BEFORE THE OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF COLORADO

IN THE MATTER OF ALLEGED VIOLATIONS OF THE RULES AND REGULATIONS OF THE COLORADO OIL AND GAS CONSERVATION COMMISSION BY **WILLIAMS PRODUCTION RMT COMPANY**, GARFIELD COUNTY, COLORADO	))))	CAUSE NO. 1V ORDER NO. 1V- DOCKET NO. 1008-OV-06

ADMINISTRATIVE ORDER BY CONSENT

(Pursuant to Rule 522.b.(3) of the Rules and Regulations of the Colorado Oil and Gas Conservation Commission, 2 CCR 404-1)

FINDINGS

1. On May 15, 2007, the Director ("Director") of the Colorado Oil and Gas Conservation Commission ("COGCC" or "Commission") approved two Applications for Permit-to-Drill, Form 2, for the Puckett #WGV 21-23-697 Well (API No. 05-045-014154) and the Puckett #WGV 22-23-697 Well (API No. 05-045-014155) located in the NE¼ NW¼ of Section 23, Township 6 South, Range 97 West, 6th P.M., submitted by Williams Production RMT Company ("Williams") (refer to Attachment 1).

2. The Puckett #WGV 21-23-697 Well was completed on September 25, 2007 and the Puckett #WGV 22-23-697 Well was completed on September 13, 2007. Both wells produced from the WGV 21-23-697/22-23-697 Well Pad (the "WGV Well Pad") (Location ID No. 335117), located in the NE¼ NW¼ of Section 23, Township 6 South, Range 97 West, 6th P.M., with gas production from both wells beginning in October 2007.

3. Produced water containing dissolved hydrocarbons ("Produced Water") from the Puckett #WGV 21-23-697 Well and the Puckett #WGV 22-23-697 Well were placed in a lined, but not permitted, production pit located on the WGV Well Pad (refer to Attachments 2, 3, and 4). The pit was placed into operation on or around the date of first production (October 1, 2007). Williams used the production pit on the WGV Well Pad as an unpermitted production pit for the temporary storage of produced water from the date of first production until October 9, 2008 when Williams asserts that they became aware the pit had not been permitted and subsequently submitted a Form 15 Pit Permit (Facility No. 414581) for the pit.

a. Pre-April 1, 2009 rules (2 CCR 404-1, "Rules" or individually, "Rule"), that were in effect when the production pit on the WGV Well Pad was constructed, required operators of production pits "to make a sensitive area determination . . . to evaluate the potential for impact to ground water and submit [the] data evaluated and analysis used in the determination to the Director" (former Rule 901.e.(2)). The submittal of this information to the Director allowed the COGCC Staff to evaluate whether a proposed production pit would be sited in an area vulnerable to groundwater impact, and, if so, whether special precautions were needed to avoid such an impact.

b. The Rules further required production pits in sensitive areas to be permitted before construction (former Rule 903.a.(1)B.).

c. During this period of time, the Rules defined sensitive area as "an area vulnerable to potential significant adverse groundwater impacts, due to factors such as the presence of shallow economically usable groundwater or pathways for communication with deeper economically usable groundwater, proximity to surface water, including lakes, rivers, perennial or intermittent streams, creeks, irrigation canals, and wetlands." 100-Series Rules.

d. The COGCC Staff concludes that the production pit on the WGV Well Pad was located in an area vulnerable to potential significant adverse ground water impacts, and therefore it was located in a sensitive area and should have been permitted based on the following criteria:

i. The WGV Well Pad and production pit are located on a narrow ridge that is a surface water divide separating the recharge areas for ground water and several springs and streams (refer to Attachment 5).

ii. The WGV Well Pad is underlain by the Uinta Formation. Observations easily made from the outcrop of this formation and excavations made to create pits and pipeline trenches clearly show that the Uinta Formation is highly fractured.

iii. The water discharged at the Spring is economically usable ground water, which was used by Mr. Prather for domestic purposes (refer to Attachments 6, 7, and 8) and for watering livestock (refer to Attachment 9).

iv. Various sources of information available for answering the queries posed in the Sensitive Area Determination Decision Tree were noted. If vital information or data were incomplete or missing, then it was the responsibility of the operator to provide the minimum information necessary. The operator could also provide field observations and data to fulfill determination requirements. When a discrepancy or question regarding the sensitivity of an area arose, the COGCC Staff was to have been consulted, and the Staff would make the final determination in any dispute over whether a location was in a sensitive area.

e. The COGCC Staff believe that the permitting of pits is an essential component of the COGCC regulatory scheme to ensure best management practices are used by operators to protect public health, safety, and welfare and the environment, including soil, waters of the state, and wildlife, from significant adverse environmental, public health, or welfare impacts from exploration and production ("E&P") waste. Although this pit was lined (refer to Attachment 4), Staff believe that if the pit liner had been properly installed and maintained, releases of Produced Water would have been far less likely to occur and risk of impacts to ground water would have been greatly reduced. If this pit had been permitted, COGCC Staff assert that, during the review of the permit, conditions of approval would have been added, and that those types of additional precautions would have greatly reduced the risk of impacts to ground water and the Spring.

f. Williams disputes the allegation by COGCC that the production pit on the WGV Well Pad was not properly installed or maintained. It is Williams assertion that the pit was built in accordance with accepted industry practices and in compliance with the Commission rules governing pit construction at the time of the construction. Williams alleges that static fluid level tests it conducted on the pit in 2009 indicated that the pit liner integrity was good, and does not support the claim that the pit liner was improperly installed or maintained. The COGCC Staff did not witness the fluid level tests, and have not received or reviewed the test results.

4. On May 31, 2008, Ned Prather contacted the COGCC Staff to make a complaint that he had become ill after drinking water from the kitchen faucet in his cabin (Complaint No. 200190483) that was sourced from the Spring (Colorado Division of Water Resources ("CDWR") Permit No. 233234). The Spring is located in the SE¼ SW¼ of Section 14, Township 6 South, Range 97 West, 6th P.M. (refer to Attachment 1).

5. On June 4, 2008, COGCC Staff met with Mr. Prather at his cabin (refer to Attachment 7) and collected water samples from the Spring (refer to Attachment 6) and from the cabin's kitchen faucet (refer to Attachment 8). In addition, samples were collected from three other springs in the area (those springs are referred to herein as "Dick's Spring", "Donna's Spring", and "Spring 2" – refer to Attachments 10, 11, and 12, respectively), from Mr. Prather's stock pond (refer to Attachment 9), and from the production pit associated with the CSOC 697-14 No. 1 Well (API No. 05-045-07948) operated by Nonsuch Natural Gas Inc. ("Nonsuch") (refer to Attachment 13). The focus of this Administrative Order By Consent ("AOC") is the Spring.

6. On June 19, 2008, COGCC Staff received a verbal report on the analytical results of the water samples collected on June 4, 2008 and described in Finding No. 5. Benzene, toluene, ethyl benzene, and xylenes (referred to collectively as "BTEX") were not detected in the water samples collected from Dick's Spring, Donna's Spring, and Spring 2; however, benzene was detected in the water samples collected from the Spring and the kitchen faucet in the Prather cabin at concentrations which exceeded the Colorado Department of Public Health and Environment ("CDPHE") Water Quality Control Commission ("WQCC") ground water standards implemented by the COGCC and listed in Table 910-1 (as it existed at the time of the impact). It should be noted that the benzene concentration in the samples collected from the Spring exceeded the ground water standard by 32 times and the benzene concentration in the sample collected from the faucet

exceeded the standard by 13 times. Toluene and xylenes were detected in both of these samples, but at concentrations below the ground water standards. But these levels were above the current WQCC standards for these substances, which had not yet been incorporated into Table 910-1. A summary of the analytical results of the water samples collected on June 4, 2008 from the Spring and the Prather cabin's kitchen faucet is set forth below:

Prather Spring (sample taken June 4, 2008)

Contaminant of Concern	Concentration (µg/L)	Table 910-1 Concentration (µg/L)[1]
Benzene	**160**	5
Toluene	580	1,000
Xylenes (total)	1,200	10,000
M-Xylene & P-Xylene	970	N/A
O-Xylene	200	N/A
1,2,4-Trimethylbenzene	76	N/A
1,3,5-Trimethylbenzene	100	N/A

1 Table 910-1 standards as they existed in June 2008

Kitchen Faucet in Prather Cabin (sample taken June 4, 2008)

Contaminant of Concern	Concentration (µg/L)	Table 910-1 Concentration (µg/L)[1]
Benzene	**65**	5
Toluene	180	1,000
Xylenes (total)	270	10,000
M-Xylene & P-Xylene	150	N/A
O-Xylene	110	N/A
1,3,5-Trimethylbenzene	58	N/A

1 Table 910-1 standards as they existed in June 2008

7. On June 19, 2008, COGCC Staff collected additional samples from the Spring. In addition, samples were also collected from Mr. Prather's stock pond, the unnamed tributary that flows from the Spring into McKay Gulch, Dick's Spring, and Donna's Spring. Subsequent analysis of these water samples indicated that the Spring was still contaminated; however, there was no indication of impact detected in those water samples taken from the other locations.

8. The COGCC hired Dr. Carolyn Fordham, Ph.D., a toxicologist employed by Terra Technologies Environmental Services, to evaluate data to identify the potential for acute, carcinogenic, and noncarcinogenic health risks from Mr. Prather's ingestion of hydrocarbon-contaminated water. This evaluation included a review of the analytical results for water samples collected from the impacted spring on June 4, 2008 and a trip to the site to interview Mr. Prather. Dr. Fordham concluded that there "did not seem to be an elevated cancer or other adverse health risks for Mr. Prather" based on the amount of water that he drank. However, the actual concentration in the water ingested by Mr. Prather on May 30, 2008 is not known.

9. On June 23, 2008, Marathon Oil Company, Nonsuch, Petroleum Development Corporation, and Williams (referred to collectively as the "Operators") formed a joint group to investigate the source of the contamination detected in the Spring. In addition, individual Operators initiated their own investigations of operations on their respective well pads located in proximity to the Spring.

10. As part of the COGCC investigation to identify potential sources of the contamination in the Spring and in response to concerns raised by Mr. Prather that the source might be a leaking gas well, the COGCC initiated a bradenhead testing program. On August 11, 2008, COGCC Staff witnessed bradenhead tests conducted on all eight gas wells within a 3,000 foot radius of the Spring. Low bradenhead pressures, less than or equal to 5 pounds per square inch ("psi"), were observed in three of the eight wells prior to opening the bradenhead valves. Low pressures in this range are a common result of fluid expansion from temperature changes in the wellbore annulus and are not indicative of a problem with the well, such as a casing leak, particularly when the pressures quickly blow down to zero after opening the valve. Bradenhead pressures were not detected or were too small to measure in the other five gas wells. Based on the bradenhead test results, COGCC Staff concluded that there was no indication that any well within 3,000 feet of the Spring had casing or wellhead seal leaks, and, therefore, a well was not the source of the contamination detected in the Spring.

11. On September 29, 2008, the Operators submitted the results of the *Phase 1 Prather Spring Site Investigation*. This phase of the investigation was conducted during August and September 2008 and included drilling and installing 15 bedrock monitoring wells, coring the wellbores continuously, sampling and evaluating the cores, and collecting and analyzing ground

water samples from new and previously drilled monitoring wells, the Spring, Spring 2, and other springs in the area, and surface water samples. The analytical results from the sampling indicated that impacts to the Spring continued to be detected and Spring 2 was also impacted. Although low concentrations of several petroleum hydrocarbon compounds were detected in some of the monitoring wells, the concentrations were not of the same magnitude as those detected in either the Spring or Spring 2. The source of the impacts to the Spring and Spring 2 were not identified by this sampling event.

12. On November 24, 2008, the Operators submitted the results of the *Phase 1 Site Investigation Progress Report Fall 2008, Prather Spring Investigation*. This phase of the investigation was conducted during October 2008 and included drilling and installing 21 monitoring wells. These wells were completed in the lower colluvium and weathered bedrock (refer to Attachment 14). The analytical results showed that impacts to the Spring and Spring 2 continued to be detected, and impacts to ground water were detected in two of the new monitoring (PS-MW 28 and PS-MW 30) wells within the Spring recharge area and one of the new wells (PS-MW 27) in the Spring 2 recharge area. However, no evidence of impacts to ground water were observed in several monitoring wells (e.g., PS-MW-2S, PS-MW-2D, PS-MW-17, and PS-MW-13D located furthest from the Spring and closest to the WGV Well Pad, along the east side of the drainage.

While the results of the sampling at some monitoring wells did not exceed ground water standards, the contamination was detected and was instrumental to the COGCC Staff in its forensic investigation of the contamination of the Spring. Monitoring wells PS-MW 28 and PS-MW 30 are located east/southeast of, and up-gradient of, the Spring. A summary of the analytical results of the water samples collected on October 23, 2008 from the Spring, PS-MW 28, and PS-MW 30 is set forth below:

Prather Spring (sample taken October 23, 2008)

Contaminant of Concern	Concentration (µg/L)	Table 910-1 Concentration (µg/L)[1]
Benzene	**210**	5
Toluene	76	1,000
Ethylbenzene	12	680
Xylenes (total)	2,900	10,000

1 Table 910-1 standards as they existed in June 2008

PS-MW 28 (sample taken October 23, 2008)

Contaminant of Concern	Concentration (µg/L)	Table 910-1 Concentration (µg/L)[1]
Benzene	**150**	5
Toluene	21	1,000
Ethylbenzene	3.6*	680
Xylenes (total)	1,200	10,000

1 Table 910-1 standards as they existed in June 2008
* Estimated value

PS-MW 30 (sample taken October 23, 2008)

Contaminant of Concern	Concentration (µg/L)	Table 910-1 Concentration (µg/L)[1]
Benzene	1.3*	5
Toluene	1.4*	1,000
Ethylbenzene	Not detected	680
Xylenes (total)	1.6*	10,000

1 Table 910-1 standards as they existed in June 2008
* Estimated value

The contamination of Spring 2 and ground water in the Spring 2 recharge area is the subject of a separate enforcement matter.

13. On December 18, 2008, COGCC Staff issued two NOAVs to Williams for operations on the WGV Well Pad, which is located east/southeast and approximately 1,500 feet up-gradient of the Spring (refer to Attachments 1 and 5). Those NOAVs are:

- NOAV #200200601 for Puckett #WGV 21-23-697 Well
- NOAV #200200603 for Puckett #WGV 22-23-697 Well

The NOAVs had abatement deadlines of January 13, 2009. The NOAVs cited alleged violations of the following COGCC Rules:

a. Rule 209, which, as of December 18, 2008, required operators to exercise

due care in the protection of coal seams and water-bearing formations, with special precautions taken in drilling wells to guard against any loss of artesian water from the stratum in which it occurs and the contamination of fresh water by objectionable water, oil, or gas;

b. Rule 324A.a., which, as of December 18, 2008, required operators to take precautions to prevent significant adverse environmental impacts to air, water, soil, or biological resources to the extent necessary to protect public health, safety and welfare and to prevent the unauthorized discharge of E&P waste;

c. Rule 324A.b., which, as of December 18, 2008, provided that no operator, in the conduct of any oil or gas operation, shall perform any act or practice which shall constitute a violation of water quality standards or classifications established by CDPHE-WQCC for waters of the state;

d. Rule 902.a., which, as of December 18, 2008, required that a pit used for E&P waste shall be constructed and operated to protect waters of the state from significant adverse environmental impacts from E&P waste;

e. Rule 906.a., which, as of December 18, 2008, provided that spills/releases of E&P waste, including produced fluids, shall be controlled and contained immediately upon discovery, and that impacts resulting from spills/releases shall be investigated and cleaned up as soon as practicable;

f. Rule 906.b.(3), which, as of December 18, 2008, provided that spills/releases of any size which impact or threaten to impact any waters of the state shall be verbally reported to the COGCC Director as soon as practicable after discovery;

g. Rule 907.a.(1), which, as of December 18, 2008, provided that operators shall ensure that E&P waste is properly stored, handled, transported, treated, recycled, or disposed to prevent threatened or actual significant adverse environmental impacts to air, water, soil or biological resources or to the extent necessary to ensure compliance with allowable concentration levels in Table 910-1, with consideration of WQCC ground water standards and classifications; and

h. Rule 907.a.(2), which, as of December 18, 2008, required that E&P waste management activities shall be conducted, and facilities constructed and operated, to protect the waters of the state from significant adverse environmental impacts from E&P waste.

The NOAVs required Williams to provide written descriptions of: (1) any pits constructed or used on the WGV Well Pad, including size, volume, whether or not the pit was lined, (2) all fluids (water, drilling, completion, and frac fluids, flowback, etc.) placed in the pit, including volumes, dates, etc., and provide haul tickets for all fluids brought from offsite to the pit(s), (3) whether condensate was observed in the pit(s) during flowback or completion, and (4) tanks or other containers that were used at this site to manage fluids and any spills/releases that occurred. Further, the operators were required to submit: (1) a Form 27, *Site Investigation and Remediation Workplan*, for COGCC review, and (2) all analytical data collected to date.

14. On January 13, 2009, Williams submitted its response to the NOAVs for the WGV Well Pad.

15. On February 13, 2009, COGCC staff collected water samples from the Spring and three other springs (namely, Dick's Spring, Donna's Spring, and Spring 2) in the area. Laboratory analysis of the water sample collected on February 13, 2009 from the Spring detected the following compounds:

Prather Spring (sample taken February 13, 2009)

Contaminant of Concern	Concentration (µg/L)	Table 910-1 Concentration (µg/L)[1]
Benzene	**58**	5
Toluene	Not detected	1,000
Xylenes (total)	1,100	10,000
Naphthalene	12	140

1 Table 910-1 standards as they existed in June 2008

16. On March 20, 2009, Williams submitted the *Revised Response to NOAV's 200200601 and 200200603* in response to the NOAVs for the WGV Well Pad and described in

Finding No. 13. This submittal included copies of all permits and all related documents, all drilling report tickets, all completion report tickets, all haul tickets, all notifications made by Williams to the COGCC for activities on the WGV Well Pad, the initial draft of a Form 27 *Site Investigation Remediation Workplan* for additional work, and analytical results to date. This submittal was reviewed by COGCC Staff and additional comments were provided to Williams.

17. On May 7, 2009, Environmental Services Inc. ("ESI"), working under a contract with the COGCC, collected water samples from the Spring and three other springs (Dick's Spring, Donna's Spring, and Spring 2) in the vicinity. Analytical results indicated that the Spring continued to be impacted.

18. Between May 18 through May 29, 2009, Halepaska and Associates ("Halepaska"), working under a contract with the COGCC, collected water samples and measured field parameters and water levels from the 30 monitoring wells located in the Spring recharge area and from the Spring itself. While the results of the sampling at some monitoring wells did not exceed ground water standards, the contamination was detected and was instrumental to the COGCC Staff in its forensic investigation of the contamination of the Spring. Laboratory analysis of the water samples collected from the Spring and monitoring wells PS-MW 28, 29, 30, and 31 detected the following compounds:

Prather Spring (sample taken May 20, 2009)

Contaminant of Concern	Concentration (µg/L)	Table 910-1 Concentration (µg/L)[1]
Benzene	**47**	5
Toluene	35	1,000
Ethylbenzene	Not detected	680
Xylenes (total)	730	10,000

1 Table 910-1 standards as they existed in June 2008

PS-MW 28 (sample taken May 29, 2009)

Contaminant of Concern	Concentration (µg/L)	Table 910-1 Concentration (µg/L)[1]
Benzene	**140**	5
Toluene	58	1,000
Ethylbenzene	Not detected	680
Xylenes (total)	1,700	10,000

1 Table 910-1 standards as they existed in June 2008

PS-MW 29 (sample taken May 20, 2009)

Contaminant of Concern	Concentration (µg/L)	Table 910-1 Concentration (µg/L)[1]
Benzene	1.2	5
Toluene	Not detected	1,000
Ethylbenzene	Not detected	680
Xylenes (total)	4.6	10,000

1 Table 910-1 standards as they existed in June 2008

PS-MW 30 (sample taken May 20, 2009)

Contaminant of Concern	Concentration (µg/L)	Table 910-1 Concentration (µg/L)[1]
Benzene	2.9	5
Toluene	2.1	1,000
Ethylbenzene	Not detected	680
Xylenes (total)	145	10,000

1 Table 910-1 standards as they existed in June 2008

PS-MW 31 (sample taken May 19, 2009)

Contaminant of Concern	Concentration (µg/L)	Table 910-1 Concentration (µg/L)[1]
Benzene	**63**	5
Toluene	Not detected	1,000
Ethylbenzene	Not detected	680
Xylenes (total)	533	10,000

1 Table 910-1 standards as they existed in June 2008

The analytical results indicated that impacts to the Spring persisted and that benzene, toluene, and xylenes were detected in four of the monitoring wells (PS-MW 28, 29, 30, and 31), which are located on the east side of the drainage and southeast of the Spring (refer to Attachments 14 and 15). The detection of benzene, toluene, and xylenes in these monitoring wells is important to the COGCC Staff because it indicates to the Staff that the source of the contamination of the Spring is located to the southeast. The only potential sources of

contamination southeast of the Spring were the Williams oil and gas operations on the WGV Well Pad and the abandoned MV 6-14 pipeline.

19. Unlike prior sampling events when the concentration of benzene was higher in the Spring than in any of the monitoring wells, during the May 2009 sampling event the concentrations of benzene in PS-MW 28 and PS-MW 31 were higher than the concentration of benzene detected in the Spring. This finding is important to the COGCC Staff because it indicates to Staff that the source of contamination is not in the immediate vicinity of the Spring, but is up-gradient and southeast of PS-MW 28 and PS-MW 31 (refer to Attachment 15). The only potential sources of the contamination up-gradient and southeast of PS-MW 28 and PS-MW 31 were Williams activities on the WGV Well Pad and the abandoned Williams MV 6-14 pipeline.

20. On August 31, 2009, Halepaska submitted its report on its review of the analytical results of the May 2009 water sampling from 30 area monitoring wells as was mentioned in Finding No. 18. See *COGCC May 2009 Sampling Event – Prather Spring Drainage Area* (COGCC Document No. 01629000). The report concluded that: (1) the contamination found in the Spring is likely the result of a release of condensate into the ground water, and (2) the most likely source of the hydrocarbons is from the east side of the drainage, southeast of the Spring.

21. On September 1, 2009, COGCC Staff met with representatives of Williams to inform them of Staff's conclusion that the WGV Well Pad is the most likely source of the contamination detected in the Spring. Mr. Prather and other interested parties were informed that further investigation would focus on Williams activities on the WGV Well Pad and the abandoned Williams MV 6-14 pipeline.

22. On September 23, 2009, Williams submitted a Form 27 *Site Investigation and Remediation Workplan* (COGCC Document No.1630328) for additional work on, and in proximity to, the WGV Well Pad and the abandoned segment of the Williams MV 6-14 pipeline, which was approved by COGCC on November 4, 2009. The goal of this investigation was to evaluate potential sources and pathways of contamination associated with Williams' activities and improve the understanding of the geology and hydrogeology of the recharge area of the Spring. The workplan consisted of three parts, including:

a. The investigation of an eight-foot deep trench that was then being constructed by Enterprise Natural Gas ("Enterprise") for the installation of a new 20-inch pipeline. The goal was to take advantage of the ongoing construction project to help identify and evaluate potential shallow pathways for contaminant migration from the WGV Well Pad to the Spring. The trench was located along the northwest side of and downhill from the WGV Well Pad (refer to Attachment 16). Field activities included geologic descriptions, including photographing the walls and bottom of the trench, collecting samples from the trench for measurement of hydrocarbon vapors with field instruments, and collecting samples for laboratory analysis. This work was conducted along 1,400 feet of the open trench. No contamination was found in the pipeline trench which was dug to a depth of approximately 25 feet below the WGV Well Pad and between the WGV Well Pad and the Spring. Although the trench did not intersect any contamination from the WGV Well Pad, it improved the understanding of the geology of the bedrock and the structural controls of ground water migration in the fractured Uinta Formation (refer to Attachments 17, 18, 19, and 20).

b. The investigation and removal of the Williams MV 6-14 pipeline, which had been constructed by another operator in November 1987 and was used to carry natural gas until it was abandoned in 2005. The pipeline was located along the northwest side of, and downhill from, the WGV Well Pad (refer to Attachment 21). Beginning September 29, 2009, Williams excavated 2,500 feet of the pipeline. Once the pipeline was exposed, it was examined for indications of corrosion and leaks; none were found. The pipeline was then removed and the trench (approximately 3 feet wide and 2 to 4 feet deep) was examined for indications of hydrocarbon releases. In addition to visual observations and field screening, eighteen samples and two duplicate samples were collected for laboratory analysis. There was no evidence that the pipeline had leaked at any time. In addition, this pipeline had previously passed a pressure test performed on November 11, 2008, which likewise had generated no evidence that the pipeline was leaking. Therefore, COGCC Staff concluded that the pipeline was likely not the source of contamination of the Spring.

c. The investigation of five potential sources of contamination on the WGV Well Pad (refer to Attachment 22) including:

i. *Production equipment*
Williams conducted a soil gas survey around the production equipment located on this pad (refer to Attachment 3). The survey included collecting samples from two depths at six different locations (for a total of 12 soil gas samples) and analyzing these soil gas samples for the presence of hydrocarbon compounds. Concentration of hydrocarbon compounds were either not detected or detected only at trace levels. This indicated to the COGCC Staff that the production equipment was likely not the source of dissolved hydrocarbon contamination detected at the Spring.

ii. *Tank battery (separate tanks for produced water and condensate)*
Williams conducted a soil gas survey around the tank battery located on this pad (refer to Attachment 3). The survey included collecting samples from various depths at six different locations (for a total of 18 soil gas samples) and analyzing these soil gas samples for the presence of hydrocarbon compounds. Concentration of hydrocarbon compounds were either not detected or detected only at trace levels. This indicated to the COGCC Staff that the tank battery was likely not the source of dissolved hydrocarbon contamination detected at the Spring.

iii. Gas discharge line
Williams conducted a soil gas survey around the gas discharge line located on this pad. The survey included collecting samples from two depths at nine different locations (for a total of 18 soil gas samples and one duplicate sample) and analyzing these soil gas samples for the presence of hydrocarbon compounds. Concentration of hydrocarbon compounds were either not detected or detected only at trace levels. This indicated to the COGCC Staff that the gas discharge line was likely not the source of dissolved hydrocarbon contamination detected at the Spring.

iv. *Former reserve pit – backfill sampling and trenching*
On or about August 19, 2009, Williams removed the liner and backfilled the reserve pit without prior approval from the COGCC. Nonetheless as part of the ongoing investigation of potential sources of contamination of the Spring, Williams conducted extensive sampling and analysis of the former reserve pit, including:

a. Excavated trenches into the bedrock below the bottom of the former pit and collected soil/rock samples for laboratory analysis. Ten samples and one duplicate sample were collected. None of the samples had concentrations of total petroleum hydrocarbons ("TPH") that exceeded the Table 910-1 standard, which is 500 mg/kg.

b. Collected samples of the backfill material at four locations. TPH exceeded the Table 910-1 standard for soil, which is 500 mg/kg, in two of the samples at concentrations of 608 mg/kg and 627 mg/kg.

c. Drilled and cored boreholes at two locations and collected samples at depths of approximately ten feet below the bottom of the former pit. None of the samples had concentrations of TPH that exceeded the Table 910-1 standard, which is 500 mg/kg.

d. Thus, the analytical results from the various samples collected from the former reserve pit indicated that it was likely not the source of contamination detected in the Spring.

v. *Existing production pit – removal of pit liner and closure*

Williams removed the fluids, solids, and the liner from the production pit (refer to Attachments 2, 3, and 4). Subsurface samples from beneath the pit liner were collected to detect the presence of hydrocarbons that would be indicative of a release from the production pit.

a. A soil gas survey was conducted at two locations within the pit. In addition to collecting four soil gas samples, nine samples of rock and soil were collected from the boreholes and submitted for laboratory analysis. Only trace or very low concentrations of hydrocarbon compounds were detected in the soil vapor and rock and soil samples.

b. Coreholes were drilled and sampled at eight locations in and around the production pit. Depths ranged from 115 feet below ground surface ("fbgs") to 175 fbgs. A total of 61 core samples of bedrock were submitted for hydrocarbon analysis. TPH at concentrations exceeding the Table 910-1 standard of 500 mg/kg were detected in certain samples from three locations: corehole EP-CH-5 in the sample collected at 103 fbgs, where the concentration detected was 798 mg/kg; corehole EP-CH-7 in the sample collected at 77 fbgs, where the concentration detected was 5,030 mg/kg and in the sample collected at 84 fbgs, where the concentration detected was 8,840 mg/kg; corehole EP-CH-8 in the sample collected at 58 fbgs, where the concentration detected was 759 mg/kg, in the sample collected at 67 fbgs, where the concentration detected was 5,670 mg/kg, in the sample collected at 69 fbgs, where the concentration detected was 6,200 mg/kg, and in the sample collected at 79 fbgs, where the concentration detected was 8,910 mg/kg.

c. Two trenches were excavated to, and into, bedrock. Thirty three grab samples and two duplicates of the soil and bedrock were collected for laboratory analysis. Concentrations of TPH exceeding the Table 910-1 standard were detected in nine of these samples. The highest concentrations of TPH were detected in samples NEP-48N10-4 and NEP-48N10-8 at 13,900 mg/kg and 17,168 mg/kg, respectively. The collection points for these samples were located on the northwestern edge of the pit at depths of approximately four and eight fbgs.

d. The concentrations of TPH detected in the samples collected from NEP-48N10-4 and NEP-48N10-8 and the TPH concentrations detected in the three coreholes indicated to the COGCC Staff that the production pit was a likely source of the dissolved hydrocarbon contamination detected in the Spring.

23. Based on these sampling results, Williams verbally notified the COGCC, on December 15, 2009, of a release of hydrocarbons from the production pit on the WGV Well Pad. Williams made this discovery during the implementation of their approved investigation work plan described in Finding No. 22. On December 18, 2009, Williams submitted a Form 19 *Spill/Release Report* (COGCC Document No. 1631586) regarding discovery of a release. Hydrocarbon contamination had been discovered during the investigation and closure of the production pit. The volume and the time of the release were and remain unknown and the cause of the release remains under investigation.

24. Based in large part on the concentrations of TPH detected in the samples collected from NEP-48N10-4 and NEP-48N10-8 and the TPH concentrations detected in the three coreholes, the COGCC Staff's has concluded that a release from the production pit on the WGV Well Pad was a likely source of the contamination detected in the Spring in May 2008.

25. COGCC records reveal that the production pit on the WGV Well Pad was lined, but not permitted prior to or at or around the time of construction. Williams used the production pit on the WGV Well Pad to manage Produced Water from on or around the date of first production from the WGV Well Pad (October 1, 2007) until and through October 9, 2008 (a period of 375

days), when Williams submitted a Form 15 *Pit Permit* as required by Rule 903.a. (formerly Rule 903.a.(1)B.).

26. The exact date of the release or releases of the Produced Water from the pit on the WGV Well Pad, and the volume of Produced Water released from the pit, are not known, and the cause of the release or releases remains under investigation. For the purpose of settling this matter under this AOC, the parties have agreed to use a period of 122 days of alleged violation.

27. Rule 523. specifies a base fine of One Thousand dollars ($1,000) for each day of violation of Rules 324A.a., 324A.b., 902.a., 903.a., and 907a.(2). Rule 523.a.(3) specifies that "the maximum penalty for any single violation shall not exceed Ten Thousand dollars ($10,000) regardless of the number of days of such violation," unless the violation results in significant waste of oil and gas resources, damage to correlative rights, or a significant adverse impact on public health, safety or welfare or the environment.

28. Based on the above facts, COGCC Staff has concluded that the release or releases of E&P waste from the production pit on the WGV Well Pad resulted in a significant adverse impact to the environment and public health, safety, and welfare. The bases for this conclusion are:

a. The release or releases of E&P waste impacted the Spring.

b. The contaminated water from the Spring was ingested by Mr. Prather on May 30, 2008 when he drank water from the faucet in the kitchen of his cabin.

c. On June 4 2008, five days after the initial discovery of the contamination, the concentration of benzene detected in water discharging from the Spring and the kitchen faucet in the Prather cabin exceeded the then-applicable Table 910-1 standard.

29. Williams does not believe that hydrocarbons released from the production pit on the WGV Well Pad migrated to ground water beneath the WGV Well Pad and were transported by ground water flow to the Spring. Further, Williams alleges that the previous statement is supported by the fact that ground water was not encountered beneath the WGV Well Pad to a depth of 175 fbgs and hydrocarbon concentrations detected beneath the pit in the subsurface formations declined with depth to below applicable cleanup standards in the eight coreholes drilled below the WGV Well Pad.

30. Solely in the interest of compromise and settling disputed technical and legal allegations made by the COGCC and Mr. Prather, Williams, acting in good faith, agrees to voluntarily consent to this AOC. Williams does not admit any fact, finding, or allegations of liability for any of the alleged Rule violations, and denies that such alleged violations caused a significant adverse impact to the environment. However, Williams agrees to pay the following fines as adjusted pursuant to Finding No. 44 and the COGCC Staff agrees to accept the following fines as adjusted pursuant to Finding No. 44. Both parties agree to do so in order to resolve this matter without the necessity of a contested hearing.

31. For purposes of settling this matter, Williams should not be found in violation of Rule 209 because Rule 209 was not violated here.

32. Williams violated **Rule 324A.a.** because it placed Produced Water in a lined pit on the WGV Well Pad, but the pit liner leaked and allowed fluids to be released to the environment, and by so doing, Williams failed to take precautions to prevent significant adverse environmental impacts to air, water, soil, or biological resources to the extent necessary to protect public health, safety and welfare and to prevent the unauthorized discharge of oil, gas or E&P waste. A base fine of One Hundred Twenty Two Thousand dollars (**$122,000**) has been calculated for the violation of Rule 324A.a.

33. Williams violated **Rule 324A.b.** because it placed Produced Water in a lined pit on the WGV Well Pad, but the pit liner leaked and allowed fluids to be released to the environment, and by so doing, Williams performed an oil and gas related act or practice which constituted a violation of the water quality standards or classifications established by CDPHE-WQCC for waters of the state. A base fine of One Hundred Twenty Two Thousand dollars (**$122,000**) has been calculated for the violation of Rule 324A.b.

34. Williams violated **Rule 902.a.** because it placed Produced Water in a lined pit on the WGV Well Pad, but the pit liner leaked and allowed fluids to be released to the environment, and by so doing, Williams failed to construct and operate an E&P pit to protect waters of the state from significant adverse impacts from E&P waste. A base fine of One Hundred Twenty Two Thousand dollars (**$122,000**) has been calculated for the violation of Rule 902.a.

35. Williams violated **Rule 903.a.** because it used an unpermitted pit to manage Produced Water from on or around the date of first production, October 1, 2007, through October 9, 2008, when Williams submitted a Form 15 *Pit Permit* (Facility No. 414581), a period of 375 days. COGCC Staff have calculated a base fine of Ten Thousand dollars (**$10,000**) based on the maximum penalty provision set forth in Rule 523. absent a showing that the violation resulted in significant waste of oil and gas resources, damage to correlative rights, or a significant adverse impact on public health, safety or welfare or the environment.

36. For purposes of settling this matter, Williams should not be found in violation of Rule 906.a. because Williams demonstrated a prompt, effective and prudent response to the release.

37. For purposes of settling this matter, Williams should not be found in violation of Rule 906.b.(3) because Williams demonstrated a prompt, effective and prudent response to the release.

38. For purposes of settling this matter, Williams should not be found in violation of Rule 907.a.(1) because the alleged violation of Rule 907.a.(1) can be combined with the alleged violation of Rule 907.a.(2).

39. Williams violated **Rule 907.a.(2)** because it placed Produced Water in a lined production pit on the WGV Well Pad, but the pit liner leaked and allowed fluids to be released to the environment, and by so doing, Williams failed to conduct and operate E&P waste management activities in a manner which ensured the protection of the waters of the state from significant adverse environmental impacts from E&P waste. A base fine of One Hundred Twenty Two Thousand dollars (**$122,000**) has been calculated for the violation of Rule 907.a.(2).

40. COGCC Staff specifically reserve the right to proceed as to alleged violations of Rules 906.a., 906.b.(3), and 907.a.(1), if this matter is not resolved by this AOC. Nothing within this AOC should be construed as the COGCC Staff waiving their right to prosecute any violation set forth in this AOC in the event that this AOC is not executed by the parties and approved by the Commission.

41. In summary, Williams should be found in violation of Rules 324A.a., 324A.b., 902.a., 903.a., and 907a.(2) as described herein, for failing to properly permit, construct, maintain, and repair the pit on the WGV Well Pad so that E&P waste was not released, and base fines levied as compiled in the table below:

Rule Violation	*Days of Violation*	*Fine Amount/Violation*
324A.a.	122	$122,000
324A.b.	122	$122,000
902.a.	122	$122,000
903.a.	375	$10,000
907.a.(2)	122	$122,000
Total Maximum Allowable Fine		***$498,000***

42. Because the base fine for these violations is set at $1,000 per day of violation, the aggravating factors set forth in Rule 523.d. are not applicable by their terms.

43. The following mitigating factors were considered in reducing the maximum allowable fine amount by fifteen percent (15%):

(1) Ten percent (10%) for combined Rule 523.d.(2), because Williams demonstrated a prompt, effective and prudent response to the violations, and Rule 523.d.(3), because Williams cooperated with the Commission by leading and serving as the central point of contact and coordinator for the joint operator investigation for the COGCC and, otherwise, cooperated with the COGCC. Further, Williams deployed its critical resources (both employees

and contractors) during the initial response and subsequent joint operator investigation in order to avoid delay; and

(2) Five percent (5%) under Rule 523.d.(6), because Williams incurred substantial costs for its investigation and remediation efforts to date, and these costs substantially exceed any economic benefit from the violations. As of the date of this AOC, Williams has expended approximately $1,300,000 in investigative work associated with identifying the source of contamination of the Spring. Further, Williams has spent approximately $8,500,000 to date on costs associated with basin-wide efforts to enhance the management of fluids including Produced Water. Funds were spent in the Highlands to:

a. Enhance the produced water management system;
b. Enhance the produced water gathering system;
c. Installed SCADA fluid level monitoring system;
d. Retain dedicated compliance inspectors for pit and liner compliance;
e. Retain water hauling contractor to monitor and maintain fluid levels in pits; and
f. Prepare custom fabricated water truck pumping truck manifolds to prevent damage to pit liners.

Also, Williams has implemented a variety of internal and outside programs to proactively address standard E&P operational practices. These activities can be divided into two categories:

Internal (Williams)

- Training employees on the importance of spill prevention and reporting
- Installing and maintaining spill stations with spill response equipment throughout the areas in which they have operations
- Retaining a spill response contractor on call 24/7
- Conducting voluntary inspections of pits on a scheduled basis looking for any evidence of leaks or overspills, inadequate free board and condensate accumulation
- Installing pressure transducers in produced water storage pits that are monitored via the well SCADA system for evidence of pit leakage
- Inspecting the installation of pit liners
- Testing the integrity of new lined produced water storage pits with fresh water
- Assessing the depth to groundwater and distance to surface water and wells and springs in selecting pad and pit installations
- Installing fixed hosing or piping or protective covers to prevent potential damage to liners from vacuum hoses dropped into pits
- Using clean cuttings as the soil foundation on which liners are installed

Contractor

- Reviewing and evaluating key contractor spill prevention and awareness programs
- Training to contractors on the importance of spill prevention and reporting
- Reinforcing the importance of preventing and reporting spills during annual “all hands” contractor meetings
- Holding contractors responsible for cleaning up and paying for spills that were caused by their actions
- Investigating significant contractor spills to determine primary causes of spills and requiring corrective actions

44. The parties agree to a fine of Four Hundred Twenty Three Thousand, Three Hundred dollars ($423,300), which takes into consideration a 15% fine reduction for mitigating factors.

45. Payment of the fine pursuant to this AOC does not relieve the operator from its obligations to complete abatement or corrective actions set forth in the NOAV, as may be amended or modified by Staff.

46. The COGCC Staff and Williams agree that providing a potable source of water to Mr. Prather for use at his cabin and for maintaining fencing while the Spring is impacted and

conducting ground water and Spring monitoring until water quality in the Spring remains at or below Table 910-1 ground water standards is critical to the resolution of this matter.

Although the analytical results for samples collected in 2010 from the Spring demonstrate a significant decrease in concentrations of benzene when compared to the analytical results for the sample collected on August 7, 2008, which contained the highest concentration of benzene, the concentration of benzene is still above the Table 910-1 groundwater standard of 5 µg/L. Benzene was detected at a concentration of 290 µg/L in the water sample collected from the Spring on August 7, 2008 and at a concentration of 21.4 µg/L in the water sample collected on June 16, 2010. A summary of the benzene concentrations for several of the 2010 water samples collected from the Spring and the August 7, 2008 sample is set forth below:

Prather Spring – Benzene Concentration

Date	Concentration (µg/L)	Table 910-1 Concentration (µg/L)[1]
August 7, 2008	290	5
March 3, 2010	28	5
March 31, 2010	30.4	5
April 16, 2010	11.8	5
April 23, 2010	53	5
April 30, 2010	15.8	5
May 5, 2010	9.2	5
May 12, 2010	12.1	5
May 19, 2010	12	5
May 26, 2010	13.5	5
June 2, 2010	13.7	5
June 9, 2010	14.8	5
June 16, 2010	21.4	5

1 Table 910-1 standards as they existed in June 2008

47. The COGCC Staff and Williams agree that the prompt development and implementation of a plan to monitor the effects of natural attenuation and to mitigate impacts from the discharge of contaminated water from the Spring is critical to the resolution of this matter. To that end, Williams agrees to submit a Monitoring and Mitigation Plan to the COGCC for Staff's review and approval within 30 days of the entry of the Order by the Commission, and that the implementation of the plan shall occur within 30 days of the written notification to Williams of the approval of the plan by the Staff.

The Monitoring and Mitigation Plan shall be provided to Mr. Prather for review and comment and his comments shall be considered by COGCC Staff prior to approval by the Staff. The Staff's actions on the proposed plan will be subject to review by the Commission at an expedited hearing if requested in writing by Mr. Prather or Williams.

48. Williams should execute this AOC no later than 14 days after the date it is executed by Staff for recommendation to the Commission for approval. The COGCC Staff may seek additional fines, which Williams may contest, if this matter is not approved by the Commission.

49. Williams or its successors or assigns, should be required to remain responsible for complying with this AOC, in the event of any subsequent sale of property.

50. Pursuant to Article IX, of the "Memorandum of Agreement" between the Water Quality Control Division ("WQCD") and the COGCC, adopted February 15, 2000, COGCC Staff conferred with WQCD enforcement staff in determining the monetary penalty against Williams for violations of WQCC standards for surface waters. WQCD indicated it agrees with the fine and the terms of this AOC and will not pursue any additional penalty.

51. Williams agrees to the findings of this AOC only for the purpose of expeditiously resolving the matter without a contested hearing. Notwithstanding the above, Williams does not admit to any of the factual or legal determinations made by the Commission herein, and fully reserves its right to contest same in any future action or proceeding other than a proceeding to enforce this AOC.

ORDER

NOW, THEREFORE, IT IS ORDERED, that Williams Production RMT Company shall be found in violation of the Rules set forth in Finding No. 41, above, for oil and gas operations at

the Puckett #WGV 21-23-697 Well and the Puckett #WGV 22-23-697 Well, located in the NE¼ NW¼ of Section 23, Township 6 South, Range 97 West, 6th P.M., for those acts alleged in this AOC.

IT IS FURTHER ORDERED, that Williams Production RMT Company shall be assessed a total adjusted fine of Four Hundred Twenty Three Thousand, Three Hundred dollars ($423,300) for the Rule violations set forth in Finding No. 44, above, which shall be payable within thirty (30) days of the date the Administrative Order by Consent is approved by the Commission.

IT IS FURTHER ORDERED, that Williams shall provide Mr. Prather with a reliable and year-round supply of potable water to the cabin and maintain the fences constructed to prevent access by livestock and wildlife to the contaminated water discharging from the Spring, until water quality in the Spring remains at or below Table 910-1 groundwater standards and the Director relieves Williams of this provision of the Order.

IT IS FURTHER ORDERED, that within 30 days of the date the Administrative Order by Consent is approved by the Commission, Williams must submit to the COGCC Staff for review and approval an addendum to the existing Form 27 - *Site Investigation and Remediation Workplan* (COGCC Remediation Project No. 2024) that includes:

1. Submittal of a Monitoring and Mitigation Workplan, including an implementation schedule for a monitored natural attenuation remedy. Based on the analytical results for samples from the Spring and other water features collected since 2008 and in consideration of the significant decrease in concentrations of contamination in the Spring (refer to Finding No. 46), a monitored natural attenuation remedy is appropriate.

Williams will monitor the Spring for a minimum of three separate sampling events each year, at least one of which will occur during spring runoff. Williams will monitor the wells, stock pond and spring supplying Dick Prather's cabin identified in Paragraph 2 above for one monitoring event which will occur during spring runoff each year and continue until the contaminant concentrations for all areas that are sampled remain less than Table 910-1 standards for ground water. The number of sample events required of Williams to establish that the contaminant concentrations have permanently achieved Table 910-1 standards for ground water will be agreed to between the COGCC and Williams as part of the Monitoring and Mitigation Workplan.

2. Submittal of at a minimum quarterly written progress reports by the 15th of the month following the end of each quarter (January 15, April 15, July 15, and October 15) of ongoing monitoring and mitigation of the impacts to the Spring, the first of which shall be submitted for that quarter following the approval of the Monitoring and Mitigation Plan, contingent on Williams having legal access to the Spring and the required sampling locations.

3. An evaluation of the 2010 remedy implementation shall be submitted to the COGCC Staff for review and approval no later than November 1, 2011. Any Staff action taken on the results of the remedy evaluation will be subject to review by the Commission at an expedited hearing if requested in writing by Mr. Prather or Williams.

4. An evaluation of the existing monitoring well network in the Spring recharge area to determine which of those wells will continue to be used for long-term monitoring and which are no longer needed, including a schedule for properly abandoning any monitoring wells no longer needed, shall be included in the Monitoring and Mitigation Workplan, contingent on Williams having legal access to the required locations.

IT IS FURTHER ORDERED, that within 60 days of the date the Administrative Order by Consent is approved by the Commission, Williams must submit to the COGCC Staff for review and approval an addendum to the existing Form 27 - *Site Investigation and Remediation Workplan* (COGCC Remediation Project No. 2024), that includes:

1. Submittal of a workplan to evaluate the backfill material used to reclaim the former reserve pit on the WGV Well Pad and to determine whether the backfill material is in compliance with Table 910-1 standards and, if necessary, to remediate or remove backfill material that is not in compliance.

2. Submittal of a workplan for completing the closure of the production pit on the WGV Well Pad.

IT IS FURTHER ORDERED, that the NOAVs described in Finding No. 13, above, will be resolved upon the approval of the Administrative Order by Consent by the Commission.

IT IS FURTHER ORDERED, that the operator shall execute this Administrative Order by Consent no later than fourteen (14) days after the date it is executed by the Staff for recommendation of expedited approval by the Commission.

IT IS FURTHER ORDERED, that under the State Administrative Procedure Act the Commission considers this order to be final agency action for purposes of judicial review within thirty (30) days after the date this order is mailed by the Commission.

IT IS FURTHER ORDERED, that an application for reconsideration by the Commission of this order is not required prior to the filing for judicial review.

IT IS FURTHER ORDERED, that the provisions contained in the above order shall become effective forthwith.

IT IS FURTHER ORDERED, that the Commission expressly reserves its right after notice and hearing, to alter, amend, or repeal any and/or all of the above orders.

RECOMMENDED this -16th- day of July, 2010.

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF COLORADO

By _____
Rob Willis, Enforcement Officer

Dated at Suite 801
1120 Lincoln St.
Denver, Colorado 80203
July 2, 2010

AGREED TO AND ACCEPTED this 16th day of July, 2010.

WILLIAMS PRODUCTION RMT COMPANY

By _____
Signature of Authorized Company Representative

ALAN C. HARRISON
Print Signatory Name

VICE PRESIDENT - DENVER REGION
Title

ATTACHMENT 1 –
PRATHER SPRING LOCATION MAP
SE 1/4 SECTION 14 T6S R97W
&
WILLIAMS
WGV WELL PAD

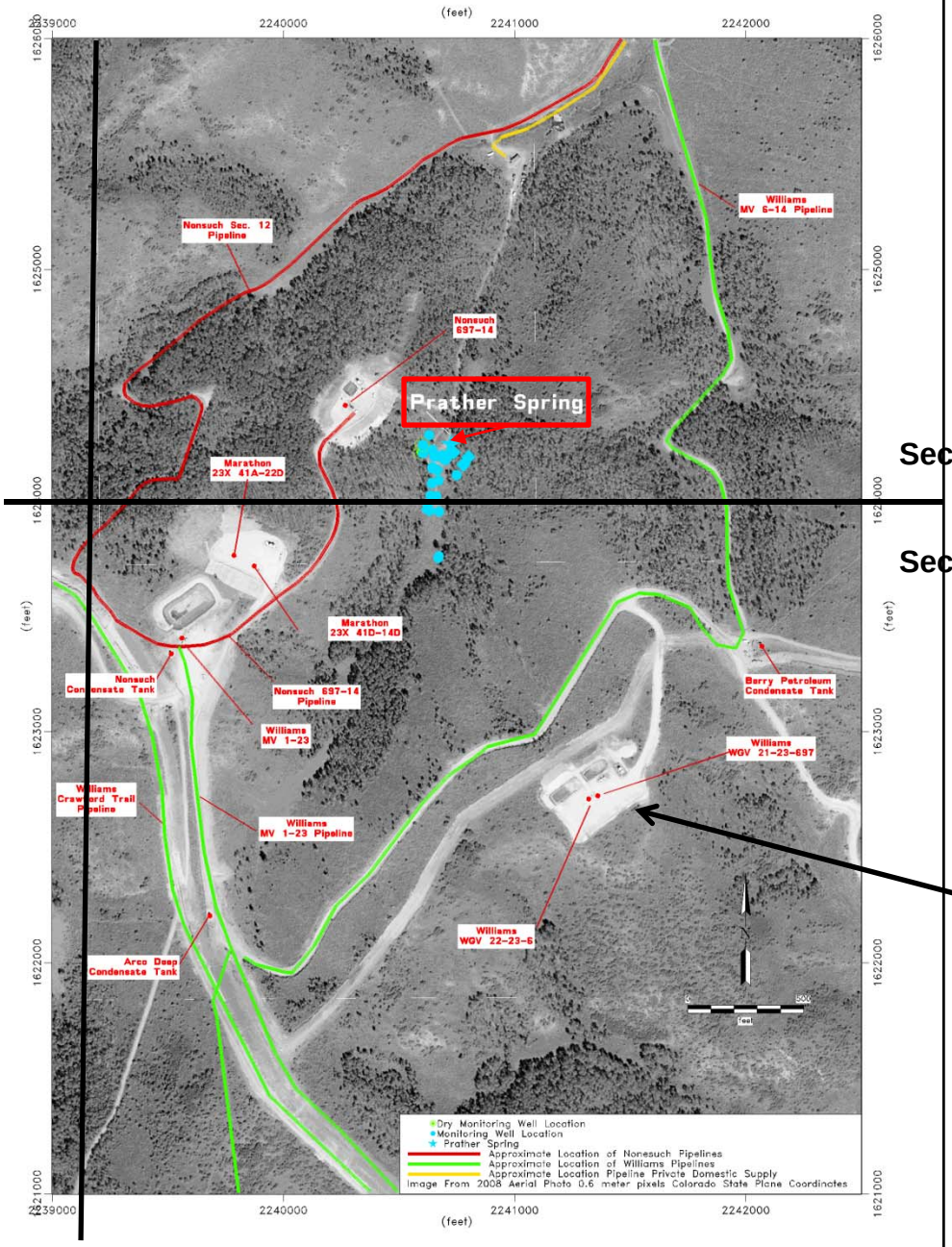


FIGURE 1 Site Features Prather Spring Drainage

Final 7/28/10

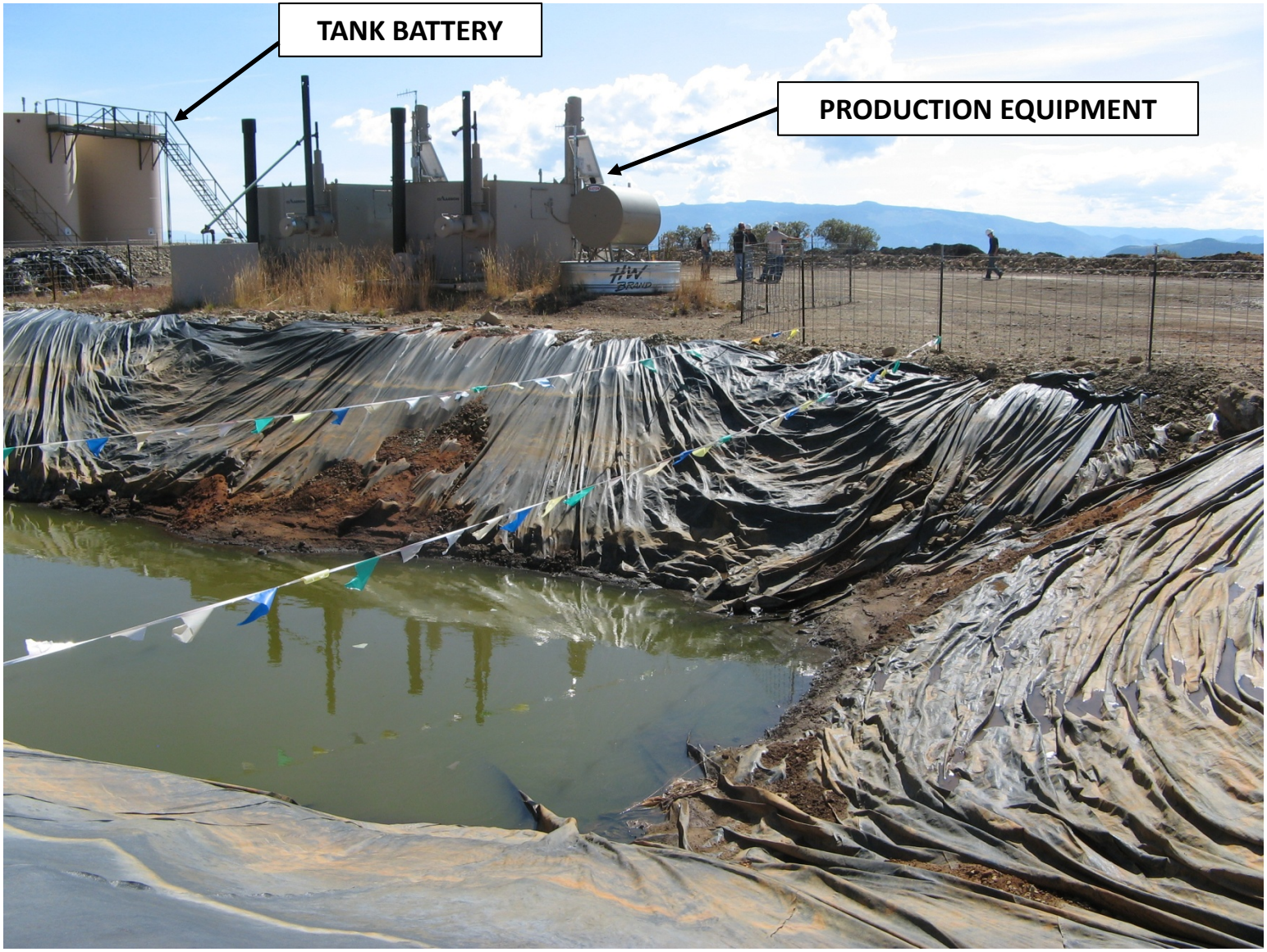
SOURCE: 8/31/09 HALEPASKA REPORT TO COGCC

ATTACHMENT 2 –
WILLIAMS PRODUCTION PIT ON WGV WELL PAD

SOURCE: COGCC 9/16/08

Final 7/28/10

ATTACHMENT 3 –
WILLIAMS PRODUCTION PIT ON WGV WELL PAD



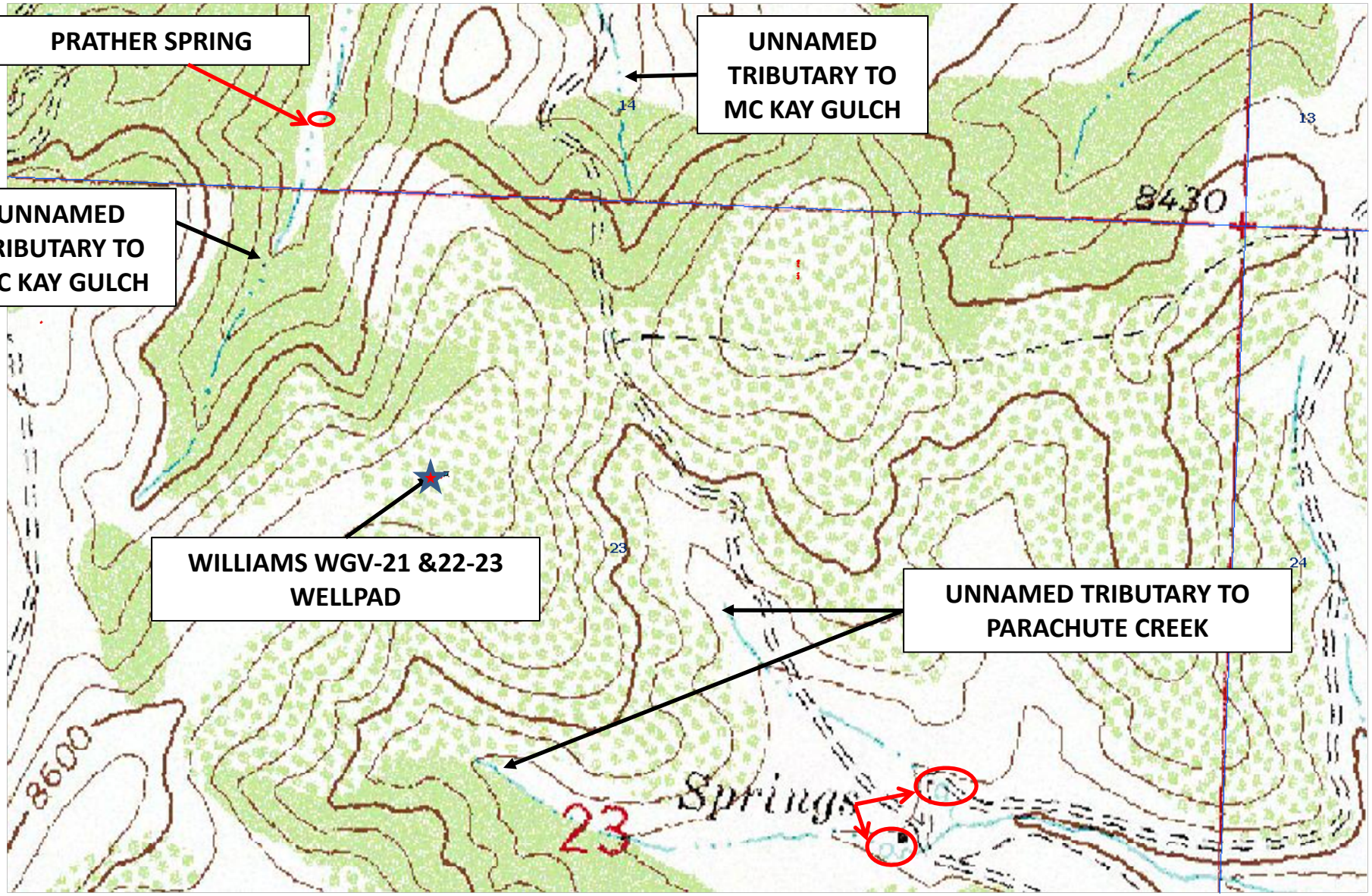
Final 7/28/10

SOURCE: COGCC 9/16/08

ATTACHMENT 4 –
WILLIAMS PRODUCTION PIT ON WGV WELL PAD

SOURCE: COGCC 9/16/08

ATTACHMENT 5 –
WILLIAMS PRODUCTION PIT ON WGV WELL PAD



Final 7/28/10

SOURCE: COGCC

ATTACHMENT 6 – PRATHER SPRING

SOURCE: COGCC 6?2?08

ATTACHMENT 7 –
PRATHER CABIN AND OTHER STRUCTURES

Final 7/28/10

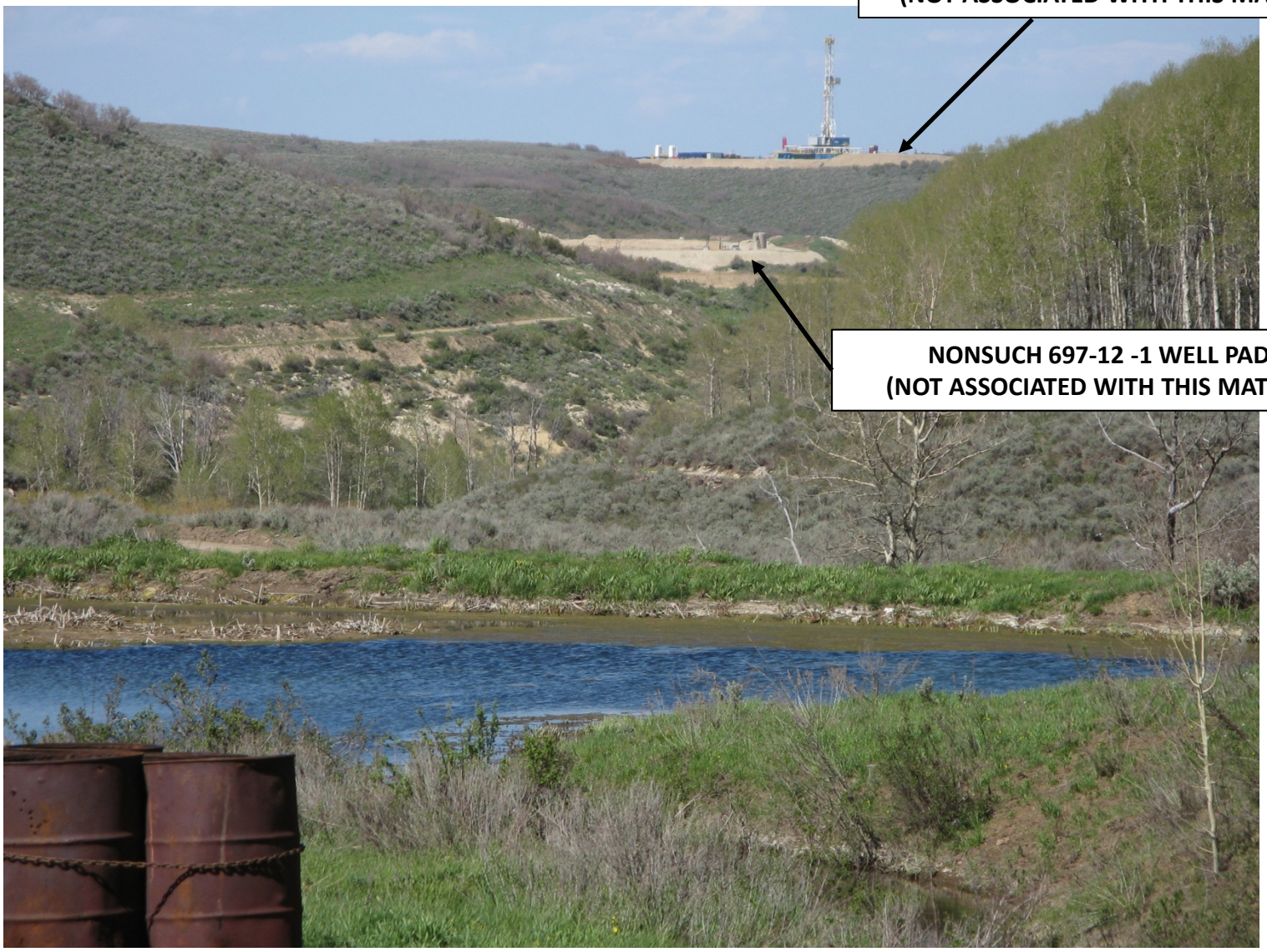
SOURCE: COGCC 6/2/08

ATTACHMENT 8 – KITCHEN FAUCET IN PRATHER CABIN, WATER COMES FROM THE PRATHER SPRING

Final 7/28/10

SOURCE: COGCC 7/28/10

ATTACHMENT 9 – PRATHER STOCK POND, WATER COMES FROM PRATHER SPRING (VIEW DOWN MCKAY GULCH AND TO NORTHEAST)



SOURCE: COGCC 6/2/08

Final 7/28/10

ATTACHMENT 10 – FAUCET AND TROUGH, SOURCE OF WATER IS DICK'S SPRING

Final 7/28/10 SOURCE: COGCC 6/4/08

ATTACHMENT 11 –
STOCK TANK FILLED WITH WATER FROM DONNA'S SPRING

SOURCE: COGCC 6/4/08

ATTACHMENT 12 – SPRING 2

SPRING 2
DISCHARGING INTO AND
IS THE SOURCE OF PERENNIAL WATER
FOR MCKAY GULCH

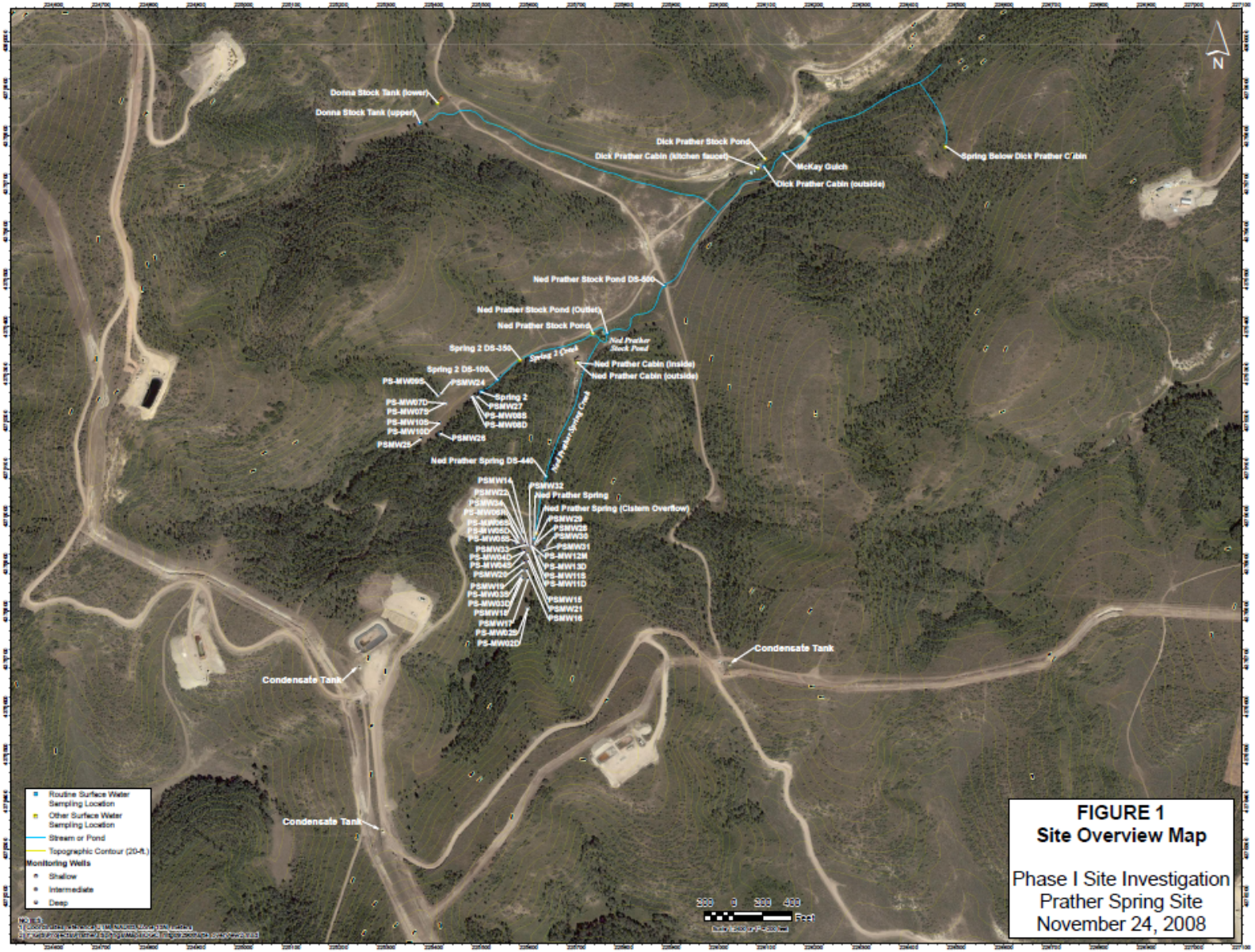
SOURCE: COGCC 6/4/08

ATTACHMENT 13 –
NONSUCH CSOC 697-14 WELL PAD
& PRODUCTION PIT
COGCC FLUID SAMPLING

SOURCE: COGCC 6/4/08

Final 7/28/10

ATTACHMENT 14 –
JOINT INVESTIGATION MONITORING WELLS AND SITE OVERVIEW



SOURCE: JOINT INVESTIGATION – URS *PHASE 1 SITE INVESTIGATION PROGRESS REPORT, FALL 2008*

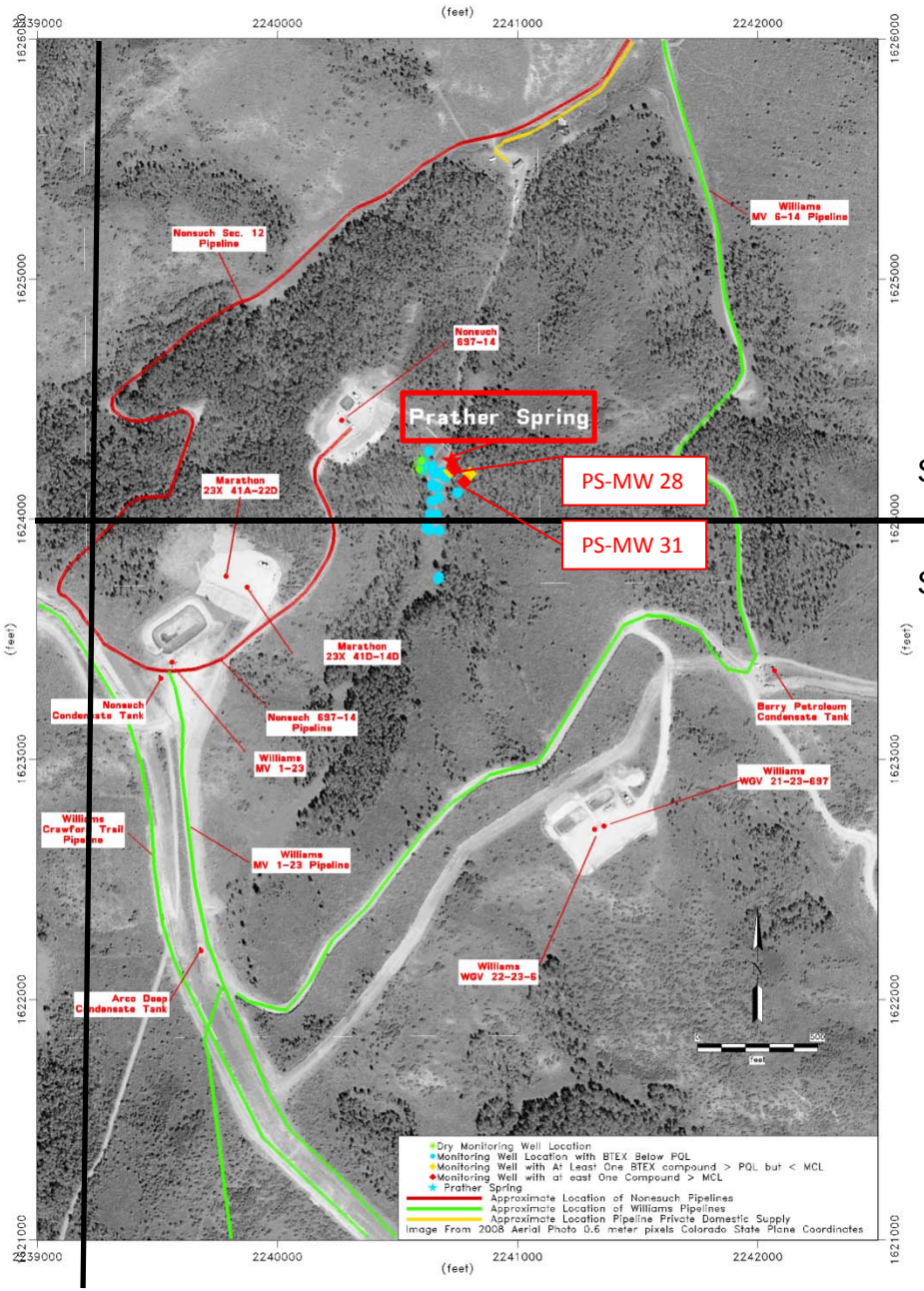


FIGURE 5 BTEX Distribution Prather Spring

ATTACHMENT 15 – MAY 2009 MONITORING WELL & PRATHER SPRING SAMPLING ANALYTICAL RESULTS

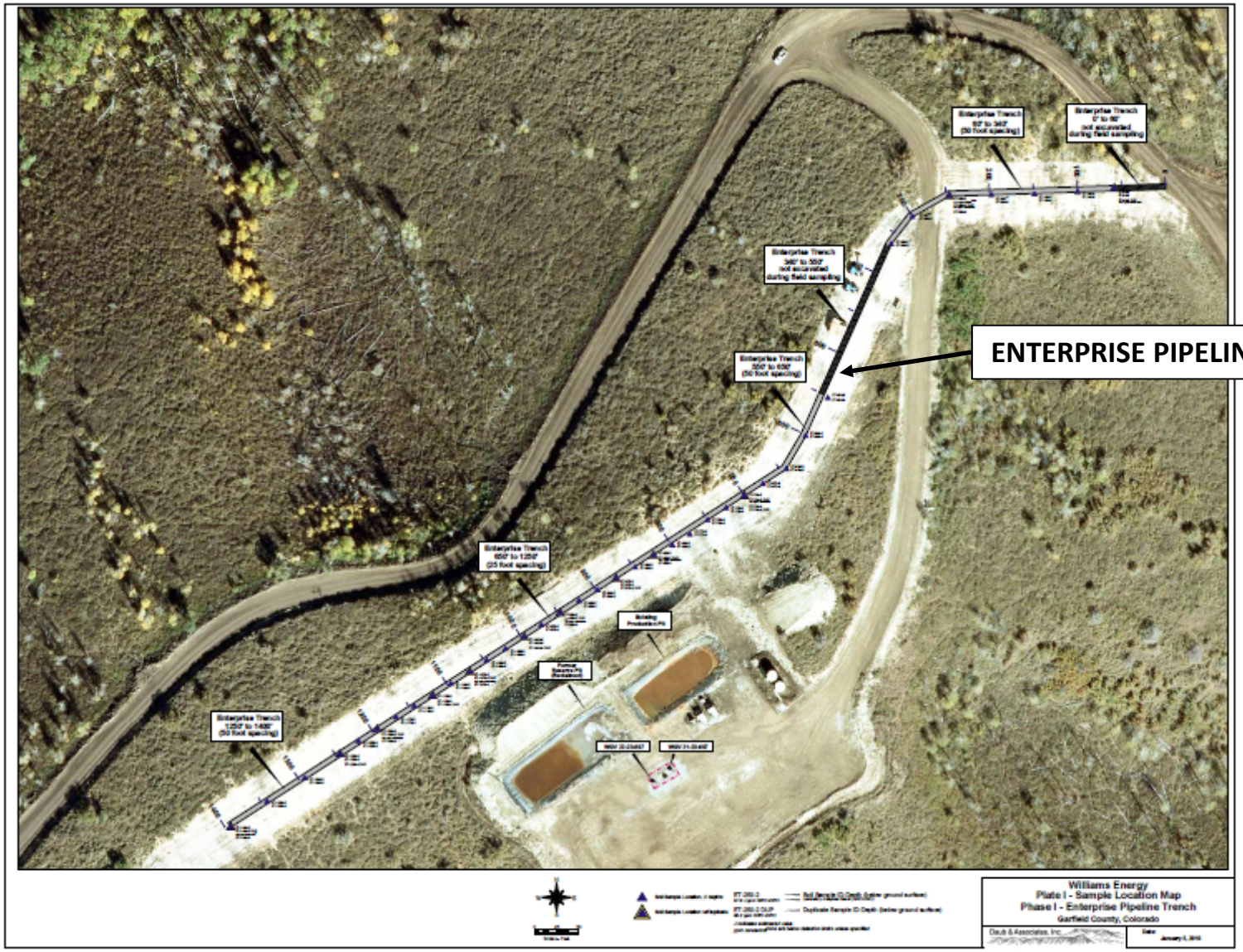
Sec 14 6S 97W

Sec 23 6S 97W

Final 7/28/10

SOURCE: 8/31/09 HALEPASKA REPORT TO COGCC

ATTACHMENT 16 –
INVESTIGATION OF ENTERPRISE PIPELINE TRENCH



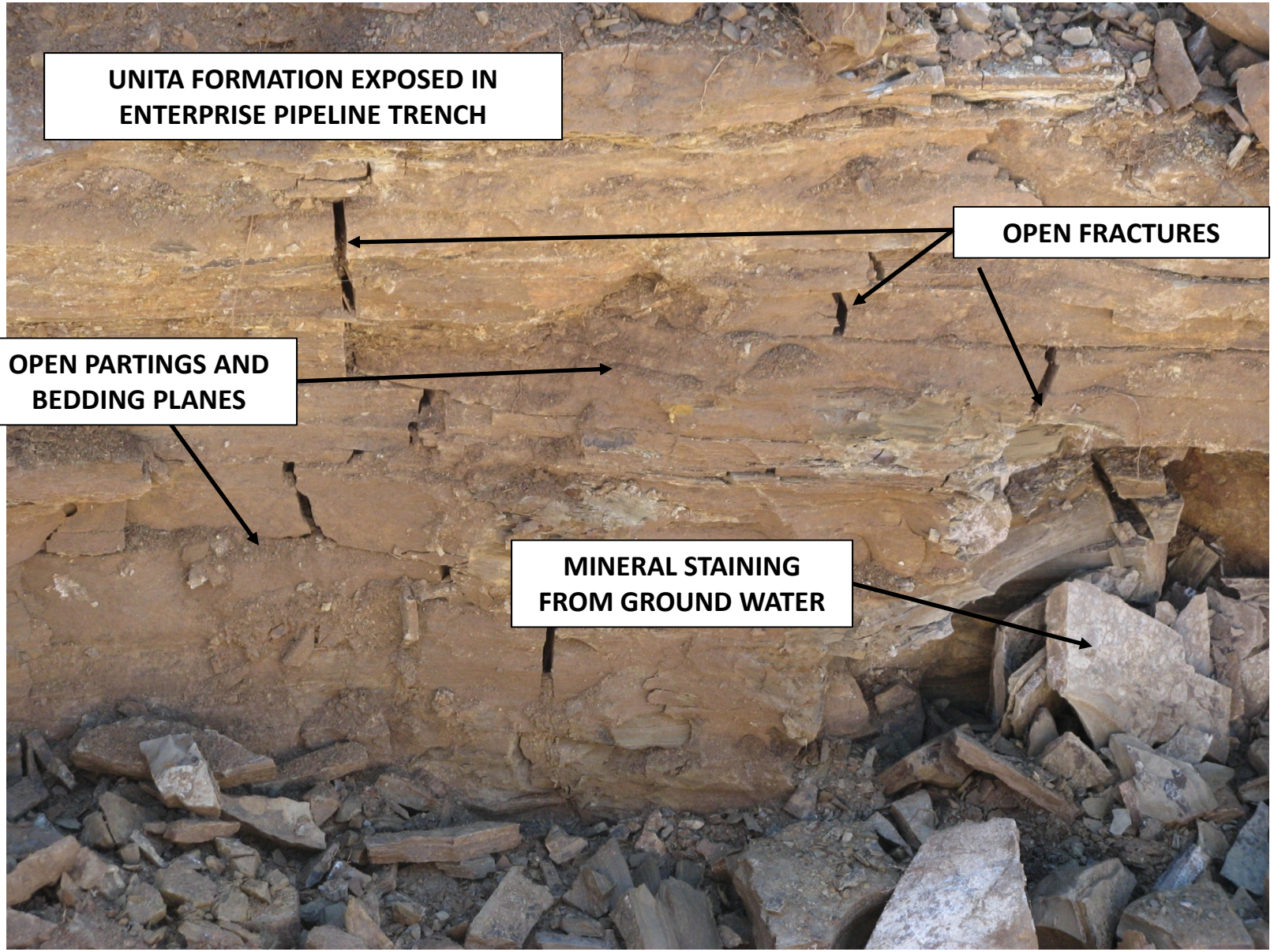
SOURCE: WILLIAMS (Phase Ii Summary Report Enterprise Pipeline Trench 1/10)

ATTACHMENT 17 – INVESTIGATION OF ENTERPRISE PIPELINE TRENCH

Final 7/28/10

SOURCE: COGCC 9/16/08

ATTACHMENT 18 –
INVESTIGATION OF ENTERPRISE PIPELINE TRENCH

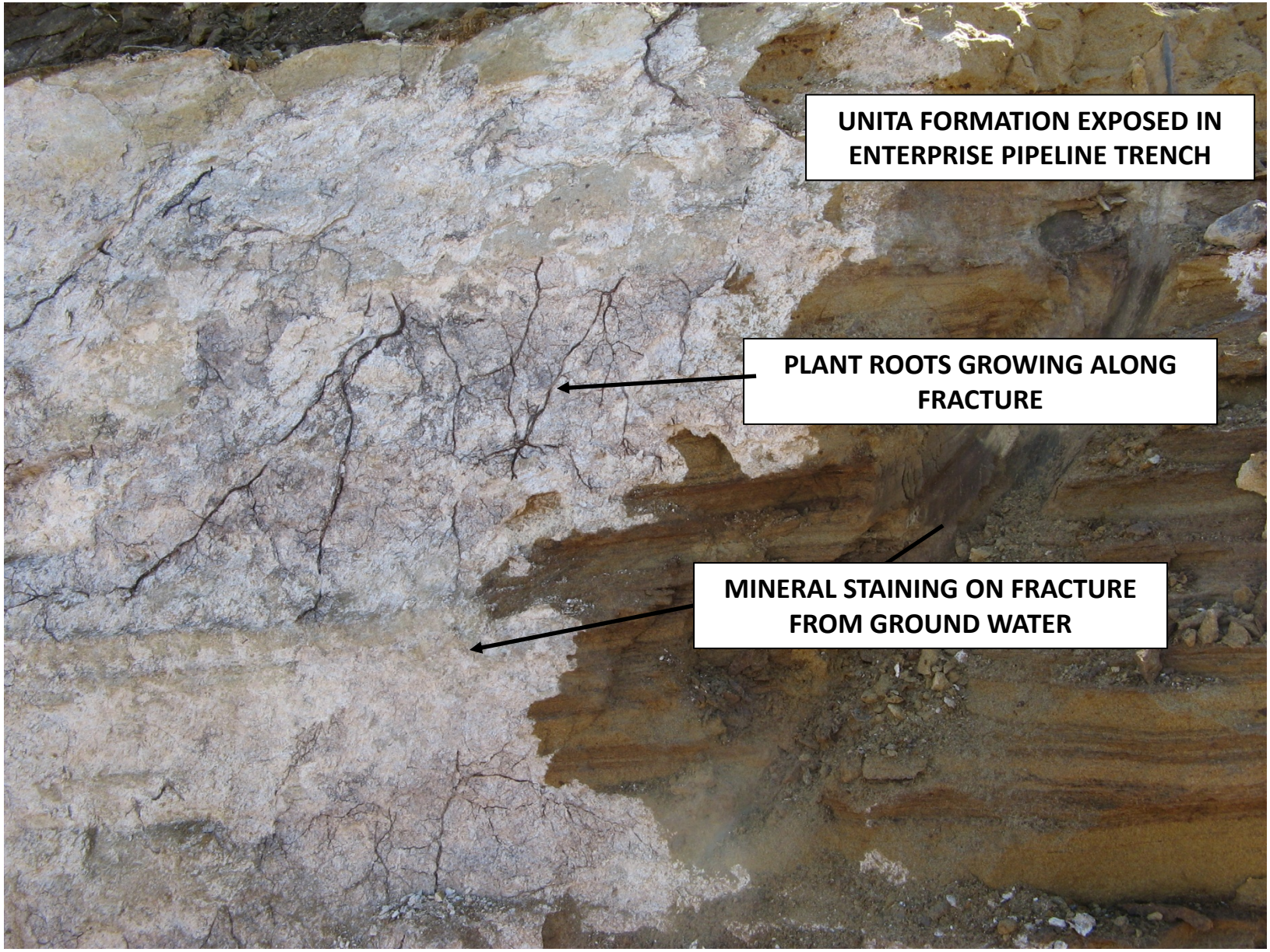


SOURCE: COGCC 9/16/08

ATTACHMENT 19 –
INVESTIGATION OF ENTERPRISE PIPELINE TRENCH

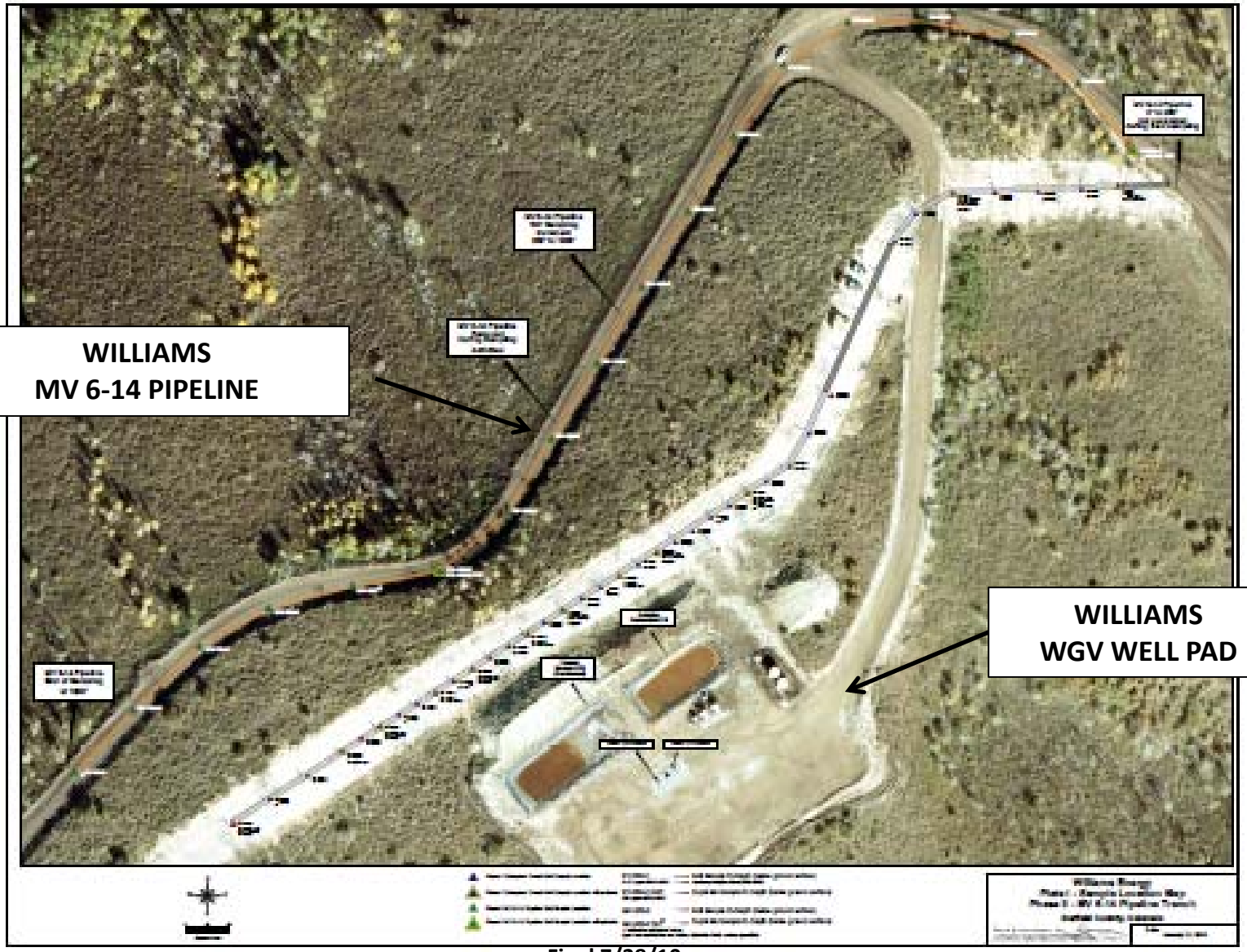
SOURCE: COGCC 9/16/08

ATTACHMENT 20 –
INVESTIGATION OF ENTERPRISE PIPELINE TRENCH



SOURCE: COGCC 9/16/08

ATTACHMENT 21 –
WILLIAMS MV 6-14 PIPELINE INVESTIGATION



Final 7/28/10 SOURCE: WILLIAMS (Phase II Summary Report MV6-14 Pipeline 1/10)

ATTACHMENT 22 –
WILLIAMS PRODUCTION PIT ON WGV WELL PAD

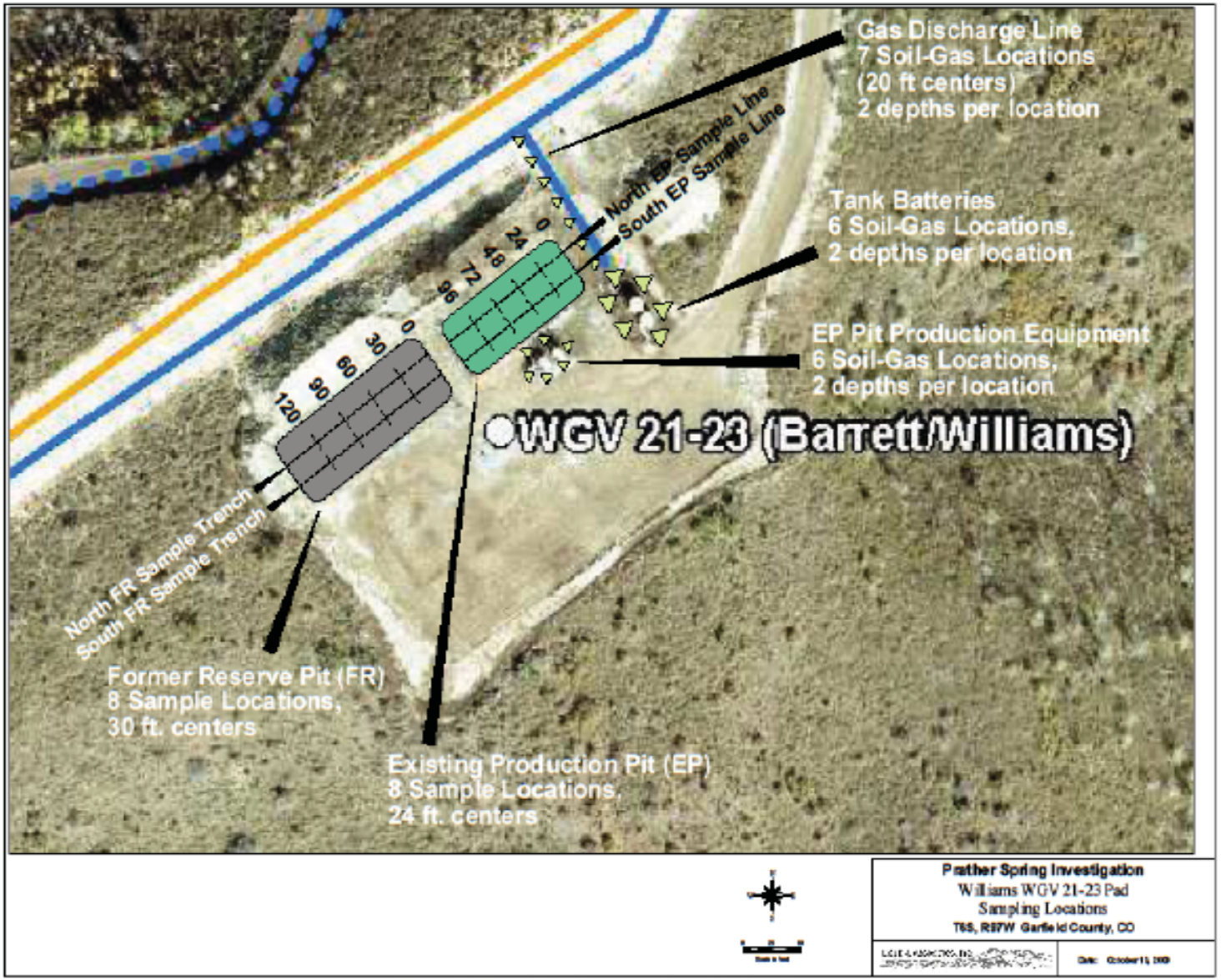


Figure 1. General location map and sampling locations.

SOURCE: WILLIAMS, WGV 21 & 22—23 Sampling and Analysis Plan10/09