast, the 1720E datalogger (the Unfiltered Turbidimeter) measures and electronically records turbidities each fifteen minutes without regard to whether an operator is present to observe it. It was not clear whether the date and time readings on the 1720E datalogger had been calibrated to match the chart recorder or whether they were consistent with the more standard practice of beginning each day at midnight. Since NMED staff had instructed the operators at the Village Grindstone Plant to use the data from the 1720E datalogger for the MORs, those two datasets were directly compared as well as the 1720C Chart Recorder, *Figure 6, Comparison of MORs with 1720E Datalogger and Chart Recorder*.

One potential question that was raised initially in the investigation was whether the Little Bear Fire would interfere with the ability to interpret the data resulting from the investigation. However, the Little Bear Fire became uncontrolled on or about June 9, 2012, the day after the filter was removed, so the Little Bear Fire would not be expected to have affected the comparison of turbidity data from different sources prior to that date.

In interviews, there were verbal references to a sample which had been taken to Aqua Environmental Testing Laboratories (“AET Laboratories”) from the Grindstone Plant in late May 2012 which had tested positive for manganese. However, no laboratory reports reflecting such a sample were produced by the Village in response to NMED’s subpoena. To follow up, NMED sent a subpoena to AET laboratories on December 7, 2012. Exhibit I.

AET Laboratories responded to the subpoena on January 29, 2013. Exhibit J. In a cover letter to the documents sent, AET’s Laboratory Director, Ishmael Sanchez, reported that: (1) Mr. Stewart had submitted a sample to AET in late May; (2) Mr. Stewart had not provided a chain of custody form as requested by AET’s analyst; (3) Mr. Stewart had verbally requested that AET test the sample for manganese and did not require a written report; (4) AET tested the sample as requested as a “professional courtesy” and found that the “water of the sediment/crystals”¹⁴ contained greater than 4 mg/L manganese which was reported to Mr. Stewart by phone. OGC reviewed the sample log from AET during this period and no such sample is entered in the AET sample log and no written documentation of this sample was produced in response to the AET subpoena. Exhibit J.

III. Factual Conclusions of the Investigation

1. The turbidity of the clearwell was beginning to rise at the Grindstone Plant in May 2012.

This rise can be seen using several sources: the operator log book, the MORs, and the 1720E datalogger and the chart recorder for the 1720C turbidimeter. A turbidity rise in May 2012 was also acknowledged by both Mr. Camp and Mr. Stewart when they went to NMED’s

¹⁴ Since there is no written record of this sample, it is not clear whether Mr. Stewart brought a filter to the lab or a wash of sediment from the filter or something else entirely. Based on the fact that Mr. Stewart instructed that the filter be installed and described it as an experiment to figure out what was precipitating, it seems likely that this sample was the filter or a sample related to the filter.

Ruidoso Field Office on June 6, 2012. Exhibit A, *Request for Investigation*. A drinking water violation occurs if the turbidity exceeds 0.3 NTU more than 5% of the days of the month. Thus, an operator would be concerned if turbidity began to approach that key compliance benchmark.

In this case, beginning with May 6, 2012 (the earliest date received for the 1720C chart recorder), the turbidity was running about 0.15 NTUs for the first week (May 6-12). By May 17th, turbidities were beginning to rise up to or near 0.3 NTUs. Turbidity reached 0.3 NTU again on May 19, 2012, reached 0.4 NTU on May 22, and reached 0.35 NTU on May 23.

This rising turbidity level would have required the certified operators to take steps to identify the source of the turbidity and take appropriate measures to counteract it. During the witness interviews, NMED heard several times that the water level of the Grindstone Reservoir was dropping and might eventually require that the Grindstone Plant cease operations. A trained certified operator would have been aware that, as lake levels drop, mineral concentrations can increase which could affect turbidity. As explained in the New Mexico Water Systems Operator Certification Study Manual:

Minerals tend to concentrate in lakes. Iron, manganese, and other dissolved metals are retained in the lake with the highest concentrations being found near the bottom. This occurs due to the lack of dissolved oxygen at the lower depths. The dissolved oxygen from wind and algae growth near the surface will oxidize some of the dissolved metals so that they precipitate.

Chapter 12, p. 12-1, Version IV (Jan. 2011).

A certified operator would ask about mineral levels as the lake level dropped and as turbidity levels increased. Modifications to the treatment process might be required to counteract the increasing mineral concentrations in the source water.¹⁵

2. *On May 25, 2012, Mr. Stewart instructed Mr. Mendez to install the filter on the inlet line for the 1720C turbidimeter.*

The plant operator log shows that Albert Mendez installed the filter on the inlet line for the 1720C turbidimeter “as directed” at 11:24 a.m. on May 25, 2012. Mr. Stewart admitted in his interview that he directed that the filter be installed.

In his interview, Mr. Stewart was asked why he instructed Mr. Mendez to install the filter. He described it as an “experiment,” stating that he was trying to capture a sample of the particulate for testing. When asked whether the filter could have been installed on the outlet of the turbidimeter, he admitted that it could have been and should have been.

3. *There were two turbidimeters reading clearwell turbidities at the Grindstone Plant. The 1720C was viewed as the “official” turbidimeter for the Grindstone Plant by the operators in charge of reading the turbidities daily.*

The Level 4 certified operators who were responsible for reading clearwell turbidities at the Grindstone Plant, Mr. Mendez and Mr. Amadeo, viewed the 1720C as the “official” turbidimeter and acted consistently with that view by reading clearwell turbidities for the MOR

¹⁵ Separately, NMED’s Surface Water Quality Bureau was collecting samples from the Grindstone Reservoir throughout the summer of 2012. On May 17th, manganese in the lake was measured at 0.014 mg/l; on June 19th, it was 0.26 mg/L; on July 10th, it was 0.413 mg/L and on September 19th, it was 0.632 mg/L.

from the 1720C both before and after the filter was installed. The evidence supporting this conclusion is:

- Mr. Mendez stated in his interview that the 1720C was the official turbidimeter for the Grindstone Plant and that even after the filter was installed, he continued to note the 1720C turbidity readings in the operator log and in the Grindstone Plant's computer system which served as the source for the data for the MOR at the end of each month. Mr. Mendez's interview statement is consistent with the turbidity data received through NMED's subpoena.
- Mr. Amadeo stated in his interview that his usual practice was to read the turbidity from the 1720C turbidimeter; no one ever told him to do anything differently after the filter was installed. In fact, Mr. Amadeo stated that the first time he came to work after the filter was installed, it was a Sunday, and when he arrived and saw the filter installed, he had no idea why the filter was there but continued to read turbidities as he always had—from the 1720C.
- Mr. Goss stated in his interview that he did not know which turbidimeter was being read routinely by the operators but that it didn't matter because, when the water quality problems arose, both were reading turbidities too high to be in compliance. Mr. Goss's interview statement is inconsistent with Mr. Savage's report of his June 8th visit to the Grindstone Plant in which he reported that Mr. Goss understood that turbidity readings from the 1720C were to be used for MOR data.
- Mr. Goss also stated in his interview that he would prefer to use the 1720C turbidimeter because it routinely read a lower turbidity even without a filter attached than the 1720E and it would be easier to show compliance using the 1720C.

4. *Mr. Stewart did not take steps to assure that, after the filter was installed, the operators used the 1720E turbidimeter for turbidity readings.*

- Mr. Stewart stated in his interview that he told the operators to use the 1720E turbidimeter after the filter was installed. This is inconsistent with the interview statements of both Mr. Mendez and Mr. Amadeo, who were primarily responsible for reading clearwell turbidities at the Grindstone Plant, and who each denied that anyone had told them to change from reading the 1720C turbidimeter after the filter was installed.
- Mr. Stewart's interview statement is also inconsistent with Mr. Savage's *Request for Investigation* in which Mr. Savage reported that when Mr. Stewart was asked, Mr. Stewart stated that the 1720C was to be used for reading turbidities.
- During his June 8th visit to the Grindstone Plant, Mr. Savage asked to see the MOR in process and it contained data from the 1720C, not data from the 1720E.
- Comparing the spreadsheet data in Figure 1 (electronic spreadsheet) with the 1720E datalogger in Figure 4 shows that the charts are dissimilar and the turbidity data in Figure 1 (spreadsheet) is generally lower than the turbidity data in Figure 4 (1720E datalogger)—a pattern consistent with a conclusion that the 1720C was being used for turbidity readings to be entered into the spreadsheet used for preparation of the MOR throughout the period before the filter was installed, while it was in place, and after it was removed.
- There is nothing in the plant operator log suggesting that there were instructions to begin reading turbidities from the 1720E after the filter was installed although the installation of the filter is in the plant log.

5. *The filter on the inlet of the 1720C turbidimeter remained installed from May 25, 2012 to June 8, 2012, although it may have been changed for a clean filter once during that period.*

During the June 8, 2012 visit to the Grindstone Plant, Mr. Savage asked Mr. Stewart about the filter on the inlet of the 1720C turbidimeter. Mr. Stewart stated that there was no filter in the cartridge housing. However, when the cartridge housing was opened there was a filter installed. Exhibit A, *Request for Investigation*. Mr. Mendez stated in his interview that he had not been instructed to remove the filter although he had changed it once and placed the used filter on Mr. Stewart's desk. Because Mr. Stewart instructed that the filter be installed, had given no instructions to remove the filter, and because it was still installed when the filter was opened in the presence of NMED personnel on June 8, 2012, this investigation concludes that it was installed throughout the period from May 25, 2012 to June 8, 2012, although it might have been changed one time during that period.

6. *As the result of Mr. Savage and Mr. Pijawka's visit to the Grindstone Plant on June 8, 2012 and Mr. Savage's instructions not to use the altered data from the filtered 1720C chart recorder for reporting turbidities, the May MOR contained unfiltered data consistent with the datalogger from the 1720E turbidimeter.*

Figure 6 compares the data from the MORs with the data from the 1720E datalogger. The turbidities between these two sources are virtually identical for the portion of May examined. They are so close that a casual glance at Figure 6 might miss the fact that the two lines almost exactly overlap each other on the chart, at least during May. As a result, this investigation concludes that the MOR data reported to NMED for the month of May from the Grindstone Plant were correct and were not altered through the use of the filter.

7. *The Village reported altered turbidity data for the first eight days of June 2012 from the filtered 1720C turbidimeter for the Grindstone Plant.*

In Figure 6, by comparing the data from the June MOR with the data from the 1720E datalogger, it is apparent that the method of reporting turbidities from the Grindstone Plant changed from the May MOR to the June MOR. The June MOR data are no longer consistent with the turbidity readings from the 1720E turbidimeter. Instead, the MOR turbidities are lower than the 1720E turbidities and consistent with the turbidity data from the chart recorder. There were only two turbidimeters reading turbidities on the Grindstone Plant clearwell—the Unfiltered 1720E and the Filtered 1720C. The June MOR data are not consistent with the data from the 1720E datalogger; therefore the MOR must contain the data from the 1720C turbidimeter which were altered during the first eight days of June by the filter. Thus, this investigation concludes that the June MOR contains altered data from the Filtered 1720C turbidimeter for the first eight days of June.

8. *The Village's continued use of the 1720C turbidimeter when it cannot be reliably calibrated and its chart cannot be accurately read, threatens continuous violations of the turbidity reporting requirements of the drinking water regulations.*

In Figure 6, it is clear that, even before the filter was installed and after it was removed, the 1720C turbidimeter routinely read lower than the 1720E turbidimeter. The difference was sometimes minor, e.g., on May 20, 2012 (prior to the filter installation) the 1720C read 0.03

NTU lower than the 1720E turbidimeter. But frequently, the difference was significant, particularly as the turbidity increased, e.g., May 24, 2012, the 1720C was 0.13 NTU lower than the 1720E; June 9, 2012, the 1720C was 0.17 NTU lower than the 1720E; and June 10, 2012, the 1720C was 0.23 NTU lower than the 1720E. During their interviews, Mr. Stewart reported that they were unable to calibrate the two turbidimeters to read the same, Ex. D, Stewart Interview, 25:20; and Mr. Goss reported the same problem, Ex. D, Goss Interview, 40:25.

A difference of 0.23 NTU when the compliance benchmark is 0.3 NTU means that merely using the 1720C turbidimeter could conceal regulatory violations that would have been detected by using the 1720E turbidimeter. Concealing regulatory violations is not just a regulatory problem; it is a public health problem because the higher turbidity water is harder to disinfect.

After the witness interviews were completed, Mr. Coffman contacted Hach to ask how it could be explained that two turbidimeters could not be calibrated to read the same. Hach stated that there were several possible explanations. The bulb could be old, the photodetector could be old and out of spec, the chart could be miscalibrated, etc. In the end, since the regulatory scheme requires determination of maximum turbidities, the higher 1720E readings should be assumed to be correct unless there is a scientifically based rationale explaining why the 1720E readings are not accurate and a scientifically based rationale explaining why the 1720C readings are.

These difficulties increase in significance when considering the avoidable inaccuracies resulting from the use of a chart recorder on the 1720C turbidimeter. The same chart read by different people will result in different readings—at the Grindstone Plant, multiple operators may read the chart recorder, introducing more variability into turbidity readings. Since the Village already has a 1720E turbidimeter with a datalogger, there is no good reason to continue to use the 1720C turbidimeter with the chart recorder, particularly if it cannot be relied upon to provide accurate turbidity readings.

9. *The Village produced an inadequate and factually inaccurate “Internal Investigation.”*

Exhibit E1 (Section 6) contains the Internal Investigation of this matter prepared by Debi Lee, Village Manager for Ruidoso. It contains statements which are inaccurate based on this investigation and, in part, blames Albert Mendez, who was the only certified operator objecting to the installation of the filter on the 1720C turbidimeter. Most importantly, the Village’s Internal Investigation concludes that the turbidities reported to NMED were not altered when the June MOR shows that they were. Internal Investigation, unnumbered page 4, under “Conclusion.” Thus, this investigation concludes that the Village produced an inadequate and factually inaccurate investigative report.

The Internal Investigation contains copies of personnel actions to four employees: Albert Mendez, Tom Stewart, Gary Goss, and Randy Camp. Three of those employees, Tom Stewart, Gary Goss, and Randy Camp, acknowledged in their interviews that they had received reprimands and their personnel actions are signed by them indicating that they received them.

However, in his interview with NMED staff, Albert Mendez denied ever receiving a reprimand relating to this incident; coincidentally, his reprimand is unsigned. It is troubling that a personnel action would be placed in an employee’s file but not discussed with the employee. Certainly a personnel action holds no hope of altering an employee’s conduct if the employee is not made aware of it. This raises questions about the purpose of issuing this personnel action in the context of the Internal Investigation.

At Mr. Camp's interview with NMED staff, he provided a rebuttal of the personnel action issued to him, a copy of his recommendation that Mr. Stewart be terminated (which was countermanded by Debi Lee), and a printed copy of a case from Oklahoma where an operator providing altered turbidity data to the state was federally prosecuted. After Mr. Camp's interview, he provided a separate statement to NMED disputing the allegations in his personnel action. Exhibit L. Mr. Camp's rebuttal alleges several additional inaccuracies in the Village Internal Investigation.

IV. Summary

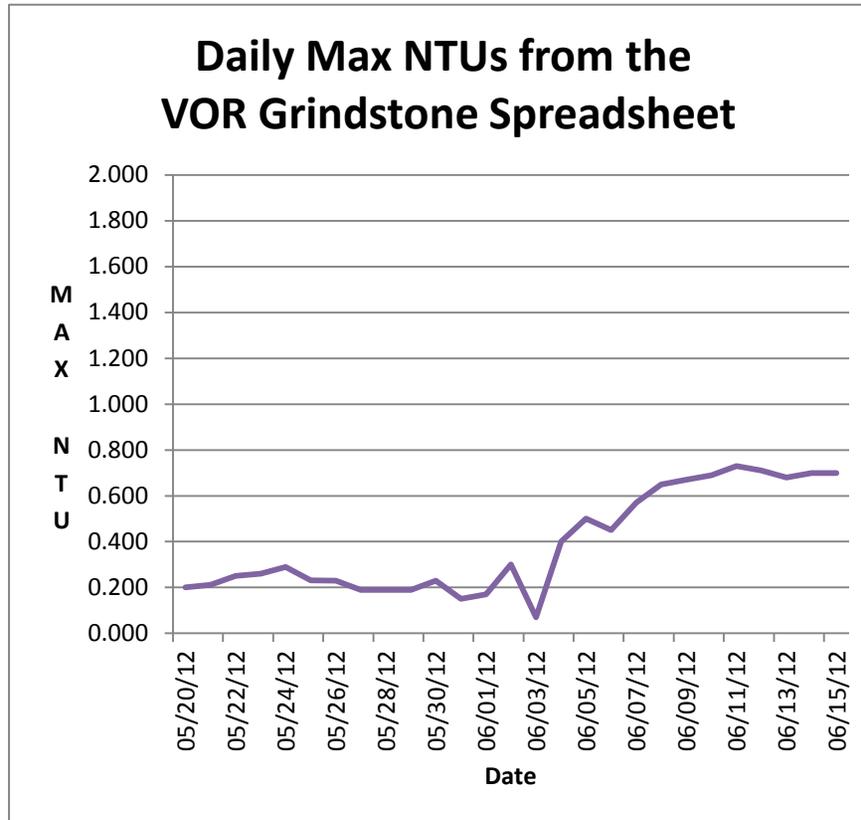
1. *The turbidity of the clearwell was beginning to rise at the Grindstone Plant in May 2012.*
2. *On May 25, 2012, Mr. Stewart instructed Mr. Mendez to install the filter on the inlet line for the 1720C turbidimeter.*
3. *There were two turbidimeters reading clearwell turbidities at the Grindstone Plant. The 1720C was viewed as the "official" turbidimeter for the Grindstone Plant by the operators in charge of reading the turbidities daily.*
4. *Mr. Stewart did not take steps to assure that, after the filter was installed, the operators used the 1720E turbidimeter for turbidity readings.*
5. *The filter on the inlet of the 1720C turbidimeter remained installed from May 25, 2012 to June 8, 2012, although it may have been changed for a clean filter once during that period.*
6. *As the result of Mr. Savage and Mr. Pijawka's visit to the Grindstone Plant on June 8, 2012 and Mr. Savage's instructions not to use the altered data from the filtered 1720C chart recorder for reporting turbidities, the May MOR contained unfiltered data consistent with the datalogger from the 1720E turbidimeter.*
7. *The Village reported altered turbidity data for the first eight days of June 2012 from the filtered 1720C turbidimeter for the Grindstone Plant.*
8. *The Village's continued use of the 1720C turbidimeter when it cannot be reliably calibrated and its chart cannot be accurately read, threatens continuous violations of the turbidity reporting requirements of the drinking water regulations.*
9. *The Village produced an inadequate and factually inaccurate "Internal Investigation."*

VOR Grindstone Spreadsheet

MAX NTU

05/20/12	0.200
05/21/12	0.212
05/22/12	0.250
05/23/12	0.260
05/24/12	0.290
05/25/12	0.231
05/26/12	0.230
05/27/12	0.190
05/28/12	0.190
05/29/12	0.190
05/30/12	0.230
05/31/12	0.150
06/01/12	0.170
06/02/12	0.300
06/03/12	0.070
06/04/12	0.400
06/05/12	0.500
06/06/12	0.450
06/07/12	0.570
06/08/12	0.650
06/09/12	0.670
06/10/12	0.690
06/11/12	0.730
06/12/12	0.710
06/13/12	0.680
06/14/12	0.700
06/15/12	0.700

Figure 1

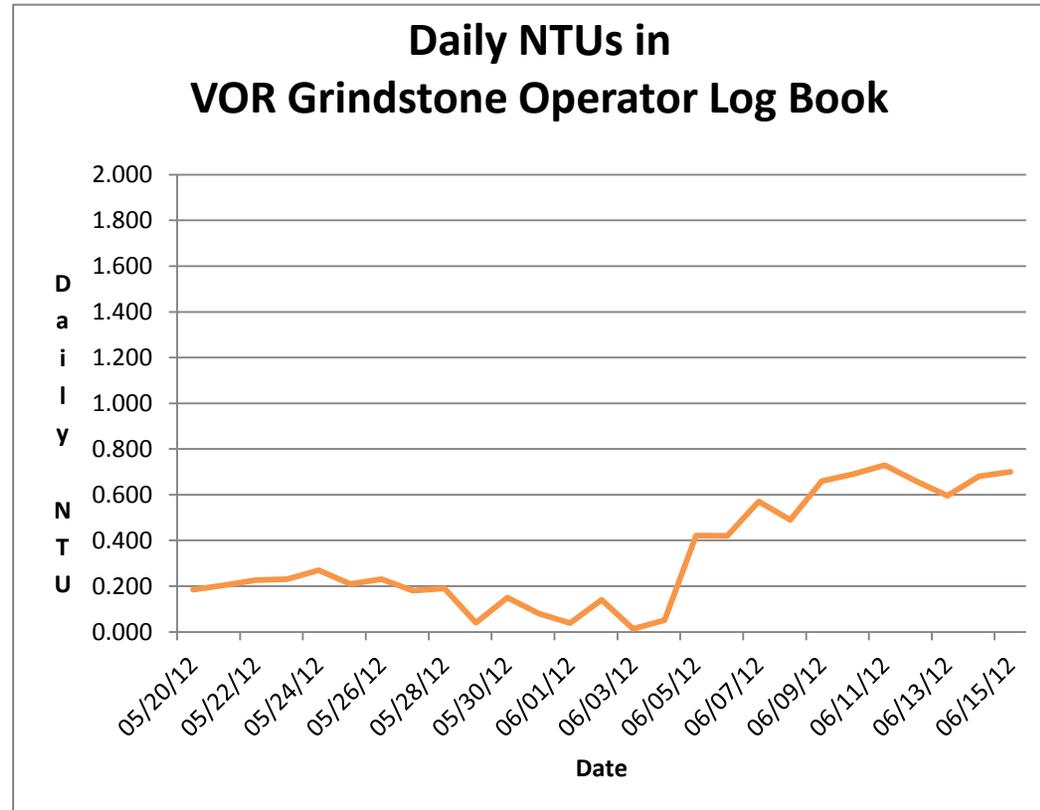


Clearwell NTUs are entered into a spreadsheet which serves as the source of data for preparing the Monthly Operating Report each month. The certified operators recognized the 1720C as the "official turbidimeter."

**VOR Grindstone
Operator Log Book**

	NTU
05/20/12	0.184
05/21/12	0.204
05/22/12	0.226
05/23/12	0.230
05/24/12	0.270
05/25/12	0.210
05/26/12	0.230
05/27/12	0.180
05/28/12	0.190
05/29/12	0.040
05/30/12	0.150
05/31/12	0.080
06/01/12	0.039
06/02/12	0.140
06/03/12	0.013
06/04/12	0.051
06/05/12	0.421
06/06/12	0.420
06/07/12	0.570
06/08/12	0.490
06/09/12	0.660
06/10/12	0.690
06/11/12	0.730
06/12/12	0.660
06/13/12	0.595
06/14/12	0.680
06/15/12	0.700

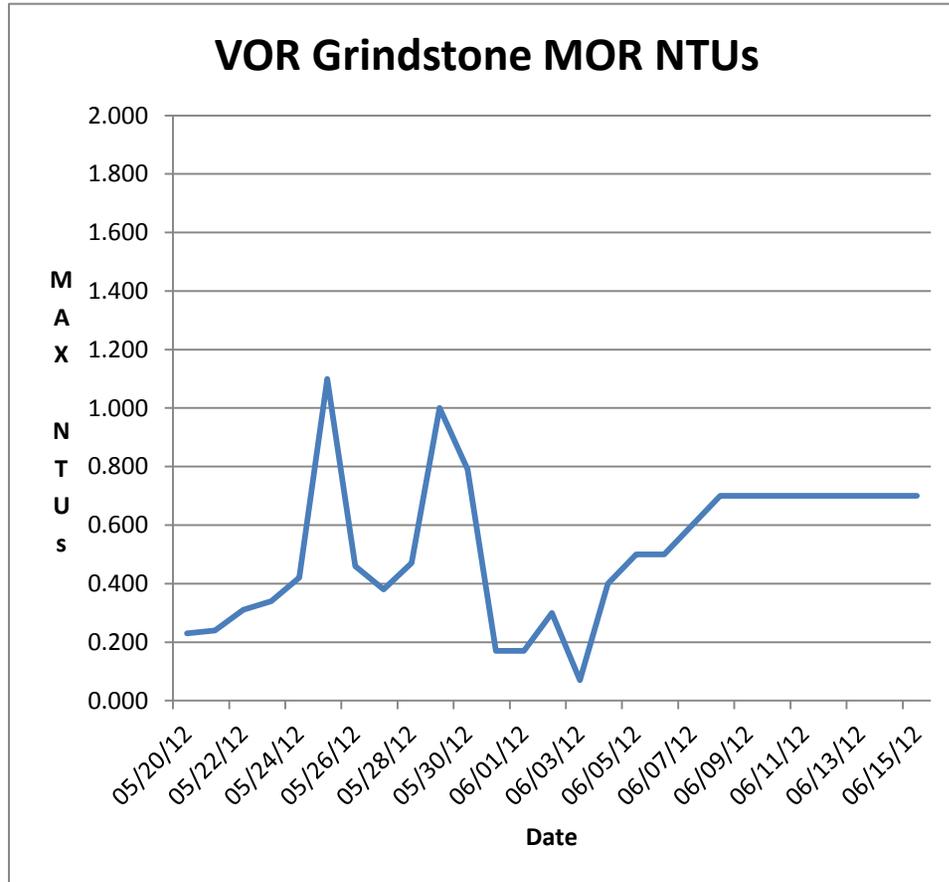
**Figure
2**



Each morning (at a minimum) the operator notes the clearwell turbidity in the Operator Log Book for the Grindstone Treatment Plant. The certified operators recognized the 1720C turbidimeter as the "official turbidimeter."

VOR Grindstone MORs	NTU
05/20/12	0.230
05/21/12	0.240
05/22/12	0.310
05/23/12	0.340
05/24/12	0.420
05/25/12	1.100
05/26/12	0.460
05/27/12	0.380
05/28/12	0.470
05/29/12	1.000
05/30/12	0.790
05/31/12	0.170
06/01/12	0.170
06/02/12	0.300
06/03/12	0.070
06/04/12	0.400
06/05/12	0.500
06/06/12	0.500
06/07/12	0.600
06/08/12	0.700
06/09/12	0.700
06/10/12	0.700
06/11/12	0.700
06/12/12	0.700
06/13/12	0.700
06/14/12	0.700
06/15/12	0.700

Figure 3



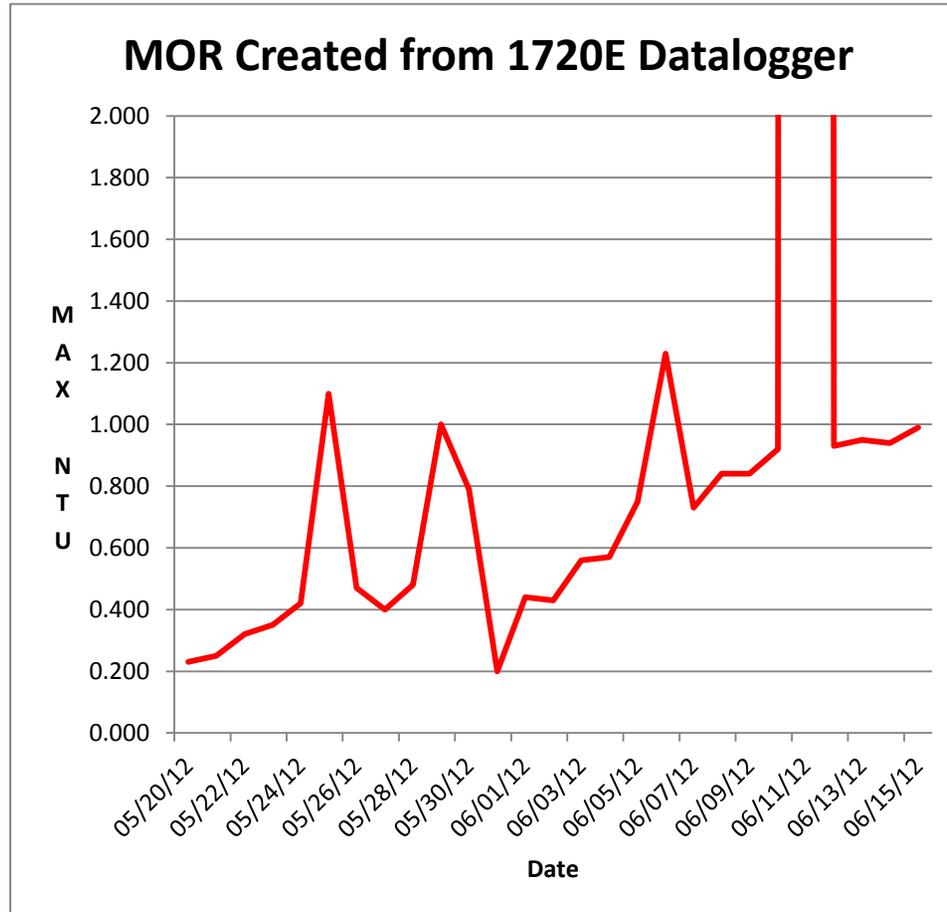
The MORs provided by VOR in response to the subpoena were consistent with the MORs on file with NMED.

**MOR Created from
1720E Datalogger
MAX**

NTU

05/20/12	0.230
05/21/12	0.250
05/22/12	0.320
05/23/12	0.350
05/24/12	0.420
05/25/12	1.100
05/26/12	0.470
05/27/12	0.400
05/28/12	0.480
05/29/12	1.000
05/30/12	0.790
05/31/12	0.200
06/01/12	0.440
06/02/12	0.430
06/03/12	0.560
06/04/12	0.570
06/05/12	0.750
06/06/12	1.230
06/07/12	0.730
06/08/12	0.840
06/09/12	0.840
06/10/12	0.920
06/11/12	101.000
06/12/12	0.930
06/13/12	0.950
06/14/12	0.940
06/15/12	0.990

**Figure
4**



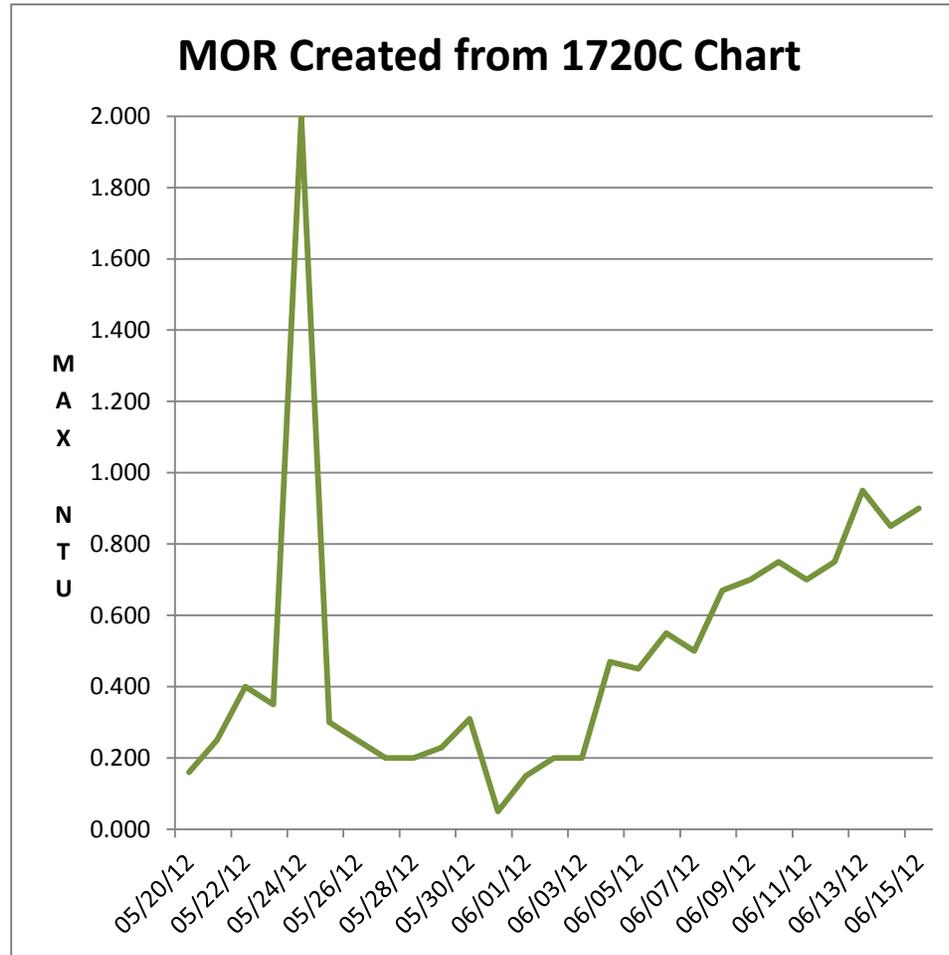
MOR Created from
1720C Chart
Recorder

MAX

NTU

05/20/12	0.160
05/21/12	0.250
05/22/12	0.400
05/23/12	0.350
05/24/12	2.000
05/25/12	0.300
05/26/12	0.250
05/27/12	0.200
05/28/12	0.200
05/29/12	0.230
05/30/12	0.310
05/31/12	0.050
06/01/12	0.150
06/02/12	0.200
06/03/12	0.200
06/04/12	0.470
06/05/12	0.450
06/06/12	0.550
06/07/12	0.500
06/08/12	0.670
06/09/12	0.700
06/10/12	0.750
06/11/12	0.700
06/12/12	0.750
06/13/12	0.950
06/14/12	0.850
06/15/12	0.900

Figure
5



Comparison of Data Sources

VOR Grindstone MORs	1720E Datalogger NTU	Chart Recorder NTU
05/20/12	0.230	0.16
05/21/12	0.240	0.25
05/22/12	0.310	0.40
05/23/12	0.340	0.35
05/24/12	0.420	2.00
05/25/12	1.100	0.30
05/26/12	0.460	0.25
05/27/12	0.380	0.20
05/28/12	0.470	0.20
05/29/12	1.000	0.23
05/30/12	0.790	0.31
05/31/12	0.170	0.05
06/01/12	0.170	0.15
06/02/12	0.300	0.20
06/03/12	0.070	0.20
06/04/12	0.400	0.47
06/05/12	0.500	0.45
06/06/12	0.500	0.55
06/07/12	0.600	0.50
06/08/12	0.700	0.67
06/09/12	0.700	0.70
06/10/12	0.700	0.75
06/11/12	0.700	101.000
06/12/12	0.700	0.75
06/13/12	0.700	0.95
06/14/12	0.700	0.85
06/15/12	0.700	0.90

Figure 6

