



TETRA TECH

October 23, 2006

Mr. Terrence Byrd
On-Scene Coordinator
U.S. Environmental Protection Agency, Region 4
61 Forsyth Street, SW, 11th Floor
Atlanta, GA 30303

**Subject: Final Comprehensive Environmental Response, Compensation, and Liability Act
(CERCLA) Emergency Response Action Report
Cherokee NC Boundary Tree UST Release
Cherokee, Swain County, North Carolina
EPA Contract No. EP-W-05-054
TDD No. TTEMI-05-002-0002**

Dear Mr. Byrd:

The Tetra Tech EM Inc. Superfund Technical Assessment and Response Team is submitting the enclosed final CERCLA emergency response action report for the Cherokee NC Boundary Tree UST Release located in Cherokee, Swain County, North Carolina. This report summarizes field activities conducted at the site during the emergency response from September 21 through 25, 2006.

If you have any questions about the enclosed report, please call me at (678) 775-3095 or Ed Cotton at (678) 775-3100.

Sincerely,

Didi Fung, EIT
START III Project Manager

Ed Cotton
START III Program Manager

Enclosure

cc: Katrina Jones, EPA Project Officer
Darryl Walker, Alternate EPA Project Officer
Angel Reed, START III Document Control Coordinator

**FINAL CERCLA EMERGENCY RESPONSE ACTION REPORT
CHEROKEE NC BOUNDARY TREE UST RELEASE
CHEROKEE, SWAIN COUNTY, NORTH CAROLINA
EPA CONTRACT NO. EP-W-05-054
TDD NO. TTEMI-05-002-0002**

Prepared for

**U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 4, Emergency Response and Removal Branch
61 Forsyth Street, SW, 11th Floor
Atlanta, GA 30303**

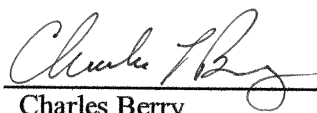
Prepared by

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Contract No.	:	EP-W-05-054
TDD No.	:	TTEMI-05-002-0002
Date Prepared	:	October 23, 2006
EPA Task Monitor	:	Terrence Byrd
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Reviewed by


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Approved by


Ed Cotton
START III Program Manager

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1.0 INTRODUCTION

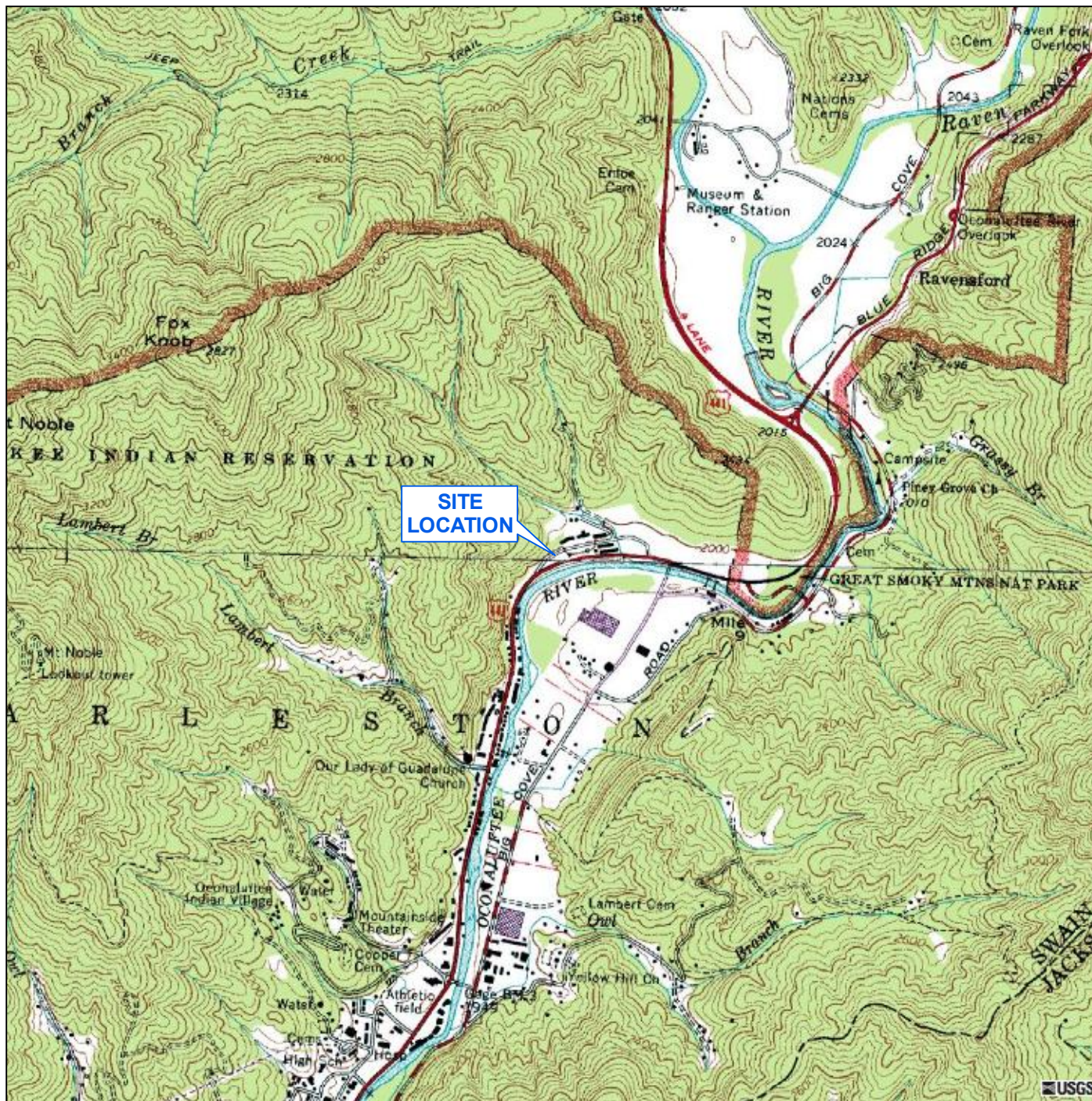
This report has been prepared under the provisions of Technical Direction Document (TDD) No. TTEMI-05-002-0002, which the U.S. Environmental Protection Agency (EPA) Region 4 assigned to the Tetra Tech EM Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) under Contract No. EP-W-05-054. The overall scope of this TDD, which is monitored by On-Scene Coordinator (OSC) Terrence Byrd, was to provide technical assistance during emergency response activities at the Cherokee NC Boundary Tree UST Release (Cherokee) site in Cherokee, Swain County, North Carolina. Specific elements of this TDD included documenting on-site conditions and activities with logbook notes (Appendix A) and photographs (Appendix B), providing air monitoring, potable water sampling, providing data analysis and management, and preparing a final report.

This Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) emergency response action report discusses the site background (Section 2.0), emergency response activities (Section 3.0), and provides a summary and conclusions for the emergency response (Section 4.0). Appendix A of this report provides a copy of Tetra Tech's field notes, Appendix B presents a photographic log of emergency response activities and site conditions, Appendix C provides a table of witnesses to the emergency response activities, and Appendix D provides a table of geographic location data for significant site locations.

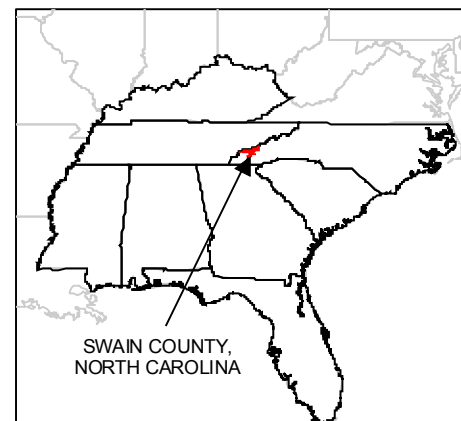
2.0 SITE BACKGROUND

The Cherokee site is located at 1693 Tsali Boulevard in Cherokee, Swain County, North Carolina, on the Eastern Band of the Cherokee Indians (EBCI) Reservation (see Figure 1). Site-specific geographic coordinates for the site are 35.50032 north latitude and 83.31135 west longitude. Although technically within Swain County, the EBCI Reservation is considered independent of the county and the State of North Carolina. Furthermore, EPA policy states that "the Agency will view Tribal Governments as the appropriate non-federal parties for making decisions and carrying out program responsibilities... consistent with agency standards and regulations." The Cherokee site encompasses the Golden Eagle Exxon station and the reservation's public drinking water intake on the Oconaluftee River (see Figure 2).





0 1,000 2,000
Feet

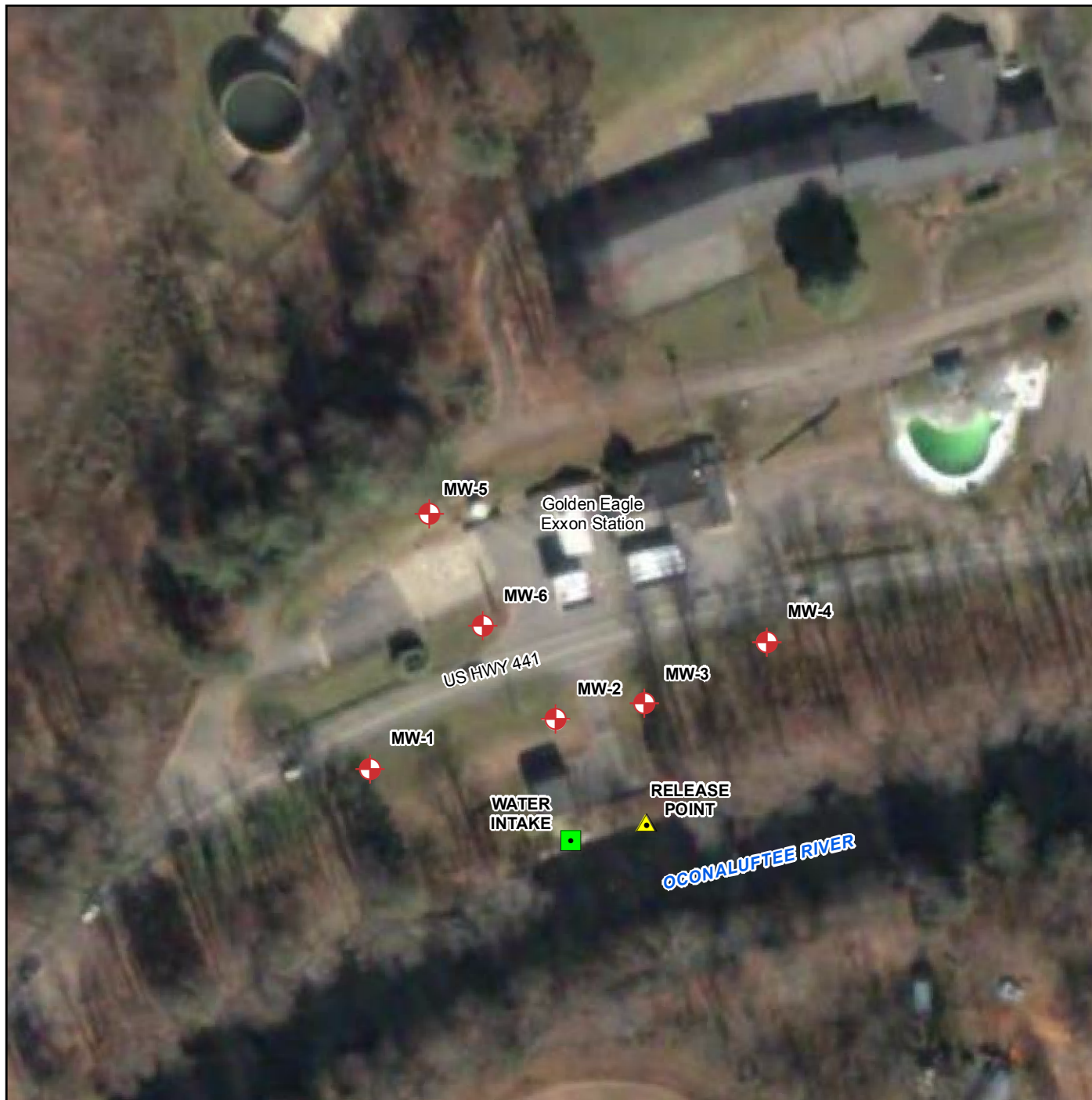


United States Environmental Protection Agency

CHEROKEE NC BOUNDARY TREE
UST RELEASE
CHEROKEE,
SWAIN COUNTY,
NORTH CAROLINA
TDD: TTEMI-05-002-0002

**FIGURE 1
SITE LOCATION MAP**

Tetra Tech, Inc.

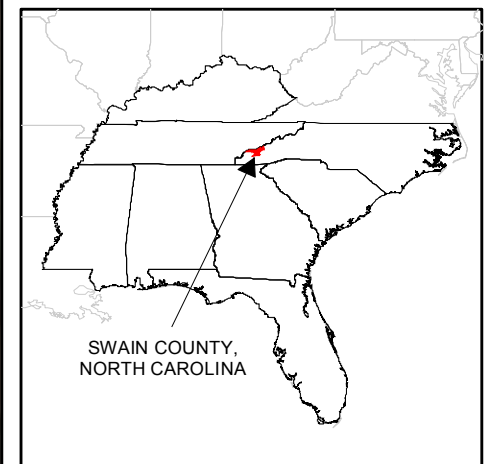


Legend

- Cherokee Water Treatment Plant (CWTP)
Potable Water Intake
- ▲ Release Point
- ⊕ Monitoring Well



0 50 100
Feet



United States Environmental Protection Agency

CHEROKEE NC BOUNDARY TREE
UST RELEASE
CHEROKEE,
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**FIGURE 2
SITE LAYOUT MAP**

Tt Tetra Tech, Inc.

At approximately 4:00 p.m. on September 20, 2006, a sheen was discovered on the Oconaluftee River near the drinking water intake of the EBCI public water system. The sheen was being released from the bank of the river about 20 feet upstream of the intake. Cherokee Water Treatment Plant (CWTP) officials determined that the release was from subsurface petroleum seeping into the river. They also concluded that the release was likely from an underground storage tank (UST) at the Golden Eagle Exxon station located immediately across U.S. Highway 441 from the intake (see Figure 2). The Golden Eagle Exxon station is owned by Peak Energy (Peak). Because the sheen was being drawn into the water intake, CWTP officials shut down the intake immediately, thus shutting down the reservation's entire water supply. The reservation water system provides water to about 15,000 residents; hundreds of businesses; thousands of hotel rooms; and Harrah's Cherokee Casino, a major area attraction. A "Do Not Use" ban was issued by the EBCI government immediately after the pumps were turned off. CWTP customers were advised to not use the water left in the system for any reason until further notice.

EPA was contacted, and OSC Terrence Byrd responded at 6:30 p.m., arriving at the scene at 11:30 p.m. Tom Plouff of EPA's Water Management Division, a drinking water expert, also responded. In addition to EPA and Tetra Tech, organizations and parties involved in the response included the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Environmental Health Public Water Supply Section, EBCI Office of Environment and Natural Resources (OENR), Peak, and Neo Corporation. Peak contacted Neo Corporation to perform site remediation tasks.

Through the early morning on September 21, 2006, CWTP crews built a diversionary dam to prevent additional petroleum from entering the intake once it was turned back on. An excavator was used to place concrete road barriers in the river, and additional river rock was piled up to create walls both upstream and downstream of the release point, with the downstream wall between the release point and the intake. Three 12-inch-diameter drainage pipes were run under the walls from the intake to point upstream of the release. CWTP also placed boom and absorbent pads around the release point to collect petroleum as it escaped from the bank. The diversionary dams then channeled the remaining sheen out into the main channel flow away from the intake. Absorbent boom was placed in front of the intake to catch any residual sheen that may have passed the other barriers.

A meeting was held between the government agencies involved, and EPA was requested to provide technical assistance to the EBCI for sampling of the water system. EPA, NCDENR, and EBCI agreed to collect potable water samples from 10 locations located throughout the distribution system (five storage



tanks and five “priority sites”) and 7 locations from key points in the treatment plant itself. EPA contacted Tetra Tech START at 2:15 a.m. on Thursday, September 21, 2006, to provide technical assistance.

3.0 EMERGENCY RESPONSE ACTIVITIES

As requested by EPA, the Tetra Tech START responded to the emergency at the Cherokee site on September 21, 2006, to document on-site conditions and activities with logbook notes (Appendix A) and photographs (Appendix B), and to provide technical assistance to EBCI for potable water sample collection for volatile organic compound (VOC) analysis. Figure 3 shows the sampling locations, and Appendix D lists the locations and their geographical coordinates. All sampling techniques were conducted in accordance with the EPA Region 4 Science and Ecosystems Support Division’s “Environmental Investigations Standard Operating Procedures and Quality Assurance Manual” (EISOPQAM) (November 2001, revised) except where otherwise noted. Charles Berry was the sole responding Tetra Tech START member during the response. This section summarizes emergency response activities from September 21 through 25, 2006.

September 21, 2006

START arrived at the CWTP at 7:30 a.m. and was assigned the task of collecting the 17 potable water samples for VOC analysis. Because water at the reservation had already run out at many locations, there was great interest in collecting the samples as quickly as possible. The NCDENR laboratory in Raleigh, North Carolina, agreed to analyze the samples but asked that the samples be delivered by 5:30 p.m. START pre-preserved 40-milliliter volatile organic analysis (VOA) vials with hydrochloric acid and tested one vial with production water from the CWTP to ensure that the pH of the samples would be below 2.0. At 9:00 a.m., START departed the CWTP to collect the samples from the distribution system. OSC Byrd and two CWTP employees assisted in the sampling effort.

The potable water supply system relies on pumps to move water into storage tanks located throughout the reservation. The individual service lines are then gravity-fed from these tanks. Thus, even though the water intake was shut down, it was possible for residents to use the system until the storage tanks ran dry. Several of the tanks were found to be empty, even though the “Do Not Use” ban was in effect.



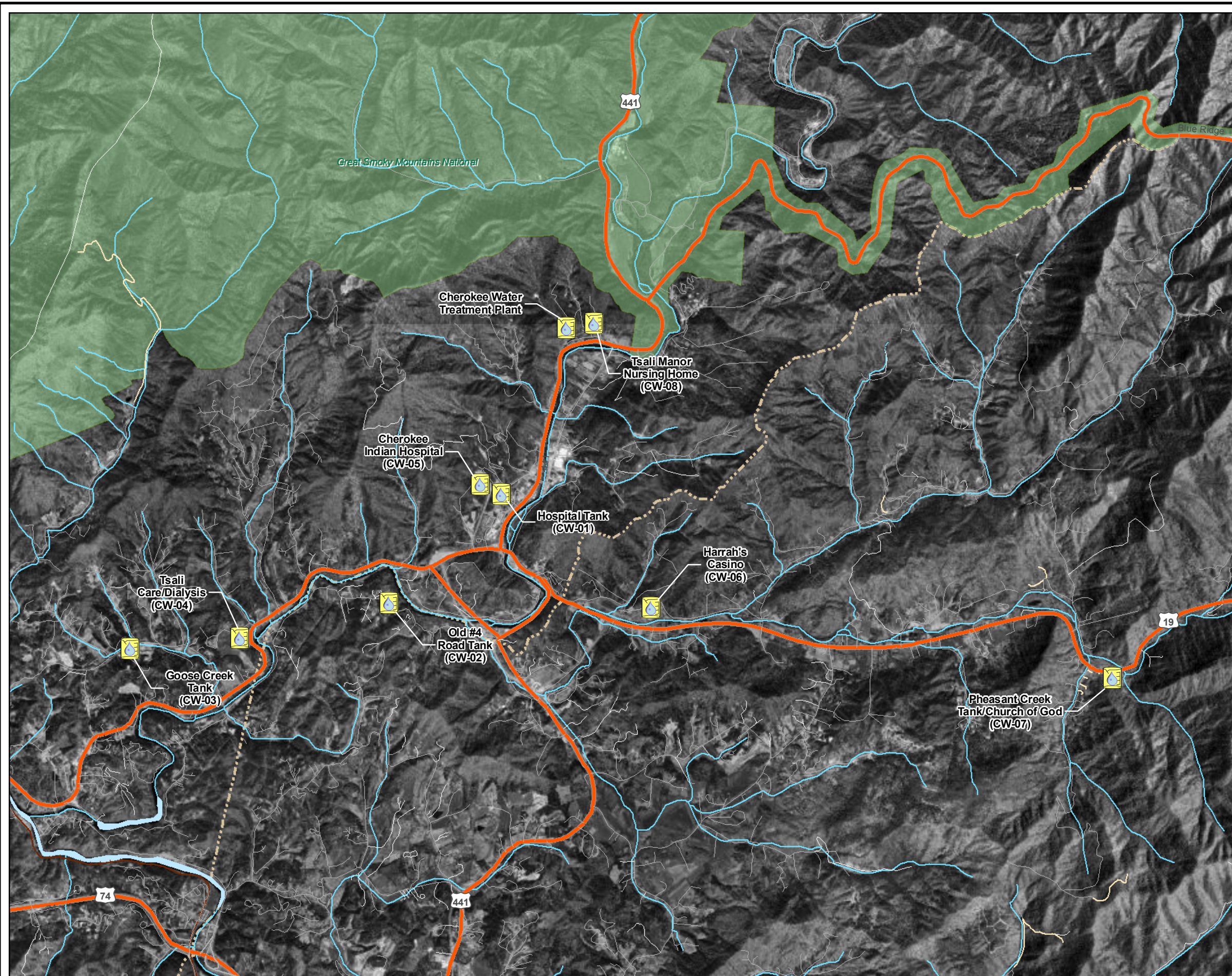
The original plan was to collect samples directly from the five storage tanks that serve the system. Additionally, five priority sites (medical centers, entertainment complexes, etc) were targeted for sampling (See Figure 3). Upon arriving at the first storage tank, it was discovered that the only sample inlet was located on the top of the tank accessed from a 40-foot-high ladder on the side of the tank. CWTP personnel stated each tank was of similar design. Because of obvious safety considerations, it was decided to collect samples from the fire hydrant closest to the tanks. CWTP employees accompanying Tetra Tech START and EPA confirmed the hydrants were fed by the storage tanks.

Although 10 potable water locations were originally slated for sampling, two priority sites were combined into one location because they were located next to each other with a hydrant in between. Even though most of the storage tanks were empty by this time, only one distribution line was found to be completely dry, the line fed by the Junior Wright tank. Consequently, this line was not sampled. A total of eight samples were collected from the distribution system for VOC analysis, four tank samples and four priority location samples. EISOPQAM suggests purging for 15 minutes prior to the collection of potable water samples. In accordance with EISOPQAM, the water flow was cut back to a trickle before sample collection. Because of the deadline for sample delivery to Raleigh, TETRA TECH START consulted with OSC Byrd about cutting the purging time for each sample from 15 minutes down to 3 minutes. At an average purge rate of 150 gallons per minute, each location was purged of approximately 450 gallons prior to sample collection. Reduction of the purge time saved over 1.5 hours.


Once the eight distribution line samples were collected, Tetra Tech START returned to the CWTP and collected five water samples from points within the CWTP system. CWTP officials originally planned seven sampling locations within the plant but decided to eliminate the samples from the clarifiers. The CWTP uses a quality control system that pipes water from points within the system directly into the on-site laboratory or to designated sample collection points located throughout the plant. These lines run constantly, alleviating the need for purging. A duplicate sample was collected from inside the CWTP.

Once all samples were collected, they were relinquished to OENR at 1:30 p.m. and delivered to the state laboratory in Raleigh by helicopter. Unfortunately, the helicopter was not fast enough to deliver the samples before 5:30 p.m. NCDENR was forced to recalibrate its analytical equipment, and sample analysis was delayed until the next morning.



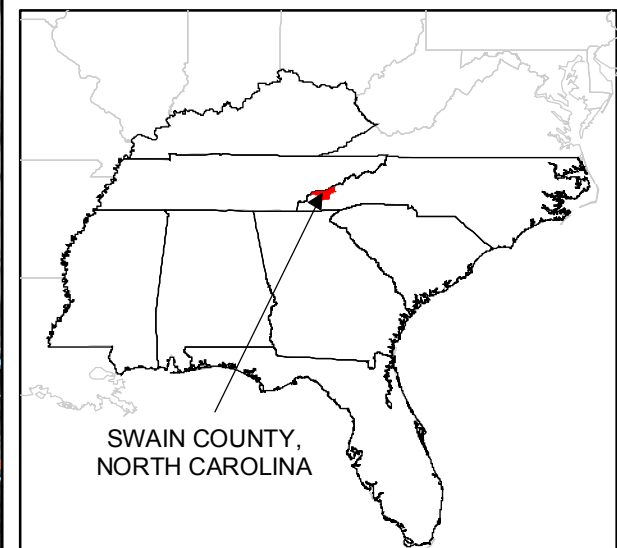


Legend

 Potable Water Sampling Location



0 2,000 4,000
Feet



SWAIN COUNTY,
NORTH CAROLINA



United States Environmental Protection Agency

CHEROKEE NC BOUNDARY TREE
UST RELEASE
CHEROKEE,
SWAIN COUNTY,
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FIGURE 3
POTABLE WATER
SAMPLING LOCATIONS

 **Tetra Tech, Inc.**

After relinquishing the samples, Tetra Tech START accompanied OSCs Byrd and Subash Patel, who arrived that morning, to the release point. The EBCI water intake is located directly across Highway 441 from the Golden Eagle Exxon (Golden Eagle) station between the station and the river (see Figure 2). The dams constructed the night before were still functioning properly, and the absorbent pads at the release point showed signs of petroleum staining, although no sheen was visible on the water. Peak's President, D. Todd Blevins, was on site. Peak had performed a pressure test on its USTs that morning, and the tanks passed the inspection. Further, Peak had removed all the product from all of its tanks, and the total product variance between the amount that should have been present and the amount actually pumped out was less than 15 gallons.

Tetra Tech START recognized a small building on the Golden Eagle property as a soil-vapor extraction (SVE) system. Further examination revealed several monitoring wells set up both on the Golden Eagle property and across the street between the station and the intake (see Figure 2). The wells were not locked, and upon opening, petroleum odors were detected in several of them. A tag on one well (MW-3) stated that the wells were installed by Delta Environmental in 1991. Mr. Blevins related that the gas station had performed groundwater contamination cleanup efforts until the late 1990s. Tetra Tech START collected global positioning system (GPS) coordinates of all site features and then left site to attend a planning meeting at the EBCI emergency operations center (EOC).

Because of the seriousness of the situation to the reservation, the EBCI instituted a Unified Command using the Incident Command System (ICS). Under the ICS, the EBCI designated Principal Chief Michell Hicks as the Incident Commander. During the meeting on the evening of the September 21, 2006, EBCI stressed the need to supply food, water, and sanitary services throughout the reservation. Tribal leaders ordered truckloads of ice and set up food and water distribution points. A delivery system for the elderly and disabled was established, and portable restrooms were placed outside of public buildings and entertainment centers. Because of the delay in delivering the samples to the laboratory, no data were available until the next day.

September 22, 2006

Tetra Tech START and EPA arrived at the EOC meeting at 10:00 a.m. after mobilizing from Waynesville, North Carolina, the nearest town with available lodging. The weather was foggy and rainy. At the meeting, it was announced that results from the samples collected the day before were available



and that and all analyte concentrations were below their respective maximum contaminant levels (MCL). However, because of the drop in water pressure in the system, bacterial growth was possible. A notice was issued instructing residents to boil their water for cooking and cleaning. CWTP resumed pumping from the intake, and slowly the water pressure began to rise in the system as the outlying storage tanks were refilled.

Site activities focused on the Golden Eagle property and the cause of the release. Bill Truman of the EPA UST Section arrived on site and monitored a second independent contractor hired to pressure test the Golden Eagle's USTs and supply lines. The premium unleaded tank failed this second round of testing.

Tetra Tech START was tasked with examining monitoring wells around the site. Using a bailer, Tetra Tech START collected samples from the top of the water column of each well. Three of the samples showed evidence of groundwater contamination, MW-3 contained a sheen, and MW-6 contained about 3 inches of product. MW-2 was obstructed; however, strong petroleum odors were noted in the well. Because of heavy rain, air monitoring was not performed at that time. Reporters from the *Asheville Times* arrived on site and photographed the well sampling activities. The monitoring well samples were collected solely to determine whether free product was present. The collected water and product were returned to the wells, and no analytical tests were performed.

A late-afternoon meeting was held at the CWTP with EPA, CWTP, OENR, Peak, Tetra Tech START, and EBCI council members. Peak agreed to reinforce the diversionary dam and begin removing the product from the groundwater. Neo Corporation from Waynesville, North Carolina, was employed and was expected to be on-site the next morning.

September 23, 2006

Neo Corporation arrived on site and began placing interlocking concrete blocks in the river using an excavator and large crane. The diversionary pipes were extended an 20 additional feet into the main river channel, and the area around the intake grate was enlarged.

Tetra Tech START conducted air monitoring in the head spaces of the monitoring wells using a photoionization detector (PID). Although the PID showed at least minimal organic vapor readings in 4 of the wells, and MW-2 and MW-6 showed particularly heavy vapor concentrations. The PID reading for



MW-6 reached 368 parts per million (ppm) with the cap off and after the well was allowed to vent all day, and for MW-2, the PID's capability was exceeded and the instrument faulted. The numbers stated here are adjusted for the response factor for gasoline products using a PID (0.5) and are twice the actual PID instrument reading noted in the field.

Peak's environmental contractor, Delta Environmental Consultants, arrived on site to collect monitoring well samples. At MW-2, using a water-level indicator, the product thickness was determined to be 0.9 foot at 10.5 feet below ground surface.

Neo Corporation also used a vacuum truck to remove free product from MW-6 and MW-2. After evacuation, Tetra Tech START bailed MW-6, which showed no remaining free product.

No site work was scheduled for Sunday; however, EBCI requested EPA assistance with another round of sampling on Monday morning. Because of the time constraints of delivering the samples to Raleigh by 5:30 p.m., Tetra Tech START was to begin sampling at 7:00 a.m.; therefore, demobilization on Sunday was not practical, and Tetra Tech START planned to stay in the area until Monday.

September 24, 2006

Cherokee and the surrounding area experienced heavy rains overnight. Because site work was suspended for Sunday, Tetra Tech START stayed at the hotel and prepared for the Monday morning sampling event. The 40-milliliter VOC vials were pre-preserved and pre-labeled, and the chain-of-custody form was filled out. At 1:00 p.m., Tetra Tech START received a call from OSC Byrd requesting photographic documentation at the intake. Upon arrival at the site, Tetra Tech START observed that the Oconaluftee River had risen from the previous night's rains. The portions of Neo Corporation's new dam which were composed of stacked river rock were damaged, and the river was overflowing the entire dam.

Earlier in the night, as the water rose over the dam, CWTP contacted Tom Plouff of EPA's Water Management Division at about 3:30 a.m. By that time, the water had swept the boom and absorbent pads downstream. Because it was impossible to determine whether additional contamination was being pulled into the intake, EPA suggested that the intake be shut down until a better assessment could be made after dawn. The intake was shut down at 4:00 a.m. CWTP issued a total ban on usage, fearing a loss of water pressure and possible bacterial growth in the system. At 11:00 a.m., OSC Byrd was notified of the



night's incidents and returned to the intake. An assessment of the release point and surrounding area was made, and no visible contamination or sheen was observed. A tarpaulin was placed across the top portion of the intake grate, creating an underflow dam, and the intake pumps were turned back on at 1:00 p.m. Because the water level of the river was so high, no modifications or repairs to the dam were attempted. The "Do Not Use" ban remained in effect until the following morning to allow the system to re-pressurize.

Fearing repeated incidents after every rain event, EBCI decided to bypass the existing intake point until a permanent solution could be derived. EBCI made plans to place two 12-inch diameter, diesel-powered water pumps upstream of the release point and pump upstream water into the CWTP intake system. EBCI crews began construction of the staging area during the afternoon.

OSC Byrd informed Tetra Tech START late in the day that CWTP would collect the samples for VOA analysis the following day but requested Tetra Tech START to provide training on proper EISOPQAM collection methods. Tetra Tech START was scheduled to meet with the sample rs at the treatment plant at 10:00 a.m. the following day.

September 25, 2006

Tetra Tech START arrived at the CWTP at 10:00 a.m. Tetra Tech START discussed the sampling protocol with Shelia Hyatt, Supervisor of Water Treatment, at the plant. At 12:30 p.m., Tetra Tech START showed CWTP personnel how to properly collect water samples for VOC analysis. CWTP planned to duplicate the previous sampling event using all 13 original sampling locations. Additionally, CWTP planned to run a full-scan analysis of the water at the suggestion of NCDENR. The samples were to be analyzed by the NCDENR laboratory in Raleigh. As of Tetra Tech START's demobilization, the exact sampling schedule had not been set, but was anticipated to begin later that day or the following day.

Also on this day, Neo Corporation returned to the site to continue pumping product from the monitoring wells. Mr. Blevins reported that only 10 gallons of product had been recovered from MW-6. Neo Corporation was preparing to pump product from MW-2 at the time of Tetra Tech START's demobilization.



Additionally, EBCI crews were emplacing the 12-inch diesel pumps. One pump was already operating, with the temporary intake about 50 feet upstream of the release point and the outflow going directly into the pump house. Both pumps are capable of moving 2,300 gallons per minute, and the second pump will serve as a backup for the first.

Tetra Tech START demobilized back to Atlanta at around 12:30 p.m.

4.0 SUMMARY AND CONCLUSIONS

On the afternoon of September 20, 2006, a sheen was discovered on the Oconaluftee River on the EBCI Reservation. The sheen was being drawn into the EBCI's drinking water intake. The EBCI shut down the water system, and EPA was contacted for technical assistance. EBCI crews build a diversionary dam and placed boom and absorbent pads around the release point. OSC Terrence Byrd was dispatched to assess the situation, and he was joined by additional EPA experts. Early in the morning of September 21, EPA contacted Tetra Tech START to provide technical assistance in the form of potable water sample collection. One Tetra Tech START member mobilized to Cherokee, North Carolina, that morning.

Thirteen potable water samples were collected from locations throughout the water system and from within the treatment plant itself. All samples were analyzed for VOCs. Tetra Tech START released the samples into the custody of the EBCI, who transported them by helicopter to the state laboratory in Raleigh, North Carolina.

The cause of the release was determined to be groundwater contamination from the Golden Eagle gas station across the street from the water intake. The owner of the station, Peak, examined the USTs and piping, which at first passed the tests but subsequently failed static pressure tests. Groundwater contamination was previously remediated at the Golden Eagle in the late 1990s. Six monitoring wells in the gas station area were examined, and two were found to contain free product. Peak hired Neo Corporation to begin remediation efforts, starting with reinforcement of the existing diversionary dam. A vacuum truck was used to remove free product from the monitoring wells.

While the samples were being analyzed, Tribal leaders mobilized food, water, ice, and sanitary services throughout the reservation to provide for the community. The analytical results showed no contaminants at concentrations above their respective MCLs, and the water intakes were started again on September 22,



2006. A “boil notice” was issued for system customers because of the loss of water pressure the previous day and the resultant potential for bacterial growth, but otherwise the water was deemed safe.

Heavy rains overnight on September 23, 2006, overflowed the dam, prompting EBCI officials to turn the pumps off again on the morning of September 24, 2006. Because of a fear of water pressure loss, a total usage ban was issued. An assessment of the release point and diversionary dam was conducted, and no sheen or petroleum was observed. Tribal officials restarted the water intake later in the day. The ban remained in effect until the water pressure was restored and the threat of bacterial growth was abated. Tribal leaders also decided to bypass the existing water intake. Two 12-inch diameter pumps were installed that fed upstream water directly into the pump house.

Tetra Tech START provided sampling guidance to EBCI personnel collecting water samples for VOC analysis. Tetra Tech START demobilized from the site on September 25, 2006. CWTP’s subsequent potable water sampling results showed no contamination of the water, and all analyte concentrations were below the MCLs. The analytical results for CWTP’s water samples are not presented in this report, but can be obtained by contacting the CWTP directly. EPA requested that CWTP sample the treated water on a monthly basis for the next six months. Peak continues to voluntarily assess the release from its tanks and is working with EBCI with assistance from the EPA UST Program to remediate the situation.



APPENDIX A
LOGBOOK NOTES
(23 Sheets)

"Rite in the Rain"
ALL-WEATHER WRITING PAPER



HORIZONTAL LINE

All-Weather Notebook
No. 391

Cherokee, NC oil spill
Cherokee NC Boundary
Tree Fuel Release

4 5/8" x 7" - 48 Numbered Pages

9/21/06

Arrive Cherokee Waters Rep

1629

0730 - Meet w/ OSC Byrd

- Need to collect 76 (6-13) VOA

samples to ship to State Lab in Raleigh for analysis

- Check for sheen in river

- address if necessary

- monitor AST which precipitated

the release

- Cherokee Tribal Water treatment system was shut down by a VST leak into the Ustahite River

- Cherokee Water Dept. officials notice odor & sheen

- shut water dam @ 1630 hrs

- OSC Byrd notified @ 1930 hours

around ON Scene @ 2330

- OSC workers notified strata @ 0230

- Byrd reported boom over river

- no noticeably sheen past boom

- Product collected behind boom

- R/P placed boom out. Having tanks tested

CABs

9/21/06

0745 Cherokee Nation has requested

EPA assist w/ sample collection

@ 17 points.

- EPA Byrd tasks START with

collecting samples at outlying locations throughout the city.

- START begins prep by preserving

60 40ml VOA vials w/ 3 drops

HCL.

- START collected a sample of the

CWTP (Cherokee Water Treatment Plant) water in a 40ml VOA and determined

3 drops HCL preservative puts pH

in 1-2 range, definitely less than 2.

- QC checks a 61st + 3 drops

put pH ≈ 1

0830 Preserving complete, Sampling 1st prep'd w/ bags, gloves etc.

- Need ICS. Must Get Source

info from Vendor.

Lat Long of CWTP

N 35.58179

W 083.31226

CABs

09/21/06

0915 Arrive @ Hospital Tanks
(not at Hospital)

N 35.48379

W 83.32146

Tank has 25 feet of water.

- Cannot collect sample from anywhere other than the top of the tank, which requires a 40 ft climb w/ a ladder.

- HASP does not allow for work from this location. We will sample from the hydrant directly below the tank & look down the hill

0940 Collect sample CW-Hospital

(Sample #1)

Lat N 35.48308

Long W 83.32054

- Collected 3-40ml vials, no air bubbles noted.

- Hydrant sampled after turning for 3 minutes at est. 150 gal/min

- Charlotte Weber has given us 2 employees to assist w/ sample collection, Edie Allison &

9/21/06

Photo Log

#	Subj	P	O	U
---	------	---	---	---

0320	- Sample Hospital collection	CBS	TB	E
------	------------------------------	-----	----	---

Pont

321	- Old #4 Rod Hydrant, Sample Pont #2	CBS	TB	W
-----	--------------------------------------	-----	----	---

322	- Goose Creek Hydrant - Jim Bowman Drive @ Goose Creek Rd #3	CBS	TB	S
-----	--	-----	----	---

323	- Telli Care Center #4			
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324	- Charlotte Julia Hospital #5	CBS	TB	N
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325	- Harris Casino #6	CBS	TB	
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326	- Church at Food #7	CBS	TB	
-----	---------------------	-----	----	--

327	- TSLC1 Manor #8	CBS	TB	N
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328	- F1/ter 1	CBS	TB	W
-----	------------	-----	----	---

329	- F1/ter 2	CBS	TB	W
-----	------------	-----	----	---

330	- Ray, Distributor, Clearwell Sampling point	CBS	SP	W
-----	--	-----	----	---

331	- Sam's Hwy escaped car #8			F
-----	----------------------------	--	--	---

332	- Boom deployed at release point. Note stains	CBS	TB	S/E
-----	---	-----	----	-----

333	- Pads in water at release point. Note proximity to intake	CBS	TB	S
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6
9/21/16

0940 and Ronald Allison.

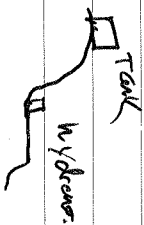
Kaiser Wilcox Rd

1000 ft arrive @ sample point #2

Old #4 Road Tank which is

50' ft below Old #4 Road tank

at hydrant on Old #4 Road



- Tank is empty, so we will
wait for a drop in

pressure,

1005 Picked for 3 minutes @

2150 gal/minute. Noticeable

pressure drop at end to about

100 gal/min

340 ml VOA's, no bubbles

Lat 35.47060

Long 108.333554

- Sample Cu-old #4 (#202)

CS

7
9/21/16

Tank Sites

Hospital Hill

Old #4 Road

Goose Creek

Bunker Wright

Pheasant Creek

"PRIORITY" Sites (determined by CN)

Isali Care Center

Isali Dialysis Center

Hospital

Isali Manor

Casino

Plant Samples

Raw Water Intake

1 Filter

2 Filter

1 Clarifier

2 Clarifier

Distribution Fences

Clear wall

CS

9/21/66

1015 Goose Creek Tank, sampled

@ hydrant at Goose Creek Rd
+ Jim Bouyon drive.Tank is dry, Purge for 3 min
@ 100 gal/min. No noticeable

drop in pressure.

3-40ml VOAs, no bubbles

N 35.46485

W 83.37063

~~1035 Arrive~~ ~~can~~

Sample CW-Goose Creek (#3)

1035 Tsali Dialysis & Tsali Care

Centers. Originally slated for
2 samples, but buildings are~120 feet from each other with
a hydrant in between. Will

collect 1 sample for both from

the hydrant, CW-Tsali Care (#04)

Purge for 3 minutes @ 150 gpm

Collect 340ml VOAs no bubbles

- Placed on ice along w/ the
previous samples, which were allplaced on ice immediately
after sample collection.

Cech

9/21/66

1035 (cont) N 35.46635

W 83.35572

Tsali Care/Dialysis location

1050 Cherokee Indian Hospital (500-4000)

Sample from hydrant in front
of Emergency Entrance.

Allison's state it is the

same water as used inside,

supplied by the same tank

(Hospital Hill tank) which

feeds a storage tank on

hospital property, which supplies

the hydrant and the hospital.

N 35.48413

W 83.32343

3-40ml VOAs collected,

no bubbles, placed on ice

Hydrant purged for 3 minutes

@ ~150-175 gal/minute.

1105 Behind Horner's Garage at

NE corner right next to

water tank at hydrant.

ReNumbering samples from previous

events in CW-#11. None recorded.

See table on p. 11.

Cech

9/21/06

1105 (cont) Purge hydrant for 3 minutes.

It is very turbid/fusty

Runs clear in 1 minute.

Collecting CW-06

N 35.47085 500

W 83.29976

N 35.47079

~~Collect 500~~

- Collect 3 Vol 40ml, no bubbles

Place on ice

1125 @ Mission Road & Durier

Wright Tank - Hydrant dry

- Continue on down the line

1126 Next hydrant empty. Since

CN will have to purge the

empty lines, OSC Byrd

says to not bother finding

the top of the water.

This sample will not be

collected.

- Tank that spilled was OK

They filled 7500-9000 gallons

earlier in the week.

1135 Arrive @ Church of God down

from ~~those 5~~ Pleasant Creek

cells

9/21/06

1135 (cont) Tank, about 200 yards up

the hill. Purge the hose top

on the back of the building

for 3 minutes. Low pressure.

N 35.46413

W 83.23672

Collect CW-07, 340ml

VOCs placed on ice

W off the town Rd @ Church of

Good Drive.

1150 At Isali Manor Nursing home,

at the hydrant to the

purging, good pressure, but

very turbid.

Collect CW-08, 340ml VOC

Put on ice, no bubbles

N 35.50234

W 83.30847

1210 At Church of God

Sampling gravity fed fire plowing

drainage tube. No purging necessary

draws from filter into the clearwell

CW-09 FILTER 1.340ml VOC

1215 Collect CW-10, Filter 2.340ml VOC

from smaller Idance 1 flow

cells

9/21/6

- 1215 (cont) out systemes Filter
 1220 Collect CU-11 from
 Raw Water Intake source
 faucet in Laboratory
 1225 Collect CU-12 from
 distribution faucet
 1230 Collect CU-13 from
 faucet labelled "Filter"
 but connected to Clearwell
 according to lab personnel
 1235 Sampling Complete. Begin
 labelling + LOC paperwork.
 1300 Samples are bagged and
 handed off to Cherie reps
 who Forest Parker who
 works for Eastern Band of
 Cherokee Indians Office of
 Environment + Natural Resources
 will escort to laboratory
 1330 Kevin LaPoint EPA CID, Charlotte
 704-344-6844. wants to
 discuss site w/osc by rd
 1345 lunch at CWRP & cafeteria.
 1425 Sibash Patel, OSC (IT) arrived
 on site @ ~1200.

9/21/6

- 1425 Plans for afternoon to
 chase the sheep.
 1430 At Release point down from
 Golden Eagle Exxon Station
 on Hwy 441
 N 35 4971 —
 W 83.31106 —
 location is about 20
 feet upstream of Bard's
 water intake on Occoquan
 River.
 N 35.50032
 W 83.31135
 1450 OSC Byrd speaks w/ Peck
 Energy's D. Todd Blevins Peck's
 statement by M. Blevins that
 tanks have been tested + total
 product variance (loss) (sales
 vs. delivery) is less than 15 gallons.
 This is based on the amount pumped
 out last night —
 Mr. Blevins is further advised to
 file an NRC report + returning
 the previous report filed
 last night
 09/30

9/21/06

PHOTOLOG

Subj

P

O W

334 - Orientation of ST

CB

SW TB

Exxon station to Pump house

335

MW4 across from Exxon

CB

N CB

336

MW3 Plaque

CB

E SP

337

MW3 Plaque

CB

E SP

338

MW1

CB

S SP

339

MW2 discharge

CB

S SP

point is directly behind

it on the run

340

MW3 discharge point is CB SW SP

directly behind it on the river

341

V gradient MW

CB

ST S SP

Pumphouse is in beam, with VST, brush ground just past MW

9/21/06

1500 OSC Byrd in phone conference with

Don O'Leary (?)

Matt Taylor

Winston Smith

Dale Proby (?)

John Raley (?)

and others named too fast to catch.

1545 The Exxon station has a

Thermax unit just south of the AST's and the one 4

MOA turning well's across the street from the store & 1 up gradient

US441

Pumping station

35,50022

53,31129

Pump

Cove

US441

Thermax

35,49945

53,31110

Pump

35,49978

53,31156

Pump

Discharge

9/21/8

1545 (cont) Collect GPS of
MW's (see figure 1.15)

Well Tag

MW #6

DELTA

Reg # 858

11-24-91

20' depth

2" diameter

~~#20~~ seen to 5'~~#20~~ Sand 3'

3" beneath to 2'

2' gravel to 0'

1600 Attempting to secure

Lodging overnight. Reports

from lockstay rooms in Magee

valley and Waynesville are

filling up.

1730 Secure lodging @ Best Western

in Waynesville

1800 Arrive @ Cherokee EOC.

Meeting has been pushed

back to 2130, Go to dinner

1830 Dinner

2045 Arrive back at EOC

corrections

9/21/8

2115 Meeting started. No data

as of yet. Major concern

is the opening of restaurants +

providing of public facilities (restaurants)

around reservation, plus providing

food, water, + ice.

- EPA had VST division personnel

on way. Has not arrived yet.

- Samples will not be ready

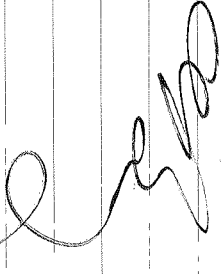
until 0900.

- Next meet @ 1000 tomorrow.

2145 Report meeting

~~1800~~ Check into hotel in Waynesville

2300 @ Best Western. Out.



7/22/6

0930 Regent Hotel.

USATLIED - Rainy, wet,
warm + humid, —

1600 At Eastern End of Charlotte (EEBC)

EOC for briefing.

ICS structure in place

Chief Hicks is SC

Results are in according to
Forest Parker, will be released
later, but are below MCL.

- OSC Byrd tasks START

to determine the amount of
free product in the MUs at
the Gas station. —- OSC Patel & START being depart
EOC for procurement of both

cutters & hoses & spray.

1600 Return to EOC to meet w/osc

Byrd. He's about to start

another meeting. We have not yet
sampled as we only finished finding

necessary equip a few moments ago

and there is a large crowd at

the gas station looking at

pump tests —

Cars

7/22/6

1200 OSC Byrd again asks me

to check the belts and

determine depth to product,
product thickness, and
total depth, if possible.

1230 Bill Freeman of UST Division of

SQD on site, monitoring the
tests on the USTs. Asks us
to include a new mu on

our list, on site between

USTs and pump station, MUG.

- EOA Freeman suggests we not
sample MUGs.

- Sampling plan —

Purpose: Determine depth to product
and thickness of product at
6 wells. —Methodology - Because we want to

preserve the possibility of collecting

samples later on we will only

use 1 bailer for the entire

investigation. Later, if

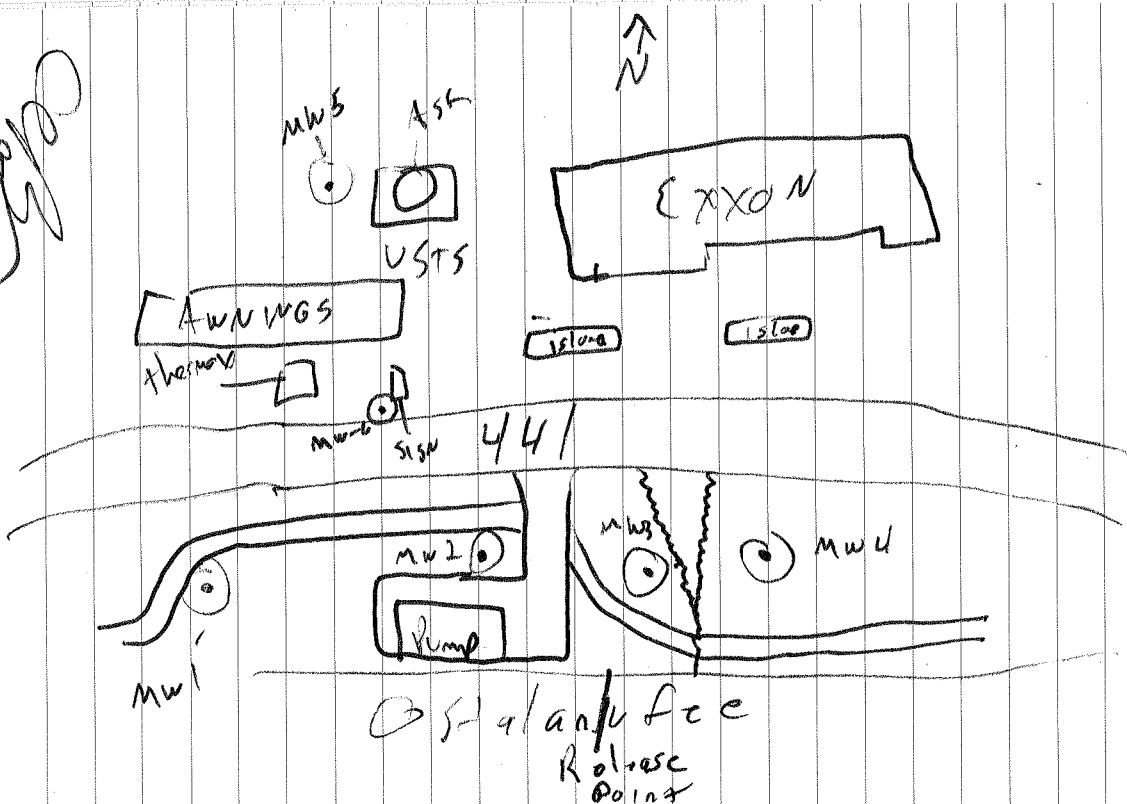
needed, we can use fresh bailers

for each well. We will collect

in order of expected

leaks

9/22/6



9/22/6

1230 (cont) increase in contamination

ORDER: MW1

MW4

MW3

MW6

MW2

MW5 will not be investigated at this time. Can be sampled as up gradient control if needed later. —

- Ballers will be lowered into wells at very slow rate to avoid disturbing the product thickness, and it will be removed at slow rate as well. A dipper will be used to clean off the bailer between wells,

1300 Begin Sampling MW1

* LAITE ENTROPY*

- PSA14 Energy's D. Todd
Blennas is on site.

* RESUME *

- Photographers from
Ashville newspaper on site.

10/22/6

9/23/78 9/22/06

Well	Depth to	Product Thickness
MW1	3'15" 10'	0"
MW4	420' 12'	0"
MW3	10'	6" emulsion 1 in film
MW6	6'	3" free product / dark, old
MW2	? Not sampled	? obstruction

LOG

#	Subj	P	O	W
342	- MW2 w/ no product	SP	N	CB
344	- MW3 w/ shain	SP	S	CB
347	- MW6 w/ Product	SP	E	CB

CAJ

9/23/78 9/22/06

1310 MW1 sampled. ~15' no liquid. No Product visible in the barrel.
1320 MW4 sampled after OSC
Byrd OK'd cutting off the lock. 1220' no liquid.

No product found.

1340 At lunch. —

1430 Return from lunch. Pouring Rain. Begin investigation of wells. —

1450 MW3 has ~6" of emulsion with the very thin sheen film on top
Pouring too hard to take notes. will backfill notes when it stops. —

NOTE ENTRIES

1600 Attempting to sample
1500 MW2 appears to be obstructed.

1630 MW2 is obstructed. Only
1530 items 41" diameter will

get through. START has no sampling eq. which can do the job.

CAJ

9/23/06 9/22/06

1615 Attend meeting w/ tribal leaders,

DEUR, EPA Groundwater Team People,

EDA UST Towner, OSC Byrd,

OSC Pate, & D. Todd Blevins,

- Blevins agrees to begin remediation efforts on his system.

Today's line test failed, even though

Yesterday's and a routine test in July were all acceptable. —

- Blevins, however, remains skeptical that

the existing system is responsible

- OSC Byrd requests Blevins' P&ID

begin taking steps to reinforce the underflow dams by the intake

- EBOC Parker will oversee Pate's

remediation efforts. —

1715 Attempts to construct a

sampling device for the new

problem. Will attempt to purchase

necessary items & local hardware

1800 Cannot get everything locally.

Will go to Lowe's in Waynesville

later tonight. —

1830 Off site reviews

CS

9/23/06 9/23/06

1845 EMT RYD

1800 Speak w/ Forest

Parker. Says water

was turned back on

today, but there is

still a boil-only order

in effect since some at

the lines ~~are~~ have slightly

elevated levels of bacteria.

Since we cannot boil water

in our hotel rooms, we will

stay outside the city again

tonight.

1900 midnight or noon's

- Send off photos to

OSC Webster. —

CS

9/23/6

0815 Arrive @ Lowe's. They do not have any items I couldn't buy in Charlotte & I wouldn't have to transport 10' pieces of PVC 30 miles to Cherokee.

0900 At hardware in Cherokee. —

1000 @ US Itz. Discussed ourseing ops. EBOC Forest Park on site. SDA GIVE

SDA for UST Tinner also.

- NCO Corp on site by Blewus

- Pumping vacuum on mud

- Building diversionary wall on

River —

1115 Oil sample from the mud. Water is cloudy & smells of gas, but no free product visible, just a slight sheen in the bailer.

- Blewus wants to start @ 500

system.

- Speak w/ Gil Alexander who gives me some pointers on what to look for when it's started up.

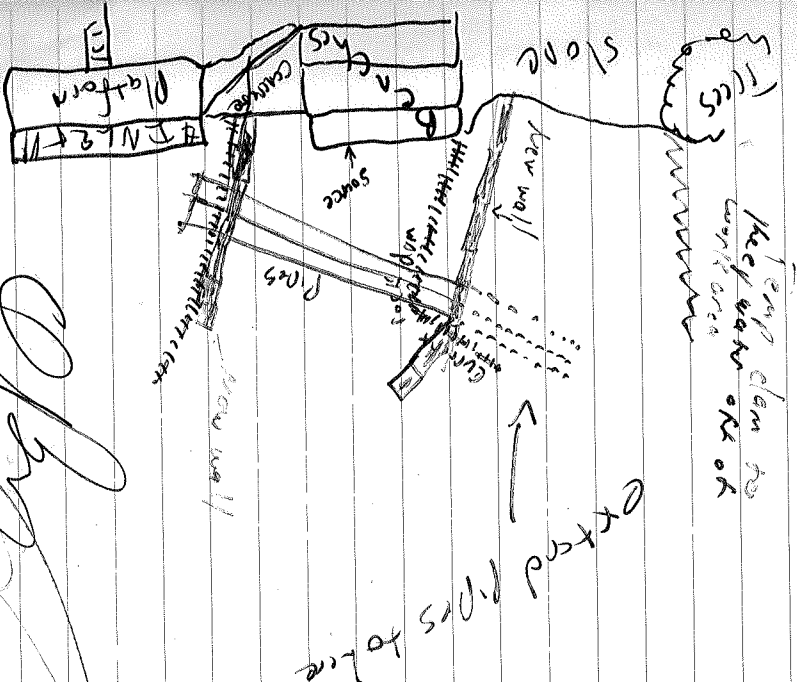
- NCO's work plan is to extend the

Pipes out to upstream.

- Build a new upstream dam to temp

9/23/6

(1115 cont) reduce water flow around work area. They will then put in a "permanent" underflow dam.



[Signature]

9/23/6

1200 Off site to obtain lodging. With recuppled water local hotels are already filling up. Casino has no availability already.

1230 Check in to Fairfield. —

— lunch —

1330 Back at site. OSC Byrd wants SIAST to check well air space with PID & pull sample from MW2 with designed sampler.

— PID has been running since 1000.

Originally reading high (over 600ppm) due to 7100% humidity. Fog and rain. After warming up in the truck until 1200 it read 20ppm in ambient air. —

— Recal by zeroing in fresh air.

Any readings taken will not include the mist but any changes in the humidity will necessitate a new zeroing of the unit. Will charge for 30 minutes while the samplers are constructed and then recalibrate before use. —

CLD

9/23/6

1335 ~~Battery~~ ~~charging~~ ~~done~~. will recharge ~~before~~ ~~later~~

1530 Complete MWA sampling.

MWA has 0.9 ft of water

product from 10.6-11.5 yds

— Blevins contractor, DELTA, on site collecting product samples. —

— Raining very hard.

1545 Sun shining. —

Performing well head space

PID analysis

PPM

MW 1	3.6
2	regulated OOK
3	19.7
4	11.9
5	MS - locked
6	184 (top off)

— NCO has loaded truck has

appears to be denoising for the day

— all vapor gas readings taken

immediately after removing cap

from 2" below top of casing

unless indicated.

CSZ

9/23/6

1555 NCO dam crew out.

Voc truck setting up on

MWD —

1630 Packed up truck for the day. OSCs Byrd + Patel are at conference call at EOC. —

1645 Arrive at EOC. —

1730 Depart EOC. —

Debrief: - NCO is not working tomorrow.

- No on-site activities expected for tomorrow —

- Drinking bar expected to be lifted.

- Tomorrow is for planning for

Monday —

- Additional samples will be collected on Monday

- OSC Byrd doesn't want to ^{start}

demo since sample collector

must begin @ 0500 Monday

to get delivered to Raleigh

NLT 1600. —

- STOR will begin site report tomorrow

CAB

9/24/6

1300 OSC Byrd relates the events of the morning: —

At 0300 SBOC personnel observe the river level rising from the severe thunderstorms. The water rose above level of the dam and washed away part of the rock filled up with the underflow dam. The dam itself is still intact, but the boom + pads have been washed away. Tribal authorities contacted EPA T. Plant for recommendations. Mr. Plant recommended shutting down the pumps, which occurred @ 0400 last night. —

- Upon arrival @ site this morning, OSC Byrd spoke w/ tribal leader. OSC Byrd was not consulted in decision to shut off pumps.

- Currently, there is 6 hours of water use left until system depressurizes and bacteria

have opportunity to grow.

- Tribe is issuing a STOP USE mandate

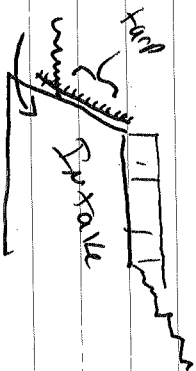
CAB

9/24/6

1300 (cont) to avoid back growth ~~and seeps~~

-OSC Byrd, a fa or investigating release point, found no seep, product, or fuel residual at the release point, and concluded there was no reason to continue keeping pumps down. ~~The underflow is~~ ~~claims are still functioning and~~ ~~the river level has dropped below~~ ~~the dam.~~ ~~as~~

1400- The underflow dam is being over flowed, but a tarp has been placed over the intake to act as a boom for the top water layer



1420 TV ~~News~~ crew from Asheville

on site.

34) Channel 13 News and Asheville

Green - Times photographer.

9/24/6

1430 CBA/SMART on site, The CBOC

is spreading gravel onto the trail they've ~~made~~ ^{cut} through the nature walk area.

-I was stung by a yellow jacket on the small of my back while taking photos. Swollen & painful, but not serious.

-CBOC will replace new temp pumps just upstream of the spill & another further upstream on the other side of the ~~river~~ river. These pumps will supply water ~~upstream~~ ^{from} upstream directly into the powerhouse.

1700 Begin preserving VOA's for tomorrow will pre-label & prepare sample 1413, update photos & contact info.

2030 Speak w/OSC Byrd. SMART will not collect samples

tomorrow. Will, instead, prepare sample collection packages for CBOC to collect their samples. SMART will train personnel tomorrow.

CB

9/24/6

Photo/OC

Reviewing all digital photos and describing those that were not done at the time they were taken

Date	#	Subj	P	Q	W
9/22	343	MW3. Try to show	SP	S	CB
		The screen against			
9/22	345	MW3 w/o white	SD	S	CB
		background			
9/22	346	MW3 closer view	SP	S	CB
		but blurry			
9/22	348	Vertical look down	CB	MT	TB
		at the intake grate			
9/22	349	Vertical look down	CB	NA	TB
		at the intake grate			
9/22	350	Release point	CB	E	TB
9/22	351	Release point showing	CB	E	TB
		Straining on pad			
9/22	352	Door exposure of	CB	E	TB
		release point			
9/22	353	Door exposure of	CB	E	TB
		release point			
9/22	354	'	CB	E	TB

9/24/6

Photo/OC

Date # Subj P Q W
 9/23 355 MW6 after Neo pumped
 off product. Still solids
 1 1/4 feet

9/23	356	'	CB	N	Turn
9/23	357	'	CB	N	Turn
9/23	358	Neo unloading piping	CB	S	Byrd
9/23	359	Neo extending underflow	CB	E	Byrd
		Piping through 1st dam			
9/23	360	Black Neo will use	CB	W	Byrd
		To create the new underflow dam			
9/23	361	Product collected by	TB	S	CB
		Delta from MW3. Does			
		not indicate product thickness which was			
		measured w/ sounding tape to be 0.9'			
9/23	362	New underflow and	CB	E	TB
		extended piping			
9/23	363	Intake pond after Neo	CB	S	TB
		reinforcement			
9/23	364	Release point after	CB	E	TB
		Neo reinforcement			
9/23	365	New underflow dam	CB	E	TB
9/23	366	Downstream of release pt	CB	W	TB

9/24/16

Photo/OG

Date # subt P O W
 9/24 367 overflow at underflow dam CB S TB

dam

368 overflow of dam CB SW TB

369 overflow at dam and new boom/pad CB E TB

new boom/pad

370 tarp over intake (vertical) CB NA TB

371 Intake, release point, and underflow dam after CB E TB

heavy rains ~~caused~~ caused the
dam to be over flowed

372 - Deleted

373 - New boom/pad put out after heavy rains washed original set away CB E TB

original set away



9/25/16

0900 Preparing the sample packages.
 1000 Arrive @ the pump plant

(270 Amadishu Rd) and speak
with Shelia Hyatt. Interns are
Star lab requested full scan

analyses, not just VOA.
 - only 4 locations will be

sampled:

- Goose Creek Tank
- Hospital (Cherokee Indian)
- Tsalicare/Dialysis

- Raw water intake

1015 Arrive @ Exxon. Speak w/

Blevins. They did not work

yesterday. They pumped on Mub
today but produced less than 10 gal

total product & water. —

- E80C is replacing 2 12" diesel pumps.

- just East & upstream of the intake.

- will put hard line from pumps

into pump house. Currently have

only one apt running w/ soft

pipe leading to pump house.



9/25/6

1040 Speak w/ OSC Byrd & Sheila
Hagart. EPT will provide tech. Asst
w/ VOT collection only.

All 13 previous locations will be
sampled again. "Sally" + "Regina"
will be my contacts at the Pumping
Station and will be collecting the
samples. —

1650 Return to CWT to meet
Regina & Sally. They have gone
out to take best samples.
Return time is unknown by other
CWT personnel. —

1730 Give 'Show Tell' to Regina,
Sheila, & Sally at CWT
on VOT sample collection methods
and COCs. —

KLASE SMTQX*

1100 The water has 'House's
at the os —

The tribe has heard the
'House' ban and the
'Boil Water' is only in

effect for part of the Reservation.
1245 SMTA mobilizing back to Ariz. —

9/25/6

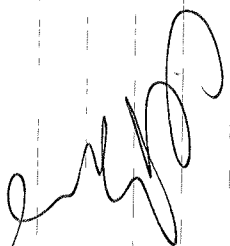
Photo Log

#	Subj	P 2 112
374	12" pump being installed upstream of the intake	as S —
375	Supply lines run into pumphouse.	as W —
376	Damage to dam from high water	as S —
377	Boat pad at release point.	as E —
378	Note lack of oil staining Damage to dam in relation	as E —
379	12" pump to underflow pipes	
380	Relation of pumps to original intake. Release point is between	
381	11"	as S —
382	Relation of new pump intake to release point	as E —

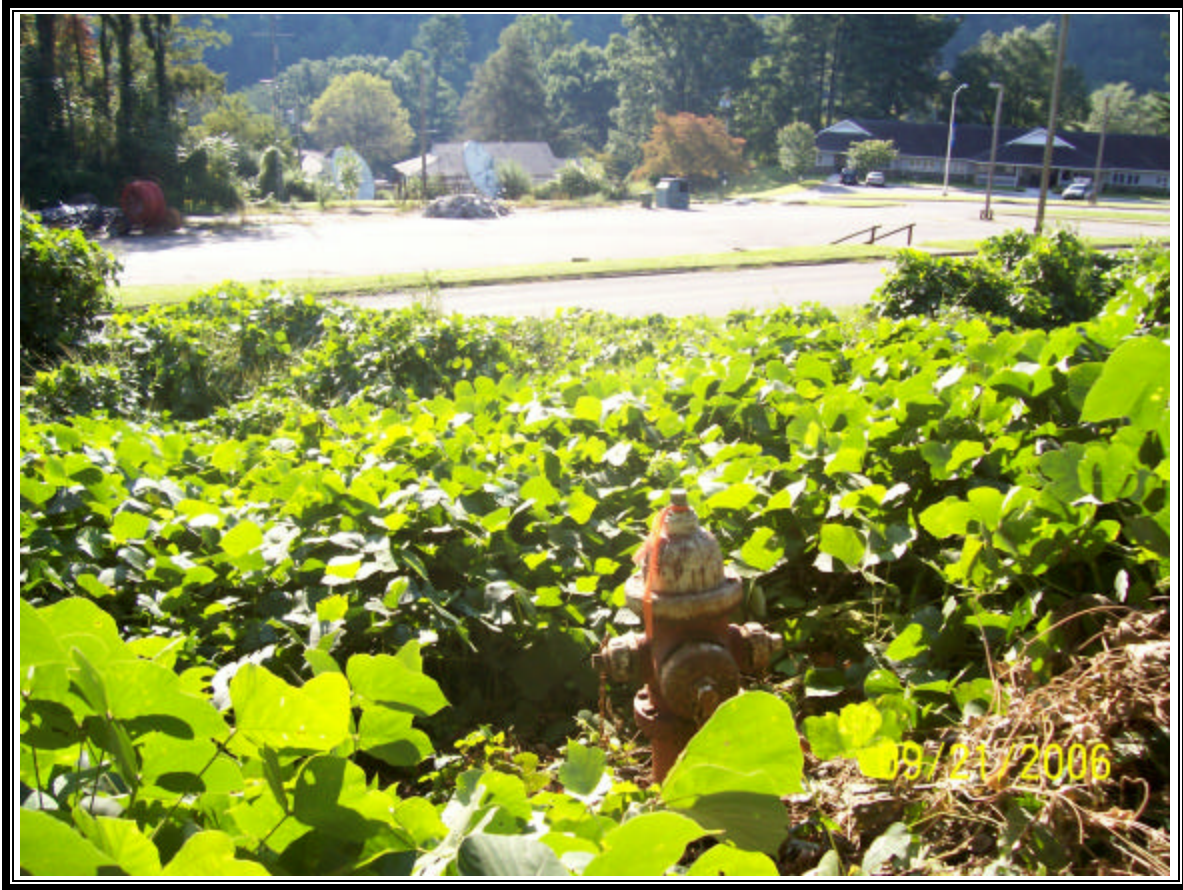
Cel 3

9/25/06

1630 Arrive @ Duluth 57ACT

Office, will first stock truck
tomorrow.A stylized handwritten signature in black ink, consisting of several loops and a long horizontal stroke extending to the left.

APPENDIX B
PHOTOGRAPHIC LOG
(33 Pages)



OFFICIAL PHOTOGRAPH NO. 1
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: East

Date: September 21, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Sampling location CW-01 directly downhill from the Hospital Tank.





OFFICIAL PHOTOGRAPH NO. 2
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: West

Date: September 21, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Sampling location CW-02, at the Old #4 Road Tank; the tank is on the hillside about 100 feet up on the slope.





OFFICIAL PHOTOGRAPH NO. 3
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-00002

Location: Cherokee, North Carolina

Orientation: South

Date: September 21, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Sampling location CW-03 at Goose Creek tank; the hydrant is located at Goose Creek Road and Jim Bowman Drive; the tank is located left of the photograph about 100 meters away.





OFFICIAL PHOTOGRAPH NO. 4
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: South

Date: September 21, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Sampling location CW-04 at the hydrant between the Tsali Care Center and the Tsali Dialysis Clinic ; this is a “priority location”





OFFICIAL PHOTOGRAPH NO. 5
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: North

Date: September 21, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Sample location CW-05 at Cherokee Indian Hospital; the hospital has its own tank that is fed from the CWTP Hospital tank sampled at CW-01; this is a "priority location"





OFFICIAL PHOTOGRAPH NO. 6
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: Northeast

Date: September 21, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Sampling location CW-06 at Harrah's Casino; the hydrant is located at the northwest corner of the building; this is a "priority location."





OFFICIAL PHOTOGRAPH NO. 7
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: South

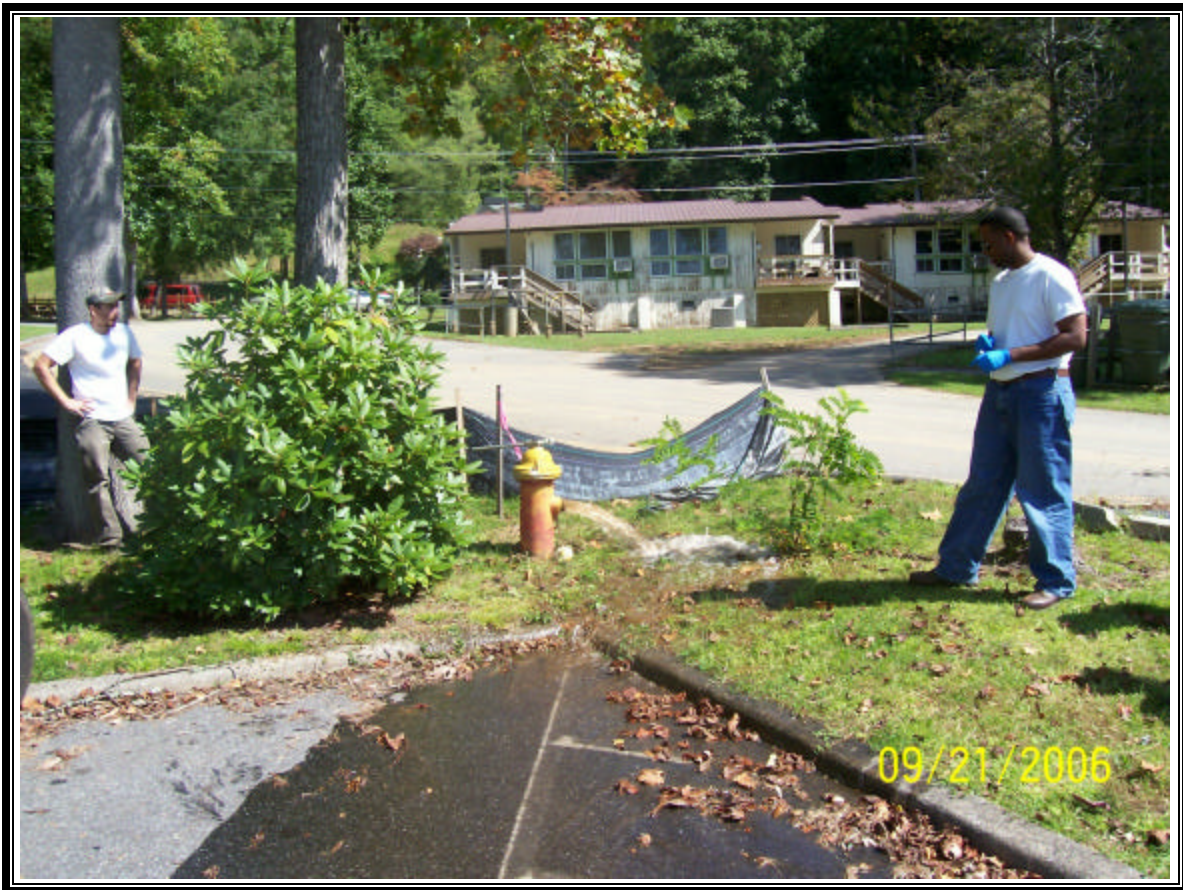
Date: September 21, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Sampling location CW-07 at the Church of God located at the intersection of Wolfetown Road and Church of God Drive; this is CWTP's normal testing site for the Pheasant Creek Tank located about 300 meters to the left in the photograph; the sample was collected from the spigot located in the middle on the side of the building.





OFFICIAL PHOTOGRAPH NO. 8
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: North

Date: September 21, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Sampling location CW-08 at Tsali Manor Nursing Home; this location is closest to the treatment facility, which is located 50 meters to the left (not shown in photograph).





OFFICIAL PHOTOGRAPH NO. 9
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: (Not applicable (NA))

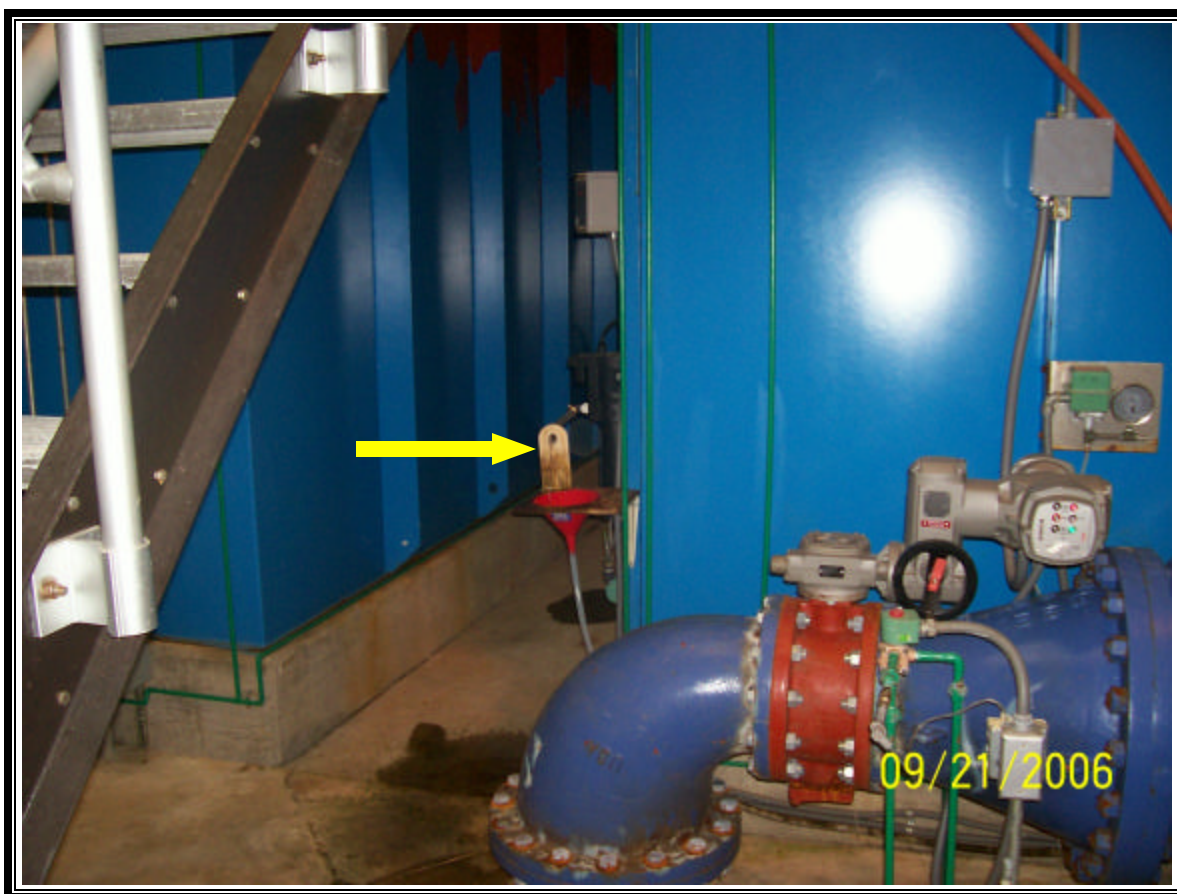
Date: September 21, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Sampling location CW-09 at CWTP Filter 1; the sample was collected from a constantly-running flow indicated by the arrow.





OFFICIAL PHOTOGRAPH NO. 10
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: NA

Date: September 21, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Sampling location CW-10 at CWTP Filter 2; the sample was collected from a constantly-running flow indicated by the arrow.





OFFICIAL PHOTOGRAPH NO. 11
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: NA

Date: September 21, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Sampling locations CW-11, Raw Water Intake, CW-12, Distribution, and CW-13, Clear Well, in the CWTP laboratory; the plant pumps water from the system into the laboratory to allow technicians to easily and quickly sample the water.





OFFICIAL PHOTOGRAPH NO. 12
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: South

Date: September 21, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Diversionary dams created by EBCI crews during the night in order to divert sheen escaping from the boom and absorbent pads out into the river channel away from the intake which is located directly beneath the photographer.





OFFICIAL PHOTOGRAPH NO. 13
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: Southeast

Date: September 21, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Boom deployed at the release point: note stains on white absorbent pads.





OFFICIAL PHOTOGRAPH NO. 14
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: NA

Date: September 22, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Vertical view of the intake grating.





OFFICIAL PHOTOGRAPH NO. 15
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: East

Date: September 22, 2006

Photographer: Chuck Berry

Witness: Subash Patel

Subject: Release point on the Oconaluftee River; note the porosity of the fill material and the staining on the absorbent pads just behind the date stamp.





OFFICIAL PHOTOGRAPH NO. 16
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: East1

Date: September 22, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Close-up of the staining on the absorbent pads at the release point.





OFFICIAL PHOTOGRAPH NO. 17
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: East

Date: September 23, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Neo Corporation extending diversionary piping and reinforcing the existing dam system.





OFFICIAL PHOTOGRAPH NO. 18
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: East

Date: September 23, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: New diversionary piping and reinforced dam constructed by Neo Corporation at Peak Energy's request.





OFFICIAL PHOTOGRAPH NO. 19
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: East

Date: September 24, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: After heavy rains the previous evening, the dam was overflowing and damaged; the boom and pads shown here are replacements for the ones washed downriver the night before.





OFFICIAL PHOTOGRAPH NO. 20
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: NA

Date: September 24, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Vertical view of the tarpaulin acting as a diversionary dam across the intake grating; the tarp was put in place after heavy rains overflowed the diversionary dam and washed the boom and absorbent pads downriver.





OFFICIAL PHOTOGRAPH NO. 21
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: East

Date: September 24, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: New booms and absorbent pads placed after heavy rains washed the original boom and absorbent pads downstream.





OFFICIAL PHOTOGRAPH NO. 22
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: South

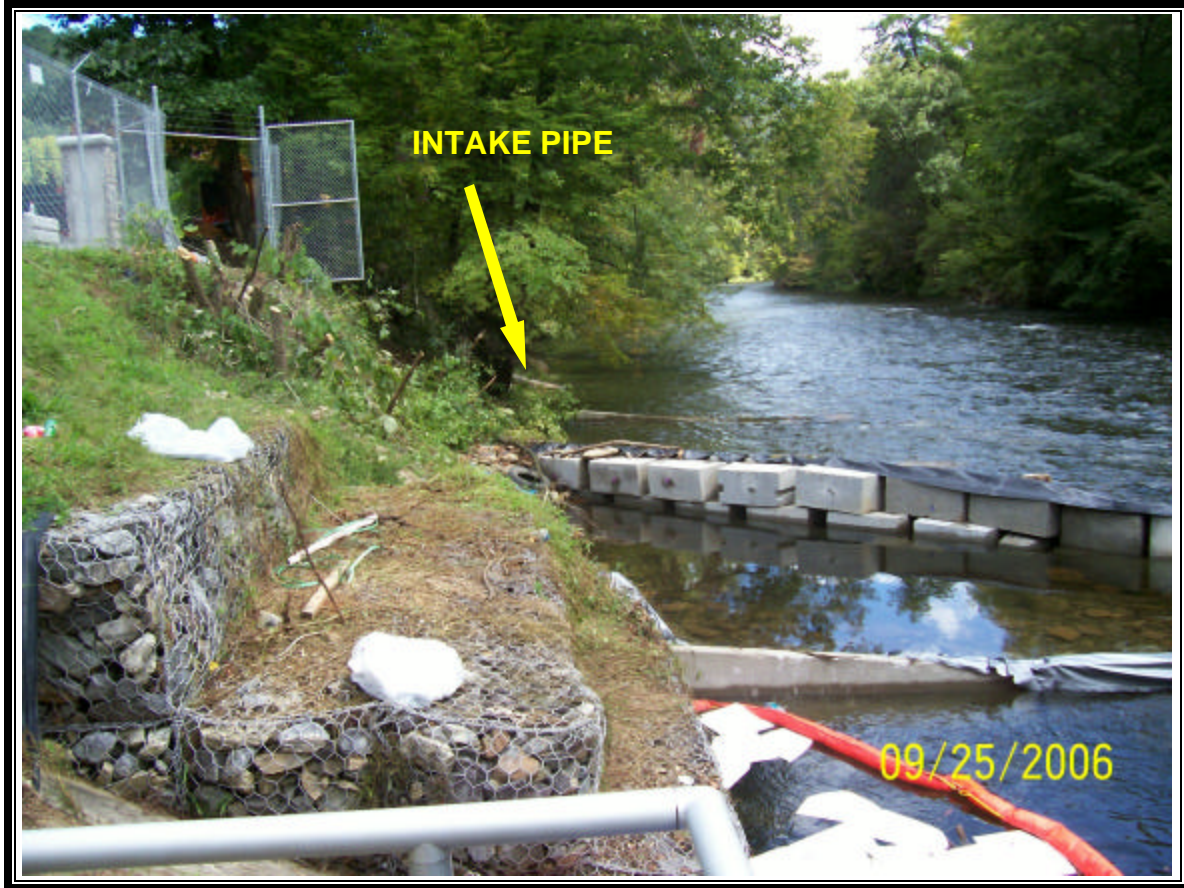
Date: September 25, 2006

Photographer: Chuck Berry

Witness: None

Subject: 12-inch diameter pumps being emplaced by EBCI to withdraw water from upstream of the release point.





OFFICIAL PHOTOGRAPH NO. 23
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: East

Date: September 25, 2006

Photographer: Chuck Berry

Witness: None

Subject: Relation of new intake piping to the release point; the arrow points to the barely-discernable pipe running downhill into the water upstream of the release point.





OFFICIAL PHOTOGRAPH NO. 24
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: Southwest

Date: September 21, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: Orientation of the Golden Eagle Exxon station to the pumphouse in the background; the USTs are buried at the right side of the photograph.





OFFICIAL PHOTOGRAPH NO. 25
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: South

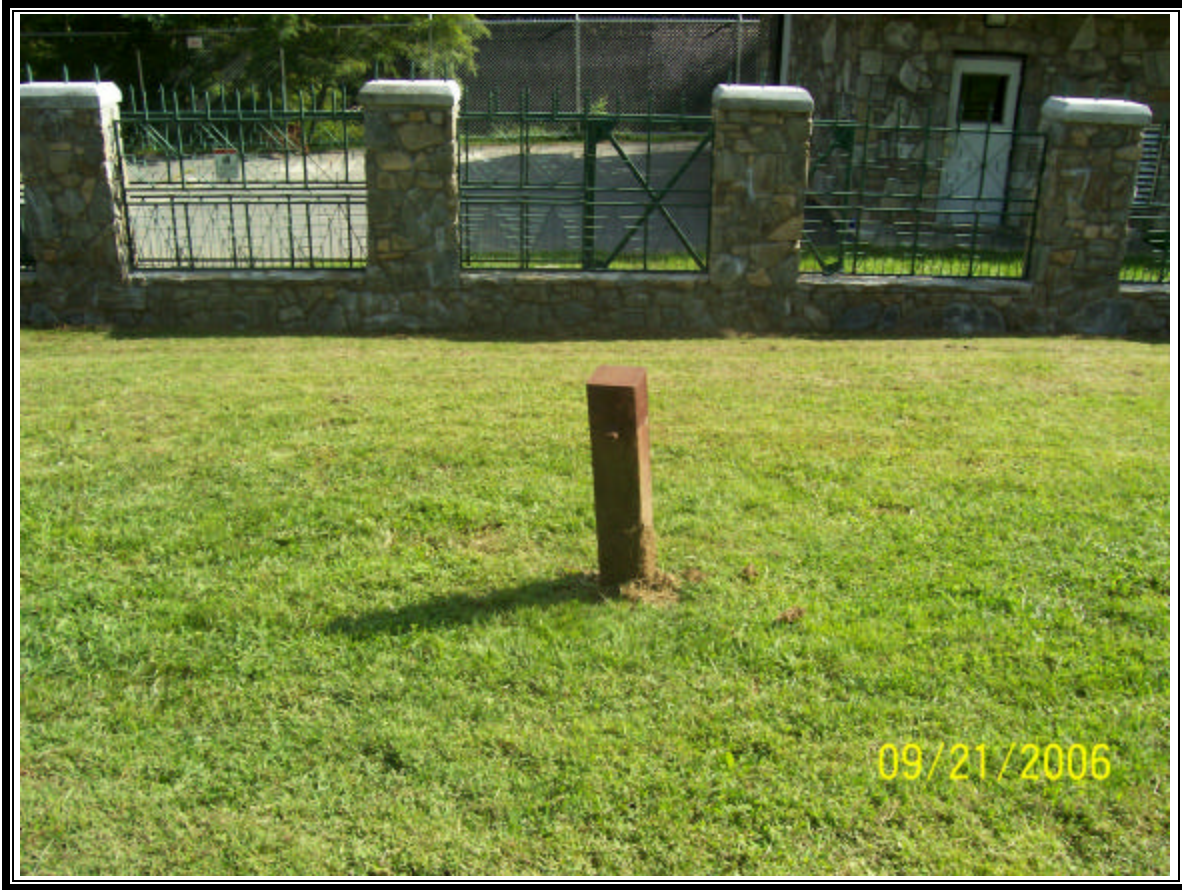
Date: September 21, 2006

Photographer: Chuck Berry

Witness: Subash Patel

Subject: Monitoring well MW-1; the pumphouse is in the background and the Golden Eagle Exxon station is to the left.





OFFICIAL PHOTOGRAPH NO. 26
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: South

Date: September 21, 2006

Photographer: Chuck Berry

Witness: Subash Patel

Subject: Monitoring well MW-2; the release point is directly ahead on the river, and the Golden Eagle Exxon station is directly behind the photographer.





OFFICIAL PHOTOGRAPH NO. 27
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: Southwest

Date: September 21, 2006

Photographer: Chuck Berry

Witness: Subash Patel

Subject: Monitoring well MW-3; the release point is directly ahead on the river, and the Golden Eagle Exxon station is to the right of the photographer.





OFFICIAL PHOTOGRAPH NO. 28
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: West

Date: September 21, 2006

Photographer: Chuck Berry

Witness: Subash Patel

Subject: Monitoring well MW-4; the pumphouse is in the background, the river to the left, and the Golden Eagle Exxon station to the right.





OFFICIAL PHOTOGRAPH NO. 29
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: North

Date: September 22, 2006

Photographer: Subash Patel

Witness: Chuck Berry

Subject: Sample from MW-4 showing no visible sheen or product on top of the water column.





OFFICIAL PHOTOGRAPH NO. 30
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: South

Date: September 23, 2006

Photographer: Terrence Bryd

Witness: Chuck Berry

Subject: Product collected by Delta Environmental from MW-2 ; the thickness of the sample does not indicate the thickness of the product within the well; sample collection methods did not preserve the true product thickness which was determined to be 0.9 foot using a sounding tape.





OFFICIAL PHOTOGRAPH NO. 31
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: South

Date: September 22, 2006

Photographer: Subash Patel

Witness: Chuck Berry

Subject: Sample from MW-3 showing a slight sheen on the top of the water column.





OFFICIAL PHOTOGRAPH NO. 32
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: East

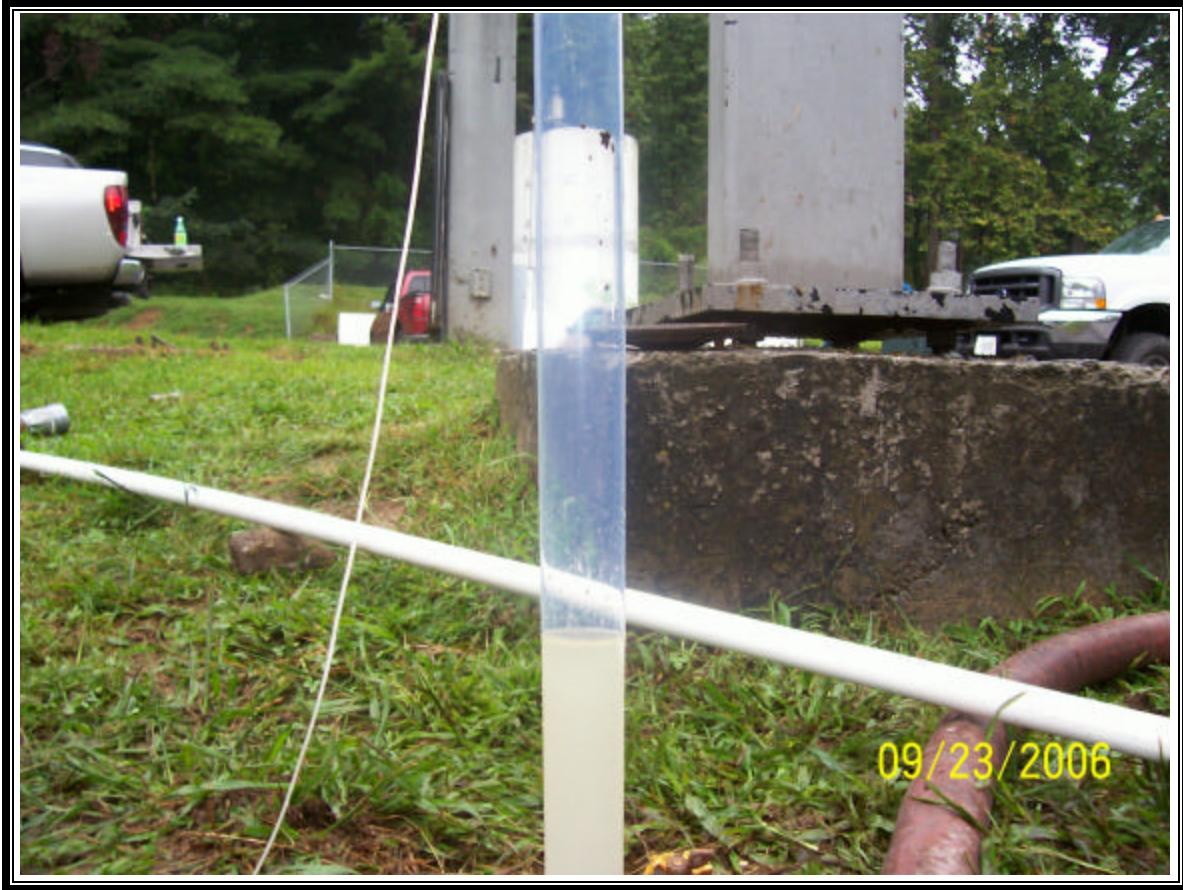
Date: September 22, 2006

Photographer: Subash Patel

Witness: Chuck Berry

Subject: Sample from MW-6 showing about 3 inches of product on top of the water column.





OFFICIAL PHOTOGRAPH NO. 33
U.S. ENVIRONMENTAL PROTECTION AGENCY

TDD Number: TTEMI-05-002-0002

Location: Cherokee, North Carolina

Orientation: North

Date: September 23, 2006

Photographer: Chuck Berry

Witness: Terrence Byrd

Subject: MW-6 after Neo Corporation pumped off the product; the water still had a very strong petroleum odor.



APPENDIX C
TABLE OF WITNESSES
(One Page)

TABLE OF WITNESSES
CHEROKEE NC BOUNDARY TREE UST RELEASE
CHEROKEE, SWAIN COUNTY, NORTH CAROLINA

Mr. Terrence Byrd, On-Scene Coordinator
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Mr. Subash Patel, On-Scene Coordinator
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Atlanta, GA 30303
Telephone No.: (404) 562-9217

Mr. Tom Plouff, PE, Environmental Engineer
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Atlanta, GA 30303
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Mr. Bill Truman, Geologist
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Water Management Division
U.S. Environmental Protection Agency
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Chief Michell Hicks, CPA
Principal Chief
Eastern Band of Cherokee Indians
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Mr. Forrest Parker, Watershed Coordinator
Eastern Band of Cherokee Indians
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Ms. Sheila Hyatt, Water Treatment Supervisor
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Cherokee, NC 28719
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Mr. Ray McCall, WTP Consultant
Public Water Supply Section
Division of Environmental Health
North Carolina Department of Environmental
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Swannanoa, NC 28778
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Mr. Buddy Melton, Environmental Engineer
Public Water Supply Section
North Carolina Department of Environmental
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2090 US Highway 70
Swannanoa, NC 28778
Telephone No.: (828) 296-4500

Mr. David Todd Blevins, President
Peak Energy
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Mr. Mike E. Holt, Project Manager
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APPENDIX D
GEOGRAPHIC LOCATION DATA
(One Page)

**CHEROKEE NC BOUNDARY TREE UST RELEASE
CHEROKEE, SWAIN COUNTY, NORTH CAROLINA
GEOGRAPHIC LOCATION DATA**

SAMPLING LOCATIONS			
Sample	Location	Latitude	Longitude
CW-01	Hospital Tank	N 35.48308	W 83.32054
CW-02	Old #4 Road Tank	N 35.47060	W 83.33554
CW-03	Goose Creek Tank	N 35.46488	W 83.37063
CW-04	Tsali Care / Tsali Dialysis Clinic	N 35.46635	W 83.35572
CW-05	Cherokee Indian Hospital	N 35.48413	W 83.32343
CW-06	Harrah's Casino	N 35.47079	W 83.29976
CW-07	Pheasant Creek Tank/Church of God	N 35.46413	W 83.23672
CW-08	Tsali Manor Nursing Home	N 35.50234	W 83.30847
CW-09	Filter 1	N 35.50179	W 83.31226
CW-09 D	Filter 1		
CW-10	Filter 2		
CW-11	Raw Water		
CW-12	Distribution		
CW-13	Clean Well		

RELEVANT SITE LOCATIONS		
Location	Latitude	Longitude
Golden Eagle Exxon Station	N 35.49971	W 83.31106
Water Intake	N 35.50032	W 83.31185
MW-1	N 35.49986	W 83.31166
MW-2	N 35.49998	W 83.31127
MW-3	N 35.00025	W 83.31103
MW-4	N 35.50009	W 83.31085
MW-5	N 35.50003	W 83.31150
MW-6	N 35.50012	W 83.31139

Note: Some locations have been rectified from data collected in the field.

