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FENNEMORE CRAIG, P.C.
Jay L. Shapiro
Patrick J. Black
3003 N. Central Ave.
Suite 2600
Phoenix, Arizona 85012
Attorneys for Black Mountain Sewer Corporation

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AZ CORP COMMISSION
DOCUMENT CONTROL

BEFORE THE ARIZONA CORPORATION COMMISSION

IN THE MATTER OF THE APPLICATION OF BLACK MOUNTAIN SEWER CORPORATION, AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES FOR UTILITY SERVICE BASED THEREON.	DOCKET NO: SW-02361A-05-0657 **NOTICE OF FILING REBUTTAL TESTIMONY**

Black Mountain Sewer Corporation ("Black Mountain"), an Arizona corporation, hereby submits this Notice of Filing Rebuttal Testimony in the above-referenced matter. Specifically, filed herewith in Black Mountain's rebuttal filing are the following testimonies, along with supporting schedules and/or exhibits:

1. Rebuttal Testimony of Michael D. Weber (Volume I)
2. Rebuttal Testimony of Joel L. Wade (Volume I)
3. Rebuttal Testimony of Thomas J. Bourassa (Volume II).

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Arizona Corporation Commission
DOCKETED

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DOCKETED BY RB

DATED this 6th day of April, 2006.

FENNEMORE CRAIG, P.C.

By _____
Jay L. Shapiro
Patrick J. Black
3003 North Central Avenue
Suite 2600
Phoenix, Arizona 85012
Attorneys for Black Mountain
Sewer Company

ORIGINAL and thirteen (13) copies of the foregoing were delivered this 6th day of April, 2006, to:

Docket Control
Arizona Corporation Commission
1200 W. Washington St.
Phoenix, AZ 85007

COPIES hand delivered this 6th day of April, 2006 to:

Teena Wolfe
Administrative Law Judge
Arizona Corporation Commission
1200 W. Washington St.
Phoenix, AZ 85007

Keith Layton
Staff Counsel
Legal Division
Arizona Corporation Commission
1200 W. Washington St.
Phoenix, AZ 85007

Daniel Pozefsky, Attorney
Residential Utility Consumer Office
1110 W. Washington, Suite 220
Phoenix, AZ 85007

And COPIES mailed this 6th day of April, 2006 to:

Boulders Homeowners Association
Mr. Robert E. Williams
P. O. Box 2037
Carefree, AZ 85377

M. M. Shirtzinger
34773 N. Indian Camp Trail
Scottsdale, AZ 85262

Thomas K. Chenal, Esq.
David Garbarino, Esq.
Mohr, Hackett, Pederson, Blakley & Randolph
7047 E. Greenway Parkway, Suite 155
Scottsdale, AZ 85254

By: Whitney Brick
1781578.1

FENNEMORE CRAIG, P.C.
Jay L. Shapiro
Patrick J. Black
3003 N. Central Ave.
Suite 2600
Phoenix, Arizona 85012
Attorneys for Black Mountain Sewer Corporation

BEFORE THE ARIZONA CORPORATION COMMISSION

IN THE MATTER OF THE APPLICATION OF BLACK MOUNTAIN SEWER COMPANY, AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES FOR UTILITY SERVICE BASED THEREON.	DOCKET NO: SW-02361A-05-0657

BLACK MOUNTAIN SEWER CORPORATION'S REBUTTAL FILING VOLUME I

WEBER

FENNEMORE CRAIG, P.C.
Jay L. Shapiro
Patrick J. Black
3003 N. Central Ave.
Suite 2600
Phoenix, Arizona 85012
Attorneys for Black Mountain Sewer Corporation

BEFORE THE ARIZONA CORPORATION COMMISSION

IN THE MATTER OF THE APPLICATION OF BLACK MOUNTAIN SEWER COMPANY, AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES FOR UTILITY SERVICE BASED THEREON.	DOCKET NO: SW-02361A-05-0657

REBUTTAL TESTIMONY OF

MICHAEL D. WEBER

TABLE OF CONTENTS

I. INTRODUCTION AND PURPOSE OF REBUTTAL TESTIMONY.

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. Michael D. Weber, 12725 W. Indian School Road, Suite D-101, Avondale, AZ 85323.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am the employed by Algonquin Water Services ("AWS"). My title is Vice President and General Manager and my responsibilities include directing the day-to-day management and operation of the water and wastewater utility systems owned by Algonquin Water Resources of America, Inc. ("AWRA"). AWS employs the staff that operates all the facilities owned by AWRA, including the Applicant, Black Mountain Sewer Corporation ("BMSC" or "Company").

Q. ARE YOU THE SAME MICHAEL WEBER THAT SUBMITTED DIRECT TESTIMONY IN THIS PROCEEDING?

A. Yes, my direct testimony provided background on BMSC and its operations including capital improvements made over the past few years.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY IN THIS PROCEEDING?

A. I will first address Staff's recommendations regarding removal of so-called "affiliate profit" from rate base and test year operating expenses. Brown DT at 11-14; 26-27. My testimony on this topic is intended to provide general background on the services performed by AWS and other affiliates of BMSC. Mr. Bourassa, the Company's rate consultant, will further address the impropriety of Staff's recommended adjustments from a ratemaking standpoint. Bourassa RB at 16-18, 33-37. Second, I will briefly address Staff's recommendation that post test year plant be excluded from rate base by discussing the replacement of a gas chlorinator. Brown DT at 8-10. Next, I will address Staff's recommendation that

rate increases be withheld until BMSC complies with Decision No. 64748 (April 17, 2002). Scott Jr. DT, Exhibit MSJ at 5. Finally, I will respond on the Town of Carefree's ("Town") recommendation that no rate increases be approved until BMSC devises and implements an odor control plan. Pearson Affidavit at 2. The Company's technical response to the Town's claims of odor problems will be set forth in the rebuttal testimony of Joel Wade.

II. AFFILIATED SERVICES.

Q. WHAT AFFILIATED ENTITIES PROVIDE SERVICES TO BMSC?

A. AWS, Algonquin Water Services, provides the majority of the operation and maintenance, engineering and construction, financial and accounting, administration and management and customer relations services provided to BMSC by affiliated entities. AWS was specifically created for this purpose. In addition, some management and administration services, along with financial and accounting services are provided by Algonquin Power Income Fund ("APIF"), BMSC's parent's sole shareholder.

Q. ARE THE SERVICES PROVIDED BY AWS AND APIF ESSENTIAL TO BMSC'S OPERATIONS?

A. They are, if BMSC is to provide safe and reliable sewer utility service consistent with all applicable law and regulation at just and reasonable rates.

Q. BUT MR. WEBER, COULDN'T BMSC DIRECTLY EMPLOY INDIVIDUALS TO PROVIDE THESE ESSENTIAL SERVICES?

A. Yes, at a much greater expense. For example, we provided Staff and RUCO information showing that affiliated companies save BMSC roughly $225,000 annually. *See* Bourassa RB at 35. It is all about "economies of scale."

Q. PLEASE EXPLAIN WHAT YOU MEAN BY ECONOMIES OF SCALE?

A. AWRA owns five water and/or sewer utilities in Arizona, six in Texas, one in

Illinois and three in Missouri. We are also in the process of acquiring the seven troubled McLain systems in Southern Arizona. We have over 48,000 water and sewer customers in Arizona. By providing essential services through affiliated companies each of these utility service companies and its ratepayers receives a full range of services at a fraction of the cost if such services were directly supported. For example, BMSC has benefited over the past few years from the expertise of an engineering and construction manager that has been responsible for overseeing the investigation and remediation of complaints over odor problems. That person is employed by AWS and a portion of his salary is paid by BMSC through affiliated charges. Absent the arrangement, BMSC would have to either hire someone directly at a much higher cost or hire a third party consultant, which person would likely be more expensive and less familiar with the system.

Q. ARE THE BENEFITS OF AFFILIATED SERVICES LIMITED TO ENGINEERING AND CONSTRUCTION SERVICES?

A. Not at all. By using affiliated services, BMSC has available to it numerous customer service staff that are responsive to billing and other customer-identified concerns. Developers looking to extend service have access to staff with expertise to ensure that service to new development takes place efficiently with the minimum impact on existing service. There are simply too many examples of the use of affiliated services and the benefits to BMSC and ratepayers to mention them all.

Q. DO YOU AGREE WITH MR. RIGSBY'S TESTIMONY THAT THE AFFILATED ARRANGEMENTS CREATE "THE POTENTIAL TO MANIPULATE BMSC'S BOTTOM LINE OPERAITNG INCOME."

A. I agree with Mr. Rigsby (Rigsby DT at 3) that these types of arrangements create the *"potential"* for manipulation and would further agree that close scrutiny by the Commission of these arrangements is warranted, as it is in any type of affiliate

transaction. That hardly means that these arrangements are inherently improper because a profit is realized by the affiliate.

Q. IS THAT STAFF'S POSITION IN THIS RATE CASE?

A. Yes. Staff witness Brown simply removed every dollar of so-called affiliated profit just because it was there. Brown DT at 13, 26-27. *See also* Staff Response to Company Data Requests 1.11 and 1.14, copies attached hereto at Weber Rebuttal Exhibit 1.

Q. BUT ISN'T MS. BROWN CORRECT THAT THERE SHOULD BE NO PROFIT REALIZED THROUGH THE PROVISION OF AFFILIATED SERVICES?

A. Absolutely not. The question is not whether there is a "profit" but whether the total cost of the services provided is reasonable given the benefits realized by the Company and its customers. Staff admits that BMSC does not have to employ all of its service providers directly. *See* Staff Response to Company Data Request 1.2, copy attached hereto at Weber Rebuttal Exhibit 1. Staff further admits that customers do benefit from these services and that an entity providing such services is entitled to recover more than just its cost. *See* Staff Response to Company Data Requests 1.3, 1.5 and 1.8, copies attached hereto at Weber Rebuttal Exhibit 1. Nevertheless, Staff cut out all of the "profit."

Staff did so without any independent analysis of whether the affiliated services could be performed at the same or a lower cost, internally or by an unaffiliated third-party. *See* Bourassa RB at 35-37. Additionally, Staff ignored all of the evidence the Company provided showing that the costs were reasonable given the alternatives. *Id.* Staff's approach in this case is result-driven, short-sighted, and should be rejected.

Q. DID BMSC RECEIVE BIDS FROM OTHER SERVICE PROVIDERS BEFORE AGREEING TO PAY COSTS TO AFFILIATES THAT INCLUDE A PROFIT MARGIN?

A. Competitive bids from whom? I am not aware of, and Staff has not identified, a single entity capable of providing the range of services provide to BMSC and the other AWRA subsidiaries by affiliated entities, let alone that it could be done at a better price. Mr. Bourassa did, however, present evidence of costs that would be incurred for a local utility management company to perform some of the services provided by BMSC affiliates. *See* Bourassa RB at 34.

Q. WHAT WOULD BE THE RESULT OF THE COMMISSION ADOPTING STAFF'S RECOMMENDATION TO PRECLUDE BMSC'S AFFILIATES REALIZING ANY "PROFIT" ON THE SERVICES IT PROVIDES?

A. There are only two possible outcomes. Either operating expenses increase because BMSC will have to hire personnel to perform all of the essential services or many of the services that benefit the Company and ratepayers will not be provided. There really is no other possible outcome because AWS is not going to stay in business if it cannot realize a return on its investment. For this reason, Staff's refusal to allow any recovery above cost threatens the fundamental manner in which the Algonquin utilities are operated. If adopted, Algonquin will be forced to implement major changes in operations and I am confident customers will experience much higher prices than they are paying now to provide a small measure of so-called "affiliated profit."

Q. HOW MUCH PROFIT ARE WE TALKING ABOUT MR. WEBER?

A. According to Ms. Brown, she removed $20,871 from rate base and another $21,761 from operating expenses. Brown DT at 11, 27. The after-tax profit realized by AWS was less than 4%, hardly the sort of imprudent manipulation of return on

investment Ms. Brown implies is taking place. Brown DT at 11-14.

III. INSTALLATION OF CHLORINATOR.

Q. ARE YOU FAMILIAR WITH THE POST TEST YEAR PLANT BMSC SEEKS TO INCLUDE IN RATE BASE IN THIS CASE?

A. Yes, the Company is seeking to include a chlorinator installed in 2005 in rate base. *See* Bourassa RB at 3-9. The cost of this plant was $85,699.

Q. WHAT IS A CHLORINATOR?

A. A chlorinator is a device used to provide a disinfectant, in this case chlorine, to a desired point of application. The new system uses salt, water, and electricity to produce a liquid chlorine solution used to disinfect effluent from the wastewater treatment plant.

Q. WHY WAS THE OLD GAS CHLORINATOR REPLACED?

A. This project was a plant replacement. The old gas chlorinator used gaseous chlorine from 150 lb cylinders as the chlorine source. Given the close proximity of residences to the apparatus, BMSC believed that converting the chlorine feed system to the new chlorine generation system was safer for the customers and operators. This replacement resulted in operators not being required to handle gaseous chlorine and also eliminated the transportation of the cylinders through the community during delivery and removal.

Q. DOES THE NEW CHLORINATOR RESULT IN ADDITIONAL REVENUE TO BMSC?

A. No.

IV. COMPLIANCE WITH DECISION NO. 64748.

Q. WHAT WAS REQUIRED OF BMSC IN DECISION NO. 64748?

A. As part of the Commission's order extending the Company's CC&N, BMSC was ordered to file the required permit, license and consent from the Town of Carefree.

At that time, the Company had been negotiating an operating agreement with the Town for several months and actually expected to enter into such an agreement before the Commission's decision was issued. Unfortunately, shortly after the order, the Town began to make unreasonable demands on the Company before it would enter into the agreement or otherwise provide the consent required under Decision No. 64748. This resulted in several extensions of the deadline for compliance, as outlined in Mr. Scott's testimony. Scott Jr. DT, Exhibit MSJ at 4-5.

Q. WHAT TYPES OF DEMANDS DID THE TOWN MAKE ON BMSC?

A. That the Company take steps to address complaints about odors from some of the Town's residents. Amazingly, the Town actually wanted BMSC to resolve odor complaints to the satisfaction of each and every member of the HOA, achieving 100% elimination of odors at all times. In fact, the Town is still withholding a system-wide operating permit.

Q. HAS BMSC TAKEN STEPS TO ADDRESS THE TOWN'S DEMANDS?

A. As discussed in Mr. Wade's rebuttal testimony, BMSC has spent more than $600,000 for capital improvement projects to address odors. Wade RB at 4 and Wade Rebuttal Exhibit 3. I would note though, these improvements were made to address the concerns of our ratepayers, not because the Town attempted to extort improvements by withholding the consent required by Decision No. 64748.

Q. DID BMSC MAKE GOOD FAITH EFFORTS TO OBTAIN THE REQUIRED CONSENT, LICENSE OR FRANCHISE FROM THE TOWN?

A. Absolutely. Staff agrees. *See* Staff Response to Company Data Request 1.40, copy attached hereto at Weber Rebuttal Exhibit 1.

Q. DID THE LACK OF CONSENT, LICENSE OR FRANCHISE IMPACT BMSC'S PROVISION OF SEWER UTILITY SERVICE TO ANY OF ITS CUSTOMERS?

A. No, the Company does not need consent, license or franchise to provide sewer utility service within the Town limits; such is only needed in order to expand the CC&N.

Q. WHAT IS THE STATUS OF BMSC'S EFFORTS TO MEET THE REQUIREMENTS OF DECISION 64748?

A. The Town approved an operating agreement in March 2006 and I recently executed that agreement on behalf of BMSC. A copy of the Operating Agreement with the Town is attached to my rebuttal testimony as Weber Rebuttal Exhibit 2. The Operating Agreement covers the area of the CC&N extension granted in Decision No. 64784 and has been filed with the Commission as a compliance item.

Q. IF BMSC HAS SATISFIED STAFF'S RECOMMENDATION, IS THERE STILL AN ISSUE IN THIS PROCEEDING?

A. I do not believe so. However, BMSC is always concerned when a party recommends that rate increases be withheld until conditions outside its control are satisfied. Had developers wanting BMSC to further extend service not pressured the Town, who is also a customer, to provide the Operating Agreement, the Town would have used Staff's recommendation to withhold rate increases to further leverage unnecessary plant improvements. In short, Staff's recommendation could have inadvertently empowered the Town in its efforts to interfere with our business operations. As a policy matter, BMSC urges the Commission to avoid such decisions.

Q. STAFF WITNESS BROWN REMOVED LEGAL EXPENSES ASSOCIATED WITH PROCURING THE OPERATING AGREEMENT FROM THE TEST YEAR. DO YOU HAVE ANY COMMENT?

A. Yes. Ms. Brown testified that the operating agreement was not in place before the end of the test year and that items that result in a multi-year benefit should be distributed over the life of the contract. Brown DT at 31. But Staff also failed to make an adjustment to amortize the costs because no benefit was realized by test year customers. *See* Staff Response to Company Data Request 2.18, copy attached at Weber Rebuttal Exhibit 1.

This type of reasoning places the Company between a rock and a hard place. On the one hand, Staff argues that non-compliance with the Commission's order should preclude BMSC from obtaining any rate increase whatsoever. Scott Jr. DT, Exhibit MSJ at 5. On the other hand,. Staff wants to throw out expenses the Company incurred in good faith attempting to comply with the Commission's order. I do not think Staff can have it both ways. Besides, BMSC always incurs a certain amount of legal expense in a given year, it was just that during the test year some of those expenses involved attempting to comply with a Commission order. Those expenses should be recoverable. *See also* Bourassa RB at 30-31.

V. <u>RECOMMENDATIONS OF THE TOWN</u>.

Q. HAVE YOU REVIEWED THE DIRECT FILING MADE BY THE TOWN IN THIS RATE PROCEEDING?

A. Yes, I have. BMSC takes significant issue with the Town's recommendation that no rate increases be authorized until the Company devises and implements a plan to address the Town's complaints over odors. Pearson Affidavit at 2. My rebuttal testimony is intended to address the fundamental policy concerns raised by the Town's recommendations. As mentioned above, Mr. Wade will address the

Town's position from a technical and engineering perspective. As he explains in his rebuttal, the Town is basing its recommendation on outdated information and ignoring more than $600,000 of capital investment that has eliminated odors from BMSC's system to the greatest extend practicable. The additional investment in plant and increased operating expenses the Town wants the Company to incur will not add additional benefit to justify the substantial cost to ratepayers.

Q. WHAT "POLICY" TYPE CONCERNS DO YOU HAVE WITH THE TOWN'S RECOMMENDATION THAT THE COMMISSION WITHHOLD RATE INCREASES?

A. To begin with, as mentioned above, the Town is a customer of BMSC. Allowing a customer to dictate terms under which a utility can receive rate increases it is otherwise entitled to would make bad policy. Moreover, similar to my concern over Staff's recommendation that increases be withheld, withholding rate increases until the Town's demands are satisfied empowers the Town to further interfere with BMSC's operations.

BMSC is regulated by numerous branches of government including the Commission, ADEQ and Maricopa County Environmental Services and the Company is in total compliance with all regulations concerning the operation and maintenance of its facilities. Scott DT, Exhibit MSJ at 4. Allowing the Town to dictate some sort of "super-compliance" in order for BMSC to obtain necessary rate increases forces BMSC to fulfill the Town's own agenda. I respectfully suggest again, this is bad public policy, especially here, where the Town's demands are unreasonable and would merely burden ratepayers with unnecessary costs.

Q. ANY OTHER CONCERNS, MR. WEBER?

A. Yes. Implementation of the capital improvements recommended in the report prepared by Carter-Burgess for the Town would result in $2 million dollars of

additional capital investments and add annual operations costs in excess of $300,000 to BMSC's financial picture. Francom Affidavit, Exhibit A at 13-19. These are significant sums and the Company must consider the impact on the rates paid by our customers, something the Town has chosen to ignore. Given the limited benefit, if any, that would be achieved from such significant investment, the Town's plans for odor control seem imprudent.

Q. DOES THAT CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.

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WEBER REBUTTAL

EXHIBIT 1

ARIZONA CORPORATION COMMISSION
STAFF'S RESPONSES TO
BLACK MOUNTAIN SEWER COMPANY'S
FIRST SET OF DATA REQUESTS
(Docket No. SW-02361A-05-0657)

Response provided by: Crystal Brown

Title: Public Utilities Analyst V
Financial and Regulatory Analysis
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Phone: 602-542-0864

Staff Response Number 1.2

1.2 Did Staff perform an analysis to determine how the costs of having the Company directly employ individuals to perform services now performed by affiliates would differ?

Answer: No.

ARIZONA CORPORATION COMMISSION
STAFF'S RESPONSES TO
BLACK MOUNTAIN SEWER COMPANY'S
FIRST SET OF DATA REQUESTS
(Docket No. SW-02361A-05-0657)

Response provided by: Crystal Brown

Title: Public Utilities Analyst V
Financial and Regulatory Analysis
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Phone: 602-542-0864

Staff Response Number 1.3

1.3 Is it Staff's position that a public service corporation must directly employ individuals to perform every function and service necessary to provide service to its customers?

Answer: No

ARIZONA CORPORATION COMMISSION
STAFF'S RESPONSES TO
BLACK MOUNTAIN SEWER COMPANY'S
FIRST SET OF DATA REQUESTS
(Docket No. SW-02361A-05-0657)

Response provided by: Crystal Brown

Title: Public Utilities Analyst V
Financial and Regulatory Analysis
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Phone: 602-542-0864

Staff Response Number 1.5

1.5 Is it Staff's position that a person or entity providing services to a public service corporation is not entitled to charge an amount for such services that includes recovery of anything more than its costs of providing those services?

Answer: No

ARIZONA CORPORATION COMMISSION
STAFF'S RESPONSES TO
BLACK MOUNTAIN SEWER COMPANY'S
FIRST SET OF DATA REQUESTS
(Docket No. SW-02361A-05-0657)

Response provided by: Crystal Brown

Title: Public Utilities Analyst V
Financial and Regulatory Analysis
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Phone: 602-542-0864

Staff Response Number 1.8

1.8 Admit that customers receiver benefits from the services provided to the Company by Algonquin Water Services.

Answer: Staff acknowledges that customers receive benefits from some services provided.

ARIZONA CORPORATION COMMISSION
STAFF'S RESPONSES TO
BLACK MOUNTAIN SEWER COMPANY'S
FIRST SET OF DATA REQUESTS
(Docket No. SW-02361A-05-0657)

Response provided by: Crystal Brown

Title: Public Utilities Analyst V
Financial and Regulatory Analysis
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Phone: 602-542-0864

Staff Response Number 1.11

1.11 Is it Staff's position that Algonquin Water Resources has increased or otherwise manipulated the costs of services provided by Algonquin Water Services in order to earn an excessive profit?

Answer: Staff has not conducted an audit of Algonquin Water Resources and makes no assertion regarding its profitability. Staff is only aware of the profits that Black Mountain has claimed were included in billings from its affiliate.

ARIZONA CORPORATION COMMISSION
STAFF'S RESPONSES TO
BLACK MOUNTAIN SEWER COMPANY'S
FIRST SET OF DATA REQUESTS
(Docket No. SW-02361A-05-0657)

Response provided by: Crystal Brown

Title: Public Utilities Analyst V
Financial and Regulatory Analysis
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Phone: 602-542-0864

Staff Response Number 1.14

1.14 Please provide evidence of any "inflated costs" billed or attempted to be billed by Algonquin Water Services to the Company.

Answer: The amount billed by the affiliate included a profit.

ARIZONA CORPORATION COMMISSION
STAFF'S RESPONSES TO
BLACK MOUNTAIN SEWER COMPANY'S
FIRST SET OF DATA REQUESTS
(Docket No. SW-02361A-05-0657)

Response provided by: Marlin Scott, Jr.

Title: Utilities Engineer
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Phone: 602-542-7272

Staff Response Number 1.40

1.40 Admit that the Company has made reasonable efforts to obtain permit, license or franchise from the Town.

Answer. It appears that the Company has made good faith efforts.

ARIZONA CORPORATION COMMISSION STAFF'S RESPONSES TO
BLACK MOUNTAIN SEWER COMPANY'S
SECOND SET OF DATA REQUESTS
DOCKET NO. SW-02361A-05-0657
MARCH 27, 2006

2.18 Did Staff provide for amortization in operating expenses for its adjustment to legal expense in expense adjustment number 5? If not, why not.

Answer

Customers did not receive a benefit from the expense during the Test Year. As of February 17, 2006 (approximately 14 months after the Test Year), the Company had not filed a signed agreement.

WEBER REBUTTAL

EXHIBIT 2

OPERATING AGREEMENT

This Operating Agreement is made this 21 day of March, 2006, by and between TOWN OF CAREFREE, an Arizona municipal corporation ("Town") and BLACK MOUNTAIN SEWER COMPANY, formerly The Boulders Carefree Sewer Corporation, an Arizona public service corporation ("Utility").

RECITALS:

A. Utility is currently providing wastewater services throughout significant portions of Town. Certain portions presently served or intended to be served by Utility are within an area for which the Utility obtained an extension of its Certificate of Convenience and Necessity ("CC&N") from the Arizona Corporation Commission ("Commission") on April 17, 2002 in Decision No. 64748 ("Order"), as more particularly described in the Order.

B. As a condition of approval, the Order requires Utility to obtain the required permit, license or franchise from the Town permitting Utility to provide wastewater service to the extension parcels approved by the Commission, and to file a copy of such permit, license or franchise with the Commission's Director of Utilities within 365 days of the effective date of the Order. The order further provides that failure to comply with this condition renders the CC&N null and void.

C. Utility has been asked by certain property owners to extend service to additional areas within the Town that are not currently within Utility's CC&N. Utility believes that in order to further extend its CC&N, it must first demonstrate compliance with the Order. Accordingly, Utility has agreed to reinstatement of the CC&N extension granted in the Order, and to seek to further extend its CC&N to include the additional areas within the Town where an extension of service has been requested (hereinafter collectively "extended CC&N service area"

as more particularly described in paragraph 3, *infra*), provided that the Town grants Utility certain rights to operate within the extended CC&N service area as more fully set forth in this Agreement. Utility will be obligated to provide wastewater service to these additional areas only after the Commission approves Utility's CC&N extension application to include such areas and such service shall be subject to the rules and regulations of the Commission applicable to public service corporations.

D. Town has agreed that Utility may use public streets and public rights-of-way within the extended CC&N service area for utility service during the term of this Agreement subject to the right of Town to review and inspect all trench construction, backfill, compaction and paving during construction. Town will also have the right to review and approve plans for all sewer mains, force mains, lift stations and all other facilities that may be placed in public rights-of-way within the extended CC&N service area subject to the terms and conditions herein.

Accordingly, the parties hereto desire to enter into this Agreement.

AGREEMENT:

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto hereby agree as follows:

1. Definitions. Utility and Town agree to the following definitions as to terms utilized herein:

A. "Town Administrator" shall mean Administrator for Town of Carefree, Arizona, who oversees the day-to-day conduct of Town business in accordance with the directions of the Mayor and Council as set forth in the Town Code of Town of Carefree, Arizona, Section 3-2-1.

B. "Town Facilities" shall mean all water and transportation, delivery facilities for water, all streets, drainage, curb, gutter and landscaping.

C. "Utility Facilities" or "facilities" shall mean facilities owned by utility and used in the provision of wastewater treatment and collection including, but not limited to, methods of manufacture, distribution, transmission, storage or supply of such wastewater treatment.

D. "Governmental purposes" shall include, but not be limited to, the following functions of Town: (1) any and all improvement to Town streets, alleys, and avenues; (2) establishing and maintaining storm drains and related facilities; (3) establishing and maintaining municipal parks, parking, parkways, pedestrian malls, or grass, shrubs, trees, and other vegetation for the purposes of landscaping any street or public property; (4) providing fire protection; and (5) other public services. "Governmental purposes" shall not include proprietary functions.

E. "Public Street" shall mean only a street, road, highway, freeway, lane, path, alley, court, sidewalk, parkway, right-of-way, or drive that is owned by a public entity in fee or as to which a public easement has been dedicated for Street purposes, and with respect to which, and to the extent that, Town has a right to grant the use of the surface of, and space above and below in connection with a public utility or other compatible uses.

2. **Operating Grant**. Town hereby grants Utility, its successors and assigns, the right and privilege to construct, maintain, and operate upon, over, along, across, and under the Public Streets within the extended CC&N service area, Utility Facilities for a wastewater collection system, together with any and all necessary or desirable appurtenances (including, but not limited to, pumping facilities, transmission mains, service lines, meters, force mains,

collection mains, cleanouts, manholes and equipment for its own use), for the purpose of providing wastewater collection services to individuals and entities within the extended CC&N service area. The grant of authority to Utility to operate a wastewater collection system in the extended CC&N service area and the right to use and occupy public streets and public rights-of-way for the purposes herein set forth shall not be exclusive. Town reserves the right, at its discretion, to grant its consent, franchise, permit or authority to other operators of wastewater collection and treatment systems to operate in Town, provided such grant does not conflict with any rules or regulations of the Commission. The rights granted to Utility to use the Public Streets of Town are in no way exclusive and shall, in all respects, be subject and subordinate to the rights of others to use the Public Streets within Town. Utility shall be subject to and comply with all requirements of Town's ordinances, rules, regulations, and specifications applicable to Utility facilities or operations heretofore or hereafter enacted or established, and shall comply with all applicable state and federal laws and regulations heretofore or hereafter enacted or established applicable to Utility facilities or operations.

3. **Duty to Serve**. In consideration of the grant of authority by Town, pursuant to Paragraph 2 hereof, Utility hereby agrees to provide wastewater collection and treatment services to all citizens and business now or hereafter located within those portions of Town described on the legal descriptions attached hereto as Exhibit "A" and incorporated herein by reference ("the extended CC&N service area") in accordance with its CC&N and the rules and regulations of the Commission governing the provision of sewer utility service by public service corporations. In consideration of Utility's agreement to provide services to all residents and businesses of the extended CC&N service area, Town agrees to support any application

filed by Utility with the Commission seeking to extend its existing CC&N to the extended CC&N area as well as any relief Utility seeks with respect to compliance with the Order.

4. **Rights Reserved to Town.** Nothing in this Agreement shall be deemed or construed to impair or affect in any way, or to any extent, the right of Town to acquire any property of Utility. There is hereby reserved to Town every right and power that is required to be herein reserved or provided by any provision of the Town Code or ordinance, and Utility shall comply with any reasonable action or requirements of Town in its exercise of such rights or power heretofore or hereafter enacted or established. This Agreement shall not be construed to prevent Town from granting any identical, or similar, consent, franchise, permit or agreement to any other person, firm or corporation within Town, subject to the rules and regulations of the Commission. Nothing contained in this Agreement shall constitute a waiver or bar to the exercise of any governmental right or power of Town, now existing or hereafter granted.

5. **Compliance with Town Practice; Map Submitted for Approval; Town Construction Near Utility Facilities**. All construction of Utility Facilities hereunder shall be performed in accordance with the Town Code, Town ordinances, rules, regulations and established practices of Town with respect to such public streets and public rights-of-way. Before Utility makes or authorizes any improvements in the public streets or public rights-of-way, Utility shall submit for approval a map and site plan showing the location of such proposed improvements to Town Administrator. Additionally, Utility shall submit at the same time a specific construction plan or reconstruction plan together with specifications which shall include an overall time schedule of any construction or reconstruction effort and system design criteria. Utility shall comply with the time schedule for construction set forth in such plan and shall, to the best of its ability and in good faith, construct such improvements in strict accordance with the

plans and specifications submitted to Town. In addition, Utility is aware that Town may require any landowner, developer or new customer entering into facilities extension agreements with Utility within the jurisdiction of Town to submit their plans for facilities construction for review and that Town may charge a reasonable fee for such review.

6. **Construction and Relocation of Utility's Facilities; Payment.** All facilities installed or constructed pursuant hereto shall be so located or relocated and so erected as to minimize the interference with traffic, or other authorized uses over, under or through Public Streets and public rights-of-way. Any and all phases of construction of Utility Facilities relating to traffic control, backfilling, compaction and paving, as well as the location or relocation of facilities herein provided for, shall be subject to the Town Code, Town ordinances and regulation by Town Council of Town. Utility shall keep accurate records of the location of all facilities in Public Streets and public right-of-way and furnish them to Town upon request. Upon completion of new or relocated Utility Facilities in Public Streets, Utility shall provide Town Administrator with corrected drawings showing the actual location of the Utility Facilities in those cases where the actual location differs by two (2) feet or more from the proposed location approved in the permit plans. In addition, Utility and Town agree that Town will have the right to inspect all trench construction, backfill, compaction and paving activities of Utility, and agree that Town may charge a fee for such review.

A. Utility shall bear the entire costs of relocating Utility Facilities located in Public Streets, the relocation of which is necessary for Town's carrying out of governmental purposes. Utility's right to retain its facilities in their original location is subject to the paramount right of Town to use its Public Streets for all governmental purposes. Town shall bear the entire cost of relocating Utility Facilities located in Public Streets, the relocation of

which is necessitated by the construction of improvements by or on behalf of Town in furtherance of a proprietary function.

B. Where any existing facilities conflict with any Utility Facilities, Utility shall bear the entire cost of relocating the existing facilities, irrespective of the function they served.

C. Construction, installation, and maintenance of the Utility Facilities will be performed in an orderly and professional manner in all areas of the extended CC&N service area, both public and private. Utility shall at all times and in all areas of the extended CC&N service area, both public and private, ensure that Utility Facilities constructed will comply with industry standards and will comply with all applicable Town ordinances, regulations of the Maricopa County Department of Environmental Services, the Commission and any other governmental authority having jurisdiction thereof and in addition will comply with applicable sections of: (1) the Uniform Building Code as may be adopted and amended by Town, together with applicable portions of all other Uniform Codes, as may be adopted and amended by Town, promulgated by the International Conference of Building Officials; (2) the Town Zoning Ordinance and any subdivision regulations, all as from time to time adopted, amended and revised, and all other applicable rules and regulations now in effect or hereinafter by Town; (3) the Town Code, including but not limited to, Sections 11-1-5 and 11-4 thereof requiring certain work to be performed in accordance with the Maricopa Association of Governments Uniform Standards Specifications for Public Works Contractors, including the latest Town supplement thereto; (4) Arizona Revised Statutes; (5) Maricopa County Department of Environmental Services regulations; and (6) all federal laws, rules and regulations applicable to Utility.

D. If Utility during construction, installation, or repair of any portion of Utility Facilities causes damage to any pavement, sidewalks, driveways, landscaping, or other public or private property, Utility or its authorized agent shall, at its own expense, and in a manner approved by Town, replace and restore such place or places. Such replacement and restoration shall comply with all applicable provisions of the Town Code, including but not limited to, Sections 11-1-5 and 11-4 thereof requiring certain work to be performed in accordance with the Maricopa Association of Governments Uniform Standard Specifications for Public Works Contractors, including the latest Town supplement thereto, or to such higher standard as Utility may elect and Town or property owner shall approve. Utility shall further warrant all such restoration related to Utility's activities for a period of one (1) year following such restoration.

E. Utility shall provide reasonable advance notice to all affected residents or businesses prior to system construction or upgrade crews working in the Public Streets in front of their property; provided that Utility shall not be required to provide such notice in emergencies or for minor system repair and maintenance work.

F. As required by Town Administrator or other appropriate departments, Utility or its authorized contractors will obtain permits prior to any physical work being performed within Town. All work will be done in accordance with Town's technical and permitting specifications.

G. Town reserves the right to move any portion of Utility's Facilities, at Town's expense, that may be required in any emergency as determined by Town without liability for interruption of service. However, prior to taking any actions pursuant to this

provision, Town shall provide, if feasible, reasonable notice to Utility of the emergency to allow Utility the opportunity to protect or repair the facilities involved in the emergency.

7. **Restoration of Rights-of-Way.**

A. If Utility during construction, installation, or repair of any portion of its Utility Facilities causes damage to pavement, sidewalks, driveway, landscaping or other public or private property, Utility or its authorized agent shall, at its own expense and in a manner approved by Town, replace and restore such place or places. Such restoration shall be in compliance with all applicable provisions of the Town Code, including but not limited to, Sections 11-1-5 and 11-4 thereof requiring certain work to be performed in accordance with the Maricopa Association of Governments Uniform Standard Specifications for Public Works Contractors, including the latest Town supplement thereto, or to such higher standard as Utility may elect and Town shall approve. Utility shall further warrant all such restoration related to Utility's activities for a period of one (1) year following such restoration.

B. Upon failure of Utility to complete any work required by law, or by the provisions of this Agreement, to be done in any Public Street, within fifteen (15) days after written notice from Town, Town may, at its option, cause such work to be done through its own forces or through a hired contractor, and Utility shall pay to Town the cost thereof within ten (10) days after receipt of an invoice from Town. Alternatively, Town may demand of Utility prior to performing such work, the cost of such work as estimated by Town Administrator and such shall be paid by Utility to Town within ten (10) days of such demand. Upon award of any contract, or contracts therefor, Utility shall pay to Town, within ten (10) days of demand, any additional amount necessary to provide for costs of such work. Upon completion of such work, Utility shall pay to Town or Town shall refund to Utility such sums so that the total received and

retained by Town shall equal the cost to Town of such work. "Cost" as used herein shall include fifteen percent (15%) of all other costs to compensate Town for its overhead, including inspection and supervision, and interest at the rate of ten percent (10%) per annum of any past due payments to Town under this paragraph.

8. **Term**. This Agreement shall continue and exist for fifteen (15) years. Upon expiration of its term, if this Agreement has not renewed, this Agreement shall continue in full force and effect for successive periods of one (1) year each unless terminated at the end of the period by notice or at such time as a franchise agreement has been entered between Town and Utility.

9. **Nature of Agreement**. This Agreement is not exclusive, and nothing herein contained shall be construed to prevent Town from granting other like or similar grants or privileges to any other person, firm or corporation. Utility may not assign this Agreement to any other person, firm or corporation without the prior written consent of Town, which consent shall not be unreasonably withheld, provided, however, that Utility may assign this Agreement to an affiliate of Utility, or to a third party in connection with a sale of utility or of substantially all its assets, and shall not be required to obtain Town's consent in connection with such an assignment.

10. **Independent Provisions.** If any section, paragraph, clause, phrase or provision shall be adjudged invalid or unconstitutional, the same shall not affect the validity hereof as a whole or any part of the provisions hereof other than the part so adjudged invalid or unconstitutional.

11. **Condemnation; Right Reserved by Town.** Town reserves the right and power to purchase and condemn the Utility Facilities as provided by law.

12. **Indemnification and Hold Harmless.**

A. Utility shall fully indemnify, defend and hold harmless Town, its Council, officers, boards, commissions, elected officials, agents, attorneys, representative, servants, and employees against any and all costs, damages, expenses, claims, suits, actions, liabilities, and judgments for damages, including but not limited to, expenses for legal fees, whether suit be brought or not, and disbursements and liabilities incurred or assumed by Town in connection with:

1. Damage to persons or property, in any way arising out of or through the acts or omissions of Utility, its servants, officials, agents, attorneys, representatives, or employees;

2. Requests for relief arising out of any Utility action or inaction that results in a claim for invasion of right of privacy, for defamation of any person, firm or corporation, for the violation or infringement of any copyright, trademark, trade name, service mark, or patent, or of any other right of any person, firm or corporation.

3. Any claims arising out of Utility's failure to comply with the provisions of this Agreement or any federal, state, or local law, or regulation applicable to this Agreement or the Utility's facilities.

4. Any and all disputes arising out of a claim by any other party other than Town wherein damages or other relief is sough: (a) as a result of this Agreement: or (b) as a result of any renewal or non-renewal of this Agreement.

B. If a lawsuit covered by the provision of this paragraph be brought against Town, either independently or jointly with Utility, or with any other person or municipality, the Utility upon notice given by Town, shall defend Town at the costs of the

Utility. If final judgment is obtained against Town, either independently or jointly with Utility or any other defendants, Utility shall indemnify and hold harmless Town and pay such judgment with all costs and attorneys' fees and satisfy and discharge same.

C. Town shall cooperate with Utility and reserves the right to participate in the defense of any litigation.

D. Town is in no manner or means waiving any governmental immunity it may enjoy or any immunity for its agents, officials, servants, attorneys, representatives and/or employees.

E. Utility shall make no settlement in any matter identified above without Town's written consent, which shall not be unreasonably withheld. Failure to inform Town of settlement shall constitute a breach of this Agreement and Town may seek any redress available to it against Utility whether set forth in this Agreement or under any other municipal, state, or federal laws.

F. All rights of Town, pursuant to indemnification, insurance, letter of credit, or performance bond(s), as provided for by the Town Code and other Town Ordinances, are in addition to all other rights Town may have under this Agreement or any other code, rule, regulation, ordinance or law.

G. Town's exercise or failure to exercise all rights pursuant to any paragraph of this Agreement, shall not affect in any way the right of Town subsequently to exercise any such rights or any other right of Town under this Agreement or any other code, rule, regulation, or law.

H. Notwithstanding anything contained herein to the contrary, Town shall have a right of action separate and independent of any action citizens of the Town or

customers of Utility may have to enforce the obligations of Utility under this Agreement or obligations Utility may otherwise have to Town or citizens of Town by virtue of its status as a Public Utility.

I. It is the purpose of this paragraph to provide maximum indemnification to Town under the terms and conditions expressed and, if there is a dispute, this paragraph shall be construed (to the greatest extent permitted by law) to provide for the indemnification of Town by the Utility, and is intended to be in addition to and not in lieu of the indemnity provision of the Town Code, including but not limited to Section 11-1-9 thereof.

J. The provisions of this paragraph shall not be dependent or conditioned upon the validity of this Agreement or the validity of any of the procedures or agreements involved in the grant or renewal of this Agreement, but shall be and remain a binding right and obligation of Town and Utility even if part or all of this Agreement, or the grant or renewal of this Agreement, is declared null and void in a legal or administrative proceeding. It is expressly agreed that it is the intent of Utility and Town that the provisions of this paragraph survive any such declaration and shall be a binding obligation of and inure to the benefit of Utility and Town and their respective successors and assigns, if any.

K. Town shall hold Utility harmless from Town's negligent actions and omissions directly resulting in loss or damage to all or any portion of the Utility Facilities.

13. <u>Liability Insurance and Bonds.</u>

A. Utility shall obtain and maintain at all times during the term of this Agreement general liability insurance and automobile liability insurance protecting Utility in an amount not less than TWO MILLION Dollars ($2,000,000) per occurrence (combined single limit), including bodily injury and property damage, and in an amount not less than TWO

MILLION Dollars ($2,000,000) annual aggregate for each personal injury liability and products-completed operations. Coverage shall be in an occurrence form and in accordance with the limits and provisions specified herein. When an umbrella or excess coverage is in effect, coverage shall be provided in following form. Such insurance shall not be canceled or materially altered to reduce the policy limits until Town has received at least thirty (30) days' advance written notice of such cancellation or change. Utility shall be responsible for notifying Town of such change or cancellation. The insurance obligations hereunder are in addition to and not in lieu of the insurance provisions of the Town Code, including but not limited to, Sections 11-1-9 and 11-4 thereof.

B. Filing of Certificates and Endorsements. Within thirty (30) days following execution of this Agreement and prior to the commencement of any work pursuant to this Agreement, Utility shall file with Town the required original certificates of insurance, with endorsements, which shall clearly state all of the following:

(a) The policy number; name of insurance company; name and address of the agent or authorized representative; name, address, and telephone number of insured; project name and address; policy expiration date; and specific coverage amounts;

(b) That Town shall receive thirty (30) days' prior notice of cancellation; and

(c) That Utility's insurance is primary as respects any other valid or collectible insurance that Town may possess, including any self-insured retention Town may have; and any other insurance Town does possess shall be considered excess insurance only and shall not be required to contribute with this insurance.

C. Workers' Compensation Insurance. Utility shall obtain and maintain at all times during the term of this Agreement statutory workers' compensation and

employer's liability insurance in an amount not less than Two Hundred Fifty Thousand Dollars ($250,000) and shall furnish Town with a certificate showing proof of such coverage.

D. Insurer Criteria. Any insurance provider of Utility shall be admitted and authorized to do business in the State of Arizona and shall be rated at least A- in *A.M. Best & Company's Insurance Guide.* Insurance policies and certificates issued by non-admitted insurance companies are not acceptable.

E. Bonds. Utility shall comply with the bonding obligations as set forth in the Town Code, including but not limited to, Section 11-1-8 thereof.

14. Notice. Unless specifically directed otherwise by another section of this Agreement, all notices that Town may give to Utility or that Utility may give to Town shall be given in writing and shall be sent by certified mail, postage fully prepaid, addressed to Utility's most recent address on file with Town and addressed to Town c/o Town Administrator at P. O. Box 740, 100 Easy Street, Carefree, Arizona 85377, with a copy to Town Attorney at P. O. Box 740, 100 Easy Street, Carefree, Arizona 85377. All notices shall be deemed received two (2) days after deposit in the U.S. Mail.

15. Miscellaneous.

A. Town and Utility hereby expressly agree that the following provisions shall survive the termination or expiration hereof:

B. Utility by acceptance of this Agreement acknowledges that it has not been induced to enter into this Agreement by any understanding or promise or other statement whether verbal of written by or on behalf of Town or by any other third person concerning any term or condition of this Agreement not expressed herein.

C. Utility represents and warrants that it has the power and authority to enter into this Agreement by and through the representative who has signed this Agreement on its behalf, and that is has the power and ability to do all the acts required of it.

D. Utility represents and warrants that it accepts this Agreement willingly and without coercion, undue influence, or duress. Utility has not misrepresented or omitted material facts, has not accepted this Agreement with intent to act contrary to the provisions herein, and represents and warrants that, so long as it operates the facilities, it will be bound by the terms and conditions of this Agreement or a renewal agreement.

E. Utility further acknowledges that it was represented throughout the negotiations of this Agreement by its own attorneys and had the opportunity to consult with its own attorneys about its rights and obligations regarding this Agreement.

F. Town and Utility hereby expressly agree that this Agreement shall not be effective, or enforceable on either party, until approved by the Town Council.

16. Governing Law. This Agreement is to be governed by and construed with the laws of the State of Arizona. Any action brought to interpret, enforce or concerning any provision of this Agreement must be commenced and maintained in the Superior Court of the State of Arizona, Maricopa County. All parties irrevocably consent to this jurisdiction in venue and agree not to transfer or move any action commenced in accordance with this Agreement.

17. Entire Agreement. This Agreement constitutes the entire understanding between the parties pertaining to the subject matter of this Agreement and all prior agreements, representations and understandings of the parties, whether oral or written, are superseded and merged into this Agreement. No supplement, modification or amendment of this Agreement will be binding unless in writing and executed by the parties. No waiver of any provisions of this

Agreement will be binding unless executed in writing by the party making the waiver. Time is of the essence of the performance of each and every term of this Agreement.

18. **Severability**. If any one or more of the provisions of this Agreement or the applicability of any provision to a specific situation is held invalid or unenforceable, the provision will be modified to the benefit of the extent necessary to make it or its applicable valid and enforceable in a manner consistent with the intent of this Agreement and the validity and enforceability of all other provisions of this Agreement and all other applications of the enforceable provisions will not be affected by the invalidity or the unenforceability of any provision, so long as this Agreement may still be enforced in a manner consistent with the intent of the parties.

19. **Counterparts.** This Agreement may be executed in any number of counterparts by original or facsimile signature, each of which, when executed and delivered, will be deemed an original, all of which will constitute one binding agreement.

20. **Attorneys' Fees.** In the event either party shall institute an action or arbitration proceeding to enforce the provisions of this Agreement, the prevailing party shall be entitled to recover all costs and expenses, including, without limitation, reasonable attorneys' fees, expert witness fees, costs of tests and analyses, architect, engineering and other professional fees and costs, travel and accommodation expenses, costs of deposition and trial transcript copies, duplication fees, costs of court and all other costs and expenses, whether incurred in negotiation, preparation of documents at trial or on appeal or whether incurred in the establishment of fees and costs or the collection thereof.

21. **Captions/Headings**. Are intended only for convenience and shall not be construed as a limitation under the scope of any provision of this Agreement, and shall not, in

any manner, amplify, limit or modify or otherwise be used in the interpretation of any such provision.

22. **Gender and Tense**. Whenever required by the context hereof, the singular shall include the plural, and the plural shall include singular and the masculine, feminine and neuter gender shall each be deemed to include the other.

23. **Amendment**. This Agreement shall not be amended, modified, terminated or rescinded except by written instrument duly executed and acknowledged by both of the parties.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date and year first above written.

TOWN

TOWN OF CAREFREE,
an Arizona municipal corporation

By_____
Its Mayor

ATTEST:

_____
Town Clerk

Approved as to form:

By_____
Town Attorney

UTILITY

BLACK MOUNTAIN SEWER COMPANY,
an Arizona public service corporation

By Michael D. Weber
Its President
VICE MDW

STATE OF ARIZONA)
) ss.
County of Maricopa)

On this 21 day of March, 2006, before me, the undersigned officer, personally appeared Edward C Morgan, who acknowledged himself to be the Mayor of Town of Carefree, an Arizona municipal corporation, and that he, in such capacity, being authorized so to do, executed the foregoing instrument for the purposes therein contained.

IN WITNESS WHERE, I hereunto set my hand and official seal.

OFFICIAL SEAL
ELIZABETH L. WISE
Notary Public - State of Arizona
MARICOPA COUNTY
My comm. expires August 31, 2009

Elizabeth L. Wise
Notary Public

My Commission Expires:

8/31/2009

STATE OF ARIZONA)
) ss.
County of Maricopa)

On this 29 day of March, 2006, who acknowledged himself to be the VICE President of BLACK MOUNTAIN SEWER COMPANY, an Arizona public service corporation, and that he, in such capacity, being authorized so to do, executed the foregoing instrument for the purposes therein contained. MDW

IN WITNESS WHERE, I hereunto set my hand and official seal.

Barbara Risden
Notary Public

My Commission Expires:

Feb. 3, 2007

OFFICIAL SEAL
BARBARA RISDEN
Notary Public - State of Arizona
MARICOPA COUNTY
My Comm. Expires Feb. 3, 2007

1751317.2

EXHIBIT "A"
To
Operating Agreement
by and between TOWN OF CAREFREE,
an Arizona municipal corporation
and
BLACK MOUNTAIN SEWER COMPANY,
formerly The Boulders Carefree Sewer Corporation,
an Arizona public service corporation

PacWest Parcel consisting of the following 20 acres:

RAY & ALMA SCHOOL PROPERTY
15 ACRES

A part of the Southeast quarter of the Southeast quarter of Section 5, Township 5 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona; and more particularly described as follows:

COMMENCING at the Southeast corner of said Section 5;
Thence South 89 degrees 48 minutes 49 seconds West, along the South line of said Section, 1327.69 feet;
Thence North 00 degrees 16 minutes 59 seconds East, 65.00 feet to the TRUE POINT OF BEGINNING;
Thence continuing North 00 degrees 16 minutes 59 seconds East, 1151.00 feet;
Thence South 60 degrees 13 minutes 01 seconds East, 210.00 feet;
Thence North 88 degrees 22 minutes 00 seconds East, 160.00 feet;
Thence South 71 degrees 18 minutes 00 seconds East, 155.00 feet;
Thence South 86 degrees 18 minutes 00 seconds East, 250.00 feet,
Thence South 62 degrees 18 minutes 00 seconds East, 142.50 feet to a point on the West right of way line of CAVE CREEK ROAD;
Thence South 27 degrees 36 minutes 43 seconds West along said line 999.00 feet;
Thence South 58 degrees 54 minutes 02 seconds West, 68.37 feet to a point on the North right of way line of CAREFREE HIGHWAY;
Thence South 89 degrees 48 minutes 49 seconds West, along said line 348.35 feet to the POINT OF BEGINNING;

107th AND INDIAN SCHOOL
5 ACRES

A part of the Southeast quarter of the Southeast quarter of Section 5, Township 5 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona; and more particularly described as follows:

COMMENCING at the Southeast corner of said Section 5;
Thence South 89 degrees 48 minutes 49 seconds West, along the South line of said Section, 1327.69 feet;
Thence North 00 degrees 16 minutes 59 seconds East, 1216.00 feet to the TRUE POINT OF BEGINNING;
Thence continuing North 00 degrees 16 minutes 59 seconds East, 105.00 feet;
Thence South 89 degrees 49 minutes 10 seconds East, 1038.06 feet to a point on the West right of way line of CAVE CREEK ROAD;

Thence South 27 degrees 36 minutes 53 seconds West along said line 379.19 feet;
Thence North 62 degrees 18 minutes 00 seconds West 142.05 feet;
Thence North 86 degrees 18 minutes 00 seconds West 250.00 feet;
Thence North 71 degrees 18 minutes 00 seconds West, 155.00 feet;
Thence South 88 degrees 22 minutes 00 seconds West, 160.00 feet;
Thence North 60 degrees 13 minutes 01 seconds West, 210.00 feet to the POINT OF BEGINNING.

Ironwood:

IRONWOOD ESTATES – MONTEREY HOMES

The Southwest quarter of the Southwest quarter of Section 4, Township 5 North, Range 4 East, of the Gila and Salt River Base Meridian, Maricopa County, Arizona;

EXCEPT the Southwest quarter of the Southwest quarter of the Southwest quarter.

Partners:

CAVECREEK-CAREFREE PARTNERS

A portion of the Southeast quarter of the Southeast quarter of Section 5, Township 5 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, described as follows:

BEGINNING at the Southeast corner of said Section 5;

thence North 00 degrees, 03 minutes, 37 seconds East and along the East line of said Section 5, a distance of 55 feet to the TRUE POINT OF BEGINNING of the herein described parcel;

thence continuing North 00 degrees, 03 minutes, 37 seconds East along the East line of said Section 5, a distance of 1,267.72 feet to the Northeast corner of the Southeast quarter of the Southeast quarter of said Section 5;

thence South 89 degrees, 59 minutes, 35 seconds West along the North line of the Southeast quarter of the Southeast quarter of said Section 5, a distance of 176.72 feet to a point on the East right of way line of CAVE CREEK ROAD;

thence South 27 degrees, 27 minutes, 57 seconds West along the East right of way line of CAVE CREEK ROAD, 1,428.78 feet to a point 55 feet North of the South line of said Section 5, said point lies on the North right of way of CAREFREE HIGHWAY;

thence North 89 degrees, 59 minutes, 56 seconds East along a line parallel to and 55 feet North of the South line of said Section 5, and along the North right of way line of CAREFREE HIGHWAY, a distance of 834.35 feet to a point on the East line of said section 5 and the TRUE POINT OF BEGINNING.

BLACK MOUNTAIN ESTATES

The Southwest quarter of the Southwest quarter of the Southwest quarter of Section 4, Township 5 North, Range 4 East, of the Gila and Salt River Base Meridian, Maricopa County, Arizona.

Containing 10.0 acres, more or less.

Morris consisting of Tracts A and B

TRACT "A"

That portion of Section 3, Township 5 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona described as follows:

Commencing at a one half inch rebar, being the center of said Section 3 per survey found in Book 599 of Maps, Page 17 in the Records of the Recorder of Maricopa County; Thence along the West line of the Northeast Quarter of said Section 3, North 00 degrees 44 minutes 41 seconds East a distance of 716.58 feet to a one half inch iron pipe; Thence South 81 degrees 31 minutes 53 seconds West a distance of 590.00 feet to a one half inch rebar with tag, LS # 12216, being the Southwest corner of Lot 671 of Carefree Plat 3B according to Book 98 of Maps, Page 37, Records of said County and the POINT OF BEGINNING; Thence South 09°56'23" East along the westerly line of Lot 670 of said Carefree Plat 3B a distance of 310.66 feet (309.94 feet, record) to the northwest corner of Lot 669 of said Carefree Plat 3B; thence South 22°20'01" West along the westerly line of Lots 668 and 669 of said Carefree Plat 3B a distance of 218.74 feet (219.44 feet, record) to the northwest corner of Lot 667 of said Carefree Plat 3B; thence South 42°39'57" West along the westerly line of Lots 666 and 667 of said Carefree Plat 3B a distance of 380.00 feet to the northeast corner of Lot 665 of said Carefree Plat 3B; thence departing said Carefree Plat 3B North 11°57'39" West along the east line of the property described in the Warranty Deed recorded in Instrument 98-1104894, records of said County, 200.00 feet; thence North 88°53'27" West along the north line of the property described in said Warranty Deed 264.00 feet to the northwest corner of the property described in said Warranty Deed; thence South 00°44'41" West A distance of 42.66 feet to the northeast corner of Lot 3 of Carefree Grand View Estates Unit 1, according to Book 224 of Maps, Page 26, records of said County; thence North 89°17'18" West along the north line of said Lot 3 a distance of 350.00 feet to the northwest corner of said Lot 3; thence North 00°42'42" East along the east line of Lots 4 and 6 of said Carefree Grand View Estates Unit 1 a distance of 425.00 feet to the southeast corner of Lot 7 of said Carefree Grand View Estates Unit 1; thence North 24°24'25" East along the east line of said Lot 7 a distance of 318.82 feet (315.79 feet, record) to the southwest corner of Lot 3 of said Carefree Grand View Estates Unit 1 marked with a one half inch iron pipe; thence South 89°30'39" East along the south line of said Lot 8 a distance of 224.52 feet (225.00 feet, record) to the southeast corner of said Lot 8; South 81°31'53" East 590.00 feet to the POINT OF BEGINNING.

Containing 14.51 acres, more or less.

TRACT "B"

That portion of the east half of Section 3, Township 5 North, Range 4 East, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, described as follows:

Commencing at a one half inch rebar, being the center of said Section 3 per survey found in Book 599 of Maps, Page 17 in the Records of the Recorder of Maricopa County; Thence along the West line of the Northeast Quarter of said Section 3, North 00 degrees 44 minutes 41 seconds East a distance of 716.58 feet to a one half inch iron pipe; Thence South 81 degrees 31 minutes 53 seconds West a distance of 590.00 feet to a one half inch rebar with tag, LS # 12216, being the Southwest corner of Lot 671 of Carefree Plat 3B according to Book 98 of Maps, Page 37, Records of said County and the POINT OF BEGINNING; Thence North 81°31'53" West 590.00 feet to the southeast corner of Lot 8 of Carefree Grand View Estates Unit 1 according to Book 224 of Maps, Page 26, records of said County, marked with one half inch iron pipe; thence, along the east line of said lot 8, North 00°44'41" East a distance of 480.67 feet to a cross on a boulder; thence, South 79°08'40" East a distance of 775.87 feet (South 79°10'19" East 776.42 feet record) to southwest corner of Lot 672 of said Carefree Plat 3B marked with a one half inch rebar with tag LS 12216; thence South 70°29'31" East along the south line of said Lot 672 a distance of 329.14 feet to the southeast corner of said Lot 672 and a point on the westerly line of Stage Coach Pass, a roadway having a width of 60.00 feet marked with a one half inch iron pipe; thence South 44°34'47" West along said westerly line 101.16 feet (101.26 feet, record) to the beginning of a curve concave to the southeast having a radius of 493.54 feet; thence southwesterly along said curve through a central angle of 05°48'01" a distance of 49.96 feet (50.00 feet, record) to the northeast corner of Lot 671 of said Carefree Plat 3B marked with a one half inch iron pipe; thence departing the westerly line of said Stage Coach Pass North 84°56'58" West along the north line of said Lot 671 a distance of 326.30 feet (330.00 feet, record) to the north west corner of said Lot 671 marked with a one half inch iron pipe, thence South 15°52'35" West along the westerly line of said Lot 671 a distance of 240.01 feet to the POINT OF BEGINNING.

Containing 8.32 acres, more or less.

CANYON CREEK ESTATES.

LEGAL DESCRIPTION:

A PORTION OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 4, TOWNSHIP 5 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

PARCEL 1:

COMMENCING AT THE WEST QUARTER CORNER OF SECTION 4, TOWNSHIP 5 NORTH, RANGE 4 EAST, OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA;

THENCE NORTH 89 DEGREES 57 MINUTES 40 SECONDS EAST, 471.87 FEET, ALONG THE NORTH LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 4 TO A POINT ON THE MONUMENT LINE OF CAVE CREEK ROAD, SAID POINT BEING THE POINT OF BEGINNING;

THENCE CONTINUING NORTH 89 DEGREES 57 MINUTES 40 SECONDS, EAST 851.05 FEET, ALONG SAID NORTH LINE OF THE SOUTHWEST QUARTER TO THE NORTHEAST CORNER OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SAID SECTION 4;

THENCE SOUTH 00 DEGREES 02 MINUTES 45 SECONDS EAST, 799.71 FEET, ALONG THE EAST LINE OF SAID NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 4;

THENCE SOUTH 89 DEGREES 57 MINUTES 40 SECONDS WEST, 1266.55 FEET TO A POINT ON THE MONUMENT LINE OF CAVE CREEK ROAD;

THENCE NORTH 27 DEGREES 24 MINUTES 39 SECONDS EAST, 901.17 FEET, ALONG SAID MONUMENT LINE, TO THE POINT OF BEGINNING.

PARCEL 2:

A PORTION OF THE NORTH HALF OF SECTION 4, TOWNSHIP 5 NORTH., RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE WEST QUARTER CORNER OF SECTION 4, TOWNSHIP 5 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA;

THENCE NORTH 89 DEGREES 57 MINUTES 40 SECONDS EAST ALONG THE EAST-WEST MID SECTION LINE OF SAID SECTION 4, A DISTANCE OF 471.87 FEET TO A POINT ON THE CENTERLINE OF CAVE CREEK ROAD - CAMP CREEK - PHOENIX ROAD RECORDED IN BOOK 3 OF ROAD MAPS, PAGE 20, SAID POINT ALSO BEING THE TRUE POINT OF BEGINNING;

THENCE NORTH 27 DEGREES 24 MINUTES 39 SECONDS EAST, 278.65 FEET TO A POINT ON SAID CENTERLINE;

THENCE NORTH 27 DEGREES 26 MINUTES 42 SECONDS EAST, 299.43 FEET TO A POINT ON SAID CENTERLINE;

THENCE SOUTH 62 DEGREES 33 MINUTES 18 SECONDS EAST ALONG THE SOUTHERN BOUNDARY OF CAREFREE SENTINEL ROCK ESTATES, RECORDED IN BOOK 243 OF MAPS, PAGE 12, RECORDS OF MARICOPA COUNTY, ARIZONA, A DISTANCE OF 365.92 FEET;

THENCE SOUTH 41 DEGREES 56 MINUTES 04 SECONDS EAST, 462.19 FEET;

THENCE SOUTH 89 DEGREES 57 MINUTES 40 SECONDS WEST ALONG THE EAST-WEST MID SECTION LING OF SAID SECTION 4, 899.91 FEET TO THE TRUE POINT OF BEGINNING.

NOTES:

1. CONSTRUCTION WITHIN EASEMENTS EXCEPT BY PUBLIC AGENCIES AND

NGS ID: AJ3733
NAVD'88 ELEVATION: 2288.55
PROVIDED BY THE MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION.

CAREFREE VISTA

SITE LEGAL DESCRIPTION:

PARCEL NO. 1:
THE NORTH HALF OF THE MORMON GIRL MINE NO. 2 (SOMETIMES IDENTIFIED AS MORMON NO. 2) AND THAT PART OF MAMIE MAUDE LYING WITHIN THE NORTH HALF OF MORMON GIRL MINE NO. 2, IN SECTION 4, TOWNSHIP 5 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, BEING SHOWN ON MINERAL SURVEY NO. 2678 A AND B ON FILE IN THE BUREAU OF LAND MANAGEMENT, AS GRANTED BY PATENT RECORDED APRIL 11, 1912 AS BOOK 99 OF DEEDS, PAGE 107, RECORDS OF MARICOPA COUNTY, ARIZONA.

PARCEL NO. 2:
MORMON GIRL LODE MINING CLAIM IN CAVE CREEK MINING DISTRICT, BEING SHOWN ON MINERAL SURVEY NO. 2678A ON FILE IN THE BUREAU OF LAND MANAGEMENT, AS GRANTED BY PATENT RECORDED AS BOOK 99 OF DEEDS, PAGE 107, RECORDS OF MARICOPA COUNTY, ARIZONA.

PARCEL NO .3:
THAT PART OF RED CROSS LODE MINING CLAIM ACCORDING TO THAT CERTAIN SURVEY AND PLAT FILED WITH AND APPROVED AND ACCEPTED BY THE U.S. DEPARTMENT OF INTERIOR, BUREAU OF LAND MANAGEMENT ON JANUARY 14, 1935, DESCRIBED AS FOLLOWS:

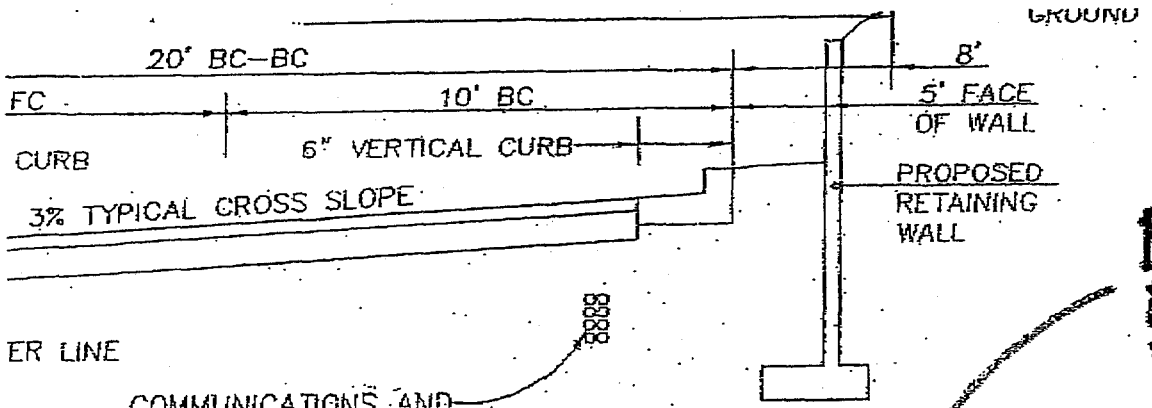
DESIGNATED BY THE SURVEYOR GENERAL AS SURVEY NO. 4472 IN THE CAVE CREEK MINING DISTRICT, LYING WITHIN SECTION 3 AND SECTION 4, TOWNSHIP 5 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, AND BEING MORE FULLY DESCRIBED IN PATENT RECORDED NOVEMBER 16, 1960 AS DOCKET 3487, PAGE 391, RECORDS OF MARICOPA COUNTY, ARIZONA, TO WIT:

BEGINNING AT CORNER NO. 3, RED CROSS CLAIM;

THENCE NORTH 21 DEGREES 42 MINUTES WEST ALONG THE WEST SIDE LINE OF SAID CLAIM 1022.70 FEET TO A POINT APPROXIMATELY 100 FEET NORTH OF CORNER NO. 4;

THENCE NORTH 68 DEGREES 18 MINUTES EAST ALONG PARALLEL TO LINE 4–3 HENRY W. GRADY CLAIM M.S. NO. 2678 TO THE EAST LINE OF SECTION 4, TOWNSHIP 5 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA;

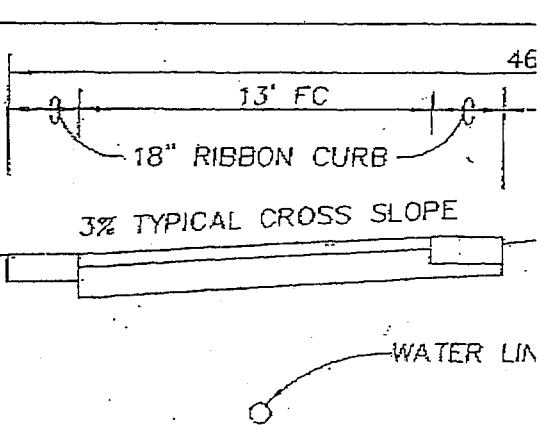
THENCE SOUTH 68 DEGREES 18 MINUTES WEST ALONG SAID LINE 2–3 TO CORNER NO. 3 AND THE PLACE OF BEGINNING.



ROW STREET CROSS–SECTION (NORTH OF ENTRY)

NTS

BLACK MTN. VISTA



TYPICAL STRE
AT T

LEGAL DESCRIPTION

That part of the LITTLE HOPE LODE MINING CLAIM in the northwest quarter of the northeast quarter and the southwest quarter of the northeast quarter of Section 4, Township 5 North, Range 4 East of the Gila and Salt River Base and Meridian, being shown on Mineral Survey No. 4473, on file in the Bureau of Land Management, as granted by Patent recorded October 20, 1960, in Docket 3480, page 406 of the Maricopa County, Arizona.

BENCHMARK

BRASS CAP AT THE NORTHWEST CORNER OF THE PROPERTY.
ELEVATION= 2258.00

PROJECT DATA

PROJECT AREA–	9.14 Acres
EXISTING ZONING–	R1–35
TOTAL LOTS–	5 Lots
MINIMUM LOT SIZE–	35,000 square feet
ASSESSOR PARCEL NO. –	211–99–006

ENGINEER

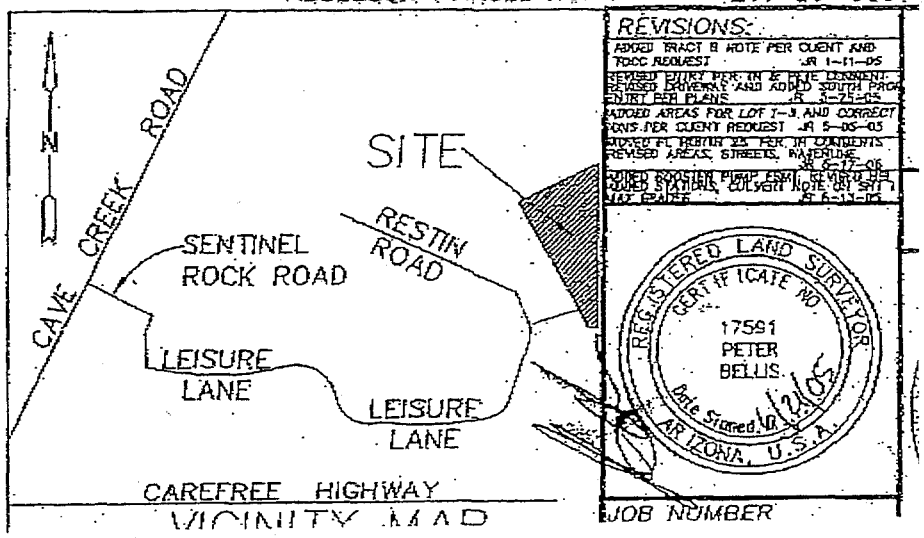
Pinnacle Engineering, Inc.
8712 East Vista Bonita Drive
Scottsdale, AZ. 85255
480–585–6013
480–585–1717 Fax

OWNER/DEVELOPERS

Derald Ulmer
P.O. BOX 999
Fairview, OR 97024

DEVELOPERS

Land Development Services, L.L.C.
4413 North Saddlebag Trail #5
Scottsdale, AZ 85251
(480)946–5020



Rural–190

Rural–70

R1–35

BLACK MTN VISTAS

Rural–70

Rural–190

CAREFREE VISTAS

Rural–70

MORRIS

CANYON CREEK

R1–35

Rural–70

PAC WEST C–2

MONTEREY HOMES

R1–35 CAVECREEK CAREFREE PARTNERS

Blk. Mtn Est.

Carefree Highway

33 34 4 3 17 4 3 7

WADE

FENNEMORE CRAIG, P.C.
Jay L. Shapiro
Patrick J. Black
3003 N. Central Ave.
Suite 2600
Phoenix, Arizona 85012
Attorneys for Black Mountain Sewer Corporation

BEFORE THE ARIZONA CORPORATION COMMISSION

IN THE MATTER OF THE APPLICATION OF BLACK MOUNTAIN SEWER CORPORATION, AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES FOR UTILITY SERVICE BASED THEREON.	DOCKET NO: SW-02361A-05-0657

REBUTTAL TESTIMONY OF

JOEL L. WADE

TABLE OF CONTENTS

I. INTRODUCTION, PURPOSE OF TESTIMONY AND SUMMARY.

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. Joel L. Wade, 21410 N. 19th Ave. Suite 201, Phoenix AZ. 85027.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am currently employed by Global Water Resources as Manager of Process Engineering. I have held that position since April 3, 2006. Until recently, however, I was employed by Algonquin Water Services ("AWS") as manager of Engineering and Construction, a position I held from December 2003 until I recently joined Global's Management team.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCCEEDING?

A. On behalf of the Applicant, Black Mountain Sewer Corporation ("BMSC").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. During my tenure with AWS, I was responsible for maintenance of and improvements to the collection system and the wastewater treatment facility and have personal knowledge concerning claims of undue odor problems by the Town of Carefree ("Town") and some of the residents. The purpose of my testimony is to address and respond to the Town's claims of odor problems originating in the BMSC wastewater collection and treatment system. Based on my substantial experience and personal knowledge of BMSC's sewer system, the Town has both exaggerated the alleged odor problem and ignored substantial investment in improvements designed specifically to minimize odors.

Q. WHAT IS YOUR EXPERIENCE IN THE WASTEWATER UTILITY INDUSTRY, MR. WADE?

A. I have 25 years of experience working with water and wastewater utility systems. I also have a degree in Civil Engineering and a Master Degree in Business

Administration. My employment history is summarized below:

3/81 to 3/90 – Staff Operations – Testing Analysis & Control – Belleville Ill.
3/90 to 6/92 – Staff Engineer – HDR Engineering
6/92 to 3/94 – Treatment Facilities Supervisor – City of Phoenix AZ
03/94 to 03/01 – Manager of Production and Distribution – Citizens Utilities/ Arizona-American Water Company
3/01 to 12/03 – Superintendent of Utilities – City of Goodyear AZ
12/03 to 3/06 – Algonquin Water Services
4/06 to present – Global Water Resources

Q. WOULD YOU CONSIDER YOURSELF AN EXPERT ON WATER AND WASTEWATER UTILITY ENGINEERING ISSUES?

A. By some measure, based on my education, training and experience over 25 years, I guess I am. Certainly, I should be considered an expert witness on the BMSC wastewater collection system and treatment plant, the claims of odor problems and the efforts that have been taken to address those complaints. Again, that is why I am testifying in this proceeding.

Q. WOULD YOU PLEASE SUMMARIZE YOUR RESPONSE TO THE TOWN'S DIRECT FILING?

A. The Town wants the Commission to deny the Company rate increases until allegations regarding odors are resolved to the Town's satisfaction. Pearson Affidavit at 2. BMSC has spent a substantial amount of money addressing the complaints over odors and those efforts have been very successful. BMSC's sewer collection and treatment system operates in compliance with all legal requirements. The Town's claims are based on outdated information and it has not presented a fair and complete picture to this Commission. If odor "problems" do exist, I do not believe they originate from BMSC's operations, nor would it be prudent to undertake an odor reduction plan of the magnitude being pushed by the Town.

II. RESPONSE TO TOWN OF CAREFREE.

Q. HAVE YOU REVIEWED THE DIRECT FILING MADE BY THE TOWN?

A. Yes. In particular, I reviewed the Affidavit of Stan Francom and the documents attached. The first document is the Carter-Burgess report from October 2004. The second is a report prepared for BMSC by LTS, Inc. in July 2004. Both of these reports address claims of odor problems associated with the BMSC collection and treatment system.

I also reviewed the affidavit by the author of the Carter Burgess report, Mr. Jason C. Bethke. Mr. Bethke merely states that he authored the report. Bethke Affidavit at 1. He provides no technical or other information beyond the fact of the report.

Q. YOU TESTIFIED THAT THE TOWN'S CLAIMS ARE BASED ON OUTDATED INFORMATION AND THAT IT HAS NOT PRESENTED A FAIR AND COMPLETE PICTURE TO THIS COMMISSION. WOULD YOU PLEASE EXPLAIN WHAT YOU MEAN?

A. Certainly. The Town's claims regarding problems within the BMSC sewer system are based primarily on the October 2004 Carter Burgess report attached to Mr. Francom's affidavit. The Carter Burgess Report was prepared because the Town felt that the LTS Report from July 2004 did not represent a definite solution to the "Town's odor problems." Francom Affidavit, Exhibit A at 1. The LTS Report referred to, and the one attached to Mr. Francom's affidavit, was the Phase II report, which tells only part of the story. There have been four subsequent phases and four subsequent reports, all since the Carter Burgess report was prepared in response to Phase II of the LTS study. For reasons I am not privy to, the Town has chosen not to provide information regarding later phases of the LTS study.

Q. WAS THE TOWN PROVIDED WITH MORE CURRENT INFORMATION ON THE RESULTS OF THE LTS STUDY?

A. Yes. On April 19, 2005, I met with the Mayor and Town Council to discuss the study and the results of BMSC's efforts to address odor and noise complaints. After that meeting, I wrote Mayor Morgan on May 27, 2005 and provided the Town copies of the reports from the first five phases of the LTS study. A copy of my letter and all of the original attachments, including reports for Phases I-V of the LTS Study, are attached hereto as Wade Rebuttal Exhibit 1. The report on the sixth and final phase was issued March 31, 2006, and is attached hereto as Wade Rebuttal Exhibit 2. The Town could not have produced a copy of that report, but they were given the other reports and without this additional information, the Commission would be left with an incomplete picture of the situation.

Q. PLEASE EXPLAIN THE PURPOSE OF THE STUDY LTS PREPARED FOR BMSC?

A. LTS was hired to locate, identify, quantify and document not only the source of odor generation, but also to document the effectiveness of improvements incorporated to resolve source odors. The study was always intended to be reported in phases consistent with the Company's progress in addressing odor and noise complaints. After the initial report, BMSC began an aggressive aesthetic improvement program that led to numerous odor and sound improvements. In total, since December 2003, BMSC has spent more than $600,000 improving its system. *See* Schedule of Improvements, Wade Rebuttal Exhibit 3, attached hereto.

Q. WHAT ARE THE RESULTS OF THESE IMPROVEMENTS?

A. BMSC has achieved substantial improvement. As I reported to Mayor Morgan in May 2005, BMSC's efforts have:

- Reduced hydrogen sulfide concentrations in the plant from 700 parts per million (ppm) to an average of just 2 ppm, a reduction of 99.7%.
- Reduced emissions based on WWTP fence line readings by an average of 80%, leaving BMSC at an emissions level exceeding Maricopa County standards by more than 80%.
- Reduced odor levels at the CIE pump station to an undetectable level, exceeding Maricopa County standards on average by 90%.
- Reduced exhaust emissions from the scrubber stack to an average of zero (0) parts per million.
- Reduced noise levels at the WWTP fence line to 10 decibels below current ADEQ standards.

Wade Rebuttal Exhibit 1.

Q. WHAT DOES THE REPORT FROM PHASE VI SHOW?

A. In the latest phase of the study, LTS re-evaluated the current condition of the collection system and sought to determine whether odors could be detected at the pump station, the treatment plant or from anywhere else in the collection system. The Phase VI sampling effort mirrored the testing and sampling protocol of the Phase II report in an attempt to make a direct comparison of the effectiveness of the odor improvement. Wade Rebuttal Exhibit 2 at 1, Executive Summary. The goal of this phase was "to determine how effective the hydrogen sulfide and odor control measures had been." *Id.*

Q. WHAT RESULTS DID LTS REPORT FROM THE PHASE VI STUDY?

A. LTS found virtually no odor emissions that were sulfur-based at the fence line around the lift station or the treatment plant. *Id.* LTS concluded that this data showed considerable improvement from the same sorts of test performed during

Phase II of the LTS Study, with some sulfide concentrations being reduced by as much as 90%. *Id.*

Q. DID LTS REPORT ANY PROBLEMS IN THE PHASE VI REPORT?

A. Yes, there were some chemical feed problems during the testing period which appear to have correlated to higher than normal sulfide levels, although it appears that levels returned to normal after the problem with the feed was resolved. *Id.* Later in the test period, higher than normal levels of sulfide were reported as likely due to increased activity, including increased disposal of grease and solids, from the restaurant upstream from BMSC's commercial lift station. In response, LTS recommends increasing the chemical feed rate and conducting additional re-evaluations. *Id.*

Q. DO ANY OF THE PROBLEMS NOTED IN THE PHASE VI REPORT WARRANT THE RELIEF SOUGHT BY THE TOWN?

A. Absolutely not. These are isolated incidents, typical in operating a sewer system and subject to measures already in place to address them. Some problems could also be addressed by the Town, which could adopt ordinances regarding waste disposal in the Town's limits. Meanwhile, the overall success of BMSC's efforts to remediate odor complaints remains unchanged from earlier reports by LTS.

Q. IS BMSC OPERATING IN COMPLIANCE WITH ALL APPLICABLE ODOR AND NOISE RELATED REGULATIONS?

A. Yes, BMSC's facilities operate in total compliance with all applicable law and regulation. *See* Marlin Scott Jr. Direct, Exhibit MSJ at 4. Mr. Scott, the Staff Engineer who testified he has participated in more than 400 Commission proceedings, inspected the system and noted no problems with odors. In many cases, the LTS reports show that BMSC dramatically exceeds the applicable

standards. *See* LTS Phase III through VI Reports attached hereto as Wade Rebuttal Exhibits 1 and 2.

Q. HAS THE TOWN PRESENTED EVIDENCE OF ANY NON-COMPLIANCE OR OTHER VIOLATIONS BY BMSC?

A. None whatsoever. Mr. Francom actually testifies that he does "not have independent evidence to verify BMSC's assertion" that it is operating in compliance. Francom Affidavit at 3. I have to admit to being somewhat surprised that the Town did not make more of an effort to determine whether BMSC's system meets or exceeds applicable legal requirements and other standards.

Q. DOES MR. FRANCOM HAVE INDEPENDENT KNOWLEDGE OF BMSC'S PLANT AND OPERATIONS SINCE HE IS THE TOWN'S PUBLIC WORKS SUPERINTENDENT?

A. No. Although Mr. Francom was with Western Environmental Technologies, which once operated the BMSC system, Mr. Francom's current job does not include regulatory oversight of BMSC's systems and operations. In his capacity as superintendent though, Mr. Francom has been privy to all of the community outreach programs and all of the meetings with the Town to discuss BMSC plans for addressing odor problems. I also assume he has reviewed the subsequent reports by LTS discussing the improvements that have been made to address odor and noise complaints.

Q. DO THE LTS REPORTS RESPOND TO CONCERNS RAISED BY MR. FRANCOM IN HIS AFFIDAVIT?

A. Yes. For example, Mr. Francom claims that there are odor problems in Carefree Inn Estates, where BMSC's CIE lift station is located. This portion of the system collects less than one-third of the sewage transported through the BMSC collection system, the LTS Phase III report documents no ambient odor detection and

recommends no further action required at this site. Concerning the Boulders/Quartz Drive sewer pressure and off-gassing, at the time of the Phase II study, specific pressure data was collected throughout the BMSC collection system. Of the 24-data points collected, the average sewer pressure was 0.01125 inch of water column (in./WC) or 0.00041 pounds per square-inch (psi). The highest recorded pressure reading in the LTS Phase II study was recorded at the intersection of Boulder and Quartz Drive, which was 0.05 in/WC or 0.0018 psi. Wade Rebuttal Exhibit 2, Phase II Study.

To address Mr. Francom and the Town's concern over pressurized off-gassing of odors, mechanically sealed manholes were placed at the Boulders Quartz drive intersection, which is the location of the highest pressure reading. In addition, a hydrogen sulfide detection instrument was placed on the vent stack of a house in close proximity of the point of highest recorded sewer pressure. After 200-hours of continuous data logging there were no conclusive data recorded to support the theory of off-gassing through roof vent emission. Wade Rebuttal Exhibit 2, LTS Phase II Graph (final page) - The Boulders Resident Vent Stack Hydrogen Sulfide Monitoring July 28, 2004.

Q. PLEASE CONTINUE.

A. Mr. Francom states that the LTS Phase II report did show hydrogen sulfide formations. They were abnormally high at the Boulders Quartz drive manhole. *Id.* at LTS Phase II Graph Session 1 July 28, 2004. As later reported by LTS, "with the current chemical feed location and previous improvements made at the Commercial lift station, hydrogen sulfide concentrations have been reduced at the main downstream discharge location at Boulders and Quartz Drive over 99%. At this point, there are no recordable ambient levels that warrant any type of odor

issue at this location." Wade Rebuttal Exhibit 1, LTS Phase III report – Page 2 fourth paragraph dated November 01, 2004.

Q. WHAT ABOUT MR. FRANCOM'S CLAIMS THAT ODORS ARISE FROM LONG RETENTION TIMES IN THE COLLECTION SYSTEM?

A. Again, Mr. Francom refers to the LTS report stating "even LTS recognizes that the sewage is quite septic due to the retention time in the force mains and high wastewater temperature." Francom Affidavit at 2. However, there just does not appear to be any scientific data to support the contention that "septic" conditions exist.

Q. ARE THERE OTHER APSECTS OF MR. FRANCOM'S AFFIDAVIT WITH WHICH YOU DISAGREE?

A. Yes, Mr. Francom states that "the Carter Burgess Report observed that the length and design of the Black Mountain Sewer collection system make it particularly susceptible to these anaerobic conditions." *Id.* Again, while that may be the opinion of the report's authors, the report fails to identify any calculations performed or any in-field data collected to support the claim.

Mr. Francom's also states "... if the effects of the chemicals diminish below a certain level during the retention and transit period, increased odors will occur." Although, I do not agree that diminishing levels of chemical are in direct correlation to detectable odors, I do agree that with any sewer collection system, if conditions are allowed to exist that promote the formation of hydrogen sulfide compounds, there may be an increased potential of detectable odors. This is why regulated utility companies are held responsible for the operation and maintenance of sewer collection and treatment facilities in a manner that meets regulatory guidelines.

Q. WHAT DOES THE TOWN WANT BMSC TO DO TO ADDRESS ODOR COMPLAINTS?

A. The Town wants BMSC to devise a plan to eliminate odor problems and implements the most critical measures. Affidavit of Jon Pearson at 2. Until it does, the Town wants the Commission to withhold all rate increases. I disagree that such a plan is warranted.

Q. WHY IS THAT MR. WADE?

A. Because BMSC has taken every reasonable step to eliminate odors from the operation of its sewer system. Any further improvements would be unnecessary and impose an undue burden on the Company and ratepayers.

Q. HASN'T THE TOWN OFFERED TO FUND AND INSTALL ADDITIONAL FACILITIES INTENDED TO ADDRESS ODORS?

A. Yes, and Mr. Pearson correctly notes that BMSC rejected those offers. Pearson Affidavit at 1.

Q. WHY WOULD BMSC REJECT AN OFFER TO FUND ADDITIONAL CAPITAL IMPROVMENTS?

A. For a number of reasons. Mr. Francom's testimony states that "this air flow mechanism would create a negative pressure in the sewer system thereby; hopefully, keeping sewer odors from escaping from residential vent stacks." Francom Affidavit at 4. Although vent stacks are not part of the BMSC sewer systems, the LTS Phase II report and over 200-hours of vent stack air sampling data, do not support the conditions that would allow vent gas to escape a residential vent, therefore this application as described, is unnecessary. *See generally,* Wade Rebuttal Exhibit 1.

The Town's offer is also incredibly vague. Which improvements from the Carter Burgess report do they want implemented? What are they offering to pay

for—does it include increased operating expenses? The Carter Burgess report recommends almost $2 million dollars in capital improvement projects. Francom Affidavit, Exhibit A at 13-19. If implemented, those capital improvement have an annual operations costs in excess of $300,000. *Id.*

The Town may be ready to assess its citizens to pay a $2 million dollar bill for further odor control on a system that meets all applicable standards. BMSC is not. Nor is it ready to saddle those ratepayers with an additional $300,000 of operating expenses. Based on my experience, such a program would fail any rational cost/benefit analysis.

Q. IN YOUR OPINION, HAS BMSC ACTED REASONABLY IN RESPONDING TO ODOR COMPLAINTS?

A. In my opinion, yes it has. The bottom line is that after numerous studies, supportive evidence and the numerous inspections from regulating agencies including Maricopa County Department of Environmental Services and ADEQ, BMSC is confident that there are no odor problems arising from the BMSC assets or infrastructure

Q. DOES THAT CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.

1777153.2

WADE REBUTTAL

EXHIBIT 1

May 27, 2005

Mayor Edward C. Morgan
Town of Carefree
PO Box 740
100 Easy Street
Carefree, Arizona 85377

ALGONQUIN
WATER RESOURCES
OF AMERICA, INC.

Re: Black Mountain Sewer Company Operating Permit

Dear Mayor Morgan,

It was a pleasure to meet with you and Town council Members and guest on April 19, 2005 to discuss Black Mountain Sewer Company (BMSC) aggressive aesthetic improvement project that has led to more than 35 odor and sound improvements over the past twelve months.

In November of 2003 BMSC was made aware of certain sound and odor issues related to the operation of wastewater collection pumping and treatment systems owned and operated by this company. BMSC reviewed these issues with the Town of Carefree Council on December 12, 2003 and presented the issues of concern along with a well detailed twelve month timeline of action and improvements, leading to sound and odor reductions at or below regulatory standards. It is through these improvements that the following was achieved:

- Hydrogen sulfide (H2S) concentrations in the raw sewage stream reduced from 700 part per million (PPM) to just 2 PPM as measured entering the WWTP (a reduction of 99.7%)
- With nearly 250 hours of ambient odor recording, WWTP fence line H2S levels were reduced by 80% with average fence line H2S readings ranging from 0.0007 – 0.0040 PPM. (87% below current Maricopa County allowable standards of 0.030 PPM, and a peak H2S reading of 0.0060 (80% below Maricopa County allowable standards).
- With nearly 250 hours of ambient odor recordings, odor levels at the CIE pump station have been reduced to that below the detection capabilities of the instrumentation utilized (< 0.003 PPM) which is 90% below the current Maricopa County Standards.
- Odor Scrubber stack exhaust emission readings averaging 0.0 PPM H2S.
- WWTP sound levels reduced to ten (10) decibels below current ADEQ fence line standards.

During this twelve month improvement timeline, the following community outreach efforts took place:

- BMSC Staff met one-on-one with Town of Carefree Council officials on three separate occasions, these meetings took place at the City Hall meeting room (one scheduled meeting was canceled only after determining Council staff did not show up).
- BMSC Staff presented information and project updates at Town Council public meetings on

Algonquin Water Services, LLC
111 W. Wigwam Road
Suite B
Litchfield Park, AZ 85340

Ph: 623-935-9367
Fax: 623-935-1020

three separate occasions, two of which were held at the Carefree Inn and one meeting held at the City Hall meeting room.

- BMSC Staff provided on-site facility tours for individual town council members on two separate occasions, to review project improvements.
- BMSC Staff provided on-site facility tours for MCES staff on two separate occasions.
- BMSC Staff Provided on-site facility tours for ADEQ staff on two separate occasions.
- BMSC Staff distributed (door-to-door) approximately thirty (30) odor evaluation forms on two separate occasions. Although the importance of public cooperation of this data request was formally discussed at a public outreach meeting held at the town hall meeting rooms, of the 30 forms distributed, none were completed or returned.
- BMSC Staff distributed (via US Mail) industrial discharge flyers to all commercial customers of the BMSC.

As presented in the December 12, 2003 meeting between BMSC staff and Town Council Members, BMSC's resolution of the sound and odor issue has required a balanced approach of treating each of the aesthetic issues in combination with sustaining complete odor control in all problem areas. BMSC continues to address aesthetic issues by a combination of physical, chemical and mechanical improvements required to eliminate sewer conditions which promote odor formation and eliminate fugitive emissions from odor collection and treatment systems. The goal of this effort was to modify operating conditions to reduce noise issues and odor causing compounds to minimal levels, record these levels and modify the existing odor and sound control equipment to mitigate these levels with efficiency. As noted in the attached aesthetic improvement timeline, to date, BMSC has completed operating adjustments and modifications to the system that represents normal operating conditions. The sound and odor control studies initiated June 3, 2004, November 1, 2004 and January 10, 2005 recorded these conditions. From this information, adjustments and modifications to the odor and sound control systems have been made which will achieve and maintain odor control within regulatory guidelines.

As discussed at the December 12, 2003 meeting with Town Staff, the aesthetic improvement schedule required twelve months to complete. BMSC has worked diligently to understand the true elements of sound and odor issues, and to make prudent modifications which have led to the aforementioned sound and odor reductions. I have included the following documents for your use which document those successes listed above. These documents include the following:

- Gantt chart detailing the timeline of events and aesthetic improvement schedule.
- Information flyer and FAQ for Fats Oil and Grease control sent to all BMSC commercial customers.
- Sample correspondence letter and data collection form sent to all customers related to the aesthetic concerns of the facilities.
- Initial and draft final sound assessment conducted by Damon S. Williams and Associates (DSWA).
- Phase I odor control study - conducted by LTS Inc. as presented to Town of Carefree City Council.
- Phase II odor control study - conducted by LTS Inc. as presented to City Council.
- Phase III odor control study - conducted by LTS Inc.
- Phase IV Air Flow and Air Balance Report - conducted by LTS Inc.

- Phase Odor & Hydrogen Sulfide – existing odor scrubber stack emissions- conducted by LTS Inc.

BMSC has investigated, studied, designed and procured these aesthetic improvements on its own merit and without intervention of any regulating body. As is evidenced by the numerous improvements previously completed and recognized by the Town of Carefree Town Council, BMSC is committed to being a good neighbor in the Carefree community. BMSC is committed to continuing to operate and maintain the plant and appurtenant facilities in compliance with all regulatory requirements. In correlation with our continued aesthetic improvement effort BMSC is committed to completing the following improvements as proposed in the attached schedule.

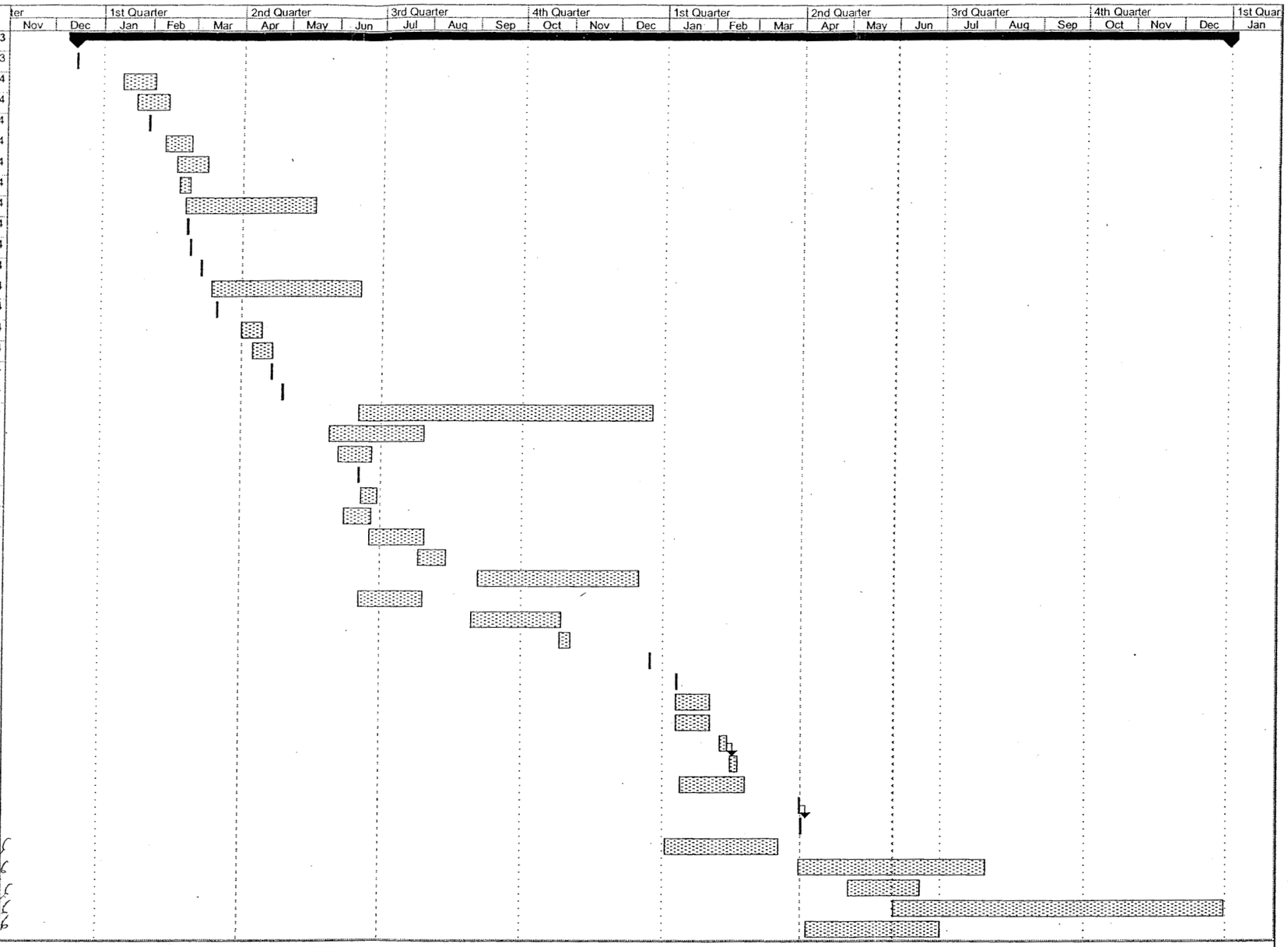
- Boulders Plant and collection system pH profiling and optimization project – This effort will determine pH optimization of the collection system and plant treatment streams to optimize odor control while maintaining optimum process treatment of the wastewater treat systems at the Boulders Water Reclamation Facility.
- Boulders Drive Sewer Rehabilitation, Repair and Improvement Project – This project will rehabilitate and repair up to 3,000 linear feet of sewer collection main, to improve hydraulic capacity, reduce material deposits, while reducing the influence of storm water run-off infiltration into the treatment system. This repair effort is directly related to BMSC on-going sewer cleaning and inspection project.
- Sage Brush - Automated Chemical Feed System - Through BMSC Sage Brush chemical feed pilot study conducted in August of 2004, Staff determined that additional odor control chemical feed at the Sage Brush pump station can contribute to additional odor control at the Sage Brush pump station, Indian Bend pump station, as well as the confluence of the Indian Bend force main and CIE force main located at the intersection of Boulders Drive and Quartz Lane. Automating the chemical feed system will optimize the odor control chemical, while reducing manpower required to manually feed the chemical, which has been the practice since August of 2004.
- Security Fence – Boulders Water Reclamation Facility – BMSC met with Maricopa County Environmental Services (MCES) staff representatives William G. Kenning and Arizona Department of Environmental Quality (ADEQ) Staff Representative Gary Harmon on Wednesday, February 3, 2005. It was determined during this very thorough review and inspection of the Black Mountain Sewer Company (BMSC) Boulders Water Reclamation Facility, and collection system that perimeter security fencing is required around all perimeter points of the Boulders Water Reclamation Facility. Therefore BMSC Staff is committed to installing perimeter fencing and appropriate signage at this facility.
- Industrial Pretreatment Sample Ordinance – BMSC Staff will develop a sample Industrial Pretreatment Ordinance, which can be modified or adopted by the Town of Carefree to control FOG discharges into the sewer collection systems as well as control illicit discharges which have previously led to nuisance odors in the past.

BMSC Staff will continue to work diligently with environmental regulatory agencies, Town officials and community representatives to maintain an operation which is performing within all laws and regulation and is aesthetically acceptable to the surrounding community. If you have any questions, please contact my office at 623-298-4822.

ATTACHMENT – A

ASTHETIC IMPROVMENT SCHEUDLE

ID	Duration	Task Name	Start
1	535 days?	**BMSC Aesthetic Improvement Project**	Mon 12/15/03
2	1 day?	Improvement Strategy Meeting w/ TOCF	Mon 12/15/03
3	14 days	Sealed Manholes@ CIE/WWTP	Wed 1/14/04
4	14 days	Installed Odor Scrubber CIE Lift	Fri 1/23/04
5	1 day?	BMSC /TOCF - Update Meeting	Fri 1/30/04
6	14 days	Installed Basin Sealing Material WWTP	Tue 2/10/04
7	14 days	Installed Bio Filter MH Insert Quartz Drive	Wed 2/18/04
8	5 days	Seneco System Odor Scrubber Inspection	Fri 2/20/04
9	60 days	Force Main and Gravity Main Flush Program	Tue 2/24/04
10	1 day?	BMSC / TOCF System Tour	Wed 2/25/04
11	1 day?	Installed Two-Stage MH Inserts at Six Locations	Fri 2/27/04
12	1 day?	Installed Perma-seal MH Rings Boulder/Quartz Drive	Fri 3/5/04
13	69 days?	Conducted Phase I Odor / Noise Assessment	Fri 3/12/04
14	1 day?	MCESD Toured BMSC Facilities	Mon 3/15/04
15	9 days	Completed Landscaping Improvements CIE LS	Thu 4/1/04
16	9 days	Completed Landscaping South of WWTP	Thu 4/8/04
17	1 day?	Seneco System - Odor Scrubber Inspection	Tue 4/20/04
18	1 day?	Installed Two-Stage MH Inserts at Two CIE Locations	Tue 4/27/04
19	137 days	Contracted DSWA for Phase II Noise Assessment	Wed 6/16/04
20	44 days?	Contracted LTS for Phase II OdorAssesement	Fri 5/28/04
21	16 days?	LTS Conducts 22-pt / 200 hr Odor Assessment	Thu 6/3/04
22	1 day?	DSWA meeting D/B Noise Specifications Developed	Wed 6/16/04
23	7 days	Additional Trees added to WWTP	Fri 6/18/04
24	14 days	LTS PHS II Odor Study Report	Mon 6/7/04
25	26 days?	FOG - FAQ Mailer to all Commercial Customers	Thu 6/24/04
26	14 days	Additional Landscaping Improvements WWTP	Mon 7/26/04
27	74 days?	Noise / Odor Improvements Placed into Service	Fri 9/3/04
28	30 days	LTS Phs II Report	Thu 6/17/04
29	42 days	Chemical Feed study - Sage Brush LS	Mon 8/30/04
30	5 days	LTS Phs III Odor Evaluation Report	Tue 10/26/04
31	1 day	DSWA - Plant Sound Evaluation - AM	Thu 12/23/04
32	1 day?	DSWA - Plant Sound Evaluation - PM	Mon 1/10/05
33	16 days	BMSC Asthetic Improvements Schedule to ADEQ	Mon 1/10/05
34	16 days?	DSWA Sound Improvement Evaluation Report	Mon 1/10/05
35	5 days	Odor Scrubber Air Balance	Mon 2/7/05
36	5 days	Odor Scrubber Stack Sampling and Speciation	Mon 2/14/05
37	30 days	Plant / Collection System pH Profiling	Thu 1/13/05
38	1 day?	LTS Phs IV - Odor Scrubber Air Balance - Report	Thu 3/31/05
39	1 day?	LTS Phs V -Odor Scrubber Stack - Report	Fri 4/1/05
40	54 days?	Repair MH Hydrulic Surcharge at Century Drive	Mon 1/3/05
41	87 days?	Plant / Collection System pH Profiling Analysis	Thu 3/31/05
42	35 days?	Sewer Rehabilitation - Boulders Drive - 3000 LF	Mon 5/2/05
43	153 days?	Sage Brush - Automated Chemical Feed System	Wed 6/1/05
44	63 days?	Industrial Pretreatment Sample Ordinance	Tue 4/5/05



Project: odor Improvements
Date: Tue 5/31/05

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External Milestone
Deadline

ATTACHMENT – B

INDUSTRIAL PRETREATMENT PROGRAM
FOG FLYER

June 30, 2004

Spanish Village
Acct No. 1000872
5050 N. 40th St. Suite 260
Phoenix AZ, 85018

ALGONQUIN
WATER RESOURCES
OF AMERICA, INC.

Attn: Commercial Account Sewer Discharger

RE: BMSC – FATS OIL AND GREASE (FOG) REDUCTION PROGRAM

The discharge of fats, oils, and grease (FOG) is a leading cause of sewer spills. This letter is being sent to you to inform you of Black Mountain Sewer Company's (BMSC's) on-going efforts to reduce the risk of outfall or sewer spills from grease accumulation in the sewer mains. To prevent this material from entering the sewer system, BMSC requires commercial customers discharging high levels of FOG to install grease removal equipment. To ensure that this equipment functions effectively, restaurants and FOG discharges must periodically remove accumulated FOG and food solids from these devices. Restaurants and other high FOG dischargers, frequently utilize commercial pumping contractors to clean their grease removal equipment and properly dispose of the removed material. It is the sole responsibility of the commercial sewer account to properly document the proper maintenance of these devices.

The material pumped from the grease removal equipment is comprised of grease, fats, oils, trash, food solids, and water. Because of the high levels of grease, fats, and oils in this waste stream, the pumped material cannot, under any circumstances, be discharged to the environment or into the sewer system. A licensed commercial waste hauler may be used to properly maintain and dispose of industrial strength waste from sewer grease trap/interceptors.

Furthermore, the practice of discharging treated or untreated wastewater from a pumping vehicle into the sewer without permission of the BMSC is strictly prohibited. **The practice of decanting or discharging wastewater from any device back into grease traps or interceptors constitutes an unauthorized discharge**. Furthermore, discharges of pumped grease trap or interceptor wastewater to other un-permitted locations, such as carwash interceptors or manholes, is also prohibited. Unauthorized trucked waste discharges and the failure to obtain the required permit are prohibited under local and federal laws; violations may result in enforcement procedures up to and including civil or criminal penalties.

The attached flyer illustrates guidelines associated with the on-going FOG reduction program. Please help us protect the environment by properly operating and maintaining your grease collection system. For more information on the community-wide FOG reduction program, please contact the BMSC customer service line at 480-575-7303.

Thank you for your support.

Black Mountain Sewer Company

Algonquin Water Services, LLC
111 W. Wigwam Road
Suite B
Litchfield Park, AZ 85340

Ph: 623-935-9367
Fax: 623-935-1020

Black Mountain Sewer Company

Fats Oils and Grease (FOG)

Fats, Oil and Grease (FOG) discharged into the sanitary sewer by commercial or industrial users can cause a number of problems in the sewer system. Grease & oil have poor solubility and tend to separate from the aqueous phase. Although this characteristic is advantageous in facilitating the separation of oil & grease in pretreatment devices such as grease traps and interceptors, it complicates the transportation of wastes in the sewer and can complicate treatment and disposal at the wastewater treatment plant.

FOG in wastewater from food service facilities can result in decreased carrying capacity of sewers due to congealed, cooled grease which coats the inside of the pipes. Once a pipe becomes constricted, the potential for a stoppage increases. Stoppages can and will eventually cause sanitary sewer overflows. In order to ensure efficient sewage treatment, protect the sewer system and protect public health, the Black Mountain Sewer Company (BMSC) has established the following requirements for all commercial business accounts:

General Requirement

Any type of business where oil and grease may be discharged into a public sewer shall have an interceptor/trap. The interceptor or trap shall be of a type and capacity approved by BMSC.

a. Each interceptor or trap shall be accessible at all times for inspection, cleaning and removal of grease and other material. Interceptors or traps installed outside of the building shall be constructed in such a manner so as to exclude the entrance of surface water and storm water.
b. The interceptor or trap shall be situated on the User's premises. Operation and maintenance of the trap is the sole reasonability of the commercial sewer account.
c. Building repair or remodels permitted for use requiring interceptors/traps shall be subject to these regulations.
d. Waste discharges from fixtures, including but not limited to, scullery sinks, pot and pan sinks, mop sinks, soup kettles and floor drains, shall be drained into the sanitary sewer through an interceptor/trap. Toilets, urinals and other similar fixtures shall not drain through the interceptor/trap.
e. Interceptors and traps shall be maintained in efficient operating condition. At minimum, grease traps must be **cleaned monthly** or as deemed necessary by the Industrial Waste Inspector. The use of chemicals, bacteria or other agents to dissolve grease or otherwise clean grease interceptors/traps is specifically prohibited. No such grease shall be introduced into any drainage piping leaving the premises, or public or private sewer.
f. Large capacity concrete type interceptors (500-gallon capacity or greater) shall have a suitable sample box to provide access for collection of wastewater samples. Large interceptors must be serviced every three-months or as deemed necessary by the industrial waste inspector.
g. Each appliance connected to a pre-cast under sink type grease trap shall have a flow device installed. No dishwashers may be connected to these types of grease traps.
h. A record of grease trap cleaning or copies of grease interceptor servicing must be maintained for the previous twelve-month period and made available for inspection by the BMSC's representative (sample form attached).

Additional Information

For additional information on limiting FOG into the sewer system, please contact the BMSC Customer Service line at (480)-575-7303.

Frequently Asked Questions (FAQ)

About

Fats Oil and Grease - (FOG)

Is FOG a problem in Our Area?

For sewage collection and treatment of commercial business, the answer is an emphatic YES! FOG is singled out for special attention because of its poor solubility in water and its tendency to separate from the liquid solution.

Large amounts of fats oil and grease in the wastewater cause trouble in the collection system pipes. FOG decreases pipe capacity and, therefore requires piping systems to be cleaned more often and in some cases, replaced sooner than otherwise expected. FOG can also hamper effective treatment and odor control at the wastewater treatment facilities.

FOG in a warm liquid may not appear harmful. But, as the liquid cools, the grease or fat congeals and causes nauseous mats on the surface of settling tanks, digesters, in the wet wells of pumping stations, and the interior of pipes and other surfaces which may cause a shutdown of wastewater treatment units.

Problems caused by wastes from restaurants and other FOG-producing establishments have served as the basis for ordinances and regulations governing the discharge of grease materials to the sanitary sewer system. This type of waste has forced the requirement of the installation of preliminary treatment facilities, commonly known as grease traps or interceptors.

What is a grease trap and how does it work?

A trap is a small reservoir built into the wastewater piping a short distance from the grease producing area. Baffles in the reservoir retain the wastewater long enough for the grease to congeal and rise to the surface. The grease can then be removed and disposed properly.

What is a grease interceptor?

An interceptor is a vault with a minimum capacity of between 500 and 750 gallons that is located on the exterior of the building. The vault includes a minimum of two compartments, and flow between each compartment is through a 90° fitting designed for grease retention. The capacity of the interceptor provides adequate residence time so that the wastewater has time to cool, allowing any remaining grease not collected by the traps time to congeal and rise to the surface where it accumulates until the interceptor is cleaned.

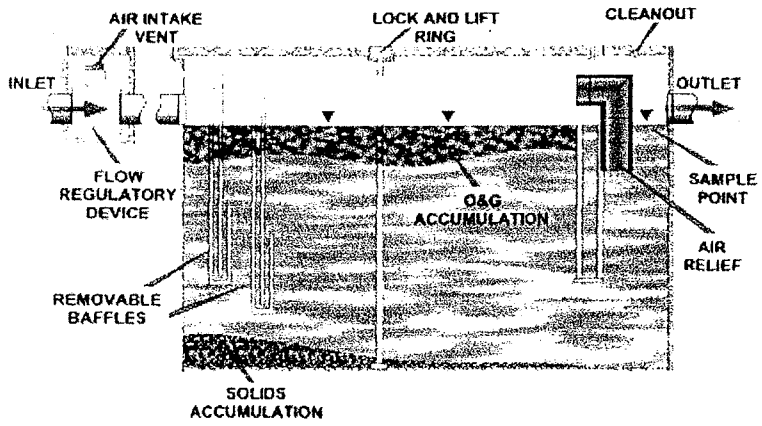
How do I clean my grease trap?

Grease trap maintenance is usually performed by maintenance staff, or other employees of the establishment. Grease interceptor (GI) maintenance, which is usually performed by permitted haulers or recyclers, consists of removing the entire volume (liquids and solids) from the GI and properly disposing of the material in accordance with all Federal, State, and/or local laws. When performed properly and at the appropriate frequency, grease interceptor and trap maintenance can greatly reduce the discharge of fats, oil, and grease (FOG) into the wastewater collection system.

The required maintenance frequency for grease interceptors and traps depends greatly on the amount of FOG a facility generates as well as any best management practices (BMPs) that the establishment implements to reduce the FOG discharged into its sanitary sewer system. In many cases, an establishment that implements BMPs will realize financial benefit through a reduction in their required grease interceptor and trap maintenance frequency. **WARNING!** Do not use hot water, acids, caustics, solvents, or emulsifying agents when cleaning grease traps and interceptors.

Grease Trap Maintenance

A proper maintenance procedure for a grease trap is outlined below:



Step	Action
1.	**Bail out any water in the trap or interceptor to facilitate cleaning. The water should be contained and should not be discharged into the sanitary sewer if the Oil and Grease concentration is greater than 50 parts per million (ppm). Any discharges into the sanitary above 50 ppm is not allowed and should be disposed of by a professional waste handler.**
2.	**Remove baffles if possible.**
3.	**Dip the accumulated grease out of the interceptor and deposit in a watertight container.**
4.	**Scrape the sides, the lid, and the baffles with a putty knife to remove as much of the grease as possible,**

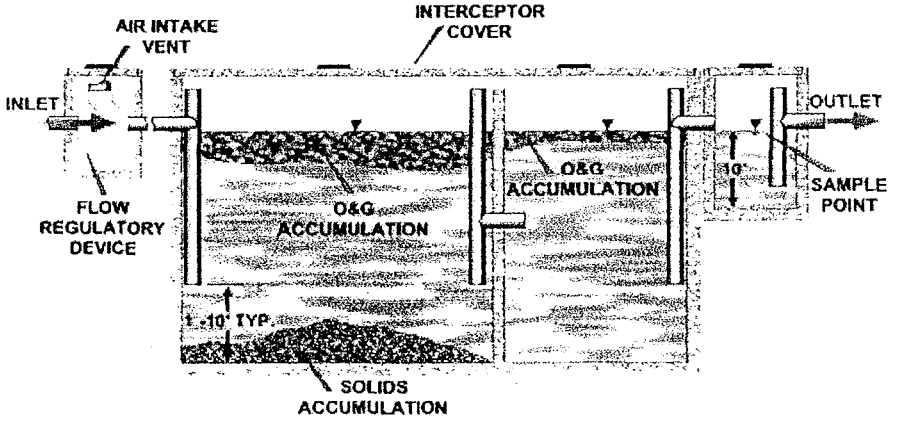
	and deposit the grease into a watertight container.
5.	Contact a hauler or recycler for grease pick-up.
6.	Replace the baffle and the lid.
7.	Record the volume of grease removed on the maintenance log.

Grease Interceptor Maintenance

Grease interceptors, due to their size, will usually be cleaned by grease haulers or recyclers. Licensed septage haulers can also pump out grease interceptors and haul the waste to the treatment plant. There are a number of companies who are permitted to haul and dispose of FOG.

A proper maintenance procedure for a grease interceptor is outlined below:

NOTE: Since the establishment is liable for the condition of their pretreatment devices, the establishment owners/representatives should witness all cleaning/maintenance activities to verify that the interceptor is being fully cleaned and properly maintained.



Step	Action
1.	Contact a grease hauler or recycler for cleaning.
2.	Ensure that all flow is stopped to the interceptor by shutting the isolation valve in the inlet piping to the interceptor.
3.	Remove the lid and bail out any water in the trap or interceptor to facilitate cleaning. The water should be discharged to the sanitary sewer system.

4.	Remove baffles if possible.
5.	Dip the accumulated grease out of the interceptor and deposit in a watertight container.
6.	Pump out the settled solids and then the remaining liquids.
7.	Scrape the sides, the lid, and the baffles with a putty knife to remove as much of the grease as possible, and deposit the grease into a watertight container.
8.	Replace the baffle and the lid.
9.	Record the volume of grease removed on the maintenance log.

Can you recommend a maintenance schedule?

All grease interceptors should be cleaned ***at least once each month***. Some establishments will find it necessary to clean their traps *more often than twice per month.* If the establishment is cleaning too often, the owner should consider installing a larger trap or interceptor.

Do I have a grease trap?

If the establishment is uncertain whether it has a grease trap, the owner should contact the Black Mountain Sewer Company (480)-575-7303 for a scheduled inspection.

Do I need a grease trap?

Any establishment that introduces grease or oil into the drainage and sewage system in quantities large enough to cause line blockages or hinder sewage treatment is required to install a grease trap or interceptor.

Interceptors are usually required for high volume restaurants (full menu establishments operating 16 hrs/day and/or serving 500+ meals per day) and large commercial establishments such as hotels, hospitals, factories, or school kitchens. Grease traps are required for small volume (fast food or take-out restaurants with limited menus, minimum dishwashing, and/or minimal seating capacity) and medium volume (full menu establishments operating 8-16 hrs/day and/or serving 100-400 meals/day) establishments. Medium volume establishments may be required to install an interceptor depending upon the size of the establishment.

Is the grease trap I have adequate?

Sincerely,
Black Mountain Sewer Company

Joel L. Wade
Manager of Engineering and Construction
Algonquin Water Services, L.L.C.

JLW/jlw : BMSC omprovements

cc:
Michael D. Weber P.E., General Manager Algonquin Water Services, L.L.C. w/o attachment
Bob Dodds P.E., President, Operations Algonquin Power Services, L.L.C. w/o attachment
Charlie Hernandez – Operations Manager Algonquin Water Services, L.L.C. w/o attachment

The Uniform Plumbing Code requires that no grease trap have a capacity less than 20 gallons per minute (gpm) or more than 55 gpm. The size of the trap depends upon the number of fixtures connected to it. The following table provides criteria for sizing grease traps:

Total number of fixtures connected	Required rate of flow, gpm	Grease retention capacity, lbs
1	20	40
2	25	50
3	35	70
4	50	100

The size will also depend largely upon the maintenance schedule. If a grease trap or interceptor is not maintained regularly it will not provide the necessary grease removal. The establishment should work out a specific cleaning schedule that is right for the establishment. All grease traps need to have the grease cleaned out periodically and no one likes to do the job. It is a dirty job. Running extremely hot water down the drain only moves the problem down stream. It does not go away. Catch the grease at the source! This is the most economical means to reduce *all* costs.

What if I don't install a grease trap?

If the establishment uses grease and oil in food preparation, it will eventually encounter a maintenance problem with a plugged building sewer line. The blockage can create a sewer backup situation and ultimately a potential health problem in the establishment. Someone will have to pay for removing the blockage. If the problem is in the building sewer line, then the establishment has direct responsibility for paying for the maintenance. If the blockage or restriction is in the public sewer main and it can be proven that the establishment is the cause of the blockage, then the establishment may have to pay for the public sewer to be maintained. Blocking a sanitary sewer line is also a violation of the federal Clean Water Act.

Who determines if I need a grease trap or interceptor?

An approved grease trap or interceptor shall be installed according to the Uniform Plumbing Code, Maricopa County Environmental Services Department (MCESC) or the Arizona Department of Environmental Quality
The rules of the Health Department will also assist the establishment in determining if a grease trap or interceptor is required. The BMSC prohibits the

discharge of materials that can solidify and create blockages in the wastewater collection system or treatment plants. The BMSC, MCESD or ADEQ may make periodic inspections to see that no health problems exist due to improperly maintained grease interceptors. These agencies may enforce if a problem exists.

How can I get in compliance?

The establishment should contact the BMSC (480)-488-2987. This will enable the proper jurisdiction to assist the developer with design standards, establishment of cleaning schedules or advise of any problems showing up in the wastewater collection system. Along with sewer tap inspections, a grease interceptor inspection is required regardless of whether the establishment has an existing trap or is installing a new one.

What are the criteria for inspecting grease traps?

All food service establishments suspected of causing problems to the collection system or treatment facilities will be inspected. The inspector will use the following criteria to inspect grease traps:

Percent of Trap Filled	Trap Condition
25	Good
25 – 50	Fair
>50	Poor

If the trap is in FAIR condition, the establishment should be advised to keep an eye on the maintenance schedule. The cleaning frequency may need to be increased. If the trap is in POOR condition, the establishment should be issued a compliance order to have it cleaned immediately. The establishment should then be required to contact the issuing authority within 30 days to verify that the grease interceptor has been properly cleaned.

Commercial Accounts

Spanish Village
5050 N 40th Street Suite #260
Phoenix 85018

El Pedregal
34505 Scottsdale Road
Scottsdale, AZ 85262

Bakery Cantina
2515 N. Scottsdale Suite #1
Scottsdale AZ 85257

Pia's
PO Box 5443
Carefree, AZ 85377

Bad Donkey
PO Box 5292,
Carefree, AZ 85377

Basha's
PO Box 488
Chandler AZ 85244

Pizzafarro's
2800 N. Central Suite #1500
Phoenix AZ 85004

Flap Jacks
2800 N. Central Suite #1500
Phoenix AZ 85004

China Joy
2800 N. Central Suite #1500
Phoenix AZ 85004

English Rose Tea Room
PO Box 5865
Carefree, AZ 85377

Boulders
PO Box 2090
Carefree, AZ 85377

Carefree Inn

37220 N. Mule Train
Carefree, AZ 85377
Trattoria Romania / Carefree Plaza
PO Box 921
Carefree AZ, 85377

ATTACHMENT – C

COMMUNITY OUTREACH
ODOR STUDY
SAMPLE CORRESPONDENCE
CUSTOMER DATA COLLECTION FORM

June 2, 2004

ALGONQUIN
WATER RESOURCES
OF AMERICA, INC.

Attn: Residential Sewer Customer:

RE: BMSC – ODOR CONTROL STUDY

Dear BMSC Residential Sewer Customer:

As you may be aware, the Black Mountain Sewer Company (BMSC) is conducting aesthetic improvements to the BMSC water reclamation facility and associated collection systems in your area. Part of the improvement process requires study, analysis and documentation of odors associated with these facilities. As a citizen of the community, **BMSC is asking for your cooperation** with the on-going odor control study by participating in the documentation of any unusual odors detected in the vicinity of your home. This information will be used to help identify the type and direction of fugitive odor emissions in your area.

The attached flyer can be used to identify any unusual odors detected during the study. The required information includes the house address, the house member identifying the odor, the type of odor detected (musty, rotten egg etc) the approximate location in the home at the time of detection the time and date the odor was detected and the direction the odor is projected from.

The test period will take place from Thursday, June 3, 2004 until Monday, June 7, 2004 and will be repeated the following Thursday through Monday. After each testing session, a BMSC representative will visit your home to collect the data sheet on the following Tuesday (if you are not home or unavailable, please leave the information at the front entrance of the home).

BMSC would like to thank you in advance for your participation. For more information on the community-wide aesthetic improvement project, please contact the BMSC customer service line at 480-575-7303.

Thank you for your support.

Black Mountain Sewer Company

Algonquin Water Services, LLC
111 W. Wigwam Road
Suite B
Litchfield Park, AZ 85340

Ph: 623-935-9367
Fax: 623-935-1020

BLACK MOUNTAIN SEWER COMPANY
ODOR ASSESEMENT FORM
JUNE 3 - JUNE 7
200~~7~~ 4

RESIDENTAIL ADDRESS ______________________

DATE	HOUSE MEMBER	LOCATION ODOR WAS DETECTED IN HOME	TIME ODOR WAS DETECTED	TIME ODOR STOPPED	ODOR * TYPE	ODOR** DIRECTION	COMMENTS/ ADDITIONAL INFORMATION

* L= LIGHT, S=STRONG M=MUSTY, R=ROTTEN EGG eg. LR = LIGHT, ROTTEN EGG

** N=NORTH, S=SOUTH,E=EAST, W=WEST eg. NW=NORTHWEST

ATTACHMENT – D

SOUND ASSEMENT – DRAFT FINAL REPORT
DAMON S. WILLAIMS AND ACCOSICATES

1.0 Introduction

The Algonquin Water Company (Algonquin) owns and operates Black Mountain Water Reclamation Facility (BMWRF). The BMWRF is situated in The Boulders Resort in Care Free, Arizona and surrounded by residential houses. Algonquin received complaints from house residents regarding elevated noise levels emanating from the BMWRF.

Algonquin engaged Damon S. Williams Associates, L.L.C. (DSWA) to investigate elevated noise at the BMWRF and recommend noise attenuation measures in order to reduce overall noise level at the facility and its surroundings to acceptable levels.

The BMWRF has 0.12 MGD treatment capacity accomplished through the following major process units:

- Screening Room
- Aeration Basins
- Odor Control System
- Blower Room
- Chlorine Contact Basin
- Effluent Pump Station

This report describes major noise sources at the BMWRF, identifies noise measurement locations around the facility and associated actual noise levels, and provides recommendations and associated costs for noise attenuation measures at each noise source. Finally, the report presents final noise measurements, after implementation of the attenuation measures, for verification of actual noise reduction levels.

2.0 Preliminary Site Investigation

DSWA conducted preliminary site investigation on March 12, 2004. The investigation identified major noise sources at the BMWRF as follows:

- Blower Room
- Odor control fan
- Open grating and various piping inlets and outlets at Aeration Basins
- Two smaller effluent pumps, and

- Chlorine metering pumps

Each of these sources will be discussed in more details below.

3.0 Major Noise Sources

3.1 Blower Room

The Blower Room has four positive displacement blowers, which supply process air to the Aeration Basins. These blowers, by its construction, can emit sound level of about 90 dBA when in operation. At the time of the inspection, all four blowers were in operation. Each blower has inlet and discharge silencer that significantly reduces noise propagation through the process air piping. A propeller type, wall exhaust fan draws outside air through the intake louvers and a set of filters. Part of this air is used by the blowers and the rest is exhausted by the fan through the exhaust louvers. Since all blowers have inlet and discharge silencers, the noise reduction in the Blower Room would have to be accomplished by reducing noise level at the room openings to the outside – intake and exhaust louvers.

3.2 Odor Control System

This system collects and treats odorous air from the Screening Room and Aeration Basins. The odorous air is drawn by an odor control fan and it is discharged through a treatment tower. The fan is belt driven and has a motor and the belt in a metal enclosure. It was apparent that elevated noise originates from the fan enclosure/weather cover. Replacing the existing enclosure with a more substantial enclosure and balancing the fan will reduce the current noise levels and prevent loosening of parts on the enclosure in the future.

3.3 Aeration Basins

Numerous open grating areas and piping inlets and outlets were identified as potential noise sources at the Aeration Basins. The noise originates from wastewater flows over or through various weirs and baffle walls inside the Aeration Basins. Covering grating openings and enclosing piping inlets and outlets would reduce current noise levels.

3.4 Effluent Pump Station

Effluent Pump Station has four effluent pumps, which provide effluent to neighboring golf courses as well as water for use in the facility. Two of the smaller pumps were identified as relatively noisy.

3.5 Chlorine Metering Pumps

Two positive displacement pumps supply chlorine required for effluent disinfection. These pumps usually have "clicking" noise associated with their operation. Algonquin stated that this system would be replaced with an on-site chlorine generation system in the near future, hence the existing metering pumps will not be considered in this report.

4.0 Preliminary Noise Measurements

DSWA recorded noise levels at numerous locations inside the facility as well as outside the perimeter wall, between the facility and surrounding houses. Noise measurement locations are shown on the site aerial photo in Attachment 1. Noise levels were measured using calibrated sound level meter, Extech Model No. 407764, on dBA scale, since this scale is most relevant to human hearing. The measurements were taken at two different times of the day, since noise propagation is directly effected by ambient temperature and background noise. The recorded results are presented in the table below.

Location No.	Date and Time	
	03-22-04, 1:00 pm[1]	03-23-04, 7:00 am[2]
	Noise Level, dBA	Noise Level, dBA
1	60	60
2	75	75
3	70	68
4	71	68
5	56	58
6	57	58
7	49	53
8	47	49
9	49	49
10	60	59
11	56	58
12	55	56
13	50	53
14	47	50

1. Ambient Temperature: 85 °F

2. Ambient Temperature: 73 °F

It is apparent that the highest noise levels were recorded in the vicinity of the Blower Room and the Odor Control Fan (Locations No. 1, 2, 3, and 4), between 60 dBA and 75 dBA. These noise levels can present nuisance for the neighboring houses as noise propagates beyond the facility boundaries. Noise levels recorded at Locations No. 7 through 14 were between 47 dBA and 60 dBA. An overall noise reduction goal of 10 dBA at major noise sources should result in a lower noise levels beyond the facility boundaries. The estimated resulting noise level, between 45 dBA and 55 dBA, at locations outside the facility (Locations No. 7 through 14), will be lower than a normal human speech level (about 60 dBA) and should be more acceptable to the area residents.

5.0 Code Research

DSWA contacted Town of Care Free and inquired of any noise level requirements imposed by the town code. Other than requirements for motor vehicles noise not to exceed 85 dBA measured at 25 feet from the source, there are no other specific noise level requirements.

The United States Environmental Protection Agency (EPA) has identified the relationship between noise levels and human response. The EPA has determined that interference with activity and annoyance will not occur if exterior levels are maintained at Leq (equivalent energy level) of 55 dBA and interior levels at or below 45 dBA.

In addition to the Leq limitations discussed above, in accordance with Page 2-3 24 CFR, Part 51, Subpart B "Noise Abatement and Control," by United States Department of Housing and Urban Development (HUD), August 1984, the EPA set 55 dBA Ldn (day-night average level) as the basic goal for exterior residential noise intrusion. However, other federal agencies, in consideration of their own program requirements and goals, as well as difficulty of actually achieving a goal of 55 dBA Ldn, have settled on the 65 dBA Ldn level as their standard. At 65 dBA Ldn, activity interference is kept to a minimum, and annoyance levels are still low. It is also a level that can realistically be achieved.

In conclusion, maximum noise level of 55 dBA at the property line should exceed goals set by the EPA.

6.0 Noise Reduction Measures

A number of noise reduction measures were investigated based on their applicability, noise attenuation, cost and construction and locations of the existing structures. The recommended measures are presented below with associated equipment data sheets and budget costs included in Attachment 3.

6.1 Blower Room

Existing intake and exhaust louvers should be replaced with the sound attenuation (acoustical) louvers of similar size. The sound attenuation louvers can provide between 10 to 15 dBA of noise reduction. This will meet or exceed 10 dBA noise reduction goal. The cost estimates associated with implementation of these noise reduction measures are listed below:

- Sound attenuation intake and exhaust louvers – $2400 plus installation cost (estimated as $2500).

6.2 Odor Control System

The existing fan enclosure should be replaced and the fan should be balanced. The new enclosure will reduce the noise level from 68 dBA to 56 dBA. The enclosure replacement cost is estimated at $300, and the fan balancing is estimated at $550.

6.3 *Aeration Basins*

Sound curtain assemblies should be installed over all grating openings. The assemblies will be 1 foot high above the gratings and will deflect and absorb sound from the aeration basin. The curtain assemblies will be constructed with a metal frame and foam or fiberglass cored aluminized sound absorbing material. They are durable, removable and provide a sound reduction of approximately 10 dBA. The cost associated with this improvement is estimated as $\$12/ft^2$. Alternatively, porous mats could be installed over all grating openings. The mats are 2'x2' 2-inch thick with 300 1/8 inch holes, corrosion and UV resistant, made of polypropylene and provide overall noise reduction of approximately 10 dBA. In addition all piping inlets and outlets should be extended through these mats. The cost associated with this improvement is estimated at $\$20/ft^2$. The estimated coverage area is approximately 450 square feet resulting in a cost of about $5500 to install the curtains, and about $9500 to install the mats.

6.4 *Effluent Pump Station*

It is recommended to replace two existing small effluent pumps with new pumps of the same type and capacity. The new pumps should be of quieter design.

7.0 Final Noise Measurements

DSWA performed final noise measurements after implementation of noise reduction measures to verify actual noise reduction. At the time of the final measurements, Algonquin has implemented the following noise reduction measures:

- Installed sound attenuation louvers at the blower room
- Replaced odor control fan enclosure
- Installed sound mats at aeration basin openings

Final measurements were done at the same locations and approximately the same time as the preliminary measurements, but at lower ambient temperatures due to different time of the year. The final recordings are presented in the table below.

Location No.	Preliminary Recordings		Final Recordings		Average Noise Reduction, dBA[5]
	03-22-04, 1:00 pm[1]	03-23-04, 7:00 am[2]	01-10-05, 1:00 pm[3]	12-23-04, 7:00 am[4]	
	Noise Level, dBA	Noise Level, dBA	Noise Level, dBA	Noise Level, dBA	
1	60	60	56	57	3.5
2	75	75	66	65	9.5
3	70	68	59	59	10.0
4	71	68	65	65	4.5
5	56	58	54	55	2.5
6	57	58	55	56	2.0
7	49	53	43	44	7.5
8	47	49	42	43	5.5
9	49	49	45	45	4.0
10	60	59	56	55	4.0
11	56	58	52	53	4.5
12	55	56	43	44	12.0
13	50	53	44	45	7.0
14	47	50	42	43	6.0
				Overall Average:	5.9

1. Ambient Temperature: 85°F
2. Ambient Temperature: 73°F
3. Ambient Temperature: 64°F
4. Ambient Temperature: 45°F
5. Average reduction between four recordings for the location.

8.0 Summary & Conclusions

DSWA identified the following major noise sources at the BMWRF as follows:

- Blower Room
- Odor control fan
- Open grating and various piping inlets and outlets at Aeration Basins
- Two small effluent pumps, and
- Chlorine metering pumps

DSWA recommends the following noise reduction measures to reduce overall noise level, excluding chlorine metering pumps and effluent pumps, since these pumps will be replaced with new equipment in the near future:

- Blower Room: Sound attenuation intake and exhaust louvers – $4,900
- Odor Control System: Enclosure replacement and fan balancing - $850.

- Aeration Basins: Approximately 450 sq. ft.

  Recommended: Sound curtain assembly- $12/ft^2$

  - Approximate cost $5,500

  Alternatively: Porous mats and piping inlets/outlets enclosures- $20/ft^2$

  - Approximate cost $9,500

- Effluent Pump Station: Two new effluent pumps

Up to date, Algonquin implemented the following noise reduction measures:

- Installed sound attenuation louvers at the blower room
- Replaced odor control fan enclosure
- Installed sound mats at aeration basin openings

The final noise measurements indicate overall average noise reduction of about 6.0 dBA, with minimum and maximum reduction of 2 and 12 dBA respectively. Measured noise levels at all locations are below 60 dBA except for Location No. 4 which in the vicinity of the odor control fan. In addition, noise levels at critical locations outside the plant (Locations No. 7 through 14) are well below 50 dBA except at Locations No. 10 and 11 which are measured at 55 and 53 dBA respectively, but still below levels prior to implementation of noise improvements. It should be also noted that noise measurements are sensitive to ambient temperature and background noise at the time of the readings.

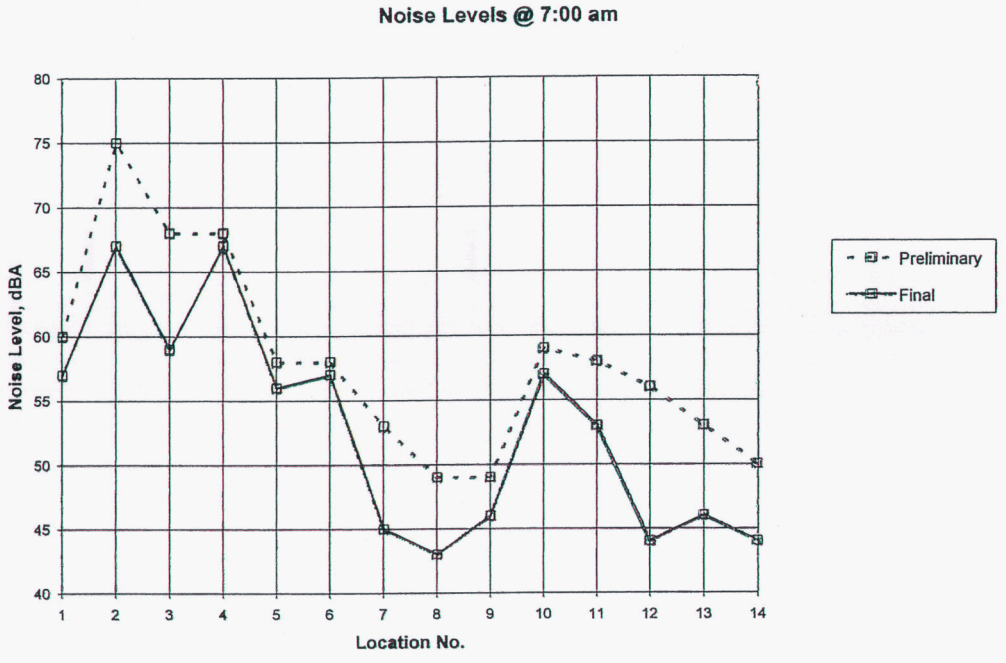
In conclusion, implemented noise reduction measures provided lower overall noise level emitted by BMWRF, which should reduce area resident's complaints. The noise levels measured at the points around the BMWRF perimeter exceeded the EPA and HUD goals for exterior residential noise intrusion.

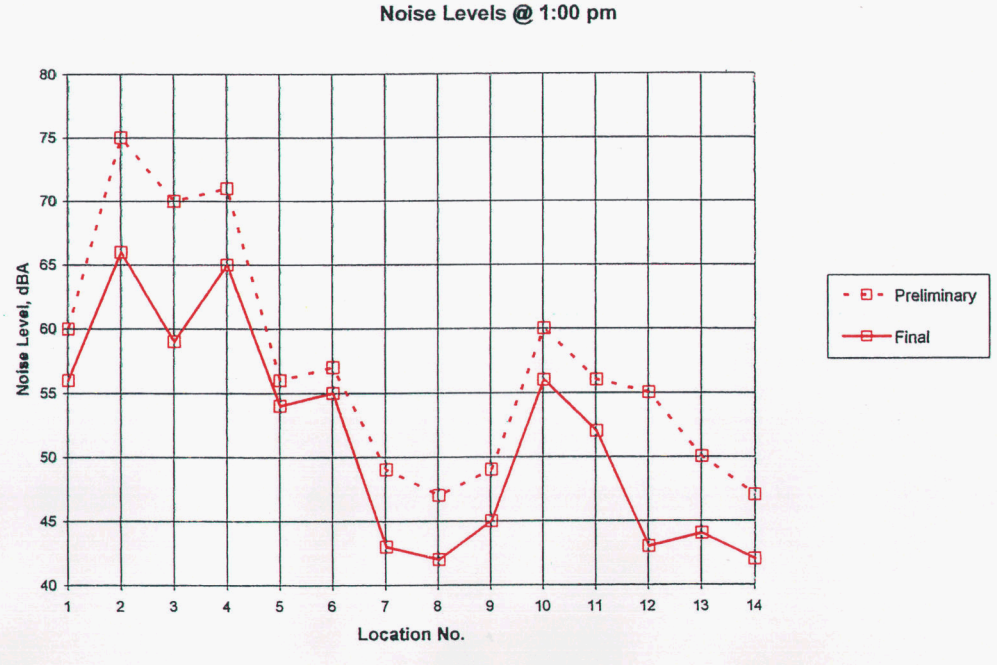
If becomes necessary, additional noise reduction at Points No. 10 and No. 11 can be achieved by implementing supplemental measures at the odor control fan. These measures may be in a form of a specially designed fan sound enclosure, or the existing fan can be replaced with a quieter design (e.g. fan that operates at lower rpm).

The graphical representation of preliminary and final recorded noise levels at Locations No. 1 through No. 14 is included in Attachment 2.

Attachment 1
Site Aerial Photo including Noise Measurement Locations

Attachment 2
Noise Levels Graph





Attachment 3
Equipment Data Sheets

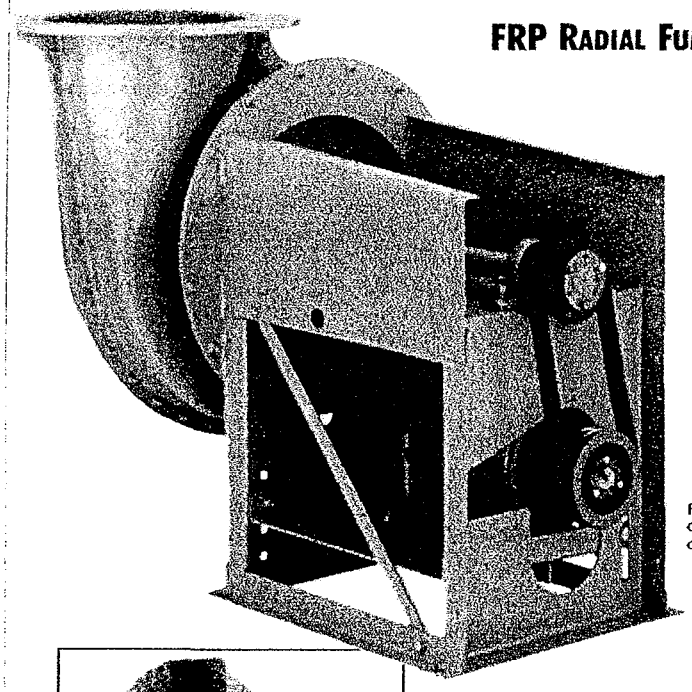
Current Fan: Odor Scrubber Radial Fume Exhauster

DESIGN FEATURES

The New York Blower Company's FRP Radial Fume Exhauster [RFE] and FRP Pressure Blower [FPB] are designed so that all parts exposed to the airstream are constructed of high-quality corrosion-resistant fiberglass reinforced plastic. The RFE and FPB are resistant to attack from most chemicals and are ideally suited to applications in the chemical, pulp and paper, wastewater-treatment, fertilizer, pharmaceutical, and metal-plating industries.

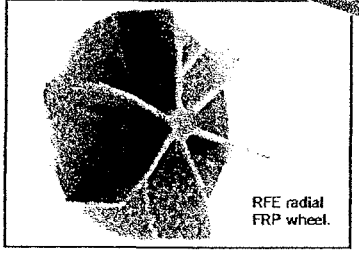
Specifically, the RFE is designed for exhausting moderate volumes of highly corrosive fumes at moderate pressures. Typical applications include laboratory fume hoods, small plating and pickling operations, etching processes, and chemical-fume scrubbers. The FPB is designed for low volumes at high pressures. Typical applications include pulp and paper processes, chemical-fume scrubbers, and soil remediation.

FRP RADIAL FUME EXHAUSTERS



- Five sizes: 160, 200, 315, 400, and 500 mm inlet-duct diameters [8", 10", 14", 18", and 22" wheel diameters].
- Capacities to 8,000 CFM.
- Static pressures to 14"WG.
- Temperatures to 250°F.
- Available in compact Arrangement 10 design.

RFE-400, Arrangement 10, clockwise Up Blast, with optional motor and v-belt drive.



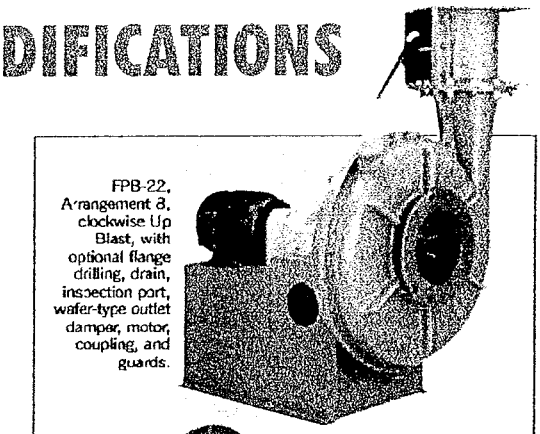
RFE radial FRP wheel.

AMCA SEAL

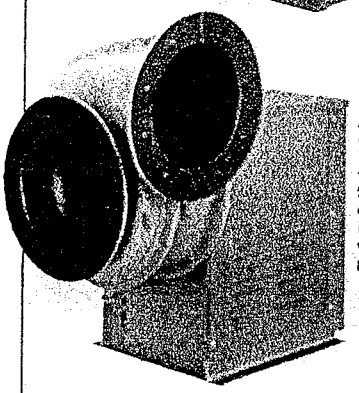
The New York Blower Company certifies that the Radial Fume Exhausters shown herein are licensed to bear the AMCA Seal. The ratings shown on pages 6 and 7 are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program.

ACCESSORIES/MODIFICATIONS

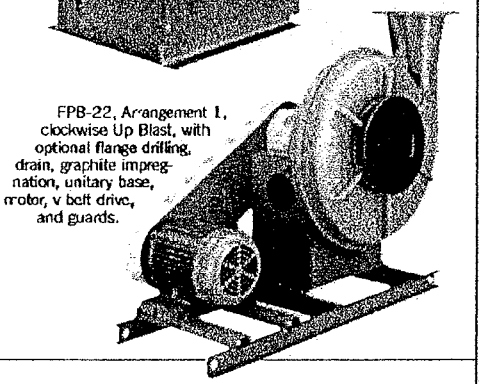
- **Shaft seal**—Viton® elements in FRP casing. Type 316 SST sleeve covers shaft for use with seal. Teflon® seal and Hastelloy C-276 sleeve available.
  [Viton is a registered trademark of DuPont Dow Elastomers.]
  [Teflon is a registered trademark of DuPont.]
- **Teflon shaft hole closure**—thin Teflon sheet used to minimize exchange of gases at shaft opening.
- **Outlet damper**—corrosion-resistant FRP wafer-type damper sized to match FRP fan outlet flange. Damper flanges drilled as standard.
- **Companion flange with collar**—FRP construction; used on inlet or outlet to provide a slip connection for customer-furnished flexible connection.
- **Flanged drilling**—for ease of direct connection; dimensions shown on page 10.
- **Unitary base**—available with spring or rubber-in-shear [R-I-S] isolators. Isolation rails are available for Arrangement 10 fans.
- **Drain**—threaded FRP drain with PVC plug, 1" npt, at lowest point of housing scroll.
- **Inspection port**—allows examination of fan interior. Located on inlet side half of housing at 2 or 10 o'clock, opposite discharge. Port size is 3" on RFE-160/200/315, and FPB-18/22; and 4" on RFE-400/500, and FPB-28.
- **Surface veil**—for added protection against certain corrosives. Provides compliance with ASTM D 4167.
- **All-vinyl ester airstream**—for additional protection from certain corrosives.
- **Graphite impregnation**—to control static electricity. The gas-stream surfaces are grounded to the fan base.
- **Positive screw adjustment**—two threaded rods provide easy motor platform/V-belt adjustment. [Arrangement 10 fans only.]
- **Arrangement 10 weather cover/belt guard**—provides motor and drive protection, and can be easily removed for inspection and maintenance. Louvered side panels provide ample motor ventilation.
- **Safety equipment**—belt guards and shaft and bearing guards are available for Arrangement 1 fans, and coupling guards for Arrangement 8 fans. Extended lube lines are furnished as standard with shaft and bearing guard.
- **Drive components**—a wide variety of motors, couplings, and v-belt drives are available from **nyb**.



FPB-22, Arrangement 8, clockwise Up Blast, with optional flange drilling, drain, inspection port, wafer-type outlet damper, motor, coupling, and guards.



RFE-315, Arrangement 10, counterclockwise Top Horizontal, with optional flange drilling, drain, graphite impregnation, and weather cover/belt guard.



FPB-22, Arrangement 1, clockwise Up Blast, with optional flange drilling, drain, graphite impregnation, unitary base, motor, v belt drive, and guards.

SAFETY EQUIPMENT

NOTE: Safe operation of air-moving equipment is dependent on proper installation and maintenance including selection and use of appropriate safety accessories for the specific installation. The system designer must consider providing guards for all exposed moving parts as well as protection from access to high velocity airstreams. Improper application, installation, maintenance, or safety-guard selection can create danger to life and limb of personnel. Users and/or installers should read "Recommended Safety Practices for Air Moving Devices" as published by the Air Movement and Control Association International, Inc., 30 West University Drive, Arlington Heights, Illinois 60004, which is included with the packing slips for all shipments from **The New York Blower Company** and available on request.

Beu-Math Quote and Correspondence

From: Alex Tetlow [mailto:atetlow@beu-math.com]
Sent: Tuesday, April 13, 2004 1:55 PM
To: Robert Bessett
Subject: RE: New Enclosure

Robert,

We would quote this job as including traveling time as 5 hours at $110 per hour.
Let me know if you need anything else.

Thanks,

Alex

-----Original Message-----
From: Robert Bessett [mailto:rbessett@dswa.net]
Sent: Tuesday, April 13, 2004 1:06 PM
To: atetlow@beu-math.com
Cc: hcase@beu-math.com
Subject: RE: New Enclosure

We agree with installing a new enclosure and balancing the fan. Can you estimate and quote for us how long and how much that will be.

Thanks,

Rob

From: Alex Tetlow [mailto:atetlow@beu-math.com]
Sent: Tuesday, April 13, 2004 10:56 AM
To: Robert Bessett
Cc: hcase@beu-math.com
Subject: RE: New Enclosure

Robert,

Upon further review I think the best choice may be to order a brand new one from NYB and it should be pretty easy to install for $145.50. Just make sure that all of the bolts are tight. If you would like one of our technicians to come take a look at it then we charge $60.00 per hour on a time and material basis. However if you concur that the bulk of the noise is the rattling of the weather cover possibly the best option would be to replace the weather cover and have the fan balanced. Our balancing rate is $110 per hour for two technicians to balance the fan.

Let me know if you need anything else.

Thanks,

Alex

Sound Attenuation Louver

RUSKIN®

3900 Dr. Greaves Rd. • Kansas City, MO 64030 • (816) 761-7476 • FAX (816) 765-8955

EAL6811 STATIONARY ACOUSTICAL LOUVER

EXTRUDED ALUMINUM

STANDARD CONSTRUCTION

FRAME
6" (152) deep, 6063T5 extruded aluminum, .125" (3.2) nominal wall thickness. Caulking surfaces provided.

BLADES
6063T5 extruded aluminum, .081" (2.1) exterior surface nominal wall thickness with .040" (1) perforated aluminum interior surface. Blades are positioned at 45° angle and spaced approximately 4⁵⁄₁₆" (118) center to center.

INSULATION
1" (25) fiberglass.

SCREEN
¾" x .051" (19 X 1.3) expanded, flattened aluminum bird screen in removable frame. Screen adds approximately ½" (13) to louver depth.

FINISH
Mill.

MINIMUM SIZE
12"w x 12" h (305 x 305).

APPROXIMATE SHIPPING WEIGHT
5 lbs./ft.² (24.3 kg per m²).

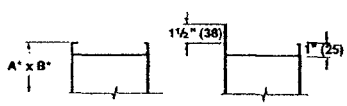
MAXIMUM FACTORY ASSEMBLY SIZE
Shall be 75 sq. ft. (7m²) per section, not to exceed 120"w and 90"h (3048 and 2286) or 90"w and 120"h (2286 x 3048).

Louvers larger than the maximum factory assembly size will require field assembly of smaller sections.

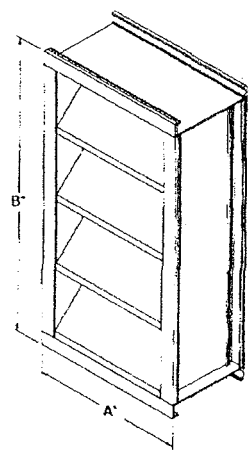
SUPPORTS
Louvers may be provided with rear mounted blade supports that increase overall louver depth depending on louver size, assembly configuration or windload.

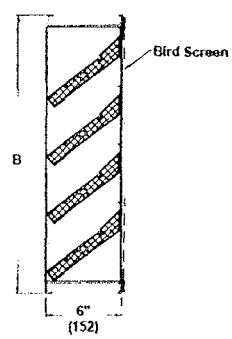
Consult Ruskin for additional information.

FRAME CONSTRUCTION



STANDARD INTEGRAL FLANGE





FEATURES

The EAL6811 offers:
- 30% Free Area.
- Published performance ratings based on testing in accordance with AMCA Publication 511.
- Architecturally styled hidden mullions allowing continuous line appearance.
- Aluminum construction for low maintenance and high resistance to corrosion.

VARIATIONS

Variations to the basic design of the louver are available at additional cost. They include:
- Extended sill.
- Hinged frame
- Front or rear security bars.
- Filter racks
- A variety of bird and insect screens.
- Installation angles.
- Selection of finishes: prime coat, baked enamel (modified fluoropolymer), epoxy, Acrodize, Kynar, clear and color anodize. (Some variation in anodize color consistency is possible).

Consult Ruskin for other special requirements.

Octave Band Frequency (Hz)	Free Field Noise Reduction (db) 1" (25) Fiberglass Insulation
1/63	9
2/125	7
3/250	8
4/500	9
5/1000	10
6/2000	16
7/4000	16
8/8000	19

Dimensions in parenthesis ( ) indicate millimeters.

*Unit furnished ¼" (6) smaller than given opening dimensions.

TAG	QTY.	SIZE		FRAME	VARIATIONS
		A"-WIDE	B"-HIGH		

PROJECT	LOCATION
ARCH./ENGR.	CONTRACTOR
REPRESENTATIVE	DATE

SUGGESTED SPECIFICATION

Furnish and install louvers as hereinafter specified where shown on plans or as described in schedules. Louvers shall be stationary type. Louvers shall have a minimum of 30% free area based on a 48" wide x 48" high (1219 x 1219) size. Stationary blades shall be contained within a 6" (152) frame. Louver components (heads, jambs, sills, blades & mullions) shall be factory assembled by the louver manufacturer. Louver sizes too large for shipping shall be built up by the contractor from factory assembled louver sections to provide overall sizes required. Louver design shall incorporate *structural supports required to withstand a wind load of 20 lbs. per* sq. ft. (.96kPa) (equivalent of a 90 mph [145 KPH] wind - specifier may substitute any loading required).

Louvers shall be Ruskin Model EAL6811 extruded 6063T5 aluminum alloy construction as follows:

Frame: 6" (152) deep, .125" (3.2) wall thickness.

Blades: .081" (2.1) wall thickness exterior surface with .040" (1) perforated aluminum interior surface, filled with 1" (25) fiberglass insulation. Blades positioned at 45° angle and spaced approximately 4⅝" (118) center to center.

Screen: ¾" x .051" (19 x 1.3) expanded, flattened aluminum in removable frame.

Finish: Select finish specification from *Ruskin Finishes Brochure.*

Published louver performance data bearing the AMCA Certified Ratings Seal for Air Performance & Water Penetration must be submitted for approval prior to fabrication and must demonstrate pressure drop and water penetration equal to or less than the Ruskin model specified.

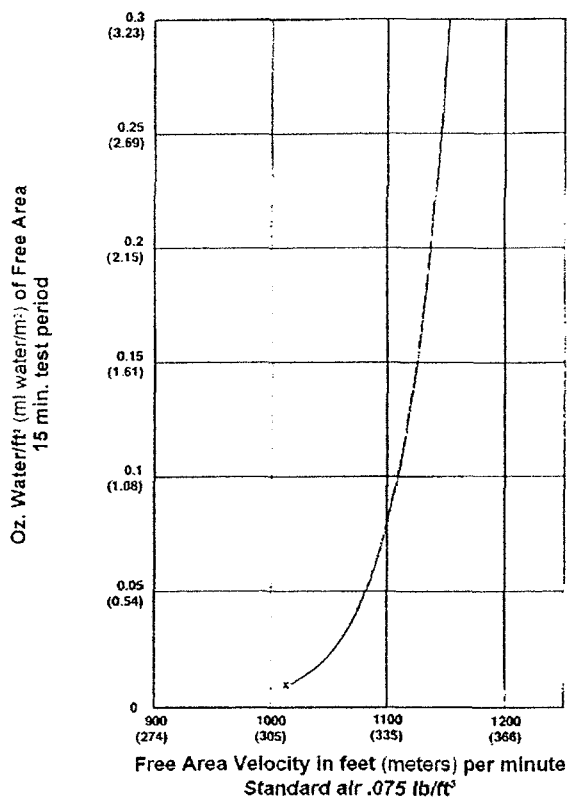
PERFORMANCE DATA

AMCA Standard 500 provides a reasonable basis for testing and rating louvers. Testing to AMCA 500 is performed under a certain set of laboratory conditions. This does not guarantee that other conditions will not occur in the actual environment where louvers must operate.

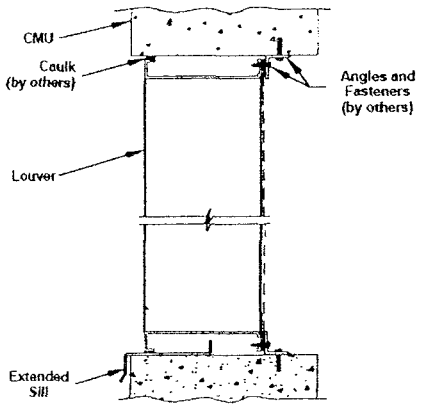
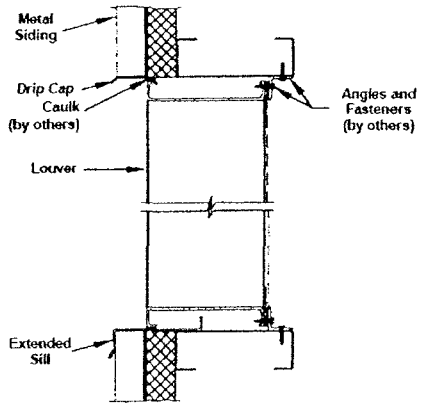
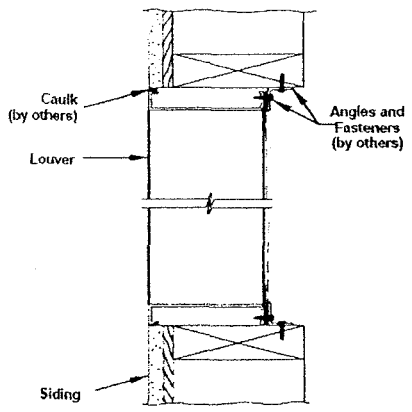
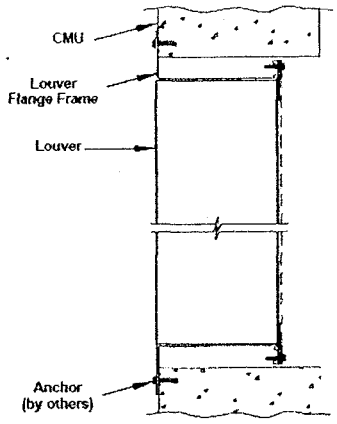
The louver system should be designed with a reasonable safety factor for louver performance. To ensure protection from water carryover, design with a performance level somewhat below maximum desired pressure drop and .01 oz./sq. ft. of water penetration.

WATER PENETRATION

Test size 48" wide x 48" high (1219 x 1219)
Beginning point of water penetration at .01 oz./sq. ft. is 1019 fpm (311 m/min).



TYPICAL INSTALLATION DETAILS

Masonry Wall	Metal Panel Wall
	
Wood Installation	**Flange Mount**
	

Accessories at additional cost.

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☐ 5620 San Francisco Rd., N.E. #A, Albuquerque, NM 87109 (505) 828-0202

PROPOSAL

TO: DSWA Attn: Mr. Rob Bessett	DATE: March 29, 2004 DELIVERY TERMS: FOB FACTORY
PROJECT: Sound Attenuating Louvers **Addendum Acknowledged: 0**	TERMS OF PAYMENT: NET 30 DAYS To approved credit

ITEM I. SOUND ATTENUATING LOUVERS

MARK: Sound Attenuating Louvers
(2) Ruskin extruded aluminum louver(s), complete with kynar finish, channel frame, bird screen.
NOTE: No Mounting Angles, Fasteners, Plenums or Sealant.

ONLY THOSE ITEMS AND ACCESSORIES SPECIFICALLY LISTED ABOVE ARE INCLUDED IN THE FOLLOWING PRICE.

EXCLUSIONS: All Manual Volume Dampers, Spin-Ins, Extractors, Plenums and Square to Rounds of any kind unless noted otherwise. No filter media. Fire/Smoke Damper auxiliary switches, if supplied, are provided one per opening, not one per actuator or ship section.

Price FOB Factory, Full Freight Allowed, Taxes Not Included..... $*2,399.00*

Lead times vary. Contact your Climatec rep for current lead-time schedules and quick ship information.

For any clarifications, questions or comments on this proposal, please contact the appropriate Climatec representative.

Mark Addler
C.I. AD Sales
(602) 906-4193

MA/rw
SoundAttenuatingLouvers-DSWA.doc

YOUR ORDERS FOR THE FOREGOING ITEMS WILL BE ACCEPTED UPON THE EXPRESS CONDITIONS THAT YOU AGREE TO THE TERMS AND CONDITIONS APPEARING ON THE REVERSE SIDE HEREIN. EQUIPMENT START UP SUPERVISION IS NOT INCLUDED. REFER TO ATTACHED INFORMATION SHEET, IF APPLICABLE. ACCESSORY ITEMS SUCH AS STARTERS, ISOLATORS, ETC. ARE NOT INCLUDED UNLESS SPECIFICALLY MENTIONED.

Porous Mats

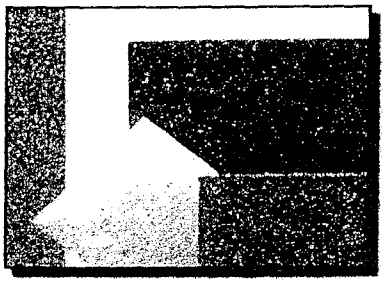
Acoustical Surfaces, Inc.

Soundproofing, Acoustics, Noise & Vibration Control Specialists

123 Columbia Court North • Suite 201 • Chaska, MN 55318
(952) 448-5300 • Fax (952) 448-2613 • (800) 448-0121

Email: sales@acousticalsurfaces.com
Visit our Website: www.acousticalsurfaces.com

We Identify and S.T.O.P. Your Noise Problems



SOUND SILENCER™

ARPRO™ Porous Expanded Polypropylene (P.E.P.P.) Acoustical Wall Panels

- ✔ *Class A Fire Retardent*
- ✔ *No Fiberglass - Non-Fibrous*
- ✔ *Moisture Resistant-Indoor-Outdoor*
- ✔ *Impact Resistant*

MATERIAL: *Semi Rigid Porous Expanded Polypropylene Acoustical Bead Foam (P.E.P.P.).*

PATTERN: Non Abrasive, Slightly Textured, Porous

FEATURES: Lightweight, Impact Resistant, Moisture, Bacteria & Fungi Resistant, Tackable Surface, UV Stable

APPLICATIONS: Gymnasiums, Auditoriums, Classrooms, Swimming Pools, Ice Arenas, Clean Rooms, Food Processing Plants, Food Prep Areas, Cafeterias & Resturaunts, Manufacturing Plants, Car Washes, Rooftop and Machine Enclosures, Gun Ranges, Dog Kennels, Locker Rooms.

THICKNESS: 1" & 2" **SIZES:** Nominal 2'x2', 2'x4'; Custom Sizes Available

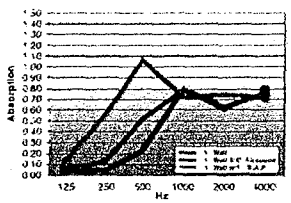
COLOR: White, Charcoal

FLAMMABILITY: ASTM E84, Class A. 1": Flame Spread: 3, Smoke Developed: 84. 2": Flame Spread: 5, Smoke Developed: 113

INSTALLATION: ASI S.T.O.P. Noise Acoustical Adhesive, Mechanical Fasteners

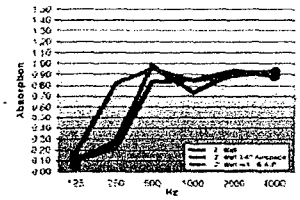
SOUND SILENCER™: Sound Absorption / Noise Reduction

	Mount	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	NRC
1"	Wall Amtg	0.05	0.06	0.21	0.80	0.65	0.75	0.45
1"	Wall w/ 3/4" Airspace	0.06	0.13	0.51	0.79	0.62	0.79	0.50
1"	Wall w/ 1" B.A.P.	0.11	0.58	1.07	0.71	0.74	0.72	0.86
2"	Wall Amtg	0.07	0.21	0.81	0.85	0.93	0.88	0.70
2"	Wall w/ 3/4" Airspace	0.10	0.29	0.99	0.74	0.90	0.93	0.75
2"	Wall w/ 1" B.A.P.	0.17	0.81	0.97	0.85	0.89	0.92	0.90
1"	Ceiling E400	0.46	0.59	0.42	0.49	0.76	0.86	0.55
2"	Ceiling E400	0.51	0.52	0.52	0.72	0.77	0.89	0.70



SOUND SILENCER™: Sound Transmission Loss (STC)

	125Hz	250Hz	500Hz	1KHz	2.5KHz	5KHz	STC
1"	6	5	7	8	10	15	9
2"	9	8	10	10	17	22	13
1" w/ 5/8" Gypsum both Sides	27	27	29	31	32	45	32



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Curtain Assemblies

Acoustical Surfaces, Inc.

Soundproofing, Acoustics, Noise & Vibration Control Specialists

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(952) 448-5300 • Fax (952) 448-2613 • (800) 448-0121
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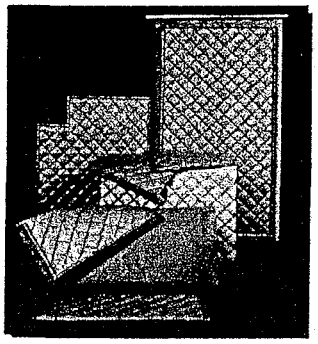
We Identify and S.T.O.P. Your Noise Problems

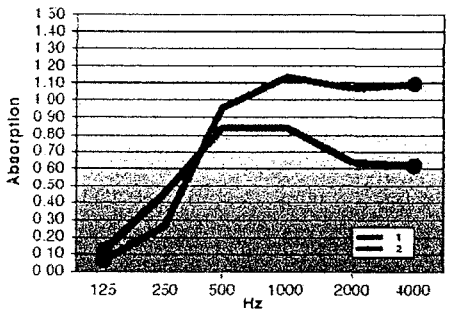


QUILTED CURTAIN S.T.O.P.

Absorptive/Noise Barrier Quilted Curtains

- ✔ *For Unusual Conditions*
- ✔ *Cost Effective*
- ✔ *Water & Chemical Resistant*
- ✔ *Exterior Applications*

MATERIAL: Foam or fiberglass core, faced with quilted aluminized fabric.
PATTERN: Quilted pattern
FEATURES: Effective and durable absorber with mass loaded vinyl barrier option.
APPLICATIONS: Effective solution to a wide range of unusual problems. Machinery and work area enclosures
THICKNESS: 1" & 2" **SIZES:** 48" - 54" Wide; Lengths up to 25' - Custom sizes available
COLOR: Silver (Other colors available upon request)
FLAMMABILITY: ASTM E84, Class A. Flame Spread: 23, Smoke Developed: 30
INSTALLATION: Hook and loop fasteners, grommet hangers, curtain support hardware.



QUILTED CURTAIN S.T.O.P. Sound Transmission Loss - ASTM E90							
Frequency	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	STC
1" Thick w/Barrier	11	16	24	30	10	15	27
2" Thick w/Barrier	13	20	29	40	50	55	32

QUILTED CURTAIN S.T.O.P. Sound Absorption Coefficients - C423							
Frequency	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz	NRC
1" Thick w/Barrier	0.12	0.47	0.85	0.84	0.64	0.62	0.70
2" Thick w/Barrier	0.07	0.27	0.96	1.13	1.08	0.99	0.85

Acoustical Surfaces Quote and Correspondence

From: Chad Anderson [mailto:chad@acousticalsurfaces.com]
Sent: Friday, March 26, 2004 8:02 AM
To: Robert Bessett
Subject: Re: big favor

I can give you a rough estimate. The sound curtain BB14 is going to cost about $10.80/sf including custom size and velcro. This does not include shipping and is a pretty good idea of what this would cost. The porous mats price out at about $20/sf including the300 ¼" holes we would need to drill in each mat to allow air flow. Please call me to go over any other details.

---- Original Message ----

From: Robert Bessett

To: chad@acousticalsurfaces.com

Sent: Thursday, March 25, 2004 4:21 PM

Subject: big favor

Chad,

I know you guys don't have the PEPP or the elevated curtain apparatus totally designed and priced out, but can you estimate the cost.

Much appreciated,

Rob

ATTACHMENT – E

PHASE-I
ODOR CONTROL STUDY
LTS INC.

LTS, INC.
5102 SOUTH FERN COURT
CHANDLER, AZ 85248

Odor and Hydrogen Sulfide Monitoring Specialists Since 1991

TOWN OF CAREFREE

SEWAGE COLLECTION AND CONVEYANCE SYSTEM

AND BOULDERS WATER RECLAMATION FACILITY

ODOR AND HYDROGEN SULFIDE

PHASE 1 REVIEW

Performed for Algonquin Water Services Company
Black Mountain Sewer Company

March 12, 2004

Lamb Technical Services, Inc. 5102 South Fern Court, Chandler, AZ 85248 Phone 480-802-2789 Fax 480-802-2790 elambits@msn.com

EXECUTIVE SUMMARY

Background

On March 12, 2004, Algonquin Water Services L.L.C. (AWS) and Black Mountain Sewer Company requested that Lamb Technical Services, Inc. (LTS) review the current condition of the sewage collection and conveyance system and the associated treatment plant located in The Boulders development in Carefree, AZ. relevant to odor control.

LTS and Joel Wade, Engineering Manager for AWS, spent the morning reviewing the condition of each area, and a detailed explanation of past odor problems was presented to LTS. AWS also discussed some of the short-term solutions that had been implemented to reduce or eliminate past odor emission problems, which the residents had been experiencing in many areas of Carefree.

AWS informed LTS that the odor problems were quite severe in the past, and a significant reduction or possible elimination of the odorous emissions was required as soon as possible. Mr. Wade informed me that finding a solution for the odor emissions problems was the number one priority of AWS. The following overview is a critique of the measures that had been implemented to reduce or eliminate the odor emissions in the collection and conveyance system and in the associated treatment facility in The Boulders development.

Phase 1 Review

Collection Lines and Pump Stations

LTS visited the two pump stations that were causing the majority of the town's odor emission problems, the Commercial Pump Station off Tom Darlington Way, and the Carefree Inn Estates (CEI) lift station on Carefree Drive. LTS also visited a number of collection line locations that had been odor sources in the past including the Staghorn Drive area and the Boulder Drive and Quartzite Drive area. AWS informed LTS that one of the first problems they identified was the significant hydrogen sulfide concentrations within the collection system and the associated odor emissions coming from the manhole covers in the entire town.

The first solution was to control these odorous emissions by eliminating the emission points at each manhole cover. Virtually every manhole cover had multiple holes drilled in them to provide venting of the sewer system. It is generally a good idea to allow fresh air to be drawn into the collection lines to dilute the corrosive hydrogen sulfide concentrations within the gravity sewer lines; but if the collection system has positive pressure locations due to force main discharges (which virtually describes the entire sewer system in Carefree), this concept is not an option. When the force main pumps are operating, they displace the odorous gas in the gravity lines with sewage flow, and force the hydrogen sulfide odors out the holes in the manhole covers. AWS immediately sealed the manholes that had vent holes drilled into them to prevent the odorous emissions from being forced out of the collection system when the force main pumps were in operation.

Collection Lines and Pump Stations Continued

Sealing the manhole covers was an appropriate first step in controlling the odorous emissions that were causing problems in the neighborhood.

At the commercial pump station, a chemical feed system was installed and operated by the previous wastewater operation company in an attempt to control the odors in the area and at the discharge point of this force main. From discussions with the chemical supplier (Hill Brothers Chemical Company), the previous operation company was trying to control the hydrogen sulfide levels with 15 gallons per day or less of the chemical product magnesium hydroxide (Thioguard). The chemical supplier informed the previous operations company that 15 gallons per day would most likely not be adequate for hydrogen sulfide control, and that it may require up to 100 gallons per day to control the hydrogen sulfide emissions properly. AWS has been feeding nearly 100 gallons per day since taking over the operation of the sewer system, and has reduced the hydrogen sulfide generation by approximately 90%.

Adding the proper amount of chemical to control hydrogen sulfide generation was the proper second step of controlling the odorous emissions from the collection system. The first step is to stop the emissions from escaping into the surrounding community, and the second step is to reduce the concentrations within the collection system as much as economically feasible to prevent excessive corrosion within the collection system and at the treatment facility.

The downstream pump station into which the commercial pump station discharges is the CIE pump station. Previously this location had similar problems with odors escaping from the wetwell and upstream in the collections systems' associated manhole covers. The previous operations company had also drilled ventilation holes in these manhole covers located in the area of the pump station, and had installed a homemade odor control system. AWS sealed all of the manhole covers in the area and the wetwell and replaced the homemade odor control system with a Peacemaker chlorine dioxide-based scrubber. It is unclear whether the homemade odor control system was operating as specified in the past, but the Peacemaker system has had a proven track record in controlling odors from pump stations. LTS still noted a slight odor coming from the Peacemaker but it was of minimal intensity, and the system was emitting a very small volume of airflow out of the exhaust stack. Although this system may not be the best alternative for odor control in the long term, this is still an excellent short-term solution for this location, and easily could be replaced with a more permanent solution if necessary in the future.

LTS visited two collection line locations that had been odor problems in the past for residents near manholes that had consistent positive pressure problems. AWS determined that a number of these locations existed in the town and not only needed to be sealed but would require better sealing with the mating ring. A couple of these locations were identified, and the appropriate improvements were made, installing a locking-sealing manhole cover. Two locations were visited: one was just upstream of the wastewater treatment facility at Boulder Drive and Quartzite Drive, and the second was further downstream on Quartzite Drive. Each of these locations was an area that had significant positive pressures in the past. These locations were identified by AWS where manhole cover replacement was required to eliminate the odorous emission from escaping into the surrounding community.

Collection Lines and Pump Stations Continued

One manhole cover was replaced at Boulder Drive and Quartzite Drive, and one was sealed with a foam gasket material at Staghorn Drive. LTS did not identify any odors escaping from these locations when the site visit was made.

Water Reclamation Facility

LTS toured the water treatment facility and evaluated the existing odor control system and its operation. Currently the only odor control system that is in place at the facility is a carbon adsorber. This odor removal system is treating odors from the headworks and the aeration basins. AWS has replaced the carbon in the carbon adsorber to better treat the odors coming from these locations, and AWS is also in the process of covering and improving the sealing on the aeration basins to minimize fugitive emissions. These are proper first steps in reducing the emissions from the treatment facility, although LTS feels that more significant capital improvements will need to be made at the facility to eliminate the odors from generating complaints in the future from nearby residents.

General

When modifications or corrections are being made to a sewage collection system and the associated wastewater treatment facility it is not uncommon for the odor emissions points to move to new locations and different odor areas may arise in the short term. This is a normal part of the evaluation and mitigation process during this type of collection line and treatment plant improvement process. It is often found that eliminating the last 5% of the odor emissions requires 95% of the evaluation, testing and treatment programs, and usually requires a longer period of time to achieve this last small percentage of improvement to eliminate the odor emissions altogether. Odor emission problems such as those found in the past within the community often require additional odor control equipment purchases be made or other physical modifications of the existing system need to be completed. All of these modifications take time to complete.

LTS is of the opinion that AWS has provided the proper short-term solutions for the Town of Carefree to reduce the risk of odor emissions. Long-term solutions will still be required to further reduce the odor levels, especially from the treatment facility. LTS feels that the carbon adsorber is inadequate in eliminating the odor emissions at the facility as a stand-alone system, and additional modifications will need to be made at the treatment facility and in the collection system to provide the town complete odor control in the future.

ATTACHMENT – F

PHASE-II
ODOR CONTROL STUDY
LTS INC.

LTS, INC.
5102 SOUTH FERN COURT
CHANDLER, AZ 85248

Odor and Hydrogen Sulfide Monitoring Specialists Since 1991

TOWN OF CAREFREE

SEWAGE COLLECTION AND CONVEYANCE SYSTEM

AND BOULDERS WATER RECLAMATION FACILITY

ODOR AND HYDROGEN SULFIDE

PHASE 2 STUDY

Performed for Black Mountain Sewer Company

Final Draft Report

July 28, 2004

Lamb Technical Services, Inc. 5102 South Fern Court, Chandler, AZ 85248 Phone 480-802-2789 Fax 480-802-2790 elambits@msn.com

EXECUTIVE SUMMARY

Background

On March 12, 2004, Black Mountain Sewer Company (BMSC) requested that Lamb Technical Services, Inc. (LTS) review the current condition, relevant to odor control of the sewage collection and conveyance system and the associated treatment plant located in The Boulders development in Carefree, AZ. The odor situation that BMSC inherited eighteen months ago has been an ongoing problem for the community for some period of time.

LTS and Joel Wade, Engineering Manager for BMSC, spent the morning reviewing the condition of each area, and a detailed explanation of past odor problems was presented to LTS. BMSC also discussed some of the short-term solutions that had been implemented to reduce or eliminate past odor emission problems, which the residents had been experiencing in many areas of Carefree. The Phase Two study is designed to perform a thorough odor evaluation by providing hydrogen sulfide (H_2S) data at multiple sewer line, fenceline and in-plant locations and the associated risks of odor emissions from each location. LTS was also asked to recommend any further action that Black Mountain Sewer Company may implement to further reduce the odor emissions from the treatment facility and its associated collection lines.

Phase 2 Data Review

Collection Lines and Pump Stations

During Phase 1, LTS visited the Commercial Pump Station off Tom Darlington Way, and the Carefree Inn Estates (CEI) lift station on Carefree Drive. LTS also visited a number of collection line locations that had been odor sources in the past including the Staghorn Drive area and the Boulder and Quartzite Drive area. Based on the initial review, fifteen locations were identified and evaluated for hydrogen sulfide and odor emissions, and one location was evaluated for ammonia emissions. Additionally, low-level hydrogen sulfide fenceline monitors were installed at the four sides of the wastewater treatment facility as well as one on the wall northeast of the CIE lift station. All of the locations were monitored in two five-day periods. During testing, four of the hydrogen sulfide monitors failed -- one at the headworks, one in the influent channel, and one at the southeast plant fenceline location during the first week of testing; and the second week of testing, one meter failed at the Century and Boulder Drive force main discharge location. Two of the meters were owned by BMSC and two were owned or rented by LTS. The graphs for the first two collection line locations can be seen with no hydrogen sulfide values and the meter constantly reading zero. One fenceline monitor did not record data on the southwest corner of the treatment facility.

During the second week of testing only one meter failed to operate properly, and no data were recorded at the Century and Boulder Drive location due to the failed meter. Repeat testing over the two-week period rendered the missing data irrelevant, as each location had at least five days of data collected at each location, which provided adequate information to determine what was needed for better odor control at the wastewater treatment plant and within the collection lines and pump stations.

Collection Lines and Pump Stations, Continued

The pump stations and the collection lines were found to have relatively high sulfides at all of the force main discharge locations, and at the influent of the treatment facility. This indicates that the sewage is quite septic due to the retention time in the force mains and the high wastewater temperatures.

Two of the smaller gravity line locations were found to be without flow in the summer: one test location was approximately ¼ mile upstream of the treatment plant on Quartz Drive, and the other was at the end of a Staghorn Drive. Without flow, these two locations had very low concentrations of hydrogen sulfide and no positive pressures. These two locations did not appear to be a significant source of odors during the summer. These conditions could be different with increased flow in the winter when more residents are in Arizona. This area should be evaluated again in the winter months to determine if the conditions within the gravity lines create an odor source that is not found in the summer months.

The gravity line test data on Staghorn Drive, and upstream on Boulder Drive determined that these locations were low-risk locations for odor emissions, and do not generally pose much of an odor emission problem in the summer. The hydrogen sulfide concentrations were always under 1 PPM and readings with the more accurate Jerome 631X were always under 0.15 PPM. Even though these locations are generally not a problem, unusual events such as blockages could make these locations vent odors into the ambient air, or additional flow in the winter could cause the same condition.

The main odor and sulfide producers are the wetwell/force main locations. This is typical in many wastewater systems and has been a problem for many locations across Arizona. Unfortunately, with the type of terrain found at the Boulders, force mains are required to move the sewage over the high points in the area. There are a number of treatment options to control hydrogen sulfide generation and odor releases in these types of systems, and most of them work with relatively good results. The product that BMSC is using is magnesium hydroxide, (brand name Thioguard). The product is designed to increase the pH of the wastewater, which keeps the sulfides in solution as long as the pH is above 8.5. It also provides some oxygen to the wastewater to oxidize the sulfides. The high pH that the product provides keeps the sulfides in solution and makes it difficult for them to be released into the headspace of the collection lines and at the wetwells. The two locations where the product provides the greatest benefit from chemical treatment are the CIE force main discharge location at Century and Boulder Drive, and at Boulder and Quartz Drive. Both of these locations are just before the sewer treatment facility and have had significant odor emissions in the past.

The use of the magnesium hydroxide at the Commercial lift station (that runs through the CIE lift station) is providing between 50% and 90% reduction in hydrogen sulfide emissions at the Commercial lift station wetwell and the force main discharge locations. The product is performing well at the feed rate BMSC is using, but the pH is relatively high at 9.0. The operators should continue to add the product to reduce the hydrogen sulfide emissions as much as possible for corrosion and odor control, but a chemical feed reduction is advisable to allow the system to operate at a pH between 8.4 and 8.6. This will have less of an impact on the wastewater treatment plant and still provide similar odor and hydrogen sulfide control.

Collection Lines and Pump Stations, Continued

Liquid wastewater analysis throughout the wastewater system indicated that the other parameters were typical, although sulfides in solutions were relatively high, peaking at 3.9 mg./lit at the wetwell of the Commercial lift station and up to 12.0 mg./lit at the discharge points. Normal ranges of sulfides in solution for wetwells are typically under 1.5 mg./liter, and a goal for force main discharge points would be under 5.0 mg./liter.

Even with these significant reductions in hydrogen sulfide concentrations due to the Thioguard, hydrogen sulfide levels remain very high in some locations. Additional measures probably will have to be taken to further control the odorous emissions, and are discussed in more detail later in the report.

Commercial Lift Station

Within the Commercial lift station wetwell, the hydrogen sulfide concentrations were relatively high, averaging 5-20 PPM with peaks of 32 PPM without the addition of magnesium hydroxide. The concentrations dropped to an average of under 2 PPM for the first week with chemical addition, but climbed as wastewater temperatures increased, with averages the second week ranging from 5 PPM to 20 PPM, with one unusual peak that was up to 102 PPM. This high peak most likely was due to a low pH cleaning product being discharged into the sewer and driving the hydrogen sulfide out of solution and into the headspace of the wetwell. Since the concentrations are up to 100 PPM in the wetwell, the hydrogen sulfide concentrations will need to be contained with a tightly sealed cover. The continued use of magnesium hydroxide to keep hydrogen sulfide levels and internal corrosion rates to a minimum is recommended. The location does not exhibit any positive pressures, but under the right ambient conditions, odors could be emitted from this location if not properly sealed. If odor complaints are received at this location, and sealing the wetwell is impractical, the installation of a small passive carbon filter could be utilized to collect and treat the odorous gas prior to being vented into the ambient air. If odor complaints continue after the installation of the passive carbon adsorber, a fan could be added to the carbon vessel to increase the negative pressure in the wetwell to keep odors from easily escaping into the ambient air. A packed tower odor scrubber or a biofilter can't be used at this location due to the space restraints at the lift station.

CIE Lift Station

At the CIE lift station, most of the past effort has been to seal all the possible venting locations to control the hydrogen sulfide and odor releases. Based on the data and the multiple site visits, this approach seems to be working quite well, although concentrations of 0.020 PPM were recorded at the fenceline on the Odalog monitors. These higher concentrations occurred at the hottest part of the day, each day during the first week of testing. After discussing the data with the manufacturer, the readings probably are not accurate as the instrument is unable to compensate for ambient temperatures above 110 degrees Fahrenheit. During the second week of testing a newer version analyzer was used at this location, and recorded only one short-term event. This one event is at the low detection level of the instrument and is also questionable. Handheld monitoring using a slightly more sensitive analyzer (Jerome 631X H2S Analyzer, accuracy of 0.003 PPM) did not record any elevated hydrogen sulfide concentrations anywhere around the CIE lift station.

CIE Lift Station, Continued

Although no odors were recorded around the lift station during any of the site visits, odors could be escaping from the pickholes upstream of the lift station.

Hydrogen sulfide concentrations within the collection lines and the CIE lift station wetwell were moderate to high. Four locations were monitored at the CIE lift station: one on the local gravity line, one at the force main discharge, and two on the wetwell structures within the lift station. The wetwell locations were relatively low in hydrogen sulfide concentrations, with levels up to 8 PPM. The incoming local gravity line, as mentioned earlier, had moderately high concentrations in the headspace, with peaks up to 21 PPM. The highest location around the CIE lift station was at the force main discharge. Peaks of 101 PPM were seen at this location without chemical addition, and 24 PPM with chemical addition. The magnesium hydroxide chemical feed site at the Commercial lift station is working well, and is providing a 75% reduction at the force main discharge at the CIE lift station with chemical addition. It should be noted that none of the concentrations recorded at either of these lift stations are unusual for a force main system.

Hydrogen sulfide concentrations were monitored in the local gravity line and recorded peaks of 21 PPM. Concentrations over 10 PPM are relatively high for an upstream gravity line. This area could be a candidate for chemical treatment to reduce the hydrogen sulfide concentrations going to the CIE lift station. If odors are still a problem in the area, Black Mountain Sewer Company (BMSC) may need to seal the manhole covers upstream of the lift station in the local gravity line to prevent any odors from escaping into the ambient air through the pickholes. A slight positive pressure (0.01 in./WC) was found around the CIE lift station collection lines. Under the right conditions, odors could be released through the pickholes with positive pressures of 0.01 in./WC. Sealing the pickholes on all of the manholes in the area is recommended first. If that proves inadequate, a small carbon adsorber with a fan could be used to provide a negative pressure on the upstream collection lines. As long as a chemical treatment program is in place, corrosion should not be a significant issue with sealed manholes.

Containing the odors within the sewer system as much as possible is the preferred approach for this area. If the odors cannot be contained adequately, an odor control approach similar to the Commercial lift station could be used at the CIE lift station. An odor control system is already on site and could be utilized if containment is not feasible; but carbon would probably be a better product at this location as the odor removal system (Peacemaker) does emit a slight chlorine odor and is not designed to treat amine odors that could be present at this location. LTS recommends that in the event that an odor control system is needed, the media to use would be carbon.

Force Main Discharge Locations

At the two locations that the force mains discharge into the gravity lines, just upstream of the wastewater facility, both locations have extremely high hydrogen sulfide concentrations. The force main discharge location at Quartz and Boulder Drive had concentrations up to 700 PPM, and the Century and Boulder location had concentrations over 100 PPM. Both locations also had positive pressures that tend to drive the odors and hydrogen sulfide concentrations out through the manhole cover pickholes.

The solution that BMSC has been using for the Century and Boulder location is installing a carbon insert for odor control. If the media is changed regularly, this insert will reduce the concentrations that are emitted out of the pickhole to under 1.0 PPM. Levels below 1.0 PPM would be considered low compared to most sewer systems in Arizona. This is probably the best solution for this location, although an insert that could hold a slightly deeper bed of carbon might be considered as a replacement to the unit that is now installed to give improved odor control and a longer life for the carbon.

At the Quartz and Boulder Drive location, the odor and hydrogen sulfide concentrations are being contained using a sealing manhole cover. This is preventing virtually all of the odors from being released into the ambient air, but the downside to this approach is that the location has significant positive pressures, up to 0.04 in./WC, and sealing the covers will force the air out to some other location, like resident vent stacks. Also, sealing the covers will create high corrosion rates due to the turbulence and high sulfide levels, and trying to contain all of the hydrogen sulfide releases. Even when Thioguard is added upstream, the turbulence can still strip the hydrogen sulfide out of solution. The Thioguard is working fairly well in reducing the releases at this location with approximately a 50% reduction, but with initial concentrations over 700 PPM, a 50% reduction is of little help in controlling the risk of odor emissions. With the significant positive pressures at this location, it is likely that these odors will be driven out of the surrounding homes' vent stacks. Due to this possibility, a meter was placed in a home vent stack just upstream of the Boulder and Quartz force main discharge location to determine if any odor was being emitted out of the local residences vent stacks. Concentrations of 5 PPM were recorded at the vent stack when no Thioguard was being added to the system. The levels dropped to under 1 PPM when the Thioguard was being added and no concentrations were recorded after the first day or two, but even with low concentrations of less than 1 PPM, they could still be an added odor source for the area. When the Thioguard feed pump was not operating, values up to 5 PPM were recorded out of the surrounding homes vent stacks. These concentrations could be a significant odor for the entire area.

A redesign at this structure is recommended if turbulence could be reduced. Reduced turbulence would keep the sulfides in solution to be treated by the waste treatment facility. Even with reduced concentrations due to less turbulence a fan generating negative pressures will still most likely be needed at the Quartz and Boulder Drive location to prevent odors from being forced out the local vent stacks.

Force Main Discharge Locations, Continued

There is also an additional pump station that was not evaluated called the Indian Rock Pump Station. This pump station discharges into the Quartz and Boulder location just upstream from the wastewater plant. Chemical feed could also be considered in this location if required.

Wastewater Treatment Facility

Six locations were tested at the wastewater treatment facility, the main influent line, the Parshall Flume structure, the headworks building, the splitter box, the old influent box, and the aeration basins influent. Most of the locations had relatively high hydrogen sulfide concentrations, over 10 PPM.

The influent locations, Parshall Flume, and headworks locations are seeing concentrations that are being carried downstream from the Boulder and Quartz Drive location. Slightly reduced concentrations were recorded within the treatment facility. The Thioguard is still helping at the plant, but the levels at the three in-plant locations were still significant. Additional hydrogen sulfide is being released at the splitter box and at the influent to the aeration basins and this is not related to the releases upstream at Boulder & Quartz Drive. The old splitter box was also evaluated and had low concentrations of hydrogen sulfide, and if sealed properly this location is really not a significant odor source.

Concentrations up to 120 PPM were seen at the influent location, but dropped to under 25 PPM within the plant. Still, with concentrations in the 10-25 PPM range, all of the locations will need to be treated. Currently the only locations that are receiving treatment are at the headworks, the splitter box and the influent to the aeration basins. Even though these locations are being treated with the existing odor control system (carbon adsorber), the influent to the aeration basins has significant gaps in the covers. This makes it difficult to contain the odors for treatment. LTS recommends that this area's covers be better sealed, and additional airflow is also recommended to increase the negative pressure on the basins to prevent any odors from escaping into the ambient air.

The Parshall flume and the influent line are currently not being treated. LTS recommends air treatment at these locations by extracting the odorous gas out of the structures with fiberglass ductwork and a fan, and treating the odors with an improved odor control system.

The headworks at the facility should be the focus of improved odor control. The concentrations in the room were up to 13 PPM and averaged over 4 PPM. This is not a significant amount of hydrogen sulfide, but other compounds that are odorous were recorded at this location. Concentrations of 1-5 PPM ammonia were recorded in the headworks in addition to the hydrogen sulfide. An improved odor control system would improve the negative pressure in the headworks and keep the odors from occasionally escaping into the ambient air

Wastewater Treatment Facility, Continued

The carbon adsorber odor control system was tested for removal efficiencies, and is performing well while treating the odors from the three locations it is extracting air from. Testing of the carbon adsorber indicated that the system is working to specifications with the new carbon that was installed earlier in the year. LTS never recorded any outlet results over 0.003 PPM out of the stack of the carbon adsorber during the two-hour test.

Even though the outlet values were very low, the negative pressure was almost zero at each of the locations from which the carbon adsorber is collecting odorous gas. Without the proper amount of negative pressure (> -0.02 in./WC) at the odorous locations in the plant, there is a risk that, under the right ambient conditions, significant odors could be released in to the ambient air.

The Odalog hydrogen sulfide monitors placed at the fenceline did not indicate that any significant amounts of hydrogen sulfide were being released into the ambient air; but testing with the Jerome 631X indicated that concentrations up to 0.024 PPM were occasionally being released at the fenceline. When the Porta-John was replaced at the facility, the spikes increased to over 0.030 PPM for the short duration they were on site. The County's limit is an average of 0.030 PPM for 30 minutes at the fenceline. This is a relatively loose specification, and it is recommended that BMSC have a goal of keeping the fenceline concentrations under 0.008 PPM in the future to prevent odor complaints. The reason LTS recommends that a target of 0.008 PPM be implemented is that based on a 1979 study performed by the California Air Resources Board, which found that 87% of people could detect a rotten egg odor from hydrogen sulfide at 0.008 PPM. It also stated that at 0.040 PPM, or five times the odor threshold, most people considered the odor a nuisance. This report is how the 0.030 PPM standard was derived in California and in Maricopa County.

Current fenceline odors at the facility are most likely from fugitive emissions due to a lack of negative pressures, mostly on the aeration basin influent areas. Other reduced sulfur odors are also typically found as part of the odor emissions and common in most wastewater treatment processes. Low level amines were also recorded at the headworks.

Other Odor Sources

Other odor sources were found during the study that could have occasional impacts on the locations, such as Porta-Johns located at the treatment facility and at the CIE lift stations. Southwest Gas was also replacing some of the gas mains in the area, presumably because of gas leaks. Natural gas is odorless, so the gas companies add an odorant at the distribution center, which is also a reduced sulfur compound called mercaptan. Mercaptans have a similar smell to hydrogen sulfide, and can often be interpreted as a sewer odor by some people. Other odors were also noted at the Commercial Lift Station that is clearly being emitted from the local restaurant grease traps. These emissions can often be very odorous, and also contain a large percentage of hydrogen sulfide. It is common for many people to interpret the grease traps odors as a sewer odor as they are very similar in nature and smell.

Recommendations

The short-term improvements that Black Mountain Sewer Company made as part of the Phase 1 review were correct, but to completely eliminate the odors 99% of the time at the wastewater treatment facility, a larger odor scrubber is recommended, in the range of 5,000 -10,000 CFM, with an additional stage for ammonia removal, and a final-stage carbon polisher. Airflows with a 5,000 -10,000 CFM system would increase the negative pressure in the headworks, splitter box and aeration basins, and to provide negative pressures at the Parshall Flume and in the influent line, which is not being addressed with the current carbon adsorber.

It is also recommended that the discharge location at Quartz and Boulder Drive be redesigned to reduce turbulence at this location. This could be part of the odor control improvement project at the plant, by creating a wetwell structure just to the North on the easement. The new odor control system would draw from this location along with the headworks, Parshall Flume, splitter box and aeration basins. The new collection structure would be designed to focus on a reduction in liquid turbulence and air extraction.

Black Mountain Sewer Company should continue to add Thioguard at the Commercial lift station for hydrogen sulfide control, and may consider adding an upstream chemical feed site for the gravity portion of the CIE lift station. At the Commercial lift station, the only improvement recommended at this location is to continue sealing the wetwell 100% to contain any odors that may be present in the wetwell.

LTS is recommending that a packed tower odor scrubber be installed with a 16" to 20" duct running out to a new junction structure to create a negative pressure at this location. The odors would be treated with a three-stage packed bed odor control system located at the treatment facility, and a carbon follower. The existing unit may be used as part of the polishing stage after the packed tower odor scrubber. An additional carbon unit would be required to handle the additional airflow.

Also, at the wastewater treatment facility, a continuous hydrogen sulfide monitor is also recommended to monitor the operation of the new odor control system and to alert the operators of any potential scrubber problems prior to receiving odor complaints. The only system on the market for this application that can read part-per-billion concentrations is the Sycamore Technologies system. This option should be evaluated to see if it would assist the facility in catching odor emission problems before they get to the surrounding community.

The Boulders in Carefree Liquid Sewage Data

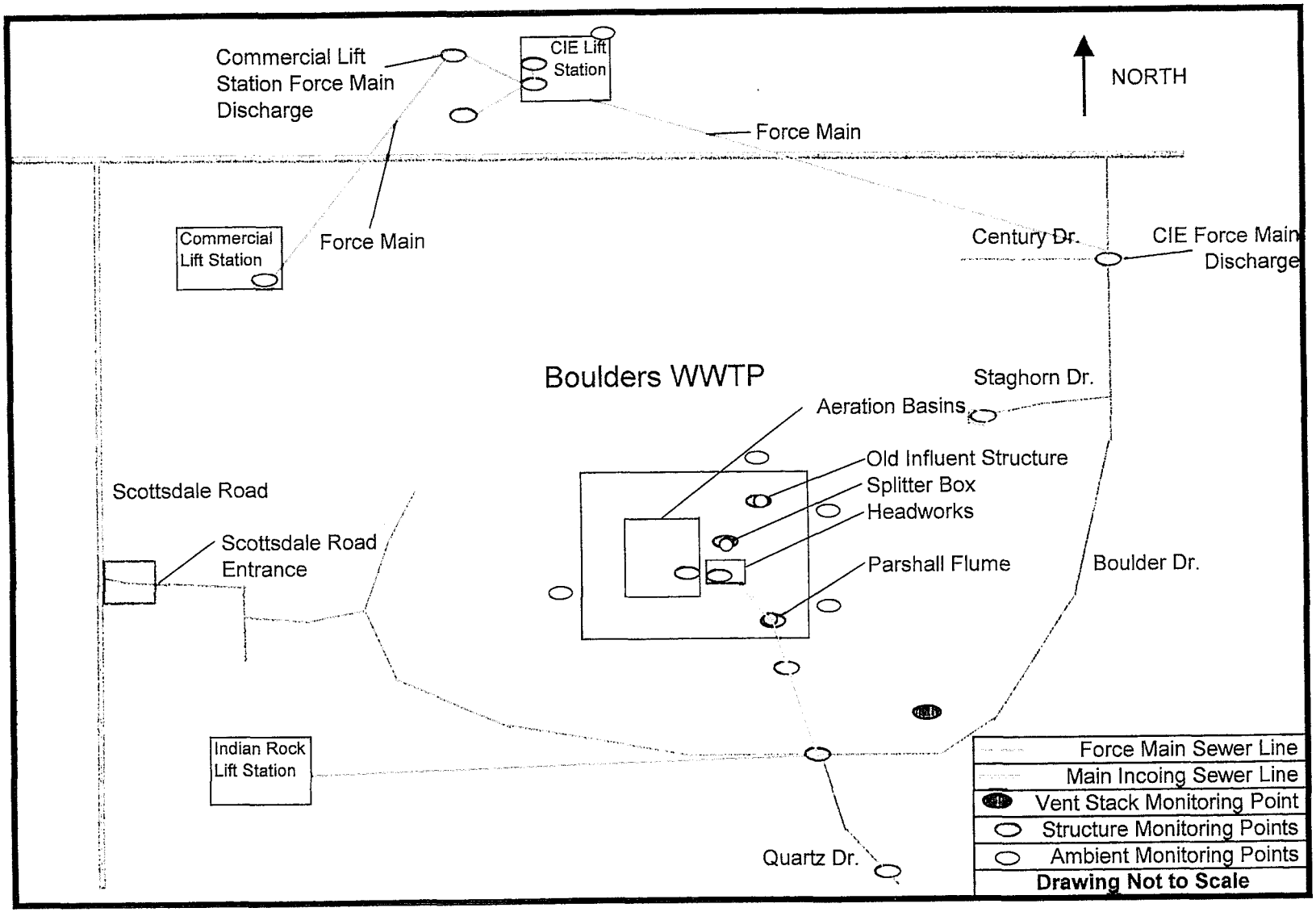
Test Sites

Location Description	Date	Time	Airborne H2S in PPM	pH	ORP in mV	DO in PPM	Temperature in Deg. C	Total Sulfides in mg./lit.	Dissolved Sulfides in mg./lit.	Pressure in in./WC	Feed Rate in GPD
Boulder & Quartz Dr.	6/2/2004	9:30 AM	>50	8.17	-327	1.86	29.6	4.2	4.20	0.03	
Century & Boulder Dr.	6/2/2004	10:00 AM	26	8.41	-351	0.49	32.2	6.2	6.2	0.01	
Plant Influent	6/2/2004	10:30 AM	>50	7.65	-380	0.17	31.3	5.2	5.2	0.01	
Upstream Quartz Dr.	6/2/2004	11:00 AM	0.008								
Staghorne Dr.	6/2/2004	11:30 AM	0.092				No Flow				
Commercial Lift Station	6/2/2004	12:00 PM	14	7.87	-225	5.78	32.4	1.6	1.4	0.00	
Commercial Lift Station FM Discharge at CIE	6/2/2004	12:30 PM	8.0	7.43	-242	3.00	34.9	0.6	0.6	0.01	
CIE Incoming Gravity Line	6/2/2004	1:00 PM	0.089	7.87	-277	4.03	34.0	2.0	1.8	0.01	
											0 GPD

Location Description	Date	Time	Airborne H2S in PPM	pH	ORP in mV	DO in PPM	Temperature in Deg. C	Total Sulfides in mg./lit.	Dissolved Sulfides in mg./lit.	Pressure in in./WC	Feed Rate in GPD
Boulder & Quartz Dr.	6/7/2004	8:00 AM	>50	8.84	-306	4.50	29.9	7.0	7.00	0.05	
Century & Boulder Dr.	6/7/2004	8:30 AM	23	9.24	-310	2.92	30.8	7.0	6.5	0.01	
Plant Influent	6/7/2004	9:00 AM	20	9.01	-310	5.60	29.1	9.0	9.0	0.00	
Upstream Quartz Dr.	6/7/2004	9:30 AM	0.012								
Staghorne Dr.	6/7/2004	10:00 AM	0.031				No Flow				
Commercial Lift Station	6/7/2004	10:30 AM	2.2	8.93	-279	4.20	30.7	2.2	2.1	0.00	
Commercial Lift Station FM Discharge at CIE	6/7/2004	11:00 AM	4.0	8.80	-284	2.62	32.0	2.0	1.4	0.01	
CIE Incoming Gravity Line	6/7/2004	11:30 AM	0.022	8.06	-182	2.61	31.8	0.2	0.1	0.01	
											90 GPD

Location Description	Date	Time	Airborne H2S in PPM	pH	ORP in mV	DO in PPM	Temperature in Deg. C	Total Sulfides in mg./lit.	Dissolved Sulfides in mg./lit.	Pressure in in./WC	Feed Rate in GPD
Boulder & Quartz Dr.	6/9/2004	8:30 AM	>50	9.13	-307	5.72	28.3	12.0	12.0	0.03	
Century & Boulder Dr.	6/9/2004	9:00 AM	1.4	9.15	-246	4.80	29.2	7.0	6.5	0.00	
Plant Influent	6/9/2004	9:30 AM	>50	9.04	-309	4.32	28.7	12.0	12.0	0.005	
Upstream Quartz Dr.	6/9/2004	10:00 AM	0.004								
Staghorne Dr.	6/9/2004	10:30 AM	0.004				No Flow				
Commercial Lift Station	6/9/2004	11:00 AM	0.62	8.53	-300	2.40	29.0	3.6	3.2	0.00	
Commercial Lift Station FM Discharge at CIE	6/9/2004	11:30 AM	0.15	8.73	-299	5.40	30.3	2.7	2.5	0.00	
CIE Incoming Gravity Line	6/9/2004	12:00 PM	0.020	7.18	-257	2.52	31.0	1.1	1.1	0.00	
											90 GPD

Location Description	Date	Time	Airborne H2S in PPM	pH	ORP in mV	DO in PPM	Temperature in Deg. C	Total Sulfides in mg./lit.	Dissolved Sulfides in mg./lit.	Pressure in in./WC	Feed Rate in GPD
Boulder & Quartz Dr.	6/14/2004	7:30 AM	40	9.10	-300	5.07	29.3	10.8	10.8	0.01	
Century & Boulder Dr.	6/14/2004	8:00 AM	48	9.11	-270	4.51	29.5	8.3	8.3	0.005	
Plant Influent	6/14/2004	8:30 AM	30	9.00	-315	4.01	29.1	10.5	10.5	0.005	
Upstream Quartz Dr.	6/14/2004	9:00 AM	0.037								
Staghorne Dr.	6/14/2004	9:30 AM	0.019				No Flow				
Commercial Lift Station	6/14/2004	10:00 AM	6.0	8.65	-299	2.07	30.0	3.9	3.7	0.00	
Commercial Lift Station FM Discharge at CIE	6/14/2004	10:30 AM	16	8.81	-291	5.11	30.7	3.0	2.9	0.01	
CIE Incoming Gravity Line	6/14/2004	11:00 AM	13	7.25	-231	2.01	31.2	1.3	1.3	0.01	
											90 GPD



The Boulders WWTP Site Map

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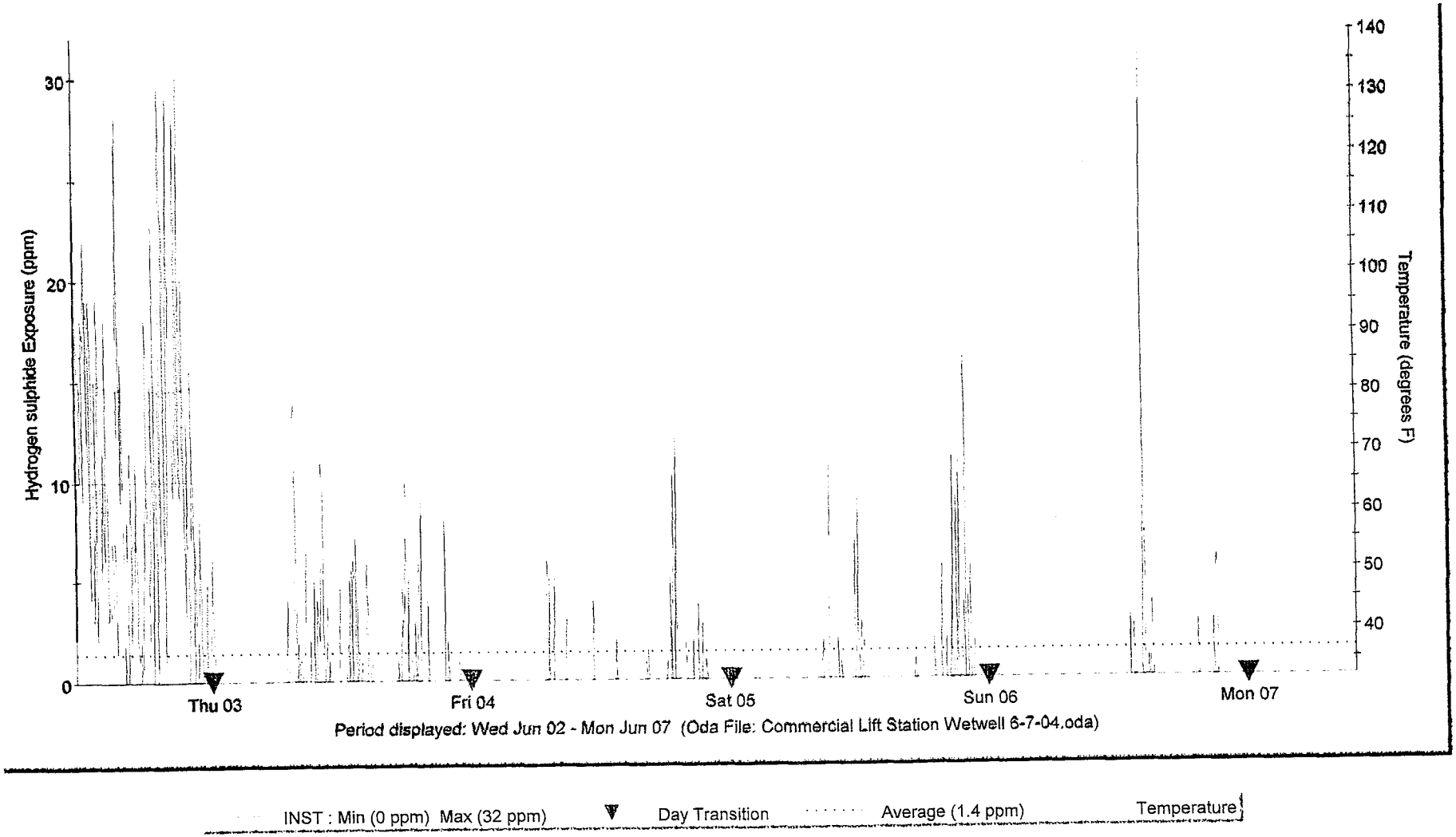

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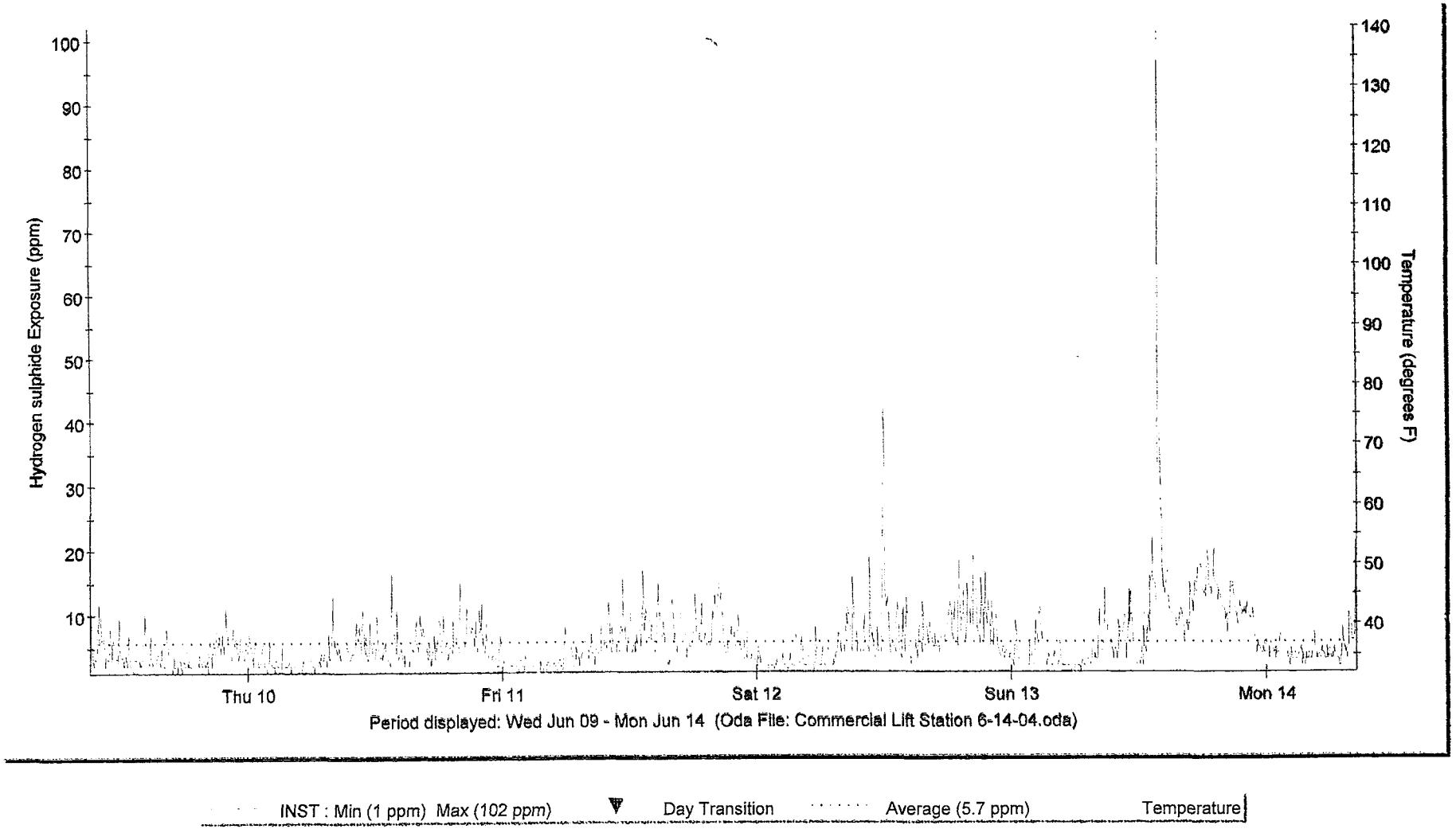

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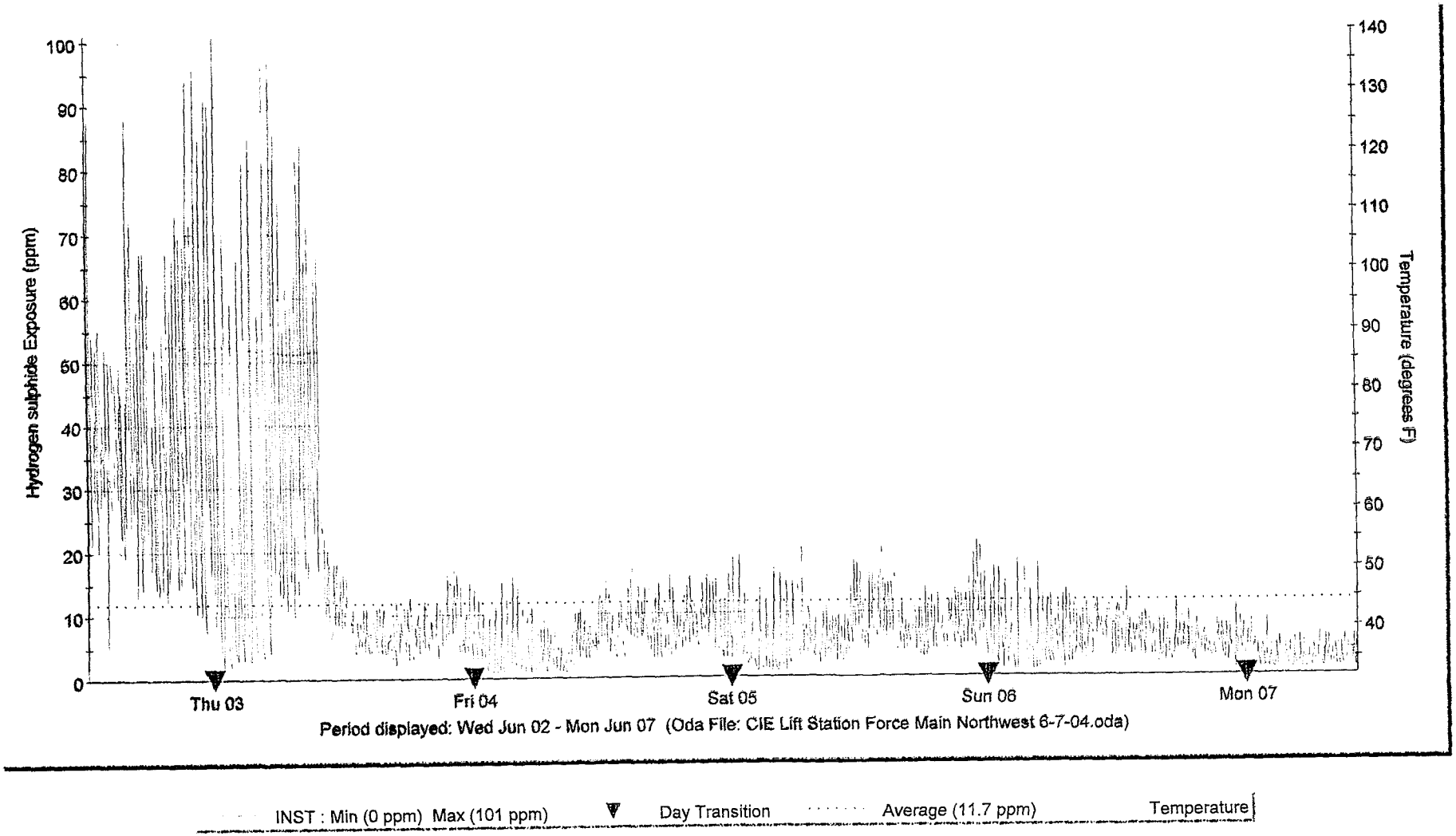

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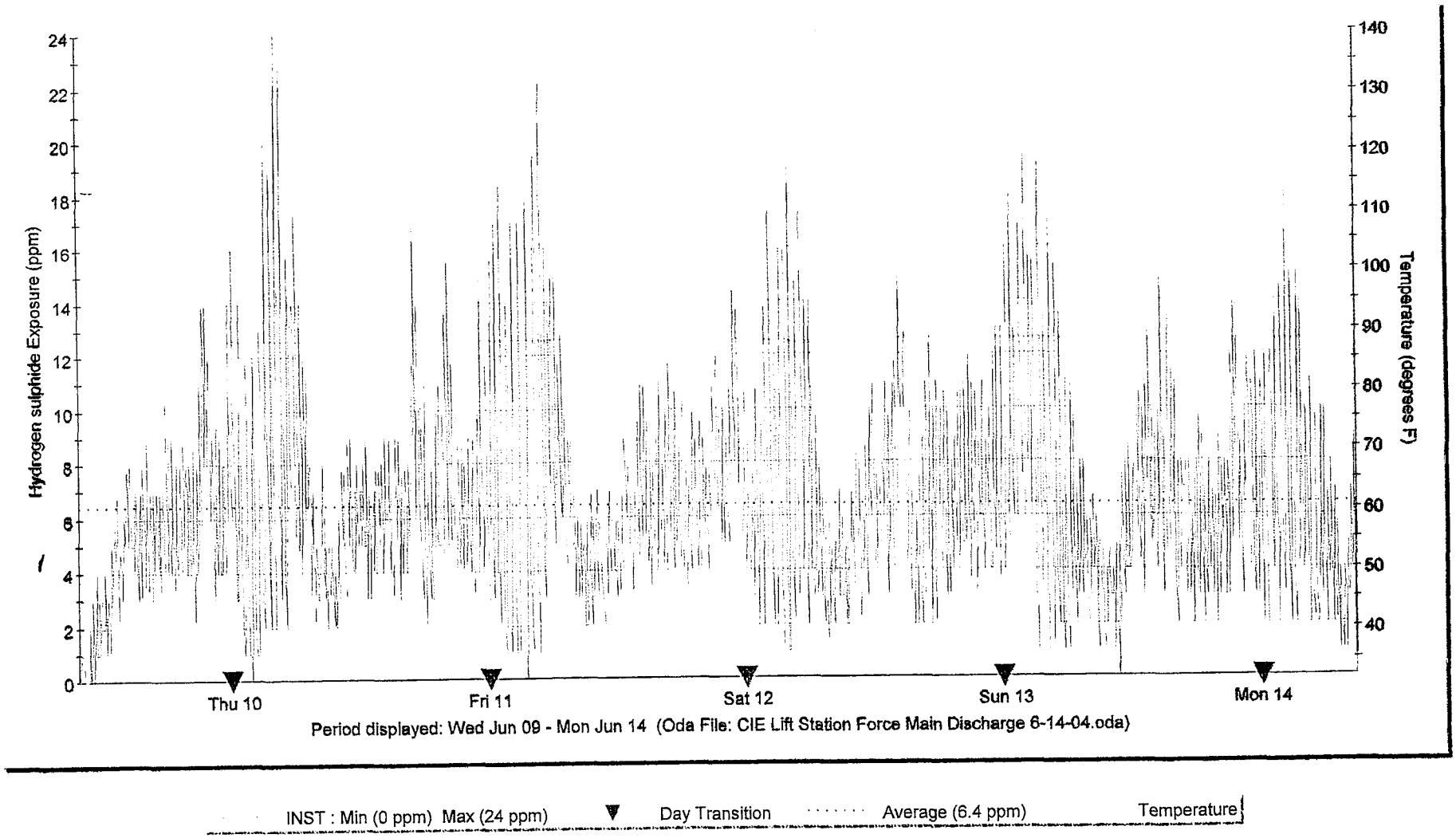

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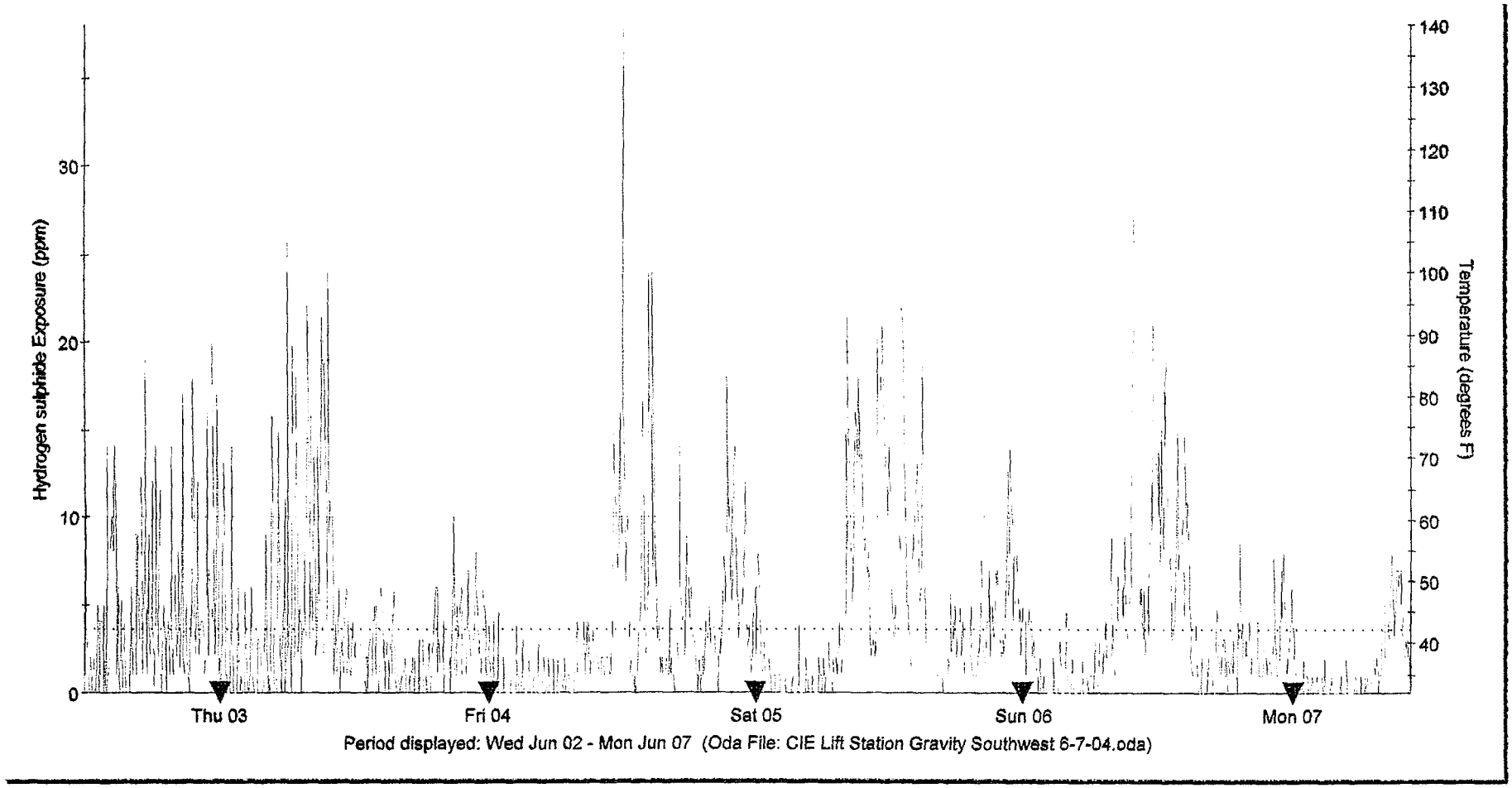

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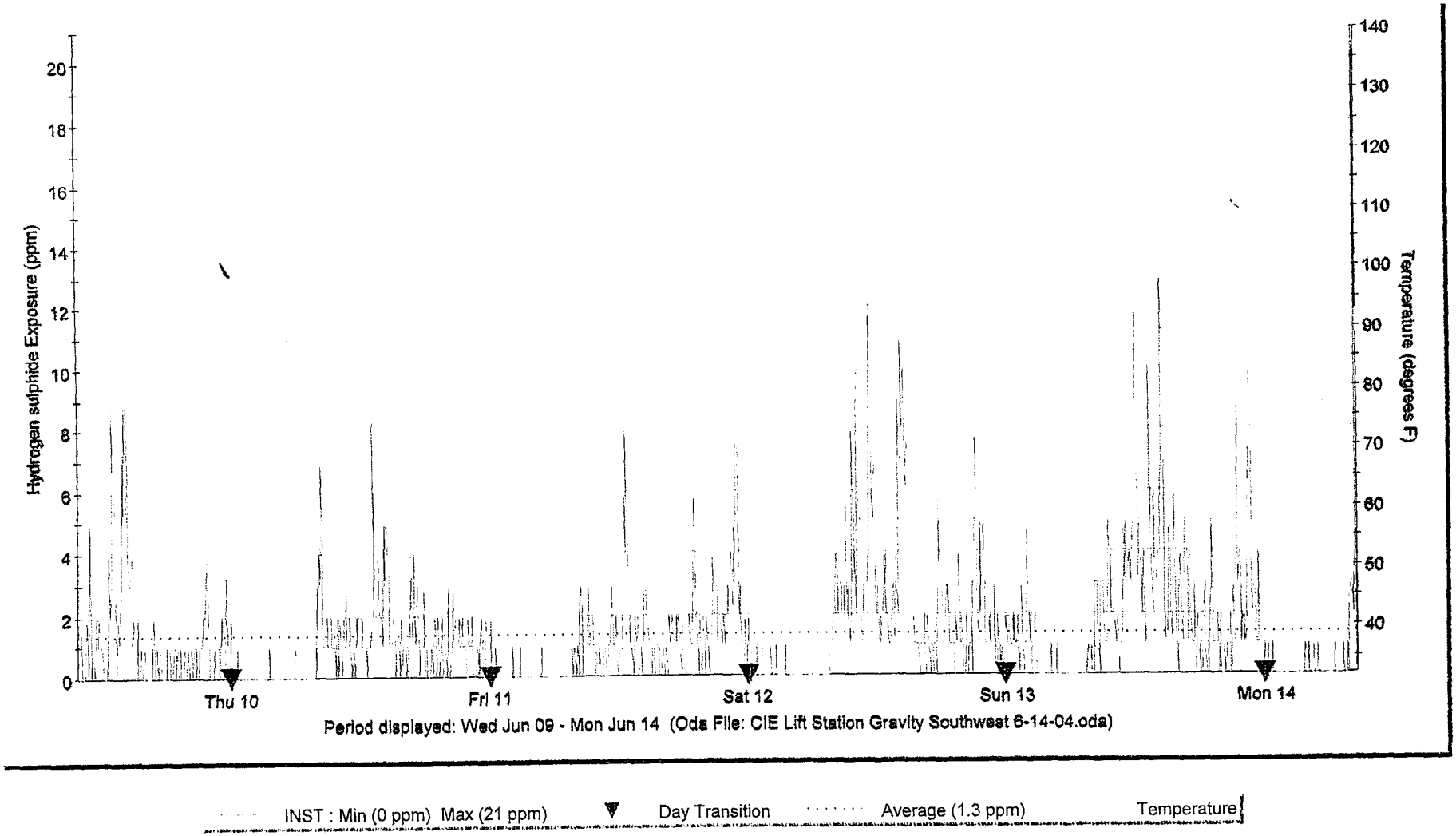

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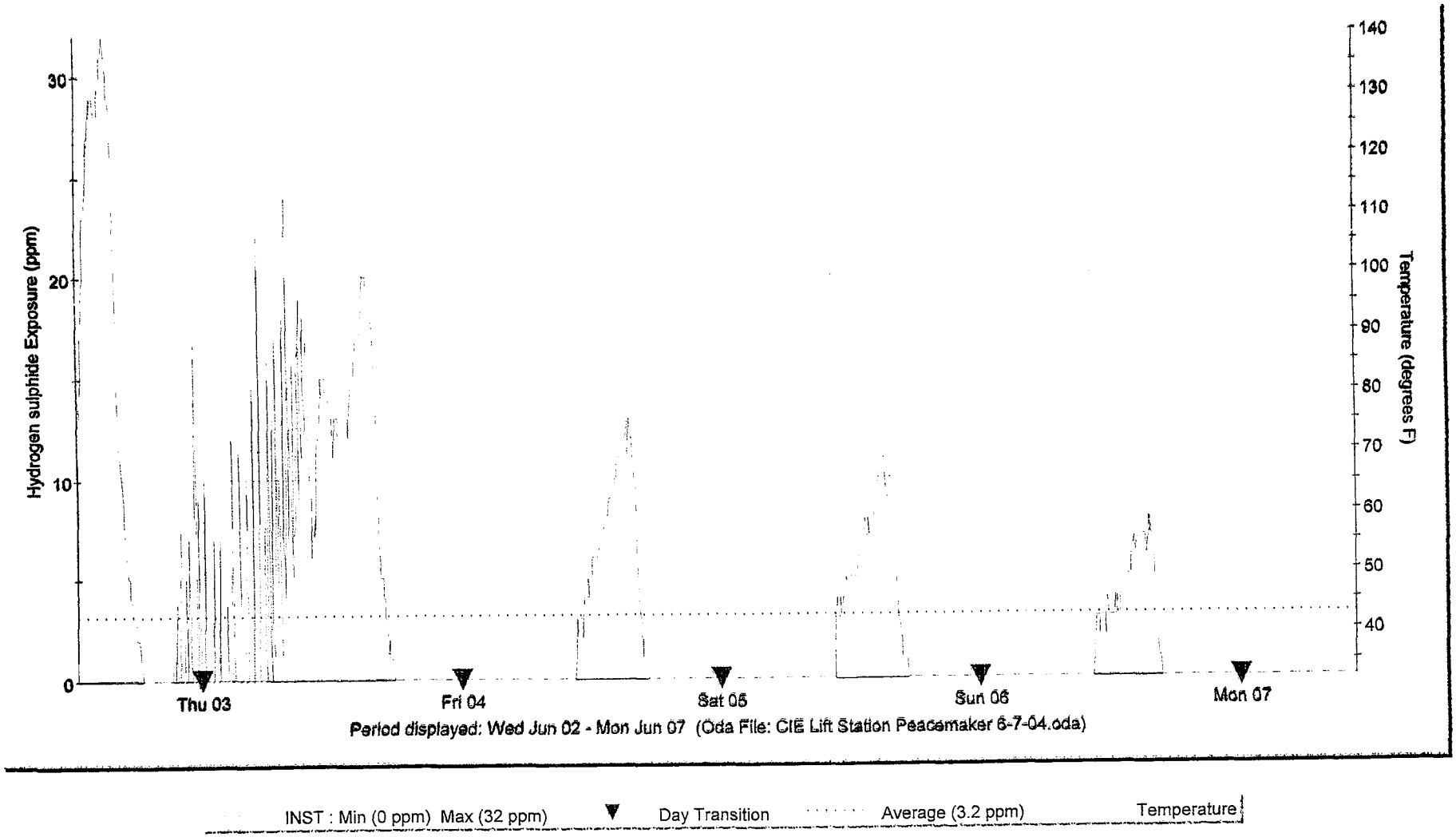

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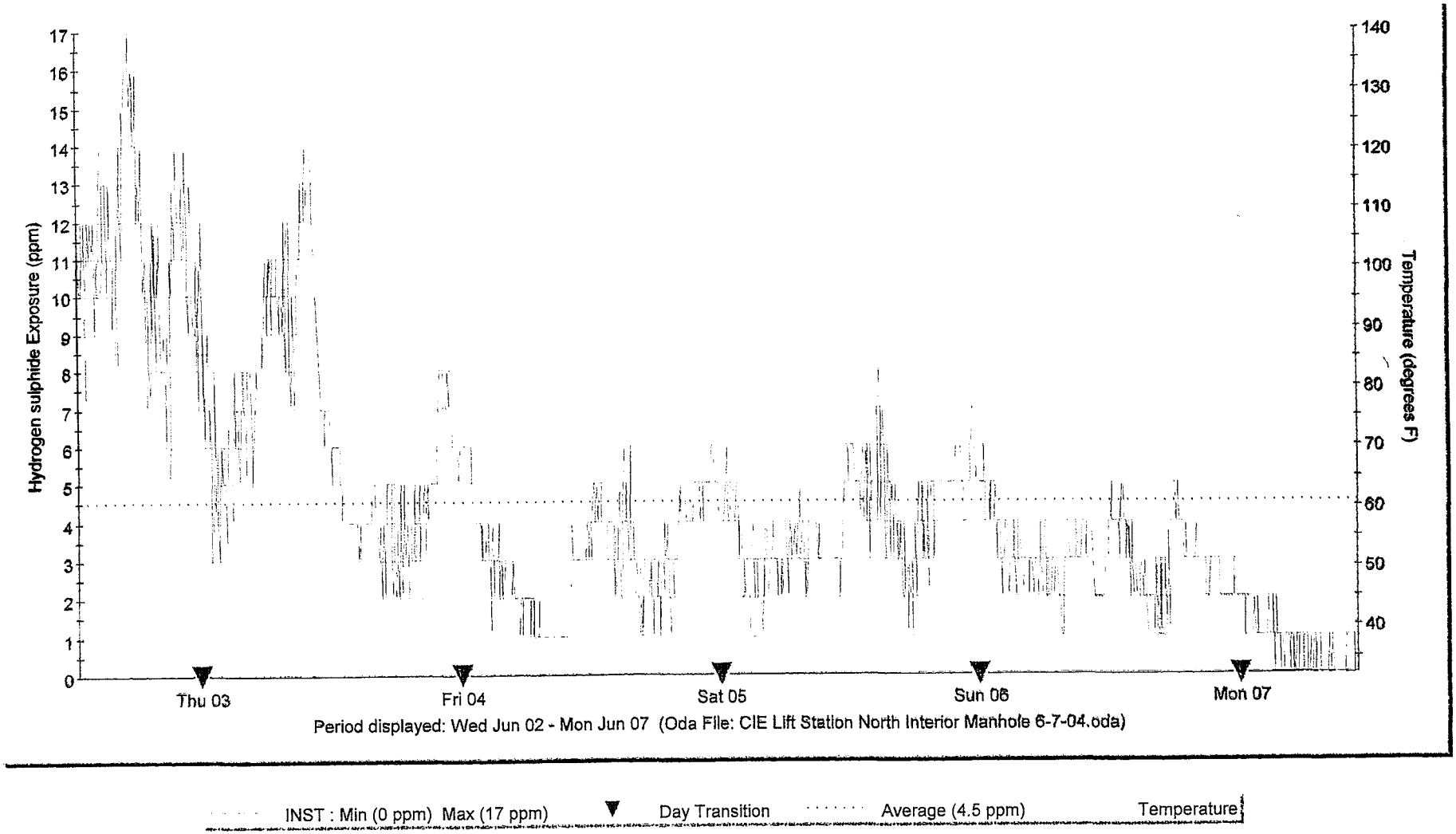

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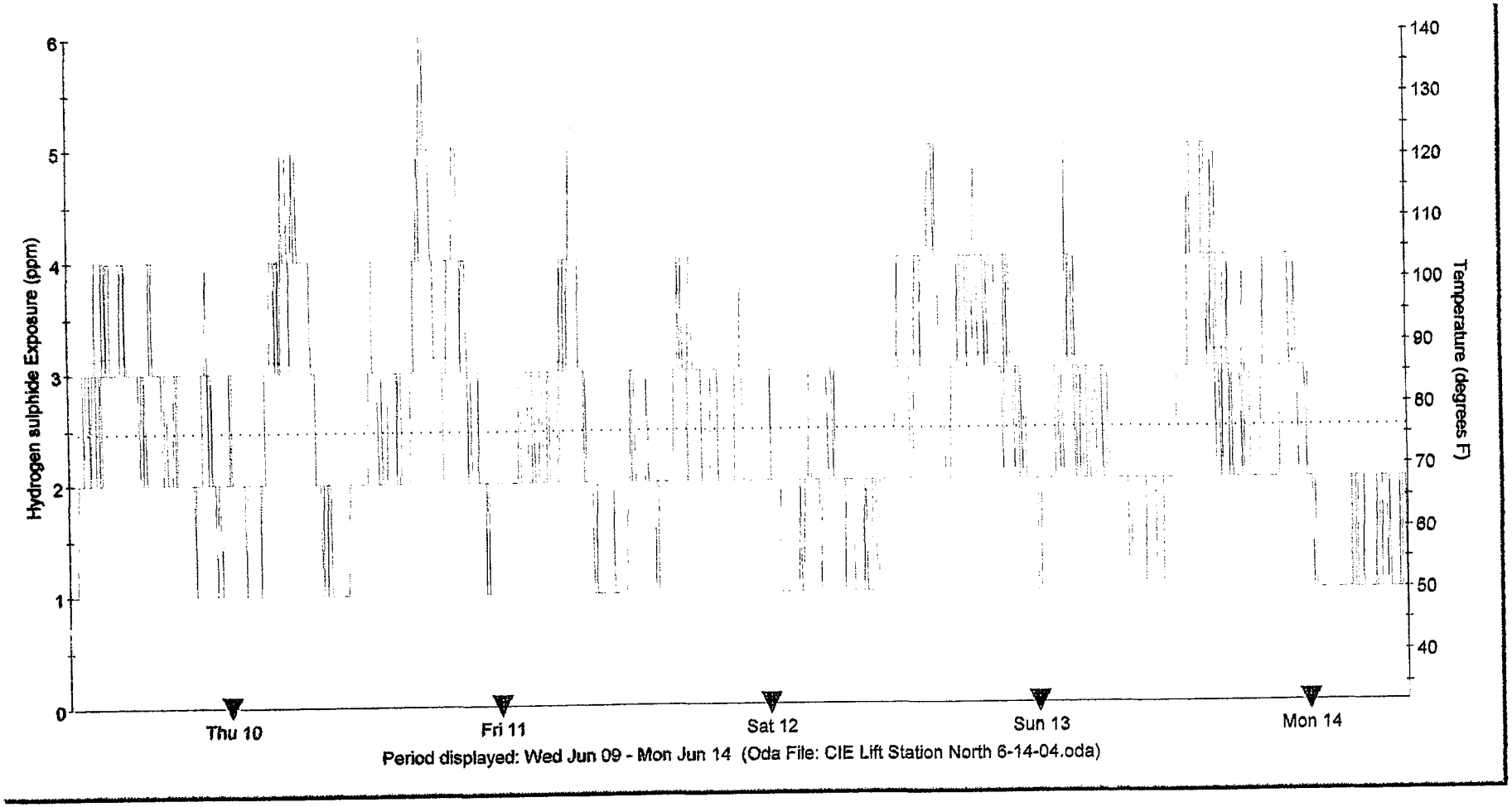

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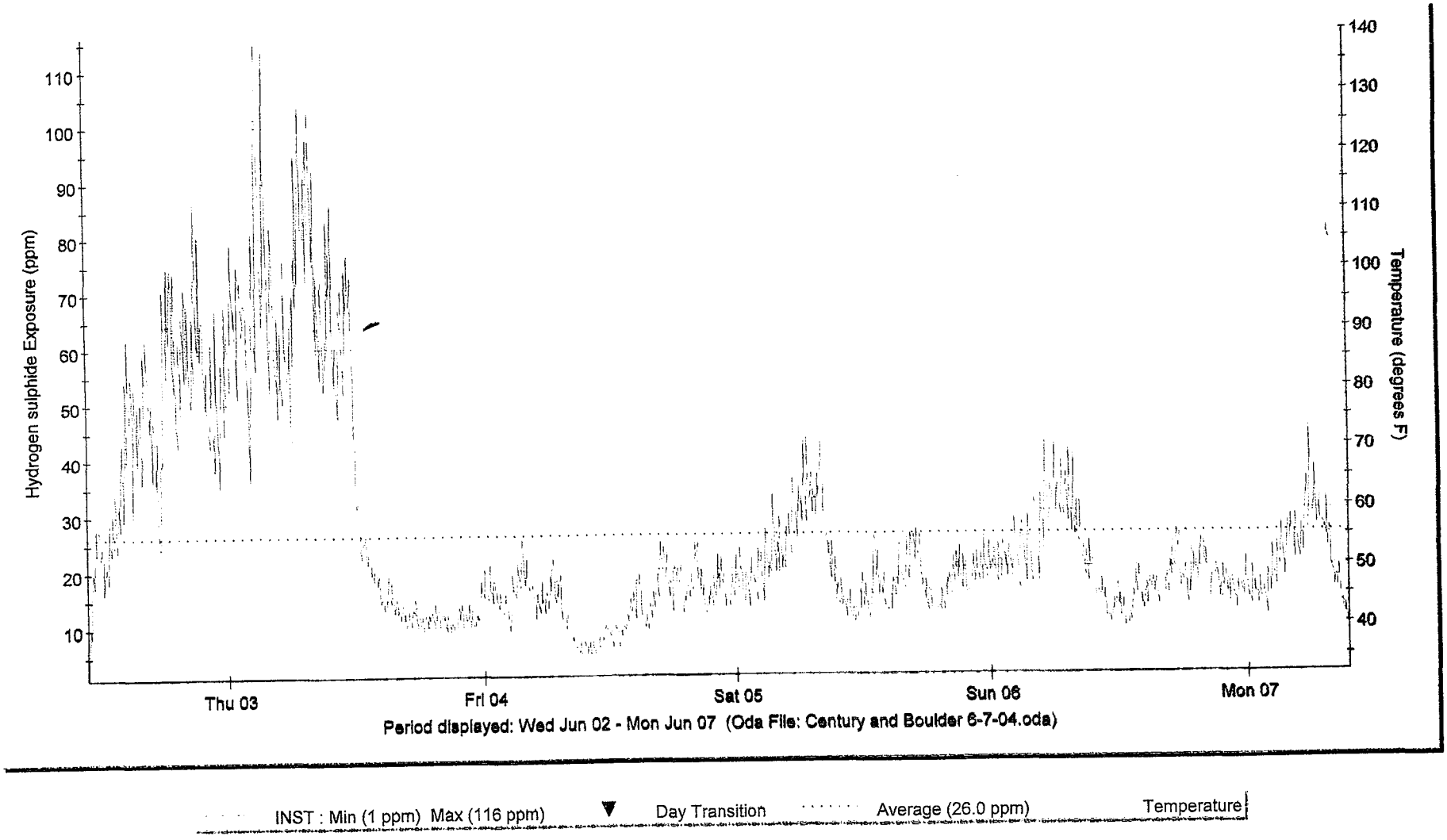
- Session: 1 (OdaLog: OL45033818)



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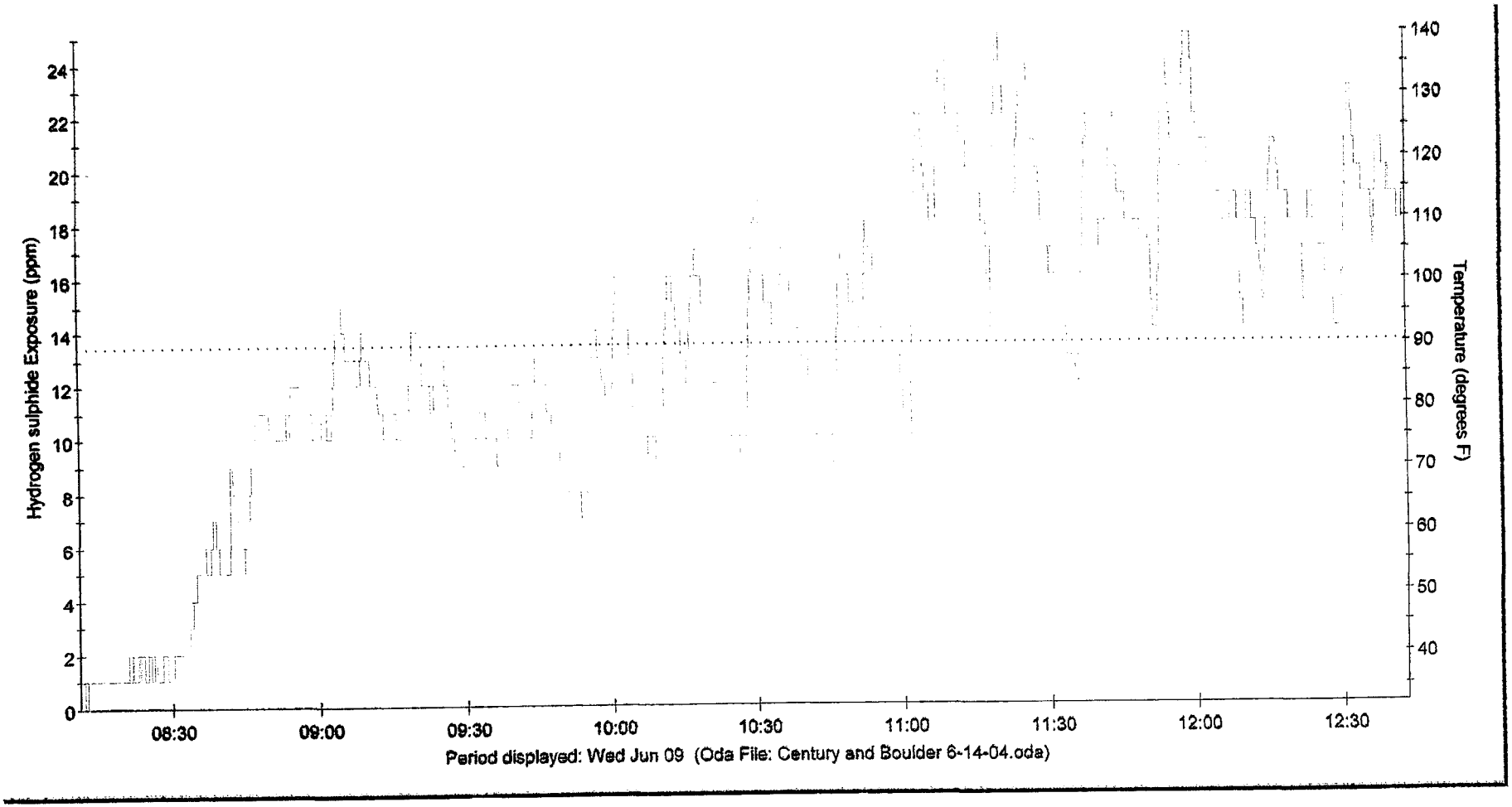

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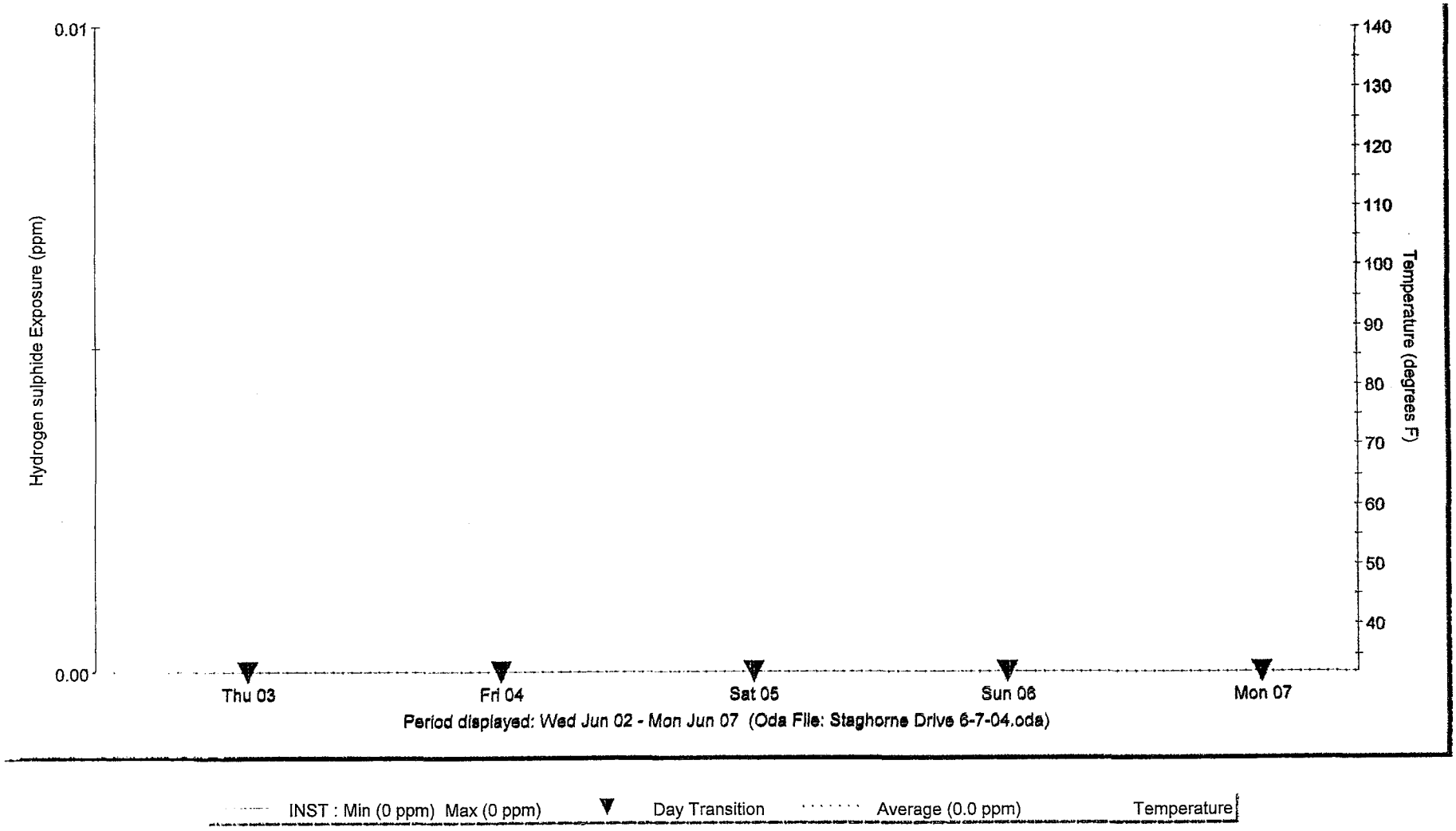

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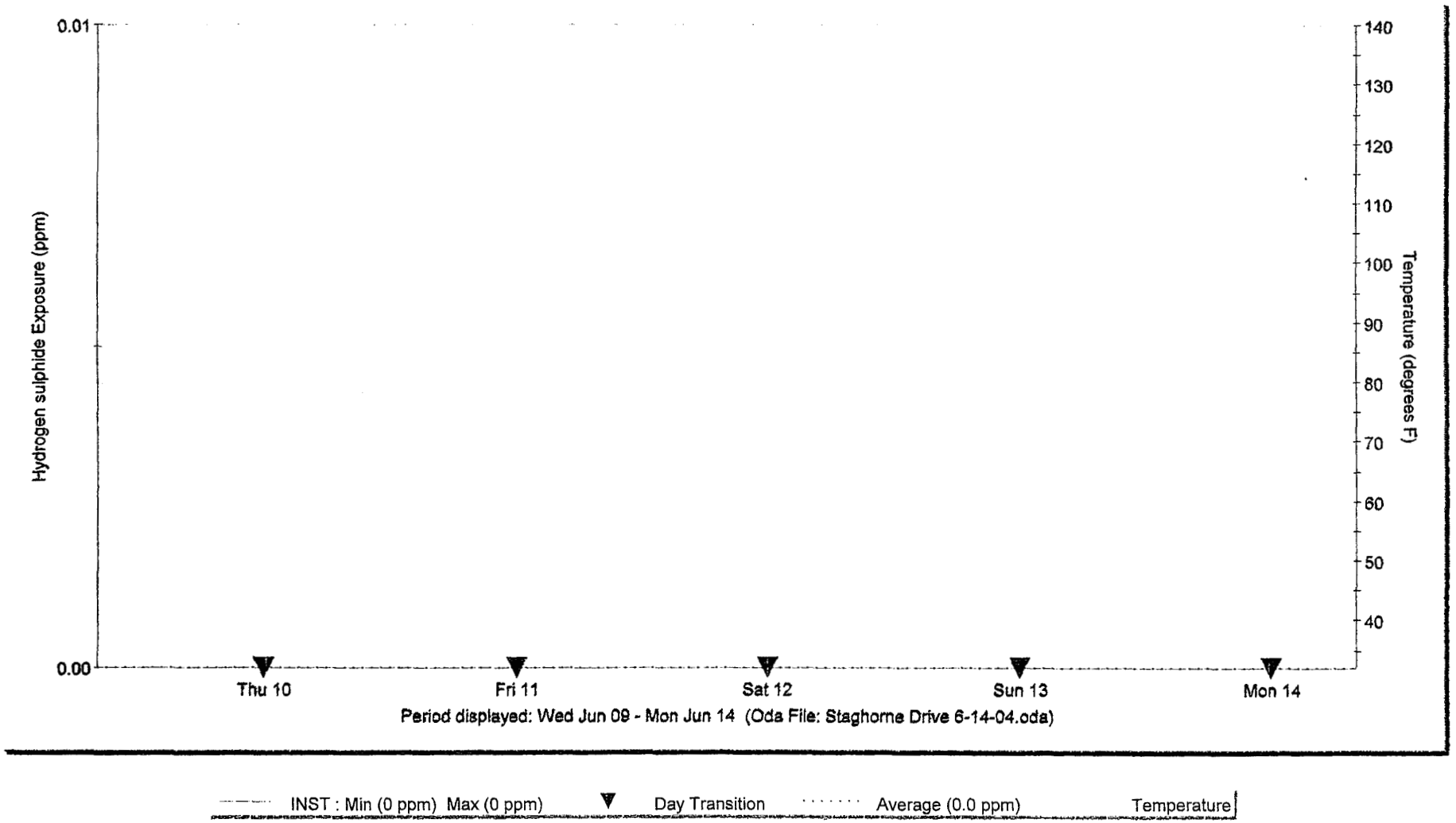

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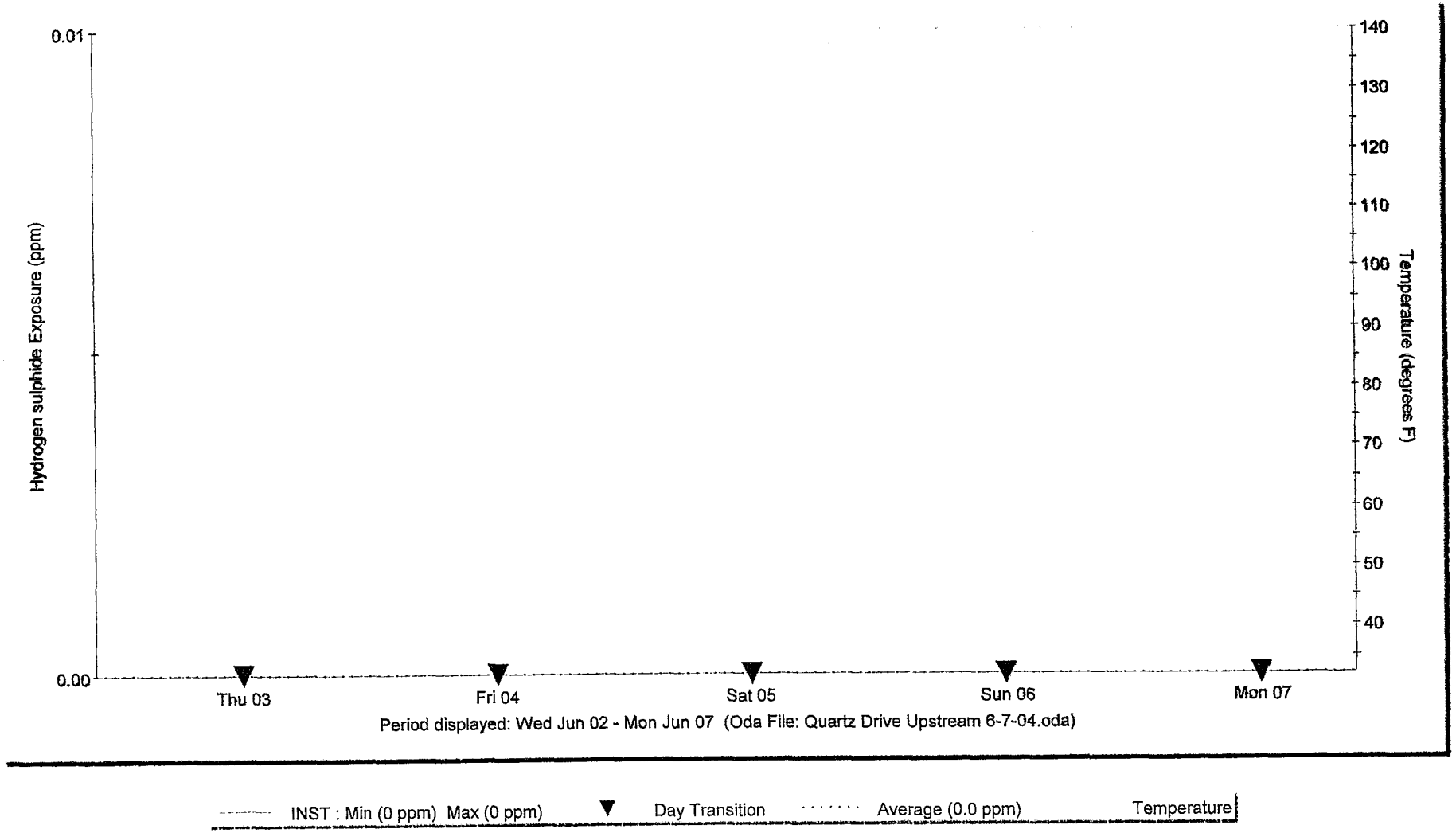

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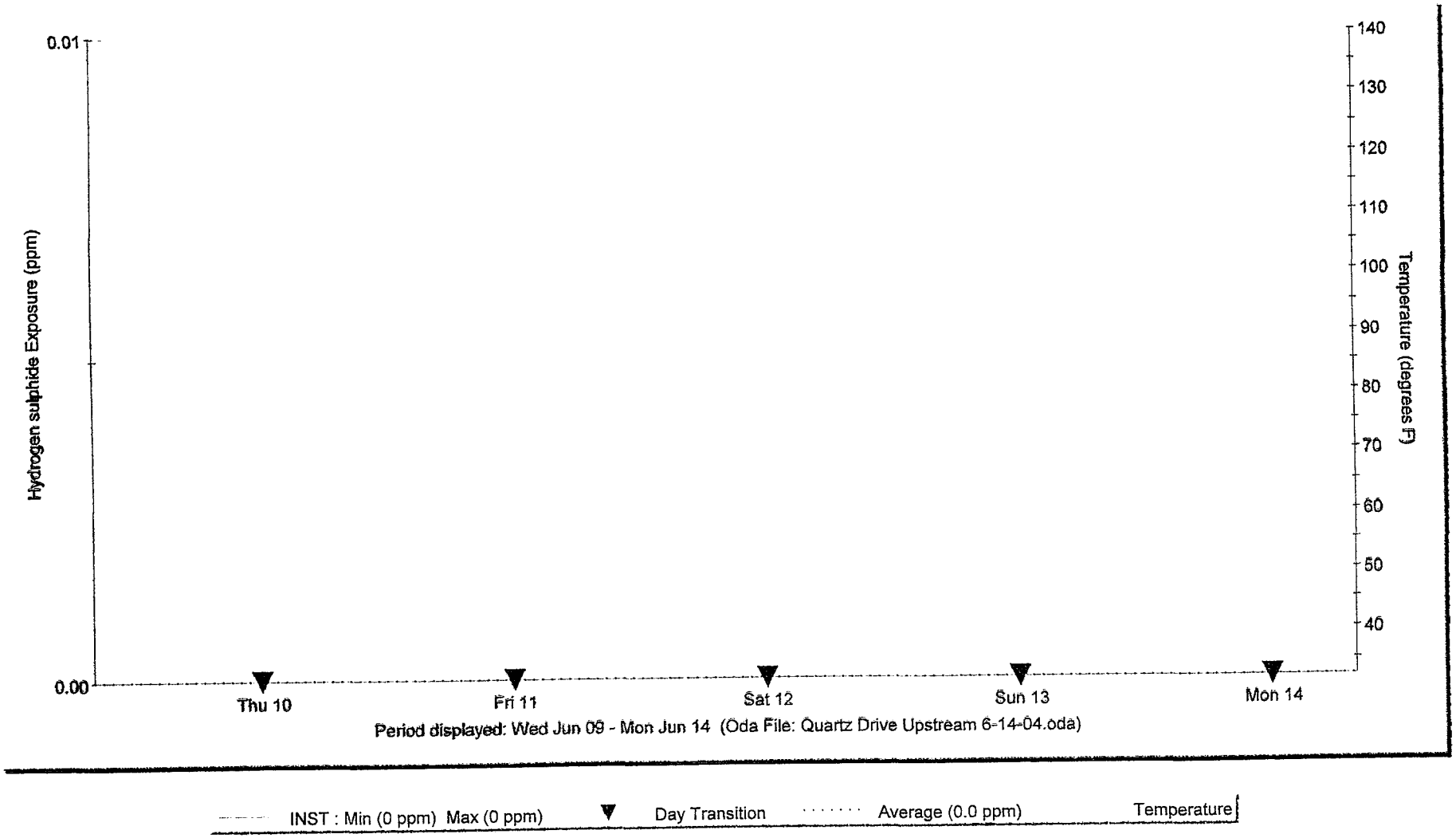

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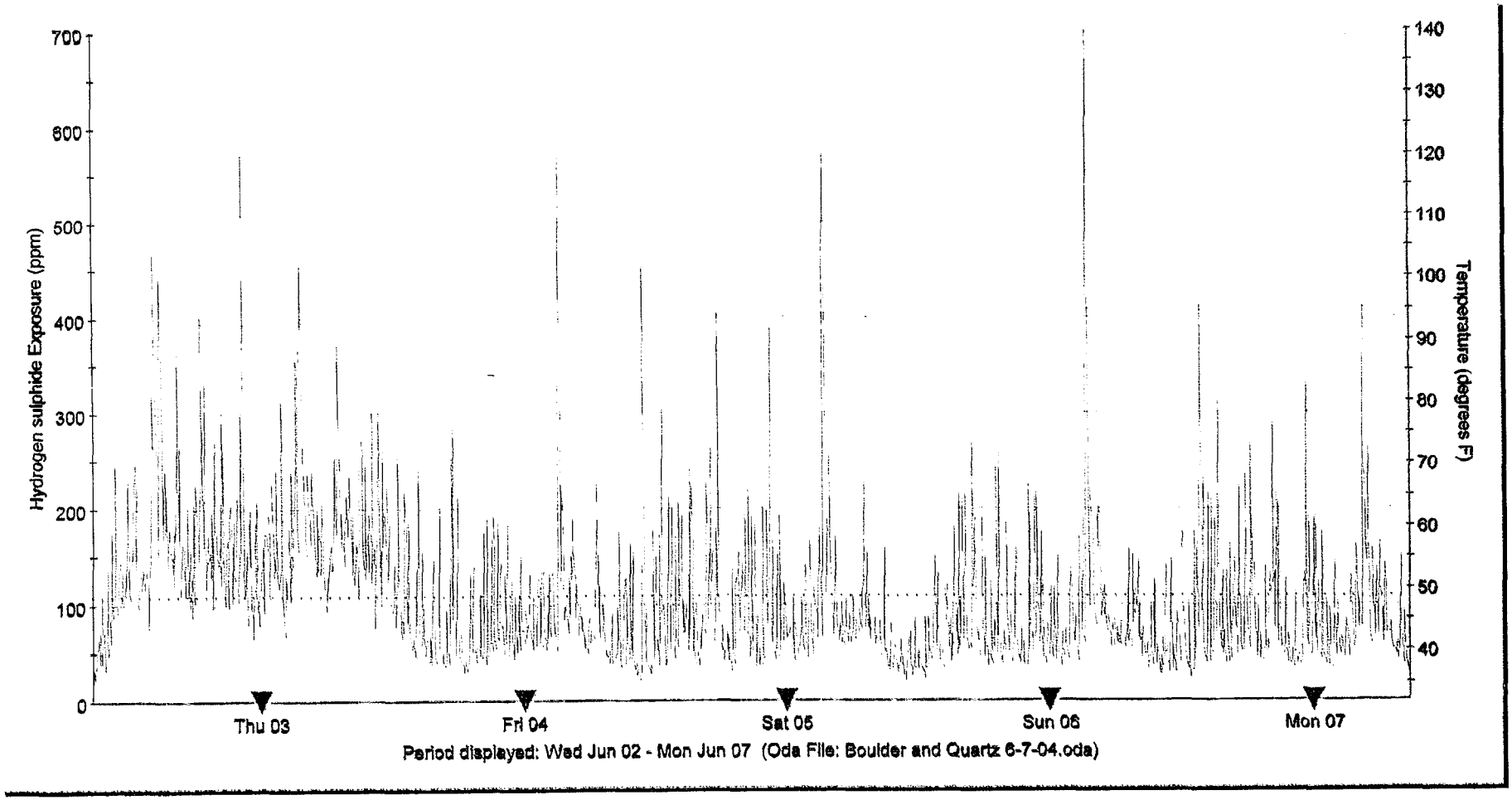

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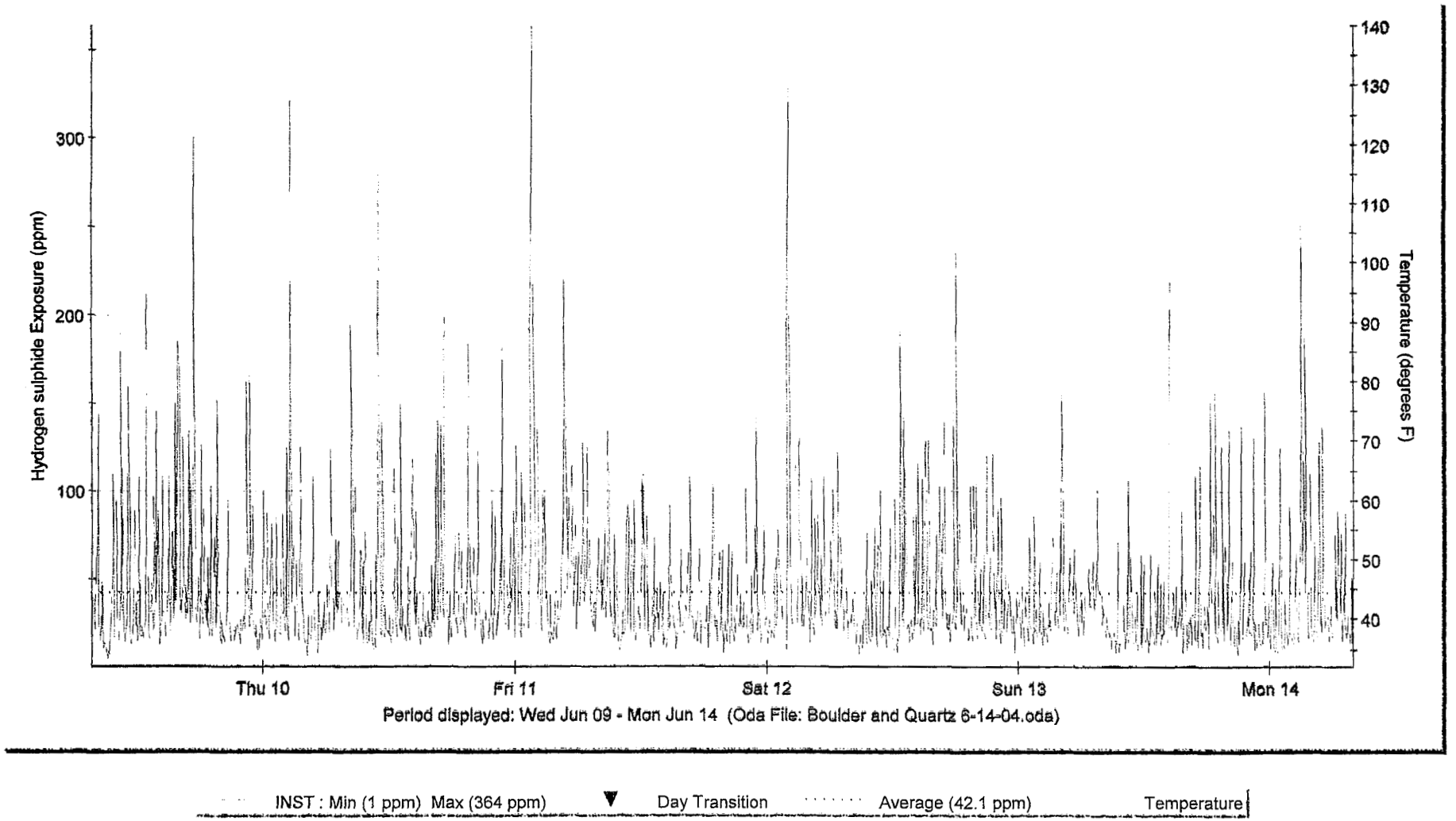

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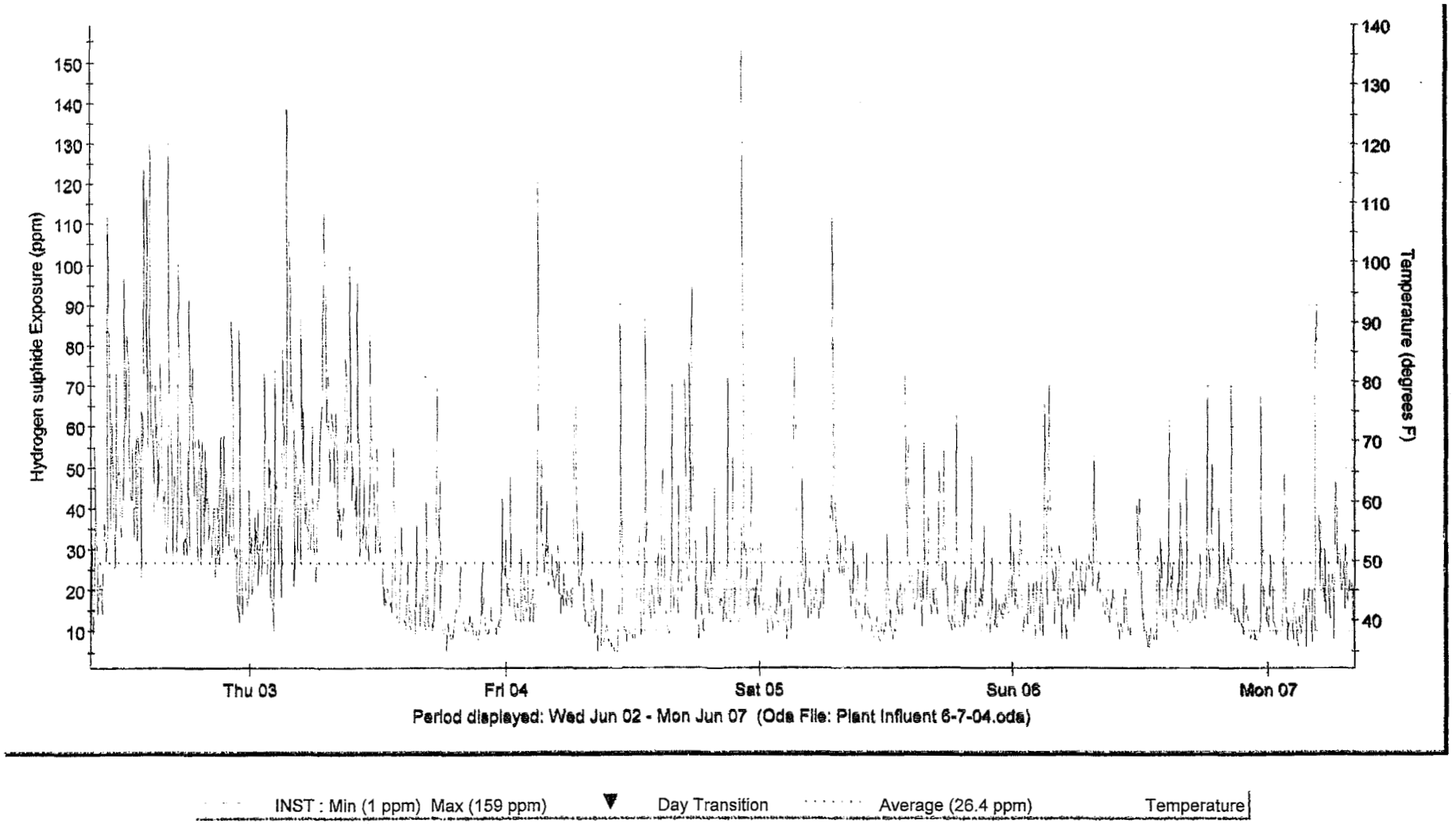

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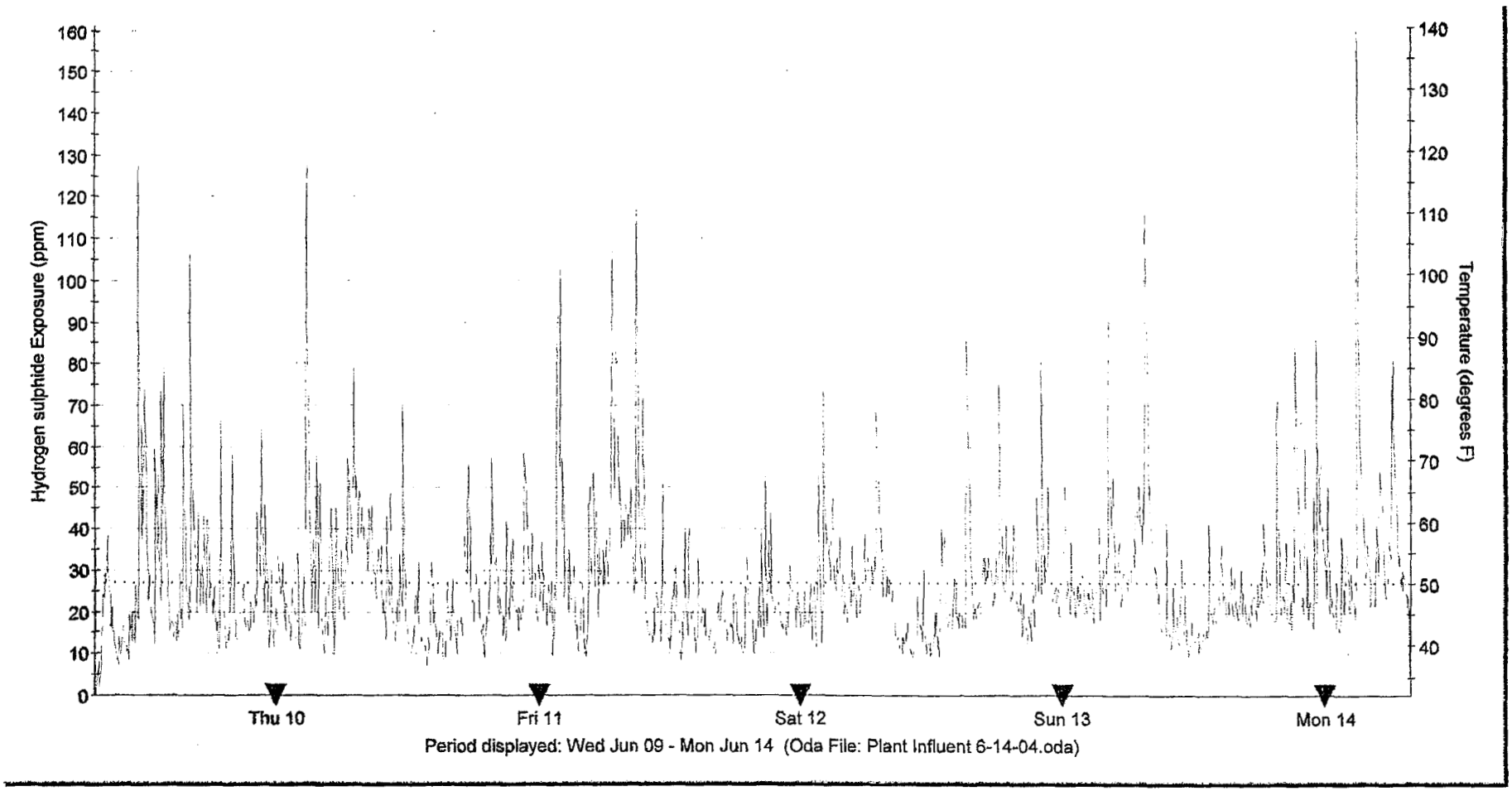

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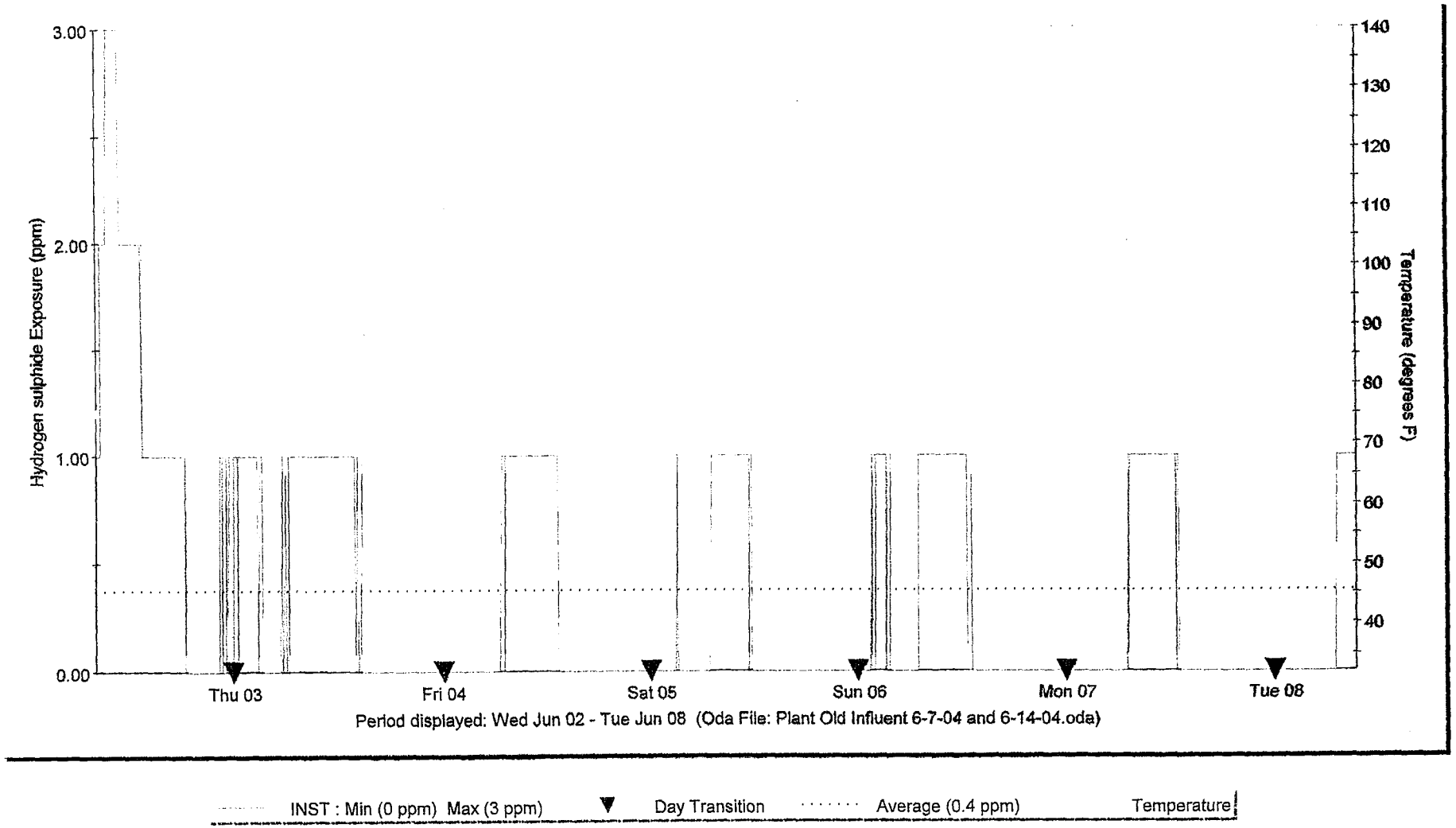

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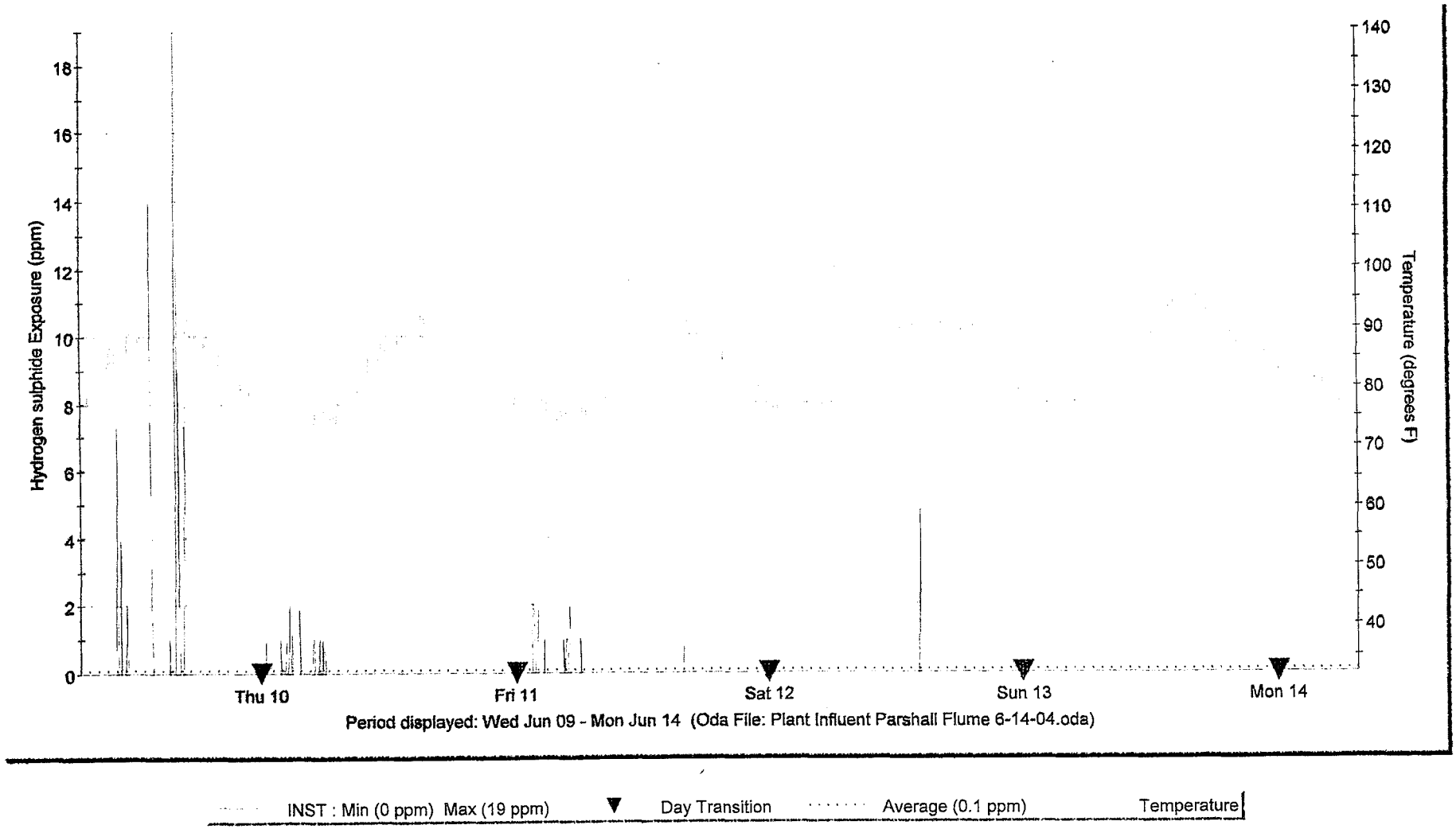

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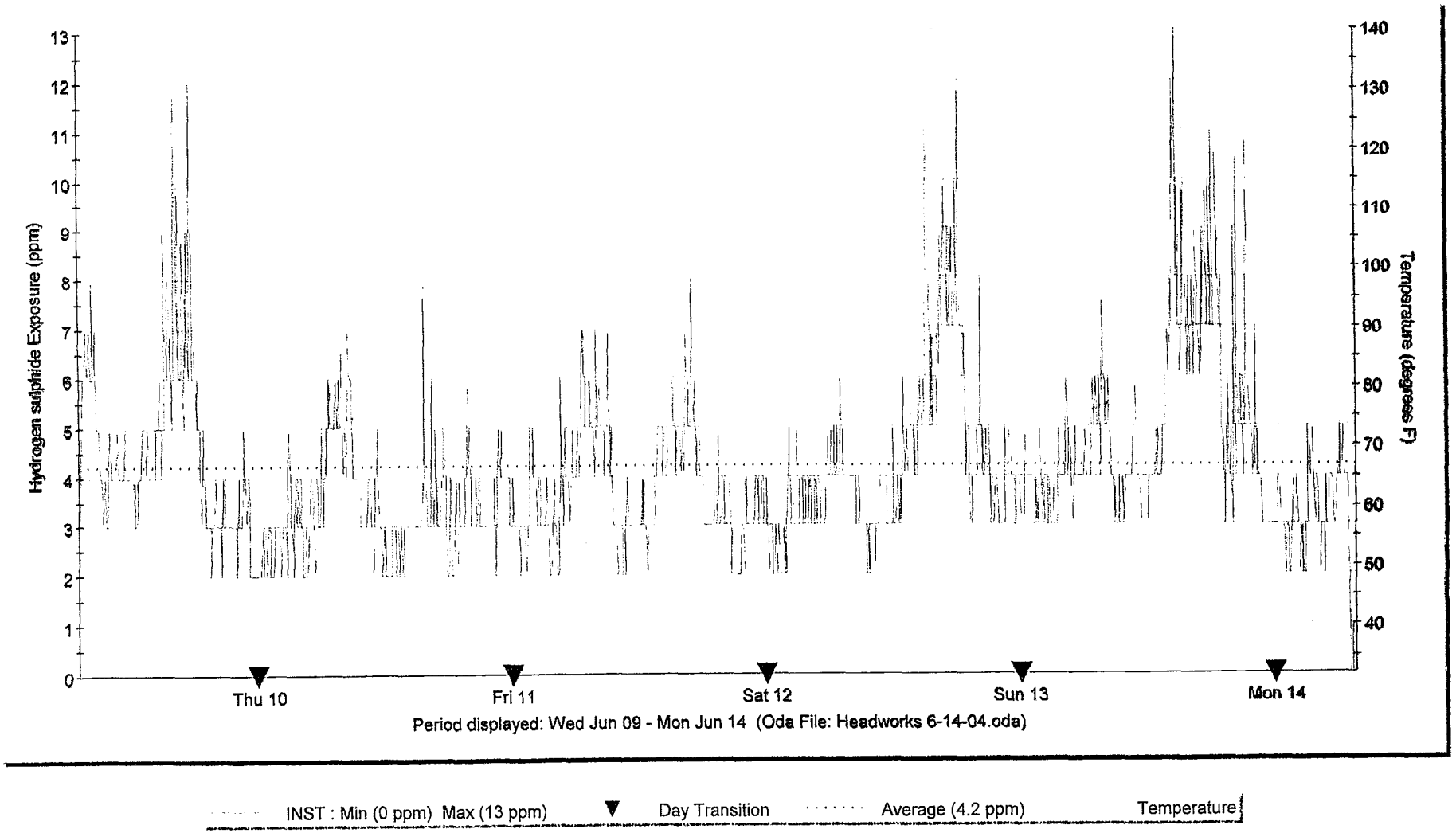

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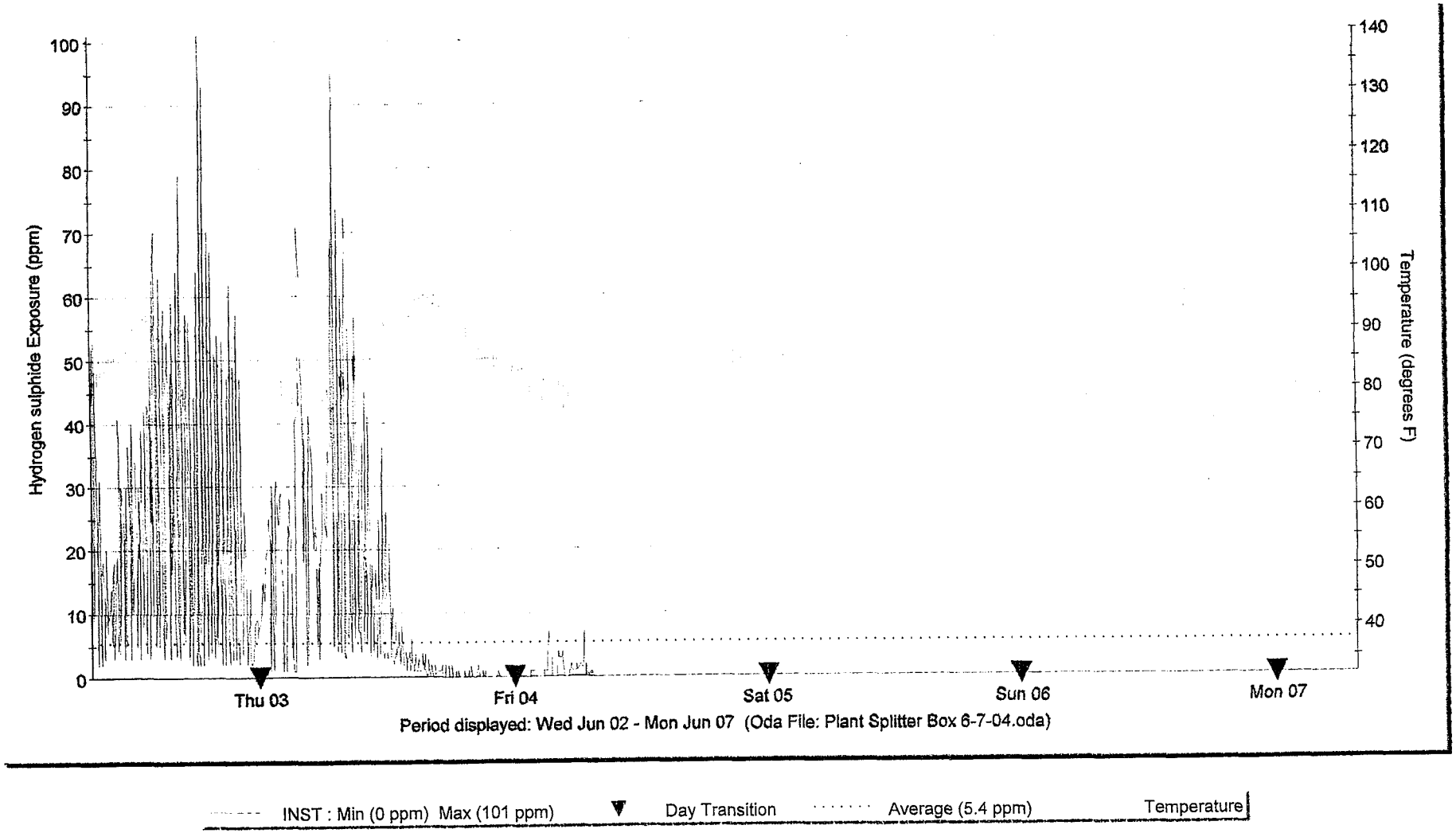

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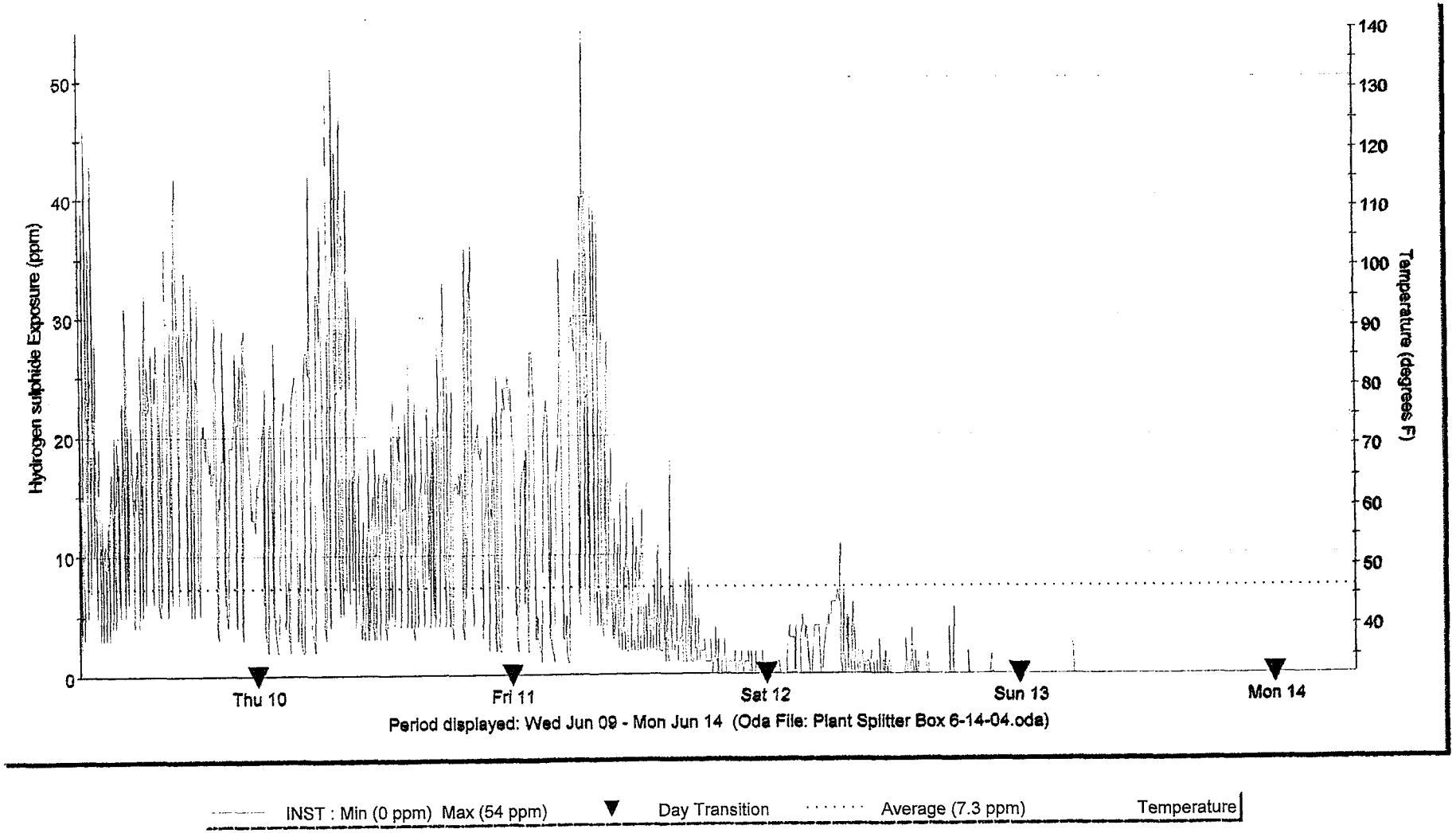

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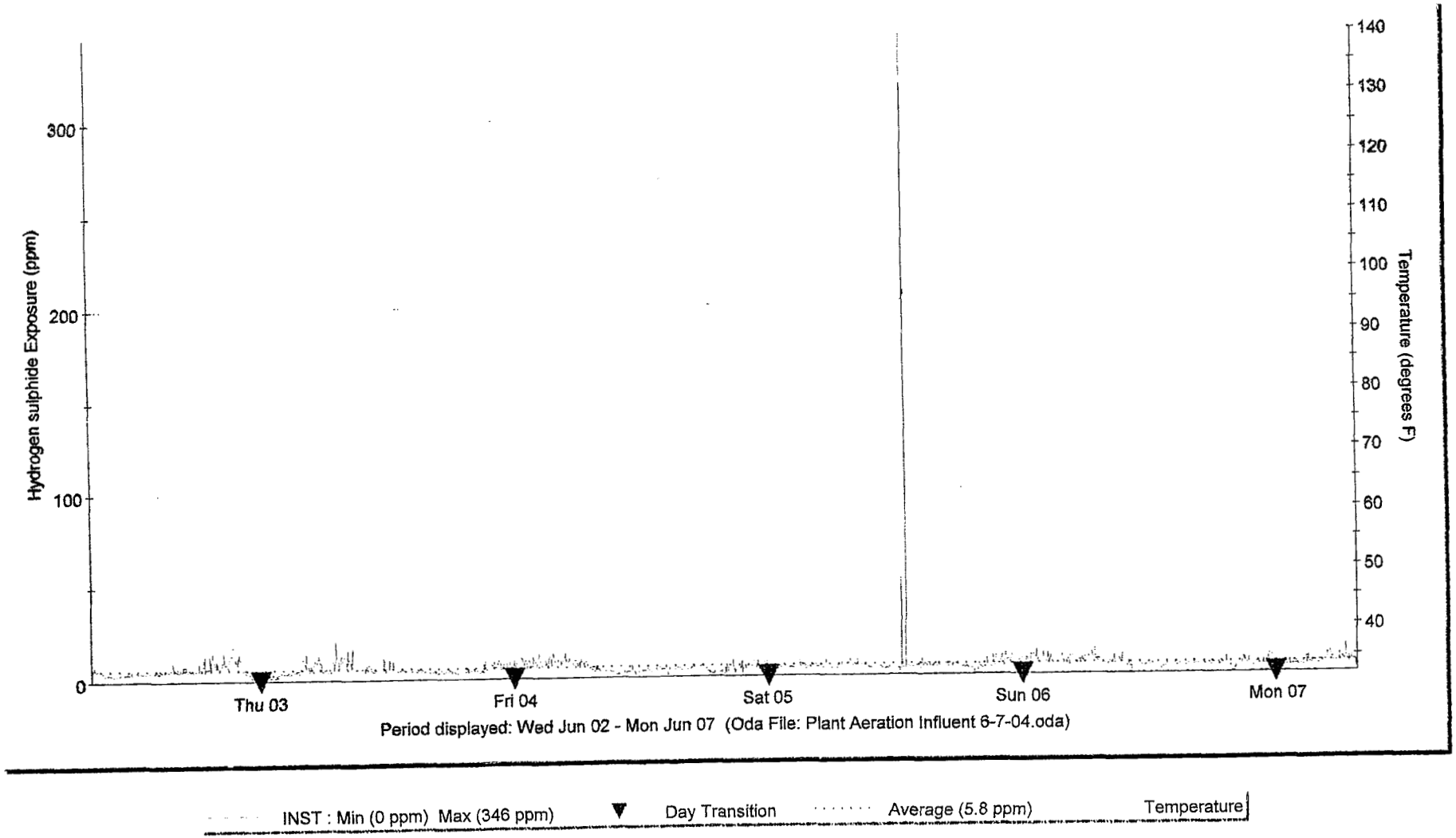
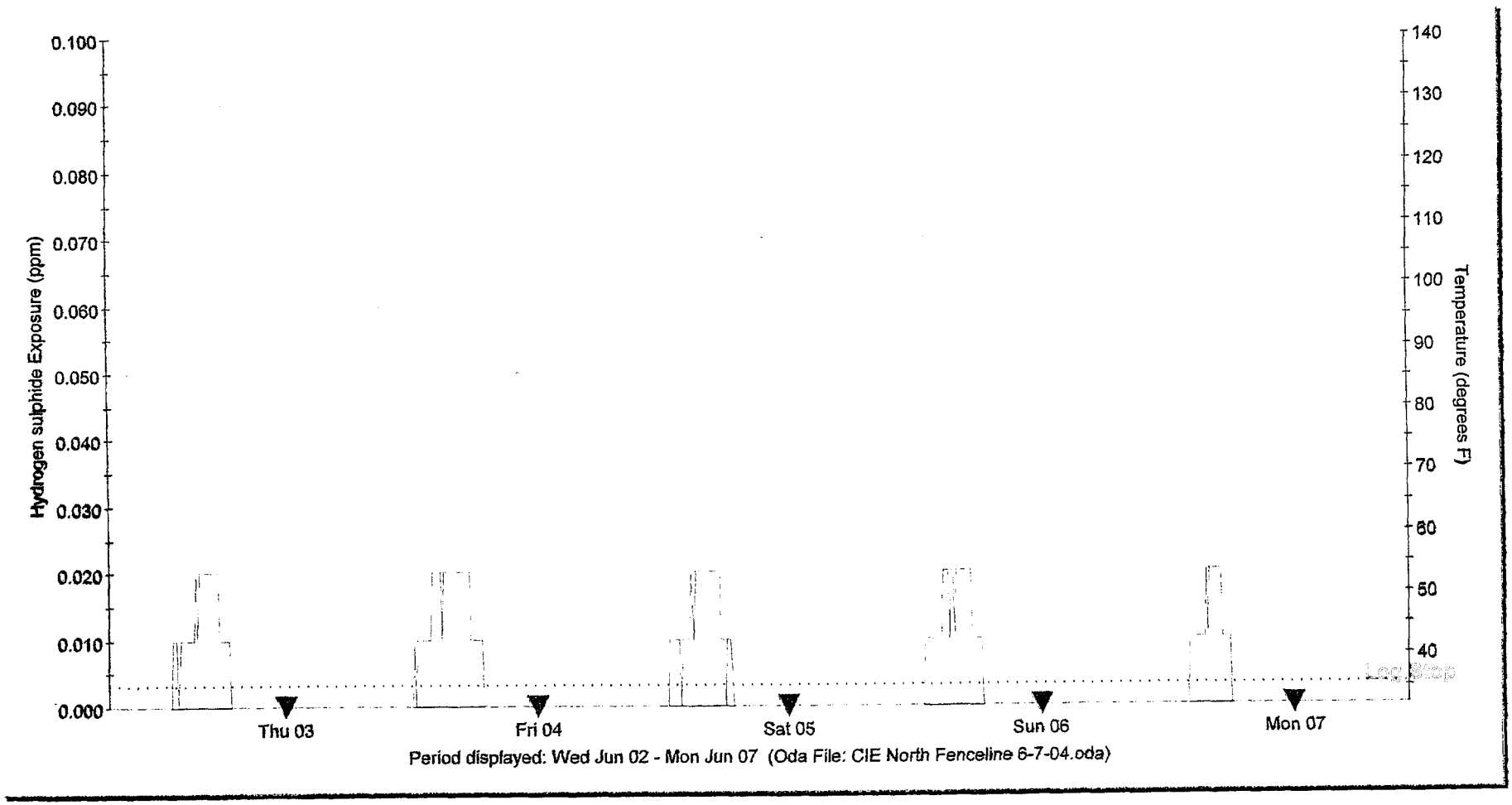
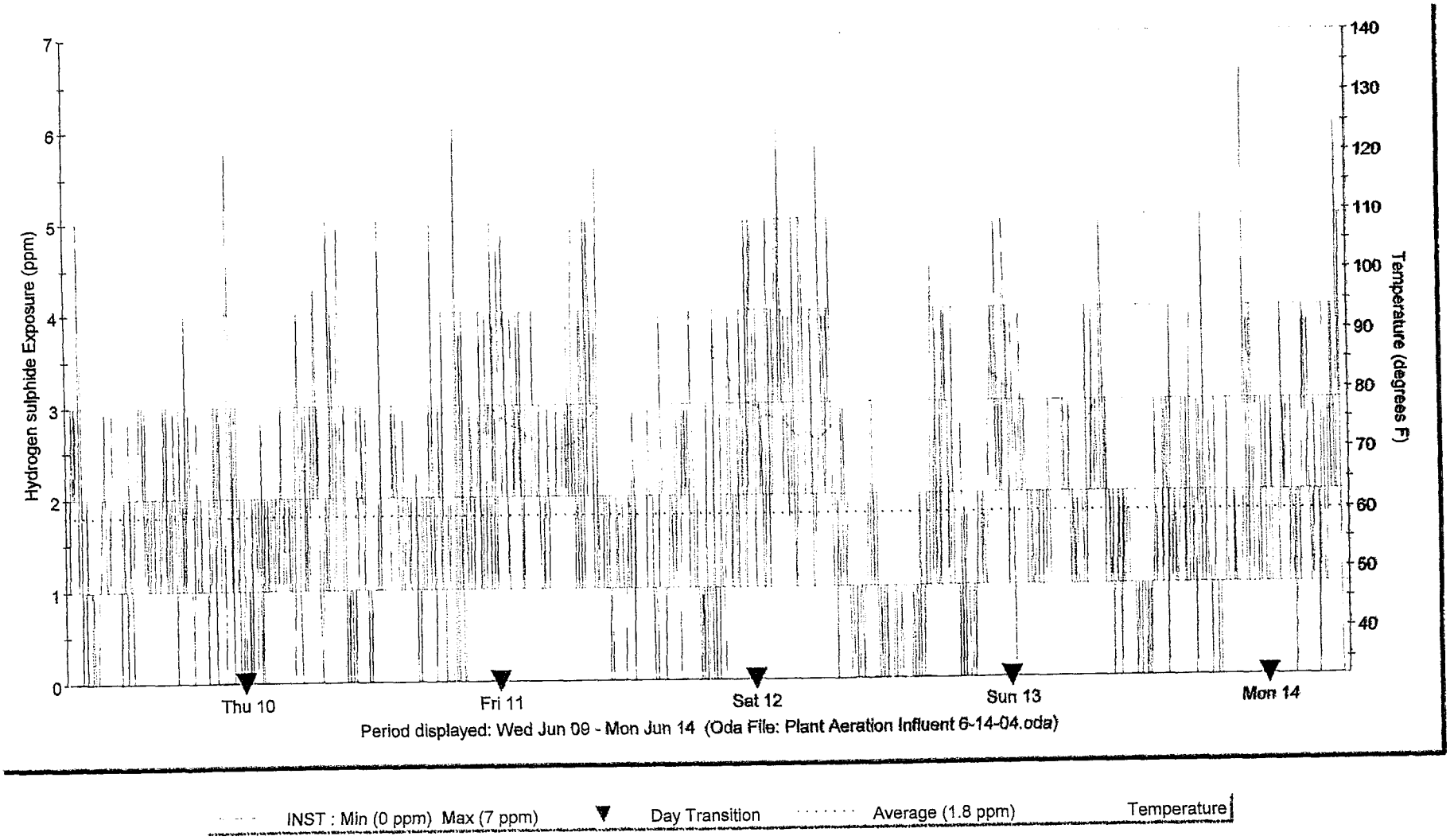


CIE Fenceline Monitoring (OdaLog: OL50083533)



INST : Min (0.00 ppm) Max (0.02 ppm) ▼ Day Transition ····· Average (0.003 ppm) — · — Alarm (INST - High) Event Temperature

- Session: 1 (OdaLog: OL05113658)



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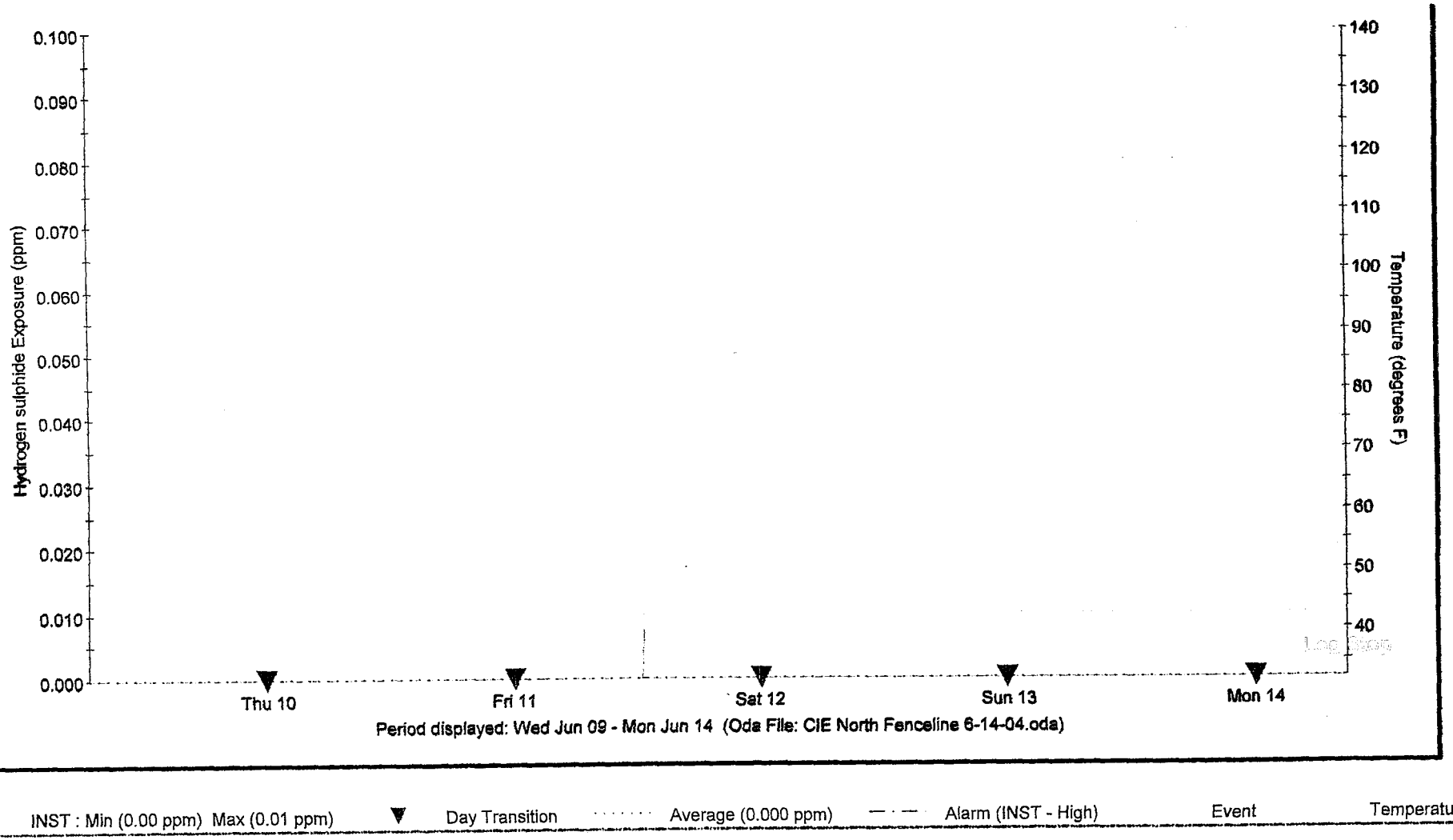

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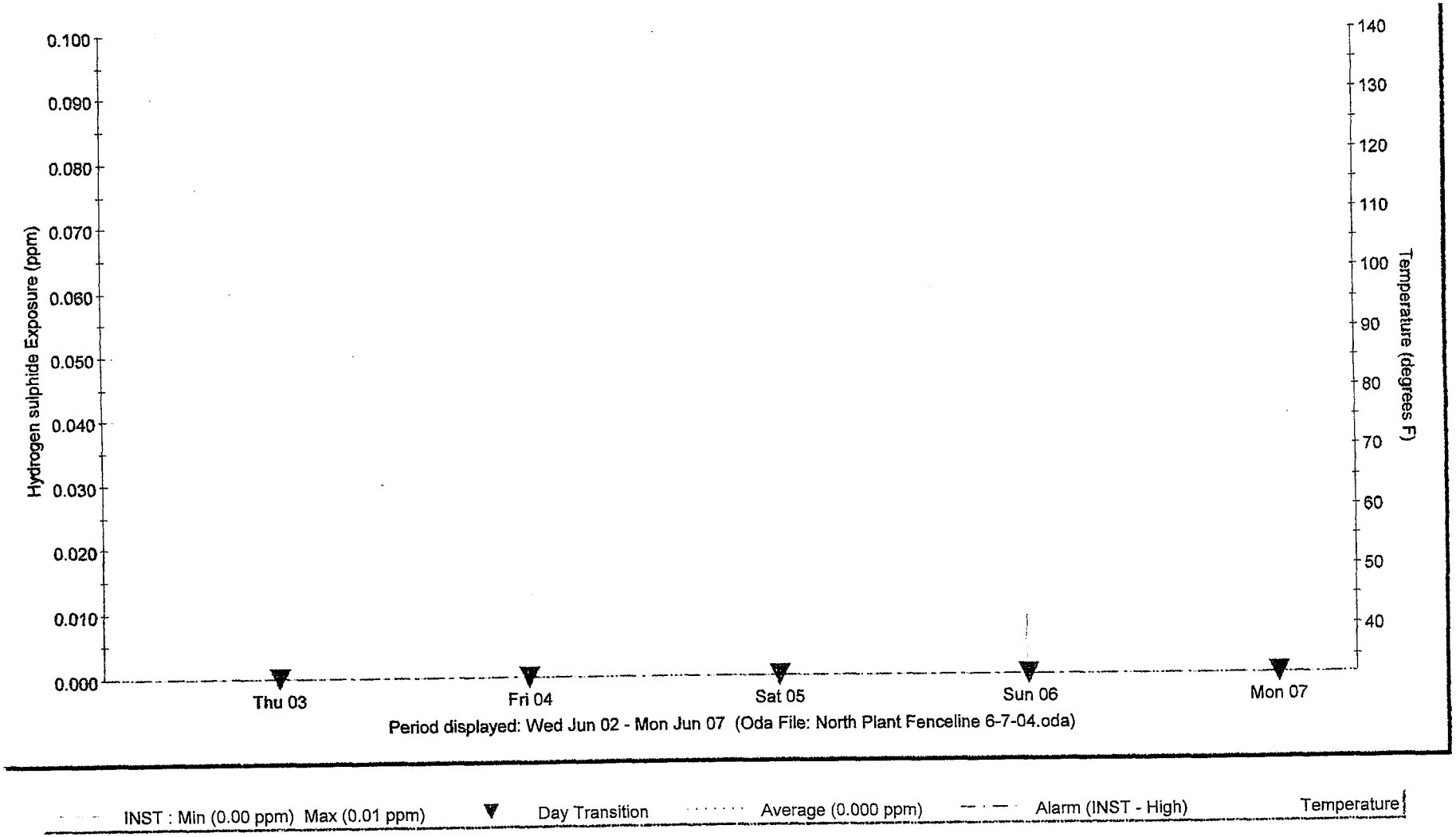
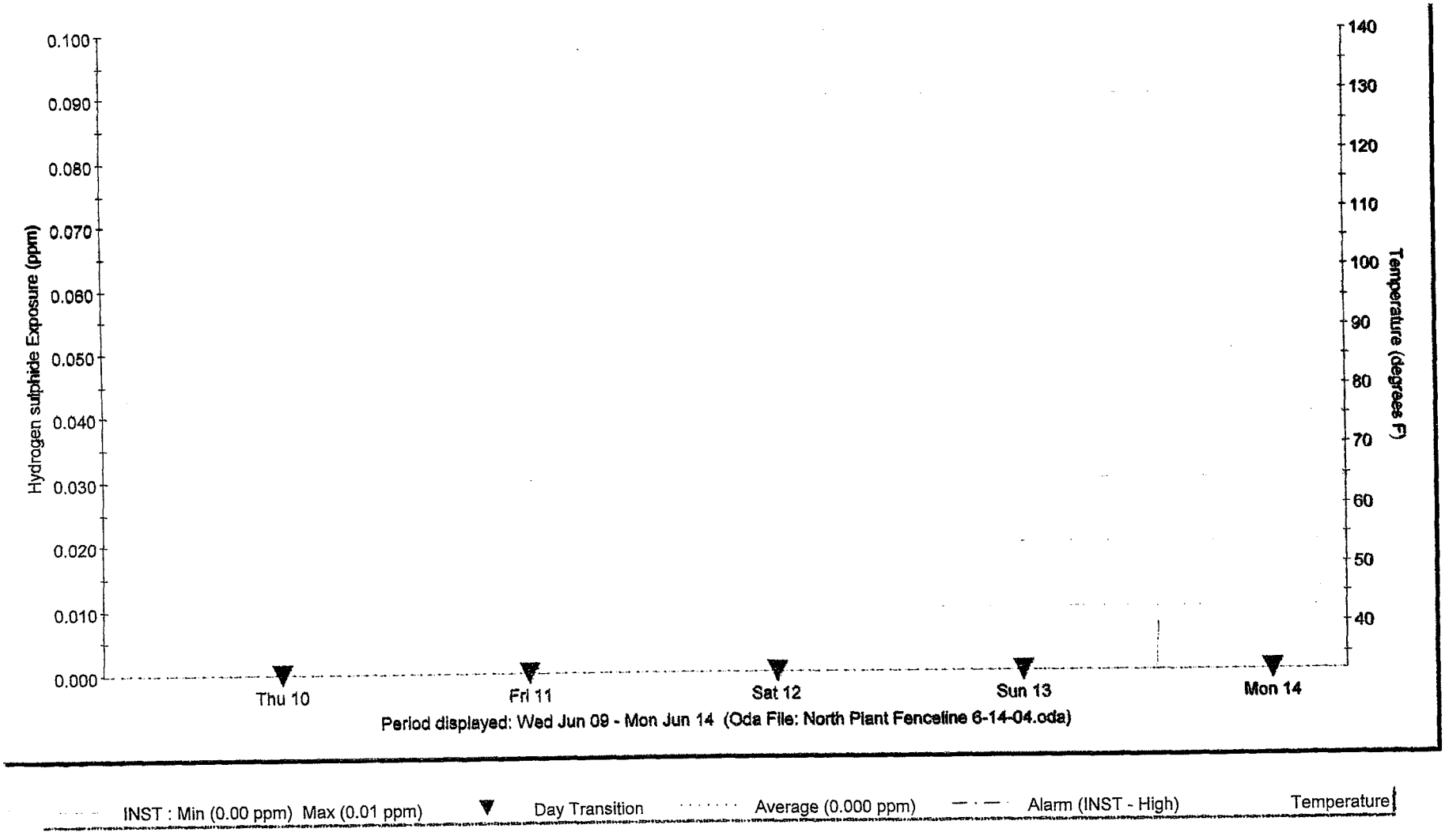
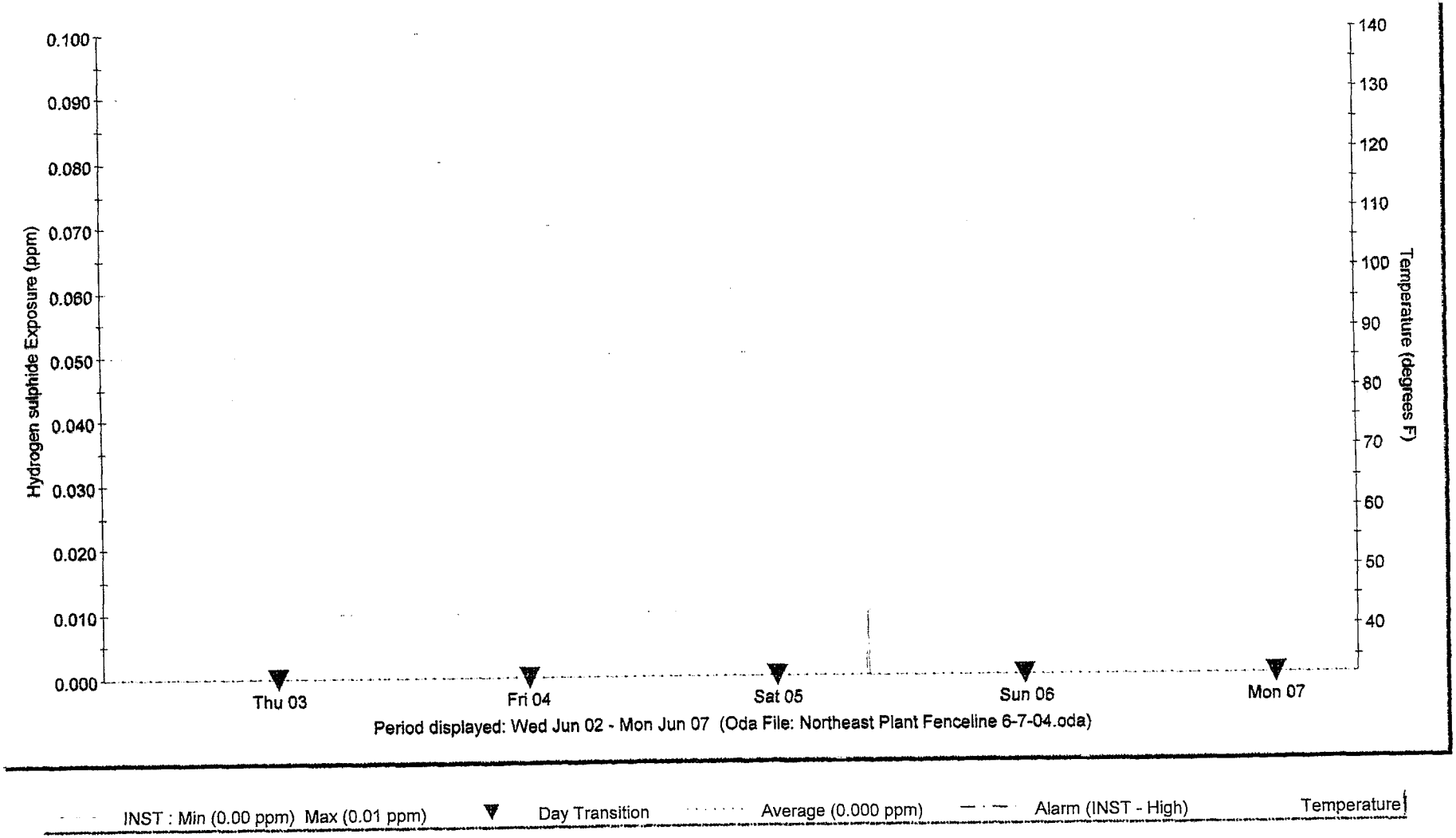


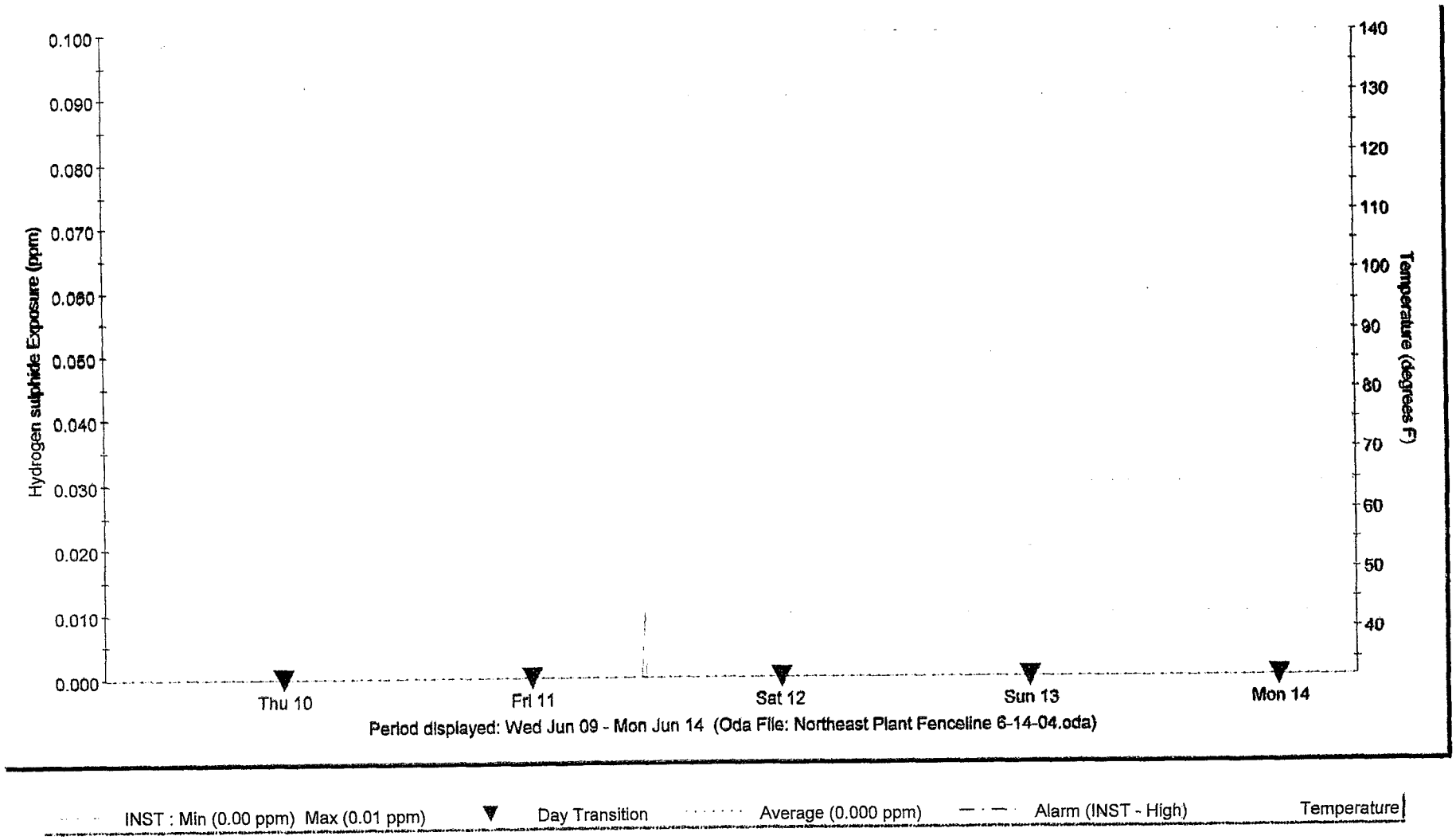
North Plant Fenceline Monitoring (OdaLog: OL50083533)



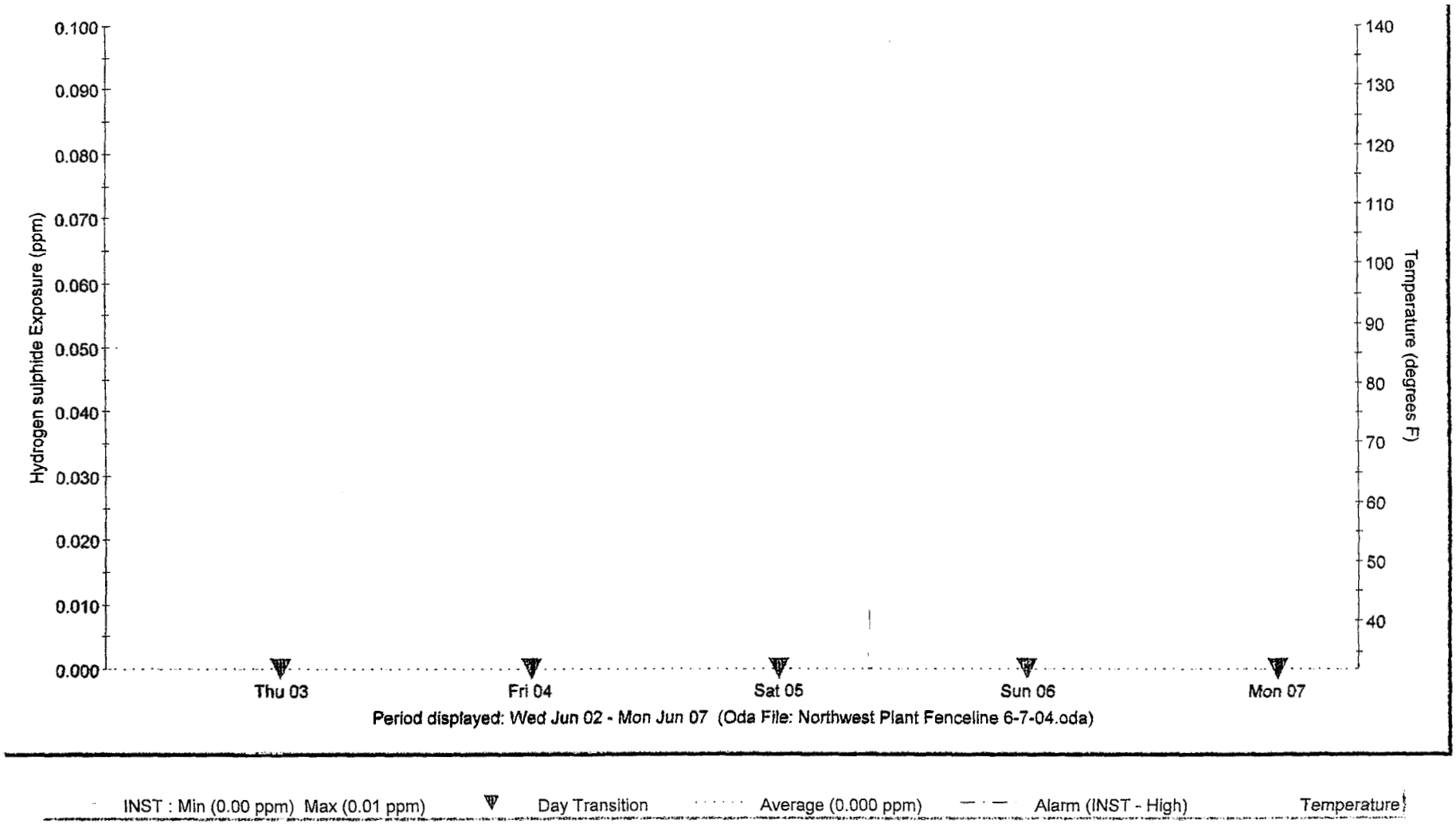
Northeast Plant Fenceline Monitoring (OdaLog: OL50073521)



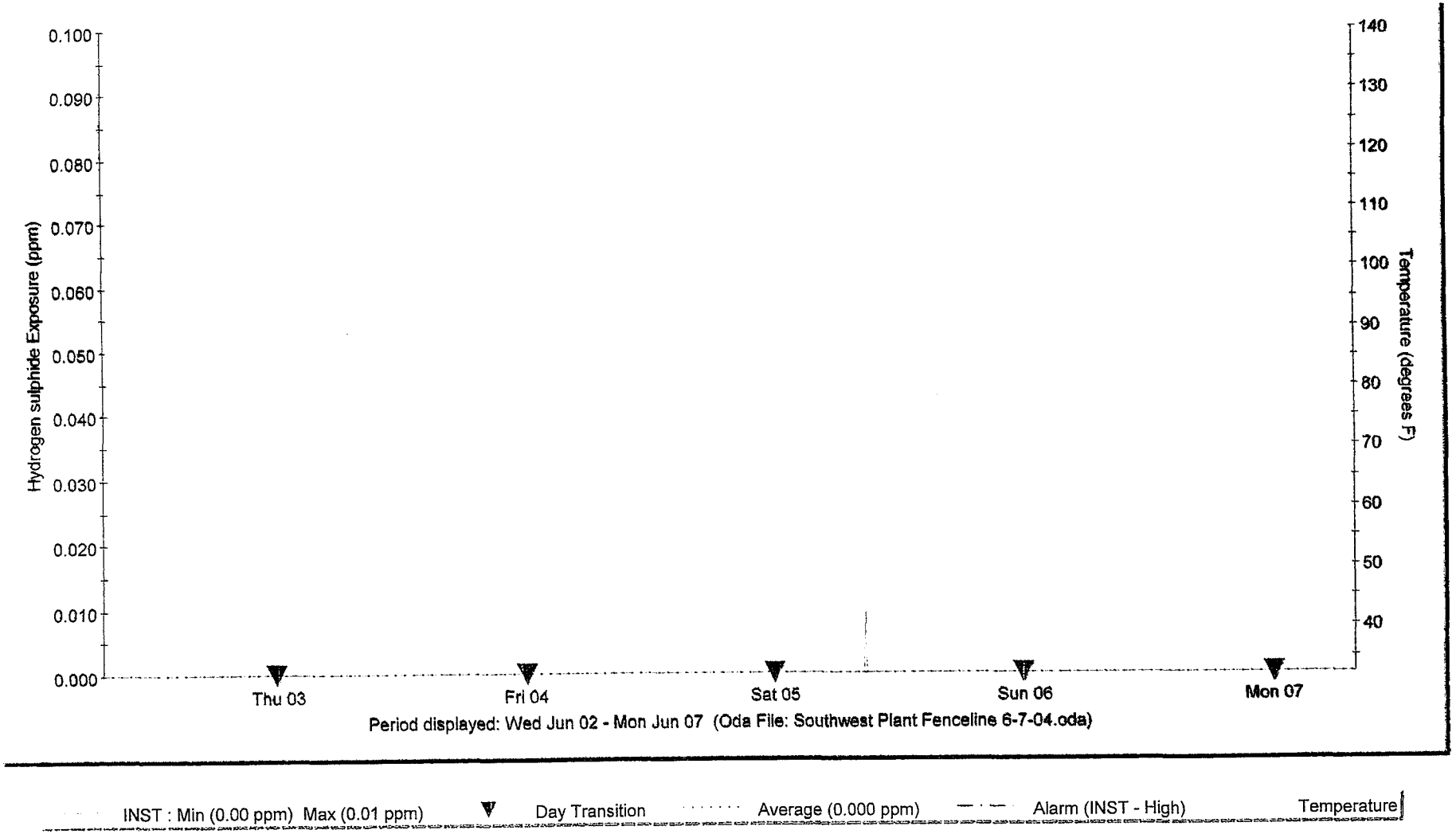
Northeast Plant Fenceline Monitoring (OdaLog: OL50073521)



Northwest Plant Fenceline Monitoring (OdaLog: OL50073521)



Southwest Plant Fenceline Monitoring (OdaLog: OL50073521)



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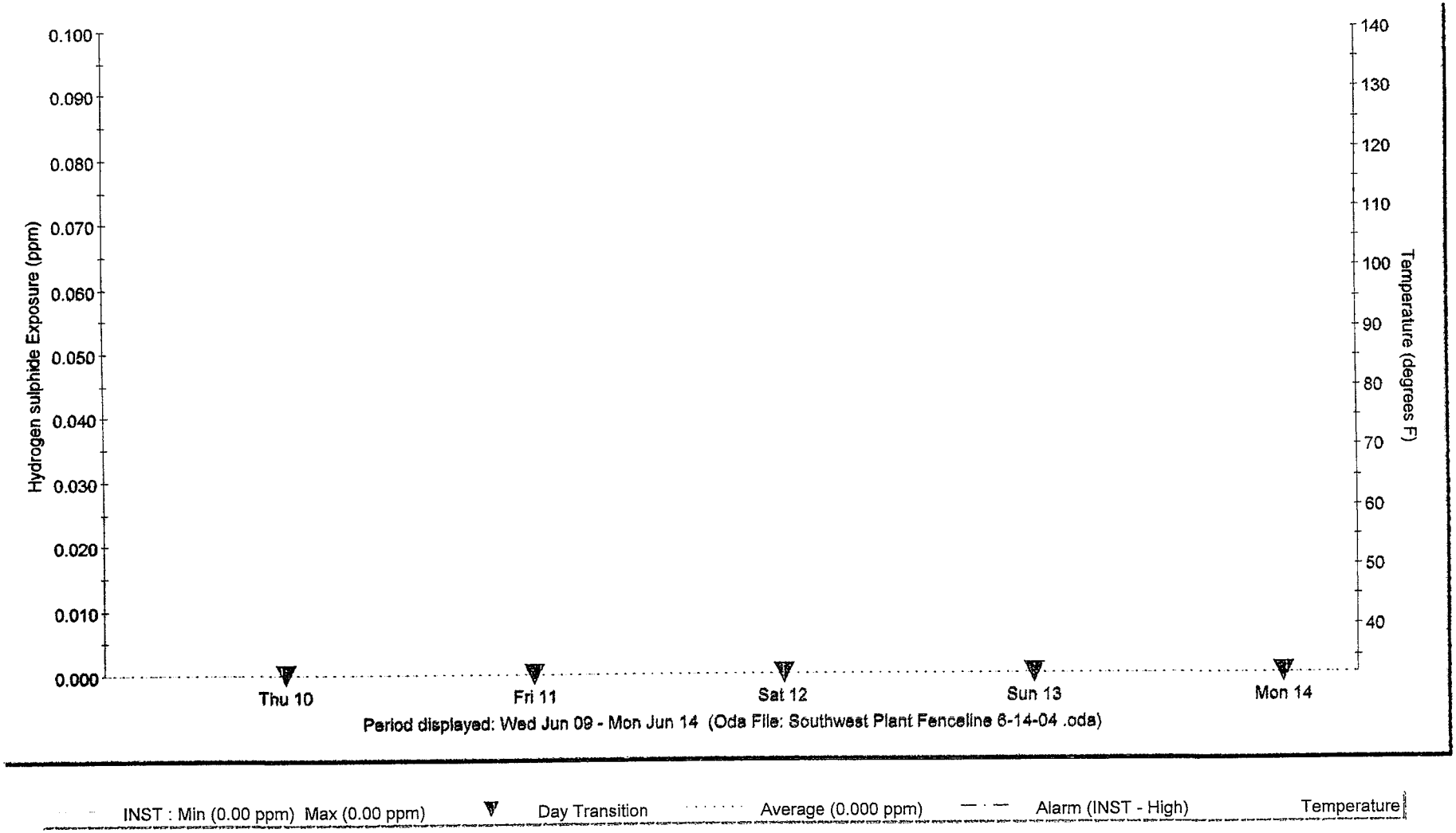
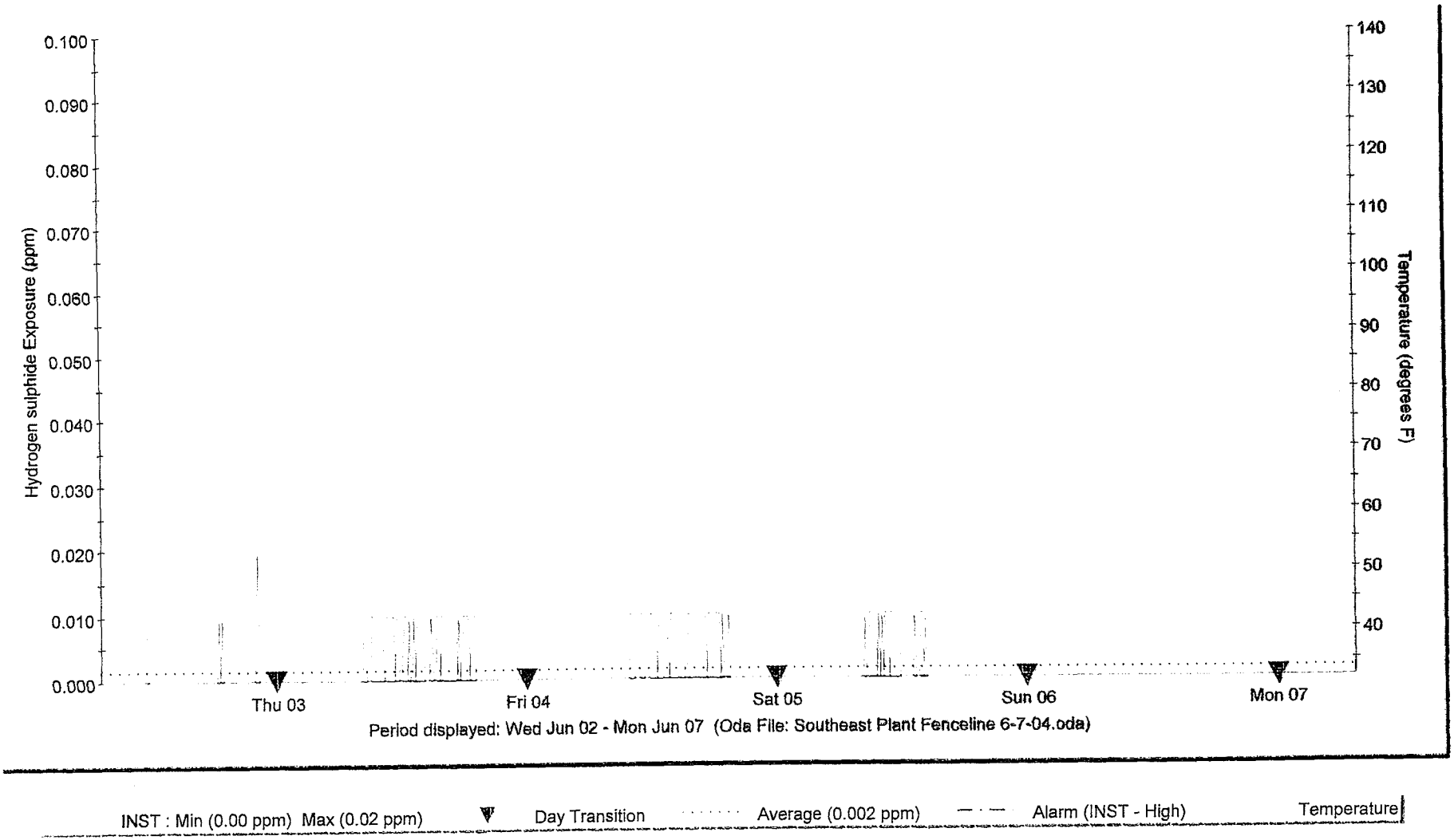
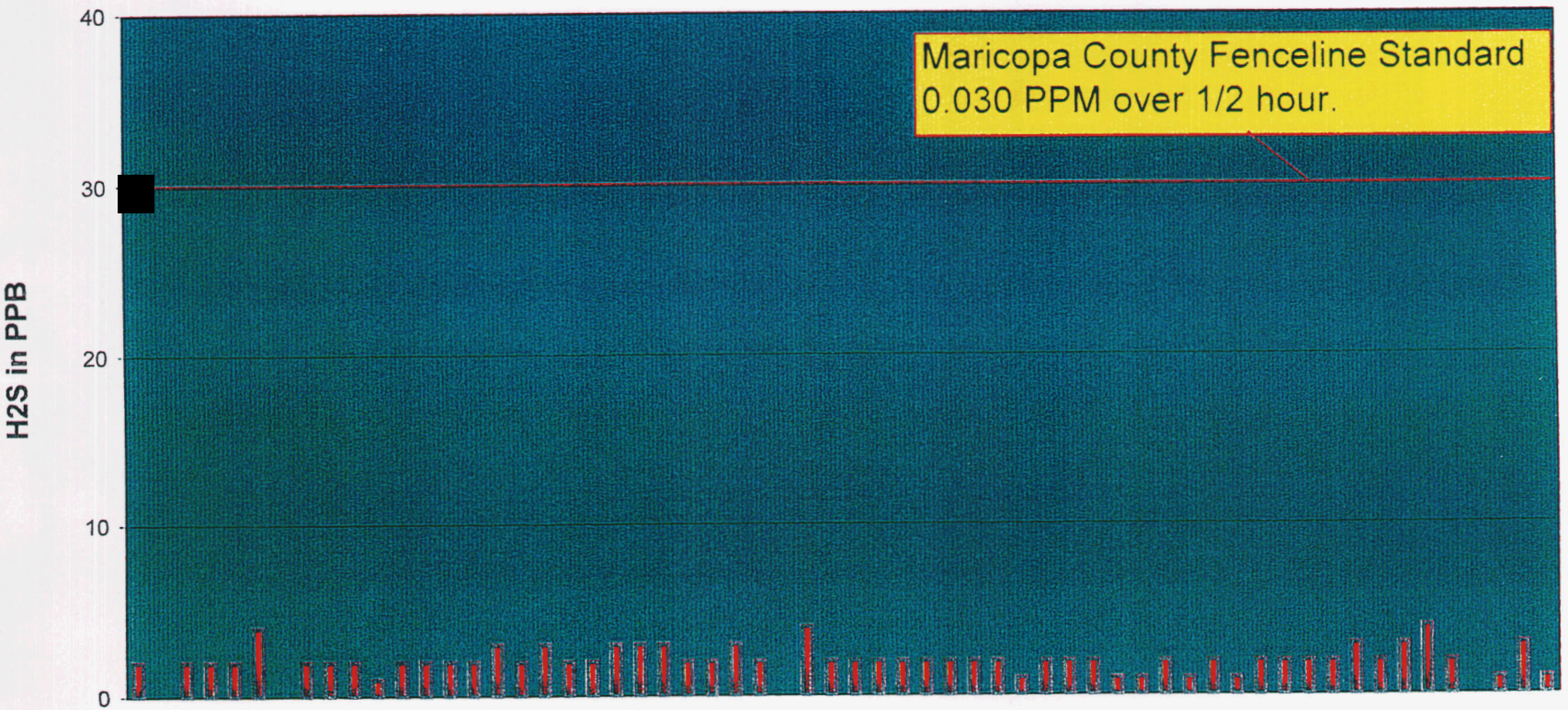


Southeast Plant Fenceline (OdaLog: OL50044578)



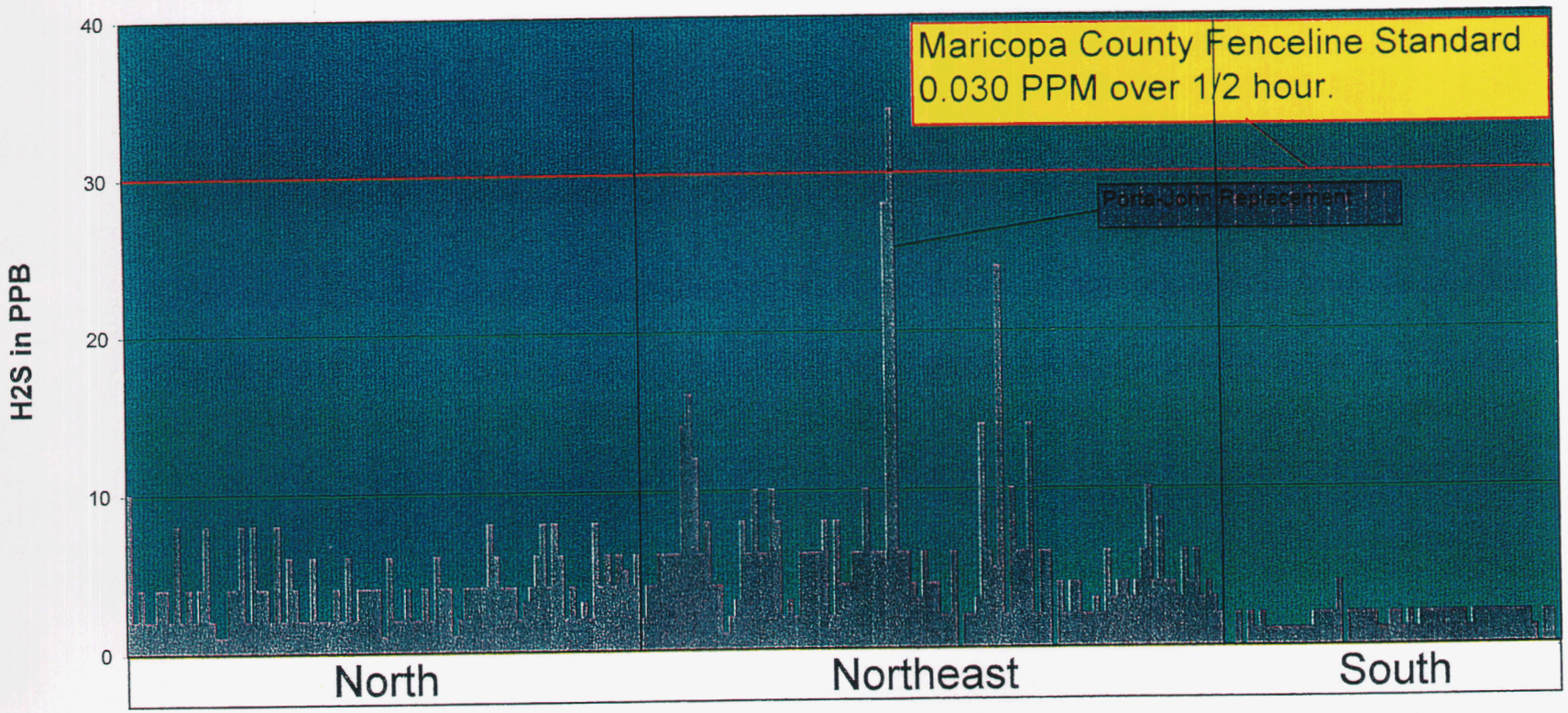
CIE Lift Station Fenceline Hydrogen Sulfide Concentrations

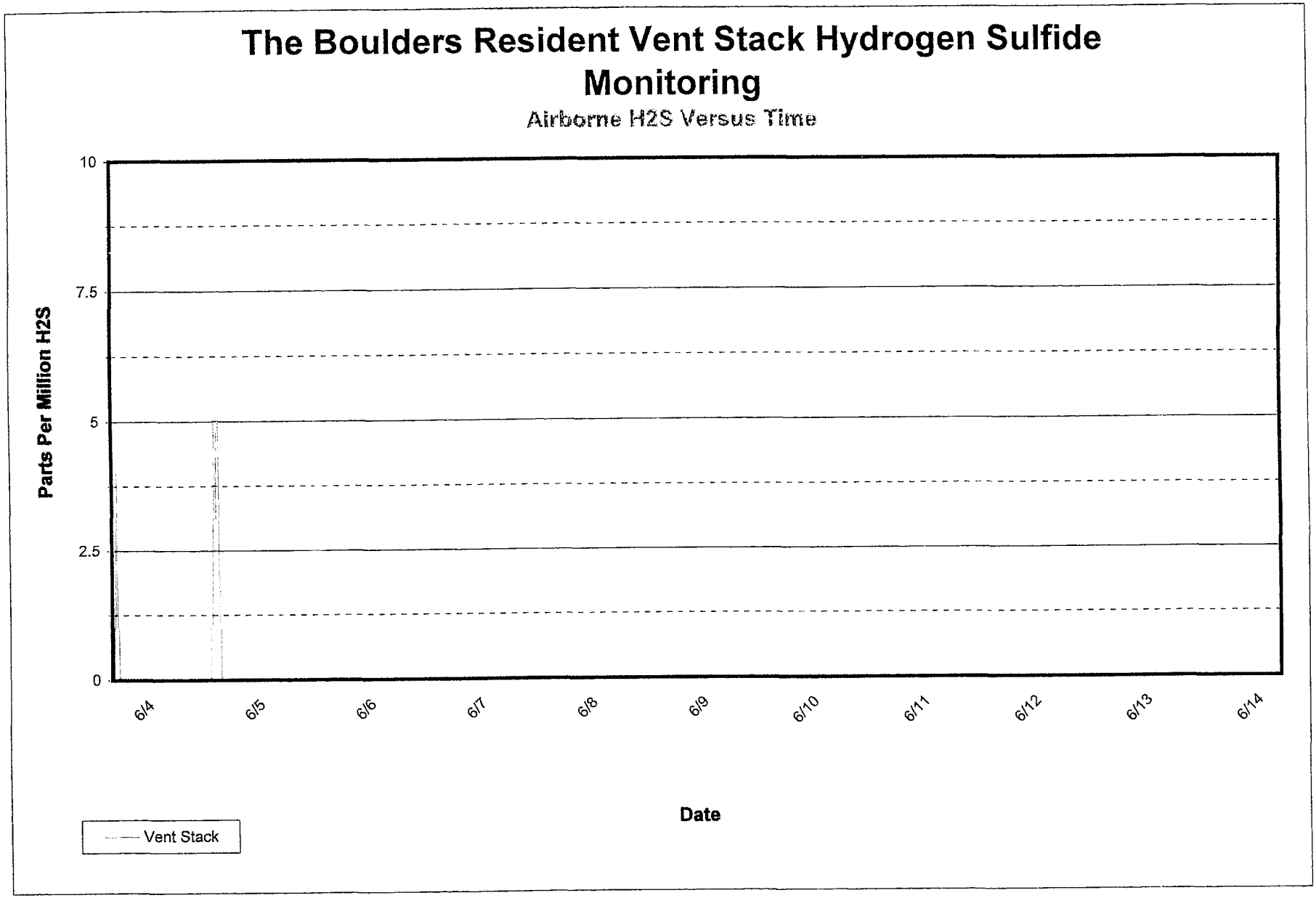
PPM H2S Versus Fenceline



The Boulders WRF Fenceline Hydrogen Sulfide Concentrations

PPM H2S Versus Fenceline




The Boulders Resident Vent Stack Hydrogen Sulfide Monitoring
Airborne H2S Versus Time
Parts Per Million H2S
10
7.5
5
2.5
0
6/4
6/5
6/6
6/7
6/8
6/9
6/10
6/11
6/12
6/13
6/14
Date
Vent Stack

ATTACHMENT – G

PHASE-III
ODOR CONTROL STUDY
LTS INC.

LTS, INC.
5102 SOUTH FERN COURT
CHANDLER, AZ 85248

Odor and Hydrogen Sulfide Monitoring Specialists Since 1991

TOWN OF CAREFREE

SEWAGE COLLECTION AND CONVEYANCE SYSTEM

AND THE BOULDERS WATER RECLAMATION FACILITY

ODOR AND HYDROGEN SULFIDE

PHASE 3 STUDY

Performed for Black Mountain Sewer Company

Final Draft Report

November 1, 2004

Lamb Technical Services, Inc. 5102 South Fern Court, Chandler, AZ 85248 Phone 480-802-2789 Fax 480-802-2790 elambits@msn.com

EXECUTIVE SUMMARY

Background

On March 12, 2004, Black Mountain Sewer Company (BMSC) requested that Lamb Technical Services, Inc. (LTS) review the status of odor control of the sewage collection and conveyance system and the associated treatment plant located in The Boulders development in Carefree, AZ. The odor situation that BMSC inherited eighteen months ago has been an ongoing problem for the community for some time.

The goal for the facility is to reduce the emissions of hydrogen sulfide to levels below the Maricopa County standard of 0.030 PPM for 30 minutes, to as close as possible to the detection threshold of the human nose of 0.008 PPM (based on the 1979 study by the California Air Resources Board odor evaluation).

As stated in the Phase Two report, LTS and Joel Wade, Engineering Manager for BMSC, spent the morning reviewing the condition of each area, and a detailed explanation of past odor problems was presented to LTS. BMSC also discussed some of the short-term solutions that had been implemented to reduce or eliminate past odor emission problems which the residents had been experiencing in many areas of Carefree. The Phase Two study was designed to perform a thorough odor evaluation by providing hydrogen sulfide (H_2S) data at multiple sewer line, fenceline, and in-plant locations, and analyzing the associated risks of odor emissions from each location. LTS also was asked to recommend any further action that Black Mountain Sewer Company might implement to further reduce the odor emissions from the treatment facility and its associated collection lines. This study is the next phase to evaluate improvements at the water reclamation facility and at the CIE lift station.

Some of the recommendations made in Phase Two should be revisited as new information is being collected on additional pump stations that were not evaluated in the Phase Two study. The initial recommendations made after Phase Two were a larger multi-stage scrubber that would draw from multiple sources, headworks, Parshall Flume, aeration basins, and a re-designed structure for the force mains to discharge into to reduce inlet turbulence to the facility. Although this is still a valid approach, BMSC has looked at other alternatives with significant success. This will be discussed further in the report. LTS also recommended to BMSC to continue pre-treating the incoming sewage from all of the lift stations (with the exception of the CIE lift station as it is being treated by the commercial lift station chemical feed system) with Thioguard as it has proven to be very effective at controlling hydrogen sulfide concentrations both at the wetwells and at the force main discharge locations.

Phase 3 Data Review

Collection Lines and Pump Station Evaluation

A follow-up evaluation was performed in September 2004 to evaluate a temporary chemical feed station at the Indian Rock lift station, to determine the effectiveness of magnesium hydroxide (Thioguard) at controlling the hydrogen sulfide concentrations at the wetwell of the lift station and at the force main discharge location at Quartz and Boulder Drive. The force main location has been a source of high hydrogen sulfide concentrations for some time, as without upstream chemical treatment, levels often exceeded 700 PPM.

BMSC installed two Odalog hydrogen sulfide analyzers, one in the Indian Rock wetwell and the other at the force main discharge location at Quartz and Boulder Drive. Thioguard was recently added for additional chemical treatment upstream at the Sagebrush lift station. Test data showed a significant reduction in hydrogen sulfide emissions at the downstream monitoring location at the Indian Rock lift station, and at the force main discharge point at Quartz & Boulder Drive when Thioguard was injected upstream at the Sagebrush lift station wetwell.

Thioguard chemical addition dropped the hydrogen sulfide concentrations from peaks of over 40 PPM and averages of 15-20 PPM, down to an average of below 1.0 PPM, with no peaks recorded above 1 PPM. This indicates that the Thioguard did an excellent job in controlling the hydrogen sulfide concentrations at the force main discharge location when it was added to the Sagebrush lift station wetwell.

Test data at the Indian Rock wetwell showed a slower response in reducing the hydrogen sulfide concentrations, and there was even a short period of increase after the Thioguard was added on Thursday September 26th. But as the highest concentrations were recorded after a weekend, it appeared that the higher values may have been part of the flow reduction normally seen on weekends in sewer systems, which often cause greater detention times in the system. After the initial increase, the wetwell began to show significant improvement, with concentrations dropping from peaks of 68 PPM and averages of 10 PPM, to averages of under 2.0 PPM and peaks of only 8.0 PPM. This translates to an 80% reduction with the addition of Thioguard at the Sagebrush lift station wetwell. With the current chemical feed location and previous improvements made at the Commercial lift station, hydrogen sulfide concentrations have been reduced at the main downstream discharge location at Boulder and Quartz Drive over 99%. Peaks were 701 PPM at this location with average hydrogen sulfide concentrations of 107 PPM when the system was operating without chemical feed. With both upstream wetwell locations feeding Thioguard, the main discharge location now has hydrogen sulfide peaks of only 1 PPM. The concentrations will probably increase somewhat in the summer as wastewater temperatures increase and hydrogen sulfide generation rates increase, but it is unlikely that they would rise dramatically, provided that the proper amount of chemical continues is added upstream at the two wetwell locations.

The Boulders WRF and CIE Lift Station Fenceline Evaluations

LTS performed four half-day evaluations at The Boulders WRF and at the CIE lift station in the month of October. A Jerome 631X hydrogen sulfide analyzer was used for this study. The analyzer has the capability to read between 0.003 PPM and 50.0 PPM. Five 30-minute tests were performed each day over four days; each test was performed at a different time of the day, morning, midday, and evening.

Test data at the water reclamation facility indicated that the average hydrogen sulfide concentration at the fenceline was under 0.002 PPM. The highest peak recerded was 0.006 PPM. Maricopa County's limits are 0.030 PPM over a 30-minute average. With the newly installed cover over the aeration basins and influent channels, significant reductions in hydrogen sulfide emissions have been seen. The only odor recorded at the facility was from the carbon adsorber where an amine-based odor still was being emitted from the stack.

Comparing the fenceline hydrogen sulfide data collected during this phase to the same locations before the covers were installed, there was an approximate 80% reduction in hydrogen sulfide emissions from the facility. Prior to the covers being installed, hydrogen sulfide concentrations averaged 0.010 PPM, with peaks of 0.024 PPM. During Phase Three, H_2S averages now ranged from 0.0007 to 0.0040 PPM, with peaks of 0.006 PPM. This is a significant improvement from the June test data.

A small amount of odor still was coming from the uncovered aeration basins, but it was not necessarily an offensive odor. The improved sealing on the aeration basins has allowed the carbon adsorber to create a greater negative pressure in the area under the covers, which is containing most of the odors.

At the CIE lift station, four 30-minute tests were performed, and LTS received similar results to the water reclamation facility. LTS recorded peaks of only 0.004 PPM and averages under 0.002 PPM. No odors were observed at the CIE lift station on any of the four visits to the pump station.

Recommendations

As the odors that are being emitted at the facility are no longer hydrogen sulfide (due to the covering of the aeration basins) and appear to be amine based odors, and as the carbon adsorber appears to be creating an adequate negative pressure at the headworks and on the aeration basins influent channels, an alternative option to the installation of a larger multi-stage scrubber is as follows.

LTS recommends that a pre-wash water spray be considered for the inlet of the carbon adsorber to remove the amine-based odors that are being generated by the facility, which are, at present, not able to be treated adequately by a typical carbon adsorber. This modification could be a permanent, or a temporary solution, based on the removal efficiency of the pre-wash scrubber. Odor panel testing should be done prior to the installation of the pre-wash system and then after, to determine the odor reduction achieved with the installation of the pre-wash scrubber. A larger, more sophisticated multi-stage system may still be required if odor removal is inadequate with a pre-wash system. LTS recommends that two initial samples be collected from the inlet and outlet of the carbon adsorber to determine what the current odor unit concentrations are, and then again after the modifications have been made to see if the improvements are adequate to make the facility odor-free.

Recommendations Continued

At Sagebrush lift station, LTS recommends that a permanent chemical feed system be installed to assist in controlling the odors at the Indian Rock lift station wetwell and at the force main discharge location at Boulder and Quartz Drive. Thioguard was very effective at controlling hydrogen sulfide releases at the discharge location and is the product that LTS recommends for this location. A significant improvement in hydrogen sulfide concentrations was recorded at the force main discharge location at Quartz and Boulder Drive when Thioguard was added at the Sagebrush lift station wetwell.

At the CIE lift station, there were no odors recorded by the Jerome 631X or noticed by Ed Lamb when he was testing at the pump station. Hydrogen sulfide emissions from this location were the same as during the Phase Two study, averaging 0.0020 PPM. LTS has no further recommendations to control odors at the lift station, although other aesthetic improvements might be made, such as eliminating the block fence, now that there is no odor removal system operating at the location. A lower profile cover also may be considered that could be surrounded by desert landscaping to hide the location from the neighbors and to make the lift station more aesthetically pleasing.

TEST DATA

The Boulders WRF Ambient-Air Fenceline Monitoring

Wind Direction: West to East @ 5-7 mph
October 6, 2004 – Time: 1:00 PM

NE Fenceline		NE Fenceline		NE Fenceline		NE Fenceline		NE Fenceline		NE Fenceline	
High	0.006	High	0.005	High	0.004	High	0.004	High	0.003	High	0.004
Low	0.002	Low	0.000	Low	0.002	Low	0.002	Low	0.002	Low	0.001
Avg.	0.0040	Avg.	0.0039	Avg.	0.0033	Avg.	0.0026	Avg.	0.0028	Avg.	0.0023

The Boulders WRF Ambient-Air Fenceline Monitoring

Wind Direction: Southwest to Northeast @ 1-5 mph
October 22, 2004 -- Time: 11:30 AM

NE Fenceline		NE Fenceline		NE Fenceline		NE Fenceline		NE Fenceline		NE Fenceline	
High	0.003	High	0.004	High	0.004	High	0.004	High	0.003	High	0.004
Low	0.000	Low	0.000	Low	0.000	Low	0.000	Low	0.001	Low	0.002
Avg.	0.0009	Avg.	0.0020	Avg.	0.0016	Avg.	0.0023	Avg.	0.0020	Avg.	0.0026

The Boulders WRF Ambient-Air Fenceline Monitoring

Wind Direction: Southwest to Northeast @ 3-5 mph
October 25, 2004 -- Time: 10:00 AM

NE Fenceline		NE Fenceline		NE Fenceline		NE Fenceline		NE Fenceline		NE Fenceline	
High	0.003	High	0.003	High	0.003	High	0.002	High	0.005	High	0.003
Low	0.000	Low	0.001	Low	0.002	Low	0.002	Low	0.000	Low	0.002
Avg.	0.0017	Avg.	0.0019	Avg.	0.0020	Avg.	0.0020	Avg.	0.0024	Avg.	0.0026

The Boulders WRF Ambient-Air Fenceline Monitoring

Wind Direction: Southwest to Northeast @ 3-5 mph
October 26, 2004 -- Time: 10:00 AM

NE Fenceline		NE Fenceline		NE Fenceline		NE Fenceline		NE Fenceline		NE Fenceline	
High	0.006	High	0.002	High	0.001	High	0.001	High	0.002	High	0.002
Low	0.000	Low	0.000	Low	0.000	Low	0.000	Low	0.000	Low	0.000
Avg.	0.0011	Avg.	0.0007	Avg.	0.0006	Avg.	0.0009	Avg.	0.0011	Avg.	0.0009

TEST DATA CONTINUED

CIE Lift Station Ambient-Air Fenceline Monitoring

All Readings Taken Downwind of the Pump Station
October 6, 2004 - October 26, 2004

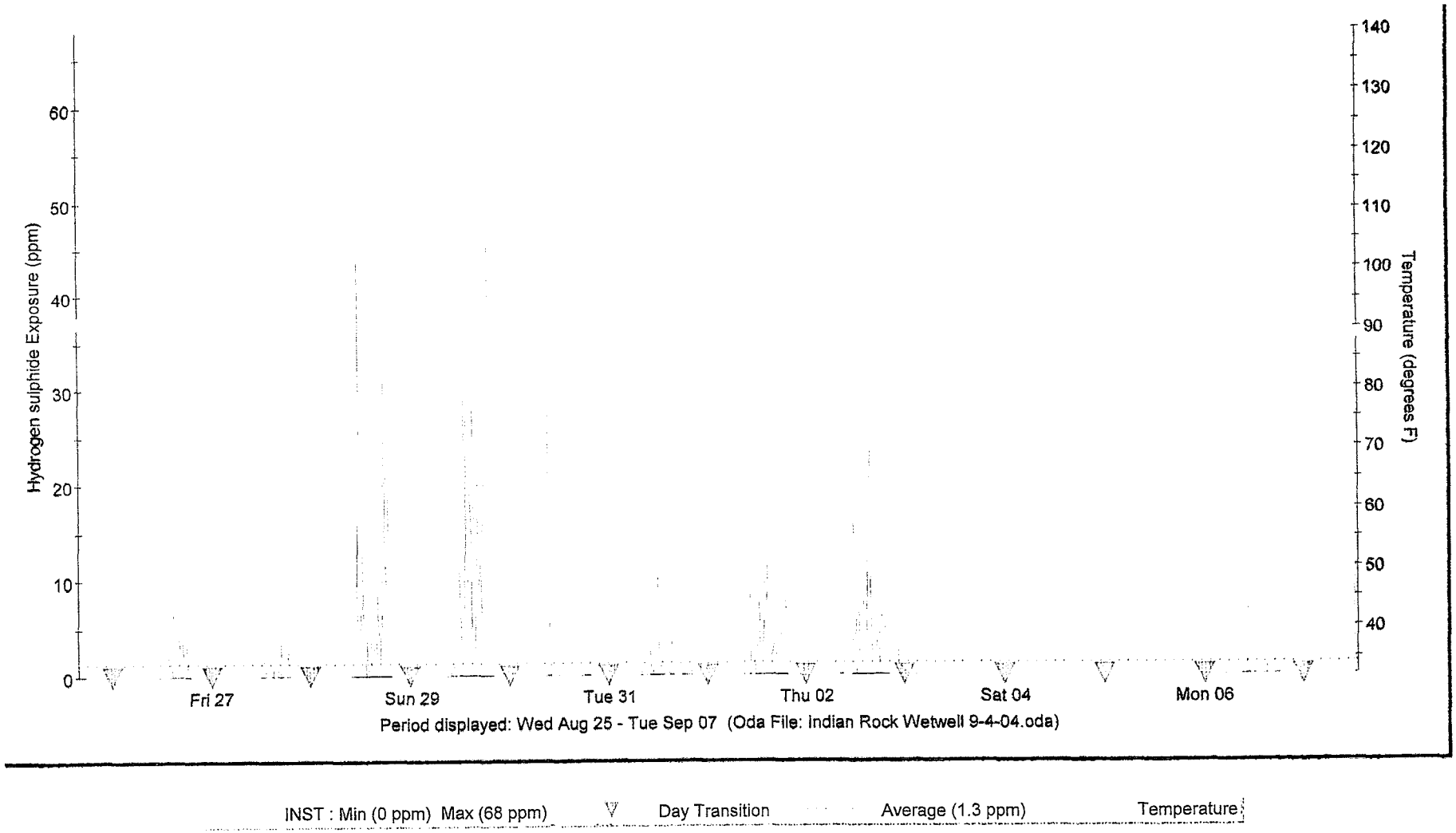
Test Dates and Times:

10/6/04 3:00 PM
10/22/04 3:30 PM
10/25/04 2:00 PM
10/26/04 7:30 PM

CIE Fenceline		CIE Fenceline		CIE Fenceline		CIE Fenceline	
High	0.003	High	0.004	High	0.003	High	0.002
Low	0.002	Low	0.002	Low	0.002	Low	0.000
Avg.	0.0028	Avg.	0.0026	Avg.	0.0026	Avg.	0.0012

#

- Session: 1 (OdaLog: OL45093434)



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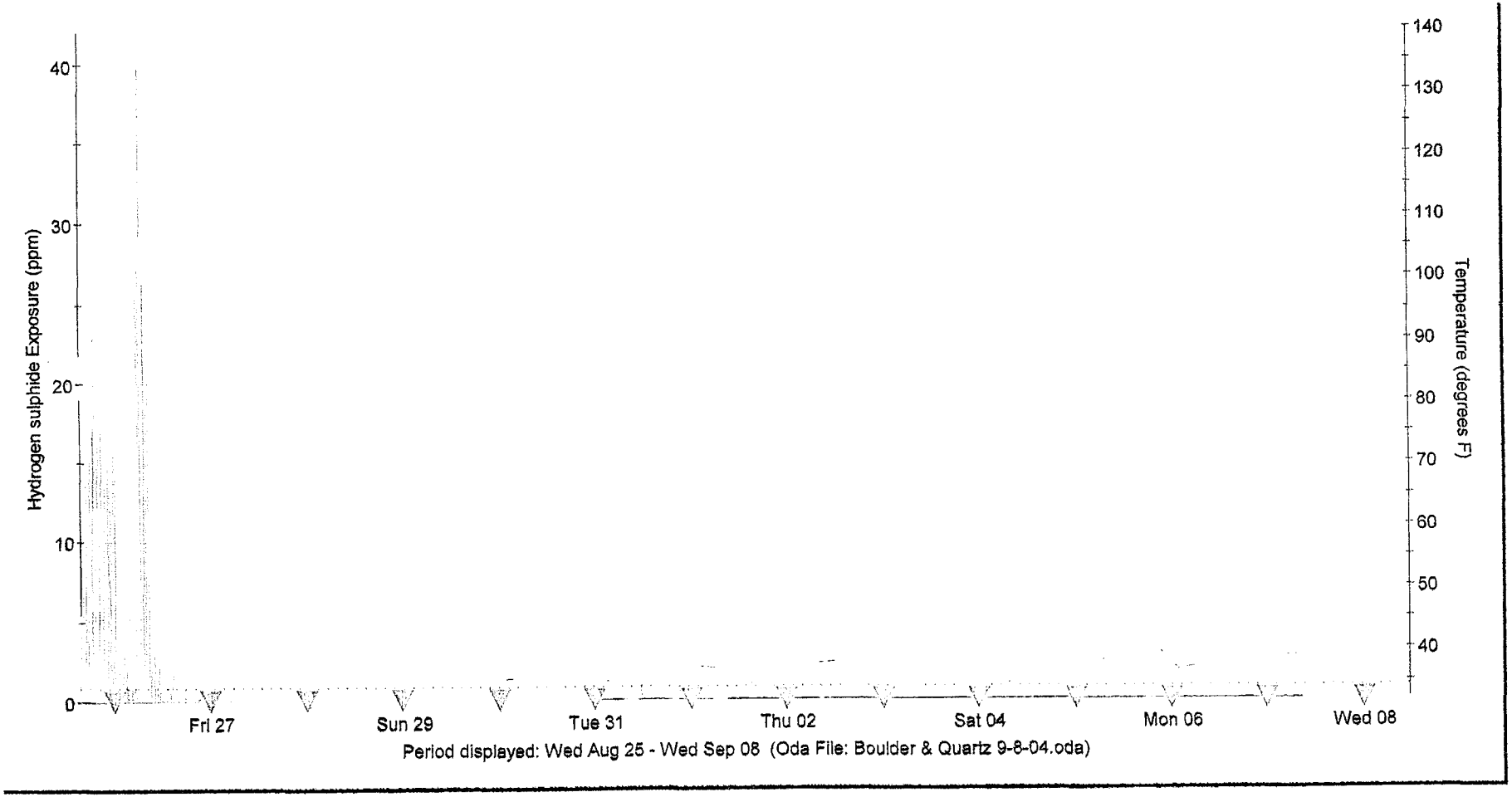
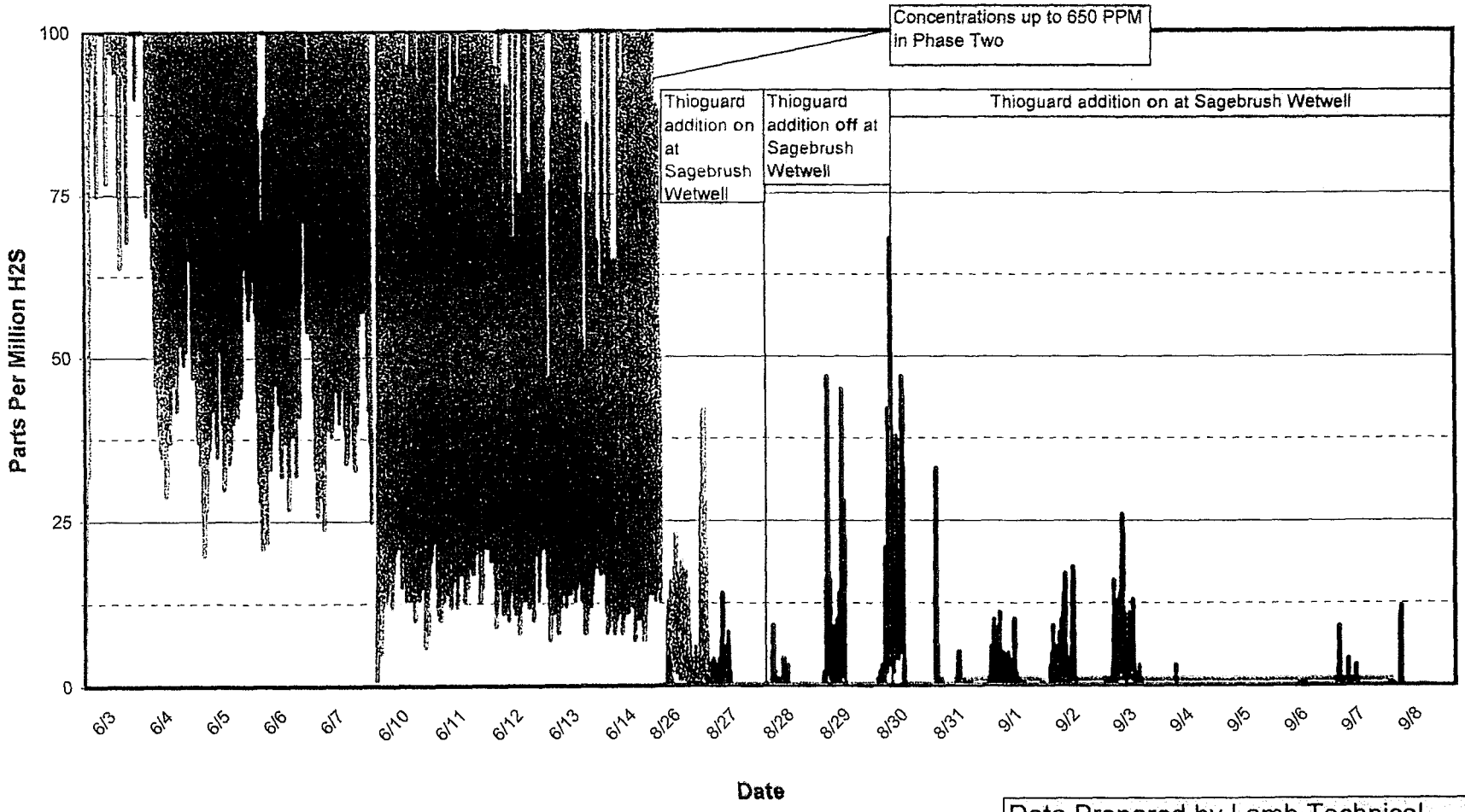


The Boulders WRF Boulder & Quartz Force Main Discharge Collection Line Monitoring

Airborne H2S Versus Time



Data Prepared by Lamb Technical Services, Inc. 11/1/04

TOWN OF CAREFREE

SEWAGE COLLECTION AND CONVEYANCE SYSTEM

AND THE BOULDERS WATER RECLAMATION FACILITY

AIRFLOW AND AIR BALANCING REPORT

PHASE 4

Performed for Black Mountain Sewer Company

Final Draft Report

February 18, 2005

EXECUTIVE SUMMARY

Airflows were measured using a hot-wire anemometer with accuracies of 25 ft. per minute. Holes were drilled into the PVC ductwork at the straightest and "longest run" sample location possible to provide accurate airflow measurements. Each duct was sampled for air velocity and the small gate valves located on each drop leg were adjusted to provide equal, yet maximum airflow rates between all of the drop legs of the influent channels and aeration basins. LTS also recorded airflow rates and pressures in the aeration basins and from the headworks facility as part of this evaluation. Test data is shown below.

Non-adjusted Airflow Rates

Aeration Basin
3" PVC ductwork drops number 1-8 which run from North to South.

Drop 1	800 ft/min	Drop 1 = 39 CFM
Drop 2	1,100 ft/min.	Drop 2 = 54 CFM
Drop 3	1,300 ft/min.	Drop 3 = 64 CFM
Drop 4	1,800 ft./min	Drop 4 = 88 CFM
Drop 5	1,700 ft/min.	Drop 5 = 83 CFM
Drop 6	1,250 ft./min	Drop 6 = 61 CFM
Drop 7	850 ft/min	Drop 7 = 42 CFM
Drop 8	600 ft/min.	Drop 8 = 29 CFM
TOTAL		**460 CFM**
Headworks Leg 1-6" duct	2,300 ft/min.	Headworks Leg = 451 CFM

TOTAL SYSTEM AIRFLOW = 911 CFM

Modified Airflow Rates

Aeration Basin
3" PVC ductwork drops number 1-8 which run to North to South.

Drop 1	1,050 ft/min	Drop 1 = 52 CFM
Drop 2	1,050 ft/min.	Drop 2 = 52 CFM
Drop 3	1,050 ft/min.	Drop 3 = 52 CFM
Drop 4	1,050 ft./min	Drop 4 = 52 CFM
Drop 5	1,050 ft/min.	Drop 5 = 52 CFM
Drop 6	1,050 ft./min	Drop 6 = 52 CFM
Drop 7	1,050 ft/min	Drop 7 = 52 CFM
Drop 8	950 ft/min.	Drop 8 = 47 CFM
TOTAL		**411 CFM**
Headworks drop duct 1-6" duct	2,600 ft/min.	Headworks duct flow = 510 CFM
TOTAL SYSTEM AIRFLOW	**921 CFM**	

Conclusions: The carbon adsorber is a six-foot-diameter vessel with three feet of carbon media within the vessel. Most carbon adsorbers have outlet hydrogen sulfide concentrations below 0.010 PPM if operating properly, with concentrations up to 10.0 PPM. The carbon adsorber at the Boulders WRF was receiving inlet concentrations within a normal range which carbon adsorbtion systems are designed to treat. The outlet hydrogen sulfide concentrations were below the detection limit of the Jerome 631X Hydrogen Sulfide Analyzer, reading 0.000 PPM. The airflow rate and negative pressures are very low or non-existent. We would prefer negative pressures of -0/02 in./WC on the aeration basins and in the headworks facility to prevent the risk of fugitive emissions. With negative pressures below -0.02 in./WC, wind and process changes can easily force odors out of any cracks or openings in the structures and could cause unwanted odor releases; anything above -0.02 in./WC of negative pressure makes odor releases unlikely.

With the system operating at 921 CFM (which is probably what this system is rated for), greater negative pressures cannot be achieved. A larger air extraction fan and scrubber system would be required to create greater negative pressures with higher air extraction rates. If it is deemed necessary, Black Mountain Sewer Co. should schedule any air handling improvement with future scrubber upgrades. If Black Mountain Sewer chooses to replace the odor scrubber, or add onto the existing carbon adsorber, an additional carbon adsorber could be added in parallel to the existing unit, or a single new carbon vessel could be supplied to be matched with the packed tower odor scrubber. With two different technologies removing different odorous compounds greater odor control can be achieved.

On the pickup and inlet ductwork, airflow rates were adjusted to the maximum rate possible with equal airflows to each of the influent channel pickups. No adjustment to the headworks duct was made. Air pressures were below detection level in all locations tested, including aeration basin influent channels and multiple locations on the aeration basins and within the headworks facility. It was clear, however, that some negative pressure was present in the headworks building, based on the direction of airflow on the western vent window.

LTS still recommends that, at some point in the future, an odor panel test be performed on the carbon adsorber outlet to determine the level of odor that is being emitted by the odor removal system. A slightly musty odor that is not hydrogen sulfide is still being emitted from the carbon adsorber. Also, based on the lack of negative pressure, increased airflow with an additional system, or a completely different odor control unit may be warranted to provide better control of fugitive emissions due to lack of negative pressures in each of these odorous locations.

TOWN OF CAREFREE

THE BOULDERS WATER RECLAMATION FACILITY

ODOR AND HYDROGEN SULFIDE

PHASE 5 STUDY

Performed for Black Mountain Sewer Company

Final Draft Report

April 20, 2005

EXECUTIVE SUMMARY

Background

In March, 2005, Black Mountain Sewer Company (BMSC) requested that Lamb Technical Services, Inc. (LTS) review the status of odor control system at the Boulders WRF, located in The Boulders development in Carefree, AZ. BMSC, in their ongoing evaluation of the odor concerns that the Town of Carefree has had in the past, requested that this study be performed. Most of the other odor sources were either eliminated at the plant and in the collection system or reduced dramatically with either process improvements or improved chemical addition.

The ongoing goal for the facility is to continue to control the emissions of hydrogen sulfide to levels below the Maricopa County standard of 0.030 PPM for 30 minutes, to as close as possible to the detection threshold of the human nose of 0.008 PPM (based on the 1979 study by the California Air Resources Board odor evaluation).

The Phase Five study was designed to evaluate if odors other than hydrogen sulfide were being emitted from the carbon adsorber which treats the odorous air from the headworks and aeration basins at the facility. Previous studies already had proved that the carbon adsorber was removing almost 100% of the incoming hydrogen sulfide, but the system still had a slight odor coming from the stack. BMSC requested this evaluation to determine if other odorous compound were in fact passing through the system untreated, and at what level.

Phase 5 Data Review

The Boulders WRF Carbon Adsorber

LTS collected inlet and outlet odor panel samples in 10-liter Tedlar sample bags and had them sent priority overnight to St. Croix Sensory in Lake Elmo, MN for odor panel evaluations to be performed.

Test data at the inlet and the outlet of the carbon adsorber indicated that the average incoming odor concentration was recorded at 1,300 odor units. This level is consistent with hydrogen sulfide concentrations under 5 PPM, which indicates that the pretreatment chemicals being injected upstream in the collection system are reducing the hydrogen sulfide levels dramatically at the headworks of the plant.

The outlet odor concentrations were recorded at 100 odor units. Carbon adsorbers typically are under 50 odor units if they are removing all of the odors that would be collected and treated from an odor source. These data indicate that some non-hydrogen sulfide odorous compounds are passing through the carbon adsorber untreated. This further confirms LTS's opinion that an additional stage of treatment is necessary to remove all of the incoming odor compounds at the facility. Additionally, even after the air extraction ductwork was balanced to provide equal air extraction from the aeration basins, minimal negative pressure was being applied to the basins. LTS still believes that a larger, higher airflow multi-stage odor removal system would be the best approach to reducing the odor emissions from the facility.

Recommendations

LTS recommends that additional testing be performed on the carbon adsorber to evaluate the specific compounds coming from the headworks and aeration basins. This additional information will help to properly design an odor removal system to better capture the odorous gasses at the facility and provide better treatment of these compounds. TRS sampling and ammonia and amine sampling are the next steps LTS would recommend to further evaluate the compounds that may be originating from the facility.

At the same time, a follow-up fenceline evaluation also should be performed to collect additional data at the facility regarding hydrogen sulfide emissions, to make sure that the emission rate continues to be well under the 0.030 PPM hydrogen sulfide fenceline regulation in Maricopa County.

A short study should also be performed to follow up on the collection line improvements made over the last year to make sure that the improvements continue to provide excellent odor and hydrogen sulfide control. A one-week hydrogen sulfide evaluation at the headworks, the influent line, and the CIE and Commercial lift stations would provide an adequate snapshot of the condition of the system, and the level of effectiveness which the improvements have made over the last 12 months. These new data can be compared to previous data collected by LTS in 2003-2004 to provide an accurate picture of the reduction in hydrogen sulfide and odor emissions that were achieved with these improvements.

#

St. Croix Sensory, Inc.

Lamb Technical Services

Boulders WRF

Odor Evaluation Report

Report No. 507501

03/16/05

Data Release Authorization:

Deb Mathias

Deb Mathias
Laboratory Associate

Reviewed and Approved:

Charles M. McGinley, P.E.
Technical Director

St. Croix Sensory is a laboratory dedicated to practicing state-of-the-art sensory evaluation and to advancing the science of sensory perception.

We are a family owned and operated business providing our clients with personal customer service, flexible scheduling, timely results.

Our focus is to provide the best professional services available to help make your project or product a success.

www.fivesenses.com

3549 Lake Elmo Avenue North
P.O. Box 313
Lake Elmo, Minnesota 55042 U.S.A.

Tel: 800-879-9231
Fax: 651-439-1065

Email: stcroix@fivesenses.com

St. Croix Sensory, Inc.

Odor Evaluation Report

Client: Lamb Technical Services

Project: Boulders WRF

Report No.: **507501**

Evaluation Date: 03/16/05

#	Field No.	Sample Description	ASTM E679		ASTM E544	PERSISTENCY	CHARACTERIZATION		Comments
			Detection Threshold	Recognition Threshold	Intensity	Dose-Response Slope	Hedonic Tone	Principal Odor Descriptors	
1	1	Carbon Inlet	1,300	940	30	-0.30	-3.4	Offensive, Garbage, Fecal, Septic	
2	2	Carbon Outlet	100	55	15	-0.21	-1.4	Chemical, Car Exhaust, Petroleum	

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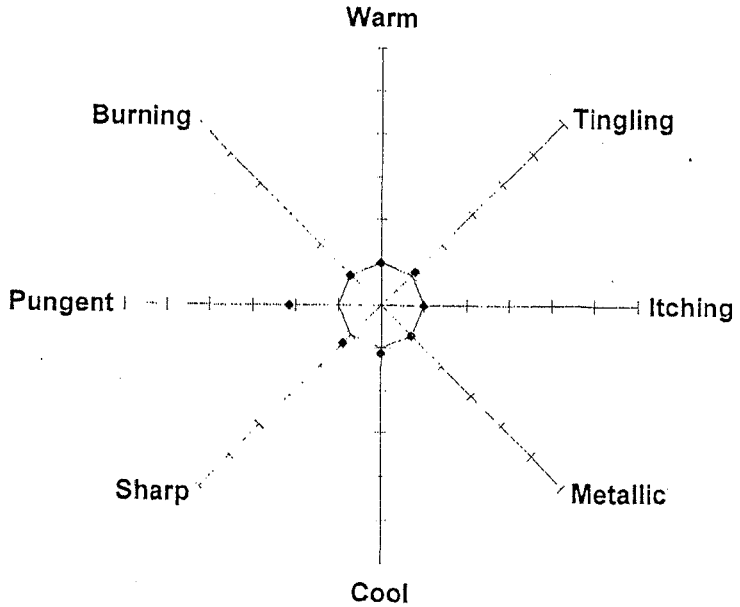
St. Croix Sensory, Inc.

Odor Evaluation Report

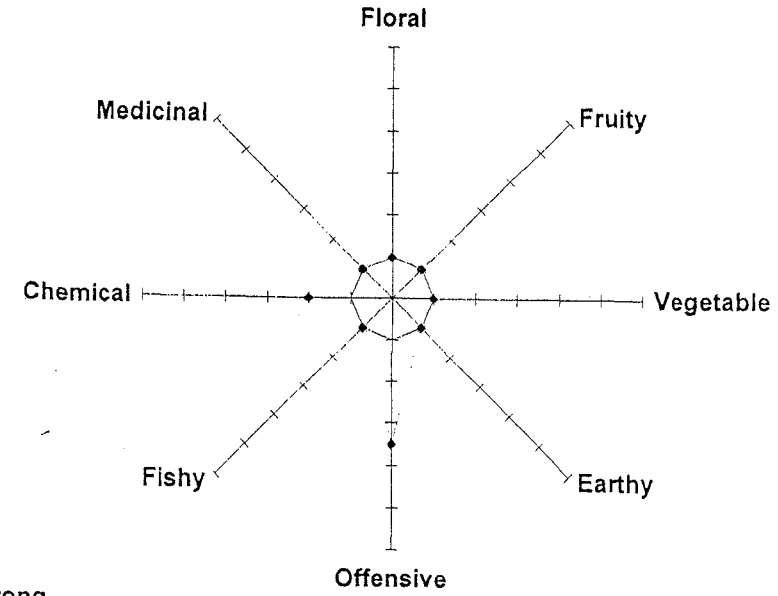
Client: Lamb Technical Services
Field No.: 1
Report No.: **507501**
Project: Boulders WRF
Description: Carbon Inlet
Evaluation Date: 03/16/05

Sensation Descriptor Graph



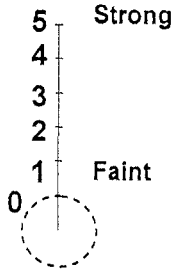
	Average Relative Strength
Warm	0.0
Tingling	0.1
Itching	0.0
Metallic	
Cool	0.1
Sharp	0.3
Pungent	1.1
Burning	0.0

Odor Descriptor Graph



	Average Relative Strength
Floral	0.0
Fruity	0.0
Vegetable	0.0
Earthy	0.0
Offensive	2.5
Fishy	0.0
Chemical	1.0
Medicinal	0.0

KEY



Relative Strength

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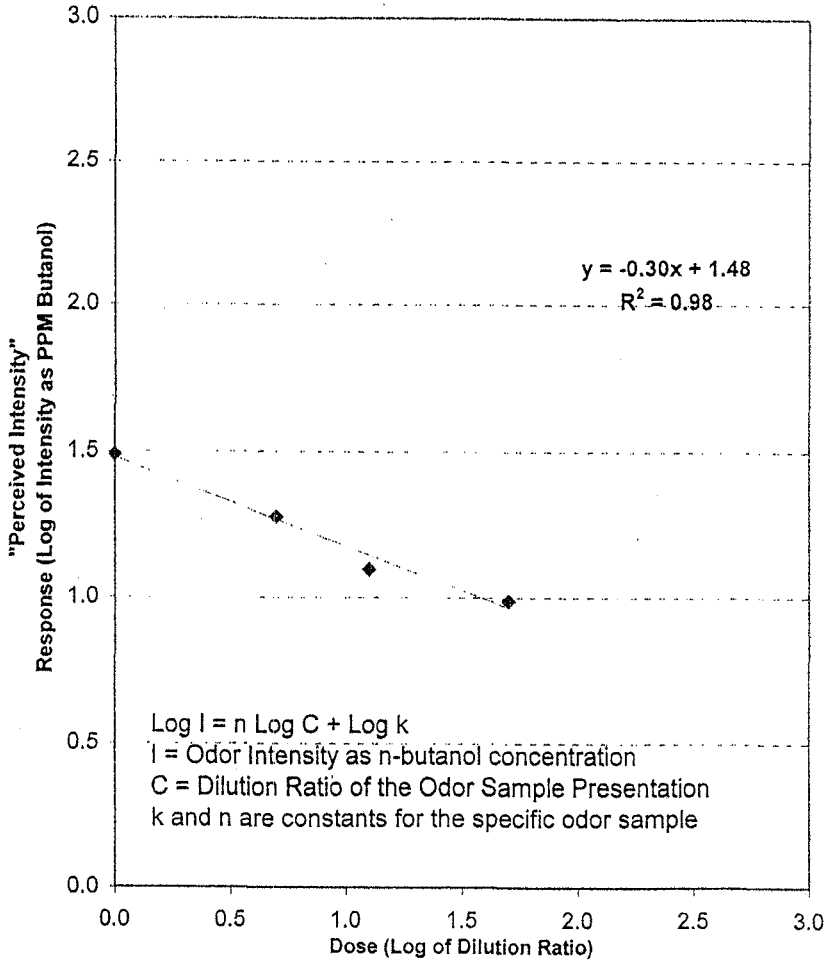
St. Croix Sensory, Inc.

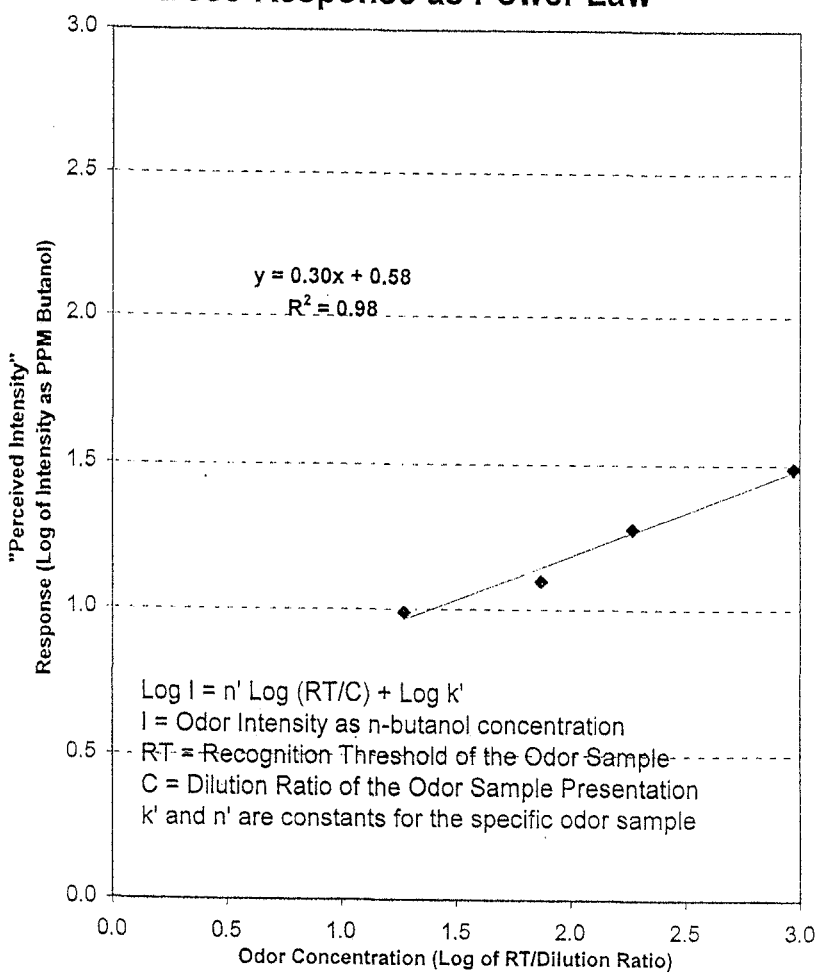
Odor Evaluation Report

Client: Lamb Technical Services
Field No.: 1
Report No.: **507501**
Project: Boulders WRF
Description: Carbon Inlet
Evaluation Date: 03/16/05

Dose-Response



Dose-Response as Power Law



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St. Croix Sensory, Inc.

Odor Evaluation Report

Client: Lamb Technical Services Field No.: 1

Project: Boulders WRF Description: Carbon Inlet

Report No.: **507501**

Evaluation Date: 03/16/05

% of Assessors |**********|**********|**********|**********| 100%

Chemical	**********
Grease	******
Car exhaust	**********
Plastic	******
Vinyl	******
Sulfur	**********
Offensive	**********
Fecal	**********
Sewer	**********
Garbage	**********
Burnt	******
Manure	******
Rotten eggs	**********
Putrid	**********
Septic	**********

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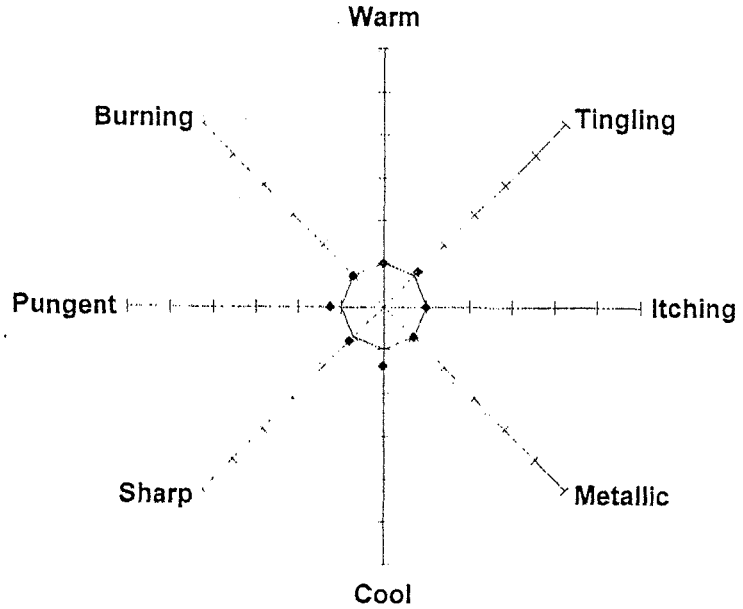
St. Croix Sensory, Inc.

Odor Evaluation Report

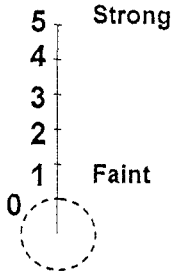
Client: Lamb Technical Services
Field No.: 2
Report No.: **507501**
Project: Boulders WRF
Description: Carbon Outlet
Evaluation Date: 03/16/05

Sensation Descriptor Graph



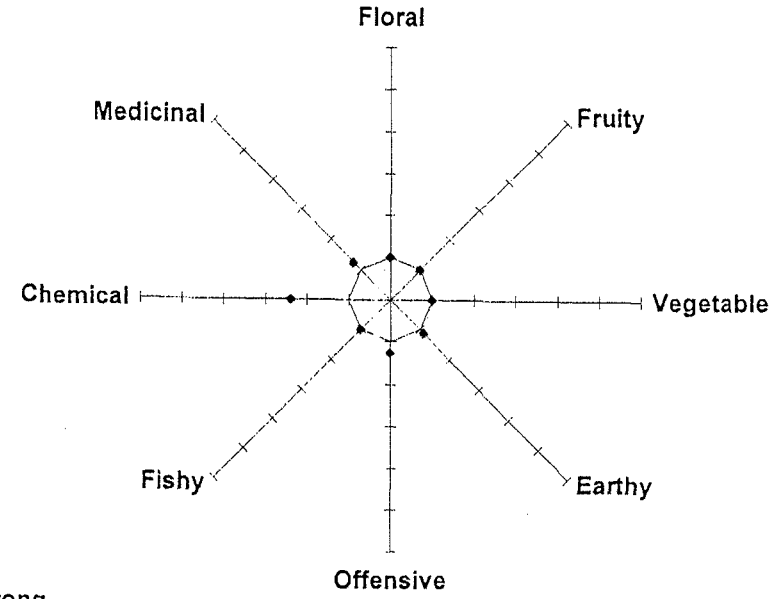
	Average Relative Strength
Warm	0.0
Tingling	0.1
Itching	0.0
Metallic	
Cool	0.4
Sharp	0.1
Pungent	0.3
Burning	0.0

KEY



Relative Strength

Odor Descriptor Graph



	Average Relative Strength
Floral	0.0
Fruity	0.0
Vegetable	0.0
Earthy	0.1
Offensive	0.3
Fishy	0.0
Chemical	1.4
Medicinal	0.3

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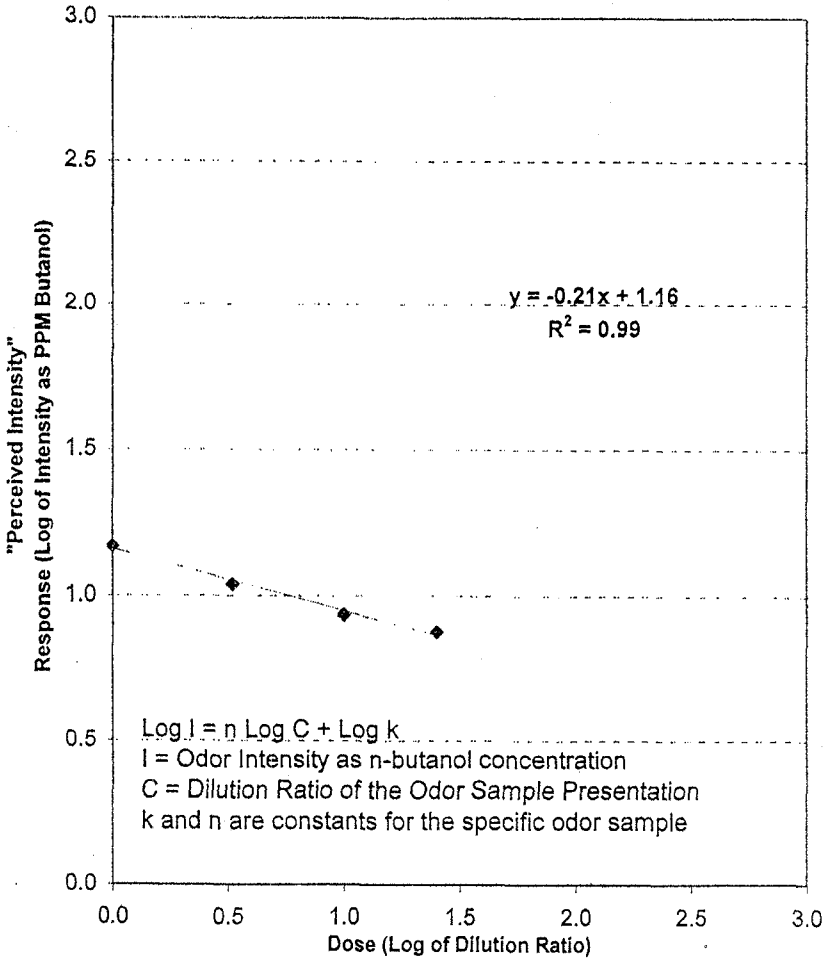
St. Croix Sensory, Inc.

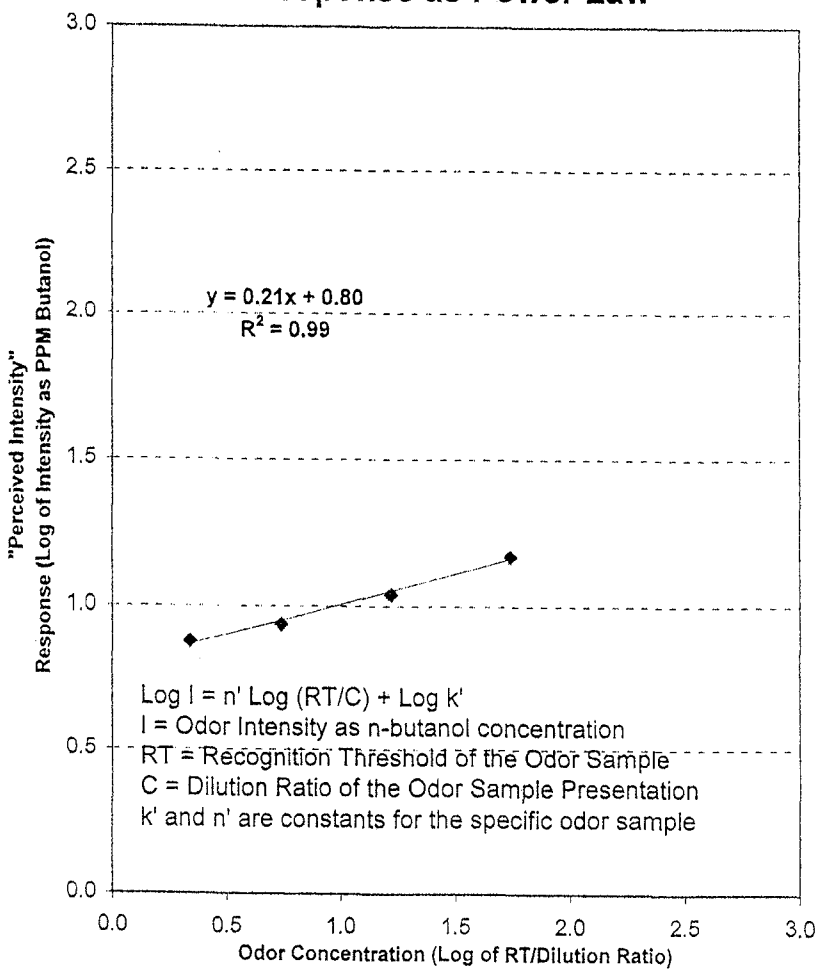
Odor Evaluation Report

Client: Lamb Technical Services
Field No.: 2
Report No.: **507501**
Project: Boulders WRF
Description: Carbon Outlet
Evaluation Date: 03/16/05

Dose-Response



Dose-Response as Power Law



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St. Croix Sensory, Inc.

Odor Evaluation Report

Client: Lamb Technical Services
Field No.: 2
Project: Boulders WRF
Description: Carbon Outlet

Report No.: **507501**
Evaluation Date: 03/16/05

% of Assessors |**********|**********|**********|**********| 100%

Medicinal	**********
Alcohol	**********
Menthol	******
Chemical	**********
Paint	******
Car exhaust	**********
Petroleum	******
Plastic	**********
Vinyl	**********
Offensive	**********
Sour	******
Decay	******
Earthy	******
Musty	******

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St. Croix Sensory, Inc.

CHAIN OF CUSTODY RECORD FOR ODOR SAMPLES

Page 1 of 1

Client: ETS Inc	Sampled By: Ed Lamb
Project Name: Boulder WRF	Sampling Date: 3/15/05
Comments:	

Line No.	Field No.	Sample Description	Sample Time	Field H_2S (ppm)	Odor Concentration (DT, RT)	Odor Intensity (PPM)	Odor Characterization (Hedonic Tone & Descriptors)	Odor Persistency ("Dose-Response")	For Laboratory use Only: Odor Evaluation Report No. 507501 — Laboratory Sample No. LN	FN
1	1	Carbon Inlet	14:00		X	X	X	X		
2	2	" Outlet	14:30		X	X	X	X		
3										
4										
5										
6										
7										
8										
9										
10										

Odor Evaluations Requested: (X)

Transfer & Shipping Information

Number of "Air Pacs"/ Shipping Boxes 1

Relinquished By	Date	Time	Accepted By	Date	Time	Comments & Exceptions Noted
Ed Lamb	3/15/05	16:00				
Received at St. Croix Sensory Laboratory			D Mathias	3/16/05	10 AM	

Comments Key:

A Sample bag was received without sample.

B Insufficient sample volume to complete evaluation.

C Sample bag was received with condensation in the bag.

D Sample description was not provided.

E Assessors did not observe the sample at full stregth for Intensity, Characterization, or Persistency evaluations.

- **E1** Sample was observed at a maximum of 50% dilution.
- **E2** Only Persistency evaluation was conducted.

F Assessors did not observe the sample for Intensity, Characterization, or Persistency evaluations.

G By client request, the IITRI Dynamic Dilution Triangle Olfactometer, with a sample presentation flow rate of 0.5-lpm and a Method Detection Limit for Detection and Recognition Threshold of '4', was used to determine the thresholds for this odor evaluation

If you have any questions regarding the comments for this evaluation, please contact our lab at +800-879-9231 ext.12.

WADE REBUTTAL

EXHIBIT 2

LTS, INC.
5102 SOUTH FERN COURT
CHANDLER, AZ 85248

Odor and Hydrogen Sulfide Monitoring Specialists Since 1991

TOWN OF CAREFREE

SEWAGE COLLECTION AND CONVEYANCE SYSTEM

AND BOULDERS WATER RECLAMATION FACILITY

ODOR AND HYDROGEN SULFIDE

PHASE 6 STUDY

Performed for Black Mountain Sewer Company

Final Report

March 31, 2006

Lamb Technical Services, Inc. 5102 South Fern Court, Chandler, AZ 85248 Phone 480-802-2789 Fax 480-802-2790 elamblts@msn.com

EXECUTIVE SUMMARY

Phase 6 Data Review

During the Phase 6 study in Carefree, AZ, Black Mountain Sewer Company (BMSC) asked Lamb Technical Services, Inc. (LTS) to re-evaluate the current conditions of the collection lines and determine if any odor emissions could be found at the pump stations, at the treatment plant or from the collection system. The goal of the study was to determine how effective the hydrogen sulfide and odor control measures had been, which BMSC had implemented during the second portion of the Phase 2 study in the summer of 2004.

Lamb Technical Services was asked to install continuous hydrogen sulfide monitors at the eight initial sampling locations that were tested in 2004, and to collect liquid samples from each location for a re-evaluation. LTS was also asked to perform fenceline hydrogen sulfide monitoring at both the CIE lift station and the Boulders WRF.

Instantaneous hydrogen sulfide monitoring using the Jerome 631X hydrogen sulfide analyzer found virtually no odor emissions that were sulfur-based at any of the fencelines around the waste water treatment facility or at the CIE lift station. All of the data were near the low detection level of the Jerome 631X. Continuous hydrogen sulfide monitoring was also performed at each fenceline located around the plant site. Only one continuous monitor registered four short-term events, just after midnight of the 17th, 22nd, 25th, and just before midnight on the 27th. All of these spikes were short in duration, with the highest value being 0.030 PPM. These events mostly correlated to the highest hydrogen sulfide concentrations seen during the study at the Boulder & Quartz location, with the exception of the 0.020 PPM spike on the 22nd.

The overall data (both liquid and airborne) were considerably better than what was recorded during the Phase 2 study in 2004 prior to chemical addition. Sulfide concentrations had dropped in some locations by nearly 90% with the Thioguard chemical addition at the upstream lift stations, although some of this drop could be attributed to the much lower wastewater temperatures seen during this study. Data from this study compared quite closely to the data during the chemical addition test portion of the Phase 2 study, with the expected liquid parameters being higher in the summer months.

BMSC indicated that they had some chemical feed problems at the Commercial lift station on Friday the 17th which correlates to the highest downstream spikes that day, and a couple of days after the chemical feed rate was returned to normal on the 18th. During the remainder of the week, most of the hydrogen sulfide concentrations were very low within the collection system. On the next weekend, the 27th and 28th, it appeared that the level of hydrogen sulfide control was not as good, and some higher spikes were recorded from the Commercial lift station all of the way to the Boulder and Quartz location just upstream of the plant. This corresponds to the increased activity at the restaurants that the Commercial lift station serves. It is likely that the additional grease and solids that were fed from additional restaurant activity into the commercial lift station wetwell were the cause of the higher hydrogen sulfide concentrations. LTS recommends that the chemical feed rate be increased 20 GPD on the weekend to compensate for these conditions. A short re-evaluation should also be performed to determine if 70 GPD of chemical addition at the Commercial lift station is adequate to control the hydrogen sulfide concentrations at the wetwell and downstream to the treatment facility during the weekend periods.

The Boulders in Carefree Liquid Sewage Data

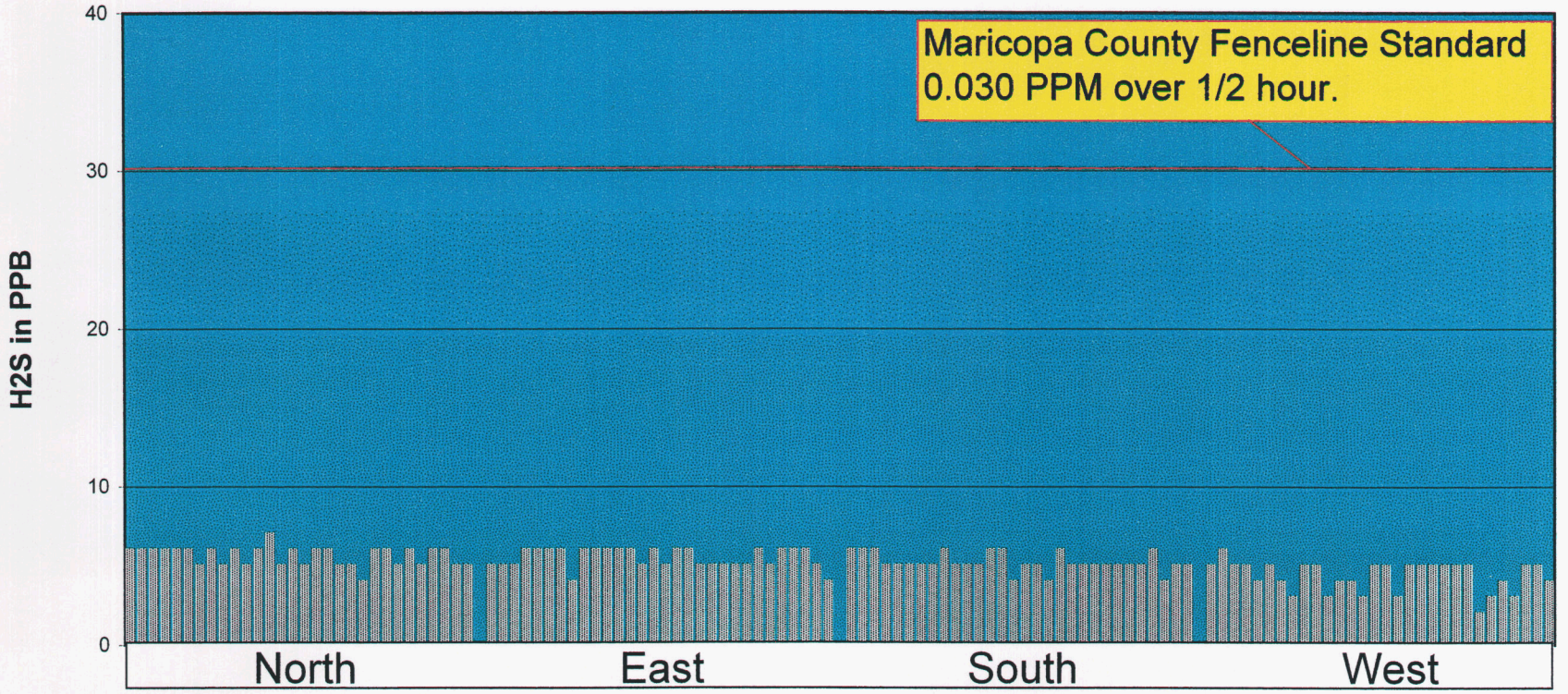
Test Sites

Location Description	Date	Time	Airborne H2S in PPM	pH	ORP in mV	DO in PPM	Temperature in Deg. C	Total Sulfides in mg./lit.	Dissolved Sulfides in mg./lit.	Pressure in in./WC	Feed Rate in GPD
Boulder & Quartz Dr.	3/15/2006	12:15 PM	24	7.94	-273	4.76	20.6	0.8	0.7	0.01	
Century & Boulder Dr.	3/15/2006	1:00 PM	15	8.26	-240	5.20	21.5	0.6	0.6	0.02	
Plant Influent	3/15/2006	1:15 PM	11	8.22	-118	6.27	21.6	0.2	0.0	0.00	
Upstream Quartz Dr.	3/15/2006	12:00 PM	0.008	7.26	-80	11.60	20.5	0.0	0.0	0.00	
Staghorn Dr.	3/15/2006	12:30 PM	0.050	No Flow							
Commercial Lift Station	3/15/2006	11:00 AM	4	8.32	-54	7.91	19.7	0.1	0.0	0.00	
Commercial Lift Station FM Discharge at CIE	3/15/2006	11:15 AM	18	8.98	-60	6.65	22.4	0.1	0.0	0.01	
CIE Incoming Gravity Line	3/15/2006	11:30 AM	16	8.23	-15	6.56	22.9	0.1	0.05	0.01	
											50 GPD

Location Description	Date	Time	Airborne H2S in PPM	pH	ORP in mV	DO in PPM	Temperature in Deg. C	Total Sulfides in mg./lit.	Dissolved Sulfides in mg./lit.	Pressure in in./WC	Feed Rate in GPD
Boulder & Quartz Dr.	3/27/2006	9:15 AM	40	8.36	-288	2.25	18.9	1.3	1.2	0.01	
Century & Boulder Dr.	3/27/2006	9:45 AM	26	8.43	-240	3.30	19.4	0.4	0.3	0.01	
Plant Influent	3/27/2006	10:15 AM	6	8.60	-210	2.82	19.3	0.2	0.2	0.00	
Upstream Quartz Dr.	3/27/2006	9:30 AM	0.010	8.64	6	8.92	20.3	0.0	0.0	0.00	
Staghorn Dr.	3/27/2006	12:30 PM	0.012	No Flow							
Commercial Lift Station	3/27/2006	8:00 AM	2	7.92	-209	4.97	19.2	0.8	0.7	0.00	
Commercial Lift Station FM Discharge at CIE	3/27/2006	8:30 AM	21	8.27	-259	4.08	19.4	4.3	3.6	0.01	
CIE Incoming Gravity Line	3/27/2006	8:45 AM	12	8.03	-118	3.01	20.8	0.0	0.00	0.01	
											50 GPD

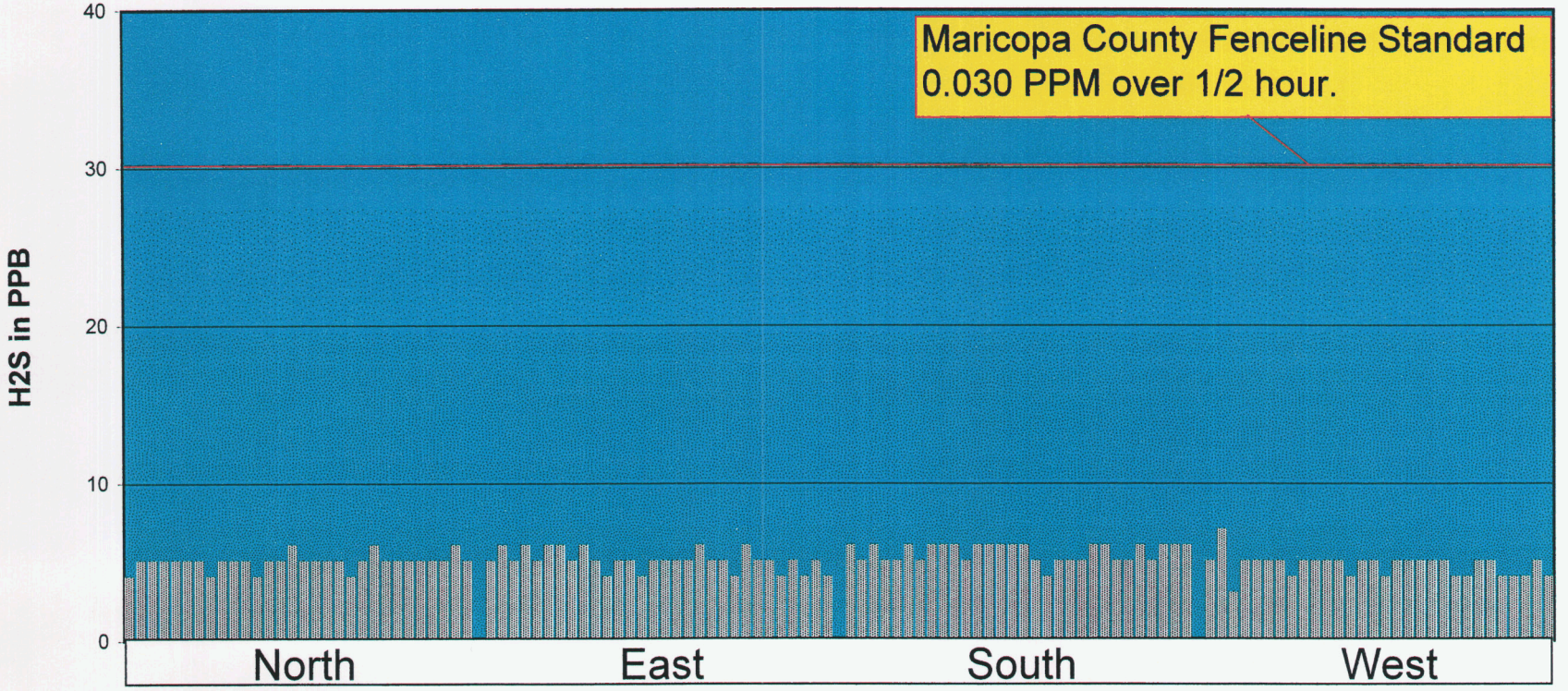
The Boulders WRF Fenceline Hydrogen Sulfide Concentrations

PPM H_2S Versus Fenceline



The CIE Lift Station Fenceline Hydrogen Sulfide Concentrations

PPM H_2S Versus Fenceline



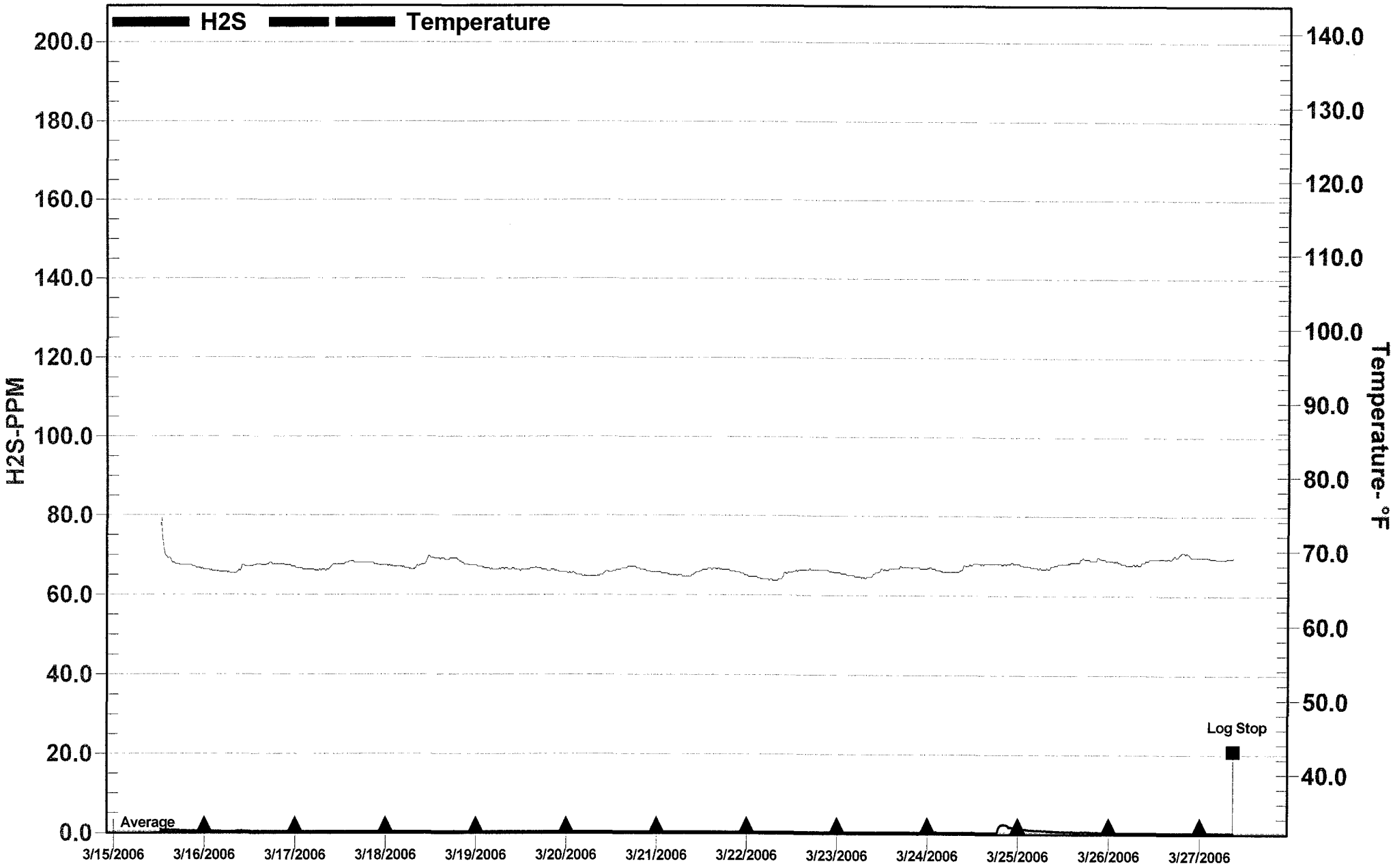
Fenceline

Wind -- Southwest to Northeast at 1-3 mph

March 16, 2006

Upstream Boulder Drive

20060328_OL0504068_01: Session 1

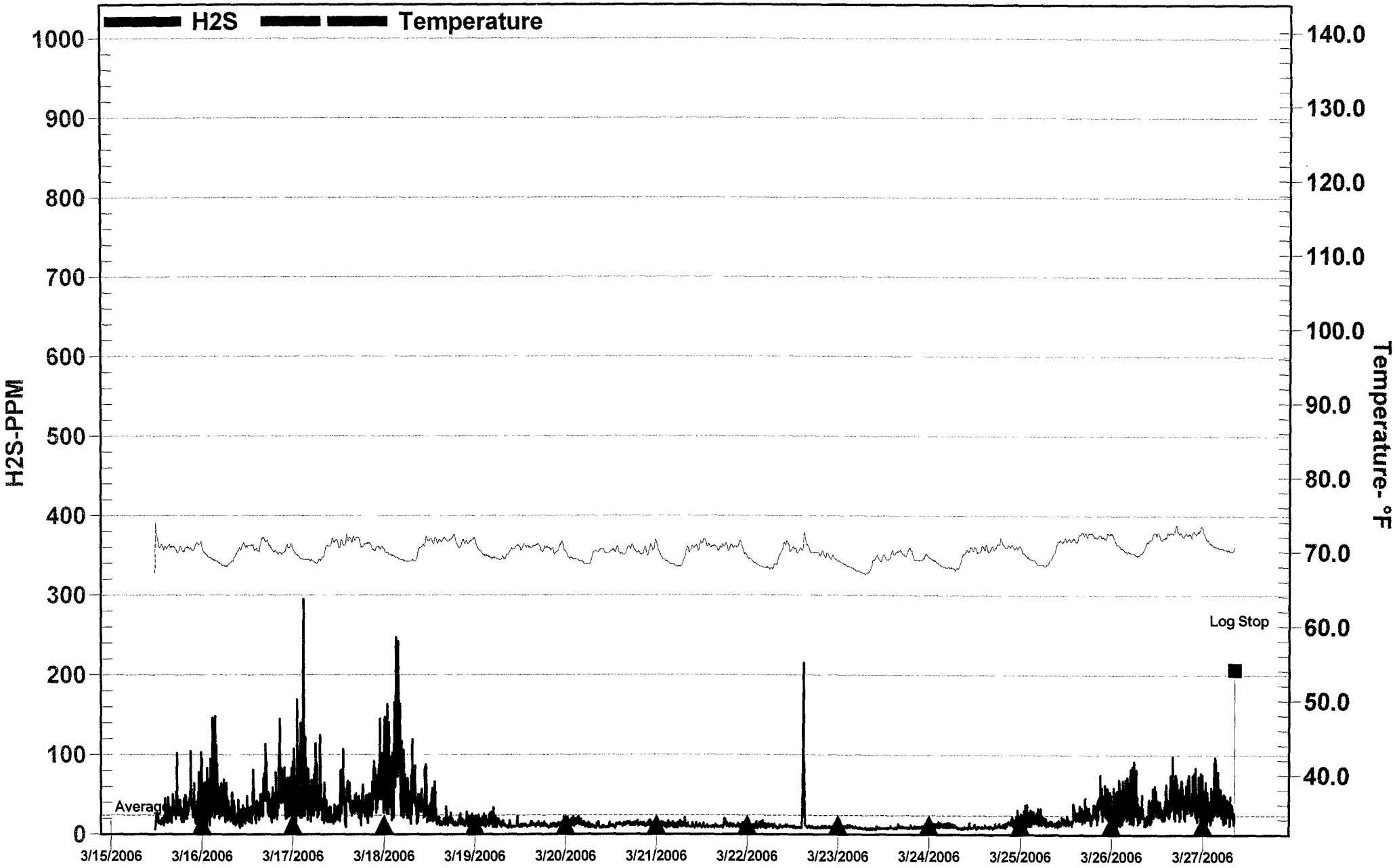


Period Displayed: 3/14/2006 - 3/27/2006 Oda File: 20060328_OL0504068_01.oda -- Serial Number: OL00504068)

Average 0.1PPM | Day Transition Min 0.0PPM Max 2.1PPM

Commercial Lift Station FM Discharge

20060328_OL45093434_01: Session 2

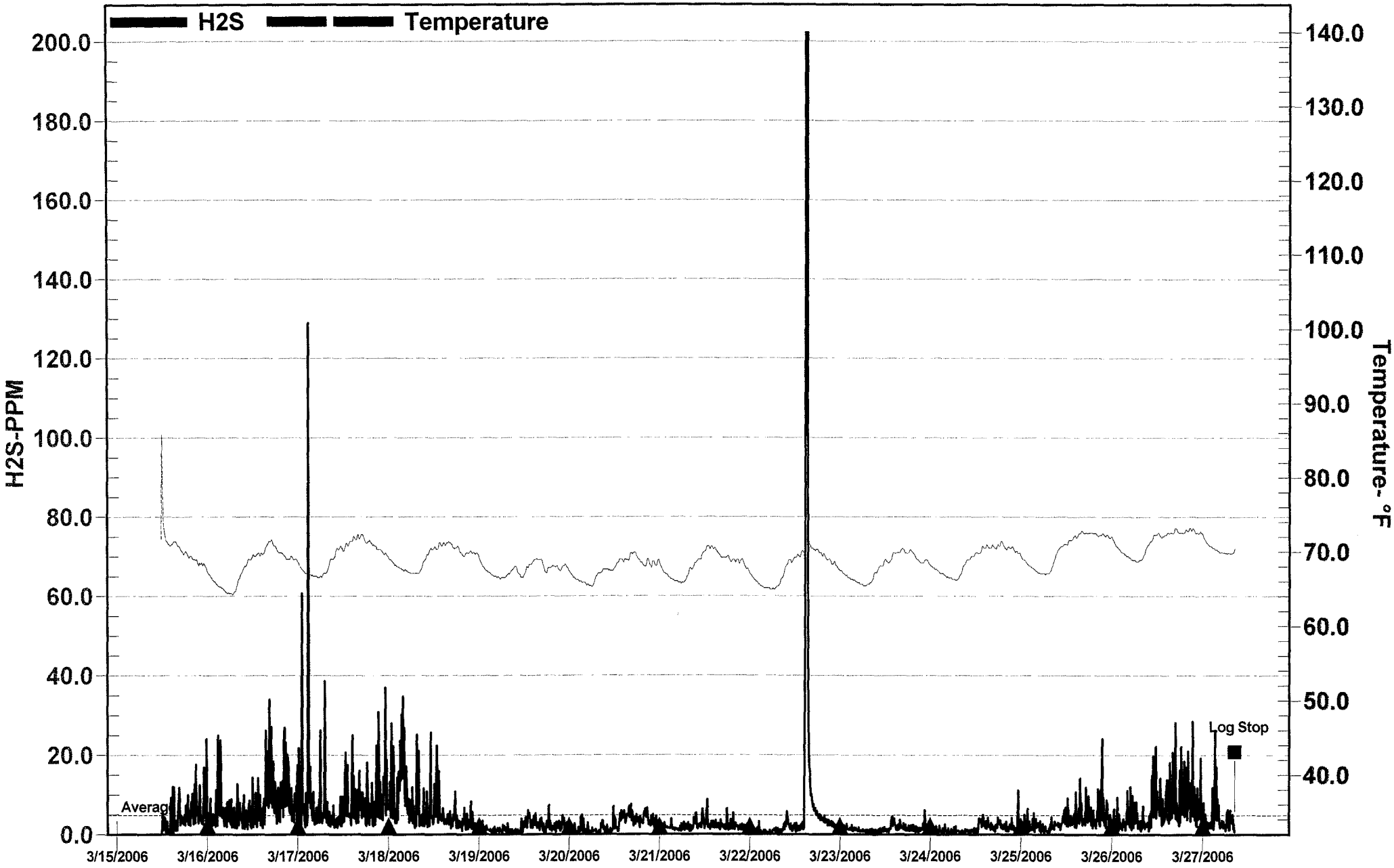


Period Displayed: 3/14/2006 - 3/27/2006 Oda File: 20060328_OL45093434_01.oda -- Serial Number: OL45093434)

Average 18PPM | Day Transition Min 0PPM Max 289PPM

CEI Gravity Line

20060328_OL05110204_01: Session 1

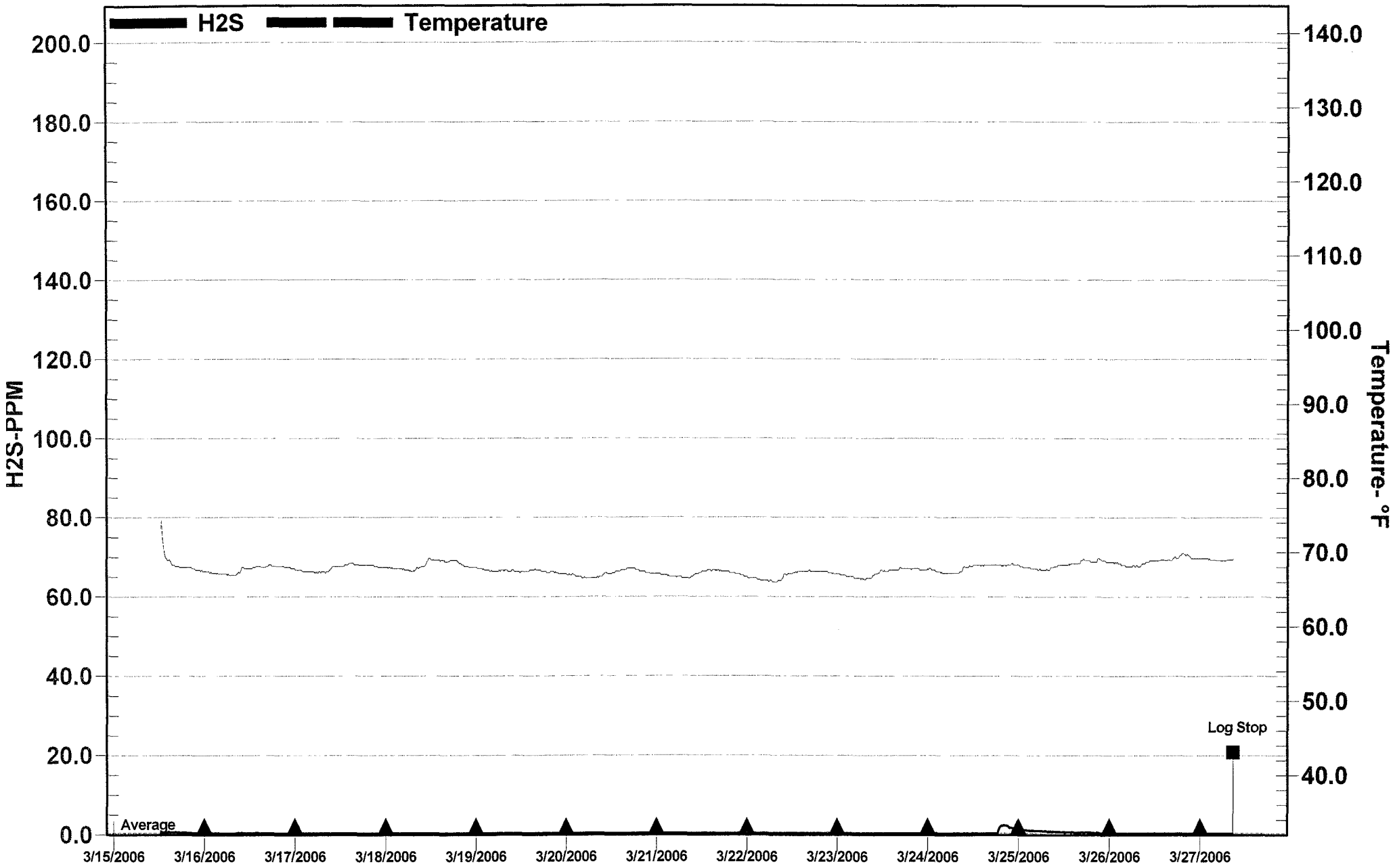


Period Displayed: 3/14/2006 - 3/27/2006 Oda File: 20060328_OL05110204_01.oda -- Serial Number: OL05110204)

Average 4.4PPM | Day Transition Min 0.0PPM Max 408.9PPM

Upstream Boulder Drive

20060328_OL0504068_01: Session 1

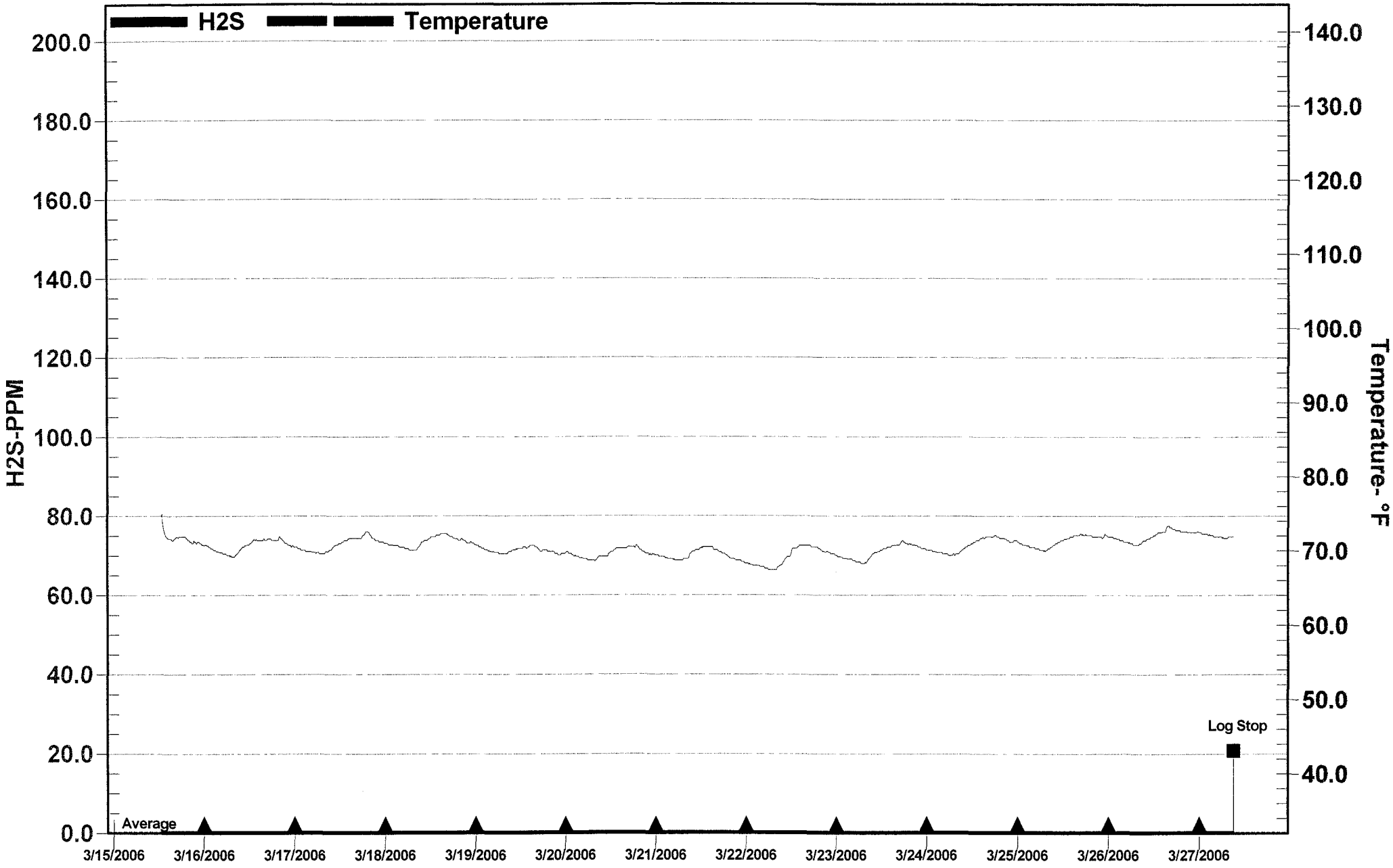


Period Displayed: 3/14/2006 - 3/27/2006 Oda File: 20060328_OL0504068_01.oda -- Serial Number: OL00504068)

Average 0.1PPM | Day Transition Min 0.0PPM Max 2.1PPM

Staghorn Drive

20060328_OL0504071_01: Session 1



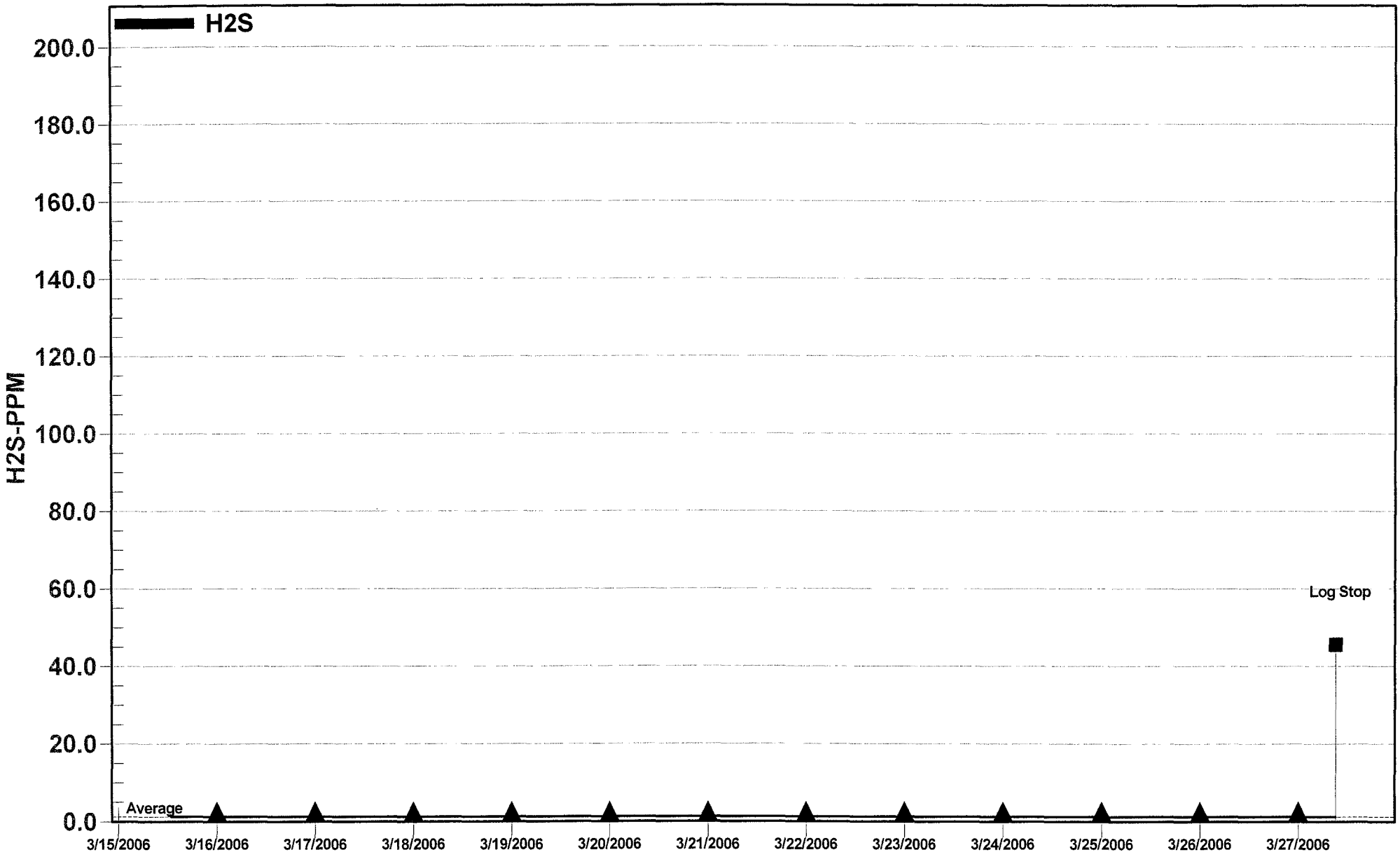
Period Displayed: 3/14/2006 - 3/27/2006 Oda File: 20060328_OL0504071_01.oda -- Serial Number: OL00504071)

Average 0.0PPM | Day Transition Min 0.0PPM Max 0.5PPM

Upstream Quartz Drive

20060328_OL0504071_01: Session 1

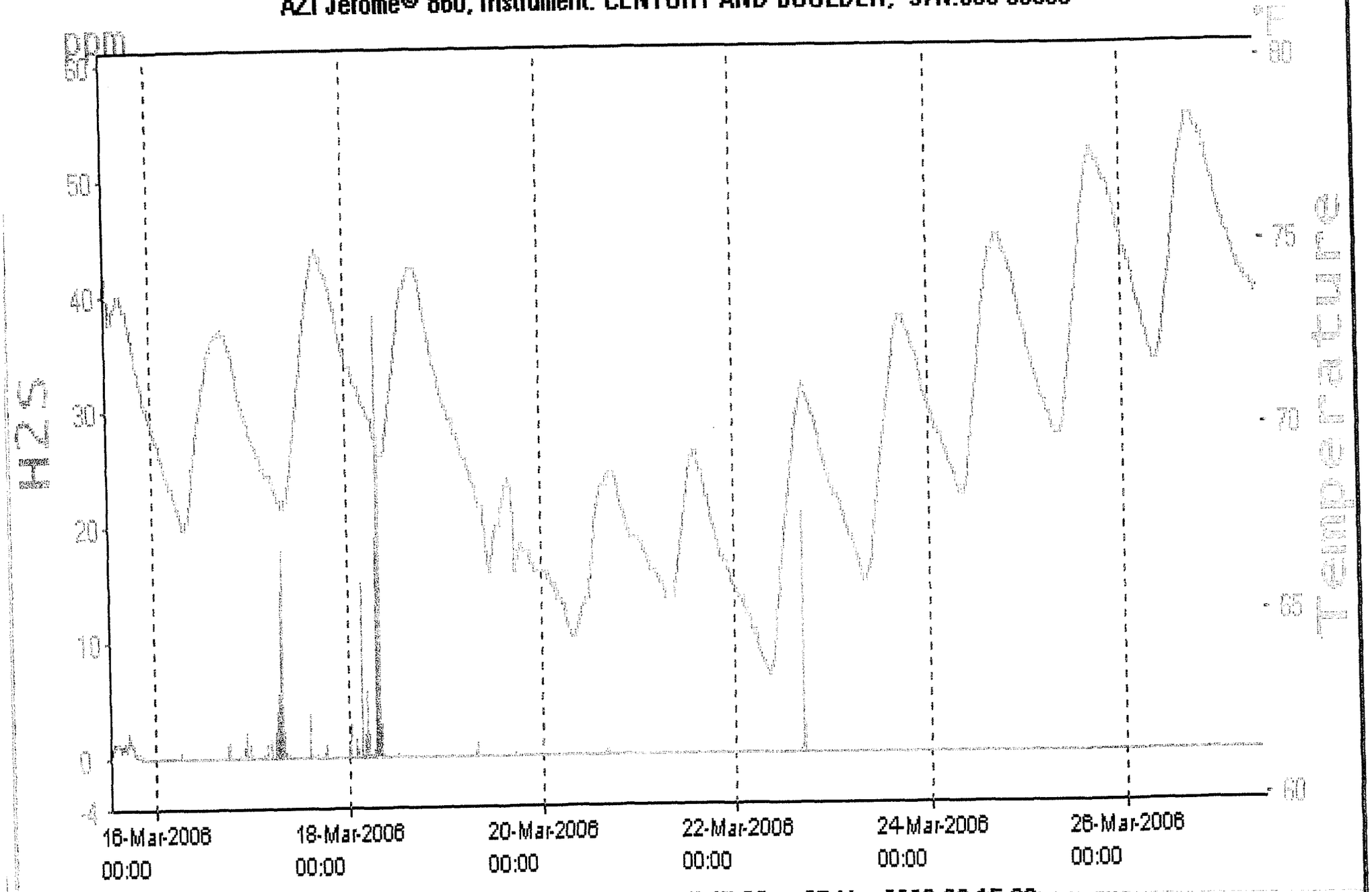
[Temperature]



Period Displayed: 3/14/2006 - 3/27/2006 Oda File: 20060328_OL0504071_01.oda -- Serial Number: OL00504071)

Average 0.0PPM | Day Transition Min 0.0PPM Max 0.5PPM

AZI Jerome® 860, Instrument: CENTURY AND BOULDER, S/N:860-00093



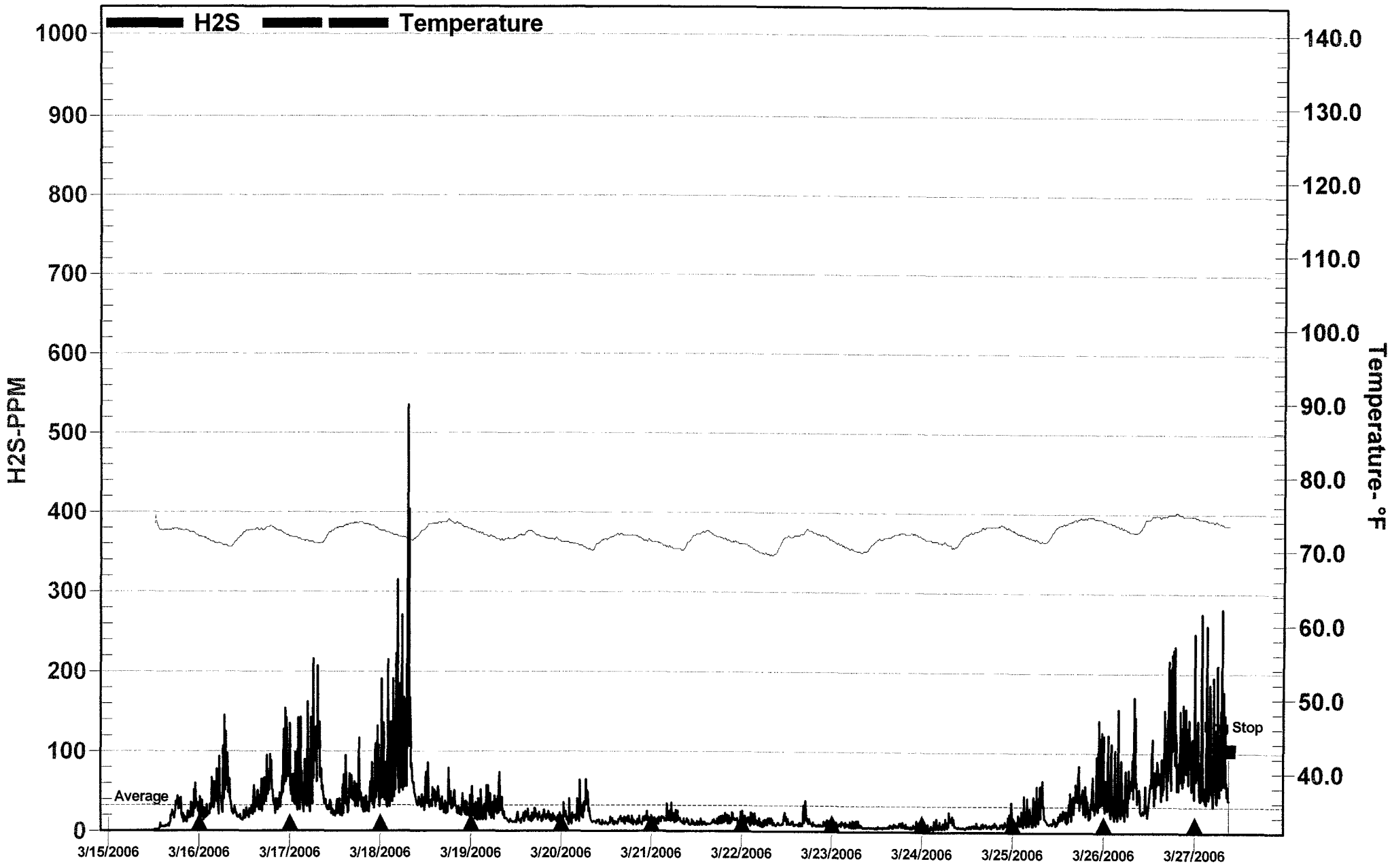
Data Period From 01-Feb-2006 15:45:00 to 27-Mar-2006 09:15:00

Gas Temperature

15-Mar-2006 13:00:00, Temperature=79.7°F (Gas: 0.4 ppm)

Boulder & Quartz

20060328_OL45033818_01: Session 1



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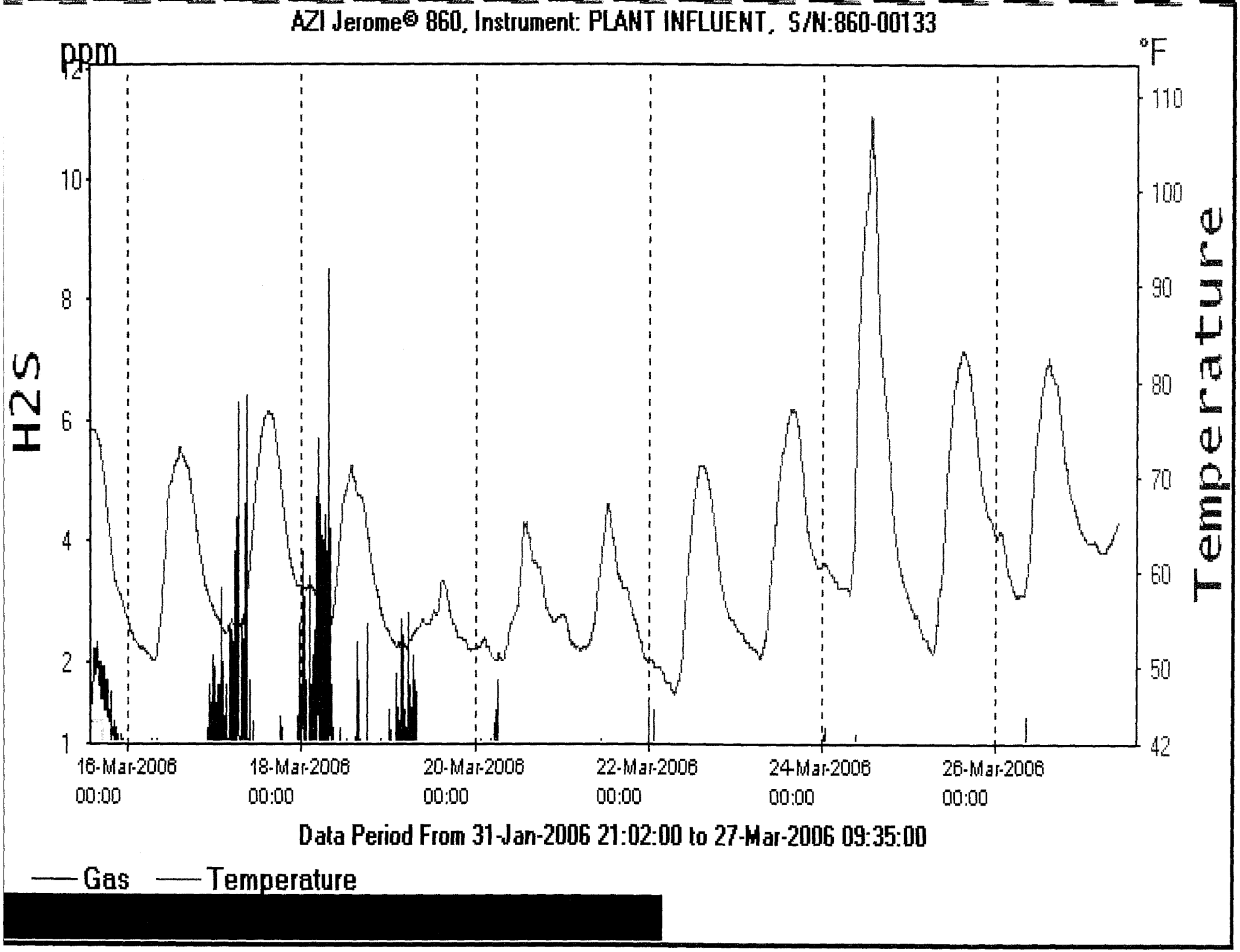
Average 30PPM | Day Transition Min 0PPM Max 533PPM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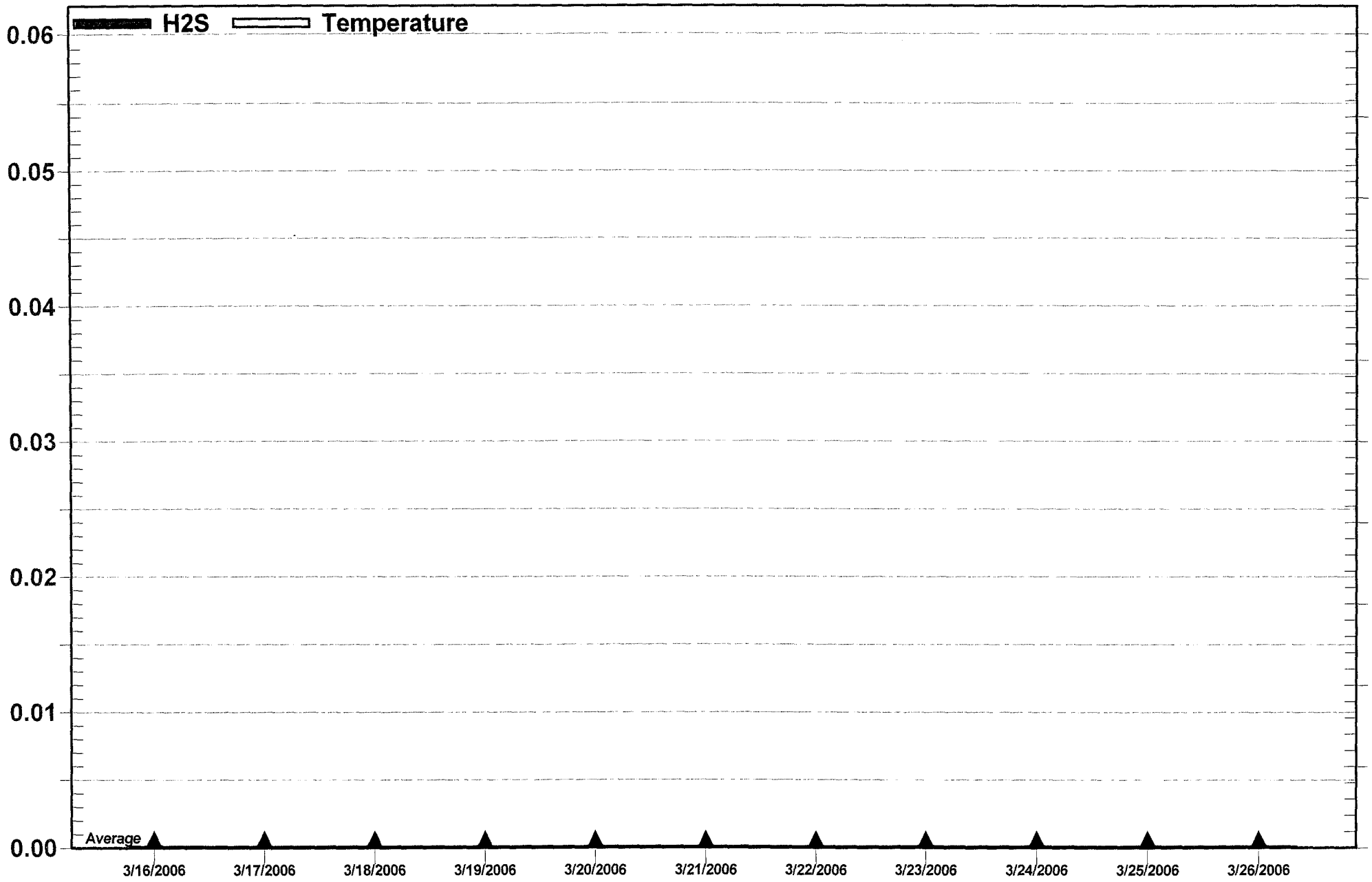
Boulders WRF North Fenceline

Boulders 3533 - N: Session 5



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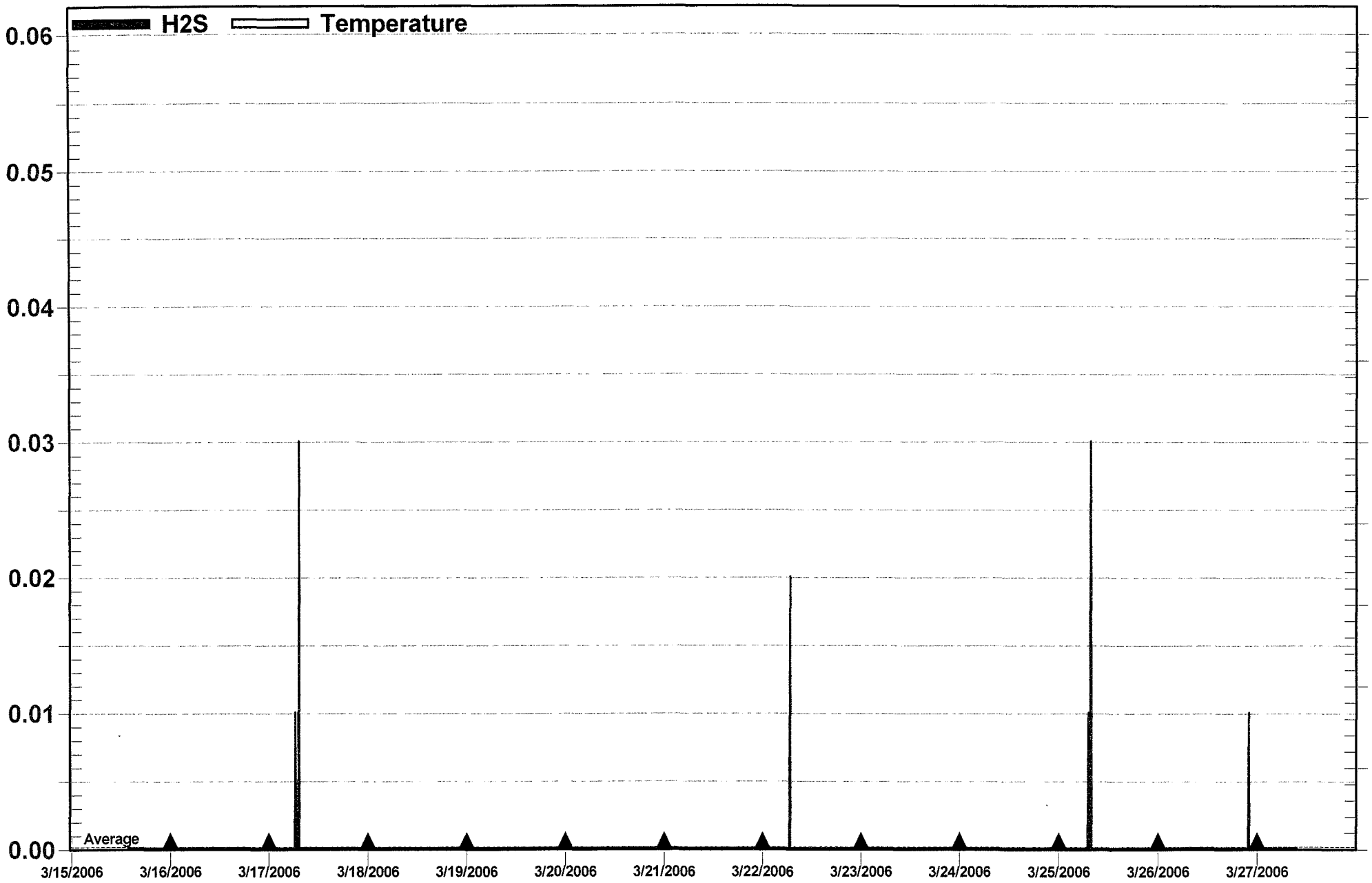
Boulders WRF South Fenceline

Boulders 3533 - N: Session 5



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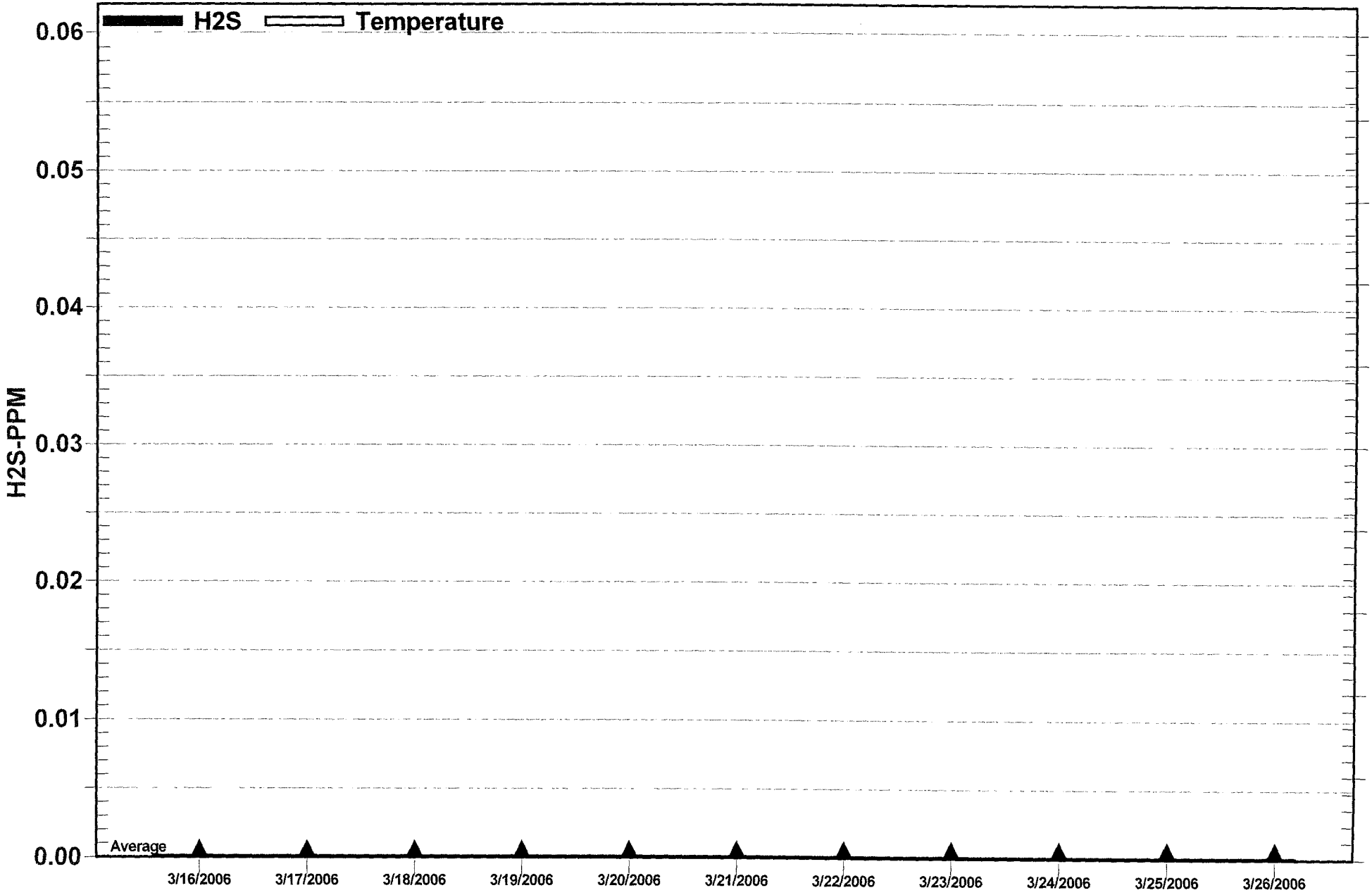
Boulders WRF East Fenceline

Boulders 3521- E: Session 2



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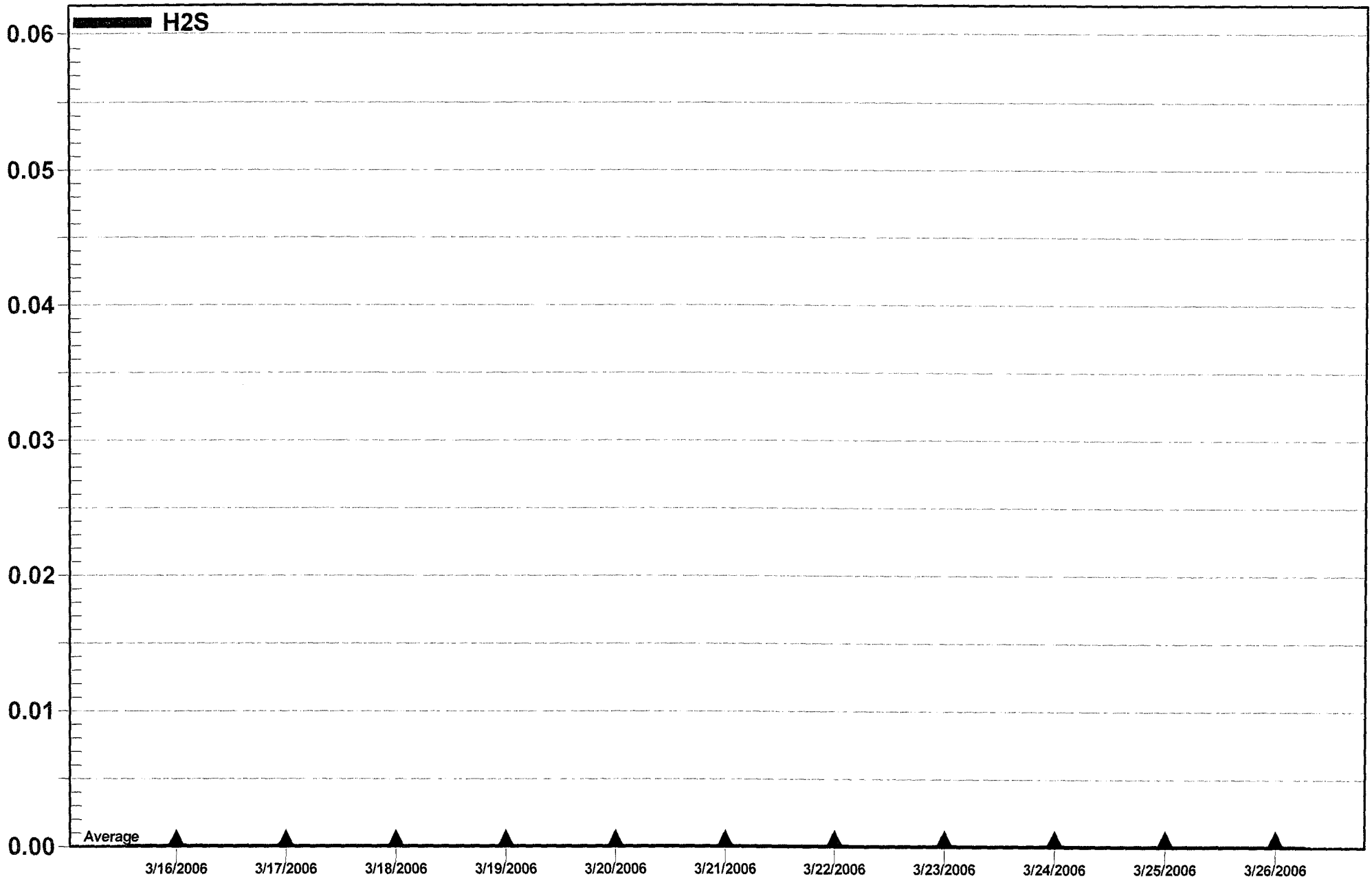
Boulders WRF West Fenceline

Boulders 3503 - W: Session 5



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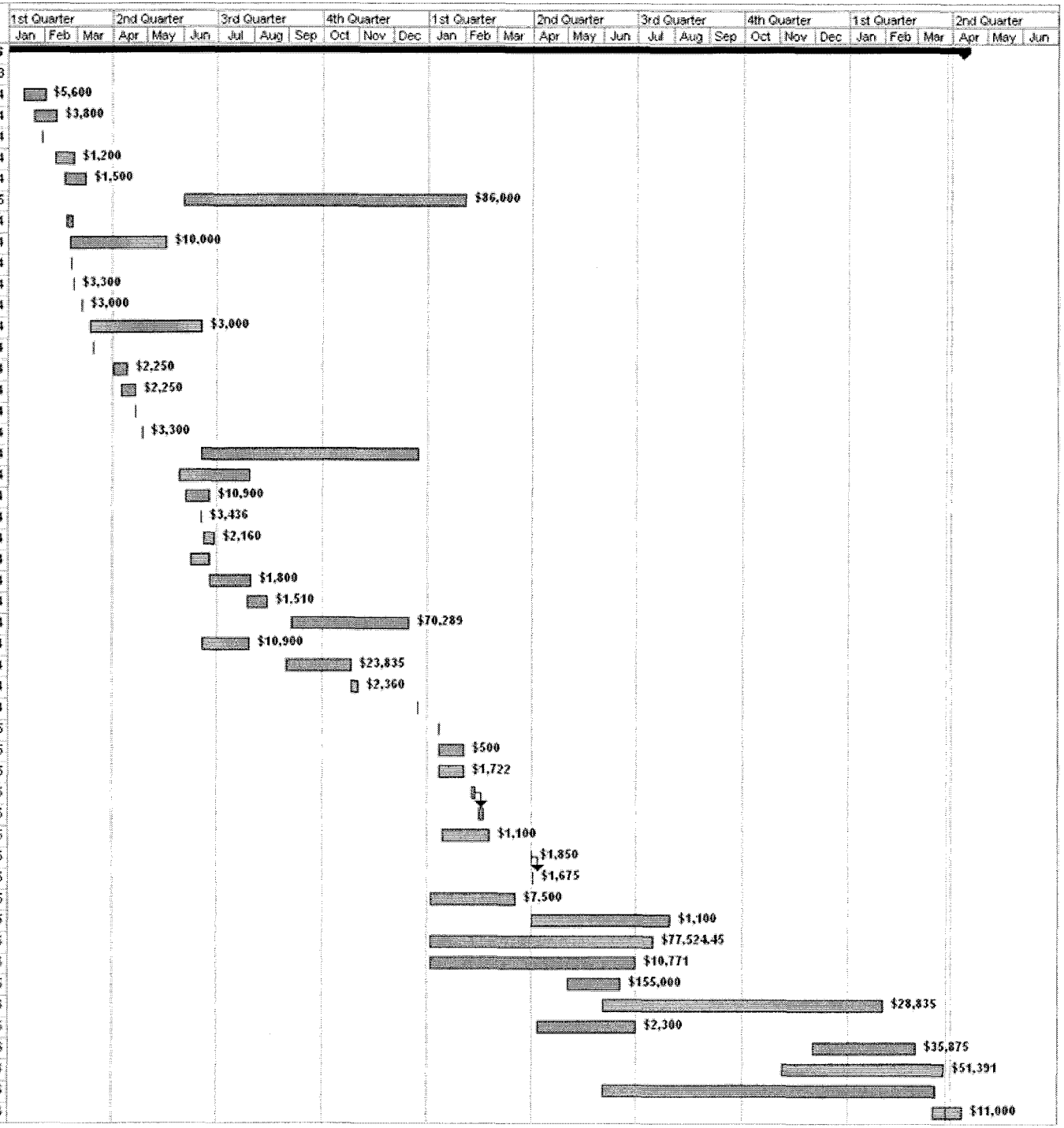
Average 0.00PPM | Day Transition Min 0.00PPM Max 0.00PPM

WADE REBUTTAL

EXHIBIT 3

ID	Task Name	Start	Finish
1	**BMSC Aesthetic Improvement Project**	**Mon 12/15/03**	**Mon 4/10/06**
2	Improvement Strategy Meeting w/ TOCF	Mon 12/15/03	Mon 12/15/03
3	Sealed Manholes@ CIE/WWTP	Wed 1/14/04	Mon 2/2/04
4	Installed - Two Stage Odor Scrubber	Fri 1/23/04	Wed 2/11/04
5	BMSC /TOCF - Update Meeting	Fri 1/30/04	Fri 1/30/04
6	Installed Basin Sealing Material WWTP	Tue 2/10/04	Fri 2/27/04
7	Installed Bio Filter MH Insert Quartz Drive	Wed 2/18/04	Mon 3/8/04
8	Install Sodium Hypochlorite Feed System	Tue 6/1/04	Tue 2/1/05
9	Seneco System Odor Scrubber Inspection	Fri 2/20/04	Thu 2/26/04
10	Force Main and Gravity Main Flush Program	Tue 2/24/04	Mon 5/17/04
11	BMSC / TOCF System Tour	Wed 2/25/04	Wed 2/25/04
12	Installed Two-Stage MH Inserts at Six Locations	Fri 2/27/04	Fri 2/27/04
13	Installed Perma-seal MH Rings Boulder/Quartz Drive	Fri 3/5/04	Fri 3/5/04
14	Conducted Phase I Odor / Noise Assessment	Fri 3/12/04	Wed 6/16/04
15	MCESD Toured BMSC Facilities	Mon 3/15/04	Mon 3/15/04
16	Completed Landscaping Improvements CIE LS	Thu 4/1/04	Tue 4/13/04
17	Completed Landscaping South of WWTP	Thu 4/8/04	Tue 4/20/04
18	Seneco System - Odor Scrubber Inspection	Tue 4/20/04	Tue 4/20/04
19	Installed Two-Stage MH Inserts at Two CIE Locations	Tue 4/27/04	Tue 4/27/04
20	Contracted DSWA for Phase II Noise Assessment	Wed 6/16/04	Thu 12/23/04
21	Contracted LTS for Phase II Odor Assesement	Fri 5/28/04	Wed 7/28/04
22	LTS Conducts 22-pt / 200 hr Odor Assessment	Thu 6/3/04	Thu 6/24/04
23	DSWA meeting D/B Noise Specifications Developed	Wed 6/16/04	Wed 6/16/04
24	Additional Trees added to WWTP	Fri 6/18/04	Mon 6/28/04
25	LTS PHS II Odor Study Report	Mon 6/7/04	Thu 6/24/04
26	FOG - FAQ Mailer to all Commercial Customers	Thu 6/24/04	Thu 7/29/04
27	Additional Landscaping Improvements WWTP	Mon 7/26/04	Thu 8/12/04
28	Noise / Odor Improvements Placed into Service	Fri 9/3/04	Wed 12/15/04
29	LTS Phs II Report	Thu 6/17/04	Wed 7/28/04
30	Chemical Feed study - Sage Brush LS	Mon 8/30/04	Tue 10/26/04
31	LTS Phs III Odor Evaluation Report	Tue 10/26/04	Mon 11/1/04
32	DSWA - Plant Sound Evaluation - AM	Thu 12/23/04	Thu 12/23/04
33	DSWA - Plant Sound Evaluation - PM	Mon 1/10/05	Mon 1/10/05
34	BMSC Asthetic Improvements Schedule to ADEQ	Mon 1/10/05	Mon 1/31/05
35	*DSWA Sound Improvement Evaluation Report*	Mon 1/10/05	Mon 1/31/05
36	Odor Scrubber Air Balance	Mon 2/7/05	Fri 2/11/05
37	Odor Scrubber Stack Sampling and Speciation	Mon 2/14/05	Fri 2/18/05
38	Plant / Collection System pH Profiling	Thu 1/13/05	Wed 2/23/05
39	LTS Phs IV - Odor Scrubber Air Balance - Report	Thu 3/31/05	Thu 3/31/05
40	LTS Phs V -Odor Scrubber Stack - Report	Fri 4/1/05	Fri 4/1/05
41	Repair MH Hydrulic Surcharge at Century Drive	Mon 1/3/05	Thu 3/17/05
42	Plant / Collection System pH Profiling Analysis	*Thu 3/31/05*	*Fri 7/29/05*
43	Peaceful Place LS Forcemain Improvements	Mon 1/3/05	Fri 7/15/05
44	BMWRF Perimiter Fence	Mon 1/3/05	Thu 6/30/05
45	Sewer Rehabilitation - Boulders Drive - 3000 LF	Mon 5/2/05	Fri 6/17/05
46	Sage Brush - Automated Chemical Feed System	Wed 6/1/05	Tue 1/31/06
47	Industrial Pretreatment Sample Ordinance	Tue 4/5/05	Thu 6/30/05
48	Sunset Trails Sewer Rehab	Wed 11/30/05	Tue 2/28/06
49	Indian Rock LS - Sewer Rehab and Wet Well Imp	Fri 11/4/05	Fri 3/24/06
50	Studios at Caretree LS - Trades Center LS Abandon	Wed 6/1/05	Fri 3/17/05
51	LTS Phs VI - Retest and Evaluate Aesthetic Imp Res	Wed 3/15/06	Mon 4/10/06



FENNEMORE CRAIG, P.C.
Jay L. Shapiro
Patrick J. Black
3003 N. Central Ave.
Suite 2600
Phoenix, Arizona 85012
Attorneys for Black Mountain Sewer Corporation

BEFORE THE ARIZONA CORPORATION COMMISSION

IN THE MATTER OF THE APPLICATION OF BLACK MOUNTAIN SEWER COMPANY, AN ARIZONA CORPORATION, FOR A DETERMINATION OF THE FAIR VALUE OF ITS UTILITY PLANT AND PROPERTY AND FOR INCREASES IN ITS RATES AND CHARGES FOR UTILITY SERVICE BASED THEREON.	DOCKET NO: SW-02361A-05-0657

BLACK MOUNTAIN SEWER CORPORATION'S

REBUTTAL FILING VOLUME II

BOURASSA

FENNEMORE CRAIG, P.C.
Jay L. Shapiro
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3003 N. Central Ave.
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REBUTTAL TESTIMONY OF

THOMAS J. BOURASSA

TABLE OF CONTENTS

I. INTRODUCTION AND PURPOSE OF TESTIMONY.

Q. PLEASE STATE YOUR NAME AND ADDRESS?

A. My name is Thomas J. Bourassa and my business address is 139 W. Wood Drive, Phoenix, AZ 85029.

Q. HAVE YOU PREVIOUSLY SUBMITTED DIRECT TESTIMONY IN THE INSTANT CASE?

A. Yes, my direct testimony was submitted in support of the initial application in this docket by Black Mountain Sewer Corporation ("BMSC" or "Company").

Q. WHAT IS THE PURPOSE OF THIS REBUTTAL TESTIMONY?

A. I will provide rebuttal testimony in response to the direct filings by Arizona Corporation Commission Utilities Division Staff ("Staff") and the Residential Utility Consumer Office ("RUCO") with respect to rate base, revenues and expenses, cost of capital and rate design.

Q. WHAT IS THE REVENUE INCREASE THAT THE COMPANY IS PROPOSING IN THIS REBUTTAL TESTIMONY?

A. The Company is proposing a total revenue requirement of $1,478,369, which constitutes an increase in revenues of $270,629, or 22.41% over test year revenues.

Q. HOW DOES THIS COMPARE WITH THE COMPANY'S DIRECT FILING?

A. In the direct filing, the Company requested a total revenue requirement of $1,371,019, which required an increase in revenues of $163,279, or 13.52%.

Q. WHY IS THE REQUESTED REVENUE INCREASE HIGHER IN BMSC'S REBUTTAL FILING?

A. In its rebuttal filing, BMSC has adopted a number of adjustments recommended by Staff and/or RUCO, as well as proposed a number of adjustments of its own. The net result of these adjustments is a $24,035 decrease in the proposed level of

operating expenses compared to the adjusted test year expense and a net increase in Original Cost Rate Base ("OCRB") and Fair Value Rate Base ('FVRB') of $754,820 from the direct filing. Notably, the Company continues to propose that its OCRB be used as its FVRB for purposes of setting rates in this proceeding.

Q. RATE BASE HAS INCREASED SIGNIFICNALTY FROM THE DIRECT TO THIS REBUTTAL FILING. IS THERE ANY PARTICUILAR REASON FOR THIS NOTICABLE INCREASE?

A. The primary factor leading to higher rate base at this rebuttal stage is Staff's recommendation that the Commission (1) discontinue the hook-up fee charged by BMSC and (2) require the Company to refund amounts already spent. Brown DT at 36-38. The Company accepts Staff's recommendations, however, Staff has left out critical steps required if its recommendation is to be adopted.

Specifically, if the Company is to refund amounts already spent from the hook up fee, then the amount refunded is paid in capital and must be treated as an investment in plant by the shareholder for purposes of determining rate base. In addition, if the hook up fee is to be discontinued and amounts already spent refunded, the hook-up fee funds currently held by BMSC must also be refunded. The net result of these two known and measurable adjustments is an increase in rate base and rates. However, I would note, every BMSC customer would receive a refund of approximately $450, based on the test year end number of customers. I address the basis of the refund and the refund calculation later in my testimony.

Q. WHAT ARE THE PROPOSED REVENUE REQUIREMENTS AND RATE INCREASES FOR THE COMPANY, STAFF, AND RUCO AT THIS STAGE OF THE PROCEEDING?

A. The proposed revenue requirements and proposed rate increases are as follows:

	Revenue Requirement	Revenue Incr.	% Increase
Company-Direct	$1,371,019	$ 163,279	13.52%
Staff	$1,235,947	$ 30,495	2.53%
RUCO	$1,213,210	$ 5,470	.45%
Company Rebuttal	$1,478,341	$ 272,889	22.64%

II. RATE BASE.

Q. WOULD YOU PLEASE IDENTIFY THE PARTIES' RESPECTIVE RATE BASE RECOMMENDATIONS?

A. The rate bases proposed by all parties in the case are as follows:

	OCRB	FVRB
Company-Direct	$ 887,449	$ 887,449
Staff	$ 415,172	$ 415,172
RUCO	$ 1,372,834	$ 1,372,834
Company Rebuttal	$ 1,648,269	$ 1,648,269

A. Post Test Year Plant.

Q. WOULD YOU PLEASE DISCUSS THE COMPANY'S PROPOSED ORIGINAL COST RATE BASE, AND IDENTIFY ANY ADJUSTMENTS YOU HAVE ACCEPTED FROM STAFF AND/OR RUCO?

A. The Company's rebuttal rate base adjustments to OCRB are shown on rebuttal schedules B-2, pages 3 through 12. Rebuttal Schedule B-2, page 1, shows the rebuttal OCRB. The Company continues to propose that certain post test year plant be included in rate base. This post-test year plant consists of a chlorinator installed after the end of the test year and used to treat wastewater. This capital project is discussed in greater detail in Michael Weber's rebuttal testimony. *See* Weber RB at 5.

Q. HAVE ANY CHANGES BEEN MADE IN THE REBUTTAL FILING REGARDING THIS POST TEST YEAR PLANT?

A. Yes, the Company is proposing a lower amount for the chlorinator in its rebuttal filing. In the direct filing, the chlorinator cost was projected to be $94,297. The project is now complete and the actual cost, $85,699, is known and measurable. The adjustment to revise the post test year plant can be found in the Company's Rebuttal Schedule B-2, adjustment number 1.

Q. DID THE COMPANY PROVIDE STAFF AND RUCO WITH THE ACTUAL COSTS FOR POST TEST YEAR PLANT REQUESTED FOR INCLUSION IN RATE BASE?

A. Yes, the actual amounts along with supporting documents of actual costs were given to the other parties during discovery in this proceeding. RUCO has accepted the Company's support for the chlorinator and agrees it should be included in rate base because it was necessary, beneficial to ratepayers and revenue neutral. *See* Diaz-Cortez DT at 9. The Company's rebuttal adjustment reduces the cost of the chlorinator to RUCO's proposed amount, which amount reflects the actual cost. Staff recommends that the chlorinator be excluded from rate base. *See* Brown DT at 9.

Q. WHAT IS STAFF'S POSITION REGARDING POST TEST YEAR PLANT?

A. Staff states that "[i]n the absence of extraordinary circumstances, the costs of the historical test year should be used in the development of the revenue requirement." *Id.*

Q. HAS THE COMMISSION ADOPTED A POLICY OR ISSUED A DECISION HOLDING THAT POST TEST YEAR PLANT SHOULD ONLY BE INCLUDED IN RATE BASE WHEN EXTRAORDINARY CIRCUMSTANCES ARE PRESENT?

A. No, in fact Staff has advanced this exact position on prior occasions and the Commission has failed to adopt it. *See, e.g., Rio Rico Utilities, Inc.*, Decision No. 67279 (October 5, 2004); *Bella Vista Water Company*, Decision No. 65350 (Nov. 1, 2002); *Chaparral City Water Company*, Decision No. 68176 (Sept. 30, 2005).

Q DID STAFF EXPLAIN WHY THIS CASE IS DIFFERENT THAN THOSE CASES WHERE ITS POSITION ON POST TEST YEAR PLANT WAS REJECTED?

A. No, Staff offers no explanation. Additionally, when BMSC asked Staff to address the Commission's inclusion of post test year plant in several recent Commission decisions, Staff's accounting witness claimed it was too burdensome to familiarize herself with applicable Commission precedent. *See* Staff Responses to Company Data Requests 2.1 and 2.3, copies attached hereto at Bourassa Rebuttal Exhibit 1.

Q. HOW CAN STAFF JUSTIFY COMPLETELY IGNORING COMMISISON PRECEDENT?

A. In my opinion, it should not be allowed to do so. Staff asserts that each rate case must be decided on a case-by-case basis. Unfortunately, Staff takes this to mean that every issue should be addressed anew in every rate case. I disagree. I agree that the Commission must consider the unique facts present in every case, but that does not mean every issue, standard, rule of law or the like should be re-litigated in every case. Rather, the Commission should apply applicable precedent unless good reason to deviate is present.

Q. DOES THE INCLUSION OF POST TEST YEAR PLANT IN RATE BASE UNDERMINE USE OF A HISTORIC TEST YEAR?

A. Not at all. I agree that this Commission utilizes the historic test year as a starting point, but the rules expressly permit, and the Commission has repeatedly allowed, pro forma adjustments, including post test year plant, in order ensure a proper

matching of plant to test year customers and to more accurately reflect reality during the period the rates will be in effect.

Q. BUT ISN'T THAT TRUE ONLY IN THE TWO CASES IDENITFIED BY STAFF?

A. No. Staff does attempt to further justify its position by stating that it recognizes post test year plant in two cases. The first situation is where the magnitude of the investment relative to the utility's total investment is such that not including the post test year plant in the cost of service would jeopardize the utility's financial health. Brown DT at 9.

Q. DO YOU AGREE WITH THE CRITERIA THAT THE PLANT MUST BE SUBSTANTIAL?

A. No. There are definite problems in the application of such a requirement. Investments in plant and equipment are never undertaken lightly and such investment will always have an impact on the utility's financial health. When recovery through rates on and of investments in plant is denied or delayed, regardless of size, it affects the utility's ability to attract capital. To what degree do we affect a company's financial health and the ability to attract capital before we say we are jeopardizing its financial health? This is far too subjective a standard and will have the effect of chilling timely investment.

Q. IF POST TEST YEAR PLANT IS DISALLOWED IN THIS CASE, COULDN'T THE COMPANY PROPOSE RATE BASE TREATMENT IN ITS NEXT RATE CASE?

A. Sure, and it would have to. But even if the Company began preparing a case today, it would take at least 13-18 months or more to get a new decision. So, by my estimation, the plant in the instant case would have been in service for two to three years without any return on or of the Company's investment. Application of this

policy is hardly equitable and would surely discourage other utilities from proactively addressing system safety and reliability needs.

Q. DIDN'T BMSC CREATE THIS PROBLEM WHEN IT SELECTED THE TEST YEAR TO BE USED IN THIS RATE CASE?

A. No. Certainly BMSC could have held up this filing until the chlorinator project was complete. However, it instead chose a fiscal year-end test year to assist the Commission and all parties. In doing so, it relied upon well-established Commission precedent concerning the treatment of post test year plant. *See, e.g., Chaparral City Water Company,* Decision No. 68176 (Sept. 30, 2005); *Rio Rico Utilities, Inc.*, Decision No. 67279 (October 5, 2004); *Arizona Water Company—Eastern Group*, Decision No. 66489 March 19, 2004); *Bella Vista Water Company*, Decision No. 65350 (Nov. 1, 2002); *Arizona Water Company—Northern Group*, Decision No. 64282 December 28, 2001); *Paradise Valley Water Company*, Decision No. 61831 (July 20, 1999); *Far West Water Company*, Decision No. 60437 (September 29, 1997). Staff agrees such reliance is reasonable. *See* Staff Response to Company Data Request 2.12, copy attached hereto at Bourassa Rebuttal Exhibit 1. The Company's request to include post test year plant in rate base is consistent with these prior Commission decisions.

Q. WHAT IS THE OTHER SITUATION IN WHICH STAFF BELIEVES POST TEST YEAR PLANT CAN BE INCLUDED IN RATE BASE?

A. Staff also claims that post test year plant can be included in rate base under the following conditions:

a. The cost of the post test year pant is significant and substantial;

b. The net impact on revenues and expenses for the post test year plant is known and insignificant;

c. The post test year plant is prudent and necessary for the provision of

services and reflects, efficient, effective, and timely decision-making;

d. The funding source(s) and amounts for the PTY plant are known and measurable in the rate application;

d. The PTY is in service at the time of the rate filing;

e. The PTY plant is recorded in completed plant account(s) in the general ledger and auditable records are available at the time of filing, and;

g. All related retirements are recorded in the general ledger and recognized in the rate filing.

Brown DT at 8.

Q. DID STAFF OFFER ANY SUPPORT FOR ITS POSITION ON POST TEST YEAR PLANT?

A. Not in its direct filing, however, Ms. Brown did identify Decision No. 68071 (August 17, 2005) as a prior Commission supporting her assertion that post test year plant should only be included in rate base. *See* Staff Response to Company Data Request 2.8, copy attached hereto at Bourassa Rebuttal Exhibit 1.

Q. HAVE YOU REVIEWED THIS DECISION?

A. Yes and Ms. Brown's reliance on this case to support her position on post test year plant is entirely misplaced. Decision No. 68071 involved rate setting for two electric cooperatives. Nowhere in this decision does the Commission discuss post test year plant, as Ms. Brown's reliance on this order would suggest. Instead, the order provides that Staff and the applicant agree on rate base and that no party opposed Staff's adjustments. This is hardly support for Staff's recommendation that the Commission ignore well-established precedent concerning treatment of post test year plant.

Q. DID STAFF CONDUCT ANY SPECIFIC ANALYSIS REGARDING THE REASONS FOR THE CHLORINATOR REPLACEMENT?

A. None that I could find. Staff engineering witness Marlin Scott Jr.'s testimony is silent on the issue of post test year plant. The only analysis is Ms. Brown's analysis based on outdated Staff accounting policies that have repeatedly been rejected by the Commission.

Q. IS THERE ANY DISPUTE THAT THE COST OF THE CHLORINATOR IS KNOWN AND MEASURABLE?

A. No, the cost was $85,699. Notably, this is over 5 percent of the Company's proposed rate base and over 20 percent of Staff's proposed rate base. Exclusion of this plant from rate base would deprive the Company of more than $22,000 of revenue. This is hardly the insignificant financial impact Ms. Brown attempts to portray. *See* Brown DT at 10.

Q. IS THE CHLORINATOR REVENUE NEUTRAL?

A. Yes. *See* Weber RB at 5.

Q. ARE THERE UNKNOWN COSTS ASSOCIATED WITH OPERATING THE CHLORINATOR?

A. As of the end of the test year, yes, but, they would be nominal at best, Moreover, it the Company that is prejudiced by not being able to recover those additional costs through rates at this time.

B. <u>Deferred Income Taxes</u>.

Q. DID THE COMPANY INLCUDE DEFERRED INCOME TAXES IN ITS RATE BASE SCHEDULES?

A. No, because as a practical matter, it simpler to calculate and record the deferred taxes at the same level those taxes will be paid. Since the Company's results are filed as part of its parent's consolidated tax return, the deferred taxes were recorded on the parent's books and were not pushed-down to the Company's books.

However, the Company concurs with Staff's reasons for inclusion of

deferred income tax in the instant case and therefore accepts Staff's deferred income asset tax adjustment. Brown DT at 19-21 and Schedules CSB-4 and CSB-9. My Rebuttal Schedule B-2, adjustment 6, reflects the increase to deferred taxes in the Company's proposed rebuttal rate base.

Q. WHAT IS THE BASIS FOR STAFF'S CALCULATION OF DEFERRED INCOME TAXES?

A. The basis for the amount of deferred income tax assets was provided to Staff in response to a data request. *See* Company Responses to Staff Data Requests 12.1 and 12.2, copies attached hereto as Bourassa Rebuttal Exhibit 2. The deferred tax asset of $163,841 proposed by the Company is slightly less than Staff's amount of $164,000..

Q. DOES RUCO PROPOSE DEFERRED INCOME TAXES IN RATE BASE?

A. Yes, but RUCO made a different computation that resulted in a deferred tax liability and makes an adjustment that significantly lowers rate base.

Q. WAS RUCO AWARE OF THE COMPANY'S DEFERRED TAX AMOUNTS?

A. Yes. All data request responses, including the response to Staff 2.7, were provided to RUCO. RUCO simply chose to ignore this information, presumably because the net result was a deferred tax asset, an increase in rate base.

Q. WHAT WAS THE BASIS FOR RUCO'S DEFERRED TAX CALCULATION?

A. RUCO used BMSC's parent's consolidated information. Ms. Diaz-Cortez took the deferred income taxes for the consolidated entity and then allocated a portion of that amount to BMSC based on the ratio of the price paid by the parent for BMSC's stock to the parent's total assets. Diaz-Cortez DT at 11.

Q. IS THIS METHODOLOGY VALID?

A. I have never seen an adjustment based on the methodology employed by RUCO and I believe the method is contrary to the Statement of Financing Accounting Standard ("SFAS") 109, Accounting for Income Taxes (February 1992). The deferred tax amount for a group that files a consolidated income tax return must be the sum of the individual companies' asset and liability method prescribed by SFAS 109. The calculation made by the Company and adopted by Staff is consistent with SFAS 109 because it is based on the amounts of assets and liabilities on the books of the Company which result in the deferred taxes of the Company's parent. In contrast, RUCO's allocation is based on the purchase price for the Company's stock. It should be rejected.

C. <u>Working Capital</u>.

Q. HAVE YOU MADE A REBUTTAL ADJUSTMENT CONCERING WORKING CAPITAL?

A. The Company agrees with Staff's adjustment to reduce working capital and prepaid expenses. *See* Brown DT at 24. Company Rebuttal Schedule B-2, adjustment number 7 reduces working capital to zero and Company adjustment number 8 reduces prepaid expenses to zero.

Q. DID RUCO PROPOSE WORKING CAPITAL?

A. Yes, RUCO proposes a negative working capital amount.

Q. DID RUCO PREPARE A LEAD-LAG STUDY FOR BMSC?

A. No. RUCO estimated leads and lags for BMSC using generalized estimates. As a result, the working capital amount computed by RUCO is pure speculation. It should be rejected.

Q. WHAT WAS THE AMOUNT OF WORKING CAPITAL INCLUDED IN RATE BASE IN THE PRIOR RATE CASE FOR BMSC?

A. Zero, same as Staff recommends and the Company has now agreed to accept.

D. AIAC/CIAC Balances.

Q. ARE THERE ANY ADJUSTMENTS REGARDING THE AIAC/CIAC BALANCES?

A. In the Company's Rebuttal Schedule B-2, adjustment number 4, I propose corrections to plant-in-service, advances-in-aid of construction ("AIAC") contributions-in-aid of construction ("CIAC"). Upon review of Staff's proposed adjustment to CIAC and amortization of CIAC and the Company's own analysis of the CIAC account, the Company discovered Staff made an error in its computation. Second, the Company identified expired AIAC contracts which were not reclassified to CIAC. Third, the Company identified bookkeeping errors related to plant-in-service, CIAC, and AIAC, which errors must be corrected.

Q. PLEASE EXPLAIN THE STAFF COMPUTATION ERROR?

A. Staff erroneously included $101,845 of hook-up fees from January 1994 through June 1994 in gross CIAC. The prior rate case test year ended June 30, 1994 and the $101,845 should not have been included Staff's CIAC additions for 1994. *See* Staff Direct Schedule CSB-8. Staff has acknowledged this error. *See* Staff Response to Company Data Request 2.14, copy attached hereto as Bourassa Rebuttal Exhibit 1. Since the Company's reported CIAC balance in its direct filing already included the $101,845, no additional adjustment to the Company's reported CIAC balance is required.

Q. PLEASE EXPLAIN THE EXPIRED AIAC CONTRACTS?

A. In its review of the CIAC and AIAC accounts which was prompted by Staff's proposed adjustment to CIAC, BMSC discovered $150,095 of AIAC contracts that

expired in 1998. When AIAC contracts expire, the un-refunded balance reverts to CIAC. Thus, B-2 adjustment number 4 includes an adjustment to increase CIAC by $150,095 and decrease AIAC by $150,095.

Q. PLEASE EXPLAIN THE ADJUSTMENTS TO CORRECT BOOKKEEPING ERRORS FOR PLANT-IN-SERVICE, CIAC AND AIAC?

A. The Company has discovered that due to bookkeeping errors, the CIAC, AIAC, and plant-in-service on two developer funded projects were not recorded correctly. When the amounts are recorded correctly the resulting CIAC balance matches Staff's CIAC balance, less the Staff error for CIAC funds received from January 1994 through June of 1994, plus the $150,095 related to the expired AIAC agreement. Also, after making Company proposed entries, the AIAC balance is properly stated again and reconciles to the detail of agreements previously supplied to Staff. *See* Company Response to RUCO Data Request 1.08, copy attached hereto as Bourassa Rebuttal Exhibit 3. *See also* Company Responses to Staff Data Requests 5.5, 9.3, 10.2, copies attached hereto as Bourassa Rebuttal Exhibit 2.

Q. HAVE YOU SHOWN A RECONCILIATION OF THE COMPANY'S BALANCE TO STAFF'S CORRECTED BALANCE?

A. Yes. Note 1 on Rebuttal Schedule B-2, adjustment number 4 shows the reconciliation to Staff's corrected balance.

Q. CAN YOU EXPLAIN HOW THE BOOKKEEPING ERROR OCCURRED?

A. Yes. Basically, the transaction history shows that when developer funds were first received, Cash was increased (debit to cash) and Project Deposits (not AIAC) were increased (credit to deposits). Subsequently, as project costs were recorded, Cash was decreased (credit to cash) and Project Deposits were decreased (debit to deposits). Thus, both the cash and deposit account had zero balances for these projects. The AIAC and plant-in-service also had zero balances for these projects

Q. CAN YOU ILLUSTRATE?

A. Yes. As an example, assume the developer contributed $50 and advanced $50, for a total of $100 for a developer funded project. The Company's transaction history looks something like this:

1. Transaction to record receipt of developer funds

	Debit	Credit
Cash	$100	
Deposits		$100

At this point, Cash has a $100 balance (Debit Balance) and Deposits has a $100 balance (Credit Balance).

* * * *

2. Transaction to record payment/purchase of plant-in-service

	Debit	Credit
Deposits	$100	
Cash		$100

At this point, Cash has a 0 balance, Deposits has a 0 balance, and Plant-in-Service has a 0 balance.

The correct accounting would be as follows:

1. Transaction to record receipt of developer funds

	Debit	Credit
Cash	$100	
CIAC		$ 50
AIAC		$ 50

At this point, Cash has a $100 balance (Debit Balance), CIAC has a $ 50 balance (Credit Balance), and CIAC has a $ 50 balance (Credit Balance), and

2. Transaction to record payment/purchase of plant-in-service

	Debit	Credit
Plant-in-Service	$100	
Cash		$100

At this point, Cash has a 0 balance, Plant-in Service has a $100 balance (Debit Balance), CIAC has a $50 balance (Credit Balance), and AIAC has a $50 balance (Credit Balance).

Q. IS THAT A COMPLETE PICTURE OF EVERYTHING THAT HAPPENED RELATED TO THE BOOKKEEPING ERRORS?

A. No, not completely. In July 2004, the Company undertook a project to reconcile the AIAC accounts. This project included accumulating all unexpired AIAC agreements and comparing the amounts conveyed in the aggregate to the AIAC balance at the time. It was discovered that AIAC was understated and needed to be increased (CREDIT to AIAC). The offsetting DEBIT was erroneously booked to CIAC (instead of Plant), thus understating the CIAC account as Staff correctly pointed out. Also, since this project only involved reviewing unexpired AIAC agreements, the unexpired AIAC agreement relating to the $150,095 was not taken into consideration at that time when determining the proper ledger balance for AIAC. Had the unexpired AIAC agreement been taken into consideration, the AIAC still would have had to be adjusted to the $1.3 million balance for which the Company has provided detail.

Q. WILL PLANT-IN-SERVICE AND RATE BASE BE MISSTATED IF STAFF'S ADJUSTMENTS TO AIAC AND CIAC ARE ADOPTED WITHOUT YOUR ADDITIONAL CORRECTIONS AND CHANGES?

A. Yes, setting aside the error Staff has already admitted to, Staff's proposed adjustment is incomplete and one-sided. Staff's adjustment increases CIAC, but

does not increase plant-in-service. The net effect of Staff's adjustment is a reduction to rate base because there is no corresponding increase to plant in service. It also does not account for the additional AIAC identified and the related plant-in-service as well as the expired AIAC contracts. Without the corrections in Rebuttal Schedule B-2, adjustment number 4, plant-in service will be understated by $339,883, CIAC will be understated by $344,384, and AIAC will be overstated by $4,551. Again, the Company agrees with Staff's CIAC balance with the exception of the expired AIAC amounts. The reconciliation to Staff's CIAC balance is shown in Note 1 of Rebuttal Schedule B-2, adjustment number 4.

Q. WHAT IMPACT DOES YOUR ADJUSTMENT HAVE ON THE COMPANY'S PROPOSED RATE BASE?

A. The net effect on rate base of my proposed adjustment, Rebuttal Schedule B-2, adjustment number 4, is zero.

E. <u>Staff's removal of "Affiliated Profit"</u>.

Q. STAFF HAS MADE ADJUSTMENTS TO RATE BASE TO REMOVE AMOUNTS LABELED "AFFILIATE PROFIT." HOW DOES BMSC RESPOND TO THESE ADJUSTMENT?

A. The Company disagrees with Staff's proposal to remove capitalized affiliate profit from plant in service. Staff's basis for removing affiliate profits rests on the premise that "related party transactions *have sometimes* been known to be recorded at inflated costs." *See* Brown DT at 13, emphasis added.

Q. DID STAFF PROVIDE EVIDENCE OF ANY INFLATED COSTS BILLED OR ATTEMPTED TO BE BILLED BY THE COMPANY'S PARENT?

A. No, Staff removed the amounts simply because they were billed by affiliates and included profit. *See* Staff Response to Company Data Request 1.14, copy attached hereto as Bourassa Rebuttal Exhibit 1. I can only conclude from this response that

it is Staff's position that any affiliate profit represents an inflated cost and would always be removed.

Q. WOULD STAFF HAVE REMOVED "PROFIT" IF THE COMPANY HAD ENGAGED NON-AFFILIATED COMPANIES TO PERFORM THE SAME WORK?

A. No. *See* Staff Response to Company Date Request 2.21, copy attached hereto as Bourassa Rebuttal Exhibit 1. Again, I can only conclude from the response that Staff automatically eliminates affiliate profit without any analysis of whether such amounts were prudently incurred.

Q. DO YOU BELIEVE THIS IS THE CORRECT INQUIRY?

A. No, Staff should look at the reasonableness of the costs incurred, irrespective of the source of those costs. This may result in greater scrutiny when transactions occur between affiliates but there is simply no basis for Staff's black letter policy that all affiliated profit is evil and must be eliminated.

Q. DID THE COMPANY PROVIDE INFORMATION THAT WOULD HAVE ALLOWED STAFF TO MAKE SUCH A DETERMINATION?

A. Yes. *See* Company Response to Staff Data Request 1.52, copy attached hereto as Bourassa Rebuttal Exhibit 2. The amount of affiliate profit totaled $20,926 on total project costs of $258,863. The affiliate profit equals approximately 8 percent of these project costs and was primarily incurred for engineering and project management services at hourly rates. Most of these profits were related to CIAC funded plant as I will discuss below.

Q. DID THE COMPANY PROVIDE STAFF HOURLY RATES TYPICALLY CHARGED BY THIRD PARTIES FOR THESE SERVICES?

A. Yes. The Company provided comparable rates for services APS provided and a quote from Corollo to provide services to Litchfield Park Service Company, an

affiliate of BMSC. *See* Company Response to Staff Data Request 1.52, copy attached hereto as Bourassa Rebuttal Exhibit 2. The Company also provided the rates its parent charges for engineering and project management services. *See* Company Response to Staff Data Request 1.52. copy attached hereto as Bourassa Rebuttal Exhibit 2.

Q. HOW DO THEY COMPARE?

A. Hourly rates for engineering services by affiliated entities were billed at or below third-party hourly rates.

Q. WOULD YOU CONSIDER THE THESE TO BE "INFLATED" COSTS?

A. No. The Company paid no more for these services than it would for equivalent services from non-affiliates. Therefore, these costs would have met any prudency review Staff conducted, had it done such an analysis rather than simply determining that affiliates are not entitled to a profit on services they provide to BMSC. As explained in greater detail in Mr. Weber's rebuttal, Staff's entire approach to affiliated costs is fundamentally flawed and undermines the way Algonquin operates public service corporations in Arizona. *See* Weber RB at 5.

Q. ARE THERE ANY OTHER ISSUES WITH STAFF'S AFFILIATE PROFIT TO PLANT IN SERIVCE ADJUSTMENT?

A. Yes. A significant amount of the affiliate billings were for plant paid by hook-up fees. Staff's adjustment is incomplete because it does not also reduce CIAC for affiliate profits. Without the adjustment to CIAC, rate base will be understated. CIAC must be reduced by $15,256 for Staff's adjustment to be complete. The effect on rate base of Staff's adjustment should be a net decrease of $5,670, not $20,926. Again, however, Staff's adjustment is not proper in the first place

F. <u>Termination of Hook-Up Fee and Customer Refunds</u>.

Q. EARLIER YOU REFERRED TO ADJUSTMENTS RELATED TO STAFF'S

RECOMMENDATION TO TERMINATE THE HOOK-UP FEE COLLECTED BY BMSC. WOULD YOU PLEASE EXPLAIN THESE ADJUSTMENTS?

A. Certainly. In Rebuttal Schedule B-2, adjustment number 9, BMSC proposes a reduction to CIAC for (1) land paid for by hook-up fee funds; and (2) unexpended hook-up fee funds at the end of the test year. This adjustment reduces CIAC by $833,367, $452,467 for land and $380,900 for unexpended hook-up fees. Consistent with Staff's position on the hook-up fee, the Company proposes to refund this amount to rate payers and to discontinue collecting hook-up fees. Brown DT at 36-38. In order to properly match rate base, revenues and expenses for the test year, this adjustment is necessary.

Q. DID STAFF MAKE A RECOMMENDATION REGARDING THE MANNER OF REFUNDS?

A. No, Staff's recommendation is incomplete. While Staff recommends that the Company refund the amount used from hook-up fee funds to buy the land on which the treatment plant is located and that the hook-up fee be discontinued, Staff ignores every possible ratemaking impact of this recommendation. In order for the Company to accept and the Commission to adopt Staff's recommendation to make a refund and discontinue the hook-up fee, certain other adjustments are necessary.

Q. BUT WHERE WILL BMSC GET THE CASH TO MAKE REFUNDS?

A. The Company's parent will need to provide paid in capital in the amount of $452,467, the amount of hook-up fees Staff claims were improperly used to buy land. BMSC does not agree that the amounts were improperly used, but to avoid litigating that issue, it will agree to refund the cost of the land. The balance of the refund will come from funds held in a restricted cash account. At the end of the test year the balance of the hook-up fee account was $380,900. The total of these

two amounts is $833,367, the total amount BMSC proposes to refund to customers consistent with Staff's recommendation to terminate collection of the hook-up fee.

Q. IS THIS THE SAME AMOUNT STAFF RECOMMENDS BE REIMBURSED?

A. Staff recommends an amount totaling $613,232. This amount consists of $451,000 for land, $142,232 for computer equipment, and $20,000 for vehicles. Staff asserts the Company inappropriately used hook-up fees for pay for these items. As noted above, BMSC will agree to refund hook-up fee funds that were used to buy the land where the treatment plant is located, however, the Company's records show the land cost was $452,467, not $451,000. The Company further disagrees that the two other amounts identified by Staff should be refunded.

Q. WHY DOES THE COMPANY DISAGREE?

A. The Company does not agree with Staff that hook-up fee funds were used for computer equipment and vehicles. A misunderstanding of the annual hook-up fee report may have given this impression. The original hook-up fee report submitted to the Commission in 2002 showed all capital expenditures for the entire year regardless of how they were funded. However, further analysis and accounting of the hook-up fee cash account for 2002, shows hook-up fee funds were used on only eligible plant expenditures. The column heading on the document provided in the Company response to Staff data request 1.45 was mis-labeled. Reconciling the change in the hook-up fee capacity account with the capital expenditures shows no hook-up fees were used for office equipment or vehicles. *See* Bourassa Rebuttal Exhibit 4.

Q. WHAT ADJUSTMENTS ARE NECESSARY TO ACCOUNT FOR THE REFUNDS?

A. First, the paid in capital to reimburse the costs of the land must be included in rate

base. The $452,467 paid for the land is now the shareholder's investment and it is entitled to an opportunity to earn a return on the fair value of that property. Therefore, I have increased rate base by $452,467. *See* Rebuttal Schedule B-2, adjustment number 9.

Second, the Company's CIAC balance must be adjusted to account for the remaining CIAC funds that need to be refunded if the hook-up fee is being terminated consistent with Staff's recommendation. I have made an adjustment that removes $380,900 from the CIAC balance. Both of these adjustments are based on known and measurable changes to the test year and both are necessary.

Q. WHY DIDN'T STAFF MAKE THESE ADJUSTMENTS?

A. Because Staff's analysis was inadequate and its recommendation regarding refunds incomplete. All Staff offered was Ms. Brown's testimony that "Staff will make a recommendation on a methodology on the refunding outside of this rate proceeding." *See* Brown DT at 38. This is a rate case, we are dealing with significant amounts of money, both in refunds for ratepayers and revenue to the Company, and it is absurd that such decisions would be postponed for another day—especially when all the adjustments are straight-forward based on known and measurable information.

. To refund hook-up fees, CIAC must be reduced. The plant investment remains in rate base so the net affect is to increase rate base. Depreciation expense will increase along with the return on rate base component of the revenue requirement.

Q. HAVE YOU ACCOUNTED FOR THE IMPACT OF THE CIAC REFUNDING BESIDES A REDUCTION TO CIAC?

A. Yes. The effects of the refund are shown in the Company's proposed adjustment to accumulated amortization as well as to depreciation expense. Rebuttal Schedule

B-2, adjustment 10 reduces accumulated amortization for CIAC. It not only reflects the land and unexpended CIAC refund, but also accounts for the adjustments to CIAC discussed previously in Rebuttal Schedule B-2, adjustment 4. I will discuss how the impact on depreciation expense is accounted for later in my testimony.

G. <u>RUCO Adjustment for Scottsdale Capacity</u>.

Q. HAS RUCO MADE AN ADJUSTMENT TO RATE BASE RELATING TO THE COMPANY'S USE OF SCOTTSDALE TREATMENT CAPACITY?

A. Yes, but first let me provide a little background. The Company has an agreement with the City of Scottsdale that allows it to send wastewater flows to Scottsdale for treatment and disposal ("Scottsdale Capacity"). The Company pays Scottsdale for the use of this capacity according to the parties' written agreement, but payments for capacity are made in lump-sums, as opposed to on some monthly or annual basis. (Actual usage is billed monthly and is included in purchased wastewater treatment expense. The purchased wastewater treatment costs are separate from this discussion.) Under the approach adopted by the Commission in the Company's last rate case, the debt service on the debt used to fund the acquisition of the Scottsdale Capacity is treated as an operating lease and included in operating expenses as lease expense. *See* Decision No. 59944 (December 26, 1996) and Decision No. 60240 (June 12, 1997). There was no rate base treatment associated with the Scottsdale Capacity under the approach ordered by the Commission.

Q. DID THE COMPANY OPPOSE TREATMENT OF THE SCOTTSDALE CAPACITY COSTS AS AN OPERATING LEASE?

A. Yes, as did RUCO. Nevertheless, the Commission adopted the approach recommended by its Staff, presumably because it resulted in lower rates to customers than if the Scottsdale Capacity was treated as an asset of the Company's

and included in rate base.

Q. HOW DOES STAFF PROPOSE THAT THE SCOTTSDALE CAPACITY COST BE TREATED IN THIS RATE CASE?

A. Staff follows the approach ordered in the prior rate case decisions and treats an amortized portion of the debt used to acquire Scottsdale Capacity as an operating expense. Brown DT at 32-33. BMSC agrees that the Scottsdale Capacity must continue to be treated as an operating lease because that is how the Commission ordered it to be treated in the last rate case, but has concerns with Staff's adjustment to remove the gross-up the Company calculated. *Id.*

Q. WHAT APPROACH DOES RUCO TAKE?

A. RUCO argues that treatment of the Scottsdale Capacity is "fictitious" and a "fallacy" and that the amounts paid by BMSC purchased an asset that should be afforded rate base treatment. Diaz-Cortez DT at 3-8.

Q. HOW DOES THE COMPANY RESPOND TO RUCO'S ARGUMENT THAT THE SCOTTSDALE CAPACITY SHOULD BE TREATED AS AN ASSET?

A. To begin with, BMSC takes issue with Ms. Diaz-Cortez's attempts to portray the Company as having done something wrong. For example, Ms. Diaz-Cortez testifies that BMSC "proposes to pretend that the capacity rights that it owns in the Scottsdale Wastewater Treatment Plant were, in fact, an operating lease." Diaz-Cortez DT at 3. Amazingly, Ms. Diaz-Cortez then goes on to testify that the Company's direct filing "offers no explanation for its proposed operating lease treatment of the capacity rights." *Id.* Ms. Diaz-Cortez's testimony is not only inflammatory, it is utterly false.

Q. DID YOU EXPLAIN THE BASIS FOR TREATING THE SCOTTSDALE CAPACITY AS AN OPERATING LEASE IN YOUR DIRECT TESTIMONY?

A. Yes, in my direct testimony I explained that the Company was treating the Scottsdale Capacity in the manner ordered by the Commission in Decision No. 59944. Bourassa DT at 9-10. Therefore, Ms. Diaz-Cortez either failed to read my testimony or is misleading this Commission in order to support her position. In fact, Ms. Diaz-Cortez knows exactly why the Scottsdale Capacity is being treated as an operating lease as RUCO was a party in the prior rate proceedings where the Commission ordered this treatment. *See* RUCO Responses to Company Data Requests 1.9 and 1.11, copies attached hereto as Bourassa Rebuttal Exhibit 5. Either way, the fact remains that the Company is not "pretending" anything, nor is it responsible for creating any "fiction." The Commission has ordered something and the Company has followed it. In this light, it is Ms. Diaz-Cortez' testimony to the contrary that is fictitious and fallacious.

Q. BUT DIDN'T THE COMPANY ARGUE IN THE PRIOR RATE PROCEEDINGS FOR THE SAME TREATMENT RUCO NOW PROPOSES THE COMISSION ADOPT?

A. Yes, the Company opposed the operating lease methodology in the prior case. *See* Decision 59944 at 6. The Commission rejected the Company's opposition, as well as RUCO's, and made its decision ordering the operating lease methodology and related rate making treatment for the costs of the Scottsdale Capacity. Once the Commission rendered its decision, the operating lease methodology for these particular acquisition costs was no longer a "hypothetical," a "fiction" or a "fallacy"—it was the mandate of the Commission, a mandate RUCO elected not to appeal. *See* RUCO Responses to Company Data Requests 1.13, copy attached hereto as Bourassa Rebuttal Exhibit 5. RUCO should not be heard now, more than a decade later, to reargue its opposition because BMSC has followed the Commission's mandate, as it was legally required to do. This is really an issue of

fairness.

Q. WHY WOULD IT BE UNFAIR TO CHANG THE RATEMAKING TREATMENT OF THE SCOTTSDALE CAPACITY COSTS?

A. If rate base treatment of the Scottsdale Capacity costs had been approved in the prior rate case, the Company's revenue requirement would have included a return on and of the capacity costs. This would have resulted in significantly higher rates since the last case was decided and those rates put into effect. Instead, the Commission adopted the operating lease treatment, which resulted in lower rates to rate payers. In the instant case, the opposite is true because under RUCO's proposal, the original cost of the Scottsdale Capacity has been amortized. Diaz-Cortez DT at 6. *See also* RUCO Responses to Company Data Requests 1.18, copy attached hereto as Bourassa Rebuttal Exhibit 5. Switching ratemaking treatment between two methods based on the impact on rates is arbitrary.

Q. HOW CAN YOU BE CERTAIN THAT THE COSTS OF TREATING THE SCOTTSDALE CAPACITY AS AN ASSET IN THE LAST CASE WOULD HAVE RESULTED IN HIGHER RATES?

A. In Decision 59944, the Scottsdale treatment capacity acquisition cost at issue was $1,260,000. Of this amount, $300,000 of hook-up fees funds were used, thus, the incremental rate base impact in the prior case would have been $960,000. To fund the acquisition, the Company borrowed $960,000 for 20 years at 9.4 percent annual interest rate. In the prior case, a return of 10.8 percent on rate base was allowed. However, for simplicity, let's assume the weighted cost of capital was the same as the cost of debt at 9.4 percent. The following shows the incremental revenue requirement calculation for the Scottsdale treatment capacity using the rate base methodology:

(1) Incremental Rate base $960,000

(2)	Incremental Operating Income*	($48,000)
(3)	Rate of Return	9.4%
(4)	Incr. Required Operating Income (1) times (3)	$ 90,240
(5)	Incr. Operating Income Deficiency (5) minus (2)	$138,240
(6)	Income Tax Factor**	1.28
(7)	Incremental Revenue Increase (5) times (6)	$ 176,000

*Amortization equals $960,000 divided by 20 years.

** Approximate tax factor in the prior case.

The annual debt service on $960,000 for 20 years at 9.4 percent annual interest rate is approximately $108,000. The difference in rates is $68,000 per year.

Subsequent to Decision 59944, the Company acquired additional Scottsdale treatment capacity for $653,706. Of this amount, $153,706 of hook-up fees funds were used and the remaining amount was funded by additional debt in the amount of $500,000 for 20 years at an annual interest rate of 9.4 percent. The financing approval was authorized in Decision 60240 (June 11, 1997). In that decision, the Commission affirmed that the acquisition of this additional capacity would be at the same terms as set forth in Decision 59944 (that the purchase of the plant capacity was an operating lease).

Q. DID THE COMPANY RECEIVE A RATE INCREASE TO COVER THE ADDITONAL DEBT SERVICE IN DECISION 60240?

A. No. The Company's annual debt service for the additional capacity is approximately $56,000 per year. To date, rate payers have paid through rates the annual debt service on the original acquisition cost of $960,000, but have paid

nothing in rates for the annual debt service on the additional capacity acquisition cost $500,000.

Q. WHY DIDN'T THE COMPANY FILE A RATE APPLICATION FOR AN INCREASE IN RATES DURING AT THAT TIME?

A. It was precluded from filing a rate application at the time by Decision 59944.

Q. WHAT ABOUT RUCO'S ASSERTION THAT THE OPERATING LEASE METHODOLOGY DEPRIVES RATEPAYERS OF "CREDIT"?

A. Ms. Diaz-Cortez testified that "the operating lease methodology never provides credit for the portion of the capacity that ratepayers have already paid for." Diaz Cortez DT at 7. This argument is severely flawed.

Ms. Diaz-Cortez' arguments assume that the Company owns a portion of the Scottsdale Capacity and that the portion BMSC "owns" was afforded rate base treatment from the outset, such that customers have been paying a return on and of the acquisition cost through rates. Obviously, as discussed above, this is not true, or the rates approved n the last rate proceeding for the Company would have been higher. Therefore, I do not agree with Ms. Diaz-Cortez that customers have paid for something for which they now should receive a credit.

Additionally, the operating lease methodology adopted by the Commission rests on the premise that the Company "rents" but does not own the Scottsdale Capacity. Like rental expense for office space, the rate payers receive no "credit" for past recovery of rental expense in rates when new rates are set.

Q. WHAT ABOUT RUCO'S ASSERTION THAT THE CHANGE OF THE COMPANY'S NAME ELIMINATES THE "NEXUS" FOR THE OPERATING LEASE TREATMENT?

A. Ms. Diaz-Cortez makes this assertion in her direct testimony (at 4) but it is wrong. Algonquin bought the stock of the Company, then known as Boulders Carefree

Sewer Company, from the former shareholder. Then, Algonquin changed the name, not the stock. The stock has never changed, the assets have not been transferred from one legal entity to another, it has always been the same entity, albeit with a new name and a new shareholder.

Q. YOU ALSO MENTIONED THAT THE COMPANY DISAGREES WITH STAFF'S ADJUSTMENT TO ELIMINATE THE GROSS-UP ASSOCIATED WITH THE SCOTTSDLAE CAPACITY OPERATING LEASE TREATMENT. PLEASE EXPLAIN THE COMPANY'S OPPOSITION TO THIS ADJUSTMENT.

A. Yes. Staff's position is that not deducting the annual loan payments (principle and interest) to determine taxable income, and therefore income tax expense, is a cleaner method. See Brown DT at 32. Staff asserts its method does not create a difference in the treatment of principle payments and, therefore, requires no gross-up provision. *Id.* at 32. The Company has concluded that because Staff's method does not treat the principle payments differently, Staff's method results in higher income taxes and therefore, should not be adopted. I discuss the issue further in the income statement section.

H. <u>Miscellaneous Rate Base Issues</u>.

Q. PLEASE CONTINUE WITH THE PARTIES' RESPECTIVE RATE BASE RECOMMENDATIONS?

A. The Company agrees with Staff's proposal to exclude the allocated portion of computer equipment used by other Algonquin owned utilities from rate base. Brown DT at 14-15. The Company's original recordkeeping was in error and appreciates Staff's corrections. The adjustment to revise the plant-in-service can be found in the Company's Rebuttal Schedule B-2, adjustment number 2.

The Company also agrees with Staff that some adjustment to increase plant-

in-service for expensed plant included in operating expenses is necessary. However, the Company does not agree on the Staff proposed amount. The Company's proposed adjustment is $2,700 less than Staff's. The difference is due to an error Staff made in its analysis by including an amount in its proposed adjustment that was already included in plant-in-service, as discussed later in my testimony. The Company's proposed adjustment to plant-in-service can be found in the Company's Rebuttal Schedule B-2, adjustment number 3.

Q. DOES RUCO PROPOSE ANY ADJUSTMENT TO PLANT IN SERVICE FOR CAPITLIZED EXPENSES?

A. Yes. RUCO proposes $6,693 for capitalized expenses consisting of $3,228 in legal expenses relating to an operating agreement between the Town of Carefree and the Company, and $3,465 for the cost of purchasing and providing training on confined space entry and rescue equipment. Diaz-Cortez DT at 14. The Company does not agree with the capitalization of the legal expenses. I will discuss legal expense later in my testimony. As explained above, and shown in Company's Rebuttal Schedule B-2, adjustment number 3, the Company has agreed with Staff to capitalize $2,185 for the safety equipment. The training costs, $1,280, should not be capitalized as training is a normal and recurring expense.

Q. PLEASE CONTINUE.

A. In rebuttal B-2 adjustment number 5, the Company proposes to remove $3,000 from customer deposits as this amount is for a non-customer refund which was misidentified in the Company's initial filing. The Company agrees with Staff on removal of this amount from rate base. *See* Brown DT at 19. The Company does not agree with the second part of Staff's adjustment to increase customer deposits by $6,435. *See* Brown DT at 19. *See* Staff Direct Schedule CSB-9. In fact, Staff has admitted that its adjustment for $6,435 was in error. *See* Staff Response to

Company Data Request 2.20, attached hereto as Bourassa Rebuttal Exhibit 1. There are no customer deposits to be removed.

III. INCOME STATEMENT.

Q. WOULD YOU PLEASE DISCUSS THE COMPANY'S PROPOSED ADJUSTMENTS TO REVENUES AND EXPENSES AND IDENTIFY ANY ADJUSTMENTS YOU HAVE ACCEPTED FROM STAFF AND/OR RUCO?

A. The Company rebuttal adjustments are detailed on Rebuttal Schedule C-2, pages 1-13. The rebuttal income statement with adjustments is shown on Rebuttal Schedule C-1, page 1-2.

In rebuttal adjustment number 1, BMSC proposes to remove capitalized expenses. As I discussed above, the Company's adjustment is $2,700 lower than Staff's adjustment. Staff's adjustment includes $2,700 of expense that was already capitalized. The specific items the Company disagrees with are included in the details shown on Rebuttal Schedule C-2, pages 4a and 4b. Reducing expense further will result in an understatement of expense.

Q. DOES RUCO PROPOSE AN ADJUSTMENT TO CAPITALZE EXPENSES?

A. Yes. The Company agrees with RUCO that the safety equipment should be capitalized and this adjustment is included in both Staff's and the Company's adjustments. However, the Company does not agree with RUCO's adjustment to capitalize legal and training costs because these are normal and recurring expenses.

Rebuttal adjustment 2 removes transportation expenses for non-recurring truck expenses. This adjustment is proposed by Staff and the Company agrees. Staff and RUCO also propose reducing legal expense for non-recurring legal costs associated with negotiations for an operating agreement with the Town of Carefree. The Company disagrees.

Q. WHY DOES THE COMPANY DISAGREE?

A. Mr. Weber discusses this in more detail in his rebuttal. Weber RB at 9. No one disputes that these expenses were reasonably incurred to comply with a Commission order and these expenses should be recovered. The way to recover them is through legal expenses. Legal expenses are incurred every year, although by nature, the cost of any particular specific legal matter may or may not reoccur. For example, a customer sues the Company for infringing on his property, after incurring $10,000 in legal and surveying expenses, the case is dismissed because BMSC has an easement. The Company is not likely to be sued by the same customer for the same thing. But BMSC will likely incur legal expenses when another customer sues because he is not satisfied with his service, or when, as with the legal expenses at issue, incurs costs to comply with Commission directive. In short, the test year level of legal expense most accurately represents the costs BMSC is expected to incur for such services on a going-forward basis.

Rebuttal adjustment 3 increases estimated rate case expense. The Company estimated rate case expense in direct of $120,000. This has been revised to $150,000. The amortization period is still 4 years.

Q. WHY HAS BMSC INCREASED ITS ESTIMATED RATE CASE EXPENSE?

A. As I explained in my direct, rate case expense can only be estimated at the earlier stages of the proceeding. Two factors I did not anticipate have caused me to revise my estimate. First, discovery by Staff and to a lesser extent RUCO has been more burdensome on the Company than I ever would have anticipated. It appears that Staff has now formally replaced the on-site audit with a process that relies almost exclusively on data requests. Staff has served 202 data requests on the Company, answers to which have also been provided to RUCO along with answers to 71 data requests from RUCO. This has resulted in greater copying charges and more accounting and legal expenses than generally expected.

Second, the Town of Carefree's intervention has expanded the complexity of the case by introducing three additional witnesses, several scientific reports and issues that threaten the Company's financial health. Specifically, the Town takes the position that no rate increases should be allowed until an odor plan is devised and implemented. Pearson Affidavit at 2.

Q. DO YOU HAVE KNOWLEDGE OF ANY ODOR PROBLEMS IN THE BMSC SEWER SYSTEM?

A. No. Joel Wade and Mr. Weber have provided rebuttal to the Town's claims and recommendations, but I do know the effect the Town's participation has had on the proceedings. BMSC has had to review the Town's significant filing, conduct discovery and file rebuttal testimony, including the testimony of a new witness. This has had a significant impact on rate case expense.

Q. DO YOU STILL BELIEVE THE COMPANY WILL INCUR MORE THAN THE AMOUNT IT SEEKS TO RECOVER?

A. Yes, and I also believe that the increased expenses caused by the two unexpected factors I discussed above will be greater than the additional $30,000 I have estimated.

Q. HAVE STAFF OR RUCO PROPOSED ADJUSTMENTS TO RATE CASE EXPENSE?

A. No, not at this time.

Q. PLEASE CONTINUE WITH YOUR DISCUSSION OF REBUTTAL ADJUSTMENTS TO THE INCOME STATEMENT.

A. Rebuttal adjustment 4 removes food and beverage costs from materials and supplies and contractual services. While the Company believes these costs are normal and legitimate business expenses, the Company agrees with Staff to eliminate disputes between the parties.

Rebuttal adjustment 5 removes Commission assessments from miscellaneous expenses and revenues. The Company agrees with Staff that these assessments are pass-through costs to customers like sales tax and should not be including in operating expenses or revenues.

Rebuttal adjustment 6 reduces management fees to a normalized annual level and removes other affiliate expenses not related to BMSC. The Company agrees with RUCO that during the test year, certain contractual rates between the Company and its affiliates were reduced from $5,000 per month to $3,000 per month. Both the RUCO and Company adjustments reduce management fees by $24,500. Staff proposes to remove $3,644 of affiliate expense not related to BMSC. The Company agrees and has also included this adjustment.

Q. DID STAFF PROPOSE A SIMILAR ADJUSTMENT?

A. No. However, Staff did propose to remove from operating expenses all affiliate profits consistent with its adjustment to rate base. The amount of Staff's adjustment is for $21,761, which represents the profit on $480,192 of affiliate billings - a profit of approximately 4.5 percent. Brown DT at 27 and Schedule CSB-15, line 21. The Company disagrees with Staff's adjustment.

Again, as explained above, Mr. Weber addresses Staff's arguments on affiliated services in his rebuttal. Weber RB at 2-6. His testimony supports the Company's assertion that the use of affiliates to provide necessary services is both prudent and beneficial to ratepayers. Moreover, as I testified above, Staff did not provide analysis of the reasonableness of the cost or the necessity of the services—Ms. Brown simply excised "profit" from the income statement because it was earned by an affiliate. *See* Staff Responses to Company Data Requests 1.14 and 2.21, copies attached hereto as Bourassa Rebuttal Exhibit 1. Profits included in amounts charged by non-affiliates would be irrelevant, the analysis would be

whether the amounts the Company paid and seeks to recover are prudent and reasonable. The analysis should be the same when the services are provided by an affiliate.

Q. HAS THE COMPANY PROVIDED EVIDENCE ON THE COST TO THE IF NON-AFFILATES PERFORMED THE SERVICES AFFILIATES CURRENTLY PERFORM?

A. Yes. The Company has provided costs from non-affiliates performing similar services. *See* Company Response to Staff Data Request 2.8, copy attached hereto attached at Bourassa Rebuttal Exhibit 2. Beyond that, however, the Company is not aware of any local firms who either provides or has the ability to provide the same services on a contract basis than is provided by affiliates. Weber RB at 5.

The Company attempted to compare its costs with that of a small local firm providing management services as both are billed on per customer bill basis. The costs themselves were comparable—the local firm is in the range of $10 to $12 while that of the Company's affiliates is $10 to $11. However, the local firm does not provide the same range and level of service as the affiliates. The small local firm could not provide a full range of business and financial management, strategic planning, tax, and regulatory compliance services. The local firm can provide certified operators on a limited basis, but does not manage or employ those operators as they themselves are independent contractors.

Q. DO RATEPAYERS BENEFIT FROM THIS APPROACH?

A. Yes, as discussed by Mr. Weber. Weber RB at 2-6. In short, the Company and ratepayers benefit through these transactions with affiliates becomes economies of scale are achieved. Since it does not employ workers directly, these costs are shared among multiple public services corporations and BMSC only incurs a proportionate share of the costs.

Q. DID THE COMPANY PREPARE AN ANALYSIS TO COMPARE THE COSTS INCURRED BY THE COMPANY FOR AFFILIATE SERVICES WITH THE COSTS OF HIRING WORKERS DIRECTLY?

A. Yes. *See* Company Response to Staff Data Request 1.52, copy attached hereto attached as Bourassa Rebuttal Exhibit 2. The Company's response shows rate payers saving over $222,000 annually by not having direct employees. A rate increase of 18% over the test year adjusted revenues would be required on this single issue alone if the Company changed the nature of the way in which it conducts its business.

Q. DID STAFF PREPARE ITS OWN ANALYSIS TO DETERMINE IF THE COSTS INCURRED BY THE COMPANY FOR AFFILIATE SERVICES WERE REASONABLE?

A. There is nothing in Ms. Brown's testimony to suggest that such an analysis was conducted, however, in response to a data request, Staff claimed that is considered each of the following factors: (1) whether or not the affiliates performed the same services for unaffiliated companies; (2) whether or not competitive bids were obtained; (3) the Company's explanation for not obtaining competitive bids; (4) whether or not the Company could provide any compelling explanation for not obtaining competitive bids; (5) the impact of affiliate profit on the owners and the customers; (6) the practice of other utilities' affiliates not to include a profit in billings to utilities. *See* Staff Response to Company Date Request 1.1, copy attached hereto as Bourassa Rebuttal Exhibit 1.

Q. DO YOU AGREE WITH STAFF'S FACTORS?

A. I agree that these are factors that can be considered in determining whether the affiliate expenses are reasonable and prudent. I do not agree that these are the only possible factors, rather, all relevant facts should be assessed and the decision made

based on the totality of the evidence.

Q. DID STAFF DISCUSS ITS ANALYSIS OR EXPLAIN ITS CONCLUSIONS?

A. Not in any way.

Q. DOES AN ANALYSIS OF THESE FACTORS SUPPORT STAFF'S REMOVAL OF ALL AFFILIATE PROFIT?

A. No, it supports the Company's position that the expenses it incurs are reasonable and prudent. Regarding the first four factors, as discussed above, the only available evidence concerning comparable costs from non-affiliates shows that the costs incurred by the Company are very reasonable, particularly given the range of services being provided. In fact, there are no local firms available on a contract basis to provide the same range and level of service provided by BMSC affiliates.

Analysis of the fifth factor Staff identified shows that the impact on the Company and ratepayers is positive. Comparing the costs of affiliated services to the costs of the Company employing individuals directly to perform all those services shows that the manner in which Algonquin conducts its business results in economies of scale and lower rates.

Finally, in my opinion, Staff review item 6, is irrelevant. Persons or entities of non-affiliates do not just charge for the cost of their services. Otherwise, why would they be in business? If profit is excluded from the affiliate billings there would be no incentive to continue providing those services. This will result in a fundamental change in the way the Company conducts its business and will mean higher costs which must be passed on the rate payers. *See also* Weber RB at 5.

Q. IS IT STAFF'S POSITION THAT A PERSON OR ENTITY PROVIDING SERVICES TO A PUBLIC SERVICE CORPORATION IS NOT ENTITLED TO CHARGE AN AMOUNT FOR SERVICES THAT INCLUDES RECOVEY OF ANYTHING MORE THAN THE COST OF THOSE

SERVICES?

A. No. *See* Staff Response to Company Data Request 1.5, copy attached hereto as Bourassa Rebuttal Exhibit 1. Why should the profit of affiliates be any different?

Q. WHAT IS THE TOTAL IMPACT OF STAFF'S PROPOSAL TO REMOVE $20,871 FROM RATE BASE AND $21,761 OF AFFILATE PROFITS?

A. The revenue requirement goes down by approximately $31,000 in this case. However, the manner in which the Company does business will change, resulting in higher rates in the next case and/or reduced services to ratepayers. *See* Weber RB at 5-6.

Q. PLEASE CONTNUE WITH YOUR TESTIMONY OF THE INCOME STATEMENT ADJSUTMENTS.

A. Rebuttal adjustment 7 removes long distance charges from miscellaneous expense. The Company agrees with both Staff and RUCO on the amount.

Rebuttal adjustment 8 increases depreciation expense. Depreciation expense is higher due to the impacts of the Company proposed rebuttal adjustments to plant-in-service and CIAC. *See* Rebuttal Schedule B-2.

Adjustment number 9 increases property tax expense and reflects the rebuttal proposed revenues. The Company and Staff are in agreement on the method of computing property taxes. This method utilized the ADOR formula and inputs two years of adjusted revenues plus one year of proposed revenues. I computed the property taxes based on the Company's proposed revenues, and then used the property tax rate that was used in the direct filing.

The Company is rejecting the RUCO adjustment to property taxes. RUCO computed property taxes at historic revenues for 2002, 2003, and 2004. RUCO's method of computing property tax excludes proposed revenues and is, therefore, inconsistent with recent Commission precedent. *See, e.g.*, Decision No. 64282 at

12-13; Decision No. 65350 at 15-16. In fact, RUCO has repeatedly advanced this methodology and it has consistently been rejected by the Commission. *Id.* The Commission should do so again.

Rebuttal adjustment 10 reduces bad debt expense. The Company does not agree with the amount proposed by Staff. Staff based its adjustment on the accrued amount of write-offs during the test year. Their adjustment essentially includes no bad debt expense. However, companies generally incur some level of bad debt expense as a typical and recurring expense. In some cases, stale receivables are not actually written off for a long period of time. The accrual method is a way of accruing for the anticipated actual write-offs and matching expense and revenues per generally accepted accounting principles. The Company examined its 2005 actual write-offs and determined that $1,693 was written off related to 2004 revenue. It believes this level of bad debt expense should be included in operating expenses.

Finally, rebuttal adjustment 11 adjusts income taxes based on the Company's proposed revenues, operating expense and depreciation. The Company does not agree with Staff's adjustment to remove the tax gross-up on the principle portion of the Scottsdale operating lease. If the tax gross-up is removed and Staff's method for income tax calculation is adopted, income tax expense will be overstated.

Q. WHY WOULD THAT OCCUR, MR. BOURASSA?

A. Because Staff adds back the principle and interest for the operating lease to taxable income. Since only the principle portion is subject to tax, taxable income is overstated and the resulting income tax expense is over stated by over $50,000. Staff attempts to compensate for the higher taxable income by interest synchronizing interest expense with rate base and deducting interest from taxable

income, but the resulting interest expense deduction is too low.

Not only is Staff's interest expense deduction too low, interest synchronization is not justified in the instant case. The purpose of interest synchronization is to synchronize the portion of the rate base supported by debt with the interest expense deduction that determines income tax expense for ratemaking purposes. There is no debt supporting rate base in the instant case. Under the operating lease methodology, the Scottsdale Capacity acquisition costs funded by debt are excluded from rate base and there is no other debt in the Company's capital structure.

For these reasons, both the Staff proposed adjustment to remove the tax gross-up from the operating lease expense and Staff's tax calculation method should be rejected. The Commission-ordered operating lease, which includes the tax gross-up, properly matches expenses and income taxes.

IV. COST OF CAPITAL.

A. Overview and Discussion of BMSC's Cost of Capital Testimony.

Q. PLEASE SUMMARIZE THE COMPANY'S REBUTTAL POSITION REGARDING THE APPROPRIATE COST OF CAPITAL AND RATE OF RETURN ON RATE BASE.

A. The Company continues to recommend 11.0% as its cost of capital and rate of return on original cost rate base, which BMSC accepts as the fair value of its utility property for purposes of this rate case. The 11.0% rate of return is based on a capital structure consisting of 100% common equity. As I testified in my direct testimony, the Company has a total of $1,184,732 of long-term debt on its books due to the acquisition of the Scottsdale Capacity, which debt service is included in operating expenses. *See* Bourassa DT at 14. There is no other long-term debt. Thus, in determining the revenue requirement, I have used a capital structure of

100% equity.

Q. DOES THIS MEAN THE COMPNAY HAS NO FINANCIAL RISK?

A. No it does not. BMSC still has financial risk due to the debt incurred to purchase treatment capacity from Scottsdale. Although the debt is excluded from the cost of capital analysis, it still has an impact on the Company's financial risk.

Q. THANK YOU. PLEASE CONTINUE WITH YOUR SUMMARY.

A. I believe that 11.0% is a reasonable rate of return for the Company based on the returns on common equity currently being earned by substantially larger, publicly traded water utilities and the additional risk associated with an equity investment in BMSC. The rates of return recommended by Staff and RUCO, 9.60% and 9.49%, respectively, are simply too low given the Company's extremely small size and other firm-specific risks. In fact, both the Staff and RUCO cost of equity is nearly at the cost of the Company's long-term debt, which has a cost of 9.4%. As I explained in my direct testimony, investment in stock is always more risky than debt. *See* Bourassa DT at 15-17. The returns should account for this added risk.

Both Staff and the Company compute the cost of capital using a capital structure of 100% equity. RUCO computes the cost of capital consisting of 56% equity and 44% debt. *See* Rigsby DT at 49. RUCO proposes this capital structure to be consistent with its proposed rate base treatment of the Scottsdale Capacity, costs, which are financed by debt. *Id.* at 49. RUCO also provides a separate weighted cost of capital computation different from that described on page 49 of Mr. Rigsby's testimony on RUCO schedule WAR-1 labeled as "Weighted Cost of Capital Assuming the Commission Adopts the Company-Proposed Operating Lease." However, RUCO does not appear to address this schedule in any of its testimony. Since the Company does not know the basis for this information or the rational for its use, the Company cannot respond at this time.

Q. IS MR. RIGSBY'S PROPOSED CAPITAL STRUCTURE ACCURATE?

A. Only if RUCO's position on modifying treatment of the Scottsdale Capacity were adopted. For the reasons I discussed in the rate base section of my rebuttal, that recommendation should be rejected by the Commission. It follows that Mr. Rigsby's proposed capital structure should also be rejected.

Q. WHAT RATE OF RETURN IS BMSC ENTITLED TO EARN?

A. A fair rate of return should be commensurate with returns expected to be earned by enterprises having comparable risk and adequate for BMSC to be able to attract capital. Staff's and RUCO's recommended returns on equity will do just the opposite – they will discourage investment instead of attracting it and are too low to be comparable to returns expected to be earned by other equally risky investments.

Q. PLEASE SUMMARIZE THE STANDARD TO BE EMPLOYED IN DETERMINING WHETHER A UTILITY'S AUTHORIZED RATE OF RETURN IS FAIR AND REASONABLE.

A. I addressed this point at some length in my direct testimony. There are two landmark Supreme Court decisions, *Bluefield Water Works* and *Hope Natural Gas*, that established the basic criteria applicable to determining a fair and reasonable rate of return. As I stated on pages 23 through 24 of my direct testimony, a utility's authorized rate of return should satisfy the following:

(1) The rate of return should be commensurate with returns on investments in other enterprises having corresponding risk;

(2) The return should be sufficient to ensure confidence in the financial integrity of the utility and to maintain and support the utility's credit; and

(3) The return should enable the utility to attract capital necessary for the proper discharge of its duties.

I also explained in my direct testimony that the cost of capital is based on the concept of opportunity cost, i.e., the prospective return to investors must be comparable to investments of similar risk. If a utility's return is less than the returns on investments with similar risk, investors can and will invest elsewhere. As explained by Dr. Roger Morin:

> The concept of cost of capital is firmly anchored in the opportunity cost notion of economics. The cost of a specific source of capital is basically determined by the riskiness of that investment in light of alternative opportunities and equals investor's current opportunity cost of investing in the securities of that utility. A rational investor is maximizing the performance of his or her portfolio only if returns expected on investments of comparable risk are the same. If not, the investor will switch out of those investments yielding low returns at a given risk level in favor of those investments offering higher returns for the same degree of risk. This implies that a utility will be unable to attract capital unless it can offer returns to capital suppliers comparable to those achieved on alternate competing investments of similar risk.

Roger A. Morin, Regulatory Finance: Utilities' Cost of Capital 21 (1994) (hereinafter "*Morin*"). As I explained in my direct testimony, the *Bluefield Water Works* decision suggests that opportunity cost is an appropriate measure of the actual cost of common equity for a utility. This necessarily involves the direct observation of returns on equity actually earned by firms with comparable risk to ensure that the authorized rate of return is equivalent to the returns those firms are earning.

Q. DID STAFF CRITICIZE YOU FOR USING ACTUAL, AUTHORIZED AND PROJECTED RETURNS ON EQUITY, AS OPPOSED TO RELYING SOLELY ON FINANCE MODELS, TO DEVELOP YOUR RECOMMENDED COST OF EQUITY FOR THE COMPANY.

A. Yes. *See* Chaves DT at 41-42. Staff contends that actual returns on equity should be ignored, notwithstanding the comparable earnings standard. Instead, they argue

that finance models should be the exclusive means of determining the cost of equity. I will address this point in more detail later in my testimony. I do want to emphasize at this juncture, however, there is no "perfect" model that can be used to estimate a firm's equity cost. Dr. Morin also addresses this point:

> When measuring equity costs, which essentially deals with the measurement of investor expectations. no single methodology provides a foolproof panacea. Each methodology requires the exercise of considerable judgment on the reasonableness of the assumptions underlying the methodology and on the reasonableness of the proxies used to validate the theory. It follows that more than one methodology should be employed in arriving at a judgment on the cost of equity and that these methodologies should be applied across a series of comparable risk companies.
>
> Each methodology possesses its own way of examining investor behavior, in its own premises, and its own set of simplifications of reality. Each method proceeds from different fundamental premises that cannot be validated empirically. Investors do not necessarily subscribe to any one method, nor does the stock price reflect the application of any one single method by the price-setting investor. There is no monopoly as to which method is used by investors. In the absence of any hard evidence as to which method outdoes the other, all relevant evidence should be used and weighted equally, in order to minimize judgmental error, measurement error, and conceptual infirmities.

Morin at 28-29.

Q. WHAT MODELS DID YOU CHOSE TO UTILIZE IN THIS CASE?

A. I have chosen to use the comparable earnings approach, risk premium approach, as well as the Discounted Cash Flow ("DCF") model. Staff and RUCO have chosen to use the DCF model and another finance model, the Capital Asset Pricing Model ("CAPM"). I will discuss both of these models in more detail below.

Two important points should be kept in mind. First, the models must be applied to firms that possess comparable investment risk or, alternatively, the results of the model must be adjusted to take into account the risk differential. Second, the shortcomings of the particular model must be acknowledged and taken

into account in arriving at an appropriate equity cost. No model is perfect, and the result produced by the model should not be blindly used. Unfortunately, the approaches used by Staff and RUCO in this case violate both of these basic principles.

Q. TURNING TO YOUR FIRST POINT, HOW DOES THE ANALYST ENSURE THAT HE OR SHE IS USING FIRMS THAT POSSES COMPARABLE INVESTMENT RISK?

A. There are a number of criteria that can be used to develop a sample group of companies that present comparable investment risk. One widely accepted risk measure is beta, which measures a publicly traded security's volatility in relation to that of the market, and is generally estimated by means of a linear regression analysis based on past realized returns over some past time period. For example, Value Line, which is the largest and most widely circulated independent advisory service, estimates betas for publicly traded companies using a least-squares regression analysis between weekly percent changes in the price of a stock and weekly percent changes in the New York Stock Exchange average over a period of five years.

Q. LET ME STOP YOU FOR A MOMENT, MR. BOURASSA. WHAT IS BMSC'S BETA?

A. BMSC is not publicly traded on a stock exchange. Neither Value Line nor any other investment service publishes an estimated beta for BMSC. Therefore, while beta may be an important concept in finance literature, beta does not assist in identifying comparable risk firms in this particular case.

Q. ARE THERE OTHER MEASURES OF RISK THAT CAN BE USED?

A. Yes. There are a number of other criteria that can be used to develop a sample group of companies that possesses comparable investment risk. For example,

Value Line also publishes various stock quality ratings that consider factors such as a company's financial strength, its earnings predictability, its stock's price stability and its stock's safety. Other widely followed investment services such as Standard & Poor's publish similar ratings. In addition, many publicly traded companies have bond ratings that are published by Standard & Poor's, Moody's and Duff & Phelps that are based on a number of qualitative and quantitative factors and reflect the risk of default. Bond ratings and the risk of common stock investment are closely related. Bond ratings and stock ratings can be used as risk screening devices to identify companies of comparable risk. For example, if a utility's bonds are rated A by Standard & Poor's, a reasonable risk filter would eliminate companies that have a different bond rating.

Q. CAN YOU PROVIDE AN EXAMPLE OF A "RISK FILTER" THAT USES THESE RISK MEASURES TO DEVELOP A GROUP OF COMPARABLE RISK COMPANIES?

A. In his textbook on regulatory finance, Dr. Morin provides several examples of risk filters used in connection with setting rates. One example was a risk filter used in a US West rate case. The companies had to be industrials listed on the New York Stock Exchange to ensure comparable investment liquidity, i.e., the stock could be sold easily. In addition, the companies had to have the following risk parameters:

- Value Line Financial Strength Rating of at least A+
- Value Line Safety Rating of 1 (the highest rating)
- A beta between 0.75 and 1.00
- A Price Stability Coefficient of at least 88.0%

In addition, all non-dividend paying stocks and all stocks with a Standard & Poor's stock quality rating lower than A- were eliminated, as well as all high-growth stocks. The result was a sample group of 24 publicly traded stocks, the

average beta of which was used as a proxy for the US West beta. Cost of capital estimation techniques were then applied to the group as a proxy for U.S. West. *Morin* at 85-86.

Q. WAS A SIMILAR APPROACH USED TO DEVELOP AN APPROPRIATE GROUP OF COMPARABLE RISK COMPANIES IN THIS CASE?

A. No. Because BMSC is extremely small, has a single shareholder, is not publicly traded and has no bond rating, it is not possible to develop a set of financial and stock quality criteria to identify public companies possessing comparable investment risk.

Q. WHAT DID YOU DO AS A RESULT, MR. BOURASSA?

A. In developing my recommended 11.0% return on equity, I used a group of six publicly traded water utilities, recognizing that those utilities do not possess the same degree of risk as BMSC. *See* Bourassa DT at 26-31.

Q. HOW DOES BMSC'S SIZE COMPARE TO THE SAMPLE GROUP OF PUBLICLY TRADED WATER UTILITIES?

A. BMSC is substantially smaller than the publicly traded water utilities. In fact, a review of key financial data clearly demonstrates that BMSC is not comparable to those utilities.

Company	Operating Revenue ($ Million)	Net Plant ($ Million)	S&P Stock Quality Rating	S&P Bond Rating
Amer. States	$231.8	$621.0	B+	A-
Aqua America	489.3	1,890.3	A-	AA-
Cal. Water	312.3	856.7	B+	NR
Conn. Water	51.8	199.4	**	AA+
Middlesex	73.5	250.8	B+	A

SJW Corp.	164.3	301.0	**	NR
Group Average	$220.5	$686.5		
BMSC	**$1.2**	**$4.3**	NR	NR

(Data from AUS Utility Reports (March 2006) and S&P Earnings Guide (March 2006))

The foregoing six water utilities are the water utilities that comprise Staff's sample group. As the foregoing data show, the average operating revenue of the sample group is more than **183 times** the Company's operating revenue, while the average net plant of the sample group is nearly **160 times** the Company's original cost plant. The Company is a small business, and the risks associated with an equity investment in the Company are much different from, and substantially greater than, an investment in any of the foregoing publicly traded water utilities. Therefore, an upward adjustment to the authorized return on equity must be made to take into account this additional risk in order to satisfy the comparable earnings standard.

Q. WHY DIDN'T THE PARTIES USE FIRMS THAT ARE EQUIVALENT TO THE COMPANY IN PERFORMING THEIR RESPECTIVE ANALYSES?

A. As stated, financial data is simply not available for extremely small businesses that would be comparable to BMSC. Moreover, firms that are not publicly traded cannot be used in the DCF and other finance models, which were developed during the past several decades in connection with analyzing large firms with stocks that are freely traded on national stock exchanges. For this reason, while I selected a group of publicly traded water utilities and examined their actual, authorized and projected returns on equity, and used publicly available information to implement the DCF model, I also took into account the indisputable fact that BMSC possesses

different and substantially greater risk than the sample group of water utilities. Because of the substantial difference in operating revenue, net plant, customer base, service territory, growth potential, lack of liquidity, regulatory risk, and other firm-specific factors, it would obviously be a serious mistake to simply assume that these publicly traded water utilities present the same investment risk as BMSC. The results of financial models should not be applied mechanically.

Q. WHY IS IT APPROPRIATE TO CONSIDER THE RETURNS ON EQUITY THAT ARE ACTUALLY EARNED BY THE SAMPLE GROUP OF WATER UTILITIES?

A. As I indicated previously, under the applicable criteria established in various court decisions such as *Bluefield Water Works*, the rate of return should be commensurate with returns on investments in other enterprises having corresponding risks. Because it would be extremely difficult to develop a sample group of small businesses that are truly comparable to BMSC, I began with a sample group of publicly traded water utilities, examined the returns the sample group have earned and are projected to earn, and then considered the particular business and financial risks of BMSC to arrive at my final recommended return on equity of 11.0%.

In sum, the goal is to authorize a rate of return that is commensurate with the returns begin earned by enterprises with corresponding risk. Therefore, the starting point must be to consider the rates of return that are actually being earned. If the authorized rate of return differs substantially from the rates of return that are actually being earned by the sample group, the comparable earnings standard would be violated.

Q. WHAT ARE THE RETURNS ON EQUITY THAT WERE EARNED BY THE SAMPLE GROUP OF PUBLICLY TRADED WATER UTILITIES

SINCE 2002?

A. The returns on equity for the same group for the period 2002 through 2005 are as follows:

Company	2002	2003	2004	2005
Amer. States	9.5%	5.6%	6.5%	10.38%
Aqua America	12.7%	10.2%	10.7%	11.69%
Cal. Water	9.5%	7.9%	9.0%	9.3%
Conn. Water	10.9%	10.9%	10.6%	9.0%
Middlesex	9.6%	7.9%	8.5%	8.5%
SJW Corp.	9.3%	10.0%	8.7%	9.3%
Industry Composite	11.2%	8.8%	10.7%	11.0%

(Data from Value Line (Jan. 27, 2006) and Zacks Investment Research.)

Q. I NOTE THAT THE RETURNS ON EQUITY FOR SOME OF THE WATER COMPANIES WERE SUBSTANTIALLY BELOW AQUA AMERICA AND THE VALUE LINE INDUSTRY AVERAGE FOR THE PERIOD 2002 THOUGH 2005. CAN YOU EXPLAIN?

A. American States Water's return on equity dropped substantially in 2003 due to earnings erosion. The reason for the earnings erosion was two fold. First, American States had applications for rate increases pending before the California Public Utilities Commission ("CPUC") for a substantial period of time and had not received rate relief in a timely manner from the CPUC. Recent Value Line reports have stated that members of the CUPC have been replaced by more-business-friendly members and cases have been coming in with more favorable outcomes in recent months. Rate relief in California historically was slow and outcomes were generally unfavorable.

Second, American States Water experienced reduced earnings due to abnormal weather conditions in California, where the bulk of their utility operations are located. In discussing American States Water's decline in earnings in 2003, Value Line states that this "disappointing showing probably reflected a significant decrease in demand for water, as cooler weather conditions led to lower usage rates in California." Value Line also states:

> Most of the Water companies in our *survey* were hampered by unfavorable weather conditions in 2003. *American States Water Co.* and *California Water Service Group* both most likely suffered year-over-year earnings declines because of the cool, wet weather conditions. *Aqua America*, formerly Philadelphia Suburban Corp., however, was probably able to eke out a modest gain last year, despite the sluggish demand. . . . Although weather conditions are nearly impossible to predict, we expect more normal weather to help the Water Utility Industry rebound in 2004. [Italics in original.]

In short, the combination of delays in obtaining rate increases and poor weather conditions in California resulted in abnormally low rates of return on equity for American States Water. In March 2004, the CPUC granted Southern California Water Company, American States' primary utility subsidiary, rate increases of $8 million, as well as increases of $2.9 million for the year 2004 and $2.8 million for the year 2005 for that utility's region 3 water districts. This rate case affected about 30% of Southern California Water's customer base. The effect on American States Water's earning are now starting to be realized.

California Water's equity return dropped substantially in 2003 but quickly rebounded. California Water faced the same unfavorable weather conditions as American States in that time period. In March 2004, the CPUC granted Southern California Water Company, American States' primary utility subsidiary, rate increases of $8 million, as well as increases of $2.9 million for the year 2004 and $2.8 million for the year 2005 for that utility's region 3 water districts. This

particular rate case affected about 30% of Southern California Water's customer base. Value Line reports the company enjoyed rate case success in 2005 and should continue to do so in 2006.

Q. ARE RETURNS ON EQUITY IN 2005 SUBSTANTIALLY ABOVE THE PRIOR 2 YEARS?

A. They are substantially above the 2003 returns on equity and have improved over the 2004 results.

Q. WHAT RETURNS ON EQUITY ARE CURRENTLY BEING PROJECTED BY VALUE LINE?

A. Returns on equity currently projected by Value Line are as follows:

Company	2006	2007	2008-10
Amer. States	8.5%	Not Available	12.0%
Aqua America	12.0%	Not Available	13.0%
Cal. Water	10.0%	Not Available	11.0%
Industry Composite	10.0%	Not Available	11.0%

(Value Line date January 27, 2006)

Q. WHY IS THE PROJECTED EQUITY RETURN FOR AMERICAN STATES ONLY 8.5% FOR 2006?

A. The Value Line report (January 27, 2006) upon which I rely is somewhat out of date. Value Line had projected the 2005 equity return in January at 7.5%. This was before the year-end results were reported. As you can see, the actual results are nearly 10.4%. I suspect the next issue of Value Line will take the 2005 actual results into account are revise its projections for 2006 and 2008 through 2010.

Q. WHY ARE CONNECTICUT WATER SERVICE, MIDDLESEX WATER AND SJW CORPORATION EXCLUDED FROM THE FOREGOING TABLE?

A. Those companies, although publicly traded, are relatively small and, as a result, are not followed in Value Line's Investment Survey. Instead, they are followed in Value Line's Small and Mid Cap Edition, a separate publication that does not provide the same level of information. (In fact, under Value Line's criteria, only Aqua American is regarded as a "mid cap" company -- the remaining 5 companies are regard as "small cap" companies.) RUCO, for example, uses American States Water, Aqua America, California Water Service, and Southwest Water as its sample group.

Q. WHY DID YOU EXCLUDE SOUTHWEST WATER FROM YOUR SAMPLE GROUP?

A. To be consistent with Staff and the fact that Southwest Water receives less than 38 percent of its revenues from water services while the average for my sample group is over 91 percent.

Q. THE 2008-2010 VALUE PROJECTION FOR AMERICAN STATES IS 12.0 PERCENT? CAN YOU EXPLAIN WHY THIS IS HIGHER THAN THE 2005 EQUITY RETURN?

A. On January 27, 2006, Value Line reported that the CPUC recently approved rate hikes of more the $5.6 million for its Region I and II customer service areas. More importantly, Value Line indicates the regulatory climate is improving and that 2006 should show marked improvement. I am sure these were factors the analysts considered in their long-term projections. As I have testified, the analysts appear to have understated the 2005 equity return.

Q. SO, THE HISTORICAL RETURNS FOR SEVERAL OF THE COMPANIES

IN YOUR SAMPLE WERE LOW FOR ONE OF MORE YEARS FROM 2002 THROUGH 2005, BUT THE VALUE LINE PROJECTIONS ARE HIGHER BECAUSE THEY HAVE TAKEN INTO ACCOUNT MORE RECENT INFORMATION ABOUT THESE COMPANIES. IS THAT CORRECT?

A. Yes. In short, the past erosion of earnings was due combination of delays in obtaining rate increases and poor weather conditions in California resulting in abnormally low rates of return on equity for American States Water and California Water Service during 2003. Because of the more favorable regulatory environment, the higher returns on equity projected for 2006 and during the 2008 through 2008 period are therefore more realistic estimates of the returns on equity those companies will earn.

In the instant case, notably, BMSC's new rates will not become effective until later this year. Staff's average estimate of the cost of equity to the water utility industry, as explained in Mr. Chaves' direct testimony, is only 9.6%. Chaves DT at 34. RUCO's estimate of the cost of equity to the water utility industry, as explained in Mr. Rigsby' direct testimony, is only 9.49%. Rigsby DT at 34. Accordingly, the projections for 2006 and for the 2008 through 2010 period are of greater relevance, and indicate that an appropriate return on equity should be in the 10.0% to 13.0% range, without taking into account any firm-specific risks.

B. <u>Response to Cost of Capital Testimony from Staff and RUCO</u>.

Q. THOSE RETURNS ON EQUITY, AS WELL AS THE ACTUAL AND PROJECTED RETURNS ON EQUITY FOR THE WATER UTILITY INDUSTRY IN VALUE LINE, ARE SUBSTANTIALLY GREATER THAN STAFF'S AND RUCO'S RECOMMENDATION. HOW DO YOU EXPLAIN THAT DISCREPANCY?

A. As I testified in my direct testimony, estimating the cost of equity is a matter of informed judgment. *See* Bourassa DT at 17. Inputs into the finance models must be evaluated for their reasonableness, and rejected, or at least explained, when they do not produce realistic results. The problems with both Staff's and RUCO's applications of the DCF and CAPM, is in the choices of the inputs they employ and the reasonableness of their assumptions. When they are examined in detail, their respective choices skew the results downward. I will discuss the details later in my testimony.

Q. STAFF ARGUES THAT THE ACTUAL, AUTHORIZED AND PROJECTED RETURNS ON EQUITY ARE IRRELEVANT TO DETERMINING WHAT CONSTITUTES A REASONABLE RATE OF RETURN FOR BMSC. DO YOU WISH TO COMMENT ON THIS TESTIMONY?

A. It would be foolish to ignore actual results and rely exclusively on finance models. Looking at the results produced by the DCF and CAPM, as implemented by Mr. Chaves and Mr. Rigsby in this case, one would expect the returns on equity being earned by their sample groups of water utilities to fall dramatically, leading in turn to a substantial decline in the price of those utilities' stocks. There is no evidence that this scenario is likely to occur, which in turn indicates that there is something wrong with their finance models. As I stated previously, while finance models are useful, they cannot be used blindly or mechanically and without regard to other financial data that is readily available.

Q. DO INVESTORS CARE ABOUT THE RETURN ON EQUITY THAT A COMPANY IS EARNING AND IS PROJECTED TO EARN IN THE NEAR TERM?

A. Yes, they certainly do, if they are looking to make sound investments. Returns on

equity, earnings per share, and stock price/earnings ratios are widely followed and reported by investment services, business magazines, and other financial media outlets. A company's earnings play a major role in any investment decision – a far greater role, I believe, than the results of a CAPM or DCF model. The higher the rate of return on equity, the greater the company's earnings available to pay dividends and to reinvest in capital projects.

Q. DO YOU AGREE WITH MR. CHAVES' ARGUMENTS THAT COMPARABLE EARNINGS ANALYSIS AND THE RISK PREMIUM ANAYSIS ARE INVALID BECAUSE THEY ARE NOT MARKET BASED?

A. No. The comparable earnings approach does not deal with market data, but that is not the basis on which to evaluate the approach I employed. As I have testified, the risk premium approach is founded on directly observable market interest rates. This assures that the premium estimates of the cost of equity begin with a sound basis, are tied to current capital market costs. *See* Bourassa DT at 39. In the instant case, we are attempting to establish a fair and reasonable return on equity for BMSC, which will in turn be used to establish a rate of return on the fair value of BMSC's property devoted to public service. That rate base is an accounting or book rate base. The rate base has not been adjusted to reflect the current market value of BMSC's utility plant and assets devoted to public service. In other words, Mr. Chaves is applying a market return derived from a finance model to the Company's book equity, which in turn is financing a book rate base. Thus, Mr. Chaves is ignoring the fact that a company's earnings, whether they are reported as the return on equity or as earnings per share, are also based on accounting data, as opposed to market data. For example, EPS is calculated by dividing net income into the number of shares outstanding. The current market price of those shares is irrelevant to that calculation.

Q. WHAT WOULD BE THE RESULTS IN A COMPARABLE EARNINGS ANALYSIS USING MARKET DATA?

A. Using Mr. Chaves sample group of publicly traded water utilities, the market rate of return would be higher than 11%. From the standpoint of an investor, a true market rate of return would take into account both anticipated dividends and capital gains resulting from future changes in the price of stock. For example, the following "total" returns, which take into account both dividend payments and increases in stock price, are reported in Value Line:

Company	5 Years	Annual Average
Amer. States	48.5%	9.7%
Aqua America	158.5%	31.7%
Cal. Water	73.5%	14.7%
Conn. Water	40.6%	8.1%
Middlesex	22.4%	4.5%
SJW Corp.	55.0%	11.0%
Average	66.4%	13.3%

(Data from Value Line (Jan. 27, 2006)

BMSC would accept a 13.3% rate of return if Mr. Chaves wishes to use the market return his sample group of utilities has earned during the past 5 years.

Q. PLEASE EXPLAIN WHY THE FINANCE MODELS CANNOT BE USED BLINDLY OR MECHANICALLY.

A. Unless checks for reasonableness of the inputs and outputs of an analysis are made, the finance models may produce unrealistic results. Staff's DCF analysis, for example, relies heavily on inputs to the DCF model that skew the results downward. Staff relies on historical dividend per share growth and historical earnings per share growth in its application of the DCF model. Chaves DT at 17.

When the individual DCF results using these growth rates are examined more closely, they are shown to produce indicated equity costs below the cost of debt.

As I have done in my direct testimony, Staff should have taken the extra step and evaluated the individual results for reasonableness. The value in applying both the comparable earnings and risk premium analysis is that they indicate whether the finance models are producing meaningful and realistic results. If the finance models do not compare favorably to other approaches, the application of the finance models should be re-evaluated.

Q. BOTH STAFF AND RUCO ARGUE THAT BECAUSE THE AVERAGE MARKET-TO-BOOK RATIO OF THE SAMPLE WATER UTILITIES IS GREATER THAN 1.0, THE UTILITIES IN THE SAMPLE GROUP ARE EXPECTED TO EARN ACCOUNTING/BOOK RETURNS ON EQUITY THAT ARE GREATER THAN THEIR ACTUAL COST OF EQUITY. DO YOU AGREE?

A. No. Both Staff and RUCO make this argument. *See* Chaves DT at 23 and Rigsby DT at 17. Mr. Rigsby goes so far as to average down the expected v value in his computation of sustainable growth using a book-to-market value of 1.0. *See* Rigsby DT at 17. In any case, Staff and RUCO are wrong for several reasons.

First, Mr. Chaves assumes that the only reason the sample water utilities' stocks are trading at prices that are greater than their book cost is because the return on equity is too high, i.e., the utilities are earning too much money. Chaves DT at 19. However, there are many reasons why investors may bid up the price of a stock above the stock's book value other than an expectation that a water utility will earn "more" than its cost of equity. In testimony before the Oregon Public Utilities Commission, John Thornton, who was the Commission's Chief of the Accounting and Rates Section for several years, listed the following six reasons:

(1) public utility commissions do not issue orders simultaneously in all jurisdictions; (2) not all of a company's earnings are regulated; (3) regulatory expenses, revenue and rate base adjustments may cause accounting returns to differ from those calculated in a rate case; (4) actual sales do not equal sales assumed in a rate case; (5) market expected returns on equity change frequently while returns on equity authorized in rate cases do not; and (6) regulated subsidiaries constitute only a piece of a holding company pie. (Oregon Public Utility Commission case UM 903, testimony dated November 9, 1998.)

Moreover, the concept of opportunity cost affects stock prices. Many non-regulated, publicly traded companies have stock that is currently trading at a market-to-book ratio substantially greater than the ratio of the water utility sample. For example, in December 2005, *Business Week* published a special section entitled "Investment Outlook Scoreboard 2004," which provided financial and stock price data on the 900 largest U.S. publicly held companies when measured by revenue and market capitalization. (No water or wastewater utilities appeared in that group of companies.) Notably, the average market-to-book ratio of those 900 companies **was 3.73** – substantially **greater** than the 2.6 market-to-book ratio of sample group of water utilities. In other words, as the market-to-book ratios of the largest publicly traded companies have increased, so has the market-to-book ratio for publicly traded water utilities, but by less. Investors take into account alternative returns that can be made from investing in non-regulated stocks, i.e., opportunity costs, as well as returns on equity earned by water utilities.

Q. DID *BUSINESS WEEK* REPORT THE AVERAGE RETURN ON EQUITY FOR THE 900 COMPANIES?

A. Yes. The all-industry average return on equity was 15.4%, which is also substantially higher than the returns on equity being earned by the sample group of

publicly traded water utilities. Investors have the option of investing in the stocks of those companies, which are earning a higher rate of return and, as a consequence, have higher earnings per share. Applying Mr. Chaves' logic, as set forth on pages 22 and 23 of his direct testimony, investors have driven the price of non-regulated companies' stock substantially above book value because those companies are earning returns that are "greater than" their current cost of equity, i.e., a large number of U.S. companies are making too much money. Presumably, Mr. Chaves would contend that this situation cannot continue and, at some point in the near future, an economy-wide correction will occur, driving corporate profits down to a level deemed appropriate by Mr. Chaves. This would suggest that we are facing a stock market crash of dramatic proportions, perhaps equivalent to the crash that occurred in 1929. I am not aware of any financial analysts or other experts who share Mr. Chaves' extremely bleak view of our economy.

Q. ARE THERE ANY OTHER REASONS WHY THE PRICE OF A PUBLICLY TRADED STOCK MAY EXCEED ITS BOOK COST?

A. An additional reason, which is applicable to Staff's sample group of water utilities, is that investors have recognized that these companies are possible acquisition targets. Value Line has mentioned industry consolidation as a key factor affecting the water utility industry for a number of years. And, in fact, a number of acquisitions have taken place, generally at prices well in excess of the acquired company's stock's book value. A partial list of the larger acquisitions that have taken place since 1999 includes:

Acquiring Company	Acquired Company
Aqua American	Consumers Water
American Water Works	National Enterprises

California Water	Dominguez Water
Kelda Group	Aquarian
Suez Lyonnaise	United Water
American Water Works	Citizens Utilities
Thames Water	E'Town
City of Indianapolis	IWC Corporation
Kelda Group	American Water Works (New England systems)
Thames Water	American Water Works

The latest edition of Value Line contains the following statement:

> ...Much of the current infrastructure is more than 100 years old and is in desperate need of maintenance and, in some cases, massive renovations and rebuilding. Making matters worse, is the heightened threat of bioterrorism on U.S. water pipelines and reservoirs. These costs are likely to continue to rise, as companies strive to comply with EOA water purification standards. In all infrastructure repair costs are expected to climb into the hundreds of millions of dollars over the next two decades, putting many smaller water companies at a distinct disadvantage. In fact, many companies without the capital to pay for these initiatives are being forced to sell, resulting in **a massive consolidation within the industry**... [Emphasis supplied.]

(Value Line dated January 27, 2006)

In short, stocks of both regulated and non-regulated companies may trade above their book cost for a variety of different reasons. Each company has its own firm-specific characteristics and risks that influence investor decision-making. Given that many non-regulated companies have stock trading at several multiples (or more) of book cost, in addition to earning returns on equity well in excess of 10%, it would be naïve to simply assume that public utilities are earning returns that are greater than their cost of equity simply because their stock is trading, on average, at a market-to-book ratio of 2.6.

Q. MR. CHAVES ARGUES THAT THE COMPARABLE EARNINGS APPROACH AND THE RISK PREMIUM APPROACHES ARE NOT CONSISTENT WITH MODERN FINANCIAL THEORY. DO YOU AGREE?

A. I am not an attorney, but it seems obvious that college finance textbooks or academic literature do not override United States Supreme Court and Arizona Supreme Court decisions. Putting aside the lack of any legitimate basis for this argument, the argument clearly makes no sense in this particular case. As I previously discussed, BMSC is a small business. It does not have publicly traded stock, nor is the financial data necessary to utilize the DCF model and the CAPM available for BMSC. The flaw in both Staff and RUCO's cost of equity analysis is the assumption that BMSC is the same as American States, Aqua America, California Water Service and the other publicly traded water utilities that comprise their respective samples. BMSC is not the same, and neither Mr. Chaves nor Mr. Rigsby has presented evidence or data demonstrating that BMSC should be treated as if it were the same as those companies.

Q. DO YOU RELY ON THE COMPARBALE EARNINGS APPROACH BECAUSE IT INDICATES A HIGHER RATE OF RETURN THAN STAFF OR RUCO?

A. No. As I have testified, my risk premium analysis serves as a check of reasonableness for the DCF results. *See* Bourassa DT at 14. I am placing emphasis on the comparable earnings and risk premium methods in rebuttal to show the application of the finance models and the inputs selected by Mr. Chaves, as well as Mr. Rigsby, are producing results that are too low. In this case, the results produced by Staff and RUCO's DCF and CAPM less than the returns on equity actually being earned by the water utilities in their sample group.

Regardless of the particular finance model being used, the results of the model should be reasonable and generally consistent with the returns on equity actually being earned. When the application of the finance model are producing results that are not consistent with real world earnings, those results are suspect and, in the absence of a credible explanation for the discrepancy, should be rejected.

Q. PLEASE EXPLAIN WHY STAFF'S COST OF EQUITY RESULT IS UNREALISTICALLY LOW.

A. Staff's DCF analysis relies on both historical DPS and EPS growth in its constant growth DCF model. As I explained in my direct testimony, I did not use historical DPS and EPS growth because the indicated costs of equity produced by the DCF model using these growth rates were less than the current cost of debt. *See* Bourassa DT at 36. I computed the constant growth DCF indicated costs of equity individually using 5-year historical DPS and EPS growth rates which produced indicated equity costs of 5.5% and 5.7%, respectively. Staff uses 10-year historical DPS and EPS growth rates. However, the results are no better than using the 5-year historical data. Staff's DCF results below shows the indicated cost of equity using Staff's growth rates as shown in Staff schedule PMC-7.

(1) Staff DCF - Historical DPS growth

D_1/P_o	+	g	=	K
2.9%		2.4%		5.3%

(2) Staff DCF - Historical EPS growth

D_1/P_o	+	g	=	K
2.9%		2.9%		5.8%

The current cost of Baa bonds is 6.56 percent (Federal Reserve April 4,

2006).

Q. EXCUSE ME MR. BOURASSA, BUT I DON'T RECALL SEEING INDIVIDUAL COMPUTATIONS LIKE THESE IN STAFF'S SCHEDULES OR TESTIMONY. WHY IS THAT?

A. Because Staff does not show the individual results of their selected growth rates. Staff has "hidden the ball" so to speak. There is no rational basis to use historical DPS and EPS growth when the individual results are exposed to the light of day.

Q. DID STAFF RESPOND TO YOUR TESTIMONY AND SCHEDULES SHOWING THAT HISTORICAL DPS AND EPS GROWTH PRODUCE INDICATED COSTS OF EQUITY BELOW THE COST OF DEBT?

A. No.

Q. HOW DOES STAFF'S ADJUSTED GROWTH RATE AND ADJUSTED CONSTANT GROWTH COMPARE TO YOUR RESULTS?

A. I used analyst expectations of EPS growth for my growth rate in the constant growth DCF model. I showed the analyst expectations of EPS growth to be 7.96%. The average of Staff's projected DPS and EPS growth estimates are above analyst expectations. Upon examination of Staff's projected DPS and EPS growth rates, Staff does not employ Value Lines published growth rates as I have, but rather computes their own. Staff's projected DPS and EPS growth is 4.7% and 15.4%, respectively. The average of the two is 10.1%.

Q. IF YOU USED STAFF'S AVERAGE OF THE PROJECTED DPS AND EPS GROWTH IN THE CONSTANT GROWTH MODEL, WHAT IS THE INDICATED COST OF EQUITY?

A. The indicated cost of equity is 13.0% as shown below.

(3) Staff DCF – Sustainable Growth

D_1/P_o	+	g	=	k
2.9%		10.1%		13.0%

Q. WHAT ARE THE PROJECTED DPS AND EPS GROWTH RATES IN VALUE LINE DATED JANUARY 27, 2006?

A. They are as follows:

	Projected DPS Growth	Projected EPS Growth
American States	1.5%	12.0%
Aqua America	8.5%	13.0%
California Water	1.5%	8.5%
Average	3.5%	11.2%

Averaging these two together, you get 7.35%, which turns out, coincidentally, the same as the average sustainable growth rate used by RUCO. *See* Rigsby DT at 27.

Q. WHY DIDN'T STAFF USE THE PUBLISHED PROJECTED DPS AND EPS GROWTH RATES IN VALUE LINE?

A. I cannot answer that. If they had used those estimates in place of their 4.7% and 15.4% projected estimates, Staff's cost of equity result would be 8.9%, far lower than the 9.8% in Staff's constant growth DCF calculation. Perhaps they computed their own projected growth estimates to counter an otherwise very low cost of equity estimate – one that would be even more difficult to defend. The 4.7% and 15.4% are overly optimistic estimates of DPS and EPS growth and are far greater than those of analysts.

Q. MR BOURASSA, DIDN'T YOU SAY YOU USED AN ESTMATE OF 7.96% AS THE GROWTH RATE IN YOUR DCF MODEL? HOW DID YOU

DERIVE THAT GROWTH RATE?

A. In my constant growth DCF calculation, I used 7.96% as the growth rate. As shown in my direct testimony, I used analyst expectations of EPS growth from several sources, not just Value Line. I used analyst expectations published by *Zack's Investment Research, Standard & Poor Earning Guide*, and *Value Line Investment Survey* *See* Bourassa DT at 35. The data is shown in the direct filing at Schedule D-4.6.

In my opinion, using analyst expectations from several reputable sources offsets potentially overly optimistic or overly pessimistic projections from one source.

Q. WHY DID YOU NOT USE PROJECTIONS OF DPS GROWTH IN YOUR ANALYSIS?

A. As I testified in direct, the constant growth DCF result using projected DPS growth is at below the cost of debt. *See* Bourassa DT at 36. The constant growth result using projected DPS growth is 6.4%. At the time of my analysis, the cost of Baa bonds were 6.3%. Again, the current cost of Baa bonds is 6.56%. The Blue Chip projections of Baa bond costs for 2007-08 is 7.3%. Using this result would only serve to skew the cost of equity downward.

Q. DOESN'T STAFF CRITICIZE YOU FOR RELYING ON ANALYST EXPECTATIONS OF EPS GROWTH?

A. Yes. *See* Chaves DT at 36-39. Mr. Chaves spends a considerable amount of time criticizing my approach, yet, he acts as his own analyst when making his growth projections. Which, as I have testified, are greater that the analysts. As I testified in direct, in estimating future growth, financial institutions and analysts have taken into account all relevant historical information on a company as well as other more recent information. In fact, the study in the article in cited concluded that in the

four methods of estimating the growth component of the DCF analyst forecasts of earnings performed the best, while past earnings and dividends growth were third and fourth, respectively. [1]

Q. WHAT IS STAFF'S ESTIMATE OF SUSTAINABLE GROWTH?

A. Staff computes two growth rates for sustainable growth. One historical and one projected. Staff's historical sustainable growth and projected sustainable growth are 5.9% ad 10.2%, respectively. The average of the two is 8.1%.

Q. HOW DOES THIS COMPARE TO YOUR SUSTAINABLE GROWTH?

A. I computed a sustainable growth of 8.49%.

Q. IF YOU USED STAFF'S AVERAGE SUSTAINABLE GROWTH IN THE CONSTANT GROWTH MODEL USING STAFF'S DIVIDEND YIELD, WHAT IS THE INDICATED COST OF EQUITY?

A. The result is 11.0% as shown below.

(4) Staff DCF – Sustainable Growth

D_1/P_o	+	g	=	K
2.9%		8.1%		11.0%

This compares favorably to the results of my analysis.

Q. IF THE HISTORICAL DPS AND EPS GROWTH RATES ARE REMOVED FROM THE CALCULATION OF STAFF'S AVERAGE GROWTH RATE, WHAT WOULD BE THE RESULTS OF STAFF'S CONSTANT GROWTH DCF?

A. The average growth would be 9.1% and the indicated cost of equity 12.0% as shown below.

[1] See David A. Gordon, Myron J. Gordon and Lawrence I Gould, "Choice Among Methods of Estimating Share Yield," *Journal of Portfolio Management* (Spring 1989) 50-55.

(5) Staff DCF – Average growth excluding historical DPS and EPS growth

D_1/P_o	+	g	=	K
2.9%		9.1%		12.0%

This is the average result of equation (3) and (4) and compares favorably to the results of my analysis.

Q. HAVE YOU EXAMINED STAFF'S MULTI-STAGE DCF MODEL?

A. Yes. Staff's multi-stage model biases the indicated cost of equity downward. Staff's multi-stage DCF model can be restated to a two-stage DCF model, similar to the one I used in Schedule D-4.11, with a first stage growth of 6.6% and a second stage of 6.8%. Staff's model implies that short-term growth is even lower than Staff's downwardly biased constant growth DCF growth rate of 6.9%. The average of these two is 6.7%.

Q. EXCUSE ME MR. BOURASSA, BUT I ALSO DO NOT SEE A GROWTH PERCENTAGE FOR THE STAGE 1 GROWTH ON STAFF SCHEDULE PMC-8 SIMILAR TO YOUR SCHEDULE D-4.11. WHY IS THAT?

A. Because Staff has hidden the ball again. As I stated above, the Staff's estimate for growth, excluding the low historical DPS and EPS growth rates, is 8.1%. In my opinion this is better reflection on the expected near-term growth rate. RUCO's sustainable growth rate is much higher than 6.7% at 7.35%. *See* Rigsby DT at 27.

Q. DO YOU AGREE WITH THE STAFF'S STAGE TWO GROWTH RATE OF 6.8%?

A. Yes. I use the same growth rate for my long-term growth rate. This is the arithmetic mean of the GDP growth from 1929-2005. However, I give greater weight to the near-term because the multi-stage model should reflect investor expectations during the period in which rates will be in effect.

Q. IF YOU USED STAFF'S AVERAGE 2.9% DIVIDEND YIELD AND THE 8.1% GROWTH RATE FOR STAGE ONE AND THE 6.8% FOR STAGE TWO IN YOUR TWO-STAGE MODEL AS SHOWN ON SCHDULE D-4.11, WHAT WOULD BE THE RESULT?

A. 10.6%, compared to Staff's multi-stage implied return of 9.6%.

Q. WITH EQUAL WEIGHTING TO BOTH THE NEAR-TERM GROWTH OF 8.1% AND THE LONG-TERM GROWTH OF 6.8% IN YOUR TWO-STAGE MODEL AND USED STAFF'S 2.9% DIVIDEND YIELD WHAT WOULD BE THE RESULT?

A. The result would be 10.4%. This is slightly less than the average actual returns reported in AUS Reports for December 2005.

Q. PLEASE DISCUSS RUCO'S DCF METHODS.

A. Mr. Rigsby uses a sample of water companies and gas companies in his DCF analysis. Rigsby DT at 18. He uses only the constant growth DCF and a sample of 4 publicly traded water companies including American States Water, California Water, Southwest Water, and Aqua America. Mr. Rigsby employed a constant growth DCF model using its estimate of sustainable growth as its growth estimate. Rigsby DT at 9-10

Q. DID YOU INCLUDE SOUTHWEST WATER IN YOUR SAMPLE?

A. No. I did not include Southwest Water for two reasons. First, Staff does not include this company in its sample. So, to be consistent with Staff, I did not. Second, as I previously testified, Southwest Water receives only 38% of its revenues from water utility service according to AUS Reports. The six companies in my sample average over 91% from water revenues.

Q. WHAT IS MR. RIGSBY'S ESTIMATE OF SUSTAINABLE GROWTH FOR HIS WATER SAMPLE?

A. Mr. Rigsby computes an average growth rate of 7.35%. RUCO Schedule WAR-4.

Q. WHAT IS RUCO'S AVERAGE DIVIDEND YIELD?

A. RUCO average dividend yield for their water utility sample is 2.1%, compared to 2.9% for Staff. Both Staff and RUCO computed an average dividend yield using spot prices in late January 2006. Staff using spot prices on January 25, 2006 and RUCO used spot prices on January 27, 2006. Rigsby Direct Schedule, WAR-3 and Chaves DT at 15.

Q. WHAT WOULD BE THE INDICATED COST OF EQUITY USING RUCO'S GROWTH RATE AND STAFF'S AVERAGE DIVIDEND YIELD?

A. The indicated cost of equity would be 10.3%, over 600 basis points higher than Staff's 9.6%.

Q. IS THIS A FAIR ANALYSIS?

A. Yes. RUCO has computed a growth rate, which like all the parties in this case, it is using to compute a cost of equity. RUCO has determined for the water industry a growth rate of 7.35%. This growth rate, in theory, is the growth rate Mr. Rigsby would use for any water or sewer company for which he is estimating a cost of equity. In this case, it happens to be BMSC. A wider sample of companies, like Staff's, reveals that the average dividend yield is much higher than 2.9%. This is Staff's estimate of the average dividend yield for the water industry. Like the growth rate, the dividend yield can be used for any water company Staff or RUCO would estimate the cost of equity for. Again, in this case, it happens to be BMSC.

Q. IS IT YOUR POSITION THAT MR. RIGSBY'S SAMPLE IS INCOMPLETE?

A. Not necessarily. The point is that Mr. Rigsby's dividend yield and ultimately his cost of equity has a downward bias when viewed against a wider sample of water companies.

Q. ARE THERE ANY OTHER PROBLEMS WITH MR. RIGSBY'S CALCULATION OF GROWTH?

A. Yes, on page 16 and 17 of Mr. Rigsby's direct testimony, he describes the formula which he uses to compute sustainable growth. This is a downward adjustment to the external growth component (sv). Rigsby DT at 17. In essence, he averages downward the market-to-book-ratio assuming that the market price of a stock will tend to move toward book value. As Mr. Rigsby's contends, is one of the desired effect of regulation because is the market-to-book value is greater than 1.0, the company is earning more than its cost of capital. *See* Rigsby DT at 17. As I have testified at length, there are many reasons why investors may bid up the price of a stock above the stock's book value other than an expectation that a water utility will earn "more" than its cost of equity.

Q. HAS THE HISTORICAL MARKET-TO BOOK RATIO MOVED TOWARD 1.0 FOR THE WATER UTILITY SAMPLE?

A. No. Market-to-book ratios for the water utility sample have stayed well above 1.0 for at least the past 10 years. The current average market-to-book ratio is 2.6. The 10-year historical average price growth has exceeded book growth.

Q. LET'S MOVE ON TO STAFF AND RUCO'S CAPM MODELS. WHAT ARE THE ESTIMATED BETAS FOR BMSC EACH PARY HAS USED IN THE CAPM?

A. Both Staff and RUCO used the average beta of their respective water utility samples. Rigsby DT at 33 and Chaves DT 29. Staff computed an average beta of .74 and RUCO computed an average beta of .75.

Q. WHAT IS THE BETA FOR BMSC?

A. BMSC is not publicly traded so it does not have a beta. This is an inherent problem in the CAPM approach to estimating the cost of equity. Mr. Chaves and

Mr. Rigsby have used the average beta of their respective water utility sample groups as a proxy for BMSC's beta. However, neither of them has presented any evidence or data suggesting that BMSC, if it were publicly traded, would have a beta equal to that of their sample group. They have made no attempt to analyze the particular risks associated with an investment in BMSC and to compare those risks with the publicly traded water utilities in their sample groups. They have simply assumed that all water utilities, regardless of a particular water utility's size and other firm-specific characteristics, have the same beta. For this reason alone, both their CAPM and DCF estimates should be rejected.

In addition, there is considerable uncertainly regarding the accuracy of the beta estimates for the particular water utilities in their sample group. Estimating betas for publicly traded water utilities is problematic. With the possible exception of Aqua America, all of the water utilities are small companies and their stock is thinly-traded. Because these stocks are thinly-traded, as the stock market index changes, the individual utility's stock price remains unchanged due simply to a lack of trading. Because of the method used by Value Line to estimate betas, which analyzes weekly percent changes in the price of a stock and weekly percent changes in the New York Stock Exchange average, stocks that are infrequently traded appear to have low betas lower than would be expected.

Q. ARE YOU AWARE OF ANY DATA INDICATING THAT VALUE LINE'S ESTIMATED BETAS FOR THE PUBLICLY TRADED WATER UTILITIES ARE BIASED DOWNWARD DUE TO A LACK OF TRADING?

A. Yes. Referring to Staff's sample group of six publicly traded water utilities, Aqua America has an estimated beta of 0.75 as reported by Value Line January 27, 2006. Yet, Aqua America is the largest and most geographically diverse water utility in

the sample group. Its operating revenue and net plant are substantially greater than any of the other water utilities as I discussed earlier. It is one of the only water utilities with a AA bond rating, and, along with Connecticut Water Service, and has an A- stock quality rating. In addition, Value Line gives Aqua America the highest rank in earnings predictability, 100. Consider the following data:

Company	Stock Price Growth Persistence	Earning Predictability	Beta
Amer. States	80	65	0.75
Aqua America	95	100	0.75
Cal. Water	90	70	0.75
Conn. Water	75	95	0.75
Middlesex	75	70	0.75
SJW Corp.	85	75	0.65

(Value Line date January 27, 2006)

These data points suggest that firms with weaker stock price growth and less predictable earnings have betas which are the same as those with stronger stock price growth and higher earnings predictability.

Q. BUT SHOULDN'T SMALL FIRMS WITH LOWER CREDIT RATINGS AND LOWER EARNINGS PREDICTABILITY HAVE HIGHER BETAS THAN THE DATA SUGGESTS?

A. One would logically expect that to be the case. The fact that SJW Corporation appear to be the weakest utility of the group and yet has the lowest beta and Middlesex has the second to lowest stock price growth and earnings predictability yet has the same beta as Aqua America. These indicate that the betas are being influenced by other factors as opposed to accurately reflecting the relative risk of each company. I do not believe that any rational investor would view an

investment in the stock of Aqua America as being substantially more risky than an investment in the stock of SJW Corporation Water or the same risk as Middlesex Water. Nevertheless, that is what the betas estimated by Value Line would appear to indicate.

It is far more likely, however, that Aqua America's beta is higher than SJW Corporation and the same as other water utilities simply because its stock is traded more frequently. SWJ Corporation may have the lowest beta and Middlesex Corporation the same beta as the others because the stock is traded infrequently. In other words, in this particular case, beta is not providing an accurate measurement of risk. This means that the results of Staff and RUCO's CAPM may be biased downward and are understating the current cost of equity.

Q. ARE THERE ANY OTHER REASONS WHY RESULTS OF THE CAPM SHOULD NOT BE RELIED ON IN THIS CASE?

A. The results of the CAPM are distorted. CAPM estimates should be based on long-term Treasury rate forecasts and use a more stable method predicting the current market risk premium. Staff determines its risk-free rate by averaging the five, seven and ten year intermediate U.S Treasury securities spot rates on January 26, 2006. *See* Chaves DT at 28. Staff's computed average risk-free rate is 4.7%. RUCO uses a six week average of the 91 day U.S Treasury Bill ("T-Bill") rate. *See* Rigsby DT at 31. RUCO's computed average risk free rate is 4.37%. In my opinion, forecasts of interest rates or "forward rates" should be used. The interest rate used should be relevant to the period of time in which BMSC rates will be in effect and should be long-term interest rates. Relying on market interest rates for January 2006 does not solve the uncertainty about what interest rates will be in 2007 or 2008, when BMSC rates will be in effect. With interest rates currently very low, compared with interest rates over the past several decades, the chance

future rates will be higher than today is a much better chance they will be lower. As a result forecasted rate should be used.

Q. WHY SHOULD LONG-TERM INTEREST RATES BE USED?

A. Ibbotson Associates provides a very clear explanation of the issue:

> The horizon of the chosen Treasury security should match the horizon of whatever is being valued. When valuing a business that is being treated as a going concern, the appropriate Treasury security should be that of a long-term Treasury bond. ***Note that the horizon is a function of the investment, not the investor.*** If the investor plans to hold a stock in a company for only five years, the yield on a five-year Treasury note would not be appropriate since the company will continue to exist beyond those years.
>
> . . .
>
> Companies are entities that generally have no defined life span; when determining a company's value, it is important to use a long-term discount rate because the life of the company is assumed to be infinite.

Ibbotson Associates, *SBBI Valuation Edition, 2006 Yearbook*, pages 59 and 75 (emphasis added). *See* Bourassa Rebuttal Exhibit 6.

Q. WHAT INTEREST RATE DO YOU SUGGEST BE USED?

A. I recommend the Blue Chip forecast 20 year U.S. Treasury yields through 2007 and 2008. According to the Blue Chip Financial Forecast (December 2005) the long-term 20 year U.S. Treasury yield is 5.4% for 2007 and 2008.

Q. WHAT DO STAFF AND RUCO TO COMPUTE THEIR MARKET-RISK-PREMIUMS?

A. Mr. Rigsby computes two market-risk-premiums ("MRP") and produces two CAPM results. The first MRP is computed using the geometric mean of the historical S&P 500 market returns from 1926 to 2004. The second MRP is computed using the arithmetic mean of the historical S&P 500 market returns from

1926 to 2004. *See* Rigsby DT at 32. Mr. Rigsby's first MRP is 6.03% and second MRP is 8.03%. Interestingly, he admits the consensus among financial analysts appears to indicate the arithmetic mean is the better of the two averages. *Id.* at 33-34. I concur that the arithmetic mean should be used in estimating the cost of capital. Bourassa DT at 35-36.

Staff computes an historical MRP and a current MRP. Like RUCO, also produces two CAPM results using these premiums. Staff's first historical MRP is the S&P 500 market returns from 1926 to 2004 at 7.2%. *See* Chaves DT at 30. The second MRP is derived by solving Staff's equation (8) for the MRP using Staff's derived market based DCF return of equity of 10.48, the 30-year Treasury note of 4.65%, and a beta of 1.0. Staff's current MRP is 5.7%. This method can be shown to be extremely unstable. In fact, during the period from January 2002 through January 2006, the MRP using this method has fluctuated between 5.9% and 19.15%. Because of the instability of estimating the current MRP, Staff's analysis should not be relied upon.

Q. WHAT ARE STAFF'S AND RUCO'S CAPM INDICATED COSTS OF EQUITY?

A. Staff's CAPM result using historical MRP is 9.8% and its CAPM result using its current MRP is 8.9%. *See* Chaves DT at 30. The average of these two is 9.35%. RUCO's CAPM result using the historical MRP (geometric mean) is 8.89% and its CAPM result using historical MRP (arithmetic mean) is 10.39%. *See* Rigsby DT at 33. The average of these two is 9.64%.

Q. WHAT WOULD BE THE RESULT OF THE CAPM USING YOUR RECOMMENDATIONS ON THE RISK-FREE RATE AND THE LONG-TEERM MRP?

A. The result would be 10.5%. For arguments sake, I am using the average beta of the

utility sample, which Staff and RUCO assume is the beta for BMSC. First, as I discussed previously, I would use the forecasted long-term Treasury rate for 2007-2008. Second, I would use the long-horizon MRP for the S&P 500 (1926-2005) which is 7.1% (Ibbotson Associates, *2006 SBBI Yearbook).* My results are as follows:

Equity cost = RF + β x MRP

10.5% = 5.2% + .75 x 7.1%

As I testified previously, Mr. Rigsby's CAPM using a MRP based on a MRP using historical arithmetic mean market returns is 10.39%. While admits the consensus among financial analysts appears to indicate the arithmetic mean is the better of his two choices for computing the MRP and the CAPM result of 10.39% is a better check of his results (*See* Rigsby DT at 34), it does not appear to influence his judgment about the cost of equity for his water utility sample. Instead relies solely on his DCF cost of equity of 9.45%.

Q. HOW DO STAFF AND RUCO ADDRESS THE ADDITIONAL RISKS THAT RESULT FROM THE COMPANY'S EXTREMELY SMALL SIZE AND CHARACTERISTICS IN THEIR RECOMMENDATIONS?

A. They are largely ignored. RUCO seems to believe the debt service on the operating lease is guaranteed and thus eliminating any financial risk. *See* Rigsby DT at 54. This is simply not true. Whether the debt service is recovered through the return or through operating expense, there is no guaranteed recovery. A perfect example is the additional Scottsdale Capacity debt service in 1997. The Company was precluded from filing a case for 4 years and could not have sought recovery until years latter. If expenses increase, the Company would not necessarily collect all of its expenses nor would it recover the authorized return on its investment through rates.

V. RATE DESIGN.

Q. PLEASE SUMMARIZE THE POSTIONS OF THE PARTIES WITH RESPECT TO THE RATE DESIGN.

A. Both Staff and RUCO propose the same rate design as the Company. Like the Company, Staff and RUCO apply their respective recommended rate increase equally across all classes of customers to produce their respective revenue requirements.

Staff recommends the Company's hook-up fee be eliminated. *See* Brown DT at 38. As I have testified, the Company accepts Staff's recommendation, however, it does not agree with Staff that provisions for refund and ratemaking treatment should be postponed. All necessary information is available and known and measurable. Therefore, consistent with Staff's recommendation to eliminate the hook-up fee, the Company proposes to refund hook-up fees to customers totaling $833,367. The amount consists of $452,467 for land and $380,900 for unexpended hook-up fees.

Q. HOW WILL THE AMOUNT REFUNED TO EACH CUSTOMER BE COMPUTED?

A. The Company's proposed refund is computed on a per customer basis, irrespective of customer class. Each customer will receive the same amount. The refund amount was computed by dividing the total amount to be refunded by the number of current active customers as of a date specified by the Commission. The refund would be mailed to each customer.

Q. WHAT IS THE AMOUNT PER CUSTOMER BASED ON THE NUMBER OF CUSTOMERS AT THE END OF THE TEST YEAR?

A. The refund per customer would be $447.33 ($833,367 divided by 1,863). The actual amount may be different depending on the count at the time the refund is

made.

Q. WILL THE COMPANY REPORT TO THE COMMISSION WHEN THE REFUND IS MADE AND THE PER CUSTOMER CALCULATION?

A. Yes, the Company will report such information and any other information the Commission deems necessary to insure the refund is made.

Q. WHAT ARE THE COMPANY'S PROPOSED REBUTTAL RATES?

A. The proposed rates are:

Residential Charge:	$46.54
Commercial – Std. Rate (Per gallon) [2] :	$0.15236
Commercial – Special Rate (Per gallon) [3]:	
B-H Enterprises (7518 Elbow Bend West)	$0.11685
B-H Enterprises (7518 Elbow Bend East)	$0.11685
Barb's Pet Grooming	$0.11685
Boulders Resort	$0.11843
Carefree Dental	$0.14312
Ridgecrest Realty	$0.14475
Desert Forest	$0.16669
Desert Hills Pharmacy	$0.17400
El Pedegral	$0.14312
Lemon Tree	$0.17638
Body Shop	$0.17814
Spanish Village	$0.14312

[2] Commercial wastewater flows are based on the average daily flows set forth in Engineering Bulletin No. 12, Table 1, published by the Arizona Department of Environmental Quality (June 1989).

[3] Wastewater flows are based on Engineering Bulletin No. 12, Table 1. A one-bedroom dwelling is assumed to generate 200 gallons per day, each additional bedroom is assumed to generate an additional 100 gallons per day.

Boulders Club	$0.14312
Anthony Vuitaggio	$0.15907

In addition, the price for reclaimed (non-potable) water is $149.43 per acre-foot.

The rebuttal rates and charges are shown on the rebuttal H schedules.

Q. DOES THAT CONCLUDE YOUR REBUTTAL TESTIMONY?

A. Yes.

1780317.2

BOURASSA EXHIBITS

BOURASSA REBUTTAL

EXHIBIT 1

ARIZONA CORPORATION COMMISSION
STAFF'S RESPONSES TO
BLACK MOUNTAIN SEWER COMPANY'S
FIRST SET OF DATA REQUESTS
(Docket No. SW-02361A-05-0657)

Response provided by: Crystal Brown

Title: Public Utilities Analyst V
Financial and Regulatory Analysis
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Phone: 602-542-0864

Staff Response Number 1.1

1.1 What did Staff do to determine if the costs incurred by the Company for affiliate services were reasonable?

Answer. Staff sent out several data requests CSB-1.52, Amended CSB-1.52 and others. Staff reviewed the affiliate billing rates and the Company's calculation of the profit that affiliates bill Black Mountain. Staff reviewed (1) whether or not the affiliates performed the same services for unaffiliated companies; (2) whether or not competitive bids were obtained; (3) the Company's explanation for not obtaining competitive bids; (4) whether Black Mountain could provide any compelling explanation to justify recovery of profit included in affiliate billings (5) the impact of the affiliate profit on the owners and the customers; and (6) the practice of others utilities' affiliates not to include a profit in billings to utilities.

ARIZONA CORPORATION COMMISSION
STAFF'S RESPONSES TO
BLACK MOUNTAIN SEWER COMPANY'S
FIRST SET OF DATA REQUESTS
(Docket No. SW-02361A-05-0657)

Response provided by: Crystal Brown

Title: Public Utilities Analyst V
Financial and Regulatory Analysis
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Phone: 602-542-0864

Staff Response Number 1.5

1.5 Is it Staff's position that a person or entity providing services to a public service corporation is not entitled to charge an amount for such services that includes recovery of anything more that its costs of providing those services?

Answer: No.

ARIZONA CORPORATION COMMISSION
STAFF'S RESPONSES TO
BLACK MOUNTAIN SEWER COMPANY'S
FIRST SET OF DATA REQUESTS
(Docket No. SW-02361A-05-0657)

Response provided by: Crystal Brown

Title: Public Utilities Analyst V
Financial and Regulatory Analysis
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Phone: 602-542-0864

Staff Response Number 1.14

1.14 Please provide evidence of any "inflated costs" billed or attempted to be billed by Algonquin Water Services to the Company.

Answer: The amount billed by the affiliate included a profit.

ARIZONA CORPORATION COMMISSION STAFF'S RESPONSES TO BLACK MOUNTAIN SEWER COMPANY'S SECOND SET OF DATA REQUESTS DOCKET NO. SW-02361A-05-0657 MARCH 27, 2006

2.1 Admit that the Commission did not require a showing of "extraordinary circumstances" before including some post test year plant in rate base in the following rate decisions-- *Chaparral City Water Company*, Docket No. W-02113A-04-0616, Decision No. 68176 (September 30, 2005); *Rio Rico Utilities, Inc.*, Decision No. 67279 (October 5, 2004); *Arizona Water Company*, Decision No. 66849 (March 22, 2004) and Decision No. 64282 (Dec. 28, 2002); *Bella Vista Water Company*, Decision No. 65350 (Nov. 1, 2002); *Paradise Valley Water Company*, Decision No. 61831 (July 20, 1999); *Far West Water Company*, Decision No. 60437 (Sept. 29, 1997).

Answer

It is burdensome to make the analysis of the aforementioned cases as Staff witness Crystal Brown does not know. For Far West Water Company, Decision No. 60437, Staff cannot agree to nor admit to the statement.

ARIZONA CORPORATION COMMISSION STAFF'S RESPONSES TO BLACK MOUNTAIN SEWER COMPANY'S SECOND SET OF DATA REQUESTS DOCKET NO. SW-02361A-05-0657 MARCH 27, 2006

2.3 How does the post test year plant proposed for inclusion in rate base in this case differ from the post test year plant included in rate base in the following rate decisions-- *Chaparral City Water Company*, Docket No. W-02113A-04-0616, Decision No. 68176 (September 30, 2005); *Rio Rico Utilities, Inc.,* Decision No. 67279 (October 5, 2004); *Arizona Water Company*, Decision No. 66849 (March 22, 2004) and Decision No. 64282 (Dec. 28, 2002); *Bella Vista Water Company*, Decision No. 65350 (Nov. 1, 2002); *Paradise Valley Water Company*, Decision No. 61831 (July 20, 1999); *Far West Water Company*, Decision No. 60437 (Sept. 29, 1997).

Answer

It is burdensome to make the analysis of the aforementioned cases as Staff witness Crystal Brown does not know.

ARIZONA CORPORATION COMMISSION STAFF'S RESPONSES TO BLACK MOUNTAIN SEWER COMPANY'S SECOND SET OF DATA REQUESTS DOCKET NO. SW-02361A-05-0657 MARCH 27, 2006

2.8 Staff asserts (Brown DT at 9-10) that post test year plant should only be included in rate base in two "cases". Please identify any prior Commission decision or other authority supporting this assertion.

Answer

In Decision No. 68071 (dated 8/17/2005), Staff argued to exclude post-Test year plant because it failed to meet Staff's criteria. The Commission adopted Staff's recommendation.

ARIZONA CORPORATION COMMISSION STAFF'S RESPONSES TO
BLACK MOUNTAIN SEWER COMPANY'S
SECOND SET OF DATA REQUESTS
DOCKET NO. SW-02361A-05-0657
MARCH 27, 2006

2.12 Admit that it is reasonable for a public service corporation to consider past Commission decisions including post test year plant in rate base in deciding when to file an application for a rate increase and what test year to use.

Answer

Staff admits to the statement.

ARIZONA CORPORATION COMMISSION STAFF'S RESPONSES TO BLACK MOUNTAIN SEWER COMPANY'S SECOND SET OF DATA REQUESTS DOCKET NO. SW-02361A-05-0657 MARCH 27, 2006

2.14 Please explain why Staff included CIAC additions for January 2004 through June 2004 in its computation of gross CIAC if the test year in the prior case (Decision 59944) was June 30, 2004?

Answer

Staff's inclusion of January 1994 to June 1994 CIAC was an error. Staff appreciates the Company identifying the error.

ARIZONA CORPORATION COMMISSION STAFF'S RESPONSES TO BLACK MOUNTAIN SEWER COMPANY'S SECOND SET OF DATA REQUESTS DOCKET NO. SW-02361A-05-0657 MARCH 27, 2006

2.20 Please provide a detail/source of $6,435 Customer Deposits related to Staff Adjustment #5 (Brown DT at, page 19, line 6).

Answer

Staff's deduction of $6,435 was an error. Staff appreciates the Company identifying the error.

ARIZONA CORPORATION COMMISSION STAFF'S RESPONSES TO BLACK MOUNTAIN SEWER COMPANY'S SECOND SET OF DATA REQUESTS DOCKET NO. SW-02361A-05-0657 MARCH 27, 2006

2.21 Staff recommends (Brown DT at 11-13) that so-called "capitalized affiliate profit" be removed from rate base. If the same amounts Staff seeks to exclude had been for costs pertaining to projects capital services incurred by the Company with unaffiliated third-parties, would Staff's adjustment be appropriate?

Answer

If the sources of the costs had been unaffiliated third parties, no "affiliate" profit would exist and Staff would not recommend an adjustment to remove that which does not exist.

BOURASSA REBUTTAL

EXHIBIT 2

BLACK MOUNTAIN SEWER COMPANY
2005 GENERAL RATE CASE
DOCKET NO. SW-02361A-05-0657
RESPONSE TO STAFF'S FIRST SET OF DATA REQUESTS

Response provided by: Thomas J. Bourassa, CPA

Title: Rate Consultant

Company Name: Black Mountain Sewer Company
Address: 111 W. Wigwam Blvd, Suite B
Litchfield Park, AZ 85340

Company Response Number: CSB 1.52

Q. For all affiliated transactions identified in response to CSB 1.50, please state how the Company and its affiliate determined price for each transaction. If a price is based on fair market value ("FMV"), please state how FMV was determined and provide supporting documentation. Staff reserves the right to submit data requests related to cost components for all affiliated transactions. (As amended by Staff on November 14, 2005.)

A. The attached document reflects the costs or "prices" paid by the Company in certain affiliate transactions. The price for affiliate transactions is not based on fair market value. Rather, the price is based on an allocation of costs amongst the systems receiving the benefits of affiliate transactions and includes a small, but appropriate "operating margin". Comparing the amounts charged to the Company to similar charges paid by other public service corporations for management and other administrative and operations support, it is clear that the expenses incurred by the Company for these services are reasonable and prudent.

Price for Affiliated Transactions
CSB 1.52

Algonquin Power Systems Inc.:

Type of Transaction	Transaction Detail	Determined Price	Categories	Typical Rates
Work Order Activity:				
	Material	Cost		
	Labour	Typical Rates	Division Manager	80/Hour
			Team Leader	80/Hour
			Regional Supervisor	60/Hour
			Senior Project Manager	50/Hour

Algonquin Water Services LLC:

Type of Transaction	Transaction Detail	Determined Price	Categories	Typical Rates
Operating Costs:				
	Operator Wages/Non direct related costs	Cost Plus		$13,062/Month
Accounting and Customer Service:				
	Labour/Postage/Misc	Cost Plus		$3/Bill
Work Order Activity:				
	Material	Cost		
	Labour	Typical Rates	General Manager	150/Hour
			Operator III & IV	70/Hour
			Operator I & II	50/Hour
			Technician II	80/Hour
			Technician I	50/Hour
			Senior Engineer	100/Hour
			Junior Engineer	90/Hour
			Project Engineer	90/Hour

Algonquin Power Trust:

Type of Transaction	Determined Price	Cost
Central Office Costs:		
Non Site Related Costs	Cost	$1,500/Month
Labour services-Corporate Accounting/HR/IT	Cost	Cost/hour

Schedule A
Monthly Postage Cost Build Up
CSB 1.52

		Postage Expense
Black Mountain		
Customer Count	**1633**	
Postage Cost Per Bill	**0.32**	$522.56
Envlope/Stationary Cost per Bill	**0.10**	$163.30
Total Postage Cost		**$685.86**

Schedule B
Algonquin Water Services Monthly Allocation of Shared Personnel by Facility
CSB 1.52

		Gold Canyon	Black Mountain	Tall Timbers	Woodmark	Bella Vista	Litchfield Park	Total
Salaries for Admin at AWS	**From Schedule C**							
Budgeted Customers		4,534	1,633	1,125	970		25,864	34,126.00
		13%	5%	3%	3%		76%	100%
Patty Nielsen	7,045.41	936.06	337.14	232.26	200.26	-	5,339.69	7,045.41
Amy Sears	7,700.00	1,023.03	368.46	253.84	218.87	-	5,835.80	7,700.00
Bundy	7,000.00	930.02	334.96	230.76	198.97	-	5,305.28	7,000.00
Bobi Keen	4,252.49	564.99	203.49	140.19	120.87	-	3,222.95	4,252.49
Suzanne Wagner	4,409.00	585.78	210.98	145.35	125.32	-	3,341.57	4,409.00
Barbara Risden	4,134.37	549.30	197.84	136.29	117.52	-	3,133.43	4,134.37
Brenda Bowman	4,205.84	558.79	201.26	138.65	119.55	-	3,187.59	4,205.84
		5,147.96	**1,854.13**	**1,277.34**	**1,101.35**	**-**	**29,366.32**	**38,747.10**
Salaries for Ops								
Budgeted Customers		4,534	1,633	1,125	970	7,012	25,864	41,138
		11%	4%	3%	2%	17%	63%	100%
Charlie Hernandez	11,796.89	1,300.19	564.51	388.90	335.32	-	8,940.83	11,529.73
Mike Weber	15,750.01	1,735.88	625.21	430.72	371.37	2,684.60	9,902.24	15,750.01
Joel Wade	11,083.35	1,472.54	530.36	365.37	315.03	-	8,400.04	11,083.35
		4,508.60	**1,720.07**	**1,184.99**	**1,021.72**	**2,684.60**	**27,243.10**	**38,363.09**

Schedule C
Algonquin Water Services Monthly Shared Admin and Operations Personnel
CSB 1.52

	MONTHLY SALARIES	OT HRS $	TOTAL SALARIES	BENEFITS	OTHER BENEFITS	CAR ALLOWANCE	MILEAGE	TOTAL EMPLOYEE COST
Bowman, Brenda	3,004.17	-	3,004.17	1,201.67				4,205.84
Bundy	5,000.00		5,000.00	2,000.00				7,000.00
Dacquet, Roberta (bobi Keen)	3,037.49	-	3,037.49	1,215.00				4,252.49
Hernandez, Charlie	8,040.37	-	8,040.37	3,216.15		540.37		11,796.89
Nielsen, Patricia	4,556.24	-	4,556.24	1,822.50	226.67	440.00		7,045.41
Risden, Barbara	2,953.12	-	2,953.12	1,181.25				4,134.37
Sears, Amy	5,500.00	-	5,500.00	2,200.00				7,700.00
Wade, Joel	7,916.68	-	7,916.68	3,166.67				11,083.35
Wagner, Suzanne	2,835.00	-	2,835.00	1,134.00		440.00		4,409.00
Weber, Michael	11,250.01	-	11,250.01	4,500.00				15,750.01

BLACK MOUNTAIN SEWER COMPANY
2005 GENERAL RATE CASE
DOCKET NO. SW-02361A-05-0657
RESPONSE TO STAFF'S FIRST SET OF DATA REQUESTS

Response provided by: Greg Sorensen

Title: Controller – Algonquin Water

Company Name: Black Mountain Sewer Corporation
Address: 12725 W. Indian School Rd., Suite D-101
Avondale, AZ 85323

Company Response Number: CSB 1.52 (amended)

Q. For all affiliated transactions identified in response to CSB 1.50, please state how the Company and its affiliate determined price for each transaction. If a price is based on fair market value ("FMV"), please state how FMV was determined and provide supporting documentation. Staff reserves the right to submit data requests related to cost components for all affiliated transactions. (As amended by Staff on November 14, 2005.)

A. Please see the attached summary sheets, which update BMSC's original response to CSB 1.52. This now includes Operating Margin or 3rd party rate quotes where appropriate. Also, please see the attached build-up of costs for BMSC presented as if it had to hire personnel to perform the functions provided by AWS. The cost of doing so almost doubles the cost (Operating and Administrative) per customer bill versus the $11/bill fee charged by AWS.

BLACK MOUNTAIN SEWER CORPORATION
2005 GENERAL RATE CASE
DOCKET NO. SW-02361A-05-0657
RESPONSE TO STAFF'S THIRD SET OF DATA REQUESTS

Response provided by: Greg Sorensen

Title: Controller - Algonquin Water

Company Name: Black Mountain Sewer Corporation
Address: 12725 W. Indian School Rd., Suite D-101
Avondale, AZ 85323

Company Response Number: CSB 4.1

Q. Affiliates, Profit – This is a follow-up to CSB 1-52. Thank you for providing the information. However, the following questions were not answered:

a. please state the return, "profit" or "operating margin" component included in the billings of each affiliate;

b. please explain how such profit factors were determined;

c. please explain how the amounts are accounted for; and

d. please state the actual profits/"operating margin" included in test year billings.

A. a. Please see the attached AWS budget/price build-up for its provision of services to BMSC. The estimate included a 10.4% pre-tax and 6.2% post-tax operating margin. However, the actual test year AWS pre-tax operating margin for the services to BMSC was only 6.5% and the post tax operating margin was only 3.92%.

b. Please see the attached budget/price build-up for explanation of how factors were determined.

c. Beginning in 2004, revenues and costs, to the extent they were specifically identifiable, were coded to the AWS customer to which they belonged. Costs not specifically identifiable to a particular customer of AWS were allocated to each customer based upon that customer's percentage of billings for AWS.

d. Please see the attached spreadsheet which updates prior summary schedule provided in response to CSB 1.52 to include actual AWS operating margin (3.92%) related to BMSC for the Test Year.

BLACK MOUNTAIN SEWER CORPORATION
2005 GENERAL RATE CASE
DOCKET NO. SW-02361A-05-0657
RESPONSE TO STAFF'S FIFTH SET OF DATA REQUESTS

Response provided by: Gerald Tremblay

Title: Controller – Algonquin Power

Company Name: Black Mountain Sewer Corporation
Address: 12725 W. Indian School Rd., Suite D-101
Avondale, AZ 85323

Company Response Number: CSB 5.1

Q. Affiliated Contract Employee Costs – This is a follow-up to CSB 1.52 (delivered November 28, 2005). For the years 2002 and 2003, please provide the same information and schedules for affiliated contract employee costs as was provided for affiliated contract employee costs in 2004. Also, as part of your response, please explain the basis for any payroll and labor burden increases from 2002 to 2003.

A. *See* Schedules CSB 5.1-2002 and CSB 5.1-2003, which were previously submitted in response to CSB 5.1. These schedules included the same information/schedules as was provided for CSB 1.52. Post-tax Operating Margin for AWS overall for 2002 and 2003 was 13.0% and 7.2%, respectively. In 2002 and 2003, separation of expenses between AWS customers was not done so profitability by customer information is not available for these years.

BLACK MOUNTAIN SEWER CORPORATION
2005 GENERAL RATE CASE
DOCKET NO. SW-02361A-05-0657
RESPONSE TO STAFF'S SEVENTH SET OF DATA REQUESTS

Response provided by: Greg Sorensen

Title: Controller – Algonquin Water

Company Name: Black Mountain Sewer Corporation
Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85323

Company Response Number: CSB 7.3

Q. Contract Operator Fee – This is a follow-up to CSB 1.52. In your response to CSB 1.54 you provided several schedules.

This first schedule is entitled "Priced for Affiliated Transactions." It shows that the operating contract fee is $13,062 per month. Schedule B, entitled "Algonquin Water Service Monthly Allocation of Shared Personnel by Facility", shows $1,854.13 was allocated to Black Mountain for administration salaries and $1,720.07 was allocated for operations salaries, for a total of $3,574.20 for actual administrative and operations salaries.

Is the $9,487.80 difference (i.e., $13,062 - $3,574.20) the "operating margin?" If not, please provide a calculation showing the $13,062 contract fee amount less the actual amounts paid to workers and the resulting "operating margin". As part of your response, please identify the names of all workers, actual monthly salary, and calculation of percentage charged to Black Mountain.

A. No, $9,487.80 is not the "operating margin." Excluded from the above calculation is the cost of two wastewater operators; Daniel Schanaman and Myra McDaniel, as noted on the schedule titled "Build up of Monthly Operating and Accounting Fees for Black Mountain Sewer Company" also submitted as part of the response to CSB 1.52. Including their fees in the amount of $6,532.06 and $3,503.50, respectively, brings the total wage cost/fee to $13,609.76. Added to this are the costs for Postage ($685.86 per Schedule A), Overhead ($1,796.10), and Estimated Income Tax ($747.71). This results in a budgeted post tax operating margin of $1,121.57, or 6.2% of revenue from the monthly Operating/Billing/Administrative services. The names, monthly salaries, and calculation of percentage charged to BMSC were provided as part of our original response to CSB 1.52. For an additional illustration of the above calculation,

please see the AWS monthly budget for its BMSC customer in the amended response to CSB 4.1.

1763007.1

Price for Affiliated Transactions - 2002
CSB 1.52

Algonquin Power Systems Inc.:

Type of Transaction	Transaction Detail	Determined Price	Categories	Typical Rates	Margin %	3rd Party Information
Work Order Activity:						
	Material	Cost			0.00%	

Algonquin Water Services LLC:

Type of Transaction	Transaction Detail	Determined Price	Categories	Typical Rates		
Operating Costs:						
	Operator Wages/Non direct related costs	Cost Plus		$7,500/Month	13.00%	
	Repair & Maintenance Fee	Cost Plus		$7,500/Month	13.00%	
Accounting and Customer Service:						
	Labour/Postage/Misc	Cost Plus		$5,000/Month	13.00%	C
Work Order Activity:						
	Material	Cost			0.00%	
	Labour	Typical Rates	General Manager	150/Hour	13.00%	A
			Operator III & IV	70/Hour	13.00%	
			Operator I & II	50/Hour	13.00%	
			Technician II	80/Hour	13.00%	
			Technician I	50/Hour	13.00%	
			Senior Engineer	100/Hour	13.00%	A
			Junior Engineer	90/Hour	13.00%	A
			Project Engineer	90/Hour	13.00%	A

Algonquin Power Trust:

Type of Transaction	Determined Price	Cost		
Central Office Costs:				
Non Site Related Costs	Cost	$1,020/Month	0.00%	
Labour services-Corporate Accounting/HR/IT	Cost	Cost/hour	0.00%	

A - Third party quote on rates form Carollo to LPSCO (also managed by AWS)
C - See 1998 Quote for billing/bookkeeping services from Western Environmental Technologies, Inc. (3rd party)

Price for Affiliated Transactions - 2003
CSB 1.52

Algonquin Power Systems Inc.:

Type of Transaction	Transaction Detail	Determined Price	Categories	Typical Rates	Margin %	3rd Party Information
Work Order Activity:						
	Material	Cost			0.00%	
	Labour	Typical Rates	Division Manager	80/Hour	1.84%	B
			Team Leader	80/Hour	1.84%	B
			Regional Supervisor	60/Hour	1.84%	B
			Senior Project Manager	50/Hour	1.84%	B

Algonquin Water Services LLC:

Type of Transaction	Transaction Detail	Determined Price	Categories	Typical Rates		
Operating Costs:						
	Operator Wages/Non direct related costs	Cost Plus		$7,500/Month	7.20%	
	Repair & Maintenance Fee	Cost Plus		$7,500/Month	7.20%	
Accounting and Customer Service:						
	Labour/Postage/Misc	Cost Plus		$5,000/Month	7.20%	C
Work Order Activity:						
	Material	Cost			0.00%	
	Labour	Typical Rates	General Manager	150/Hour	7.20%	A
			Operator III & IV	70/Hour	7.20%	
			Operator I & II	50/Hour	7.20%	
			Technician II	80/Hour	7.20%	
			Technician I	50/Hour	7.20%	
			Senior Engineer	100/Hour	7.20%	A
			Junior Engineer	90/Hour	7.20%	A
			Project Engineer	90/Hour	7.20%	A

Algonquin Power Trust:

Type of Transaction	Determined Price	Cost	
Central Office Costs:			
Non Site Related Costs	Cost	$0/Month	0.00%
Labour services-Corporate Accounting/HR/IT	Cost	Cost/hour	0.00%

A - Third party quote on rates form Carollo to LPSCO (also managed by AWS)
B - Summary of 3rd party rates received by APS
C - See 1998 Quote for billing/bookkeeping services from Western Environmental Technologies, Inc. (3rd party)

Price for Affiliated Transactions - 2004
CSB 1.52

Algonquin Power Systems Inc.:

Type of Transaction	Transaction Detail	Determined Price	Categories	Typical Rates	Margin %	3rd Party Information
Work Order Activity:						
	Material	Cost			0.00%	
	Labour	Typical Rates	Division Manager	80/Hour	5.24%	B
			Team Leader	80/Hour	5.24%	B
			Regional Supervisor	60/Hour	5.24%	B
			Senior Project Manager	50/Hour	5.24%	B

Algonquin Water Services LLC:

Type of Transaction	Transaction Detail	Determined Price	Categories	Typical Rates		
Operating Costs:						
	Operator Wages/Non direct related costs	Cost Plus		$13,062/Month	3.92%	
Accounting and Customer Service:						
	Labour/Postage/Misc	Cost Plus		$3/Bill	3.92%	C
Work Order Activity:						
	Material	Cost			0.00%	
	Labour	Typical Rates	General Manager	150/Hour	3.92%	A
			Operator III & IV	70/Hour	3.92%	
			Operator I & II	50/Hour	3.92%	
			Technician II	80/Hour	3.92%	
			Technician I	50/Hour	3.92%	
			Senior Engineer	100/Hour	3.92%	A
			Junior Engineer	90/Hour	3.92%	A
			Project Engineer	90/Hour	3.92%	A

Algonquin Power Trust:

Type of Transaction	Determined Price	Cost		
Central Office Costs:				
Non Site Related Costs	Cost	$1,500/Month	0.00%	See CSB 5.10
Labour services-Corporate Accounting/HR/IT	Cost	Cost/hour	0.00%	

A - Third party quote on rates form Carollo to LPSCO (also managed by AWS)
B - Summary of 3rd party rates received by APS
C - See 1998 Quote for billing/bookkeeping services from Western Environmental Technologies, Inc. (3rd party)

Algonquin Water Services, LLC
Black Mountain Sewer Company Pricing

		BUDGET Monthly	BUDGET Annual	
OPERATOR FEE:		$ 13,062.00	$ 156,744.00	
BILLING FEE:				
Test Year Budgeted Bills per Month	1,633			
Fee per Bill	$ 3.00	$ 4,899.00	$ 58,788.00	
TOTAL FEE:		$ 17,961.00	$ 215,532.00	
COSTS:				
Cost of Wages, Benefits & Related				
Waste water Operator	$ 6,532.06			CSB 1.52 Summary
Waste water Operator	3,503.50	$ 10,035.56	$ 120,426.71	CSB 1.52 Summary
Shared Ops Wages, Benefits & Related		1,720.07	20,640.88	CSB 1.52 Schedule B
Total Operations Wage/Related		$ 11,755.63	$ 141,067.59	
Shared Admin Wages (Accounting/Billing/Cust. Svcs)		$ 1,854.13	$ 22,249.55	CSB 1.52 Schedule B
Total Wages, Benefits & Related		$ 13,609.76	$ 163,317.14	
Postage	$ 0.42	685.86	8,230.32	CSB 1.52 Schedule A
Overhead	10.0%	1,796.10	21,553.20	
Total Costs		$ 16,091.72	$ 193,100.66	
Operating Margin	10.4%	$ 1,869.28	$ 22,431.34	
Estimated Tax	40.0%	$ (747.71)	$ (8,972.54)	
Planned Operating Margin - Post Tax	6.2%	$ 1,121.57	$ 13,458.80	

Actual Operating Margin 2004 - Post Tax	3.92%

Black Mountain Sewer Company
Projected Stand-alone Operator and Billing Cost

	Monthly	Monthly	Annual	
Wastewater Manager	$ 11,796.89			Per CSB 1.52 Schedule B
Waste water Operator	6,532.06			Per CSB 1.52 Schedule B
Waste water Operator	3,503.50	$ 21,832.45		Per CSB 1.52 Schedule B
Customer Service	$ 4,409.00			Per CSB 1.52 Schedule B
Customer Service	4,409.00	8,818.00		
Senior Accountant (salary $60k plus benefits/taxes, etc.)		7,000.00		
		$ 37,650.45	$ 451,805.37	
Overhead of 2.5% (postage, etc.)			11,295.13	
			463,100.51	
Number of Test Year Bills			21,825	
Cost per Bill			$ 21.22	
Operator Fee - AWS		$ 156,744.00		$13,062 per month
Billing Fee - AWS		65,475.00		$3 per bill
APIF Fee		18,000.00	$ 240,219.00	$1,500 per month
Number of Test Year Bills			21,825	
Cost per Bill			$ 11.01	
Savings to BMSC due to AWS and Economy of Scale			222,881.51	

WESTERN ENVIRONMENTAL TECHNOLOGIES, INC.

P. O. Box 4752 • Cave Creek, Arizona 85331
(602) 488-1385

September 9, 1998

Mr. Don Reilly, CFO
Grandbay Resorts
11811 N. Tatum Boulevard Suite 1060
Phoenix, Arizona 85028

RE: CONTRACT FOR BILLING AND BOOKKEEPING SERVICES

Dear Marianne,

Thank you for the opportunity to present the following proposal and contract for Monthly Sewer Billing and Bookkeeping for the Boulders Carefree Sewer Corporations.

Agreement

This agreement is entered into this _____ day of _____, 1998 by and between Grandbay Resorts (hereinafter owner) and Western Environmental Technologies, Inc. (hereinafter WET)

WET will provide for $4750.00 /month:

Expenses

Covered by WET:
- MAS90 software program
- Modem access with separate line
- Zip Drive
- 1 phone line for customer access
- Postage
- Sewer bills (Same as current)

Scope of Work

Bill monthly sewer customers up to 1400 accounts
Including:
- Tracking all accounts
- Generating all sewer bills
- Mailing bills
- Opening mail daily
- Making copies of all checks for deposit
- Depositing checks daily
- Customer interaction
- Monthly Reporting

Monthly Bookkeeping of the Boulders Carefree Sewer Corporation.

Including:

Tracking accounts receivables and payables
Generating all checks for signatures
Printing out non audited accounting reported monthly for owner's review
Correcting all accounting errors as determined by owner's accounting staff or auditors

Additional services

All additional sewer bills (over 1400) will be billed to owner at $ 3.00 per bill.

WET would spend up to 10 hours a month to field verify properties make sure that all properties that are connected are billed. Billed to owner at $40.00 an hour.

Provisions

If at any time owner requires different software, sewer bills or requires additional unforseen capital outlay or changes the original scope of work or responsibilities ie. WET is required to perform accounting task above and beyond simple bookkeeping, the parties shall attempt to agree on appropriate adjustments to the compensation to be paid to WET there after. If the parties are unable to agree on appropriate adjustments within sixty days from the commencement of negotiations, this agreement shall terminate without further actions of the parties.

Term

The contract shall commence the first day of _____ and shall expire five years thereafter. Both parties, at their discretion, after the first year, shall have the right to terminate this agreement with a ninety day written notice. In the event of a default by a party, the non-defaulting party shall provide written notice of such default to the other party. If such default is not cured within ten days of the receipt of the default, then the non-defaulting party, in its discretion may terminate the agreement by providing written notice.

Grandbay Resorts.

By_____
CFO, Grandbay Resorts

Western Environmental Technologies, Inc.

By_____
President, WET Inc.

Algonquin Power Systems Inc.

STANDARD HOURLY CHARGE OUT RATES

(Source Information - 2005 Rate Sheets)

06/12/2005

	EXIST	AVE	Hickham	Eschmidt	Turner	ISN	Wood Group		EXIST	AVE	VA Tech	AMEC	Wardrop	Sandwell	SITCA	ABB	Siemens	SET	SOS
			Houston	New England	New England	New England	USA				Canada	Winnipeg	Winnipeg	Ontario	Quebec City	Edmonton	Quebec City	Montreal	Montreal
Description			USD	USD	USD	USD	USD				CDN	CDN	CDN	CDN	CDN	CDN	CDN	CDN	CDN
General Labour/Clerical/Trades/Administration	40	$52	$55	$45	$50	$53	$56		$50	$48		$50	$45	$40	$58				$45
Technician (Elec./Mech)/Specialized Trades		$74	$82			$63	$76			$75	$80				$65		$95	$60	$75
Foreman	75	$73		$65			$80		$80	$83	$90				$75				
Project Manager / Project Engineer										$79			$70		$87			$80	
Senior Project Manager / Senior Project Engineer	75	$105		$105					$85	$101		$100		$105	$98				
(Regional) Supervisor/Team Leader	85	$95	$95	$105	$100	$90	$85		$95	$113	$108	$135	$100	$105		$115			
Technical Director/Division Manager	115	$134	$126	$125	$150				$125	$155		$165			$145				

ENGINEERING FEE PROPOSAL
Litchfield Park Service Company
Airline Site Booster Station & Reservoir - Phase I Design Services
November 22, 2005

ESTIMATE OF EFFORT AND COSTS BY WORK TASK

Carollo Engineers - Staff Hours By Task

Task	Description	Partner	Project Manager	Senior Reg. Civil Engineer	Senior Reg. Struct. Engineer	Senior Reg. Mech. Engineer	Senior Reg. Elect. Engineer	Project Engineer & Designer	CADD Drafter	Clerical	Inspector	Total
BASIC SERVICES - PHASE I												
1	Design Camp Activities											
	Conduct Design Camp	8	48	48	48	48	48	40	40	16		344
	Procurement/Cost Management Plan	1	8		8	8	4			4		33
	Water Model Verification/System Hydraulics	1	16	124				40	16	8		205
	Basis of Design Report Development	1	32	80	24	24	24	40	48	16		289
	QA/QC Plan	2	8	4	4	4	4			4		30
	Phase I Project Mgmt. & Communication	2	60							16		78
	Preliminary Site Work											
2	Site Surveys and Easements	1	16	8					16			41
3	Geotechnical Investigations	1	16	8	16				8			49
4	Pump Station Design	2	48	40	120	80	80	80	120	24		594
5	Reservoir Design	2	60	48	160	48	24	120	160	16		638
6	Earthwork and Yard Piping	1	8	80		16		80	120	6		311
7	Chlorination Facilities	1	4	24		8	16	16	40	2		111
8	Monitoring and Control Systems (SCADA)	1	4				40	16	40	5		106
9	Standby Emergency Power System	1	8		8	8	36	20	24	2		107
10	Site Paving and Drainage	1	4	40	8			40	48	4		145
11	Site Lighting	1	4		8		24	16	24	2		79
12	Perimeter Security Walls and Gates	1	8	24	24		16	24	40	6		143
13	Connections to Water System	1	8	40				40	60	6		155
14	Landscaping Water Supply & Coordination	1	4	16				16	16	6		59
15	Meetings & Developer Communications	2	36	24	8	8	8		24	16		126
16	Coordination with Permit Requirements	2	24	16				4	16	6		68
17	Agency Coordination	2	24	24	8	8	8	4	24	8		110
18	Additional Services	TO BE DETERMINED										
	Subtotal, Phase I	36	448	648	444	260	332	596	884	173	0	3821
	Labor Cost w/o Profit [1]	$175	$165	$132	$132	$132	$132	$98	$69	$58	$85	

Subtotal Labor Cost [1]	**$431,946**
Profit Multiplier @ 12% of Labor	**$51,834**
Direct Expenses [2]	**$12,600**
(Allowance)	$22,000
(Allowance)	$30,000
TOTAL PHASE I COSTS	**$548,380**

19	On-Call Modeling Services											
20	Temporary Pump Station Modifications											

Note 1: Labor Cost = Raw Labor + Overhead
Note 2: Phase I Direct Costs include Geotech, Survey, Mileage, and Printing

BLACK MOUNTAIN SEWER CORPORATION
2005 GENERAL RATE CASE
DOCKET NO. SW-02361A-05-0657
RESPONSE TO STAFF'S SECOND SET OF DATA REQUESTS

Response provided by: Greg Sorensen

Title: Controller, Algonquin Water

Company Name: Black Mountain Sewer Corporation
Address: 111 W. Wigwam Blvd, Suite B
Litchfield Park, AZ 85340

Company Response Number: CSB 2.8

Q. Contract Employee Fee Information – Please provide the following for the years 2002, 2003, and 2004:

a. Copies of all labor agreements that are reflected in the Test Year labor expenses and any related payroll adjustments. If contracts are not in writing, please provide a narrative explaining the terms of the contract.

b. A detailed schedule of the names, titles, duties performed, billing rate and all contract employees actual fee expenses by month and by account charged for the Test Year and on an annual basis for the two prior calendar years.

c. A detailed schedule of actual contract employee levels vs. budgeted contract employee levels by month for the Test Year and the two prior calendar years along with supporting documentation.

d. A detailed schedules of actual hours worked vs. budgeted hours worked for contract employees for the Test Year and for the two prior calendar years.

e. Whether or not bids were sent out for the contract services. If no bids were sent out, please explain why having no bids was better or more prudent for the rate payers.

f. Provide invoices for 2002 and 2003.

A. a. The agreement with Algonquin Water Services for contract services has been provided as part of our response to CSB 1.6.

b. Please refer to our response in CSB 1.52.

c. Please refer to our response in CSB 1.52.

d. Please refer to our response in CSB 1.52.

e. The Corporation believes its charges for services provided to BMSC are very reasonable. There are few outside service providers and none that can provide all of the essential services and management expertise required by BMSC. The Corporation has concluded the bidding process would not be a useful exercise. However, First National Management (FNM), for example, provides billing and collection services to small utilities, but would not be able to provide all of the services management believes is necessary and essential for BMSC. However, as a comparison, FNM's lowest rate for customer billing and limited accounting services on a per bill basis is $4.50. Compare that to BMSC charge of $3 per bill (see response to CSB 1.52). If a certified operator is required by the client, FNM's minimum cost per bill is approximately $10.40 per bill. There are FNM's clients approaching $12.00 cost per bill. These figures do not include any additional services other than customer billing, limited accounting services and reporting, and the services of a single certified operator. Based on test year bill count and the information provided in CSB 1.52, the operations cost on a per bill basis is approximately $7. This is computed by the $13,062 per month operations charge divided by the number of customers at the end of the test year of 1,863. Per the response to CSB 1.52, the central office costs are $1,500 per month. These costs translate to approximately another $0.81 per bill. The combined cost per bill for BMSC is therefore approximately $10.81 per bill.

f. Please see attached invoices.

BLACK MOUNTAIN SEWER CORPORATION
2005 GENERAL RATE CASE
DOCKET NO. SW-02361A-05-0657
RESPONSE TO STAFF'S FIFTH SET OF DATA REQUESTS

Response provided by: Greg Sorensen

Title: Controller – Algonquin Water

Company Name: Black Mountain Sewer Corporation
Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85323

Company Response Number: CSB 5.5

Q. Non-Refundable Plant Capacity Charges (i.e., Hook-up Fees) – Please provide a detailed listing of all the hook-up fees received since the inception of the fee and a description of what the fees were spent on.

A. Each year, the Company files its annual report related to Decision No. 59944 which shows the total amount collected as Capacity Fee, specific sources of Capacity Fees, amounts disbursed from Capacity Fee account, and capital items Capacity purchased. This report is filed with Mr. Brian Bozzo of the Arizona Corporation Commission. Attached hereto are reports for the years ended December 31, 2001 to 2004. All previous reports are on file with the Commission and can be obtained there by Staff.

BLACK MOUNTAIN SEWER CORPORATION
2005 GENERAL RATE CASE
DOCKET NO. SW-02361A-05-0657
RESPONSE TO STAFF'S SEVENTH SET OF DATA REQUESTS

Response provided by: Greg Sorensen

Title: Controller – Algonquin Water

Company Name: Black Mountain Sewer Corporation
Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85323

Company Response Number: CSB 7.3

Q. Contract Operator Fee – This is a follow-up to CSB 1.52. In your response to CSB 1.54 you provided several schedules.

This first schedule is entitled "Priced for Affiliated Transactions." It shows that the operating contract fee is $13,062 per month. Schedule B, entitled "Algonquin Water Service Monthly Allocation of Shared Personnel by Facility", shows $1,854.13 was allocated to Black Mountain for administration salaries and $1,720.07 was allocated for operations salaries, for a total of $3,574.20 for actual administrative and operations salaries.

Is the $9,487.80 difference (i.e., $13,062 - $3,574.20) the "operating margin?" If not, please provide a calculation showing the $13,062 contract fee amount less the actual amounts paid to workers and the resulting "operating margin". As part of your response, please identify the names of all workers, actual monthly salary, and calculation of percentage charged to Black Mountain.

A. No, $9,487.80 is not the "operating margin." Excluded from the above calculation is the cost of two wastewater operators; Daniel Schanaman and Myra McDaniel, as noted on the schedule titled "Build up of Monthly Operating and Accounting Fees for Black Mountain Sewer Company" also submitted as part of the Company's response to CSB 1.52. Including their fees in the amount of $6,532.06 and $3,503.50, respectively, brings the total wage cost/fee to $13,609.76. Added to this are the costs for Postage ($685.86 per Schedule A) and Other Costs /Overhead ($2,359.01 for billing/admin and $1,306.37 for Operations). The names, monthly salaries, and calculation of percentage charged to Black Mountain were provided as part of the original response to CSB 1.52, a copy of which is attached.

CSB 7.3

Algonquin Water Services
Build up of Monthly Operating and Accounting Fees for Black Mountain Sewer Company
CSB 1.52 Summary

		Customer Count	Monthly Salaries	Over Time Wages	Total Salaries	Benefits	Total Employee Cost	Total ADM/OPS Costs	
BLACK MOUNTAIN		**1633**							
Administration Fee Build Up ($3/bill)									
Shared Admin Wages	See schedule B						1,854.13		
Postage	See schedule A						$685.86		
Other	**						2,359.01		
Total Administration Costs								**$4,899.00**	**4899**
Operations Fee Build Up									
Schanaman, Daniel	Waste water Operator		4,241.60	424.16	4,665.76	1,866.30	6,532.06		
McDaniel, Myra	Waste water Operator		2,275.00	227.50	2,502.50	1,001.00	3,503.50		
Shared Ops Wages	See schedule B						1,720.07		
Other	**						1,306.37		
Total Operation Costs								**$13,062.00**	

** **These costs include other overhead costs such as rent, legal fees, communication, travel, etc.**

Schedule A
Monthly Postage Cost Build Up
CSB 1.52

		Postage Expense
Black Mountain		
Customer Count	**1633**	
Postage Cost Per Bill	**0.32**	$522.56
Envlope/Stationary Cost per Bill	**0.10**	$163.30
Total Postage Cost		**$685.86**

Schedule B
Algonquin Water Services Monthly Allocation of Shared Personnel by Facility
CSB 1.52

		Gold Canyon	Black Mountain	Tall Timbers	Woodmark	Bella Vista	Litchfield Park	Total
Salaries for Admin at AWS	**From Schedule C**							
Budgeted Customers		4,534	1,633	1,125	970		25,864	34,126.00
		13%	5%	3%	3%		76%	100%
Patty Nielsen	7,045.41	936.06	337.14	232.26	200.26	-	5,339.69	7,045.41
Amy Sears	7,700.00	1,023.03	368.46	253.84	218.87	-	5,835.80	7,700.00
Bundy	7,000.00	930.02	334.96	230.76	198.97	-	5,305.28	7,000.00
Bobi Keen	4,252.49	564.99	203.49	140.19	120.87	-	3,222.95	4,252.49
Suzanne Wagner	4,409.00	585.78	210.98	145.35	125.32	-	3,341.57	4,409.00
Barbara Risden	4,134.37	549.30	197.84	136.29	117.52	-	3,133.43	4,134.37
Brenda Bowman	4,205.84	558.79	201.26	138.65	119.55	-	3,187.59	4,205.84
		5,147.96	**1,854.13**	**1,277.34**	**1,101.35**	**-**	**29,366.32**	**38,747.10**
Salaries for Ops								
Budgeted Customers		4,534	1,633	1,125	970	7,012	25,864	41,138
		11%	4%	3%	2%	17%	63%	100%
Charlie Hernandez	11,796.89	1,300.19	564.51	388.90	335.32	-	8,940.83	11,529.73
Mike Weber	15,750.01	1,735.88	625.21	430.72	371.37	2,684.60	9,902.24	15,750.01
Joel Wade	11,083.35	1,472.54	530.36	365.37	315.03	-	8,400.04	11,083.35
		4,508.60	**1,720.07**	**1,184.99**	**1,021.72**	**2,684.60**	**27,243.10**	**38,363.09**

Schedule C
Algonquin Water Services Monthly Shared Admin and Operations Personnel
CSB 1.52

	MONTHLY SALARIES	OT HRS $	TOTAL SALARIES	BENEFITS	OTHER BENEFITS	CAR ALLOWANCE	MILEAGE	TOTAL EMPLOYEE COST
Bowman, Brenda	3,004.17	-	3,004.17	1,201.67				4,205.84
Bundy	5,000.00		5,000.00	2,000.00				7,000.00
Dacquet, Roberta (bobi Keen)	3,037.49	-	3,037.49	1,215.00				4,252.49
Hernandez, Charlie	8,040.37	-	8,040.37	3,216.15		540.37		11,796.89
Nielsen, Patricia	4,556.24	-	4,556.24	1,822.50	226.67	440.00		7,045.41
Risden, Barbara	2,953.12	-	2,953.12	1,181.25				4,134.37
Sears, Amy	5,500.00	-	5,500.00	2,200.00				7,700.00
Wade, Joel	7,916.68	-	7,916.68	3,166.67				11,083.35
Wagner, Suzanne	2,835.00	-	2,835.00	1,134.00		440.00		4,409.00
Weber, Michael	11,250.01	-	11,250.01	4,500.00				15,750.01

BLACK MOUNTAIN SEWER CORPORATION
2005 GENERAL RATE CASE
DOCKET NO. SW-02361A-05-0657
RESPONSE TO STAFF'S NINTH SET OF DATA REQUESTS

Response provided by: Greg Sorensen

Title: Controller – Algonquin Water

Company Name: Black Mountain Sewer Corporation
Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85323

Company Response Number: CSB 9.3

Q. Plant Capacity Hook-up Fees – Have the non refundable plant capacity hook-up fees ever been used:

a. To pay for plant or operating expenses for entities other than Black Mountain? If so, please provide a detailed listing showing the date, amount, description, and affiliated entity from the end of the last rate case to the end of the Test Year.

b. To pay for Black Mountain's operating expenses? If so, please provide detailed listing showing the date, amount, description, and type of expense for the Test Year only.

A. The funds associated with the non-refundable plant capacity hook-up fees have not been used to pay for BMSC operating expenses nor have they been used to pay for plant or operating expenses for entities other than BMSC.

BLACK MOUNTAIN SEWER CORPORATION
2005 GENERAL RATE CASE
DOCKET NO. SW-02361A-05-0657
RESPONSE TO STAFF'S TENTH SET OF DATA REQUESTS

Response provided by: Greg Sorensen

Title: Controller – Algonquin Water

Company Name: Black Mountain Sewer Corporation
Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85323

Company Response Number: CSB 10.2

Q. CIAC Journal Entry – Referring to the general ledger provided in CSB 1.1, page 40, journal entry 23723:

a. Please provide the complete journal entry (i.e., all account numbers and descriptions debited and credited) to record the $158,171.58 debit to the CIAC account; and

b. Staff's initial impression of this transaction is that the Company reduced the CIAC balance because it added monies from an advance in aid of construction to the hook-up fee bank account. Is this correct? As part of your response, please provide a complete description of why the transaction was made and the meaning of the general ledger reference note "BMSC AIAC funds advanced."

A. a. Debit Fixed Assets – CIAC 8100-2-0000-10-1640-0006: $158,171.58
Credit Customer Advances in Aid of Construction –
AIAC 8100-2-0000-20-2770-0002: $158,171.58

b. Staff's initial impression of this transaction noted above is incorrect. This entry decreased CIAC and increased AIAC. This was to correct errors in previous entries whereby asset additions related to Line Extension Agreements were treated as "CIAC," but did have potential refund obligations to the developer and should have been booked as AIAC.

BLACK MOUNTAIN SEWER CORPORATION
2005 GENERAL RATE CASE
DOCKET NO. SW-02361A-05-0657
RESPONSE TO STAFF'S TWELFTH SET OF DATA REQUESTS

Response provided by: Greg Sorensen

Title: Controller – Algonquin Water

Company Name: Black Mountain Sewer Corporation
Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85323

Company Response Number: CSB 12.1

Q. $360,000 Deferred Tax Liability – Referring to your response to RUCO 2.7, please provide a detailed schedule showing the calculation for the $360,000 deferred tax liability. As part of your response, please state whether or not the $360,000 deferred tax liability is the accumulated deferred tax balance. If not, please state the accumulated deferred tax balance and provide all calculations and work papers to support the balance.

A. Please see attached spreadsheet supporting response to RUCO 2.7. The $360,000 represents the tax affected difference between book and tax net book value of fixed assets.

BLACK MOUNTAIN SEWER CORPORATION
2005 GENERAL RATE CASE
DOCKET NO. SW-02361A-05-0657
RESPONSE TO STAFF'S TWELFTH SET OF DATA REQUESTS

Response provided by: Greg Sorensen

Title: Controller – Algonquin Water

Company Name: Black Mountain Sewer Corporation
Address: 12725 W. Indian School Road, Suite D-101
Avondale, AZ 85323

Company Response Number: CSB 12.2

Q. $524,000 AIAC Deferred Tax Asset – Referring to your response to RUCO 2.7, please provide a complete explanation along with all calculations and work papers to support the $524,000 AIAC Deferred Tax Asset. As part of your response, please identify the AIAC's and provide the related AIAC agreements. Also, please identify any component of the Deferred Tax Asset that would not be within the scope of the Arizona Corporation Commission's regulation.

A. See attached spreadsheet for calculation. Detail of $1,315,900 AIAC was provided in response to CSB 7.9, and is attached hereto, along with AIAC agreements requested.. Effective tax rate is that of AWRA, the parent company of Black Mountain.

BMSC
Deferred Tax Analysis
YE 2004

	deferred tax
Accounting Basis at end of year	3,632,095
Tax basis of capital assets at end of year	2,727,656
Timing Difference	(904,439)
Tax rate	39.82%
Defered tax liability	(360,142)
AIAC End of Year (Accounting Basis)	(1,315,900)
AIAC End of Year (Tax Basis)	-
Timing Difference	1,315,900
Tax rate	39.82%
Defered tax Asset	523,983
Net Deferred Tax Asset	163,841

	Tax	Book
Plant in Service		8,370,448
WIP		103,804
Scottsdale Plant		1,913,706
CIAC		(5,800,321)
Amort on CIAC		3,486,218
Asset Cost	5,768,359	8,073,855
Accum	(3,040,703)	(4,441,760)
NBV	2,727,656	3,632,095

Black Mountain Sewer Company				
Customer Advances for Aid in Construction				
8100.2.0200.20.2770.0002				
December 31, 2004				
		AIAC		
Date	Trans Description	Debit Amt	Credit Amt	Balance
2/12/01	Canyon Crossings Holdings LLC - Cave Creek Rd & New River Rd			
	refund 2003	129.20		129.20
7/1/04	Montalbano Homes - Canyon Creek Estates advance		36,840.00	
	Canyon Creek Estates deposit		5,000.00	
	record remaining AIAC per BOS		31,737.90	
	refund 2000	292.60		
	refund 2001	380.00		
	refund 2002	699.20		
	refund 2003	862.60		71,343.50
8/31/04	Monterey Homes - Carefree Ironwood		109,936.54	
	deposit		19,997.00	
7/31/04	record refund 2003	57.00		129,876.54
	Parkview Investors - Ridgeview Estates		148,058.00	
	deposit		10,000.00	
	refund 1999	429.40		
	refund 2000	615.60		
	refund 2001	672.60		
	refund 2002	843.60		
	refund 2003	938.60		154,558.20
7/1/04	Pulte - Winfield		568,734.70	
	Pulte - deposit		20,000.00	
8/17/04	Winfield - refund deposit balance	5,546.92		
	refund 1998	740.91		
	refund 1999	6,778.75		
	refund 2000	10,821.95		
	refund 2001	18,349.75		
	refund 2002	20,390.80		
	refund 2003	21,169.80		504,935.82
4/27/04	Ray & Alma School LLC (107th & Indian School) - Eckerd Drug Store			
	deposit balance		17,730.00	
	BOS booked		205,244.56	222,974.56
	TCC Carefree LP - Condos @ Carefree Inn		231,836.00	
	deposit		4,000.00	
	refund 2002	3,914.00		
	refund 2003	2,584.00		229,338.00
				1,313,155.82
	Adjustment to be booked		**3,002.77**	3,002.77
		96,217.28	1,412,117.47	1,315,900.19
	Total AIAC			
12/31/2004	AIAC GL Balance 8100.2.0200.20.2770.0002			-1,315,900.19
	Difference			0.00

BOURASSA REBUTTAL

EXHIBIT 3

BLACK MOUNTAIN SEWER COMPANY
2005 GENERAL RATE CASE
DOCKET NO. SW-02361A-05-0657
RESPONSE TO RUCO'S FIRST SET OF DATA REQUESTS

Response provided by: Greg Sorensen

Title: Controller, Algonquin Power

Company Name: Black Mountain Sewer Company
Address: 111 W. Wigwam Blvd, Suite B
Litchfield Park, AZ 85340

Company Response Number: RUCO 1.08

Q. CIAC - Please provide documentation showing all debits and credits to the CIAC and accumulated amortization of CIAC accounts since the last rate case. Provide a description of each debit and credit.

A. Please see attached documents.

1.08

BLACK MOUNTAIN SEWER COMPANY
WASTE WATER
CIAC SUMMARY

	CIAC Chg	Amortization
07/01/94 Open Balance	3,127,264.00	1,121,838.00
1994	116,507.00	86,462.00
1995	112,578.00	165,003.00
1996	182,068.56	172,015.00
1997	172,749.00	176,239.60
1998	571,000.91	189,833.35
1999	319,182.03	222,087.92
2000	405,077.00	250,321.33
2001	489,268.94	263,473.10
2002	110,490.00	257,985.92
2003	196,061.83	290,112.36
2004	(1,926.25)	290,846.29
Total	5,800,321.02	3,486,217.87
GL Balance	5,800,321.02	3,486,217.87
Difference	-	-

Black Mountain Sewer Company
History Detail Report
CIAC

Year	Account #	Account Description	Period	Date	Source	Reference	Debit	Credit
1994				7/1/1994		Beginning Balance		(3,127,264.00)
				7/31/1994		July Additions (See Detail)		(2,588.00)
1994				8/31/1994		August Additions (See Detail)		(7,067.00)
1994				9/30/1994		September Additions (See Detail)		(62,856.00)
1994				10/31/1994		October Additions (See Detail)		(30,409.00)
1994				11/30/1994		November Additions (See Detail)		(8,411.00)
1994				12/31/1994		December Additions (See Detail)		(5,176.00)
1995				12/31/1995		1995 Additions (See Detail)		(115,813.00)
1995				12/31/1995		1995 Refunds (See Detail)	3,235.00	
1996				12/31/1996		1996 Additions (See Detail)		(167,896.00)
1996				12/31/1996	AJ-19	Reclass 1995 Refunds to Revenue		(1,941.00)
1996				12/31/1996	AJ-9	Reclass Refund of Excess Gross-up for 1994		(18,252.00)
1996				12/31/1996		Misc Adjustment	6,021.30	
1996				12/31/1996		Misc Adjustment		(0.86)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	01	01/01/97	AR-R0133	A/R INVOICE ENTRY - 01/01/97	-	(2,588.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	01	01/30/97	AR-R0140	A/R INVOICE ENTRY - 01/30/97	-	(3,882.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	02	02/14/97	AR-R0151	A/R INVOICE ENTRY - 02/14/97	-	(7,764.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	02	02/19/97	AR-R0154	A/R INVOICE ENTRY - 02/19/97	-	(2,588.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	02	02/19/97	AR-R0155	A/R INVOICE ENTRY - 02/19/97	-	(647.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	03	03/18/97	AR-R0163	A/R INVOICE ENTRY - 03/18/97	-	(3,235.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	03	03/18/97	AR-R0164	A/R INVOICE ENTRY - 03/18/97	-	(1,294.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	03	03/27/97	CR-R0149	MALOUF COMMUNITY REF:17758	-	(31,056.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	05	05/30/97	CR-R0039	MR/MRS JOSEPH MON REF:113	-	(3,235.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	05	05/30/97	CR-R0040	STEVEN E PEPLAU REF:216	-	(2,588.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	06	06/11/97	AR-R0023	A/R INVOICE ENTRY - 06/11/97	-	(3,235.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	07	07/01/97	JE-J0052	REALLOC TO PROPER ACCOUNT	9,705.00	-
1997	3015-25	PCC - POST TRA-CURRENT YEAR	07	07/23/97	AR-R0029	A/R INVOICE ENTRY - 07/23/97	-	(5,823.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	07	07/23/97	AR-R0030	A/R INVOICE ENTRY - 07/23/97	-	(3,235.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	07	07/23/97	JE-J0054	REALLOCATE TO PROPER ACCT	-	(19,410.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	07	07/29/97	AR-R0031	A/R INVOICE ENTRY - 07/29/97	-	(9,058.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	08	08/27/97	AR-R0037	A/R INVOICE ENTRY - 08/27/97	-	(2,588.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	09	09/19/97	AR-R0040	A/R INVOICE ENTRY - 09/19/97	-	(16,175.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	10	10/30/97	AR-R0043	A/R INVOICE ENTRY - 10/30/97	-	(2,588.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	10	10/30/97	AR-R0044	A/R INVOICE ENTRY - 10/30/97	-	(4,529.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	10	10/30/97	AR-R0045	A/R INVOICE ENTRY - 10/30/97	-	(2,588.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	11	11/30/97	JE-J0123	RECORD/HANS - PB II, LOT 4 CAP	-	(2,588.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	11	11/30/97	JE-J0124	PULTE SALES-CAPACITY FEES	-	(5,176.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	11	11/30/97	JE-J0125	GARRISON- PALO BREA, LOT14	-	(2,588.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	11	11/30/97	JE-J0126	CAREFREE FOOTHLS, LOT 32	-	(3,235.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	11	11/30/97	JE-J0126	CAREFREE FOOTHLS, LOT 32	-	(647.00)
1997	3015-25	PCC - POST TRA-CURRENT YEAR	12	12/30/97	AR-R0085	A/R INVOICE ENTRY - 12/30/97	-	(40,114.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	01	01/28/98	AR-R0093	A/R INVOICE ENTRY - 01/28/98	-	(9,811.75)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	02	02/19/98	AR-R0097	A/R INVOICE ENTRY - 02/19/98	-	(2,588.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	02	02/25/98	AR-R0099	A/R INVOICE ENTRY - 02/25/98	-	(3,235.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	03	03/25/98	AR-R0110	A/R INVOICE ENTRY - 03/25/98	-	(5,823.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	03	03/25/98	AR-R0112	A/R INVOICE ENTRY - 03/25/98	-	(44,966.50)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	04	04/22/98	AR-R0115	A/R INVOICE ENTRY - 04/22/98	-	(2,588.00)

Black Mountain Sewer Company
History Detail Report
CIAC

Year	Account #	Account Description	Period	Date	Source	Reference	Debit	Credit
1998	3015-25	PCC - POST TRA-CURRENT YEAR	04	04/22/98	AR-R0116	A/R INVOICE ENTRY - 04/22/98	-	(647.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	04	04/22/98	AR-R0117	A/R INVOICE ENTRY - 04/22/98	-	(2,588.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	04	04/22/98	AR-R0118	A/R INVOICE ENTRY - 04/22/98	-	(900.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	04	04/22/98	AR-R0119	A/R INVOICE ENTRY - 04/22/98	-	(2,588.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	04	04/22/98	AR-R0120	A/R INVOICE ENTRY - 04/22/98	-	(647.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	04	04/28/98	AR-R0121	A/R INVOICE ENTRY - 04/28/98	-	(4,529.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	05	05/19/98	AR-R0126	A/R INVOICE ENTRY - 05/19/98	-	(68,582.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	05	05/26/98	AR-R0130	A/R INVOICE ENTRY - 05/26/98	-	(4,529.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	06	06/19/98	AR-R0139	A/R INVOICE ENTRY - 06/19/98	-	(16,175.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	06	06/19/98	AR-R0140	A/R INVOICE ENTRY - 06/19/98	3,235.00	-
1998	3015-25	PCC - POST TRA-CURRENT YEAR	06	06/19/98	AR-R0141	A/R INVOICE ENTRY - 06/19/98	-	(3,235.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	07	07/21/98	AR-R0153	A/R INVOICE ENTRY - 07/21/98	-	(18,116.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	07	07/22/98	AR-R0154	A/R INVOICE ENTRY - 07/22/98	-	(647.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	08	08/01/98	AR-R0159	A/R INVOICE ENTRY - 08/01/98	-	(102,226.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	08	08/01/98	AR-R0160	A/R INVOICE ENTRY - 08/01/98	-	(1,617.50)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	08	08/19/98	AR-R0165	A/R INVOICE ENTRY - 08/19/98	-	(7,764.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	08	08/20/98	MC-R0069	MATT FOSTER /CK:010113	2,588.00	-
1998	3015-25	PCC - POST TRA-CURRENT YEAR	08	08/25/98	AR-R0166	A/R INVOICE ENTRY - 08/25/98	-	(12,293.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	09	09/01/98	AR-R0169	A/R INVOICE ENTRY - 09/01/98	-	(98,191.95)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	09	09/25/98	AR-R0176	A/R INVOICE ENTRY - 09/25/98	-	(3,235.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	09	09/25/98	AR-R0177	A/R INVOICE ENTRY - 09/25/98	-	(43,857.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	09	09/29/98	MC-R0073	GEORGE LUDINGTON TRUST /CK:001043	647.00	-
1998	3015-25	PCC - POST TRA-CURRENT YEAR	10	10/19/98	MC-R0075	BOULDERS JOINT VENTURE /CK:001048	2,588.00	-
1998	3015-25	PCC - POST TRA-CURRENT YEAR	10	10/21/98	AR-R0181	A/R INVOICE ENTRY - 10/21/98	-	(100,285.00)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	10	10/21/98	AR-R0183	A/R INVOICE ENTRY - 10/21/98	-	(18,394.21)
1998	3015-25	PCC - POST TRA-CURRENT YEAR	10	10/31/98	AP-R0052	GEORGE LUDINGTON TRUST /IN: REFUND 2	647.00	-
1998	3015-25	PCC - POST TRA-CURRENT YEAR	10	10/31/98	AP-R0053	GEORGE LUDINGTON TRUST /IN: 4/98 CAP	-	(647.00)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	01	01/15/99	AR-R0211	A/R INVOICE ENTRY - 01/15/99	-	(9,705.00)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	01	01/15/99	AR-R0212	A/R INVOICE ENTRY - 01/15/99	-	(5,176.00)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	01	01/26/99	AR-R0217	A/R INVOICE ENTRY - 01/26/99	-	(16,822.00)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	02	02/24/99	AR-R0003	A/R INVOICE ENTRY - 02/24/99	-	(10,999.00)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	03	03/26/99	AR-R0007	A/R INVOICE ENTRY - 03/26/99	-	(8,323.00)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	04	04/15/99	CR-R0089	CRITICAL PATH CON REF:1	-	(9,876.46)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	05	05/05/99	AR-R0020	A/R INVOICE ENTRY - 05/05/99	-	(8,749.20)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	05	05/05/99	AR-R0021	A/R INVOICE ENTRY - 05/05/99	-	(50.00)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	07	07/23/99	AR-R0037	A/R INVOICE ENTRY - 07/23/99	-	(7,495.87)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	07	07/29/99	MC-R0008	CHRIST EPISCOPAL CHURCH /CK:000101	6,745.21	-
1999	3015-25	PCC - POST TRA-CURRENT YEAR	08	08/01/99	AR-R0045	A/R INVOICE ENTRY - 08/01/99	-	(91,227.00)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	08	08/01/99	AR-R0046	A/R INVOICE ENTRY - 08/01/99	2,588.00	-
1999	3015-25	PCC - POST TRA-CURRENT YEAR	09	09/16/99	AR-R0054	A/R INVOICE ENTRY - 09/16/99	-	(20,978.96)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	09	09/17/99	AR-R0055	A/R INVOICE ENTRY - 09/17/99	-	(33,644.00)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	10	10/20/99	AR-R0061	A/R INVOICE ENTRY - 10/20/99	-	(3,235.00)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	11	11/09/99	AR-R0068	A/R INVOICE ENTRY - 11/09/99	-	(22,804.75)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	11	11/22/99	AR-R0071	A/R INVOICE ENTRY - 11/22/99	-	(3,235.00)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	11	11/22/99	AR-R0072	A/R INVOICE ENTRY - 11/22/99	-	(49,819.00)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	11	11/22/99	AR-R0073	A/R INVOICE ENTRY - 11/22/99	-	(647.00)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	12	12/01/99	AR-R0076	A/R INVOICE ENTRY - 12/01/99	-	(23,787.00)

Black Mountain Sewer Company
History Detail Report
CIAC

Year	Account #	Account Description	Period	Date	Source	Reference	Debit	Credit
1999	3015-25	PCC - POST TRA-CURRENT YEAR	12	12/01/99	AR-R0077	A/R INVOICE ENTRY - 12/01/99	-	(1,941.00)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	12	12/01/99	AR-R0078	A/R INVOICE ENTRY - 12/01/99	-	(15,858.00)
1999	3015-25	PCC - POST TRA-CURRENT YEAR	12	12/01/99	AR-R0079	A/R INVOICE ENTRY - 12/01/99	15,858.00	-
2000						2000 Additions (See Detail)		(405,077.00)
2001						2001 Additions (See Detail)		(489,268.94)
2002	8100.2.0000.30.3013.0000	Current Year - CIAC	1	1/31/2002	GJ	Keller - 34568 N 79th Wy #2		(3,235.00)
2002	8100.2.0000.30.3013.0000	Current Year - CIAC	1	1/31/2002	GJ	5621 E Canyon Crossings Dr		(2,588.00)
2002	8100.2.0000.30.3013.0000	Current Year - CIAC	2	2/27/2002	GJ	Capacity Fee Payments - Feb 2		(16,230.00)
2002	8100.2.0000.30.3013.0000	Current Year - CIAC	2	2/28/2002	GJ	Realloc Permit Fee - Not Capa	55.00	-
2002	8100.2.0000.30.3013.0000	Current Year - CIAC	3	3/31/2002	GJ	Move Capacity Fees - March		(9,058.00)
2002	8100.2.0000.30.3013.0000	Current Year - CIAC	4	4/30/2002	GJ	BMSC G/L ENTRY APRIL		(17,469.00)
2002	8100.2.0000.30.3013.0000	Current Year - CIAC	5	5/31/2002	GJ	Cust Acct G/L Entries May 200		(12,513.00)
2002	8100.2.0000.30.3013.0000	Current Year - CIAC	7	7/30/2002	GJ	Reclass JE 3147 Curr yr CIAC		(2,588.00)
2002	8100.2.0000.30.3013.0000	Current Year - CIAC	8	8/27/2002	GJ	Reclass JE3370 Curr Yr CIAC		(5,823.00)
2002	8100.2.0000.30.3013.0000	Current Year - CIAC	9	9/30/2002	GJ	Sept G/L Entries BMSC		(10,999.00)
2002	8100.2.0000.30.3013.0000	Current Year - CIAC	10	10/31/2002	GJ	bmsc 10/31 g/l		(6,323.00)
2002	8100.2.0000.30.3013.0000	Current Year - CIAC	11	11/30/2002	GJ	JN 4187 Reclass to Curr Yr		(8,411.00)
2002	8100.2.0000.30.3013.0000	Current Year - CIAC	12	12/31/2002	GJ	bmsc g/l entries 2002 dec		(15,528.00)
2002	8100.2.0000.30.3013.0000	Current Year - CIAC	12	12/31/2002	GJ	Realloc to Correct Acct	220.00	-
2003	8100.2.0000.20.2911.0002	Current Year CIAC - After Acquisition	6	6/27/2003	GJ	BMSC Month End June G/L		(8,411.00)
2003	8100.2.0000.30.3013.0000	Current Year - CIAC	1	1/29/2003	GJ	Access G/L Jan 2003 BMSC		(12,438.58)
2003	8100.2.0000.30.3013.0000	Current Year - CIAC	2	2/28/2003	GJ	G/L Access Feb Input		(86,761.25)
2003	8100.2.0000.30.3013.0000	Current Year - CIAC	3	3/24/2003	PMTRX	Refund Capacity Fee	570.00	-
2003	8100.2.0000.30.3013.0000	Current Year - CIAC	3	3/24/2003	PMTRX	Refund Capacity Fee	570.00	-
2003	8100.2.0000.30.3013.0000	Current Year - CIAC	4	4/15/2003	GJ	Never posted to Operating Acc		(18,291.00)
2003	8100.2.0000.30.3013.0000	Current Year - CIAC	4	4/30/2003	GJ	G/L Entries BMSC		(3,235.00)
2003	8100.2.0000.30.3013.0000	Current Year - CIAC	4	4/30/2003	GJ	G/L Entries BMSC		(3,882.00)
2003	8100.2.0000.30.3013.0000	Current Year - CIAC	4	4/30/2003	GJ	G/L Entries BMSC		(1,941.00)
2003	8100.2.0000.30.3013.0000	Current Year - CIAC	5	5/29/2003	GJ	BMSC G/L May 2003		(23,939.00)
2003	8100.2.0000.30.3013.0000	Current Year - CIAC	7	7/8/2003	GJ	BMSC 7/2 CSR		(3,235.00)
2003	8100.2.0000.30.3013.0000	Current Year - CIAC	7	7/29/2003	GJ	CSR Entries		(3,235.00)
2003	8100.2.0000.30.3013.0000	Current Year - CIAC	7	7/31/2003	GJ	Realloc $3260		(3,260.00)
2003	8100.2.0000.30.3013.0000	Current Year - CIAC	8	8/26/2003	GJ	Customer Service Entries		(3,260.00)
2003	8100.2.0000.30.3013.0000	Current Year - CIAC	9	9/29/2003	GJ	BMSC CSR Entries		(3,235.00)
2003	8100.2.0000.30.3013.0000	Current Year - CIAC	10	10/29/2003	GJ	CSR Entries	3,260.00	-
2003	8100.2.0000.30.3013.0000	Current Year - CIAC	11	11/17/2003	GJ	CSR Entries		(7,819.00)
2003	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	12	12/1/2003	GJ	Move CIAC to Fixed Assets		(3,235.00)
2003	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	12	12/18/2003	GJ	CSR Entries		(3,235.00)
2003	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	12	12/30/2003	GJ	CSR Entries		(11,049.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	1	1/1/2004	GJ	Adjust 2003 CIAC	18,291.00	-
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	1	1/21/2004	GJ	CSR Entries		(22,645.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	1	1/28/2004	GJ	CSR Entries		(2,588.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	2	2/17/2004	GJ	CSR Entries		(12,940.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	2	2/24/2004	GJ	BMSC CSR Entries - Monteray Ho		(3,882.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	2	2/6/2004	GJ	CSR Entries		(3,882.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	3	3/17/2004	GJ	Monterey - Account # 1015895		(2,588.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	3	3/17/2004	GJ	Monterey - Acct #1015894		(3,235.00)

Black Mountain Sewer Company
History Detail Report
CIAC

Year	Account #	Account Description	Period	Date	Source	Reference	Debit	Credit
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	3	3/17/2004	GJ	Sorenson - Acct #1015882		(2,588.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	3	3/19/2004	GJ	CSR Entries - Acct # 1015916		(3,235.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	3	3/31/2004	GJ	Dorsey - #1015946		(2,588.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	3	3/31/2004	GJ	Duplicated Paperwork - Dorsey	2,588.00	-
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	4	4/30/2004	GJ	BMSC Corr April Cap Fees		(3,882.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	4	4/30/2004	GJ	BMSC Corr April Cap Fees		(8,411.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	4	4/30/2004	GJ	BMSC Corr April Cap Fees		(2,588.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	4	4/30/2004	GJ	BMSC Corr April Cap Fees		(7,764.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	5	5/7/2004	GJ	TCC Development		(46,584.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	5	5/10/2004	GJ	Desert Development		(3,235.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	5	5/12/2004	GJ	Montana Vista Capital		(8,087.50)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	5	5/13/2004	GJ	Bill Hencel		(2,588.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	5	5/17/2004	GJ	Montery Homes		(7,117.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	5	5/19/2004	GJ	Monument Homes		(3,235.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	5	5/26/2004	GJ	Newport Custom & Montery		(11,646.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	5	5/28/2004	GJ	BMSC CSR - Adj CIAC		(7,159.72)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	6	6/1/2004	GJ	BMSC CSR - Adj CIAC	7,159.72	-
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	6	6/8/2004	GJ	CIAC		(9,705.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	6	6/23/2004	GJ	CSR Entries		(3,882.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	6	6/30/2004	GJ	Adjustment		(7,159.72)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	7	7/1/2004	GJ	BMSC AIAC Funds Advanced	158,171.75	-
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	7	7/20/2004	GJ	CSR Entries		(5,176.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	7	7/21/2004	GJ	CSR Entries		(3,235.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	7	7/26/2004	GJ	CSR Entries		(2,588.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	8	8/5/2004	GJ	CSR Entries		(2,588.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	8	8/31/2004	GJ	MontereyHms/Carefree Ironwood	103,997.00	-
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	8	8/31/2004	GJ	Move unreconcl amt 2 accr lia	7,159.72	-
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	9	9/21/2004	GJ	CSR Entries		(5,823.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	10	10/14/2004	GJ	CSR Entries & Capacity Deposit		(2,588.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	10	10/28/2004	GJ	NSF & Capacity Deposits		(3,235.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	11	11/10/2004	GJ	CSR Entries		(2,588.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	11	11/12/2004	GJ	Correct entry # 24743		(46,584.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	11	11/15/2004	GJ	CSR Entries		(3,235.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	11	11/17/2004	GJ	CSR Entries		(3,235.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	11	11/29/2004	GJ	Capacity Deposit (10/21/04)		(2,588.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	11	11/29/2004	GJ	CSR Entries		(3,882.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	12	12/14/2004	GJ	CSR Entries & Capacity Deposit		(2,588.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	12	12/20/2004	GJ	CSR Entries & Capacity Deposit		(5,823.00)
2004	8100.2.0000.10.1640.0006	Fixed Assets - CIAC	12	12/22/2004	GJ	CSR Entries		(6,470.00)

(5,800,321.02)

BOULDERS CAREFREE SEWER CONNECTIONS 1994

DATE	NAME	LOCATION	CAPACITY	TAX	FEE	TOTAL	YTD
JAN.	MCB/BJV	UNITS-26	3,235	2,407	55	5,697	
	STARR ADDTN	SR	647	0	0	647	
	SWEARINGEN	SR70	2,588	2,049	55	4,692	
			6,470	4,456	110	11,036	11,036
FEB.	NOTHING						
MARCH	EDMUNDS	GT1-4	2,588	2,049	55	4,692	
	EDMUNDS	GT1-8	1,941	1,536	55	3,532	
	EDMUNDS	GT1-16	1,941	1,536	55	3,532	
	EDMUNDS	GT1-23	1,941	1,536	55	3,532	
	EDMUNDS	GT1-24	1,941	1,536	55	3,532	
	EDMUNDS	GT1-26	1,941	1,536	55	3,532	
	EDMUNDS	GT1-30	1,941	1,536	55	3,532	
	EDMUNDS	GT1-31	1,941	1,536	55	3,532	
	EDMUNDS	GT1-38	1,941	1,536	55	3,532	
	LERCHE	2006 SMOKETREE	2,588	2,049	55	4,692	
	T'S CONSTC	SKYRANCH 33	1,941	1,536	55	3,532	
	T'S CONSTC	SKYRANCH 34	1,941	1,536	55	3,532	
	T'S CONSTC	SKYRANCH 35	1,941	1,536	55	3,532	
	MCB	FG1-36	2,588	2,049	55	4,692	
			29,115	23,043	770	52,928	63,964
APRIL	CLARK	SR89	3,882	3,073	55	7,010	
	VAN NEST	STAGECOACH PASS	2,588	2,049	55	4,692	
	HAGE	SR119	2,588	2,049	55	4,692	
	ROSENTHAL	FG1-78	2,588	2,049	55	4,692	
	VANDERMOLEN	CF1	1,941	1,536	55	3,532	
			13,587	10,756	275	24,618	88,582
MAY	MCB/BJV	ACACIA 7	2,588	2,049	55	4,692	
	MCB/BJV	ACACIA 8	2,588	2,049	55	4,692	
	MCB/BJV	CV 19	2,588	2,049	55	4,692	
	MCB/BJV	CV 20	2,588	2,049	55	4,692	
	BURDA	CF10	3,235	2,561	55	5,851	
	ROTH	FG1-76	2,588	2,049	55	4,692	
	BJV (correct billing of cassita add)		(3,235)	11,437		8,202	
	BOONE/DUCEY	PB1-20	2,588	2,049	55	4,692	
	EDMUNDS	GT1-39	2,588	2,049	55	4,692	
	EDMUNDS	GT1-40	2,588	2,049	55	4,692	
	ALDER CONST	BE16	2,588	2,049	55	4,692	
	BELL	SR34	2,588	2,049	55	4,692	
			25,880	34,488	605	60,973	149,555
JUNE	REITMAN	PBII-16	2,588	2,049	55	4,692	
	INGOLD	PBII-15	2,588	2,049	55	4,692	
	WOLFF	BE9	2,588	2,049	55	4,692	
	MCB/BJV	CV4	2,588	2,049	55	4,692	
	MCB/BJV	CV13	2,588	2,049	55	4,692	
	BKV (credit incorrect cassita bill)		0	(6,913)	0	(6,913)	
	AJE #2 Wentz 6/30 audit		2,588	2,049 (a)	0	4,637	
	AJE #16 Wentz 6/30 audit		6,089	(b)	0	6,089	
	HALLEMAN	COLONY 19	1,941	1,536	55	3,532	
	HALLEMAN	COLONY 20	1,941	1,536	55	3,532	
	HALLEMAN	COLONY 21	1,941	1,536	55	3,532	
			27,440	9,989	440	37,869	187,424
JULY	EDMUNDS	GT1-37	2,588	2,049	55	4,692	192,116
AUG.	BEACH	BE14	2,588	2,049 (a)	55	4,692	
	DIBENEDETTO	SR95	3,235	2,561	55	5,851	
	ROTH	FG1-75	(1,344)	(1,056)		(2,400)	
	MADARAS	SR123	2,588	2,049	55	4,692	
	WYND	PB2-10	2,588	2,049	55	4,692	
			9,655	7,652	220	17,527	209,643

(a) AJE #2 reclassed the invoice for Beach into the correct period. audit at should be corrected 12/31/94

(b) AJE #16 reclass of amort. of CIAC from 1989

2410 v
3015-25

FEB- 8-95 THU 11:13

BOULDERS CAREFREE SEWER CONNECTIONS 1994

DATE	NAME	LOCATION	CAPACITY	TAX	FEE	TOTAL	YTD
SEPT.	CUSTOMLINE	SRE #12 (Garcia)	2,588	2,049	55	4,692	
	DURHAM	AD #17	2,588	2,049	55	4,692	
	KONWISER	BE #23	3,235	2,561	55	5,851	
	MCB / BJV	ACA03	2,588	2,049	55	4,692	
	MCB / BJV	ACA05	2,588	2,049	55	4,692	
	MCB / BJV	CV05	2,588	2,049	55	4,692	
	MCB / BJV	CV07	3,235	2,561	55	5,851	
	MCB / BJV	CV10	2,588	2,049	55	4,692	
	MCB / BJV	CV11	1,941	1,536	55	3,532	
	MCB / BJV	CV12	2,588	2,049	55	4,692	
	MCB / BJV	CV16	1,941	1,536	55	3,532	
	MCB / BJV	FG1-37	2,588	2,049	55	4,692	
	MCB / BJV	FG3-2	2,588	2,049	55	4,692	
	MCB / BJV	FG3-3	2,588	2,049	55	4,692	
	MCB / BJV	FG3-4	2,588	2,049	55	4,692	
	MCB / BJV	FG3-5	2,588	2,049	55	4,692	
	MCB / BJV	FG3-7	2,588	2,049	55	4,692	
	MCB / BJV	FG3-8	2,588	2,049	55	4,692	
	CARLEY	BE #22	3,235	2,561	55	5,851	
	BERNSTEIN	PB1-11	2,588	2,049	55	4,692	
	KLEINE	201 EASY ST	7,861	5,581		4,692	
	RINTELMANN	SRE #18	2,588	2,049	55	4,692	
			62,856	49,120	1,155	104,381	314,024
OCT.	EDMUNDS	GT1-2	2,588	2,049	55	4,692	
	EDMUNDS	GT1-5	2,588	2,049	55	4,692	
	EDMUNDS	GT1-9	2,588	2,049	55	4,692	
	EDMUNDS	GT1-25	2,588	2,049	55	4,692	
	EDMUNDS	GT2-2	3,235	2,561	55	5,851	39,854
	EDMUNDS	GT2-8	2,588	2,049	55	4,692	
	EDMUNDS	GT2-9	3,235	2,561	55	5,851	
	EDMUNDS	GT2-13	2,588	2,049	55	4,692	
	HATFIELD	BE#3 & 4	3,235	2,561	55	5,851	
	CRANE	REFUND	(3,235)	(2,561)		-5,851	
	TULL CO.	AD07	1,941	1,536	55	3,532	
	EDMUNDS	UNIT 5 LOT 2	3,235	2,561	55	5,851	
			27,174	21,513	605	60,939	374,963
NOV.	WRIGHT	SR ESTATES #46	2,588	2,049	55	4,692	
	KLECZEWSKI	SR ESTATES #66	3,235	2,561	55	5,851	
	BARNES	CF #18	2,588	2,049	55	4,692	
			8,411	6,659	165	15,235	390,198
DEC.	KERWIN-A.ADV	UNIT 5 LOT 35	2,588	2,049	55	4,692	
	ANDREWS	PBII LOT 7	2,588	2,049	55	4,692	
			5,176	4,098	110	9,384	399,582
	Grand Total		218,352	173,823	4,510	399,582	

Client Prepared
DK 3/1/96
W 3/1/96

BOULDERS CAREFREE SEWER CONNECTIONS 1995

DATE	NAME	LOCATION	CAPACITY	TAX	FEE	TOTAL	YTD
JUARY	GRIMM	CF LOT 57	$2,588.00	$2,049.00	$55.00	$4,692.00	
	REMINGTON	NORTH #172	$2,588.00	$2,049.00	$55.00	$4,692.00	
			$5,176.00	$4,098.00	$110.00	$9,384.00	$9,384.00
FEBRUARY	WOODS DEV.	SKYRANCH 43	$1,941.00	$1,536.00	$55.00	$3,532.00	
		SKYRANCH 44	$1,941.00	$1,536.00	$55.00	$3,532.00	
		SKYRANCH 45	$1,941.00	$1,536.00	$55.00	$3,532.00	
	KALLESTAD	2303 FOXTAIL	$0.00	$0.00	$55.00	$55.00	
	MCB / FG	CV LOT 8	$2,588.00	$2,049.00	$55.00	$4,692.00	
		CV LOT 9	$2,588.00	$2,049.00	$55.00	$4,692.00	
		CV LOT 14	$2,588.00	$2,049.00	$55.00	$4,692.00	
		CV LOT 15	$2,588.00	$2,049.00	$55.00	$4,692.00	
		CV LOT 16	$2,588.00	$2,049.00	$55.00	$4,692.00	
	HAGE	CF LOT #9	$2,588.00	$2,049.00	$55.00	$4,692.00	
			$21,351.00	$16,902.00	$550.00	$38,803.00	$48,187.00
MARCH	W.R. MILLINER	CF LOT 15	$3,235.00	$2,561.00	$55.00	$5,851.00 -	
	JIM WALLIN	2304 FOX TAIL	$0.00	$0.00	$55.00	$55.00	
	R. MARSO	SRE LOT 133	$2,588.00	$2,049.00	$55.00	$4,692.00	
	LIZANICH	CF COLINA #13	$1,941.00	$1,536.00	$55.00	$3,532.00	
	HAGE, INC.	SRE #115	$2,588.00	$2,049.00	$55.00	$4,692.00	
	LIZANICH	CF COLINA #12	$1,941.00	$1,536.00	$55.00	$3,532.00	
	SULLIVAN	3024 IRONWOOD	$647.00	$512.00	$55.00	$1,214.00	
	WALLIN	BE LOT 13	$3,882.00	$3,073.00	$55.00	$7,010.00	
	GROSS UP TAX REFUND	CHECKS MAILED		($30,573.00)			
			$16,822.00	($17,237.00)	$440.00	$30,578.00	$78,765.00
APRIL	MILNE	SRE #6	$3,235.00	$2,090.00	$55.00	$5,380.00	
	LIZANICH	CF CASAS #15	$1,941.00	$1,254.00	$55.00	$3,250.00	
	COPPER CREEK CONST.	SRE #125	$2,588.00	$1,672.00	$55.00	$4,315.00	
			$7,764.00	$5,016.00	$165.00	$12,945.00	$91,710.00
MAY	AZ. CUSTOM HOME BLD.	BE #2	$2,588.00	$2,049.00	$55.00	$4,692.00	
	DE LELLIS CONST.	BE #11	$2,588.00	$2,049.00	$55.00	$4,692.00	
			$5,176.00	$4,098.00	$110.00	$9,384.00	$101,094.00
JUNE	T'S CONSTRUCTION	SKYRANCH 36-39	$7,764.00	$6,108.00	$220.00	$14,092.00	
	TULL CO./LANGHAMMER	ADOBES LOT 22	$3,882.00	$3,054.00	$55.00	$6,991.00	
			$11,646.00	$9,162.00	$275.00	$21,083.00	$122,177.00
JULY	ANDREW J. STANLEY	SRE #7	$3,235.00	$2,545.00	$55.00	$5,835.00	
	ALFRED RUNFT	CF #53	$2,588.00	$2,036.00	$55.00	$4,679.00	
	TULL COMPANIES	AD #26	$2,588.00	$2,036.00	$55.00	$4,679.00	
			$8,411.00	$6,617.00	$165.00	$15,193.00	$137,370.00
AUGUST	MIKE LIZANICH	CF CASAS #24	$1,941.00	$1,527.00	$55.00	$3,523.00	
	MIKE LIZANICH	CF CASAS #25	$1,941.00	$1,527.00	$55.00	$3,523.00	
	JAMES H. SIPPLE	SRE #109	$1,941.00	$1,527.00	$55.00	$3,523.00	
			$5,823.00	$4,581.00	$165.00	$10,569.00	$147,939.00
SEPTEMBER	RONALD D. RYAN	SRE #72	$2,588.00	$2,036.00	$55.00	$4,679.00	
	DON FREDRICKS	7402 SUNDANCE	$2,588.00	$2,036.00	$55.00	$4,679.00	
	G.R. BOUNDS, INC.	3041 IRONWOOD	$2,588.00	$2,036.00	$55.00	$4,679.00	
	ROBERT BIGLER	PB II LOT 9	$2,588.00	$2,036.00	$55.00	$4,679.00	
	MCB	CV LOT 6	$2,588.00	$2,036.00	$55.00	$4,679.00	
	MCB	ACACIA LOT 6	$2,588.00	$2,036.00	$55.00	$4,679.00	
	MCB	ACACIA LOT 9	$2,588.00	$2,036.00	$55.00	$4,679.00	
			$18,116.00	$14,252.00	$385.00	$32,753.00	$180,692.00
OCTOBER	CARLEY/MERRITT	BE LOT 22	$3,235.00	$2,545.00	$55.00	$5,835.00	
	JAURON	SRE #117	$1,941.00	$1,527.00	$55.00	$3,523.00	
			$5,176.00	$4,072.00	$110.00	$9,358.00	$190,050.00
NOVEMBER	JESUS SOTOMAYER	SRE # 3	$2,588.00	$2,036.00	$55.00	$4,679.00	
	RICK MERRITT (REFUND)		($3,235.00)	($2,545.00)	($55.00)	($5,835.00)	
	FREDERICS	7450 SUNDANCE	$1,941.00	$1,527.00	$55.00	$3,523.00	
	FRED HAGE, INC.	SRE #27	$2,588.00	$2,036.00	$55.00	$4,679.00	
			$3,882.00	$3,054.00	$110.00	$7,046.00	$197,096.00
ECEMBER	FRANK T. MCSHANE	SRE #126	$2,588.00	$2,036.00	$55.00	$4,679.00	
	LIZANICH / CC II	LOT 22	$1,941.00	$1,527.00	$55.00	$3,523.00	
	LIZANICH / CC II	LOT 23	$1,941.00	$1,527.00	$55.00	$3,523.00	
			$6,470.00	$5,090.00	$165.00	$11,725.00	$208,821.00
	TOTALS:		$115,813.00	$59,685.00	$2,750.00	$208,821.00	$208,821.00
	Draw-up refunds			30,573			
				90,258			

AMG - 1/a

Prepared by client

BOULDERS CAREFREE SEWER CONNECTIONS 1996

DATE	NAME	LOCATION	CAPACITY	TAX	FEE	TOTAL
01/22/96	MALOUF COMM. BLDRS.	ACACIA LOT 2	$2,588.00	$2,036.00	$55.00	$4,679.00
	MALOUF COMM. BLDRS.	CLUB VILLAS 3	$2,588.00	$2,036.00	$55.00	$4,679.00
	MALOUF COMM. BLDRS.	FG UNIT 3 LOT 9	$2,588.00	$2,036.00	$55.00	$4,679.00
01/22/96	JOHN & DEBRA LUCE	S.R. EST. #50	$1,941.00	$1,527.00	$55.00	$3,523.00
01/22/96	EDMUNDS ASSOC.	GTI LOT 22	$2,588.00	$2,036.00	$55.00	$4,679.00
12/29/95	JAMES E. PIERCE	S.R. EST. #85	$2,588.00	$2,036.00	$55.00	$4,679.00
12/21/95	WILLIAM PORTERFIELD	PBII LOT 2	$2,588.00	$2,049.00	$55.00	$4,692.00
01/05/96	GOEFFREY EDMUNDS	GTII LOT 1	$1,941.00	$1,527.00	$55.00	$3,523.00
01/05/96	GOEFFREY EDMUNDS	GTII LOT 5	$1,941.00	$1,527.00	$55.00	$3,523.00
01/08/96	SAM JACOBSEN	6980 E. SCP ROAD	$2,588.00	$2,036.00	$55.00	$4,679.00
01/03/96	MIKE LIZANICH	COLINA OF CF 14	$1,941.00	$1,527.00	$55.00	$3,523.00
01/18/96	MIKE LIZANICH	COLINA OF CF 15	$1,941.00	$1,527.00	$55.00	$3,523.00
01/09/96	JAURON	SRE LOT 117	($1,941.00)	($1,527.00) -	($55.00)	($3,523.00)
01/10/96	PORTERFIELD	PBII LOT 2 (REF)		($13.00)		
			$25,880.00	$20,360.00	$605.00	$46,858.00
02/08/96	WILLIAM J. MONAHAN	2035 SMOKETREE	$0.00	$0.00	$55.00	$55.00
02/08/96	THEODORE BOSLER	EL DESEO LOT 3	$3,235.00	$2,545.00	$55.00	$5,835.00
02/16/96	DOUG MITCHAM	2001 SMOKETREE	$0.00	$0.00	$55.00	$55.00
			$3,235.00	$2,545.00	$5,945.00	$5,945.00
03/14/96	MERRITT CSTM HOMES	THE RESERVE 8	$2,588.00	$2,036.00	$55.00	$4,679.00
03/25/96	NERI, CORIE	SRE #84	$2,588.00	$2,036.00	$55.00	$4,679.00
			$5,176.00	$4,072.00	$110.00	$9,358.00
04/02/96	SWISHER, R.A.	SRE #108	$1,941.00	$1,527.00	$55.00	$3,523.00
04/02/96	BJV	TOHONO CTR	$12,940.00	$10,180.00	$55.00	$23,175.00
04/02/96	MALOUF COMM BLDRS	CLUB VILLAS 1	$2,588.00	$2,036.00	$55.00	$4,679.00
		CLUB VILLAS 2	$1,941.00	$1,527.00	$55.00	$3,523.00
		ACACIA LOT 1	$2,588.00	$2,036.00	$55.00	$4,679.00
		ACACIA LOT 4	$2,588.00	$2,036.00	$55.00	$4,679.00
04/03/96	J.SCOTT OLDFIELD	ADOBES LOT 10	$3,235.00	$2,545.00	$55.00	$5,835.00
04/08/96	JAIMES KAISER / TS CON	SRE LOT 80	$2,588.00	$2,036.00	$55.00	$4,679.00
04/15/96	MALOUF COMM. BLDRS	ACACIA 5 G/H	$1,294.00	$1,018.00	$55.00	$2,367.00
04/15/96	ARCH. ADV. / LEWIS	BLD EST LOT 5	$2,588.00	$2,036.00	$55.00	$4,679.00
04/19/96	ARCH. ADV. / AVERY	BLD EST LOT 19	$3,235.00	$2,545.00	$55.00	$5,835.00
			$37,526.00	$29,522.00	$605.00	$67,653.00
05/02/96	ARCH. ADV. / BARBOUR	BLD EST LOT 15	$2,588.00	$2,036.00	$55.00	$4,679.00
05/15/96	GARY MAITLAND	SRE LOT 32	$3,235.00	$2,545.00	$55.00	$5,835.00
05/15/96	HOMES BY DESERT KEY	RDGVW EST 17	$2,588.00	$2,036.00	$55.00	$4,679.00
05/20/96	UNITED WEST GROUP	1503 IND ROCK	$1,294.00	$1,018.00	$55.00	$2,367.00
05/20/96	CUSTOMLINE HOMES	SRE LOT 51	$3,235.00	$2,545.00	$55.00	$5,835.00
05/24/96	CIRO CARUSO	SRE LOT 130	$2,588.00	$2,036.00	$55.00	$4,679.00
05/24/96	AZ CUSTOM HOME BLD	PB1 LOT 5	$2,588.00	$2,036.00	$55.00	$4,679.00
05/30/96	LESSER	3119 ARROYO HO	$647.00	$509.00	$0.00	$1,156.00
05/30/96	RODAN CONSTRUCTION	SNDCE GDN OFF	$11,322.50	$8,907.41	$55.00	$20,284.91
			$30,085.50	$23,668.41	$440.00	$54,193.91
06/05/96	HOMES BY DESERT KEY	RDGVW EST 16	$2,588.00	$2,036.00	$55.00	$4,679.00
06/17/96	SIMMONS CONSTRUCT	SRE LOT 76	$3,235.00	$2,545.00	$55.00	$5,835.00
06/17/96	DAVID FORREST	SRE LOT 71	$3,235.00	$2,545.00	$55.00	$5,835.00
06/17/96	SILVERSTEIN (addition)	FIFTH GR. 1 L 18	$647.00	$509.00	$55.00	$1,211.00
			$9,705.00	$7,635.00	$220.00	$17,560.00
07/15/96	ARCHITECTURAL ADV.	PBI LOT 15	$3,235.00	$2,545.00	$55.00	$5,835.00
	ARCHITECTURAL ADV.	PBII LOT 13	$2,588.00	$2,036.00	$55.00	$4,679.00
	ARCHITECTURAL ADV.	PBII LOT 18	$3,235.00	$2,545.00	$55.00	$5,835.00
			$9,058.00	$7,126.00	$165.00	$16,349.00

$12,725 refunded in September

AA/6-19

BOULDERS CAREFREE SEWER CONNECTIONS 1996

DATE	NAME	LOCATION	CAPACITY	TAX	FEE	TOTAL
10/02/96	ARCHITECTURAL ADV.	PBI LOT 25	$3,235.00		$55.00	$3,290.00
10/03/96	SHILOH CONST.	PBI LOT 4	$3,235.00		$55.00	$3,290.00
10/08/96	MALOUF CONSTRUCT.	3110 ARROYO HO.	$3,235.00		$55.00	$3,290.00
			$9,705.00		$165.00	$9,870.00
11/19/96	MALOUF COM BLDRS	PUEBLO 1 - 5	$12,940.00		$275.00	$13,215.00
12/03/96	JERRY KENNEDY	SRE129	$2,588.00		$55.00	$2,643.00
12/03/96	DAN MADISON & CO	BE #7	$3,235.00		$55.00	$3,290.00
12/03/96	LABLONDE DEVELOP	PB1 - LOT 1	$3,235.00		$55.00	$3,290.00
12/04/96	MALOUF COMM BLDRS	ENCH 04	$2,588.00		$55.00	$2,643.00
		ENCH 05	$2,588.00		$55.00	$2,643.00
		ENCH 08	$2,588.00		$55.00	$2,643.00
		ENCH 12	$2,588.00		$55.00	$2,643.00
		ENCH 14	$2,588.00		$55.00	$2,643.00
		ENCH 18	$2,588.00		$55.00	$2,643.00
			$24,586.00		$495.00	$25,081.00
			$167,896.50	$94,928.41	$9,025.00	$266,082.91
				(12,725)	Post 6/13/96 refunds	
				82,203.41		

PBC

1/31/00

BOULDERS CAREFREE SEWER CAPACITY FEES 2000

DATE	NAME	LOCATION	CAPACITY	TAX	FEE	TOTAL	YTD
Jan00	Cavalier Canyon	35413 N Canyon Creek Cir, #2	$3,235.00	$0.00	$55.00	$3,290.00	
Jan00	Cavalier Canyon	5731 E Canon Creek, #9	$2,643.00	$0.00	$55.00	$2,698.00	
Jan00	Cavalier Canyon	5722 E Canyon Creek, #18	$3,235.00	$0.00	$55.00	$3,290.00	
Jan00	Pulte/Winfield	7882 Evening Glow Dr	$2,588.00	$0.00	$55.00	$2,643.00	
Jan00	Pulte/Winfield	33508 74th Street	$2,588.00	$0.00	$55.00	$2,643.00	
Jan00	Pulte/Winfield	7440 Crescent Saguaro Ln	$2,588.00	$0.00	$55.00	$2,643.00	
Jan00	Pulte/Winfield	7464 Crescent Saguaro	$2,588.00	$0.00	$55.00	$2,643.00	
Jan00	Pulte/Winfield	7472 Crescent Saguaro	$2,588.00	$0.00	$55.00	$2,643.00	
Jan00	Pulte/Winfield	7470 Russet Sky Circle	$2,588.00	$0.00	$55.00	$2,643.00	
Jan00	Pulte/Winfield	7462 Russet Sky Circle	$2,588.00	$0.00	$55.00	$2,643.00	
Jan00	Pulte/Winfield	7860 Eveing Glo	$2,588.00	$0.00	$55.00	$2,643.00	
Jan00	Pulte/Winfield	33127 72nd Way	$2,588.00	$0.00	$55.00	$2,643.00	
Jan00	Pulte/Winfield	33540 N 74th Way	$2,588.00	$0.00	$55.00	$2,643.00	
Jan00	Pulte/Winfield	7353 Russet Sky Circle	$3,235.00	$0.00	$55.00	$3,290.00	
Jan00	Pulte/Winfield	7369 Russet Sky Circle	$2,588.00	$0.00	$55.00	$2,643.00	
Jan00	Pulte/Winfield	7458 Russet Sky Circle	$3,235.00	$0.00	$55.00	$3,290.00	
		January 2000 Total	$44,051.00	$0.00	$880.00	$44,931.00	$44,931.00
Mar00	Tom Norris	7095 E Ridgeview	$2,588.00	$0.00	$55.00	$2,643.00	
Mar00	Tom Norris	7127 E Ridgeview	$3,235.00	$0.00	$55.00	$3,290.00	
Mar00	Pulte/Winfield	7446 Russet Sky Ct	$1,941.00	$0.00	$55.00	$1,996.00	
Mar00	Pulte/Winfield	7402 Soaring Eagle	$1,941.00	$0.00	$55.00	$1,996.00	
Mar00	Pulte/Winfield	7398 Soaring Eagle	$1,941.00	$0.00	$55.00	$1,996.00	
·00	Pulte/Winfield	7410 Russet Sky	$1,941.00	$0.00	$55.00	$1,996.00	
·00	Pulte/Winfield	33588 N 74th Street	$1,941.00	$0.00	$55.00	$1,996.00	
Mar00	Pulte/Winfield	7326 Evening Glo	$1,941.00	$0.00	$55.00	$1,996.00	
Mar00	Pulte/Winfield	7334 Evening Glo	$1,941.00	$0.00	$55.00	$1,996.00	
Mar00	Pulte/Winfield	7342 Evening Glo	$1,941.00	$0.00	$55.00	$1,996.00	
Mar00	Pulte/Winfield	7350 Evening Glo	$2,588.00	$0.00	$55.00	$2,643.00	
Mar00	Pulte/Winfield	7670 Shooting Star	$2,588.00	$0.00	$55.00	$2,643.00	
Mar00	Pulte/Winfield	7915 Shooting Star	$2,588.00	$0.00	$55.00	$2,643.00	
Mar00	Pulte/Winfield	7877 Shooting Star	$2,588.00	$0.00	$55.00	$2,643.00	
Mar00	Pulte/Winfield	7763 Evening Glo	$2,588.00	$0.00	$55.00	$2,643.00	
Mar00	Pulte/Winfield	7707 Evening Glo	$2,588.00	$0.00	$55.00	$2,643.00	
Mar00	Pulte/Winfield	33646 78th Place	$2,588.00	$0.00	$55.00	$2,643.00	
Mar00	Pulte/Winfield	33580 78th Place	$2,588.00	$0.00	$55.00	$2,643.00	
Mar00	Pulte/Winfield	33667 78th Place	$2,588.00	$0.00	$55.00	$2,643.00	
Mar00	Pulte/Winfield	33643 78th Place	$2,588.00	$0.00	$55.00	$2,643.00	
Mar00	Pulte/Winfield	33631 78th Place	$2,588.00	$0.00	$55.00	$2,643.00	
Mar00	Pulte/Winfield	33597 78th Place	$2,588.00	$0.00	$55.00	$2,643.00	
Mar00	Pulte/Winfield	33668 79th Street	$2,588.00	$0.00	$55.00	$2,643.00	
		March 00 Total	$54,995.00	$0.00	$1,265.00	$56,260.00	$56,260.00
May 00	Pulte/Winfield	7299 Sunset Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7295 Sunset Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7291 Sunset Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7330 Sunset Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7338 Sunset Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7346 Sunset Sky	$1,941.00	$0.00	$55.00	$1,996.00	
·00	Pulte/Winfield	33120 72nd Way	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	33156 72nd Way	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	33168 72nd Way	$1,941.00	$0.00	$55.00	$1,996.00	

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May 00	Pulte/Winfield	33108 72nd Way	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	33143 72nd Way	$1,941.00	$0.00	$55.00	$1,996.00	
y 00	Pulte/Winfield	33135 72nd Way	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	33119 72nd Way	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	33111 72nd Way	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7298 Sunset Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7290 Sunset Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7324 Crimson Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7332 Crimson Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7340 Crimson Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7364 Crimson Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7372 Crimson Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7380 Crimson Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7388 Crimson Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7396 Crimson Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7337 Crimson Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7329 Crimson Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7321 Crimson Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7739 Evening Glow	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	33602 78th Place	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	33624 78th Place	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	33655 78th Place	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	33619 78th Place	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	33614 79th Street	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	33653 79th Street	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7921 Shooting Star	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7909 Shooting Star	$1,941.00	$0.00	$55.00	$1,996.00	
y 00	Pulte/Winfield	7401 Russet Sky	$1,941.00	$0.00	$55.00	$1,996.00	
y 00	Pulte/Winfield	7413 Russet Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7425 Russet Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7437 Russet Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7449 Russet Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7461 Russet Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	7473 Russet Sky	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	33537 74th Street	$1,941.00	$0.00	$55.00	$1,996.00	
May 00	Pulte/Winfield	33505 74th Street	$1,941.00	$0.00	$55.00	$1,996.00	
		May 00	$87,345.00	$0.00	$2,475.00	$89,820.00	$89,820.00
June00	Ferrell	6120 Restin Road, Lot #44 Sentinel	$2,588.00	$0.00	$55.00	$2,643.00	
June00	Bruce Berry	4857 E Morning Vista #53 Sentinel	$3,235.00	$0.00	$55.00	$3,290.00	
June00	United West	34532 N 79th Way, # 3 Crossings	$3,882.00	$0.00	$55.00	$3,937.00	
		June 00	$9,705.00	$0.00	$165.00	$9,870.00	$9,870.00
July00	Pulte/Winfield	7703 Soaring Eagle	$3,235.00	$0.00	$55.00	$3,290.00	
July00	Pulte/Winfield	33565 N 75th Way	$3,235.00	$0.00	$55.00	$3,290.00	
		July 00	$6,470.00	$0.00	$110.00	$6,580.00	$6,580.00
Aug00	Elite Custom	34648 N Sunset Trail, Foothills,#4	$3,235.00	$0.00	$55.00	$3,290.00	
Aug00	Pulte/Winfield	7320 Russet Sky	$2,588.00	$0.00	$55.00	$2,643.00	
Aug00	Pulte/Winfield	33585 74th Street	$2,588.00	$0.00	$55.00	$2,643.00	
Aug00	Pulte/Winfield	33521 74th Street	$2,588.00	$0.00	$55.00	$2,643.00	
Aug00	Pulte/Winfield	7434 Russet Sky	$3,235.00	$0.00	$55.00	$3,290.00	
Aug00	Pulte/Winfield	7406 Soaring Eagle	$2,588.00	$0.00	$55.00	$2,643.00	
00	Pulte/Winfield	7374 Russet Sky	$2,588.00	$0.00	$55.00	$2,643.00	
Aug00	Pulte/Winfield	7422 Russet Sky	$2,588.00	$0.00	$55.00	$2,643.00	
Aug00	Pulte/Winfield	7393 Russet Sky	$2,588.00	$0.00	$55.00	$2,643.00	

Aug00	Pulte/Winfield	7302 Russet Sky	$2,588.00	$0.00	$55.00	$2,643.00	
00	Pulte/Winfield	7382 Eagle Feather	$2,588.00	$0.00	$55.00	$2,643.00	
g00	Pulte/Winfield	7385 Russet Sky	$3,235.00	$0.00	$55.00	$3,290.00	
Aug00	Pulte/Winfield	7305 Russet Sky	$2,588.00	$0.00	$55.00	$2,643.00	
Aug00	Pulte/Winfield	7337 Russet Sky	$2,588.00	$0.00	$55.00	$2,643.00	
Aug00	Pulte/Winfield	7321 Russet Sky	$2,588.00	$0.00	$55.00	$2,643.00	
Aug00	Pulte/Winfield	7356 Russet Sky	$3,235.00	$0.00	$55.00	$3,290.00	
Aug00	Pulte/Winfield	7410 Russet Sky	$647.00	$0.00	$0.00	$647.00	
Aug00	Pulte/Winfield	7398 Soaring Eagle	$1,294.00	$0.00	$0.00	$1,294.00	
Aug00	Pulte/Winfield	7446 Russet Sky	$647.00	$0.00	$0.00	$647.00	
Aug00	Pulte/Winfield	7402 Soaring Eagle	$647.00	$0.00	$0.00	$647.00	
Aug00	Pulte/Winfield	33588 N 74th Street	$647.00	$0.00	$0.00	$647.00	
Aug00	Pulte/Winfield	7425 Russet Sky	$1,294.00	$0.00	$0.00	$1,294.00	
Aug00	Pulte/Winfield	7437 Russet Sky	$1,294.00	$0.00	$0.00	$1,294.00	
Aug00	Pulte/Winfield	7449 Russet Sky	$1,294.00	$0.00	$0.00	$1,294.00	
Aug00	Pulte/Winfield	7401 Russet Sky	$647.00	$0.00	$0.00	$647.00	
Aug00	Pulte/Winfield	33537 74th St	$647.00	$0.00	$0.00	$647.00	
Aug00	Pulte/Winfield	7461 Russet Sky	$1,294.00	$0.00	$0.00	$1,294.00	
Aug00	Pulte/Winfield	7413 Russet Sky	$1,294.00	$0.00	$0.00	$1,294.00	
Aug00	Pulte/Winfield	7473 Russet Sky	$647.00	$0.00	$0.00	$647.00	
Aug00	Pulte/Winfield	33505 74th Street	$647.00	$0.00	$0.00	$647.00	
Aug00	Pulte/Winfield	7338 Russet Sky	$2,588.00	$0.00	$55.00	$2,643.00	
Aug00	Pulte/Winfield	33569 74th Street	$2,588.00	$0.00	$55.00	$2,643.00	
Aug00	Pulte/Winfield	33553 74th Street	$2,588.00	$0.00	$55.00	$2,643.00	
Aug00	TCC Development	36601 N Mule Train, #37A	$1,941.00	$0.00	$110.00	$2,051.00	
Aug00	TCC Development	36601 N Mule Train, #37B	$1,941.00	$0.00	$110.00	$2,051.00	
Aug00	TCC Development	36601 N Mule Train, #37C	$1,941.00	$0.00	$55.00	$1,996.00	
00	TCC Development	36601 N Mule Train, #37D	$1,941.00	$0.00	$55.00	$1,996.00	
g00	TCC Development	36601 N Mule Train, #32A	$1,941.00	$0.00	$55.00	$1,996.00	
Aug00	TCC Development	36601 N Mule Train, #32B	$1,941.00	$0.00	$55.00	$1,996.00	
Aug00	TCC Development	36601 N Mule Train, #32C	$1,941.00	$0.00	$55.00	$1,996.00	
Aug00	TCC Development	36601 N Mule Train, #32D	$1,941.00	$0.00	$55.00	$1,996.00	
Aug00	Cavalier Canyon	35253 N Canyon Creek, Lot 6	$3,235.00	$0.00	$55.00	$3,290.00	
Aug00	Cavalier Canyon	35226 N Canyon Creek, Lot 19	$2,588.00	$0.00	$55.00	$2,643.00	
		August Total	$86,051.00	$0.00	$1,705.00	$87,756.00	$87,756.00
Oct00	Pulte/Winfield	33544 79th Street	$3,235.00	$0.00	$55.00	$3,290.00	
Oct00	Pulte/Winfield	33597 79th Street	$1,941.00	$0.00	$55.00	$1,996.00	
Oct00	Pulte/Winfield	7715 Evening Glow	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	7731 Evening Glow	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	7979 Evening Glow	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	7963 Russet Sky	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	33669 n 78th Street	$1,941.00	$0.00	$55.00	$1,996.00	
Oct00	Pulte/Winfield	33647 N 78th Street	$1,941.00	$0.00	$55.00	$1,996.00	
Oct00	Pulte/Winfield	33625 N 78th Street	$3,235.00	$0.00	$55.00	$3,290.00	
Oct00	Pulte/Winfield	33668 78th Place	$3,235.00	$0.00	$55.00	$3,290.00	
Oct00	Pulte/Winfield	33650 79th Street	$3,882.00	$0.00	$55.00	$3,937.00	
Oct00	Pulte/Winfield	33628 79th Street	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	7971 Evening Glow	$3,235.00	$0.00	$55.00	$3,290.00	
Oct00	Pulte/Winfield	7963 Evening Glow	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	7958 Evening Glow	$3,235.00	$0.00	$55.00	$3,290.00	
Oct00	Pulte/Winfield	7292 Crimson Sky	$2,588.00	$0.00	$55.00	$2,643.00	
'00	Pulte/Winfield	7284 Crimson Sky	$2,588.00	$0.00	$55.00	$2,643.00	
00	Pulte/Winfield	7300 Crimson Sky	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	7275 Sunset Sky	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	7271 Sunset Sky	$2,588.00	$0.00	$55.00	$2,643.00	

Oct00	Pulte/Winfield	7267 Sunset Sky	$2,588.00	$0.00	$55.00	$2,643.00	
0	Pulte/Winfield	33290 73rd Street	$2,588.00	$0.00	$55.00	$2,643.00	
,00	Pulte/Winfield	33262 73rd Street	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	33234 73rd Street	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	33206 73rd Street	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	33203 73rd Street	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	33269 73rd Street	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	33291 73rd Street	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	7373 Crimson Sky	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	7391 Crimson Sky	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	7356 Crimson Sky	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	7348 Crimson Sky	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	33198 72nd Street	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	33175 72nd Street	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	33154 72nd Street	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	7259 Sunset Sky	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Pulte/Winfield	7263 Sunset Sky	$2,588.00	$0.00	$55.00	$2,643.00	
Oct00	Junfon	7151 E Ridgeview, Lot 27 Ridgeview	$2,588.00	$0.00	$55.00	$2,643.00	
		October Total	$100,932.00	$0.00	$2,090.00	$103,022.00	$103,022.00
Nov00	Santiago Homes	6321 Old Paint Trail	$3,235.00	$0.00	$55.00	$3,290.00	
Nov00	T's Construction	6015 E Languid Lane	$2,588.00	$0.00	$55.00	$2,643.00	
Nov00	TCC Development	36601 N Mule Train 33A	$1,941.00	$0.00	$55.00	$1,996.00	
Nov00	TCC Development	36601 N Mule Train 33B	$1,941.00	$0.00	$55.00	$1,996.00	
Nov00	TCC Development	36601 N Mule Train 33C	$1,941.00	$0.00	$55.00	$1,996.00	
Nov00	TCC Development	36601 N Mule Train 33D	$1,941.00	$0.00	$55.00	$1,996.00	
Nov00	Matt Foster	7069 E Terrace Estates Circle	$1,941.00	$0.00	$55.00	$1,996.00	
		October Total	$15,528.00	$0.00	$385.00	$15,913.00	$15,913.00
	2000 Year To Date		$405,077.00	$0.00	$9,075.00	$414,152.00	$414,152.00

2000 CIAC Additions Misc. Rev.
A/c # 4060-00

BOURASSA SCHEDULES

BOURASSA REBUTTAL

SCHEDULES

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Computation of Increase in Gross Revenue
Requirements As Adjusted

Exhibit
Rebuttal Schedule A-1
Page 1
Witness: Bourassa

Line No.			
1	Fair Value Rate Base	$	1,648,269
2			
3	Adjusted Operating Income		10,683
4			
5	Current Rate of Return		0.65%
6			
7	Required Operating Income	$	181,310
8			
9	Required Rate of Return on Fair Value Rate Base		11.00%
10			
11	Operating Income Deficiency	$	170,626
12			
13	Gross Revenue Conversion Factor		1.5993
14			
15	Increase in Gross Revenue		
16	Requirement	$	272,889
17			
18	% Increase		22.64%

19					
20	**Customer**	**Present**	**Proposed**	**Dollar**	**Percent**
21	**Classification**	**Rates**	**Rates**	**Increase**	**Increase**
22	**(Residential Commercial, Irrigation)**				
23					
24	Residential	$ 768,816	$ 941,597	$ 172,781	22.47%
25	Commercial (Standard Rate)	312,725	383,045	70,320	22.49%
26	Commercial (Special Rate)	81,967	100,397	18,430	22.48%
27	Effluent Sales	14,498	17,758	3,260	22.49%
28					
29	Annualization	17,328	21,222	3,894	22.47%
30				-	0.00%
31	**Subtotal**	$ 1,195,334	$ 1,464,019	$ 268,686	22.48%
32					
33	Other Wastewater Revenues	16,472	16,472	-	0.00%
34	Removed ACC Assessment (Rebuttal C-1)	(2,288)	(2,288)	-	0.00%
35				-	0.00%
36	**Total of Water Revenues (a)**	$ 1,209,518	$ 1,478,203	$ 268,686	22.21%
37					
38					
39					
40					
41					
42					
43	SUPPORTING SCHEDULES:				
44	Rebuttal B-1				
45	Rebuttal C-1				
46	Rebuttal C-3				
47	Rebuttal H-1				
48					

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Summary of Rate Base

Exhibit
Rebuttal Schedule B-1
Page 1
Witness: Bourassa

Line No.		Original Cost Rate base	Fair Value Rate Base
1			
2	Gross Utility Plant in Service	$ 8,668,177	$ 8,668,177
3	Less: Accumulated Depreciation	4,350,668	4,350,668
4			
5	Net Utility Plant in Service	$ 4,317,509	$ 4,317,509
6			
7	Less:		
8	Advances in Aid of		
9	Construction	1,311,349	1,311,349
10	Contributions in Aid of		
11	Construction	4,857,632	4,857,632
12	Accumulated Amortization of CIAC	(3,329,900)	(3,329,900)
13			
14	Customer Meter Deposits	(6,000)	(6,000)
15	Deferred Income Taxes & Credits	-	-
16	Deferred Assets	-	-
17			
18			
19	Plus:		
20	Unamortized Finance		
21	Charges	-	-
22	Prepaids	-	-
23	Deferred Assets	163,841	163,841
24	Allowance for Working Capital	-	-
25			
26			
27	Total Rate Base	$ 1,648,269	$ 1,648,269
28			
29			
30			
31	SUPPORTING SCHEDULES:		
32	Rebuttal B-2		
33	Rebuttal B-5		
34			
35			
36			

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Original Cost Rate Base Proforma Adjustments

Exhibit
Rebuttal Schedule B
Page 1
Witness: Bourassa

Line No.		Adjusted at End of Test Year	Adjustments	Rebuttal Adjusted at end of Test Year
1	Gross Utility			
2	Plant in Service	$ 8,464,745	203,432	$ 8,668,177
3				
4	**Less:**			
5	Accumulated			
6	Depreciation	4,366,379	(15,711)	4,350,668
7				
8				
9	Net Utility Plant			
10	in Service	$ 4,098,366	$ 219,143	$ 4,317,509
11				
12	**Less:**			
13	Advances in Aid of			
14	Construction	1,315,900	(4,551)	1,311,349
15				
16	Contributions in Aid of			
17	Construction (CIAC)	5,346,615	(488,983)	4,857,632
18				
19				
20	Accum. Amortization of CIAC	(3,308,578)	(21,322)	(3,329,900)
21				
22				
23	Customer Meter Deposits	(3,000)	-3000	(6,000)
24	Deferred Income Taxes	-	-	-
25	Investment Tax Credits	-	-	-
26				
27				
28	**Plus:**			
29	Unamortized Finance			
30	Charges	-	0	-
31	Prepaids	9,512	(9,512)	-
32	Deferred Tax Asset	-	163,841	163,841
33	Allowance for Working Capital	130,508	(130,508)	-
34				
35	Total	$ 887,449	$ 760,820	$ 1,648,269
36				
37				
38				
39				
40				
41	SUPPORTING SCHEDULES:			
42	Rebuttal B-2, pages 2			
43	Rebuttal B-2, pages 3-12			
44				
45				
46				

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Original Cost Rate Base Proforma Adjustments

Exhibit
Rebuttal Schedule B-2
Page 2
Witness: Bourassa

Line No.		ADJUSTMENT LABEL->> Adjusted at End of Test Year	1 PTY Plant	2 Allocated Computer Eq.	3 Expensed Plant	4 Unrecorded CIAC/AIAC Plant	5 Customer Deposits	6 DIT	7 Working Capital	8 Prepaids	9 Land & Unexpended CIAC	10 Accumulated Amortization CIAC	Rebuttal Adjusted at end of Test Year
1	Gross Utility												
2	Plant in Service	$ 8,464,745	(8,597)	(145,152)	17,348	339,833							$ 8,668,177
3													
4	**Less:**												
5	Accumulated												
6	Depreciation	4,366,379		(15,711)									4,350,668
7													
8													
9	Net Utility Plant												
10	in Service	$ 4,098,366	$ (8,597)	$ (129,441)	$ 17,348	$ 339,833	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,317,509
11													
12	**Less:**												
13	Advances in Aid of												
14	Construction	1,315,900				(4,551)							1,311,349
15													
16	Contributions in Aid of												
17	Construction (CIAC)	5,346,615				344,384					(833,367)		4,857,632
18													
19													
20	Accum. Amortization of CIAC	(3,308,578)										(21,322)	(3,329,900)
21													
22													
23	Customer Meter Deposits	(3,000)					(3,000)						(6,000)
24	Deferred Income Taxes	-											-
25	Investment Tax Credits	-											-
26													
27													
28	**Plus:**												
29	Unamortized Finance												
30	Charges	-											-
31	Prepaids	9,512								(9,512)			-
32	Deferred Tax Asset	-						163,841					163,841
33	Allowance for Working Capital	130,508							(130,508)				-
34													
35	Total	$ 887,449	$ (8,597)	$ (129,441)	$ 17,348	$ -	$ 3,000	$ 163,841	$ (130,508)	$ (9,512)	$ 833,367	$ 21,322	$ 1,648,269
36													
37													
38													
39													
40													
41	SUPPORTING SCHEDULES:												
42	Rebuttal B-2, pages 3-12												
43													
44													
45													
46													

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Original Cost Rate Base Proforma Adjustments
Adjustment 1

Exhibit
Rebuttal Schedule B-2
Page 3
Witness: Bourassa

Line No.			
1	Post Test Year Plant		
2			
3			
4	Post Tesy Year Plant Per Direct Filing	$	94,296
5	Rebuttal Post Test Year Plant		85,699
6			
7			
8	Increase (Decrease) to Plant-in-service	$	(8,597)
9	(RUCO Adjustment # 2)		
10			
11			
12			
13			
14	Increase (Decrease) to Plant-in-service	$	(8,597)
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Original Cost Rate Base Proforma Adjustments
Adjustment 2

Exhibit
Rebuttal Schedule B-2
Page 4
Witness: Bourassa

Line No.			
1	Allocated Computer Equipment - Adjustment to Plant-in-Service and Accumulated Depreciation		
2			
3	Staff Adjustment #2 for allocated computer equipment (Account 390)	$	(145,152)
4			
5			
6	Increase (Decrease) to Plant-in-Service	$	(145,152)
7			
8	Staff Adjustment #2 for allocated computer equipment	$	(15,711)
9			
10			
11	Increase (Decrease) to Accumulated Depreciation	$	(15,711)
12			
13			
14			
15			
16			
17			
18			
19			
20			

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Original Cost Rate Base Proforma Adjustments
Adjustment 3

Exhibit
Rebuttal Schedule B-2
Page 5
Witness: Bourassa

Line No.				
1	Expensed Plant Capitalized to Plant-in-Service			
2				
3	Acct No.	Description		Amount
4	353	Land and Land Rights	$	-
5	354	Structures and Improvements		-
6	355	Power Generation Equipment		-
7	360	Collection Sewers - Force		-
8	361	Collection Sewers - Gravity		7,286
9	362	Special Collecting Structures		-
10	363	Services to Customers		-
11	364	Flow Measuring Devices		-
12	365	Flow Measuring Installations		-
13	370	Receiving Wells		-
14	371	Eff;uent Pumping Equipment		2,213
15	381	Plant Sewers		2,790
16	389	Other Plant and Misc. Equipment		5,059
17	390	Office Furniture and Equipment		-
18	391	Transportation Equipment		-
19	394	Laboratory Equipment		-
20				
21		Total	$	17,348
22				
23				
24				
25	Increase (Decrease) to Plant-in-Service		$	17,348
26				
27				
28				
29	SUPPORTING SCHEDULES			
30	Rebuttal B-2, page 4a-4b			
31				
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Black Mountain Sewer Company
Test Year Ended December 31, 2004
Original Cost Rate Base Proforma Adjustments
Adjustment 3

FROM Schedule CSB-7, Page 1 of 2

Exhibit
Rebuttal Schedule B-2
Page 5a
Witness: Bourassa

RATE BASE ADJUSTMENT NO. 3 - EXPENSED PLANT

LINE NO.	Plant Account Number	Description	[A] COMPANY AS FILED	[B] COMPANY ADJUSTMENTS	[C] COMPANY AS ADJUSTED (Col A + Col B)
1	361	Collection Sewers, Gravity	$ 3,608,619	$ 7,286	$ 3,615,905
2	371	Effluent Pumping Equipment	$ 451,705	$ 2,213	$ 453,918
3	381	Plant Sewers	$ 121,651	$ 2,790	$ 124,441
4	389	Other Plant & Misc Equip	$ 738,804	$ 5,059	$ 743,863
5		Total	$ 4,920,779	$ 17,348	$ 4,938,127

FROM CONTRACTUAL SERVICES , OTHER EXPENSE (CSB 1.37)

	Acct. No.	Vendor Name	Description	Amount	Agree	Disagree	Explanation
6	361-Collection Sewers	Jensen System Engineering	Algonquin Indian Basket Alarm	$ 1,499.01	$ 1,499.01		
7	361-Collection Sewers	Keller Equipment Company	Pull and Install Motors	$ 1,947.71	$ 1,947.71		
8	361-Collection Sewers	Keller Equipment Company	Rebuild Motor/Pump	$ 1,119.65	$ 1,119.65		
9	361-Collection Sewers	KSK Electric	Replace Meter Socket	$ 1,315.00	$ 1,315.00		
10	361-Collection Sewers	LTC, Inc.	Concrete Pad & Drain for Manhole	$ 1,404.92	$ 1,404.92		
11			Subtotal	$ 7,286.29	$ 7,286.29	$ -	
12	371-Effluent Pumping Plant	Keller Equipment Company	Change out Pumps	$ 551.62	$ 551.62		
13	371-Effluent Pumping Plant	Keller Equipment Company	Pull Pump. Set New Pump	$ 1,095.40	$ 1,095.40		
14			Subtotal	$ 1,647.02	$ 1,647.02	$ -	
15	381-Plant Sewers	Foster Electric Motor Service	Install Outlets in Vault	$ 589.57	$ 589.57		
16	381-Plant Sewers	KSK Electric	Boulder Facility Lighting Repair Proj.	$ 2,200.00	$ 2,200.00		
17			Subtotal	$ 2,789.57	$ 2,789.57	$ -	
18			Total	$ 11,722.88	$ 11,722.88	$ -	

FROM RENTS EXPENSE (CSB 1.38)

	Acct. No.	Vendor Name	Description	Amount		
19	371-Effluent Pumping Plant	Pump Systems, Inc.	Replace Pump	$ 566.13	$ 566.13	
20			Total	$ 566.13	$ 566.13	$ -

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Original Cost Rate Base Proforma Adjustments
Adjustment 3

Exhibit
Rebuttal Schedule B-2
Page 5b
Witness: Bourassa

FROM Schedule CSB-7, Page 2 of 2

References:
Column A: Company Schedule E-5
Column B: Testimony, CSB, Company Data Request Responses CSB 1.37, 1.38,1.40, & 7.13
Column C: Column [A] + Column [B]

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Original Cost Rate Base Proforma Adjustments

Schedule CSB-7
Page 2 of 2

RATE BASE ADJUSTMENT NO. 3 - EXPENSED PLANT
CONTINUED

LINE NO.	FROM MISCELLANEOUS EXPENSE (CSB 1.40) Maricopa County Environ. Serv. Dept, Approval to Construct Expedited Fees						
	Acct. No	Project Title	Description	Amount	Agree	Disagree	Explanation
1	389-Other Plant & Misc Equi	Boulders West WWTP Bypass	Reclaimed Water Line	$ 500.00	$ 500.00		
2	389-Other Plant & Misc Equi	Boulders West Effluent Pump	Addition of pumps	$ 700.00	$ 700.00		
3	371-Effluent Pumping Plant	Indian Basket Lift Station	Replace Existing Lift Station	$ *700.00*		$ *700.00*	Already capitalized (8100-2-0000-10-1618-9999, FWO # *20004-000218*)
4	389-Other Plant & Misc Equi	Boulders West WWTP Bypass	Add Stucture and Manhole	$ 2,000.00		$ 2,000.00	Already capitalized (8100-2-0000-10-1618-9999, FWO # 20004-000204)
5			Subtotal	$ 3,900.00	$ 1,200.00	$ 2,700.00	
6	389-Other Plant & Misc Equi	Safety Equipment	Company Response to CSB 2.13b	$ 2,184.75	$ 2,184.75		
7			Total	$ 6,084.75	$ 3,384.75	$ 2,700.00	

	FROM MATERIALS AND SUPPLIES EXPENSE (CSB 7.13)						
	Acct. No.	Vendor Name	Description	Amount	Agree	Disagree	Explanation
8	389-Other Plant & Misc Equi	Arizona Pneumatic Systems	Blower	$ 1,674.47	$ 1,674.47		
9			Total	$ 1,674.47	$ 1,674.47	$ -	

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Original Cost Rate Base Proforma Adjustments
Adjustment 4
Computed CIAC and AIAC Balances per Company

Exhibit
Rebuttal Schedule B-2
Page 6
Witness: Bourassa

Line No.		Plant	CIAC	Ref	AIAC	Ref
1	**Balance Reported by Company - Direct**	$ 8,464,745	$ (5,800,321)		$ (1,315,900)	
2	Less: Scottsdale Capacity CIAC		453,706.00			
3	Unrecorded Carefree Ironwood Assets	103,997.00	(103,997.00)	A		
4	Unrecorded TCC Carefree - Condos at Carefree Inn Ass	235,836.00	(90,291.21)	B	(145,544.79)	C
5	Subtotal (CIAC = Staff Corrected CIAC)[See Note 1]	$ 8,804,578	**$ (5,540,903)**		$ (1,461,445)	
6	Reclass pre-1994 AIAC agreements		(150,095.64)	D	150,095.64	E
7	**Adjusted Balances per Company**	$ 8,804,578	$ (5,690,999)		$ (1,311,349)	
8						
9						
10	**Record Unrecorded Plant**					
11	Reference item [A]		$ 103,997			
12	Reference item [B]		90,291			
13	Reference item [C]		145,545			
14	Increase (decrease) to Plant-in-Service		$ 339,833	**4a**		
15						
16	**Record Unrecorded CIAC**					
17	Reference item [A]		$ 103,997			
18	Reference item [B]		90,291			
19						
20	Increase (decrease) to CIAC		$ 194,288	**4b**		
21						
22	**Record Unrecorded AIAC**					
23	Reference item [C]		145,545			
24						
25						
26	Increase (decrease) to AIAC		$ 145,545	**4c**		
27						
28	**Record Expired AIAC Contracts**					
29	Reference item [D]		150,096			
30						
31						
32	Increase (decrease) to CIAC		$ 150,096	**4d**		
33						
34	**Record Expired AIAC Contracts**					
35	Reference item [E]		(150,096)			
36						
37						
38	Increase (decrease) to AIAC		$ (150,096)	**4e**		
39						
40						
41						
42						
43						
44	**Note 1**					
45	**CIAC Balance per Staff CSB-8** (Schedule CSB-8, Page 1, Column G, Line 19)		$ (5,642,748)			
46	Hook-up Fees Jan 94 to June 94					
47	erroneously included in Staff's CIAC Balance		101,845.00			
48	**Staff Corrected CIAC Balance**		$ (5,540,903)			
49						
50						

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Original Cost Rate Base Proforma Adjustments
Adjustment #5

Exhibit
Rebuttal Schedule B-2
Page 7
Witness: Bourassa

Line No.			
1	Customer Deposits		
2			
3	Remove amounts erroneously identified as customer deposits	$	(3,000)
4			
5			
6			
7			
8			
9	Increase (Decrease) to Plant-in-service	$	(3,000)
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Original Cost Rate Base Proforma Adjustments
Adjustment 6
Deferred Income Taxes

Exhibit
Rebuttal Schedule B-2
Page 8
Witness: Bourassa

Line No.		
1	**Deferred Tax Analysis**	
2	**December 31, 2004**	
3		
4		
5	Accounting Basis at end of year (Note 1)	$ 3,632,095
6		
7	Tax basis of capital assets at end of year (Note 1)	2,727,656
8		
9	Timing Difference	$ (904,439)
10		
11	Tax rate	39.82%
12		
13	Defered tax liability (1)	$ (360,142)
14		
15		
16		
17	AIAC End of Year (Accounting Basis)	$ (1,315,900)
18		
19	AIAC End of Year (Tax Basis)	-
20		
21	Timing Difference	1,315,900
22		
23	Tax rate	39.82%
24		
25	Defered tax Asset (2)	$ 523,983
26		
27		
28	Net Deferred Tax Asset [(1) plus (2)]	$ 163,841
29		
30	Deferred Income Tax Asset Direct	$ -
31		
32	Increase (Decrease) in Deferred tax Asset	$ 163,841
33		
34		
35	Note 1 - Calculation of Plant Book and Tax Basis	
36		

37		Tax	Book
38	Plant in Service		$ 8,370,448
39	WIP		103,804
40	Scottsdale Plant		1,913,706
41	CIAC		(5,800,321)
42	Amort on CIAC		3,486,218
43	Asset Cost	$ 5,768,359	$ 8,073,855
44	Accum	(3,040,703)	(4,441,760)
45	NBV	$ 2,727,656	$ 3,632,095
46			

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Original Cost Rate Base Proforma Adjustments
Adjustment #7

Exhibit
Rebuttal Schedule B-2
Page 9
Witness: Bourassa

Line No.		
1	Remove Working Capital Allowance	
2		
3		
4	Requested Working Capital	$ -
5	Working Capital per Direct Filing	130,508
6	Increase (decrease)	(130,508)
7		
8		
9	Increase (Decrease) to Plant-in-service	$ (130,508)
10		
11		
12		
13	SUPPORTING SCHEDULES	
14	*Rebuttal B-5*	
15		
16		
17		
18		
19		
20		

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Original Cost Rate Base Proforma Adjustments
Adjustment #8

Exhibit
Rebuttal Schedule B-2
Page 10
Witness: Bourassa

Line No.			
1	Remove Prepaids		
2			
3	Prepaids proposed per Direct Filing	$	9,512
4			
5			
6			
7			
8			
9	Increase (Decrease) to Prepaids	$	(9,512)
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Original Cost Rate Base Proforma Adjustments
Adjustment #9

Exhibit
Rebuttal Schedule B-2
Page 11
Witness: Bourassa

Line No.			
1	Remove Land and Unexpended CIAC Funds from CIAC - Amounts to be refunded to ratepayers		
2			
3			
4	*Land purchased with CIAC funds in 2001*		$ 452,467
5	Unexpended CIAC Funds at end of Test Year		
6	8100-2-0000-10-1020-0162 Bank One - Capacity - BMSC	$ 26,853	
7	8100-2-0000-10-1060-0000 Restricted Cash - BMSC	354,047	
8			380,900
9	Total		$ 833,367
10			
11			
12			
13	Increase (Decrease) to CIAC		$ (833,367)
14			
15			
16			
17			
18			
19			
20			

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Original Cost Rate Base Proforma Adjustments
Adjustment 10
CIAC and Accumulated Amortization

Exhibit
Rebuttal Schedule B-2
Page 12
Witness: Bourassa

Line No.		CIAC	Amortization Rate	Amortization	Accumulated Amortization
1	Balance at 6/30/1994	$ 3,127,264			$ 1,121,838
2	July-Dec Amortization		2.50%	78,182	1,200,020
3	July-Dec Additions	116,507	2.50%	2,913	1,202,932
4					1,202,932
5	Balance at 12/31/1994	$ 3,243,771			1,202,932
6	Jan-Dec Amortization		5.00%	162,189	1,365,121
7	1995 Additions	115,813	2.50%	2,895	1,368,016
8					1,368,016
9	Balance at 12/31/1995	$ 3,359,584			1,368,016
10	Scottsdale Capacity	(300,000)			1,368,016
11	Adjusted 1995 Balance	$ 3,059,584			1,368,016
12	Jan-Dec Amortization		5.00%	152,979	1,520,995
13	1996 Additions	167,896	2.50%	4,197	1,525,193
14					1,525,193
15	Balance at 12/31/1996	$ 3,227,480			1,525,193
16	Scottsdale Capacity	(153,706)			1,525,193
17	Adjusted 1996 Balance	3,073,774			1,525,193
18	Jan-Dec Amortization		5.00%	161,374	1,686,567
19	1997 Additions	172,749	2.50%	4,319	1,690,885
20					1,690,885
21	Balance at 12/31/1997	$ 3,246,523			1,690,885
22	Jan-Dec Amortization		5.00%	162,326	1,853,212
23	1998 Additions	571,001	2.50%	14,275	1,867,487
24					1,867,487
25	Balance at 12/31/1998	$ 3,817,524			1,867,487
26	Jan-Dec Amortization		5.00%	190,876	2,058,363
27	Expired AIAC Contracts	150,096	2.50%	3,752	2,062,115
28	1999 Additions	319,182	2.50%	7,980	2,070,095
29					2,070,095
30	Balance at 12/31/1999	$ 4,286,802			2,070,095
31	Jan-Dec Amortization		5.00%	214,340	2,284,435
32	2000 Additions	405,077	2.50%	10,127	2,294,562
33					2,294,562
34	Balance at 12/31/2000	$ 4,691,879			2,294,562
35	Jan-Dec Amortization		5.00%	234,594	2,529,156
36					2,529,156
37	2001 Additions	489,269	2.50%	12,232	2,541,387
38					2,541,387
39	Balance at 12/31/2001	$ 5,181,148			2,541,387
40	Jan-Dec Amortization		5.00%	259,057	2,800,445
41	2002 Additions	110,490	2.50%	2,762	2,803,207
42					2,803,207
43	Balance at 12/31/2002	$ 5,291,638			2,803,207
44	Jan-Dec Amortization		5.00%	264,582	3,067,789
45	2003 Additions	167,582	2.50%	4,190	3,071,978
46					3,071,978
47	Balance at 12/31/2003	$ 5,459,219			3,071,978
48	Jan-Dec Amortization		5.00%	272,961	3,344,939
49	Unexpended CIAC	$ (380,900)	2.50%	(9,523)	3,335,417
50	Land	(452,467)	2.50%	(11,312)	3,324,105
51	2004 Additions	231,780	2.50%	5,794	3,329,900
52					3,329,900
53	Balance at 12/31/2004	$ 5,310,099			$ 3,329,900
54					
55	Adjusted Balance Per Direct				$ 3,308,578
56					
57	Decrease(Increase) in Accumulated Amortization				$ (21,322)

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Computation of Working Capital

Exhibit
Rebuttal Schedule B-5
Page 1
Witness: Bourassa

Line No.			
1	Cash Working Capital (1/8 of Allowance		
2	Operation and Maintenance Expense)	$	117,598
3	Pumping Power (1/24 of Pumping Power)		41
4	Purchased Water (1/24 of Purchased Water)		6,753
5			
6			
7			
8			
9	Total Working Capital Allowance	$	124,392
10			
11			
12	Working Capital Requested	$	-
13			
14			
15	SUPPORTING SCHEDULES:	RECAP SCHEDULES:	
16		Rebuttal B-1	
17			

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Income Statement

Exhibit
Schedule C-1
Page 1
Witness: Bourassa

Line No.		Adjusted Book Results	Adjustments	Rebuttal Adjusted Results	Proposed Rate Increase	Adjusted with Rate Increase
1	**Revenues**					
2	Flat Rate Revenues	$ 1,191,268	$ (2,288)	$ 1,188,980	$ 272,889	$ 1,461,869
3	Measured Revenues	-	-	-		-
4	Other Wastewater Revenues	16,472	-	16,472		16,472
5		$ 1,207,740	$ (2,288)	$ 1,205,452	$ 272,889	$ 1,478,341
6	**Operating Expenses**					
7	Salaries and Wages	$ -	-	$ -		$ -
8	Purchased Wastewater Treatment	162,082	-	162,082		162,082
9	Sludge Removal Expense	981	-	981		981
10	Purchased Power	47,727	-	47,727		47,727
11	Fuel for Power Production	-	-	-		-
12	Chemicals	76,612	-	76,612		76,612
13	Materials and Supplies	30,420	(1,860)	28,560		28,560
14	Contractual Services - Professional	171,683	(28,144)	143,539		143,539
15	Contractual Services - Testing	11,000	-	11,000		11,000
16	Contractual Services - Other	226,595	(12,201)	214,394		214,394
17	Rents	10,825	(566)	10,259		10,259
18	Transportation Expenses	4,870	(2,200)	2,670		2,670
19	Insurance - General Liability	16,204	-	16,204		16,204
20	Regulatory Commission Expense	30,000	7,500	37,500		37,500
21	Miscellaneous Expense	77,401	(10,446)	66,955		66,955
22	Scottsdale Capacity- Lease	189,622	-	189,622		189,622
23	Depreciation	126,749	6,494	133,243		133,243
24	Taxes Other Than Income	-	-	-		-
25	Property Taxes	45,745	1,273	47,017		47,017
26	Income Tax	(6,544)	12,947	6,403	102,263	108,666
27						
28	**Total Operating Expenses**	$ 1,221,973	$ (27,204)	$ 1,194,769	$ 102,263	$ 1,297,031
29	**Operating Income**	$ (14,233)	$ 24,916	$ 10,683	$ 170,626	$ 181,310
30	**Other Income (Expense)**					
31	Interest Income	-		-		-
32	Other income	-		-		-
33	Interest Expense	-		-		-
34	Other Expense	-		-		-
35						
36	**Total Other Income (Expense)**	$ -	$ -	$ -	$ -	$ -
37	**Net Profit (Loss)**	$ (14,233)	$ 24,916	$ 10,683	$ 170,626	$ 181,310
38						
39						
40						
41	SUPPORTING SCHEDULES:				RECAP SCHEDULES:	
42	Rebuttal C-1, Page 2				Rebuttal A-1	
43	Rebuttal C-2					

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Income Statement

Exhibit
Rebuttal Schedule C-1
Page 2
Witness: Bourassa

Line No.		ADJUSTMENT LABEL->>	Adjusted Book Results	1 Capitalized Expenses	2 Non-recurring Truck Expenses	3 Rate Case Expense	4 Food Beverages	5 ACC Assess	6 Normalize Mgmt Fee	7 Long Distance	8 Depreciation Expense	9 Property Tax	10 Bad Debt Expense	11 Income Tax	Rebuttal Adjusted Results	Proposed Rate Increase	Adjusted with Rate Increase
1	**Revenues**																
2	Flat Rate Revenues		$ 1,191,268					$ (2,288)							$ 1,188,980	$ 272,889	$ 1,461,869
3	Measured Revenues		-												-		-
4	Other Wastewater Revenues		16,472												16,472		16,472
5			$ 1,207,740	$ -	$ -	$ -	$ -	$ (2,288)	$ -	$ -	$ -	$ -		$ -	$ 1,205,452	$ 272,889	$ 1,478,341
6	**Operating Expenses**																
7	Salaries and Wages		$ -												$ -		$ -
8	Purchased Wastewater Treatment		162,082												162,082		162,082
9	Sludge Removal Expense		981												981		981
10	Purchased Power		47,727												47,727		47,727
11	Fuel for Power Production		-												-		-
12	Chemicals		76,612												76,612		76,612
13	Materials and Supplies		30,420	(1,674)			(186)								28,560		28,560
14	Contractual Services - Professional		171,683						(28,144)						143,539		143,539
15	Contractual Services - Testing		11,000												11,000		11,000
16	Contractual Services - Other		226,595	(11,723)			(478)								214,394		214,394
17	Rents		10,825	(566)											10,259		10,259
18	Transportation Expenses		4,870		(2,200)										2,670		2,670
19	Insurance - General Liability		16,204												16,204		16,204
20	Regulatory Commission Expense		30,000			7,500									37,500		37,500
21	Miscellaneous Expense		77,401	(3,385)				(2,288)		(520)			(4,253)		66,955		66,955
22	Scottsdale Capacity- Lease		189,622			-									189,622		189,622
23	Depreciation		126,749								6,494				133,243		133,243
24	Taxes Other Than Income		-												-		-
25	Property Taxes		45,745									1,273			47,017		47,017
26	Income Tax		(6,544)											12,947	6,403	102,263	108,666
27			-												-		-
28	**Total Operating Expenses**		$ 1,221,973	$ (17,348)	$ (2,200)	$ 7,500	$ (664)	$ (2,288)	$ (28,144)	$ (520)	$ 6,494	$ 1,273	$ (4,253)	$ 12,947	$ 1,194,769	$ 102,263	$ 1,297,031
29	**Operating Income**		$ (14,233)	$ 17,348	$ 2,200	$ (7,500)	$ 664	$ -	$ 28,144	$ 520	$ (6,494)	$ (1,273)	$ 4,253	$ (12,947)	$ 10,683	$ 170,626	$ 181,310
30	**Other Income (Expense)**																
31	Interest Income		-												-		-
32	Other income		-												-		-
33	Interest Expense		-												-		-
34	Other Expense		-												-		-
35			-												-		-
36	**Total Other Income (Expense)**		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
37	**Net Profit (Loss)**		$ (14,233)	$ 17,348	$ 2,200	$ (7,500)	$ 664	$ -	$ 28,144	$ 520	$ (6,494)	$ (1,273)	$ 4,253	$ (12,947)	$ 10,683	$ 170,626	$ 181,310
38																	
39																	
40																	
41	SUPPORTING SCHEDULES:																
42	Rebuttal C-2																
43																	

RECAP SCHEDULES:
Rebuttal A-1

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Adjustments to Revenues and Expenses

Exhibit
Schedule C-2
Page 1
Witness: Bourassa

Line No.		Adjustments to Revenues and Expenses						
		1	2	3	4	5	6	
1		Capitalized	Non-recurring	Rate	Food	ACC	Normalize	
2		Expenses	Truck Expense	Case Expense	Beverages	Assess	Mngmt Fees	Subtotal
3	Revenues					(2,288)		(2,288)
4								
5	Expenses	(17,348)	(2,200)	7,500	(664)	(2,288)	(28,144)	(43,144)
6								
7	Operating							
8	Income	17,348	2,200	(7,500)	664	-	28,144	40,856
9								
10	Interest							-
11	Expense							-
12	Other							
13	Income /							-
14	Expense							
15								
16	Net Income	17,348	2,200	(7,500)	664	-	28,144	40,856
17								
18								
19		Adjustments to Revenues and Expenses						
20		7	8	9	10	11	12	
21		Long	Depreciation	Property	Bad	Income		
22		Distance	Expense	Tax	Debt Expense	Tax		Subtotal
23	Revenues							(2,288)
24								
25	Expenses	(520)	6,494	1,273	(4,253)	12,947		(27,204)
26								
27	Operating							
28	Income	520	(6,494)	(1,273)	4,253	(12,947)	-	24,916
29								
30	Interest							
31	Expense							-
32	Other							
33	Income /							-
34	Expense							
35								
36	Net Income	520	(6,494)	(1,273)	4,253	(12,947)	-	24,916
37								
38								
39		Adjustments to Revenues and Expenses						
40		13	14	15	16	17	18	
41								
42								Total
43	Revenues							(2,288)
44								
45	Expenses							(27,204)
46								
47	Operating							
48	Income	-	-	-	-	-	-	24,916
49								
50	Interest							
51	Expense							-
52	Other							
53	Income /							-
54	Expense							
55								
56	Net Income	-	-	-	-	-	-	24,916

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Adjustment to Revenues and Expenses
Adjustment Number 1

Exhibit
Rebuttal Schedule C-2
Page 2
Witness: Bourassa

Line No.				
1	Remove Expensed Plant			
2				
3			Label	
4	Materials and Supplies	(1,674)	1a	
5	Contractual Services - Other	(11,723)	1b	
6	Rents	(566)	1c	
7	Miscellaneous Expense	(3,385)	1d	
8	Total			$ (17,348)
9				
10				
11				
12	Adjustment to Revenues/Expenses			$ (17,348)
13				
14				
15	SUPPORTING SCHEDULE			
16	Rebuttal B-2, Page 2-3			
17				
18				
19				
20				

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Adjustment to Revenues and Expenses
Adjustment Number 2

Exhibit
Rebuttal Schedule C-2
Page 3
Witness: Bourassa

Line No.			
1	Remove Transporation Expense		
2			
3			
4	Non-recurring Transportation Expense per Staff Adj #5 CSB -18	$	(2,200)
5			
6			
7			
8	Adjustment to Revenues/Expenses	$	(2,200)
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Adjustment to Revenues and Expenses
Adjustment Number 3

Exhibit
Rebuttal Schedule C-2
Page 4
Witness: Bourassa

Line No.			
1	Increase in Estimated Rate Case Expense		
2			
3			
4	Revised rate Case Expense	$	150,000
5	Rate Case Expense per Direct Filing		120,000
6			
7	Increase (Decrease) in Total Rate Case Expense	$	30,000
8			
9	Amorization Period (years)		4
10			
11	Increase (Decrease) in Rate Case Expense	$	7,500
12			
13	Adjustment to Revenues/Expenses	$	7,500
14			
15			
16			
17			
18			
19			
20			

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Adjustment to Revenues and Expenses
Adjustment Number 4

Exhibit
Rebuttal Schedule C-2
Page 5
Witness: Bourassa

Line No.		
1	Remove Food and Beverages Expense	
2		
3	Contractual Services - Other (per Staff Adj. # 7, CSB-20)	$ (478)
4	Materials and Supplies (per Staff Adj. #7, CSB-20)	(186)
5		
6	Total	$ (664)
7		
8		
9		
10		
11	Adjustment to Revenues/Expenses	$ (664)
12		
13		
14		
15		
16		
17		
18		
19		
20		

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Adjustment to Revenues and Expenses
Adjustment Number 5

Exhibit
Rebuttal Schedule C-2
Page 6
Witness: Bourassa

Line No.			
1	Remove ACC Assessment		
2			
3	Miscellaneous Expense (per Staff Adj #10, CSB -13)(1)	$	(2,288)
4			
5			
6			
7			
8			
9			
10			
11	Adjustment to Revenues/Expenses	$	(2,288)
12			
13			
14	(1) Note removed from both expense and revenues beceuase it is a pass through to customers.		
15			
16			
17			
18			
19			
20			

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Adjustment to Revenues and Expenses
Adjustment Number 6

Exhibit
Rebuttal Schedule C-2
Page 7
Witness: Bourassa

Line No.			
1	Normalise Management Fee		
2			
3	Normalized Management Fee (per RUCO Adj. #3, WAR 4)	$	18,000
4	Amount per Direct Filing		42,500
5			
6	Increase (Decrease) in Management Fee	$	(24,500)
7			
8	Other Affiliate Costs from Staff Adj. #2		(3,644)
9			
10			
11	Adjustment to Revenues/Expenses	$	(28,144)
12			
13			
14			
15			
16			
17			
18			
19			
20			

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Adjustment to Revenues and Expenses
Adjustment Number 7

Exhibit
Rebuttal Schedule C-2
Page 8
Witness: Bourassa

Line No.			
1	Remove Long Distance Charges		
2			
3	Miscellaneous Expense (per RUCO Adj #4, WAR-5)	$	(520)
4			
5			
6			
7			
8			
9			
10			
11	Adjustment to Revenues/Expenses	$	(520)
12			
13			
14			
15			
16			
17			
18			
19			
20			

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Adjustments to Revenues and Expenses
Adjustment Number 10

Exhibit
Rebuttal Schedule C-2
Page 9
Witness: Bourassa

Line No.													
1	Depreciation Expense												
2													
3	Account		Direct	From	From	From	From	From					
4	No.	Description	Adjusted Original Cost	B-2 Adj. #1 PTY Plant	B-2 Adj. #2 Allocated Comp. Equip.	B-2 Adj. #3 Capitalised Expenses	B-2 Adj. #4 Plant AIAC/CIAC	B-2 Adj. # CIAC	Rebuttal Adjusted Original Cost	Proposed Rates	Depreciation Expense
5	351	Organization	-						-	0.00%	-
6	352	Franchises	-						-	0.00%	-
7	353	Land and Land Rights	461,446						461,446	0.00%	-
8	354	Structures and Improvements	1,245,292						1,245,292	3.33%	41,468
9	355	Power Generation Equipment	-						-	5.00%	-
10	360	Collection Sewers - Force	228,785				339,833		568,618	2.00%	11,372
11	361	Collection Sewers - Gravity	3,608,619			7,286			3,615,905	2.00%	72,318
12	362	Special Collecting Structures	-						-	2.00%	-
13	363	Services to Customers	158,802						158,802	2.00%	3,176
14	364	Flow Measuring Devices	39,878						39,878	10.00%	3,988
15	365	Flow Measuring Installations	158,358						158,358	10.00%	15,836
16	370	Receiving Wells	696,506						696,506	3.33%	23,194
17	371	Eff;uent Pumping Equipment	451,705			2,913			454,618	12.50%	56,827
18	380	Treatment and Disposal Equipment	-						-	5.00%	-
19	381	Plant Sewers	121,651			2,790			124,441	5.00%	6,222
20	382	Outfall Sewer Lines	-						-	3.33%	-
21	389	Other Plant and Misc. Equipment	738,804			7,059			745,863	6.67%	49,749
22	390	Office Furniture and Equipment	365,512		(145,152)				220,360	6.67%	14,698
23	391	Transportation Equipment	87,811						87,811	20.00%	17,562
24	393	Tools, Shop and Garage Equipment.	-						-	5.00%	-
25	394	Laboratory Equipment	7,279						7,279	10.00%	728
26	395	Power Operated Equipment	-						-	5.00%	-
27	398	Other TangiblePlant	-						-	10.00%	-
28											
29											
30		TOTALS	$ 8,370,448	$ -	$ (145,152)	$ 20,048	$ 339,833	$ -	$ 8,585,177		$ 317,138
31											
32	***Post Test Year Plant per B-2***										
33	361	Collection Sewers - Gravity	$ 24,706	$ (24,706)					$ -	2.00%	-
34	389	Other Plant and Misc. Equipment	69,590	16,109					85,699	6.67%	5,716
35											-
36	Total PTY Plant		$ 94,297	$ (8,598)	$ -	$ -	$ -	$ -	$ 85,699		$ 5,716
37											
38	Less: Amortization of Contributions - Balance End of TY (net		$ 5,346,615				$ 344,384	$ (833,367)	$ 4,857,632	3.9034%	$ (189,611)
39											
40											
41	Total Depreciation Expense										$ 133,243
42											
43	Adjusted Test Year Depreciation Expense Direct Filing										126,749
44											
45	Increase (decrease) in Depreciation Expense										6,494
46											
47	Adjustment to Revenues and/or Expenses										$ 6,494
48											

Line No.			
1	Adjust Property Taxes to Reflect Proposed Revenues:		
2			
3	Adjusted Revenues in year ended 12/31/04	$	1,207,740
4	Adjusted Revenues in year ended 12/31/04		1,205,452
5	Proposed Revenues		1,478,341
6	Average of three year's of revenue	$	1,297,178
7	Average of three year's of revenue, times 2	$	2,594,355
8	Add:		
9	Construction Work in Progess at 10%	$	-
10	Deduct:		
11	Book Value of Transportation Equipment		7,279
12			
13	Full Cash Value	$	2,587,076
14	Assessment Ratio		24%
15	Assessed Value		620,898
16	Property Tax Rate		7.5725%
17			
18	Property Tax		47,017
19	Tax on Parcels		0
20			
21	Total Property Tax at Proposed Rates	$	47,017
22	Property Taxes per Direct Filing		45,745
23	Change in Property Taxes	$	1,273
24			
25			
26	Adjustment to Revenues and/or Expenses	$	1,273
27			
28			

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Adjustment to Revenues and Expenses
Adjustment Number 10

Exhibit
Schedule C-2
Page 11
Witness: Bourassa

Line No.			
1	Bad Debt Expense		
2			
3	Bad Debt Written off in 2005 related to 2004 Receivables	$	1,673
4	Bad Debt Expense per Direct Filing		5,926
5		$	(4,253)
6	Increase (Decrease) in Bad Debt Expense		
7			
8			
9			
10			
11			
12	Adjustment to Revenues/Expenses	$	(4,253)
13			
14			
15			
16			
17			
18			
18			
19			
19			
20			

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Adjustment to Revenues and Expenses
Income Tax Calculation
Adjustment 11

Exhibit
Schedule C-2
Page 12
Witness: Bourassa

Line No.		Test Year Book Results	Test Year Adjusted Results		Adjusted with Rate Increase	
1						
2	**Net Income**		$ 10,683		$ 181,310	
3	**Plus:**					
4	Income Taxes		$ 6,403		$ 108,666	
5	Operating Lease		$ -		$ -	
6	Synchronized Interest with Rate Base		$ -		$ -	
7	Taxable Income	(20,776)	$ 17,086		$ 289,975	
8						
9						
10						
11	Income Before Taxes	(20,776)	17,086		289,975	
12	Arizona Income Before Taxes	(20,776)	17,086		289,975	
13						
14	Less Arizona Income Tax	(1,448)	1,191		20,205	
15	R@6.97%					
16						
17	Arizona Taxable Income	(19,329)	15,896		269,770	
18	Arizona Income Taxes	(1,448)	1,191		20,205	
19						
20	Federal Income Before Taxes	(20,776)	17,086		289,975	
21						
22	Less Arizona Income Taxes	(1,448)	1,191		20,205	
23						
24	Federal Taxable Income	(19,329)	15,896		269,770	
25						
26						
27						
28	FEDERAL INCOME TAXES:					
29	15% BRACKET	(2,899)	2,384		7,500	
30	25% BRACKET	-	-		6,250	
31	34% BRACKET	-	-	Federal	8,500	Federal
32	39% BRACKET	-	-	Effective	66,210	Effective
33	34% BRACKET	-	-	Tax	-	Tax
34				Rate		Rate
35	Federal Income Taxes	(2,899)	2,384	13.95%	88,460	30.51%
36						
37						
38	Total Income Tax	(4,347)	3,575		108,666	
39						
40	Overall Tax Rate	20.92%	20.92%		37.47%	
41						
42	Income Tax at Proposed Rates Effective Rate		6,403			
43						
44						
45						

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Computation of Gross Revenue Conversion Factor

Exhibit
Rebuttal Schedule C-3
Page 1
Witness: Bourassa

Line No.	Description	Percentage of Incremental Gross Revenues
1	Federal Income Taxes	30.51%
2		
3	State Income Taxes	6.97%
4		
5	Other Taxes and Expenses	0.00%
6		
7		
8	Total Tax Percentage	37.47%
9		
10	Operating Income % = 100% - Tax Percentage	62.53%
11		
12		
13		
14		
15	1 = Gross Revenue Conversion Factor	
16	Operating Income %	1.5993
17		
18	SUPPORTING SCHEDULES:	RECAP SCHEDULES:
19		Rebuttal A-1
20		

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Summary of Cost of Capital

Exhibit
Schedule Rebuttal D-1
Page 1
Witness: Bourassa

Line No.	Item of Capital	End of Test Year Dollar Amount	Percent of Total	(e) Cost Rate	Weighted Cost	Adjusted End of Test Year Dollar Amount	Percent of Total	(e) Cost Rate	Weighted Cost
1	Long-Term Debt **(1)**	-	0.00%	9.40%	0.00%	-	0.00%	9.40%	0.00%
2									
3	Stockholder's Equity **(2)**	1,806,264	100.00%	11.00%	11.00%	1,806,264	100.00%	11.00%	11.00%
4									
5	Totals	1,806,264	100.00%		11.00%	1,806,264	100.00%		11.00%
6									
7	**(1) Excluded long-term debt for Scottsdale Treatment Capacity**	**$**	**1,184,732**	**.**					
8	**(2) Adjusted for correction to accummulated depreciation of**	**$**	**75,381**	**. See Direct Filing B-2 Page 3**					
9	**(3) Land**		***452,467***	**. *See Rebuttal B-2***					
10	**(4) Allocated Computer Equipment**	**$**	**(145,152)**	**. See Rebuttal B-2**					

11 SUPPORTING SCHEDULES: RECAP SCHEDULES:

Black Mountain Sewer Company
Revenue Summary
With Annualized Revenues to Year End Number of Customers
And Estimated Customer Growth
Test Year Ended December 31, 2004

Exhibit
Rebuttal Schedule H1
Witness: Bourassa

Line No.	Customer Classification and/or Meter Size	Present Revenues	Proposed Revenues	Dollar Change	Percent Change	Percent of Present Sewer Revenues	Percent of Proposed Sewer Revenues
1	Residential	768,816	941,597	172,781	22.47%	64.44%	64.42%
2	**Residential customer revenue**						
3	**annualized to end of year, based on**	17,328	21,222	3,894	22.47%	1.45%	1.45%
4	**year end number of customers**						
5	**ACC Assessment**	(2,288)	(2,288)				
6	Commercial (Standard Rate)	312,725	383,045	70,320	22.49%	26.21%	26.20%
7	Commercial (Special Rate)	81,967	100,397	18,430	22.48%	6.87%	6.87%
8	Effluent Sales	14,498	17,758	3,260	22.49%	1.22%	1.21%
9	Subtotals	1,193,046	1,461,731	268,686	22.52%	100.19%	100.16%
10	Misc Revenues	16,472	16,472				
11	Totals	1,209,518	1,478,203	268,686	22.21%	100.19%	100.16%

Black Mountain Sewer Company
Test Year Ended December 31, 2004
Analysis of Revenue by Detailed Class

Rebuttal Schedule H-2
Page 1
Witness: Bourassa

Line No.	Customer Classification	Average Number of Customers at 3/31/2000	Average Effluent	Revenues Present Rates	Revenues Proposed Rates	Proposed Increase Dollar Amount	Proposed Increase Percent Amount
1	Residential	1,724	N/A	$ 38.00	$ 46.54	$ 8.54	22.474%
2	Commercial (Standard Rate)	130	N/A	0.15236	0.18662	0.03426	22.486%
3	Commercial (Special Rate)						
4	B-H Enterprises (West)	-	N/A	$ 0.11685	$ 0.14312	$ 0.02627	22.482%
5	B-H Enterprises (East)	1	N/A	0.11685	0.14312	0.02627	22.482%
6	Barb's Per Grooming	-	N/A	0.11685	0.14312	0.02627	22.482%
7	Boulders Resort	1	N/A	0.11843	0.14506	0.02663	22.489%
8	Carefree Dental	-	N/A	0.11685	0.14312	0.02627	22.482%
9	Ridgecrest Realty	1	N/A	0.11818	0.14475	0.02657	22.483%
10	Desert Forest	1	N/A	0.13609	0.16669	0.03060	22.485%
11	Desert Hills Pharmacy	1	N/A	0.14206	0.17400	0.03194	22.483%
12	El Pedregal	1	N/A	0.11685	0.14312	0.02627	22.482%
13	Lemon Tree	1	N/A	0.14400	0.17638	0.03238	22.486%
14	Body Shop	1	N/A	0.14544	0.17814	0.03270	22.483%
15	Spanish Village	-	N/A	0.11685	0.14312	0.02627	22.482%
16	Boulders Club	-	N/A	0.11685	0.14312	0.02627	22.482%
17	Anthony Vuitaggio	1	N/A	0.12987	0.15907	0.02920	22.484%
18							
19	Effluent	1	3,226,904	$ 0.37440	$ 0.45859	$ 0.08419	22.485%
20							
21	Total	1,864					
22							
23							
24							
25							

Black Mountain Sewer Company
Present and Proposed Rates
Test Year Ended December 31, 2004

Exhibit
Rebuttal Schedule H3
Page 1
Witness: Bourassa

Line No.	Customer Classification and Meter Size		Present Rates	Present Rates	Proposed Rates	Proposed Rates	Percent Change
1							
2							
3							
4							
5	**Monthly Charge for:**						
6	Residential			$ 38.00		$ 46.54	22.4737%
7	Commercial (Standard Rate), per gallon per day[1]			0.15236		0.18662	22.4862%
8	Effluent Sales (per 1,000 gallons)		$122 per a.f.	0.37440	$149.43 per a.f.	0.45859	22.4853%
9							
10	Commercial (Special Rate), per gallon per day[1]						
11		Gallons	Monthly	Rate per	Monthly	Rate per	Percent
12	Customer	Per Day[1]	Billing	Gallon	Billing	Gallon	Change
13	B-H Enterprises	2,525	$ 295.05	0.11685	$ 361.39	$ 0.14312	22.4818%
14	B-H Enterprises	1,400	$ 163.59	0.11685	$ 200.37	0.14312	22.4818%
15	Barb's Per Grooming	250	$ 29.21	0.11685	$ 35.78	0.14312	22.4818%
16	Boulders Resort	29,345	$ 3,475.23	0.11843	$ 4,256.64	0.14506	22.4890%
17	Carefree Dental	1,625	$ 189.98	0.11685	$ 232.70	0.14312	22.4818%
18	Ridgecrest Realty	450	$ 53.18	0.11818	$ 65.14	0.14475	22.4827%
19	Desert Forest	7,000	$ 952.63	0.13609	$ 1,166.83	0.16669	22.4851%
20	Desert Hills Pharmacy	800	$ 113.65	0.14206	$ 139.20	0.17400	22.4835%
21	El Pedregal	15,787	$ 1,844.69	0.11685	$ 2,259.47	0.14312	22.4818%
22	Lemon Tree	300	$ 43.20	0.14400	$ 52.91	0.17638	22.4861%
23	Body Shop	1,000	$ 145.44	0.14544	$ 178.14	0.17814	22.4835%
24	Spanish Village	4,985	$ 582.50	0.11685	$ 713.48	0.14312	22.4818%
25	Boulders Club	1,200	$ 140.22	0.11685	$ 171.75	0.14312	22.4818%
26	Anthony Vuitaggio	300	$ 38.96	0.12987	$ 47.72	0.15907	22.4840%
27							
28							
29							
30							
31	[1] Commercial wastewater flows are based on the average daily flows set forth in Engineering Bulletin 12, Table 1						
32	published by the Arizona Department of Environmental Quality (June 1989)						

Black Mountain Sewer Company
Present and Proposed Rates
Test Year Ended December 31, 2004

Exhibit
Rebuttal Schedule H3
Page 2
Witness: Bourassa

Line No.	Other Service Charges	Present Rates	Proposed Rates
1	Establishment	$ 25.00	$ 25.00
2	Re-Establishment	$ 25.00	$ 25.00
3	Reconnection	no charge	no charge
4	After hours service	$ 25.00	$ 25.00
5	Min Deposit Requirement (Residential)	(a)	(a)
6	Min Deposit Requirement (Non-Residential)	(a)	(a)
7	NSF Check	10.00	10.00
8	Deferred Payment finance charge, Per Month	1.50%	1.50%
9	Late Payment Charge, Per Month	1.50%	1.50%
10			
11	Main Extension Tariff, per Rule R14-2-406B	Cost	Cost
12			
13	Hook-Up Fee for New Service (per Gallon per Day)[2]	$ 6.47	Discontinued

(a) Residential - two times the average bill. Non-residential - two and one-half times the average bill.
(b) Minimum charge times number of full months disconnected.
(c) Actual cost of physical disconnection and reconnection (if same customer) and there shall be no charge if there is no physical work performed.

[2] Wastewater flows are based on Engineering Bulletin No. 12, Table 1.

IN ADDITION TO THE COLLECTION OF REGULAR RATES, THE UTILITY WILL COLLECT FROM ITS CUSTOMERS A PROPORTIONATE SHARE OF ANY PRIVILEGE, SALES, USE, AND FRANCHISE TAX. PER COMMISSION RULE (14-2-409.D 5).
ALL ADVANCES AND/OR CONTRIBUTIONS ARE TO INCLUDE LABOR, MATERIALS, OVERHEADS, AND ALL APPLICABLE TAXES, INCLUDING ALL GROSS-UP TAXES FOR INCOME TAXES.
COST TO INCLUDE LABOR, MATERIALS AND PARTS, OVERHEADS AND ALL APPLICABLE TAXES.

Black Mountain Sewer Company
Bill Comparison
Customer Classification
Residential

Rebuttal Exhibit
Schedule H4
Page 1
Witness: Bourassa

Present Bill	Proposed Bill	Dollar Increase	Percent Increase
$ 38.00	$ 46.54	$ 8.54	22.47%

Black Mountain Sewer Company
Bill Comparison
Customer Classification
Special Tariff - B-H Enterprises

Present Bill	Proposed Bill	Dollar Increase	Percent Increase
$ 295.05	$ 361.39	$ 66.34	22.48%

Exhibit
Rebuttal Schedule H4
Page 2
Witness: Bourassa

Black Mountain Sewer Company
Bill Comparison
Customer Classification
Special Tariff - B-H Enterprises

Exhibit
Rebuttal Schedule H4
Page 3
Witness: Bourassa

Present Bill	Proposed Bill	Dollar Increase	Percent Increase
$ 163.59	$ 200.37	$ 36.78	22.48%

Black Mountain Sewer Company
Bill Comparison
Customer Classification
Special Tariff - Boulders Resort

Exhibit
Rebuttal Schedule H4
Page 5
Witness: Bourassa

Present Bill	Proposed Bill	Dollar Increase	Percent Increase
$ 3,475.23	$ 4,256.64	$ 781.41	22.49%

Black Mountain Sewer Company
Bill Comparison
Customer Classification
Special Tariff - Carefree Dental

Present Bill	Proposed Bill	Dollar Increase	Percent Increase
$ 189.98	$ 232.70	$ 42.72	22.49%

Exhibit
Rebuttal Schedule H4
Page 6
Witness: Bourassa

Black Mountain Sewer Company
Bill Comparison
Customer Classification
Special Tariff - Ridgecrest Realty

Exhibit
Rebuttal Schedule H4
Page 7
Witness: Bourassa

Present Bill	Proposed Bill	Dollar Increase	Percent Increase
$ 53.18	$ 65.14	$ 11.96	22.49%

Black Mountain Sewer Company
Bill Comparison
Customer Classification
Special Tariff - Desert Hills Pharmacy

Exhibit
Rebuttal Schedule H4
Page 9
Witness: Bourassa

Present Bill	Proposed Bill	Dollar Increase	Percent Increase
$ 113.65	$ 139.20	$ 25.55	22.48%

Black Mountain Sewer Company
Bill Comparison
Customer Classification
Special Tariff - Desert Forest

Exhibit
Rebuttal Schedule H4
Page 8
Witness: Bourassa

Present Bill	Proposed Bill	Dollar Increase	Percent Increase
$ 952.63	$ 1,166.83	$ 214.20	22.49%

Black Mountain Sewer Company
Bill Comparison
Customer Classification
Special Tariff - El Pedregal

Exhibit
Rebuttal Schedule H4
Page 10
Witness: Bourassa

Present Bill	Proposed Bill	Dollar Increase	Percent Increase
$ 1,844.69	$ 2,259.47	$ 414.78	22.49%

Black Mountain Sewer Company
Bill Comparison
Customer Classification
Special Tariff - Lemon Tree

Exhibit
Rebuttal Schedule H4
Page 11
Witness: Bourassa

Present Bill	Proposed Bill	Dollar Increase	Percent Increase
$ 43.20	$ 52.91	$ 9.71	22.48%

Black Mountain Sewer Company
Bill Comparison
Customer Classification
Special Tariff - Body Shop

Exhibit
Rebuttal Schedule H4
Page 12
Witness: Bourassa

Present Bill	Proposed Bill	Dollar Increase	Percent Increase
$ 145.44	$ 178.14	$ 32.70	22.48%

Black Mountain Sewer Company
Bill Comparison
Customer Classification
Special Tariff - Spanish Village

Exhibit
Rebuttal Schedule H4
Page 13
Witness: Bourassa

Present Bill	Proposed Bill	Dollar Increase	Percent Increase
$ 582.50	$ 713.48	$ 130.98	22.49%

Exhibit
Rebuttal Schedule H4
Page 14
Witness: Bourassa

Black Mountain Sewer Company
Bill Comparison
Customer Classification
Special Tariff - Boulders Club

Present Bill	Proposed Bill	Dollar Increase	Percent Increase
$ 140.22	$ 171.75	$ 31.53	22.49%

Black Mountain Sewer Company
Bill Comparison
Customer Classification
Special Tariff - Anthony Vuitaggio

Present Bill	Proposed Bill	Dollar Increase	Percent Increase
$ 38.96	$ 47.72	$ 8.76	22.48%

Exhibit
Rebuttal Schedule H4
Page 15
Witness: Bourassa

Black Mountain Sewer Company
Bill Comparison
Customer Classification
Commercial

Exhibit
Rebuttal Schedule H4
Page 16
Witness: Bourassa

gpd	Present Bill	Proposed Bill	Dollar Increase	Percent Increase
-	$ -	$ -	$ -	0.00%
50	7.62	9.33	1.71	22.49%
100	15.24	18.66	3.43	22.49%
150	22.85	27.99	5.14	22.49%
200	30.47	37.32	6.85	22.49%
250	38.09	46.66	8.57	22.49%
300	45.71	55.99	10.28	22.49%
350	53.33	65.32	11.99	22.49%
400	60.94	74.65	13.70	22.49%
1,000	152.36	186.62	34.26	22.49%
2,000	304.72	373.24	68.52	22.49%
3,000	457.08	559.86	102.78	22.49%
4,000	609.44	746.48	137.04	22.49%
5,000	761.80	933.10	171.30	22.49%
Average Usage				
570	86.91	106.46	$ 19.54	22.49%
Median Usage				
105	16.00	19.60	$ 3.60	22.49%

Present Rates:
Charge Per Gallon $ 0.152360

Proposed Rates:
Charge Per Gallon $ 0.186620

Black Mountain Sewer Company
Bill Comparison
Customer Classification
Effluent Sales

Exhibit
Rebuttal Schedule H4
Page 17
Witness: Bourassa

MidPoint Usage	Present Bill	Proposed Bill	Dollar Increase	Percent Increase
1,000	0.37	0.46	0	22.49%
2,000	0.75	0.92	0	22.49%
3,000	1.12	1.38	0	22.49%
4,000	1.50	1.83	0	22.49%
5,000	1.87	2.29	0	22.49%
6,000	2.25	2.75	1	22.49%
7,000	2.62	3.21	1	22.49%
8,000	3.00	3.67	1	22.49%
9,000	3.37	4.13	1	22.49%
10,000	3.74	4.59	1	22.49%
12,000	4.49	5.50	1	22.49%
14,000	5.24	6.42	1	22.49%
16,000	5.99	7.34	1	22.49%
18,000	6.74	8.25	2	22.49%
20,000	7.49	9.17	2	22.49%
25,000	9.36	11.46	2	22.49%
30,000	11.23	13.76	3	22.49%
35,000	13.10	16.05	3	22.49%
40,000	14.98	18.34	3	22.49%
45,000	16.85	20.64	4	22.49%
50,000	18.72	22.93	4	22.49%
60,000	22.46	27.52	5	22.49%
70,000	26.21	32.10	6	22.49%
80,000	29.95	36.69	7	22.49%
90,000	33.70	41.27	8	22.49%
100,000	37.44	45.86	8	22.49%
125,000	46.80	57.32	11	22.49%
150,000	56.16	68.79	13	22.49%
175,000	65.52	80.25	15	22.49%
200,000	74.88	91.72	17	22.49%
450,000	168.48	206.37	38	22.49%
700,000	262.08	321.01	59	22.49%
950,000	355.68	435.66	80	22.49%
1,200,000	449.29	550.31	101	22.49%
Average Usage				
3,226,904	$ 1,208.17	$ 1,479.83	$ 271.66	22.49%

Present Rates:

	$	-
		-
Charge Per 1,000 Gallons		
Up to	1	$ 0.37440
	2	$ 0.37440
	3	$ 0.37440
	4	

Proposed Rates:

	$	-
		-
Charge Per 1,000 Gallons		
	1	$ 0.45859
	2	$ 0.45859
	3	$ 0.45859
	4	

Black Mountain Sewer Corporation - Capacity Fee Payments 2001

Date	Name of Builder	Property Location	Cap Fee	Permit Fee	Total Paid
Jan-01	Don Fredericks	Sentinel Rock #17	$ 3,235.00	$ 55.00	$ 3,290.00
Jan-01	Don Fredericks	8502 Cave Creek, #29	$ 2,588.00	$ 55.00	$ 2,643.00
Jan-01	TCC Development	36601 N Mule Tr #16	$ 1,941.00	$ 55.00	$ 1,996.00
Jan-01	TCC Development	36601 N Mule Tr #16	$ 1,941.00	$ 55.00	$ 1,996.00
Jan-01	TCC Development	36601 N Mule Tr #16	$ 1,941.00	$ 55.00	$ 1,996.00
Jan-01	TCC Development	36601 N Mule Tr #16	$ 1,941.00	$ 55.00	$ 1,996.00
Jan-01	TCC Development	36601 N Mule Tr #17	$ 1,941.00	$ 55.00	$ 1,996.00
Jan-01	TCC Development	36601 N Mule T #17	$ 1,941.00	$ 55.00	$ 1,996.00
Jan-01	TCC Development	36601 N Mule Tr #17	$ 1,941.00	$ 55.00	$ 1,996.00
Jan-01	TCC Development	36601 N Mule Tr #17	$ 1,941.00	$ 55.00	$ 1,996.00
Jan-01	TCC Development	36601 N Mule Tr #18	$ 1,941.00	$ 55.00	$ 1,996.00
Jan-01	TCC Development	36601 N Mule Tr #18	$ 1,941.00	$ 55.00	$ 1,996.00
Jan-01	TCC Development	36601 N Mule Tr #18	$ 1,941.00	$ 55.00	$ 1,996.00
Jan-01	TCC Development	36601 N Mule Tr #18	$ 1,941.00	$ 55.00	$ 1,996.00
Jan-01	Fred Hague	Sentinel Rock #44	$ (2,588.00)	$ (55.00)	$ (2,643.00)
		Total January 2001	**$ 26,527.00**	**$ 715.00**	**$ 27,242.00**
Feb-01	Pulte Builders	7260 Crimson Sky	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7268 Crimson Sky	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7278 Crimson Sky	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	33247 73rd Place	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	33225 73rd Place	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7269 Crimson Sky	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7277 Crimson Sky	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7265 Crimson Sky	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7308 Crimson Sky	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7316 Crimson Sky	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7363 Evening Glow	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7350 Eagle Feather	$ 3,235.00	$ 55.00	$ 3,290.00
Feb-01	Pulte Builders	7371 Eagle Feather	$ 3,235.00	$ 55.00	$ 3,290.00
Feb-01	Pulte Builders	7344 Soaring Eagle	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7328 Soaring Eagle	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7379 Eagle Feather	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7331 Eagle Feather	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7374 Eagle Feather	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7363 Eagle Feather	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7355 Eagle Feather	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7320 Soaring Eagle	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7347 Eagle Feather	$ 3,235.00	$ 55.00	$ 3,290.00
Feb-01	Pulte Builders	33471 73rd Place	$ 3,235.00	$ 55.00	$ 3,290.00
Feb-01	Pulte Builders	7315 Eagle Feather	$ 3,235.00	$ 55.00	$ 3,290.00
Feb-01	Pulte Builders	7342 Eagle Feather	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7336 Soaring Eagle	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7358 Eagle Feather	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	33483 73rd Place	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7323 Eagle Feather	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7339 Eagle Feather	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	33519 73rd Place	$ 3,235.00	$ 55.00	$ 3,290.00
Feb-01	Pulte Builders	33507 73rd Place	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7480 Crescent Saguaro	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	33540 74th Street	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7299 Eagle Feather	$ 3,235.00	$ 55.00	$ 3,290.00
Feb-01	Pulte Builders	33495 73rd Place	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7256 Soaring Eagle	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7264 Soaring Eagle	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7307 Eagle Feather	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7366 Eagle Feather	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	33492 73rd Place	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7312 Soaring Eagle	$ 2,588.00	$ 55.00	$ 2,643.00
Feb-01	Pulte Builders	7251 Eagle Feather	$ 2,588.00	$ 55.00	$ 2,643.00

Feb-01	Pulte Builders	7259 Eagle Feather	$	3,235.00	$	55.00	$ 3,290.00
Feb-01	Pulte Builders	33480 73rd Place	$	3,235.00	$	55.00	$ 3,290.00
Feb-01	Pulte Builders	33684 79th Way	$	3,235.00	$	55.00	$ 3,290.00
Feb-01	Pulte Builders	7966 Evening Glow	$	1,941.00	$	55.00	$ 1,996.00
Feb-01	Pulte Builders	7982 Evening Glow	$	1,941.00	$	55.00	$ 1,996.00
Feb-01	Pulte Builders	33597 79th Way	$	1,941.00	$	55.00	$ 1,996.00
Feb-01	Pulte Builders	7970 Crescent Saguaro	$	2,588.00	$	55.00	$ 2,643.00
Feb-01	Pulte Builders	7975 Cresent Saguaro	$	1,941.00	$	55.00	$ 1,996.00
Feb-01	Pulte Builders	7974 Evening Glow	$	1,941.00	$	55.00	$ 1,996.00
Feb-01	Pulte Builders	33656 79th way	$	1,941.00	$	55.00	$ 1,996.00
Feb-01	Pulte Builders	33619 79th Way	$	1,941.00	$	55.00	$ 1,996.00
Feb-01	Pulte Builders	7968 Russet Sky	$	1,941.00	$	55.00	$ 1,996.00
Feb-01	Pulte Builders	33667 79th Street	$	1,941.00	$	55.00	$ 1,996.00
Feb-01	Pulte Builders	7967 Crescent Saguro	$	3,235.00	$	55.00	$ 3,290.00
Feb-01	Pulte Builders	7975 Crescent Saguor	$	2,588.00	$	55.00	$ 2,643.00
Feb-01	Pulte Builders	33695 79th Street	$	1,941.00	$	55.00	$ 1,996.00
Feb-01	Pulte Builders	7932 Shooting Star	$	3,235.00	$	55.00	$ 3,290.00
Feb-01	Pulte Builders	7960 Russet Sky	$	1,941.00	$	55.00	$ 1,996.00
Feb-01	Pulte Builders	7992 Russet Sky	$	3,235.00	$	55.00	$ 3,290.00
Feb-01	Pulte Builders	33685 79th way	$	3,235.00	$	55.00	$ 3,290.00
Feb-01	Pulte Builders	33575 79th Way	$	3,235.00	$	55.00	$ 3,290.00
Feb-01	Pulte Builders	7979 Russet Sky	$	3,235.00	$	55.00	$ 3,290.00
Feb-01	Pulte Builders	33603 N 78th Street	$	1,941.00	$	55.00	$ 1,996.00
Feb-01	Pulte Builders	33572 79th way	$	3,235.00	$	55.00	$ 3,290.00
Feb-01	Pulte Builders	7952 Russet Sky	$	1,941.00	$	55.00	$ 1,996.00
Feb-01	Pulte Builders	7983 Crescent Saguaro	$	3,235.00	$	55.00	$ 3,290.00
		Total February 2001	**$**	**181,807.00**	**$**	**3,795.00**	**$ 185,602.00**
Apr-01	Nanshe Inc	6916 E Stagecoach Pass	$	5,823.00	$	55.00	$ 5,878.00
Apr-01	Palm Desert Realty	10 Easy Street	$	1,052.43	$	55.00	$ 1,107.43
		Total April 2001	**$**	**6,875.43**	**$**	**110.00**	**$ 6,985.43**
May-01	Canavest	7062 E Ridgeview	$	2,588.00	$	55.00	$ 2,643.00
May-01	Wood Development	7132 E Ridgeview	$	3,235.00	$	55.00	$ 3,290.00
May-01	Pulte Corporation	7244 Crimson Sky	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	7252 Crimson Sky	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	33223 72nd Place	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	33215 72nd Place	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	33207 72nd Place	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	7220 Crimson Sky Tr	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	7238 Crimson Sky Tr	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	7228 Crimson Sky Tr	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	7291 Eagle Feather	$	3,235.00	$	55.00	$ 3,290.00
May-01	Pulte Corporation	7283 Eagle Feather	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	7304 Soaring Eagle	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	7278 Eagle Feather	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	7270 Eagle Feather	$	3,235.00	$	55.00	$ 3,290.00
May-01	Pulte Corporation	7288 Soaring Eagle	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	7286 Soaring Eagle	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	7310 Eagle Feather	$	3,235.00	$	55.00	$ 3,290.00
May-01	Pulte Corporation	7272 Soaring Eagle	$	3,235.00	$	55.00	$ 3,290.00
May-01	Pulte Corporation	7280 Soaring Eagle	$	3,235.00	$	55.00	$ 3,290.00
May-01	Pulte Corporation	7294 Eagle Feather	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	33641 79th Wy	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	33663 79th Wy	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	33156 79th Wy	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	33611 79th Street	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	33681 79th Street	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	33600 79th Way	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	7950 Shooting Star	$	2,588.00	$	55.00	$ 2,643.00
May-01	Pulte Corporation	33707 79th Wy	$	2,588.00	$	55.00	$ 2,643.00

May-01 Kuznicki	Ridgeview Estates 40	$ 2,588.00	$ 55.00	$ 2,643.00
May-01 Kuznicki	Ridgeview Estates 40	$ (2,588.00)	$ (55.00)	$ (2,643.00)
	Total May 2001	**$ 78,934.00**	**$ 1,595.00**	**$ 80,529.00**
Jun-01 Kesklnis Gallery	7402 Non Chalant	$ 3,235.00	$ 55.00	$ 3,290.00
Jun-01 Daniel Osborn	36050 N 58th Street	$ 3,882.00	$ 55.00	$ 3,937.00
Jun-01 Wyndham International	Golden Door Spa	$ 56,612.50	$ 55.00	$ 56,667.50
	Total June 2001	**$ 63,729.50**	**$ 165.00**	**$ 63,894.50**
Aug-01 Montabano Homes	5761 N Canyon Creek	$ 3,235.00	$ 55.00	$ 3,290.00
Aug-01 Dan Brunett	7728 E Shooting Star	$ 647.00	$ 55.00	$ 702.00
Aug-01 Russell Demers	7759 Soaring Eagle	$ 3,882.00	$ 55.00	$ 3,937.00
Aug-01 Joseph McClellan	1635 Quartz Valley Drive	$ 647.00	$ 55.00	$ 702.00
Aug-01 Pulte	33110 72nd Place	$ 1,941.00	$ 55.00	$ 1,996.00
Aug-01 Pulte	33132 72nd Place	$ 1,941.00	$ 55.00	$ 1,996.00
Aug-01 Carson	1635 Quartz Valley Drive	$ 647.00	$ 55.00	$ 702.00
Aug-01 Pulte	7318 Eagle Feather	$ 2,588.00	$ 55.00	$ 2,643.00
Aug-01 Pulte	7326 Eagle Feather	$ 3,235.00	$ 55.00	$ 3,290.00
Aug-01 Pulte	7275 Eagle Feather	$ 2,588.00	$ 55.00	$ 2,643.00
Aug-01 Pulte	7267 Eagle Feather	$ 1,941.00	$ 55.00	$ 1,996.00
Aug-01 Pulte	7334 Eagle Feather	$ 1,941.00	$ 55.00	$ 1,996.00
Aug-01 Pulte	7295 Soaring Eagle	$ 2,588.00	$ 55.00	$ 2,643.00
Aug-01 Pulte	7273 Soaring Eagle	$ 2,588.00	$ 55.00	$ 2,643.00
Aug-01 Pulte	33625 79th Street	$ 3,235.00	$ 55.00	$ 3,290.00
Aug-01 Pulte	7984 Russet Sky	$ 1,941.00	$ 55.00	$ 1,996.00
Aug-01 Pulte	7955 Russet Sky	$ 3,235.00	$ 55.00	$ 3,290.00
Aug-01 Pulte	7976 Russet Sky Drive	$ 2,588.00	$ 55.00	$ 2,643.00
Aug-01 Pulte	33639 79th Street	$ 3,235.00	$ 55.00	$ 3,290.00
	Total August 2001	**$ 44,643.00**	**$ 1,045.00**	**$ 45,688.00**
Sep-01 Wood Development	7076 Ridgeview Dr	$ 3,235.00	$ 55.00	$ 3,290.00
Sep-01 JCO Development	5700 Canyon Crossing, #13	$ 3,235.00	$ 55.00	$ 3,290.00
Sep-01 Montabano Homes	35321 N Canyon Creek	$ 2,588.00	$ 55.00	$ 2,643.00
Sep-01 Montabano Homes	35280 N Canyon Creek	$ 2,588.00	$ 55.00	$ 2,643.00
Sep-01 Montabano Homes	5701 E Canyon Creek	$ 2,588.00	$ 55.00	$ 2,643.00
Sep-01 Montabano Homes	5690 E Canyon Creek	$ 3,235.00	$ 55.00	$ 3,290.00
Sep-01 Conrad Scott	8502 E Cave Creek #40	$ 1,941.00	$ 55.00	$ 1,996.00
Sep-01 Conrad Scott	8502 E Cave Creek #41	$ 1,941.00	$ 55.00	$ 1,996.00
Sep-01 Conrad Scott	8502 E Cave Creek #42	$ 2,588.00	$ 55.00	$ 2,643.00
Sep-01 Montabano Homes	35334 N Canyon Creek, #21	$ 2,588.00	$ 55.00	$ 2,643.00
Sep-01 Longnecker	7160 E Ridgeview Drive	$ 2,588.00	$ 55.00	$ 2,643.00
Sep-01 Pulte	33247 72nd Place	$ 1,941.00	$ 55.00	$ 1,996.00
Sep-01 Pulte	33227 72nd Place	$ 1,941.00	$ 55.00	$ 1,996.00
Sep-01 Pulte	33231 72nd Place	$ 1,941.00	$ 55.00	$ 1,996.00
Sep-01 Pulte	33263 72nd Plac	$ 1,941.00	$ 55.00	$ 1,996.00
Sep-01 Pulte	33255 72nd Place	$ 1,941.00	$ 55.00	$ 1,996.00
Sep-01 Pulte	7245 Crimson Sky	$ 1,941.00	$ 55.00	$ 1,996.00
Sep-01 Pulte	7233 Crimson Sky	$ 2,588.00	$ 55.00	$ 2,643.00
Sep-01 Pulte	33504 73rd Place	$ 1,941.00	$ 55.00	$ 1,996.00
Sep-01 Pulte	33516 73rd Place	$ 1,941.00	$ 55.00	$ 1,996.00
Sep-01 Pulte	7971 Russet Sky	$ 2,588.00	$ 55.00	$ 2,643.00
Sep-01 Pulte	7987 Russet Sky	$ 3,235.00	$ 55.00	$ 3,290.00
Sep-01 Pulte	7682 E Soaring Eagle	$ 1,041.67	$ 55.00	$ 1,096.67
	Total September 2001	**$ 54,095.67**	**$ 1,265.00**	**$ 55,360.67**

RO 3/21/02

PBC

Oct-01	Laurenao	7682 E Soaring Eagle	$	1,096.67	$	55.00	$ 1,096.67
Oct-01	Pragon Property (United)	7202 E Carefree Drive (Bldg)	$	9,705.00	$	55.00	$ 9,760.00
Oct-01	United West (Reed)	34908 N Indian Camp Tr	$	3,235.00	$	55.00	$ 3,290.00
Oct-01	WHI Contractor Credit Cd)	35530 N Canyon Crossing	$	3,235.00	$	55.00	$ 3,290.00
Oct-01	Schwartz		$	2,588.00	$	55.00	$ 2,643.00
		Total October 2001	$	19,859.67	$	275.00	$ 20,079.67
Nov-01	Longnecker	7160 E Ridgeview Place	$	3,290.00	$	55.00	$ 3,290.00
		Total November 2001	$	3,290.00	$	55.00	$ 3,290.00
Dec-01	Laurenao	7682 E Soaring Eagle	$	1,096.67			$ 1,096.67
Dec-01	Pulte	7472 Sunset Sky	$	1,941.00	$	55.00	$ 1,996.00
Dec-01	Pulte	7480 Sunset Sky	$	1,941.00	$	55.00	$ 1,996.00
Dec-01	Pulte	33245 N 74th Way	$	1,941.00	$	55.00	$ 1,996.00
Dec-01	Pulte	33196 N 74th Way	$	2,588.00	$	55.00	$ 2,643.00
		Total December 2001	$	9,507.67	$	220.00	$ 9,727.67
		YEAR TO DATE 2001	$	489,268.94	$	9,240.00	$ 498,398.94

CIAC additions

other income

CIAC
Additions

Black Mountain Sewer Company
History Detail Report
Accumulated Amortization of CIAC

		Debit
7/1/1994	Beginning Balance	1,121,838.00
12/31/1994	Amortization @ 5%	86,462.00
12/31/1995	Amortization @ 5%	165,003.00
12/31/1996	Amortization @ 5%	172,015.00
12/31/1997	Amortization @ 5%	176,239.60
12/31/1998	Amortization @ 5% (2.5% Additions)	189,833.35
12/31/1999	Amortization @ 5% (2.5% Additions)	222,087.92
12/31/2000	Amortization @ 5% (2.5% Additions)	250,321.33
12/31/2001	Amortization @ 5% (2.5% Additions)	263,473.10
12/31/2002	Amortization @ 5% (2.5% Additions)	257,985.92
12/31/2003	Amortization @ 5% (2.5% Additions)	290,112.36
1/31/2004	CIAC Amortization	24,281.17
2/29/2004	CIAC Amortization	24,215.01
3/31/2004	CIAC Amortization	24,339.74
4/30/2004	CIAC Amortization	24,339.74
5/1/2005	Adjust CIAC Amortization YTD	94.35
5/31/2004	CIAC Amortization	24,777.82
6/30/2004	CIAC Amortization	24,834.43
7/31/2004	CIAC Amortization	24,221.21
8/31/2004	CIAC Amortization	23,798.68
9/30/2004	CIAC Amortization	23,822.94
10/31/2004	CIAC Amortization	23,847.20
11/30/2004	CIAC Amortization	24,106.00
12/31/2004	CIAC Amortization	24,168.00
12/31/2004	Ending Balance	3,486,217.87

BOURASSA REBUTTAL

EXHIBIT 4

Black Mountain Sewer Company
Hook-up Fees and the Cash - Capacity Account

Exhibit
Rebuttal
Witness: Bourassa

	Harris Capacity 8100-2-0000-10-1020-0142	"Restricted Cash" 8100-2-0000-10-1060-0000	Total
Balance 12/31/01	$ 10,036.82	$ 986,118.92	$ 996,155.74
Hook-up Fees Collected			110,490.00
Total Cash Available to Spend			1,106,645.74
Balance 12/31/02	227,236.26	358,172.05	585,408.31
Capital Expenditures - Funds Used			521,237.43
Eligible Capital Expenditures			$ 530,101.10
Hook-up Fees Used			521,237.43
Excess Expenditures over Fees			$ 8,863.67

	As Submitted on Hook-up Fee Report to ACC	Eligible Capital Expenditures
Electric Pumping Equipment	$ 2,925.00	$ 2,925.00
Vehicles & Equipment	21,120.00	-
Structures & Improvements	2,937.93	2,937.93
Scada - Plant & Lift Stations	2,170.00	2,170.00
Plant Expansion	6,935.30	6,935.30
Odor Control	26,111.18	26,111.18
Cave Creek Inter Connector Sutdy	1,411.00	1,411.00
Collection Sewers Force	393.77	393.77
Collection Sewers Gravity	14,562.64	14,562.64
Servie Taps	10,528.05	10,528.05
Flow Devices	3,320.47	3,320.47
Electric Pumping Equipment	215.76	215.76
Pump Station - Indian Rock	210.00	210.00
Diesel Generator	6,510.00	-
By Pass Line	332,295.69	332,295.69
Boulders Parkway Sewer Line	107,192.11	107,192.11
Plant in Service	12,872.20	12,872.20
Other Plant	6,020.00	6,020.00
Office Equipment - Automation	120,588.26	-
Laboratory Equipment	1,372.18	
Total	$ 679,691.54	$ 530,101.10

BOURASSA REBUTTAL

EXHIBIT 5

1.9 RUCO witness Diaz-Cortez contends that "the Company proposes to pretend that the capacity rights that it owns in the Scottsdale Wastewater treatment Capacity were, in fact, an operating lease. (Diaz-Cortez DT at 3). Admit that the Company's proposed treatment of the Scottsdale Capacity was ordered by the Commission in the Company's last rate case, Decision No. 59944.

Response: Marylee Diaz Cortez

Yes.

1.11 Admit that RUCO was a party to the Company's last rate case.

Response: Marylee Diaz Cortez

Yes.

1.13 Admit that RUCO did not file an appeal of the Commission's decision 59944.

Response: Marylee Diaz Cortez

Yes.

1.18 Admit that the RUCO's recommendation that the Commission treat the Scottsdale Capacity as rate base will result in lower rates than if such capacity is treated as an operating lease.

Response: Marylee Diaz Cortez

Yes.

BOURASSA REBUTTAL

EXHIBIT 6

Stocks, Bonds, Bills, and Inflation

SBBI

Valuation Edition
2006 Yearbook

ibbotson

However, an estimate of each of the above three variables must be formed. Like all components of the cost of capital, these variables should be measured on a forward-looking basis. Chapters 5 and 6 are devoted to estimating the equity risk premium and beta, respectively. Factors to consider in estimating the riskless rate are covered below.

Risk-Free Rate

The CAPM implicitly assumes the presence of a single riskless asset, that is, an asset perceived by all investors as having no risk. A common choice for the nominal riskless rate is the yield on a U.S. Treasury security. The ability of the U.S. government to create money to fulfill its debt obligations under virtually any scenario makes U.S. Treasury securities practically default-free. While interest rate changes cause government obligations to fluctuate in price, investors face essentially no default risk as to either coupon payment or return of principal.

The horizon of the chosen Treasury security should match the horizon of whatever is being valued. When valuing a business that is being treated as a going concern, the appropriate Treasury yield should be that of a long-term Treasury bond. Note that the horizon is a function of the investment, not the investor. If an investor plans to hold stock in a company for only five years, the yield on a five-year Treasury note would not be appropriate since the company will continue to exist beyond those ~~five~~ years.

In February of 1977 the Treasury began to issue 30-year Treasury securities. Prior to this date, the longest-term Treasury security was 20 years, which was the standard Ibbotson used for its data series. To remain consistent with Ibbotson's historical data series, the *Stocks, Bonds, Bills, and Inflation Yearbook* continued to base the yield for its long-term government bond on one with close to 20 years to maturity. Bonds with at least 20 years to maturity continued to trade and, therefore, a proxy for the yield on 20-year Treasury securities was readily available. In October of 2001 the U.S. Treasury announced that it would no longer issue 30-year Treasury bonds, and the 10-year bond became the longest term Treasury security offered. It would have been a number of years before a lack of data became an issue, and Ibbotson Associates continued to use the 20-year yield for data-consistency purposes. This point is now moot, as the U.S. Treasury is scheduled to resume sales of 30-year Treasury bonds in early 2006. Differences in the yields of the currently available long-term instruments tend to be very small. Therefore, it would be appropriate to use either maturity bond to represent a long-term riskless rate. Table 4-1 shows the current yields for several different horizons.

Table 4-1
Current Yields or Expected Riskless Rates
December 31, 2005

	Yield (Riskless Rate)*
Long-Term (20-year) U.S. Treasury Coupon Bond Yield	4.6%
Long-Term (10-year) U.S. Treasury Coupon Bond Yield	4.4%
Intermediate-Term (5-year) U.S. Treasury Coupon Note Yield	4.3%
Short-term (30-day) U.S. Treasury Bill Yield	4.0%

*Maturities are approximate.

Should the yield on a Treasury bond or a Treasury strip be used to represent the riskless rate? In most cases the yield on a Treasury coupon bond is most appropriate. If the asset being measured spins off cash periodically, the Treasury bond most closely replicates this characteristic. On the other hand, if the asset being measured provides a single payoff at the end of a specified term, the yield on a Treasury Strip would be more appropriate.

The Market Benchmark and Firm Size

Although not restricted to include only the 500 largest companies, the S&P 500 is considered a large company index. The returns of the S&P 500 are capitalization weighted, which means that the weight of each stock in the index, for a given month, is proportionate to its market capitalization (price times number of shares outstanding) at the beginning of that month. The larger companies in the index therefore receive the majority of the weight. The use of the NYSE "Deciles 1–2" series results in an even purer large company index. Yet many valuation professionals are faced with valuing small companies, which historically have had different risk and return characteristics than large companies. If using a large stock index to calculate the equity risk premium, an adjustment is usually needed to account for the different risk and return characteristics of small stocks. This will be discussed further in Chapter 7 on the size premium.

The Risk-Free Asset

The equity risk premium can be calculated for a variety of time horizons when given the choice of risk-free asset to be used in the calculation. The *Stocks, Bonds, Bills, and Inflation Yearbook* provides equity risk premia calculations for short-, intermediate-, and long-term horizons. The short-, intermediate-, and long-horizon equity risk premia are calculated using the income return from a 30-day Treasury bill, a 5-year Treasury bond, and a 20-year Treasury bond, respectively.

Although the equity risk premia of several horizons are available, the long-horizon equity risk premium is preferable for use in most business-valuation settings, even if an investor has a shorter time horizon. Companies are entities that generally have no defined life span; when determining a company's value, it is important to use a long-term discount rate because the life of the company is assumed to be infinite. For this reason, it is appropriate in most cases to use the long-horizon equity risk premium for business valuation.

20-Year versus 30-Year Treasuries

Our methodology for estimating the long-horizon equity risk premium makes use of the income return on a 20-year Treasury bond; however, the Treasury currently does not issue a 20-year bond. The 30-year bond that the Treasury recently began issuing again is theoretically more correct due to the long-term nature of business valuation, yet Ibbotson Associates instead creates a series of returns using bonds on the market with approximately 20 years to maturity. The reason for the use of a 20-year maturity bond is that 30-year Treasury securities have only been issued over the relatively recent past, starting in February of 1977, and were not issued at all through the early 2000s.

The same reason exists for why Ibbotson does not use the 10-year Treasury bond; that is, a long enough history of market data is not available for 10-year bonds. Ibbotson Associates has persisted in using a 20-year bond to keep the basis of the time series consistent.

Income Return

Another point to keep in mind when calculating the equity risk premium is that the income return on the appropriate-horizon Treasury security, rather than the total return, is used in the calculation. The total return is comprised of three return components: the income return, the capital appreciation return, and the reinvestment return. The income return is defined as the portion of the total return