

## Section Four:

### Emergency Water Provisions and Water Treatment

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October 11, 2000

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The Big Branch Impoundment is a 72-acre coal waste impoundment, owned and operated by the Martin County Coal Corporation a subsidiary of Massey Energy (MCCC-Massey). The impoundment ruptures at its base. Based on official estimates, the rupture releases three hundred million gallons of sludge and black water into underground mine shafts below the impoundment; the sludge snakes through underground mine works and finally escapes out two mine portals and discharges into local surface waters on opposite sides of the mountain. (See Map 4.A. Appendix D).

On one side of the mountain, Coldwater Creek is slowly inundated with heavy black coal sludge. Local properties at the Creek's head on Mullett Branch are slowly covered with heavy, tar-like, coal waste material. The sludge slowly suffocates this small four-mile creek and then travels into Rockcastle Creek. Rockcastle Creek flows through the middle of Inez, the county seat town, and meets up with the Tug Fork of the Big Sandy River. (See Map 4.A) In our February field interviews, several citizens recall this first event and comment on the sludge spill on Coldwater Creek,<sup>1</sup>

- The coal company and the EPA like to call it slurry. A slurry is a fast moving substance. What came down Coldwater... was very, very slow moving. [...] Very thick, thicker than any mud you'll ever see.
- The reason why I say it's amazing, maybe that's the wrong word to use, I never seen anything like that and hopefully I will never see anything like that again...but it was, it looked like an ocean. It was almost like -this is up Cold Water- as far as you could see, it was black, but it was thick. It looked like black lava. Almost like chocolate pudding. And it was just a mess. It looked like when you stand on a beach and look at an ocean and it's just ocean as far as you can see. That's what this looked like. It was like looking at a black ocean. Except it was really thick.
- Now that sludge, it was so thick, it looked like pudding. You know how pudding is? It was so thick.
- I received a phone call early that morning from my neighbor and they basically told me that something bad had happened. They had been to work and called me and said that something had happened and that the creek looked like black pudding -- I think that was their response at the time -- and they said that according to their report that it was going to keep rising and that the impoundment had failed. So then I got out and looked at the situation and there it was, I mean the creek was just fluid like a chocolate milkshake, I think that is the best description. I mean it was that thick and it looked like oil on top of it. So I drove up the road to my neighbors and I am sure you have seen pictures, I mean it was unbelievable, the people realized right then the danger that they actually were in. The residents feel that their lives were put in danger that night.
- It probably took five days for the black water to get here from there.
- Well at 7:25 when I left and I got out there. It was daylight by then. And then I looked at that and I thought that's not water, you know. It was all...just like... it was all puffed up in the creek. It was coming straight up like, it looked like a pudding or something, you know, and the creek almost looked like a big soufflé, you know how a soufflé just rises up and just sort of expands well that's the way it looked and I thought, my goodness and I got out of the car then and I went over to the edge of the bridge and I looked down at it. And you couldn't, you couldn't even see it move it was just, you know, it was just... it was just there ...
- It was unbelievable. Something like you never seen before. The current --you could see leaves and things. It was the fall of the year. It was in October. You could see a leaf and then you might see it, -you might see it over the course of 10 to 15 minutes move just a few inches. It was flowing that slow.

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<sup>1</sup> February. 2001. Field Interviews.

On the other side of the mountain, most of the black water from the impoundment spills into the 17-mile length of Wolf Creek, which is a creek above Martin County's water intake on the Tug Fork of the Big Sandy River. (See Map 4.A.) At the time of the spill, the county's intake system is closed as the county has switched to drawing water from its Tug River reserves stored at Crum Reservoir.<sup>2</sup> Reservoir reserves are low. The county, in the days ahead, will be on emergency water alert to conserve water resources. While Martin County's water intake is closed at the time of the spill, Kermit, W.V. is pulling water from the Tug and is forced to shut down its Tug River intake by 8:00 a.m. that morning.<sup>3</sup> (See Map 4.A) In the days after the spill, based on state official estimates, nearly 28,000 people are without water in town water systems along the Tug Fork.<sup>4</sup>

As towns in Martin County and Kermit West Virginia are in a *State of Emergency*, other towns along the Tug are in a heightened *State of Alert*. With the sludge plume moving slowly downriver, other municipal water systems prepare to close their intakes. In the days immediately after the disaster, water turbidity is reported at unprecedented levels. Though the sludge plume would miss the Ashland plant,<sup>5</sup> one Ashland official would comment:

- Our river water is usually one in turbidity. We have treated 750 before during floods. That's dirty.

Hearing reports that turbidity at the peak of the sludge plume is being reported at 6,000,<sup>6</sup> the Ashland official comments:

- When it gets up into the thousands I can't even visualize how heavy that is. This is a totally different animal than we have ever seen.<sup>7</sup>

#### **Mid to Late October 2000**

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**Temporary Water Systems:** In Martin County reserves in the reservoir dwindle to lower and lower levels. In the days to follow, county residents are advised to conserve water.<sup>8</sup> In order to preserve water, Martin County's public schools are closed for four days.<sup>9</sup> Meanwhile, under the *Unified Command Structure (UCS)*, MCCC-Massey and State Emergency Management personnel, along with EPA Region 4 and other agency officials, develop a contingency plan to construct temporary water systems in the impacted areas in order to supply area towns with water.<sup>10</sup> In Martin County, MCCC provides forty thousand dollars for sixty-five hundred feet of pipeline that will extend from Middlefork Creek, a creek that was not impacted by the coal waste spill to the Martin County water treatment facility.<sup>11</sup> Under the UCS, the temporary water line from Middlefork is installed ten days later and is ready to draw water by the tenth day. With a temporary line in place and operational, the Martin County Water District (MCWD), shifts from its

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<sup>2</sup> Stephanie McSpirit(November 11 2000) Field Notes: Emergency Response Team –Unified Command Personnel. Martin County Courthouse; Field Interview –October 2001. Field notes: Corroborated: United States. Agency for Toxic Substances and Disease Registry. (February 6 2001). Record of Activity: Martin County Coal Slurry: ERS LOG #: 01-2117. p 2.

<sup>3</sup> Kermit. (October 18, 2000) Kermit water moving existing pump line. The Martin County Sun. p.22.

<sup>4</sup> Lee Mueller, (October 19, 2000) Spill Looks like on of worst in nation. Lexington Herald Leader.

<sup>5</sup> Lee Mueller (October 20, 2000) "At Ashland, rising Ohio River holds off sludge for now." Lexington Herald Leader

<sup>6</sup> Turbidity is often reported in -Nephelometric Turbidity Units or –NTUs. As mentioned by the Ashland official an NTU reading of 750 typically measures floodwater conditions.

<sup>7</sup> Lee Mueller (October 19, 2000). "Spill looks like one of the worst in nation." Lexington Herald Leader.

<sup>8</sup> Cletus Turner (November 1, 2000) Cumbo asks Martin Countians 'conserve water' The Martin County Sun. p. 19.

<sup>9</sup> Lee Mueller, (October 17, 2000) Towns downstream prepare for sludge. Lexington Herald Leader; Cletus Turner. (October 25, 2000) Martin Co. Schools on day-to-day basis during crisis. The Martin County Sun. p. 2.

<sup>10</sup> Stephanie McSpirit(November 11 2000) Field Notes: Emergency Response Team –Unified Command Personnel. Martin County Courthouse

<sup>11</sup> Kermit. (October 18, 2000) Kermit water moving existing pump line. The Martin County Sun. p.22.

dwindling Crum reservoir reserves and begins pulling and treating water from Middlefork Creek.<sup>12</sup> (See Map 4.B. Appendix D.)

**Bottled Water Provisions:** During the *State of Emergency*, towns along the Tug River are provided with bottled water. Though it is unclear from field interviews and news sources, whether the water is being paid for and distributed through MCCC-Massey or whether the Appalachian Christian Project is distributing cases that have been donated by the Perrier Corporation.<sup>13</sup> Based on interviews and news sources, it appears that the distribution of bottled water is sporadic and limited. Residents who report receiving bottled water report receiving only one case. Based on field interviews and news sources, school persons and elected officials are accused of hoarding water and county magistrates are accused of distributing “campaign water.”<sup>14</sup> The distribution of bottled water seems to become a source of tension among citizens in Martin County: Some Martin County residents, in their interviews with the student-faculty research team, comment on the distribution surrounding emergency bottled water provisions:<sup>15</sup>

- Everybody is just concerned, very concerned. They want bottled water brought in and aren't getting it and they don't stand a chance. If you aggravate them, [as one public official did] [...] they got in -as far as I know- two truck and trailer loads since this has happened.
- I know we have to use bottled water. At first each house was given a case of water then only a 1/2 after it started. It came from the coal company but had a note in it from [one public official] where it looked like it was from him.
- I heard that the coal company paid for and brought in for the first week or so, bottled water. Yes, to certain people and to certain places but no more, [...]

## Mid November 2000

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**White Powdery Crust shows up in Tap Water:** Area citizens begin to report a white powdery substance in the drinking water. One local citizen comments,

- Every time we wash our dishes, there is a white powder left on them. I don't know what it is, but it leaves your skin feeling terrible.<sup>16</sup>

The Kentucky Division of Water (DOW), Section Supervisor is quoted as having received reports from Martin County citizens, but says he cannot be sure about the white powder problem without doing a test to determine what the substance is. The DOW Section supervisor states,

- It could be chlorine, or hard water. I doubt that it would be anything harmful, but we can run a test.<sup>17</sup>

The Martin County Water District (MCWD) plant supervisor soon issues a press statement that the white substance is lime, which is used to regulate the PH levels in water. The MCWD plant supervisor states,

- Martin County Water District uses lime in the treatment of water. It is used to control the PH level and also coats the inside of the water lines. Any time the water line is disturbed or de-pressurized it causes lime to break loose and start moving. This can create colored water and cause spotting on clothing and dishes.<sup>18</sup>

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<sup>12</sup> Cletus Turner. (October 25, 2000). EPA uncertain of spill's long-term effects, Smith says. The Martin County Sun. p.16; Lilly Adkins. (October 18, 2000) Coal Slurry spills, area devastated. The Martin County Sun, p.19.

<sup>13</sup> Cletus Turner (November 1, 2000) Cumbo asks Martin Countians 'conserve water' The Martin County Sun. p. 19; Cletus Turner (November 8, 2000). Water donated, county delivers. The Martin County Sun. p. 15.

<sup>14</sup> Mark Grayson (January 31, 2001) Campaign Water? The Martin County Sun. p. 5.

<sup>15</sup> February. 2001. Field Interviews.

<sup>16</sup> Lilly Adkins (November 15, 2000) Water quality being questioned after sludge disaster. The Martin County Sun. p. 12

<sup>17</sup> Lilly Adkins (November 15, 2000) Water quality being questioned after sludge disaster. The Martin County Sun. p. 12

<sup>18</sup> Lilly Adkins (November 15, 2000) Water quality being questioned after sludge disaster. The Martin County Sun. p. 12.

## November 16 2000

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**DOW issues Boil Water Advisory:** The State Division of Water (DOW) issues a boil water advisory for parts of Martin County after a line break. With the advisory, the DOW conducts tests for bacteria that might be present in the drinking water.<sup>19</sup> According to the MCWD plant supervisor, the boil advisory is put into effect because of a broken water line and believes the line was broken during heavy cleanup and excavation activities on Coldwater Creek. The MCWD plant supervisor states,

- While cleaning Coldwater Creek, Martin County Coal broke the lines.<sup>20</sup>

On November 20, 2000 the State DOW rescinds its Boil Water Advisory for Martin County; but two days later, **November 22, 2000, the DOW issues another Boil Water Advisory** for Martin County.<sup>21</sup>

## Late November 2000

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**Lime in public water supply:** Local newsmen based on earlier press statements by MCWD personnel, report that the lime residue in the public drinking water supply is probably due to the extra lime being added to control PH levels in water being pulled from the temporary intake at Middlefork Creek. In a local press interview, the MCWD plant supervisor acknowledges that before the spill, when the MCWD plant was drawing water from its Tug River reserves, stored in the Crum reservoir, the raw water required less lime to purify.<sup>22</sup>

The plant supervisor also states, for the record, that the lime might explain the series of boil advisories. In a press release, the plant supervisor explains that when lime builds up in the water lines, a loss of pressure or a line break can cause the lime to break loose inside the water pipes.<sup>23</sup> However, the MCWD plant supervisor is now reluctant to blame MCCC-Massey for the problems at the water treatment plant and the county's current water problem. He states, that the county's water situation,

- ...[It] has nothing to do with Martin County Coal.<sup>24</sup>

## Late November 2000

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It appears that bottled water is distributed by MCCC and various outreach agencies<sup>25</sup> through mostly the first month of the spill and that **provisions for bottled water end officially for MCCC-Massey at the end of November**. A MCCC representative tells Coldwater residents during its November public informational meeting that it is no longer supplying bottled water. Citizens at this public meeting respond and react and express concern about their drinking water. Some

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<sup>19</sup> Lilly Adkins. (November 22, 2000) Water advisory issued after complaints. The Martin County Sun. p. 15.

<sup>20</sup> Lilly Adkins. (November 22, 2000) Water advisory issued after complaints. The Martin County Sun. p. 15.

<sup>21</sup> Cletus Turner (November 29, 2000) What's that white stuff in your water? The Martin County Sun. p.7.

<sup>22</sup> Cletus Turner (November 29, 2000) What's that white stuff in your water? The Martin County Sun. p.7.

<sup>23</sup> Cletus Turner (November 29, 2000) What's that white stuff in your water? The Martin County Sun. p.7.

<sup>24</sup> Cletus Turner (November 29, 2000) What's that white stuff in your water? The Martin County Sun. p.7.

<sup>25</sup> Cletus Turner (November 8, 200) Water donated, county delivers. The Martin County Sun. p. 15.

citizens state that they are afraid to drink it.<sup>26</sup> Though bottled water is officially provided for the first two months of the disaster,<sup>27</sup> in the months ahead, Martin County citizens will continue to request and press for such emergency water provisions. Tension and confusion over bottled water supplies continue into March of 2001, when an agency official, during the March 13, 2001 public meeting, states publicly that they were under the impression that MCCC-Massey was still supplying cases of water to area citizens.<sup>28</sup>

## **December 1, 2000**

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**A turbidity meter is installed by MCCC-Massey** on December 1, 2000. But it takes an exchange between the DOW and company persons to agree on the date of installment and when the meter is operative. This date on installation and when the permanent monitoring station is fully operational is clarified in an exchange between DOW personnel and the MCCC president. In a letter, dated late January 2001, the DOW first cites MCCC for being in contempt of Orders under the Unified Command Structure, and for not having installed a 'permanent monitoring station.' The letter from the State DOW to MCCC-Massey states,

- MCCC has ten days to comply with the DOW under the Unified Command.<sup>29</sup>

The president of MCCC replies,

- I take exception to the conclusion you expressed in your letter of January 25, when you suggested that the automatic turbidity meter at the Kermit, West Virginia water plant was not successfully installed [...] The turbidity meter was installed December 1 by [Company Name] the authorized distributor for [...] the manufacturer of the unit.

The last item to be hooked up was the automatic telephone warning capability, which was hooked up by [Company Name] on Monday, January 22. The unit is to alarm at a turbidity of 500 NTU and dial a pre-recorded message to appropriate personnel. [...]

I would therefore conclude that the Kermit turbidity meter is operational as specified by the Kentucky Division of Water. [...]

While I cannot prevent occasional disruption caused by flooding, we have installed a system that provides an accurate and representative measure of the turbidity in the Tug Fork.<sup>30</sup>

With the meter in place, the Hazard Field Office of the DOW is assigned to monitor turbidity flow from the Tug Fork River. A field officer comments,

- We have a permanent monitoring station near the Kermit Bridge and there is an alarm which goes off if the levels of turbidity go too high."<sup>31</sup>

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<sup>26</sup> Lilly Adkins (November 29, 2000) Martin County Coal 'won't pay': Coldwater residents upset over Hatfield's remarks at meeting. The Martin County Sun. p. 13.

<sup>27</sup> Lilly Adkins (November 29, 2000) Martin County Coal 'won't pay': Coldwater residents upset over Hatfield's remarks at meeting. The Martin County Sun.

- Directly after the slurry spill, bottled drinking water was being provided by MCCC, but the bottled water is no longer being distributed because, [MCCC president] said, 'the city water is fine,' and there is nothing wrong with drinking it. P.13.

<sup>28</sup> Lilly Adkins. (March 14, 2000) Citizens outraged when EPA says water 'Safe' and MCC won't be fined. The Martin County Sun.

<sup>29</sup> Kentucky Natural Resources and Environmental Protection Cabinet. Department of Environmental Protection (January 25 2001). Letter to Dennis Hatfield. President. Martin County Coal. From Jack Wilson, Direct. Division of Water from DOW File: 0054810-680-8002. Martin County Coal. Enforcement.

<sup>30</sup> Kentucky Natural Resources and Environmental Protection Cabinet. Department of Environmental Protection (January 25 2001). Letter to Dennis Hatfield from Jack Wilson, Director. Division of Water. DOW File: 0054810-680-8002. Martin County Coal. Enforcement.

<sup>31</sup> Cletus Turner (April 25, 2001) Temporary water line dismantled and removed. The Martin County Sun, p.11.

It appears that the turbidity meter is in place and in operation by the start of 2001. However, there still seem to remain some unanswered questions over the monitoring station: 1) How the meter at the Kermit intake serves the MCWD plant. 2) How the alarm system operates and 3) whether the monitoring station can effectively operate during a heavy rain event or flooding. Our team requested clarification on these questions from the Division of Water in February, but the DOW was unable to comment.<sup>32</sup>

It seems important to know how the turbidity alarm system at the Kermit facility functions considering cleanup strategies in the impacted area: During the months of cleanup, excavated coal sludge from Coldwater Creek as well as slurry from Wolf Creek were either being hauled or pumped to the Holty Branch Impoundment, which lies directly above Wolf Creek and therefore, directly above Martin County's water intake. (See Map 4.C. Appendix D). Since the Holty Branch impoundment is rated by MSHA as having a "high breakthrough potential,"<sup>33</sup> it seems important that turbidity alarm systems are in place and operational considering the potential (high potential) for another impoundment breakthrough impacting Martin County's public water supply.

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### December 12, 2000

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Amid rising concerns, an official from the **Drinking Water Branch of the Division of Water inspects the Martin County Water Treatment plant** and observes a series of violations of water treatment standards. These are listed in a notification to the MCWD plant. The observations include,

- 1) Filters are not washed properly 2) Filter control valves do not operate properly allowing filters to de-water. 3) Coagulant dosage is not sufficient to form a floc. 4) Sludge tank size influences backwash cycle. (It's too small). 5) No surface wash on filters. 6) There is no chlorine chart recorder. 7) Jar testing is not practiced regularly 8) The PH meter did not work. 9) Lots of leaks in the pipe gallery 10) No written SOP 11) Insufficient equipment to run jar tests 12) Weir on unit 2 is not level 13) No automatic turbidity meters on filters. 14) No filter to waste provided. 15) Chlorine split between treatment units is uneven. 15) Plant junked up.<sup>34</sup>

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### December 24, 2000

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**Christmas Eve at 8:00 a.m. a twelve-inch main water line leaving the water-plant bursts** and after repairing the break, another break occurs 8 hours later at approximately 5 p.m. The resulting water loss is reported at nearly 500,000 gallons of water. Families living in Beauty, Pilgrim as well as in Inez, approximately one-quarter of the County population, are without water through Christmas Eve and Christmas day. The Kentucky Division of Water (DOW) is notified of the water line breaks and the DOW and the MCWD issue a boil water advisory for parts of Martin County.

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<sup>32</sup> Stephanie McSpirit( February 16, 2002 ) Email correspondence: Records Division, Division of Water: Reply (February 19, 2002).

Our team traveled to Martin County before the final draft of this report to find out more about the turbidity monitoring station at the Kermit treatment facility. A CAC member met us in Martin County and traveled with us to the Kermit facility. The project team was able to talk to treatment personnel who explained the turbidity monitoring station, which is attached to the wall in the Kermit Treatment facility. At the time of the site visit the meter was shutdown due to high floodwaters. Field notes from the visit read,

- Stop at Kermit Water Treatment facility: Ask about Turbidity Meter. It is down at the time we arrive. Plant operator explains that the recent flood rains shut it down. Mentions that the turbidity meter was reading recent flood rains at 3,800 NTUs. Explains that the alarm is supposed to go off at 500 NTUs and it rings into the MCWD plant. Explains that it is then the MCWD's responsibility to call the Kermit plant for more information and updates. To the plant operators recollection, MCWD has never called back when there has been an alarm warning.

Stephanie McSpirit(May 6 2002) Field Notes: Martin County.

<sup>33</sup> Lee Mueller (October 24, 2000) "Drilling planned to find spill cause." Lexington Herald Leader

<sup>34</sup>Vicki Ray (December 29, 2000) Martin County Water District #1: Observations. Commonwealth of Kentucky. Natural Resources and Environmental Protection Cabinet. Department of Environmental Protection. Frankfort Office Park. 14 Reilly Rd. Frankfort, KY. 40601.

Meanwhile, one of the county newspapers reports that the temporary waterline at Middle Fork Creek has begun to emit a spray of water and is sending a stream into the nearby trees. Because of freezing temperatures, the spray has frozen on nearby trees, causing the area around the intake to look like a “*Winter Wonderland*,” the scene of which is featured on the front page of the weekly edition.<sup>35</sup>

Martin County will stay on a boil advisory because of line breaks and low line pressure through mid January. Based on field notes, formal interviews, and a content review local news reports and ‘letters of the editor’,<sup>36</sup> it appears that many Martin County citizens are growing frustrated with operations at the MCWD plant. Other reports indicate some tensions within the Water Board. Some Board members do not view MCCC-Massey and the coal waste spill as the source of the plant’s difficulties,<sup>37</sup> but one Water Board member, believes that MCCC-Massey should be held accountable for some of the MCWD problems:

- Our workers are on duty 24 hours a day trying to maintain water for everyone and we are on the way to doing that, but I think that Martin County Coal needs to bring drinking water out to people.<sup>38</sup>

#### December 24, 2000

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**MCWD Water plant considers pumping from the Tug River:** After weeks of drawing water through the temporary line from Middlefork, the MCWD considers opening its permanent Tug River intake. The MCWD plant supervisor states,

- We’re waiting for the turbidity levels to go down some. We don’t want to pump black water into the reservoir.<sup>39</sup>

#### Early January 2001

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Periodic line freezes and boil advisories cause the **MCWD to begin pumping from its permanent Tug River intake**.<sup>40</sup> The MCWD plant supervisor tells local reporters that the plant has,

- Resumed pumping water from the Tug River pumping station.<sup>41</sup>

A week earlier, a representative from the State Division of Water (DOW) cautions against the heavy rains and advises the MCWD to take a ‘wait and see’ approach. But the decision to pull water from the permanent intake, according to the DOW representative, is ultimately the decision of the Martin County Water District. He states,

- [It’s] their call.<sup>42</sup>

Based on the above statement, it appears that the State DOW awards jurisdiction to the MCWD to decide whether and when to shift to its permanent intake. Perhaps this can explain why there is no record of DOW re-inspection of the

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<sup>35</sup> Lilly Adkins and Cletus Turner. (January 3,2001) County Water users have dry Christmas. The Martin County Sun. p.2.

<sup>36</sup> See, for example: Lilly Adkins. January 10 2001. Local Sun Poll. The Martin County Sun. p.15. *Question:* Do you think Martin County Coal should be responsible for providing both the citizens and the schools with bottled water, and do you think they should have to pay our water bills? Eight out of eight persons survey report, “yes” and provide comment.

<sup>37</sup>Mark Grayson (November 8, 2000). “Where’s Drewie, John R. and Jack H? Public’s lawyers have been silent on sludge issue.” The Martin County Sun. p.4.

<sup>38</sup> Lilly Adkins and Cletus Turner. (January 3,2001) County Water users have dry Christmas. The Martin County Sun. p.2.

<sup>39</sup> Cletus Turner (December 27, 2000) EPA Okd pumping from Tug. The Martin County Sun. p.2.

<sup>40</sup> Cletus Turner (January 10, 2001) Frigid Weather Worsens water situation. The Martin County Sun. p.2.

<sup>41</sup> Lilly Adkins and Cletus Turner. (January 3, 2001) County Water users have dry Christmas. The Martin County Sun. p.2.

<sup>42</sup> Cletus Turner (December 27, 2000) EPA Okd pumping from Tug. The Martin County Sun. p.2. Though reported as a DOW spokesperson, a Citizen Advisory Committee member is sure that this statement was from an EPA Region 4 representative: Stephanie McSpirit. Field Notes: Telephone Conversation with Citizen Advisory Council member. April 17, 2002

MCWD plant in late December prior to the shift back to the county permanent water source on the Tug River. Based on a review of DOW records that are publicly available, it appears that the DOW did not complete a follow-up inspection on its early December citation to assure that the plant was in compliance and operating at treatment standards before the MCWD shifted to its permanent water source on the Tug River.

#### **January 4, 2001**

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At the January informational meeting between Coldwater residents and MCCC representatives many residents are concerned about the health hazards of drinking the water and **ask Martin County Coal to provide drinking water to citizens in Martin County**. One citizen tells the president of MCCC that people could not get enough water and that some could not afford to go out and buy it while continuing to pay their regular water bill. The citizen states,

- The people should be able to get some clean drinking water.<sup>43</sup>

The president of MCCC responds,

- I wasn't aware that there was much of a problem. I only know what I was told and what I read in the newspapers. I guess they had a couple of lines break on Christmas Eve, and all the water leaked out. They couldn't run the plant for a while and since it's been so cold people have been letting their water run and they can't get enough water fast enough.<sup>44</sup>

The president of MCCC points to the Martin County Water District for Martin County's water problems,

- The Kentucky Division of Water regulates the quality and I remember reading in one of the papers that there were problems in the plant and that they had been cited for them. Maybe there's a problem with some of the equipment or with the process in the plant.<sup>45</sup>

The citizen is reported as replying,

- Nobody wants to claim responsibility. What are people supposed to do?<sup>46</sup>

#### **January 8, 2001**

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A correspondence between the U.S. Army Corp of Engineers and the Cabinet of Natural Resources and Environmental Protection reports that, after three months of cleanup activities, by early January, **half of the slurry and coal waste has been excavated**. The letter to the Cabinet Secretary reads,

- As you know [...] 50% of the coal slurry has been removed from the streams and floodplain and disposed of at proper locations. [...]<sup>47</sup>

#### **January 8, 2001**

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<sup>43</sup> Lilly Adkins (January 10, 2001) Benefits for Displaced will end after 6 months: Water becomes topic of sludge meeting. The Martin County Sun.p.10.

<sup>44</sup> Lilly Adkins (January 10, 2001) Benefits for Displaced will end after 6 months: Water becomes topic of sludge meeting. The Martin County Sun.p.10.

<sup>45</sup> Lilly Adkins (January 10, 2001) Benefits for Displaced will end after 6 months: Water becomes topic of sludge meeting. The Martin County Sun.p.10.

<sup>46</sup> Lilly Adkins (January 10, 2001) Benefits for Displaced will end after 6 months: Water becomes topic of sludge meeting. The Martin County Sun.p.10.

<sup>47</sup> Kentucky Natural Resources and Environmental Protection Cabinet. Department of Environmental Protection (January 8 15 2001). Letter to Colonel John D. Rivenburgh, U.S. Army Corp of Engineers, Huntington District from James Bickford, Cabinet Secretary. DOW File: 0054810-680-8002. Martin County Coal. Enforcement.

At the January informational meeting between Wolf Creek residents and MCCC-Massey representatives many residents are **concerned about “film” on their dishes**. Wolf Creek residents want to know what is wrong with the water and ask what the film is on their dishes. The MCWD plant supervisor who is present at the meeting informs citizens that the water plant is now pumping from the Tug River into the reservoir and from the reservoir into the plant where it is treated and goes on to the customer. With the shift to the permanent water intake, the MCWD plant supervisor explains,

- You shouldn't be getting as much lime on your dishes now.<sup>48</sup>

One citizen asks,

- Then what is that stuff? We never had that problem until the slurry came.<sup>49</sup>

The MCWD plant supervisor responds and defends MCCC-Massey,

- I don't know, I guess Middlefork Creek must have had natural lime in it to start with. The plant is running at 100% and can't do any more. I can tell you that the water problems had nothing to do with Martin County Coal.<sup>50</sup>

### **January 24, 2001**

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The Martin County Fiscal Court meets in late January. Citizens attend the meeting to voice concerns over water quality and water treatment in the county. According to local press reports, a **citizen recommends that the court conduct its own tests** and report those results to residents. The citizen also suggests that court hire an independent engineer to inspect the plant and make recommendations. The press reports,

- The feeling in the meeting was Martin County Coal was solely responsible for the problem. [Name of Magistrate] said the finger of blame should not be pointed anywhere and that everyone needed to cooperate to find a solution.
- Resident [name] suggested a committee be formed to seek funding for a new plant and that Martin County Coal should donate \$1 million for a new plant.<sup>51</sup>

The County Judge Executive is reported at the meeting as saying,

- I understand where everybody is coming from both as the judge and a citizen, because my wife complains about the white film.<sup>52</sup>

The Judge is quoted as saying,

- This sludge spill is worse than the Exxon oil spill and it has affected us in many different ways. However, the one common thing is the water, and I feel that a better line of communication needs to be set up between the court and the Water district.<sup>53</sup>

The Judge is further quoted,

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<sup>48</sup> Lilly Adkins. (January 10,2001) “Martin County Coal president announces: Benefits for displaced will end after 6 months.” The Martin County Sun. p.10.

<sup>49</sup> Lilly Adkins. (January 10,2001) “Martin County Coal president announces: Benefits for displaced will end after 6 months.” The Martin County Sun. p.10.

<sup>50</sup> Lilly Adkins. (January 10,2001) “Martin County Coal president announces: Benefits for displaced will end after 6 months.” The Martin County Sun. p.10.

<sup>51</sup> Gary Ball (January 31, 2001) Lafferty requests count district take independent test. The Mountain Citizen. p.5.

<sup>52</sup> Gary Ball (January 31, 2001) Lafferty requests count district take independent test. The Mountain Citizen. p.5.

<sup>53</sup> Gary Ball (January 31, 2001) Lafferty requests count district take independent test. The Mountain Citizen. p.5.

- I promise you that I will strongly urge them to do the tests. If they refuse, the PSC will be called in. I want clean water for all the citizens of Martin County, and I will do everything possible to see that happen.<sup>54</sup>

### February 7, 2001

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**HELP Organization holds February meeting.**<sup>55</sup> While an outside New York law firm reports preliminary results on its chemical analyses of the water, Martin County Citizens report on their own observations of local water quality at this public meeting. One citizen brings a jar of clouded water to the meeting. The citizen says,

- You can't tell me this is safe to drink, there's no way I'm drinking this.<sup>56</sup>

Another citizen brings a boiled egg to the meeting that has a white crust or white deposits on its shell after being boiled in county tap water. The egg is passed around for other citizens to take note.<sup>57</sup> During the meeting, there is discussion among citizens on possible ways to independently monitor the drinking water supply and monitor activities at the local water treatment plant. Citizens discuss the logistics, the technical lab resources and financial funds necessary to independently monitor water quality and water treatment. Some citizens, in attendance, volunteer to look into this and a subcommittee of local citizens is formed to address this issue.<sup>58</sup>

### February 2001

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**Martin County citizens complain of skin rashes that they believe are being caused by the county water.** One Martin County citizen circulates a petition that he says he'll use to urge health officials to check into the county water supply. In all, thirty-eight signatures are collected on the petition. The solicitation reads,

- Anyone who has a rash with prolonged itching following the sludge spill at Martin County Coal, or any other health problems such as swelling in the hands and feet, please contact us at [...]<sup>59</sup>

In our February interviews with Martin County citizens, several citizens talked about skin irritations and other mild health problems that they believed were related to the public water supply. Other citizens, when referring to the public water supply, referred to the added expense of purchasing bottled or jug water, not only for drinking, but also for cooking and sometimes washing. Some of these other citizen comments are summarized below:<sup>60</sup>

- I know we have to use bottled water. [...] I don't think people should have to pay for their water when they can't even use it
- You know we weren't worried about it or anything, but now it is nasty and there isn't another word for it. I heard that the coal company paid for and brought in for the first week or so, bottled water. Yes, to certain people and to certain places... Yes, but no more we buy it and it is getting expensive.

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<sup>54</sup> Gary Ball (January 31, 2001) Lafferty requests count district take independent test. The Mountain Citizen. p.5.

<sup>55</sup> Lilly Adkins (February 14, 2001) Lawyers say sludge contains 'highly toxic' chemicals. The Martin County Sun. p. 14-15

<sup>56</sup> Lilly Adkins (February 14, 2000) Lawyers say sludge contains 'highly toxic' chemicals. The Martin County Sun. p. 15.

<sup>57</sup> Lilly Adkins (February 14, 2000) Lawyers say sludge contains 'highly toxic' chemicals. The Martin County Sun. p. 15. Stephanie McSpirit(February 7, 2001) Field Notes: HELP organization meeting. Martin County Court House. 6:00-9:00 pm.

<sup>58</sup> Stephanie McSpirit(February 7, 2001) Field Notes: HELP organization meeting. Martin County Court House. 6:00-9:00 pm. See Also: Lilly Adkins (February 14, 2001) Lawyers say sludge contains 'highly toxic' chemicals. The Martin County Sun. p. 14-15 *Technical Advisory Committee* formed.

<sup>59</sup> Lilly Adkins (January 24, 2000) Osbornes say doctor blamed county water for family's skin rash. The Martin County Sun. p.2.

<sup>60</sup> February. 2001. Field Interviews.

- The price of water has remained the same, but you have to take into account that now we have to buy it to cook with, to brush your teeth with, and for my pets. All that.
- You know we have to buy our own drinking water. I can do that, but there are a lot of families that cannot do that. For so many weeks after the spill, the coal co. and our county provided homes with a case of water. A case of water doesn't go very far when you have to put it in your coffee pot, or when you fix any kind of pasta, you have to boil water. You have to do that. So a lot of people can't afford to buy their own water. Also, another issue and my neighbor has a small child, is that their pediatrician has told them to buy water but they have to buy the water that has...that's for pediatrics because it has to have fluoride in it. They are having buy water that has fluoride in it because that has always been an advantage to being on city water because it has fluoride in it and we have never as children have had to get a fluoride treatment from a doctor. So now you know, if you have a small child, well, that is the one other concern. And that water is more expensive to buy than just regular distilled water.

### March 5, 2001

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A week prior to the scheduled March public meeting, the EPA On Scene Coordinator telephones an Agency for Toxic Substance and Disease Registry (ATSDR) representative and requests that they be present at next week's scheduled public meeting. The ATSDR telephone log reads,

- On March 5 at 11:15 a.m. I returned a call to [name] EPA/ OSC. He indicated that a public meeting had been set up for next Tuesday on March 13. He would like an ATSDR representative to be present to discuss toxicity and expected health effects; [...] **there is a lot of media attention and resident claims of skin rashes since the release.** He asked how that can best be arranged and what would we need?<sup>61</sup>

### Mid March 2001

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Between both the EPA and the Agency for Toxic Substances and Disease Registry (ATSDR) there appears to be **some inter-agency confusion on when the MCWD plant starts drawing water from the Tug Fork.** The ATSDR report, for example, provides several reasons why it is unlikely that the coal slurry is the cause of reported of skin rashes in the County. Two of the reasons deal directly with the Martin County Water District and the treatment facility. They read,

- The treatment system at the plant deals with lower concentrations as a matter of routine.<sup>62</sup>
- The coal slurry was never taken into the plant because the intake was closed, according to the plant operator.<sup>63</sup>

In the ATSDR report and during the March 12 EPA public meeting there appear to be several other misstatements by the EPA and ATSDR on when the MCWD began pulling water from the Tug Fork. It appears that some EPA and ATSDR officials are not aware that the MCWD began pumping water from the Tug Fork in late December when, based on other documented reports, half of the slurry had been excavated from the impacted creeks. Martin County Citizens

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<sup>61</sup> Agency of Toxic Substances and Disease Registry (February 6, 2001). ATSDR Record of Activity. Name: Martin County Coal Slurry. ERS Log #01-2117.

<sup>62</sup> **Project Note:** The ATSDR assumption that the MCWD treatment facility can handle and treat higher concentrations of various compounds that have been identified in the slurry because the facility is already handling and treating such materials at lower concentrations seems unclear. It is unclear whether the facility is able to treat and filter such materials to start, since based upon consultation with other university faculty, who are familiar with water treatment, facilities tend only typically to treat for bacteria. Admittedly, there are filtration systems that can handle and treat for chemical and metal compounds, but it is unlikely that such systems are in place at the MCWD plant. See, for example, International Environmental Technologies, Inc. (October 2000) Tug Fork Coal Fine Spill Water Cleanup Proposal. Danville, Kentucky. DOW File: 0054810-680-8002. Martin County Coal. The other added reason, why it is unlikely MCWD can treat higher concentrations is the MCWD was cited for not meeting state water quality standards several months prior, in December 2000.

Stephanie McSpirit(February 13 2002) Field Notes: Consultation with University Faculty.

<sup>63</sup> Agency of Toxic Substances and Disease Registry (February 6, 2001). ATSDR Record of Activity. Name: Martin County Coal Slurry. ERS Log #01-2117.

in one of their summer teleconference sessions with EPA Region 4 try to clarify this for the agency record. The teleconference minutes on this topic read,

- The community reps reiterated their concern about what they believe is an incorrect statement in the ATSDR report that says something to the effect: “the water plant did not pump water from the Tug River from the time of the spill until March 13<sup>th</sup>.” They believe they have information that can correct this and other statements used as background and assumptions in the ATSDR report. EPA suggested that they correspond with ATSDR officials on this matter.<sup>64</sup>

**Recommendation**

In the final section of this report, we recommend that the Kentucky Appalachian Commission, the Department for Local Government and the Office of the Governor address water quality and water treatment issues in Martin County. The Kentucky Public Service Commission has also begun to review water treatment issues in Martin County in early 2002.<sup>65</sup> These state policy measures and our set of recommendations are in accord with survey findings already at the start of this report. Survey findings indicate that 8 out of 10 Martin County citizens rated drinking water a ‘serious problem’ in comparison to only 2 out of 10 Perry County citizens rating drinking water the same way. Below are more findings on survey questions related to water treatment. Table 4.A. shows that in comparison to Perry County citizens, Martin County citizens are significantly more likely to strongly disagree that “the water treatment facility does a good job of meeting water quality standards.” More Martin County citizens (68%) in comparison to Perry County citizens (30%) strongly agree that the ‘water treatment facility should enforce stricter water quality standards.’

Considering the overall concern with water quality and water treatment, as expressed by Martin County citizens in these percentages and in other survey questions, in the next section of this report, we continue to address water quality issues in Martin County. In the next section, the student-faculty research team addresses the water quality testing and monitoring that has been done in the county since the October coal waste spill.

<b>Table 4.A. Water Quality and Water Treatment <sup>a</sup>: Martin and Perry County Compared</b>						
		<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
<b>The water treatment facility does a good job of meeting water quality standards (n=450, X<sup>2</sup>=144 p=.000)</b>	<b>Martin County</b>	45%	32%	12%	6%	5%
	<b>Perry County</b>	6%	19%	28%	41%	5%
<b>The Water treatment facility should enforce stricter water quality standards (n=500, X<sup>2</sup>=78 p=.000)</b>	<b>Martin County</b>	1%	1%	2%	27%	68%
	<b>Perry County</b>	5%	3%	11%	53%	30%
<b>Coal severance taxes should be used to upgrade the water treatment facility (n=486, X<sup>2</sup>=30 p=.000)</b>	<b>Martin County</b>	4%	4%	9%	27%	57%
	<b>Perry County</b>	4%	5%	15%	43%	33%

a. Other percentages on other water quality questions are reported in the next report section on *Water Quality Testing and Monitoring*.

<sup>64</sup> U.S. Environmental Protection Agency (June 14, 2001) Conference Call Minutes: Martin County Coal Corporation Slurry Spill Site. Draft 1.

<sup>65</sup> SEE: Gary Ball (April 10, 2002). Martin County Water District in crisis: PSC issues emergency order; DOW team conducts ‘sanitary survey.’ P.1.

