ORIGINAL

FOURTH FIVE-YEAR REVIEW REPORT FOR TONOLLI CORPORATION SUPERFUND SITE NESQUEHONING, PENNSLYVANIA

Prepared by

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MAY 24 2018

Date

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LIST OF ABBREVIATIONS & ACRONYMS

AOC	Administrative Order on Consent
ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CD	Consent Decree
E&S	Erosion and Sedimentation
EPA	Environmental Protection Agency
ESD	Explanation of Significant Differences
FS	Feasibility Study
GPRA	Governmental Performance and Results Act
HRS	Hazard Ranking System
IEUBK	Integrated Exposure Uptake Biokinetic Model
MCL	Maximum Contaminant Level
MSC	Medium Specific Concentration
MW	Monitoring well
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operations and Maintenance
OSWER	Office of Solid Waste and Emergency Response
OU	Operable Unit
PADEP	Pennsylvania Department of Environmental Protection
PADER	Pennsylvania Department of Environmental Resources
PPB	Part per billion
PPM	Parts per million
PP&L	Pennsylvania Power and Light
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
SDWA	Safe Drinking Water Act
SWRAU	Site Wide Ready for Anticipated Use
TPH	Total petroleum hydrocarbons
UAO	Unilateral Administrative Order
USACE	United States Army Corps of Engineers
UST	Underground Storage Tank

I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the fourth FYR for the Tonolli Corporation Superfund Site (the Site). The triggering action for this statutory FYR is the completion date of the previous FYR on June 10, 2013. The FYR has been prepared because hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure.

Site Background

The Site is located north of state road 54, on Tonolli Road, in the Borough of Nesquehoning, Carbon County, Pennsylvania, as shown on Figure 1. The Site is approximately 30 acres. The Site is depicted in Figures 3 and 4. Figure 3 generally identifies the Site parcels, and Figure 4 depicts the parcels of land overlaid with the boundaries of the landfill.

The Site is currently open space with a vegetated closed and capped landfill located in the eastern portion of the Site, and is surrounded by a chain-link fence with a locked gate. A small unused office building is located on the Site. Additionally, an underground storage tank (UST) is the collection point for landfill leachate from three sumps located within the landfill.

Nesquehoning Creek lies adjacent to the south of the majority of the Site. However, a small parcel formerly owned by Tonolli Corporation, lies to the south of the Nesquehoning Creek. To the west of the Site lies several residences and vacant land belonging to the Lansford Coaldale Water Authority. To the north and east of the Site lie piles of coal mine spoil materials and a power plant.

There are two identified aquifers present at the Site, an overburden aquifer and a bedrock aquifer. The shallow overburden aquifer is found in the alluvium and mine spoil material underlying the Site. The deeper bedrock aquifer underlying the Site is found in the Mauch Chunk formation. Although the bedrock aquifer is not used at the Site and has been demonstrated to be unaffected by the Site (see below), this aquifer is a current source of drinking water. The Lansford Coaldale Water Authority supplies drinking water from the bedrock aquifer to approximately 20,000 residents in the area. EPA is unaware of private domestic wells in-use near the Site. The direction of ground water flow in the bedrock aquifer is generally to the east.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Tonolli Corporation Superfund Site		
EPA ID: PAD073613663		
Region: 3	**State:** PA	**City/County:** Nesquehoning/Carbon
SITE STATUS		
NPL Status: Final		
Multiple OUs? No	**Has the site achieved construction completion?** Yes	
REVIEW STATUS		
Lead agency: EPA		
Author name (Federal or State Project Manager): Mitch Cron		
Author affiliation: EPA Remedial Project Manager		
Review period: 8/29/2017 - 3/30/2018		
Date of site inspection: 8/29/2017		
Type of review: Statutory		
Review number: 4		
Triggering action date: 6/10/2013		
Due date *(five years after triggering action date)*: 6/10/2018		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

The Site operated as a secondary lead smelter and lead-acid battery recycling facility between August 1974 and January 1986. The operations at the Site included the storage, breaking, processing and smelting of spent batteries, battery components, and other lead-bearing materials.

On September 19, 1989, 46 potentially responsible parties (PRPs) entered into an Administrative Order on Consent (AOC) with EPA to conduct the Remedial Investigation/Feasibility Study (RI/FS). The results of the RI/FS indicated that lead was the most abundant, widespread, and concentrated contaminant of concern present on the Site.

Response Actions

Between February and August of 1987, EPA completed three site assessment and sampling activities. In 1989, EPA completed removal actions involving the excavation, treatment and disposal of liquids and sludges in a lagoon, treatment and disposal of liquids from a 500,000-gallon storage tank, construction of a storm water collection and treatment system, and repair of the fence to limit Site access. On December 17, 1991, EPA issued a Unilateral Administrative Order (UAO) to the 46 PRPs requiring them to operate and maintain an on-Site storm water treatment system. On February 22, 1996, EPA signed an AOC with a group of PRPs to begin removing battery chips and other reclaimable wastes from the Site for off-Site recycling.

The remedy for the Site is contained in a Record of Decision (ROD) issued in September 1992 and five Explanations of Significant Differences (ESDs): issued in 1993, 1997, 1999, 2005 and 2014. The remedy consists of the following:

- off-Site transport and treatment of battery wastes by resource recovery at a secondary lead reclamation facility;
- excavation of all soils with greater than 1,000 parts per million of lead from on-Site areas and 500 parts per million of lead in off-Site residential areas;
- on-Site stabilization of all soils with greater than 10,000 parts per million of lead;
- consolidation of lead contaminated soil at the Site in the landfill and closure of the landfill;
- cleanup of contaminated sediment in the Nesquehoning Creek;
- treatment of landfill leachate;
- treatment of contaminated overburden ground water with a limestone trench;
- decontamination of the on-Site buildings;
- addressing USTs; and
- establishing institutional controls at the Site.

The 1992 ROD stated that the cleanup level for lead in on-Site soils was 1,000 parts per million (ppm). Additionally, the ROD also stated that a cleanup objective for the remedy was to prevent exposure of residents to soils with a lead concentration greater than 500 ppm. The ground water remediation performance standards (ground water remediation standards) at the Site are antimony at 6 parts per billion (ppb), arsenic at 10 ppb, cadmium at 5 ppb, and lead at 5 ppb.

The five ESDs revised the remedy in the following ways:

The ESD in December 1993 revised the design criteria to meet the Pennsylvania hazardous and residual waste regulations for landfills and to clarify technical matters.

The ESD on January 7, 1997 addressed the distance between the ground water table and the landfill liner. The minimum distance of four feet required by Pennsylvania code was not always present between the sub-base of the landfill and the seasonal high-water table. EPA determined that an equivalent standard of performance had been met, however, the Pennsylvania Department of Environmental Protection (PADEP) did not concur.

The ESD in March 12, 1999 clarified the following: 1) to demolish and remove the former smelter building's concrete walls and foundations; 2) to excavate an increased volume of lead contaminated soils; 3) to expand the landfill to accommodate an increased volume of soil; 4) to pump and treat an increased

volume of landfill leachate; 5) to bioremediate petroleum-contaminated soil; and 5) to modify the final grading plan for the Site.

The ESD in March 24, 2005 changed the ground water remediation standards to Maximum Contaminant Levels (MCLs) for antimony, arsenic and cadmium; and the Pennsylvania Act 2 Medium Specific Concentration for lead.

The ESD on September 8, 2014 established and clarified the land and ground water use restrictions at the Site.

The remedial action objectives (RAOs) outlined in the ROD for the cleanup of the Site were to:

- Prevent exposure (inhalation, ingestion) to on-Site waste piles (byproduct materials, dust, contaminated buildings) and soils having a lead concentration greater than 1,000 parts per million.
- Prevent direct contact with battery casing piles and sump sediments having lead concentrations greater than 1,000 parts per million.
- Prevent direct contact with landfill contents and reduce the potential for leachate leakage.
- Prevent exposure of residents to soils situated to the immediate west of the Tonolli property boundary having a lead concentration greater than 500 parts per million.
- Reduce concentrations of contaminants present in the overburden aquifer to background levels and prevent the migration of contaminants to the bedrock aquifer.
- Prevent migration of contaminated storm water to off-Site areas, specifically Nesquehoning Creek, in excess of discharge limits established under the NPDES program.
- Prevent migration of contaminants that would result in sediment contamination in excess of cleanup levels for lead, arsenic, and cadmium, copper and zinc. Appropriate cleanup levels were to be determined by the performance of sediment bio-assays.
- Prevent exposure to surface water, ground water, runoff and leachate containing Site contaminants above health-based standards.

Status of Implementation

EPA approved the final Remedial Design (RD) for the Site on February 20, 1998. EPA and the Pennsylvania Department of Environmental Protection (PADEP) entered into a CD with a group of the PRPs on May 7, 1998.

Construction activities included the decontamination, demolition, and asbestos abatement of the former smelter and crusher buildings, operational buildings and tanks. Fourteen buildings and all aboveground structures were demolished. The office building was decontaminated and is suitable for reuse.

Excavated soil and debris were consolidated into the landfill including: soil containing lead concentrations above 1,000 ppm; soil and wastes containing lead concentrations above 10,000 ppm; soil from residential areas containing lead concentrations above 500 ppm; sediment from Nesquehoning Creek with lead concentrations above 300 ppm; treated sludge and lagoon soils; drums of melted plastic, and the concrete walls and foundations from the demolished buildings.

Excavations in residential areas were backfilled with topsoil, seeded, and restored to original condition. Excavations at the Tonolli property were backfilled with lime amended culm, re-graded, and covered with six inches of topsoil and seeded. The landfill was closed in accordance with Resource Conservation and Recovery Act (RCRA) closure regulations for hazardous waste landfills. A fence was constructed around the Tonolli property to restrict access.

An UST collects leachate from the landfill which is periodically transported to an off-Site facility for treatment and disposal.

A limestone trench was constructed to treat the overburden ground water. The trench was constructed parallel to the Nesquehoning Creek. Monitoring wells on the upgradient and downgradient sides of the trench monitor the quality of the ground water before it discharges to the Nesquehoning Creek.

EPA signed the Preliminary Close-Out Report (PCOR) on December 13, 1999 to document the completion of construction.

Institutional Controls

The Site consists of three primary parcels.

Table 1: Parcel Numbers

Parcel Number	Parcel acreage	Current Owner	History/Notes
122-44-A8.01	19.937	NSC Corporation	This parcel was purchased by NSC Corporation on January 6, 2003. This parcel lies on the north side of Nesquehoning Creek and consists of level ground, an office building, and the westernmost portion of the landfill.
122-44-A8.02	Approximately 11 acres	A private citizen	This parcel consists primarily of the landfill.
122B-44-B2.02	0.284	Kovatch Enterprises, Inc.	This parcel was purchased by Kovatch Enterprises, Inc. on April 22, 2003. This small parcel lies on the south side of Nesquehoning Creek.

In addition, survey mapping work performed in 2012 to support implementation of institutional controls (ICs) at the Site revealed that a portion of the Site landfill extends eastward on to a fourth and fifth parcel, Parcel Number 114-44-A5.10, and 122-44-A8, which are owned by Kovatch Enterprises, Inc. The ICs were implemented in 2016 through Environmental Covenants as summarized in Table 2. The Environmental Covenants address prohibited land uses at the Site, prohibited activities on the landfill cap, and restrictions on ground water use.

Figure 3 identifies the Site parcels and Figure 4 depicts the parcels of land overlaid with the boundaries of the landfill.

Table 2: Summary of Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
land use (soil), ground water, and constructed landfill cap	Yes	Yes	122-44-A8.01 122-44-A8.02 122-44-A8 114-44-A5.10 122B-44-B2.02	Land use restrictions for entire Site Ground water use restriction within ground water use restriction area Restriction of activities on landfill cap	Environmental Covenants Various dates in 2016

Systems Operations/Operation & Maintenance

The PRPs perform the majority of the operation and maintenance (O&M) activities in accordance with the O&M Plan, dated February 2002, which include: operation and maintenance of the leachate collection and storage system that includes the UST; periodic inspections of the landfill cap, the leachate collection system, and the fence; ground water monitoring; and disposal of landfill leachate from the UST to a disposal facility. The owner of the parcel of the Site that includes most of the landfill (designated as parcel 122-44-A8.02) mows the grass on this parcel.

The PRPs indicated that during the 2013 to 2018 annual costs for O&M activities were approximately $115,000.

Ground Water Monitoring

The PRPs perform ground water sampling, analysis and reporting activities at the Site in accordance with the Long-Term Ground Water Monitoring Plan dated January 2001, revised May 2001. The objectives of the long-term ground water monitoring program at the Site are to:

1. Perform Site-wide ground water monitoring to determine if the ground water contaminant levels have reached the performance standards for the contaminants in the overburden aquifer.
2. Perform post-closure monitoring associated with the landfill by collecting ground water samples from one upgradient monitoring well and three downgradient wells in accordance with 25 PA Code Chapter 264.1, Subchapter F.
3. Monitor the effectiveness of the permeable limestone trench by monitoring the shallow ground water quality of both the upgradient and downgradient sides of the trench.
4. Monitor ground water quality in the bedrock aquifer beneath the Site.

III. PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determinations and statements from the last FYR.

Table 3: Protectiveness Determinations/Statements from the 2013 FYR

OU #	Protectiveness Determination	Protectiveness Statement
Site wide	Protective	The remedy at the Site currently protects human health and the environment because: • Contaminated soil and waste have been contained in the landfill or were disposed of off-Site. The vegetated landfill cover prevents contact between receptors and the buried waste. • The Site fence prevents trespassers from entering the Site. • Review of the ground water monitoring results reveals that Site contaminants of concern were not identified in the bedrock aquifer at concentrations that exceed performance standards. The bedrock aquifer that lies beneath the Site has been identified as a potential source of drinking water. • Review of the ground water monitoring results reveal that Site contaminants of concern (antimony, arsenic, cadmium, and lead) were identified in the overburden aquifer at concentrations that exceed performance standards. However, the overburden aquifer that lies beneath the Site is not used as source of drinking water. • EPA policy relevant to the performance standard for lead in residential soil has been revised since the ROD was issued in 1992. This revision lowered the protective limit for lead in residential soil to 400 parts per million, based on the most current toxicity data. EPA review of soil sampling results indicates that the lead in soil concentrations that remain in residential areas to the southwest of the Site meet the current screening level (400 parts per million). Therefore, as implemented, the remedy is protective of human health with regard to the excavation of lead-contaminated soil from residential areas located to the southwest of the Site. • Surface water and sediment data collected in the Nesquehoning Creek did not indicate that an unacceptable risk to the environment was being caused by seepage of contaminated ground water into the Nesquehoning Creek. However, in order for the remedy to be protective in the long-term, the following actions need to be taken to ensure long-term protectiveness: • As required by the ROD, institutional controls must be established at the Site. • Continue ground water monitoring and ground water contamination trend analysis to evaluate progress toward ground water cleanup.

Table 4: Status of Recommendations from the 2013 FYR

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
00	ICs have not been implemented	Implement ICs	Completed	ICs have been implemented through environmental covenants	11/23/2016
00	Ground water contamination present in overburden aquifer	Continue monitoring and evaluation of progress toward cleanup	Completed	Monitoring and evaluation of ground water contamination are on-going	01/18/2018

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

EPA notified the PRPs and PADEP about the start of the Review in August 2017. A public notice was published in the Times-News on January 5, 2018 stating that the FYR was underway and inviting the public to submit comments to EPA.

During the FYR, EPA spoke with two residents who live adjacent to the Site; an official with the Borough of Nesquehoning; a project coordinator for the PRPs; and a project officer for PADEP. The interviewees did not identify specific concerns. PADEP commented on the cleanup progress in the shallow aquifer and suggested sediment sampling in the Nesquehoning Creek to verify protectiveness.

This Five-Year Review report will be made available online (https://www.epa.gov/superfund/search-superfund-five-year-reviews) and at the following information repositories:

EPA Administrative Records Room,
Attention: Administrative Coordinator
1650 Arch Street
Philadelphia, PA
(215) 814-3157

Borough of Nesquehoning
114 W. Catawissa Street
Nesquehoning, PA 18240

Data Review

Review of Ground Water Data

EPA reviewed ground water monitoring data reported during 2013-2018. The monitoring network consists of nine shallow monitoring wells in the overburden aquifer and five deep monitoring wells in the bedrock aquifer. The monitoring wells are depicted in Figure 2.

Table 5: List of monitoring wells

Shallow monitoring wells	Deep monitoring wells
MW-11SR	MW-11DR
MW-12SR	
MW-13SR	
MW-14SR	MW-14DR
MW-15S	MW-15D
MW-16SR	MW-16DR
MW-17SR	MW-17D
MW-20S	
MW-21S	

Tabular ground water monitoring data and contaminant concentration versus time graphs for ground water monitoring wells are included in Appendix D.

Review of the ground water monitoring data collected between 2013 and 2018 reveals the following:

- Ground water contaminants of concern (COCs) were not detected above ground water remediation standards in the following bedrock monitoring wells: MW-11DR; MW-12SR; MW-14DR; MW-15D; MW-16DR.
- Ground water COCs were not detected above ground water remediation standards in the following overburden monitoring wells: MW-17SR; MW-17D; MW-20S
- Ground water COCs were detected above ground water remediation standards in the following overburden monitoring wells:

Table 6: Summary of ground water monitoring results

Monitoring well	**Contaminant**	**2013-2018 concentration**	**Ground water remediation standard**	**Contaminant trend**
MW-11SR	cadmium	5-10 ppb	5 ppb	Declining
MW-13SR	cadmium	6-17 ppb	5 ppb	Declining
MW-14SR	antimony	8-21 ppb	6 ppb	Declining
MW-14SR	arsenic	16-57 ppb	10 ppb	Static or slightly increasing
MW-15S	arsenic	11-86 ppb	10 ppb	static
MW-16SR	cadmium	6-12 ppb	5 ppb	declining
MW-21S	cadmium	13-15 ppb	5 ppb	static

Based on this data, a plume of ground water contamination, consisting of metals such as cadmium, antimony, and arsenic, is present in the overburden aquifer downgradient of the landfill, and to the west of the landfill in the formerly industrial portion of the Site. The deeper bedrock aquifer, which is used as a source of drinking water, does not exhibit COCs above ground water remediation standards.

EPA notes that during the 2013 to 2018 FYR period, EPA implemented ICs at the Site which prohibit the installation of wells and use of contaminated ground water for potable purposes. EPA also notes that the limestone trench located to the south of the landfill does not appear to significantly reduce ground water COC concentrations as shallow contaminated ground water passes through the trench en route to the Nesquehoning Creek, as evidenced by a comparison of monitoring wells MW-13SR (immediately upgradient of trench) and MW-21S (immediately downgradient of trench). During the FYR period both wells consistently exhibited cadmium concentrations above the ground water remediation standard of 5 ppb (see above). Ground water monitoring at the Site will continue to verify the extent of the ground water contamination plume, and to evaluate progress toward achieving ground water remediation standards.

Review of Surface Water and Pore Water Results

In August 2017, the PRP sampled the surface water and pore water in the Nesquehoning Creek. Pore water is water located between the grains of sediment. Surface water and pore water samples were

collected to determine if contaminated ground water at the Site is discharging to the Nesquehoning Creek at concentrations that could pose an unacceptable risk to human health and the environment. The sampling results of the surface water and pore water did not indicate the presence of significant levels of contaminants The surface water and pore water results are included as Appendix E. Sampling of the surface water and pore water will continue to verify that Nesquehoning Creek is not impacted by the discharge of ground water into the Creek will continue.

Site Inspection

A Site inspection was performed on August 29, 2017 by EPA and PADEP representatives and representatives from the PRP group. The purpose of the inspection was to assess the protectiveness of the remedy, including the presence of a fence with a locked gate to restrict access, the integrity of the cap, and the condition of the landfill leachate collection system. The vegetative cover on the landfill cap appeared properly established, and erosion was not evident. The Site fence was in satisfactory condition. A shed was constructed on the Site by the PRPs to provide shelter for the leachate collection monitoring system. The shed and electrical components of the leachate collection system were in satisfactory condition during the Site inspection.

During the FYR period (2013-2018) one parcel of land comprising most of the landfill was purchased by a private citizen. The parcel of land is identified as tax parcel number: 122-44-A8.02. During and subsequent to the FYR inspection EPA determined that the private citizen had placed several camping tents on this parcel of land, which is part of the Site. The tents were not located on the landfill cap. EPA notified the owner that overnight camping is inconsistent with the land use restrictions in the 2014 ESD as well as in the Environmental Covenant which was entered into by EPA and the private citizen. Specifically, Section 4 of the Environmental Covenant states, "...The Property shall not be developed or used for any residential purposes.... or outdoor recreational areas..." During the performance of the FYR the private citizen agreed to remove the camping tents during the 2018 calendar year. In addition, the private citizen has informed EPA that he intends to construct a shed on this parcel to store lawn mowing equipment, and to place a trailer to store personal effects that he will use during his grass mowing. The private citizen performs certain O&M activities on-Site, primarily grass mowing on this parcel.

A summary of leachate generation in the landfill is included in Appendix F. Generally, leachate generation has decreased since the landfill was capped. Recently, landfill leachate generation has increased. This recent increase is being evaluated by the PRPs to determine if follow-up action is necessary.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

Yes. Based on a review of decision documents, including the ROD, ESDs and PCOR, O&M documents, ground water and surface water monitoring results, results of interviews, and the Site inspection, the remedy is functioning as intended.

The RAOs are being achieved. Contaminated soil and waste from the Site is contained within the landfill, and the landfill cap was observed to be in good condition. Battery casing waste from the Site was

recycled at an off-Site location. The landfill cap minimizes rainfall infiltration into the landfill and the generation of landfill leachate, although recently an increase in leachate has been observed. The PRPs are evaluating the increase in leachate to determine if follow-up action is needed to further reduce infiltration of precipitation into the landfill. Landfill leachate is collected in an UST and periodically transported off-Site for disposal. Soil cleanup performed in the residential area was re-evaluated during this FYR and confirmed to be protective of human health and the environment. Migration of ground water contaminants to the bedrock aquifer has not occurred as demonstrated by ground water sampling of bedrock monitoring wells, and ground water contamination levels in most monitoring wells in the overburden aquifer exhibit a decreasing trend. Ground water monitoring of the bedrock and overburden aquifer will continue to evaluate the progress of the ground water cleanup. Surface water and pore water samples collected from Nesquehoning Creek, which lies immediately to the south of the landfill, did not reveal a significant Site impact, and future sampling of Nesquehoning Creek will continue.

Institutional controls were implemented in 2016 through Environmental Covenants for the Site to prohibit land uses at the Site, protect the landfill cap, and restrict use of ground water use.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy selection still valid?

Yes, the cleanup levels and RAOs are still considered valid. The MCLs and MSC used for ground water remediation standards are still valid. The activities to achieve RAOs are discussed in Question A above. Further evaluation of lead in soil is included below.

Lead in residential soil

EPA verified that the soil cleanup to address lead at residential properties adjacent to the Tonolli property remains protective of human health.

The ROD established a residential soil cleanup value for lead of 500 ppm. This lead cleanup value was based on Office of Solid Waste and Emergency Response (OSWER) Directive 9355.4-02 dated September 1989.

On December 22, 2016, EPA's Office of Land and Emergency Management (previously known as OSWER) issued the memorandum titled, Updated Scientific Considerations for Lead in Soil Cleanups. This memorandum highlights several updated factors to assist in evaluating lead exposure at Superfund sites.

EPA re-evaluated soil lead levels at three properties (two residential and one consisting of wooded vacant property) located adjacent to the Site. The average post-excavation and post-remediation lead concentrations in soil at these properties upon completion of remedial activities were significantly lower than EPA's 500 ppm cleanup standard for off-site residential properties. (Refer to the table below.) Further, a subsequent risk evaluation of the residual lead concentrations at these properties revealed predicted blood-lead levels of less than 4 microgram per deciliter (ug/dL), based on the IEUBK Model. Version 2.0, build 1.

Property	Average Post-Excavation Lead Concentrations in Soil *	Average Post-Remediation Lead Concentrations in Soil **
residential property	135 ppm	69 ppm
residential property	91 ppm	72 ppm
non-residential property	104 ppm	96 ppm

*The average lead concentrations represent the levels that remained in place upon completion of soil excavation activities and *prior* to backfilling the excavated areas with topsoil.
**The average post-remediation lead concentrations represent the levels that remained in place upon completion of soil excavation and backfilling with clean topsoil.

QUESTION C: Has any **other** information come to light that could call into question the protectiveness of the remedy?

No. The remedy continues to be protective of human health and the environment.

VI. ISSUES/RECOMMENDATIONS

Issues and Recommendations Identified in the Five-Year Review:

No significant issues regarding the protectiveness of the remedy were revealed during the Five-Year Review.

VII. PROTECTIVENESS STATEMENT

Site wide Protectiveness Statement	
Protectiveness Determination: Protective	*Planned Addendum Completion Date:* Click here to enter a date
Protectiveness Statement: The Site's remedy is protective of human health and the environment. Contaminated soil and waste from the Site have been consolidated in the landfill. Battery casing wastes have been recycled at an off-Site facility. The landfill has been closed and capped, which prevents exposure to contaminated soil and waste, and reduces infiltration of rainwater into the landfill and the generation of landfill leachate. Soil cleanup in residential areas is complete and has been verified as protective of human health. Ground water in the bedrock aquifer has not been impacted by the Site; and contaminated ground water in the	

overburden aquifer continues to be monitored and progress toward the achievement of ground water remediation standards continues to be evaluated. Institutional controls have been established to limit land use, to prevent damage to the landfill, and to restrict ground water use. Sampling and analysis in Nesquehoning Creek did not reveal unacceptable risk.

Government Performance and Results Act (GPRA) Measure Review

As part of this FYR the GPRA Measures have also been reviewed. The GPRA Measures and their status are provided as follows:

Human Health: HEPR – Current Human Exposure Controlled and Protective Remedy in Place
Ground water Migration: GMUC – Contaminated Ground Water Migration Under Control

Site-wide Ready for Anticipated Use (SWRAU): The Site achieved Site-wide RAU on January 24, 2017.

VIII. NEXT REVIEW

The next FYR will be completed no later than five years after the signature date of this FYR report.

APPENDIX A – REFERENCE LIST

PRP Contractor. 2017. Ground Water Monitoring Report – October 2017 Semi-Annual Sampling Event and 2017 Annual Summary

PRP Contractor. 2017. Results of Surface Water and Pore Water Sampling of Nesquehoning Creek.

U.S. Environmental Protection Agency (EPA). 1992. Record of Decision, Tonolli Corporation Superfund Site.

U.S. EPA. 1995. Explanation of Significant Differences #1 (ESD #1), Tonolli Corporation Superfund Site.

U.S. EPA. 1997. ESD #2, Tonolli Corporation Superfund Site.

U.S. EPA. 1998. ESD #3, Tonolli Corporation Superfund Site.

U.S. EPA. 1999. Preliminary Close Out Report, Tonolli Corporation Superfund Site.

U.S. EPA. 2005. ESD #4, Tonolli Corporation Superfund Site.

U.S. EPA. 2014. ESD #5, Tonolli Corporation Superfund Site.

APPENDIX B – CHRONOLOGY OF SITE EVENTS

Date	Event
Early 1920's to 1972	Site used as a disposal area for coal mine spoils and incinerator ash from a nearby Pennsylvania Power and Light (PP&L) power generating station.
1972	Tonolli Corporation (Tonolli) purchased a portion of the Site.
1974 to ~1985	Tonolli operated a lead-acid battery recycling and secondary lead reclamation facility at the Site.
Late 1985	Tonolli filed for bankruptcy and abandoned the Site.
May to December, 1989	EPA performed Removal Response actions at the Site to stabilize Site conditions.
September 19, 1989	46 Potentially Responsible Parties (PRPs) entered into an Administrative Order on Consent (AOC) with EPA to perform the Remedial Investigation/Feasibility Study (RI/FS) for the Site.
October 1989	Site was placed on the National Priorities List (NPL) by EPA.
September 3, 1991	PRPs submitted the Remedial Investigation to EPA.
December 17, 1991	EPA issued a Unilateral Administrative Order (UAO) to a group of PRPs for operating and maintaining the on-Site storm water treatment system.
January 1992	PRPs submitted the FS to EPA.
July 1992	EPA entered into a de minims settlement with 170 PRPs.
September 30, 1992	EPA issued the Record of Decision (ROD) for the Site.
September 30, 1993	EPA issued an AOC to the PRPs for the performance of a Remedial Design (RD).
April 20, 1994	EPA entered into a second de minimis settlement with an additional 31 PRPs.
February 1995	EPA issued the Explanation of Significant Differences (ESD) #1 in response to Pennsylvania Department of Environmental Resources (PADER) comments regarding the applicability of Pennsylvania hazardous and residual waste regulations to the remedy.
February 1996	EPA signed an AOC with a group of PRPs for removal of battery case materials and other reclaimable wastes from the Site for off-Site recycling.

January 7, 1997	EPA issued ESD #2 to address the isolation distance between the ground water table and the landfill liner.
February 20, 1998	EPA approved the Final RD.
March 4, 1998	EPA and the Commonwealth of Pennsylvania entered into a Consent Decree (CD) with a group of PRPs. The CD was lodged with the United States District Court for the Middle District of Pennsylvania on March 4, 1998 and entered by the Court on May 7, 1998.
April 20, 1998	Construction of the Remedy outlined in the ROD and subsequent ESDs began.
March 12, 1999	EPA issued ESD #3, expanding the scope of the remedial action (described further below)
November 29, 1999	The pre-final inspection of the Site was performed by representatives of EPA, the United States Army Corps of Engineers (USACE), which performed oversight for EPA, ENTACT (construction contractor), the PRPS, and the Pennsylvania Department of Environmental Protection (PADEP).
December 13, 1999	Preliminary Close-Out Report signed.
August 2001	Leed Environmental provided EPA with the Interim Remedial Action Report for the Site.
July 8, 2003	EPA issued first Five-Year Review report
March 24, 2005	EPA issued ESD #4 for the Site, changing the ground water remediation performance standards.
June 11, 2008	EPA issued second Five-Year Review report
June 10, 2013	EPA issued third Five Year Review report
September 8, 2014	EPA issued ESD #5, detailing institutional controls for the Site

APPENDIX C – CONTAMINANTS OF CONCERN

Soil:
Primarily lead

Ground water:
Lead (identified in ROD)
Cadmium (identified in ROD)
Arsenic (identified in ROD)
Antimony (added to ground water monitoring plan due to concentrations in landfill leachate)

APPENDIX D – GROUND WATER MONITORING DATA/GRAPHS

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-11SR
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA	PA Act 2		MW-11SR			MW-11SR			MW-11SR			MW-11SR			MW-11SR		
Sample Date	MCL	MSC		2/13/2001			5/24/2001			9/6/2001			11/21/2001			2/27/2002		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.0011	J	0.00076		U	0.0024		U	0.0024		U	0.0024		U	0.0024
Arsenic	0.01[2]		mg/l	0.0014	J	0.0012		UJ	0.0014		U	0.0014		U	0.0014		U	0.0014
Cadmium	0.005		mg/l	0.0168		0.0036	0.012	U	0.00064	0.0181	U	0.00064	0.0189		0.00064	0.0201		0.00064
Lead		0.005	mg/l	0.0078		0.0019		U	0.0018		U	0.0018		UJ	0.0018		U	0.0018
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	0.0173		0.0036	0.0019	J	0.00064	0.0178		0.00064	0.0187		0.00064	0.0201		0.00094
Lead		0.005	mg/l	0.0051	J	0.0019		NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	67		6	59		3	78	J	3	67		7.5	73		6

Sample Location	SDWA	PA Act 2		MW-11SR			MW-11SR			MW-11SR			MW-11SR			MW-11SR		
Sample Date	MCL	MSC		5/29/2002			5/28/2003			5/6/2004			5/4/2005			5/19/2006		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.00096		UJ	0.0025		UJ	0.001	0.00046	U	0.00009		U	0.000038
Arsenic	0.01[2]		mg/l		U	0.0014		UJ	0.0014		UJ	0.00085		U	0.00066		U	0.00033
Cadmium	0.005		mg/l	0.024		0.00094	0.0153		0.00087	0.0111		0.00076	0.0089		0.000087	0.016		0.000099
Lead		0.005	mg/l	0.0025	J	0.0012		UJ	0.0012		U	0.00099	0.00094	U	0.00021	0.00085	U	0.000047
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	0.023		0.00094	0.0157		0.00087	0.0116		0.00076	0.0089		0.000087	0.0155		0.000099
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	78		6	126		6	74		3	95.4		6	78.3		6

Sample Location	SDWA	PA Act 2		MW-11SR			MW-11SR			MW-11SR			MW-11SR			MW-11SR		
Sample Date	MCL	MSC		5/16/2007			5/22/2008			5/13/2009			5/25/2010			5/25/2011		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.000044		U	0.0003		U	0.0003		U	0.0003		U	0.0003
Arsenic	0.01[2]		mg/l		U	0.0007		U	0.00095		U	0.00095		U	0.00095		U	0.00095
Cadmium	0.005		mg/l	0.0083	U	0.000099	0.0087		0.00021	0.0123		0.00021	0.0069		0.0002	0.0081		0.0002
Lead		0.005	mg/l	0.00066	J	0.000037	0.002		0.00005	0.00081	J	0.00005	0.00074	J	0.00005	0.0014	J	0.000052
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l		NA		0.0093		0.00021	0.0128		0.0002	0.0068		0.0002	0.0085		0.0002
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	65		10	70.9		1.5	71.1	J	1.5	54		6	98.1	J	3

Sample Location	SDWA	PA Act 2		MW-11SR			MW-11SR			MW-11SR			MW-11SR			MW-11SR		
Sample Date	MCL	MSC		5/21/2012			4/22/2013			4/22/2014			4/22/2015			5/23/2016		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.00042		U	0.00034		U	0.00034		U	0.00033		U	0.00033
Arsenic	0.01[2]		mg/l		U	0.00095	0.00077	J	0.00042		U	0.00078		U	0.00082		U	0.00054
Cadmium	0.005		mg/l	0.0064		0.0002	0.0055		0.00023	0.0075		0.00023	0.0098		0.00017	0.0062		0.0002
Lead		0.005	mg/l	0.0021		0.00008	0.0015		0.000073	0.0016		0.000085	0.0024		0.000082	0.0011		0.000130
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	0.0066		0.0002	0.0055		0.00012	0.0075		0.00023	0.0102		0.00017	0.0062		0.0002
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	49.9		1.5	42.7		1.5	42.9		1.5	51.8		1.5	41.2		1.5

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-11SR
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	*SDWA MCL*	*PA Act 2 MSC*		MW-11SR		
Sample Date				5/24/2017		
Parameter			**Units**	**Result**	**Q**	**MDL**
Total Metals						
Antimony	*0.006*		mg/l		U	0.00048
Arsenic	*0.01*[2]		mg/l		U	0.00068
Cadmium	*0.005*		mg/l	**0.0072**		0.00019
Lead		*0.005*	mg/l	0.0007	J	0.00009
Dissolved Metals						
Antimony	*0.006*		mg/l		NA	
Arsenic	*0.01*[2]		mg/l		NA	
Cadmium	*0.005*		mg/l	**0.0078**		0.00019
Lead		*0.005*	mg/l		NA	
Conventionals						
Sulfate[1]	*250*		mg/l	50.5	J	1.5

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-12SR
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA MCL	PA Act 2 MSC		MW-12SR			MW-12SR			MW-12SR			MW-12SR			MW-12SR		
Sample Date				2/13/2001			5/24/2001			9/6/2001			11/21/2001			2/26/2002		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006	105	mg/l		U	0.00076		U	0.0024		U	0.0024		U	0.0024		U	0.0024
Arsenic	0.01[2]		mg/l	0.0028	J	0.0012		UJ	0.0014		U	0.0014		U	0.0014		U	0.0014
Cadmium	0.005		mg/l	0.0068	J	0.0036	0.0066	U	0.00064	0.0058	J	0.00064	0.0052	J	0.00064	0.0051	J	0.00064
Lead		0.005	mg/l	0.0058		0.0019		UJ	0.009		U	0.0018		UJ	0.0018		U	0.0018
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	0.0072	J	0.0036	0.006	J	0.00064	0.0057	J	0.00064	0.0052	J	0.00064	0.0056	J	0.00094
Lead		0.005	mg/l		UJ	0.0095	0.0024	J	0.0018		NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	780		75	700		50	660	J	3	520		75	420		30

Sample Location	SDWA MCL	PA Act 2 MSC		MW-12SR			MW-12SR			MW-12SR			MW-12SR			MW-12SR		
Sample Date				5/30/2002			9/4/2002			11/25/2002			5/28/2003			11/25/2003		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.0019	J	0.00096		U	0.00096	0.00096	U	0.00096		UJ	0.0025		U	0.0025
Arsenic	0.01[2]		mg/l		U	0.0014	0.0047	U	0.0014	0.0018	UJ	0.0014		U	0.0014	0.0045	J	0.0014
Cadmium	0.005		mg/l	0.007	J	0.00094	0.0055	J	0.00094	0.0061	J	0.00094	0.0079	J	0.00087	0.0075		0.00087
Lead		0.005	mg/l	0.002	J	0.0012	0.0016	J	0.0012		U	0.0012		UJ	0.0012	0.0014	J	0.0012
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	0.0075	J	0.00094	0.0051	J	0.00094	0.0057	J	0.00094	0.0085	J	0.00087	0.0085	J	0.00087
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	570		38	580		30	620		30	857		75	1330		75

Sample Location	SDWA MCL	PA Act 2 MSC		MW-12SR			MW-12SR			MW-12SR			MW-12SR			MW-12SR		
Sample Date				5/6/2004			11/23/2004			5/3/2005			11/22/2005			5/18/2006		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	RL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		UJ	0.001		UJ	0.01[a]		U	0.00009	0.00016	U	0.000064	0.000066	J	0.000038
Arsenic	0.01[2]		mg/l		UJ	0.00085	0.0013	J	0.00085		U	0.00066	0.00068	J	0.00066	0.0013	J	0.00033
Cadmium	0.005		mg/l	0.0069		0.00076	0.0051		0.00076	0.0043		0.000087	0.0047		0.000087	0.0043		0.000099
Lead		0.005	mg/l		UJ	0.00099		UJ	0.00099	0.00088	U	0.00021	0.00059	J	0.00018	0.0012	U	0.000047
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	0.0068		0.00076	0.0052		0.00076	0.0042		0.000087	0.0045		0.000087	0.0042		0.000099
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	1080		75	807		75	636		30	574		30	600		75

Sample Location	SDWA MCL	PA Act 2 MSC		MW-12SR			MW-12SR			MW-12SR			MW-12SR			MW-12SR		
Sample Date				11/21/2006			5/16/2007			11/20/2007			5/21/2008			11/24/2008		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.00011	U	0.000038	0.00005	J	0.000044		U	0.000044		U	0.0003		U	0.0003
Arsenic	0.01[2]		mg/l	0.00096	J	0.00067	0.001		0.0007	0.0011	J	0.0007	0.0026		0.00095		U	0.00095
Cadmium	0.005		mg/l	0.0039		0.000099	0.0035		0.000099	0.0029		0.000099	0.0028		0.00021	0.0021		0.00021
Lead		0.005	mg/l	0.0021		0.000047	0.00047	J	0.000037	0.0012		0.000047	0.0057		0.00005	0.00064	J	0.00005
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	0.0038		0.000099		NA			NA			NA		0.0021		0.00021
Lead		0.005	mg/l		NA			NA			NA		0.0037		0.00005		NA	
Conventionals																		
Sulfate[1]	250		mg/l	464		30	469		50	384		15	361		15	290	J	30

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels

PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations

Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated

mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled

Shaded values indicate that the metal concentration exceeded Performance Standards.

a - Antimony was reanalyzed at a lower reporting limit of 0.000090 mg/l and the results were below the detection limit.

1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.

2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-12SR
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA MCL	PA Act 2 MSC		MW-12SR			MW-12SR			MW-12SR			MW-12SR			MW-12SR		
Sample Date				5/13/2009			11/23/2009			5/24/2010			11/22/2010			5/25/2011		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.0003		U	0.0003		U	0.0003		U	0.0003		U	0.0003
Arsenic	0.01[2]		mg/l	0.0014	J	0.00095	0.0011	J	0.00095		U	0.00095	0.0012	J	0.00095	0.0020	J	0.00095
Cadmium	0.005		mg/l	0.0031		0.00021	0.0023		0.0002	0.0023		0.0002	0.002		0.0002	0.0022		0.0002
Lead		0.005	mg/l	0.0012		0.00005	0.0011		0.00005	0.0031		0.00005	0.0063		0.000052	0.0025	J	0.000052
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA		0.0056		0.000052		NA	
Conventionals																		
Sulfate[1]	250		mg/l	445	J	15	334		15	325		30	247		15	443	J	15

Sample Location	SDWA MCL	PA Act 2 MSC		MW-12SR			MW-12SR			MW-12SR			MW-12SR			MW-12SR		
Sample Date				11/21/2011			5/21/2012			11/19/2012			4/23/2013			10/21/2013		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.00042		U	0.00042		U	0.00033		U	0.00034		U	0.00034
Arsenic	0.01[2]		mg/l	0.0024		0.00095		U	0.00095	0.0012	J	0.0004	0.0015	J	0.00042	0.0011	U	0.00042
Cadmium	0.005		mg/l	0.0022		0.0002	0.0027		0.0002	0.0024		0.000082	0.0025		0.00023	0.0024		0.00023
Lead		0.005	mg/l	0.0024		0.00008	0.0022		0.00008	0.0016		0.000047	0.0053		0.000073	0.0030		0.000085
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA		0.0037		0.000047		NA	
Conventionals																		
Sulfate[1]	250		mg/l	374	J	30	386		30	392		15	447		15	385		15

Sample Location	SDWA MCL	PA Act 2 MSC		MW-12SR			MW-12SR			MW-12SR			MW-12SR			MW-12SR		
Sample Date				4/22/2014			10/22/2014			4/23/2015			10/19/2015			5/23/2016		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.00034		U	0.00033		U	0.00033		U	0.00033		U	0.00033
Arsenic	0.01[2]		mg/l	0.001	J	0.00078	0.0011	J	0.00082	0.0012	J	0.00082		U	0.00054	0.0014	J	0.00054
Cadmium	0.005		mg/l	0.0026		0.00023	0.0019		0.00017	0.002		0.00017	0.0016		0.00023	0.0019		0.0002
Lead		0.005	mg/l	0.0030		0.000085	0.0031		0.000082	0.0032		0.000082	0.00083	J	0.00013	0.00270		0.00013
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	387		15	300		15	339		15	326	J	15	288		15

Sample Location	SDWA MCL	PA Act 2 MSC		MW-12SR			MW-12SR			MW-12SR		
Sample Date				10/10/2016			5/24/2017			10/23/2017		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals												
Antimony	0.006		mg/l		U	0.00048		U	0.00048		U	0.00045
Arsenic	0.01[2]		mg/l	0.0015	J	0.00068	0.0011	J	0.00068		U	0.00072
Cadmium	0.005		mg/l	0.0015		0.00019	0.0019		0.00019	0.0012		0.00015
Lead		0.005	mg/l	0.003		0.00009	0.0013		0.00009	0.0014		0.00011
Dissolved Metals												
Antimony	0.006		mg/l		NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA	
Cadmium	0.005		mg/l		NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA	
Conventionals												
Sulfate[1]	250		mg/l	257		15	255	J	6	212		6

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
a - Antimony was reanalyzed at a lower reporting limit of 0.000090 mg/l and the results were below the detection limit.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-13SR
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA	PA Act 2		MW-13SR			MW-13SR			MW-13SR			MW-13SR			MW-13SR		
Sample Date	MCL	MSC		2/13/2001			5/23/2001			9/5/2001			11/20/2001			2/26/2002		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals																		
Antimony	0.006		mg/l		U	0.00076		U	0.0024		U	0.0024		U	0.0024		U	0.0024
Arsenic	0.01[2]		mg/l		U	0.0012		UJ	0.0014		U	0.0014		U	0.0014		U	0.0014
Cadmium	0.005		mg/l	0.034		0.0036	0.0304	J	0.00064	0.0234		0.00064	0.022		0.00064	0.0228		0.00064
Lead		0.005	mg/l	0.0042		0.0019		U	0.0018		U	0.0018		U	0.0018		U	0.0018
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	0.0355		0.0036	0.0288	J	0.00064	0.0245		0.00064	0.0215		0.00064	0.0229		0.00094
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	127		15	142		7.5	135	J	15	137		7.5	138		6

Sample Location	SDWA	PA Act 2		MW-13SR			MW-13SR			MW-13SR			MW-13SR			MW-13SR		
Sample Date	MCL	MSC		5/30/2002			5/28/2003			5/6/2004			5/4/2005			5/19/2006		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals																		
Antimony	0.006		mg/l		U	0.00096		UJ	0.0025	0.0017	UJ	0.001		U	0.00009		U	0.000038
Arsenic	0.01[2]		mg/l		U	0.0014		U	0.0014		UJ	0.00085		U	0.00066		U	0.00033
Cadmium	0.005		mg/l	0.0438		0.00094	0.0321		0.00087	0.0482		0.00076	0.0425		0.000087	0.0247		0.000099
Lead		0.005	mg/l	0.0029	J	0.0012		UJ	0.0012		UJ	0.00099	0.0014		0.00021	0.00047	U	0.000047
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	0.0425		0.00094	0.0324		0.00087	0.044		0.00076	0.0424		0.000087	0.0243		0.000099
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	142		6	156		6	135		6	117		6	108		6

Sample Location	SDWA	PA Act 2		MW-13SR			MW-13SR			MW-13SR			MW-13SR			MW-13SR		
Sample Date	MCL	MSC		5/16/2007			5/22/2008			5/13/2009			5/25/2010			5/25/2011		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals																		
Antimony	0.006		mg/l	0.000052	J	0.000044		U	0.0003		U	0.0003		U	0.0003		U	0.0003
Arsenic	0.01[2]		mg/l		U	0.0007		U	0.00095		U	0.00095		U	0.00095		U	0.00095
Cadmium	0.005		mg/l	0.0135		0.000099	0.0098		0.00021	0.0224		0.00021	0.0076		0.0002	0.0331		0.0002
Lead		0.005	mg/l	0.00037	J	0.000037	0.0019		0.00005	0.0011		0.00005	0.0021		0.00005	0.0013	J	0.000052
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	0.0125		0.000099	0.0106		0.00021	0.024		0.0002	0.0078		0.0002	0.0340		0.0002
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	110		10	123		3	122	J	3	95.2		6	147	J	3

Sample Location	SDWA	PA Act 2		MW-13SR			MW-13SR			MW-13SR			MW-13SR			MW-13SR		
Sample Date	MCL	MSC		5/22/2012			4/23/2013			4/22/2014			4/23/2015			5/24/2016		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals																		
Antimony	0.006		mg/l		U	0.00042		U	0.00034		U	0.00034		U	0.00033		U	0.00033
Arsenic	0.01[2]		mg/l		U	0.00095		U	0.00042		U	0.00078		U	0.00082		U	0.00054
Cadmium	0.005		mg/l	0.0149		0.0002	0.0064		0.00023	0.0172		0.00023	0.0168		0.00017	0.0040		0.0002
Lead		0.005	mg/l	0.0016		0.00008	0.0022		0.000073	0.0036		0.000085	0.0008	J	0.000082	0.002		0.000130
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	0.0150		0.0002	0.0061		0.00012	0.0174		0.00023	0.0165		0.00017		NA	
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	90.6		3	83.1		3	80.8		3	92		3	74.6		3

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-13SR
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	*SDWA MCL*	*PA Act 2 MSC*		MW-13SR		
Sample Date				5/24/2017		
Parameter			**Units**	**Result**	**Q**	**MDL**
Total Metals						
Antimony	*0.006*		mg/l		U	0.00048
Arsenic	*0.01*[2]		mg/l		U	0.00068
Cadmium	*0.005*		mg/l	**0.0082**		0.00019
Lead		*0.005*	mg/l	0.00073	J	0.00009
Dissolved Metals						
Antimony	*0.006*		mg/l		NA	
Arsenic	*0.01*[2]		mg/l		NA	
Cadmium	*0.005*		mg/l	**0.0079**		0.00019
Lead		*0.005*	mg/l		NA	
Conventionals						
Sulfate[1]	*250*		mg/l	79.4	J	3

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-14SR
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA MCL	PA Act 2 MSC		MW-14SR			MW-14SR			MW-14SR			MW-14SR			MW-14SR		
Sample Date				2/14/2001			5/24/2001			9/6/2001			11/21/2001			2/27/2002		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.127		0.0038	0.0689		0.0024	0.117	J	0.012	0.0947		0.012	0.0636		0.0024
Arsenic	0.01[2]		mg/l	0.084		0.0024	0.0902	J	0.007	0.0772		0.0014	0.137		0.007	0.0483		0.0014
Cadmium	0.005		mg/l	0.0345		0.0036	0.006	U	0.00064	0.0226		0.00064	0.0122		0.00064	0.0085	J	0.00064
Lead		0.005	mg/l		U	0.0019		U	0.0018	0.0071	U	0.0018		UJ	0.0018		U	0.0018
Dissolved Metals																		
Antimony	0.006		mg/l	0.0883	J	0.0076	0.017		0.0024	0.0598		0.0048	0.063		0.0048	0.0418		0.0024
Arsenic	0.01[2]		mg/l	0.0728		0.003	0.0722		0.0028	0.0643		0.0014	0.134		0.014		NA	
Cadmium	0.005		mg/l	0.0209		0.0036	0.00091	J	0.00064	0.0092	J	0.00064	0.0048	J	0.00064	0.004	J	0.00094
Lead		0.005	mg/l		NA			NA		0.0029	J	0.0018		NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	232		15	163		7.5	130	J	6	126		7.5	187		15

Sample Location	SDWA MCL	PA Act 2 MSC		MW-14SR			MW-14SR			MW-14SR			MW-14SR			MW-14SR		
Sample Date				5/31/2002			9/4/2002			11/25/2002			5/29/2003			11/25/2003		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.0149		0.00096	0.0586		0.00096	0.0310	J	0.00096	0.0733	J	0.0025	0.0456		0.0025
Arsenic	0.01[2]		mg/l	0.0377		0.0014	0.0440		0.0014	0.0541	J	0.0014	0.2890	J	0.007	0.2380	J	0.007
Cadmium	0.005		mg/l	0.0072	J	0.00094	0.0198		0.00094	0.0119		0.00094	0.0436		0.00087	0.0338		0.00087
Lead		0.005	mg/l		U	0.0012		U	0.0012		U	0.0012		UJ	0.0012	0.0041		0.0012
Dissolved Metals																		
Antimony	0.006		mg/l	0.0143		0.00096	0.0439		0.00096	0.0169		0.00096	0.0266	J	0.0025	0.0043	J	0.0025
Arsenic	0.01[2]		mg/l	0.0302		0.0014	0.0457		0.0014	0.0502		0.0014	0.0110		0.0014	0.0047	J	0.0014
Cadmium	0.005		mg/l	0.0055	J	0.00094	0.0131		0.00094		U	0.00094	0.0393		0.00087	0.0327		0.00087
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	168		7.5	96		6	153		6	142		6	115		6

Sample Location	SDWA MCL	PA Act 2 MSC		MW-14SR			MW-14SR			MW-14SR			MW-14SR			MW-14SR		
Sample Date				5/6/2004			11/23/2004			5/4/2005			11/23/2005			5/19/2006		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	RL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.0173	J	0.001	0.0016	UJ	0.001	0.0111		0.00009	0.0072	J	0.000064	0.0144		0.000038
Arsenic	0.01[2]		mg/l	0.0668	J	0.00085	0.0364		0.00085	0.0827		0.00066	0.1330		0.00066	0.0933		0.00033
Cadmium	0.005		mg/l	0.1990		0.00076	0.0251		0.00076	0.1230		0.000087	0.0018	J	0.000087	0.0090		0.000099
Lead		0.005	mg/l	0.0163	U	0.00099		UJ	0.00099	0.0121		0.00021		U	0.00018	0.00031	U	0.000047
Dissolved Metals																		
Antimony	0.006		mg/l	0.0067		0.001		UJ	0.001	0.0022		0.00009	0.0075	J	0.000064	0.0063		0.000038
Arsenic	0.01[2]		mg/l	0.0063		0.00085	0.0154		0.00085	0.0018	J	0.00066	0.1360		0.0033	0.0504		0.00033
Cadmium	0.005		mg/l	0.1690		0.00076	0.0184		0.00076	0.1150		0.000087	0.0021	J	0.000087	0.00078		0.000099
Lead		0.005	mg/l		U	0.00099		NA		0.00034	J	0.00021		NA			U	0.000047
Conventionals																		
Sulfate[1]	250		mg/l	139		6	141		7.5	125		6	124		7.5	154		6

Sample Location	SDWA MCL	PA Act 2 MSC		MW-14SR			MW-14SR			MW-14SR			MW-14SR			MW-14SR		
Sample Date				11/21/2006			5/16/2007			11/21/2007			1/16/2008			5/22/2008		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.0090		0.000038	0.0081		0.000044	0.1100		0.000044	0.0201		0.000044	0.0197		0.0003
Arsenic	0.01[2]		mg/l	0.0595		0.00067	0.0631		0.0007	0.0995		0.0007	0.1500		0.0007	0.2020		0.00095
Cadmium	0.005		mg/l	0.0298		0.000099	0.0378		0.000099	0.0205		0.000099	0.0055		0.000099	0.0080		0.00021
Lead		0.005	mg/l	0.00032	J	0.000047	0.00052	J	0.000037	0.00024	J	0.000047	0.00025	J	0.000047	0.00051	J	0.00005
Dissolved Metals																		
Antimony	0.006		mg/l	0.0026		0.000038	0.0023		0.000044	0.0967		0.000044		NA		0.0041		0.0003
Arsenic	0.01[2]		mg/l	0.0272		0.00067	0.0084		0.0007	0.0941		0.0007		NA		0.0859		0.00095
Cadmium	0.005		mg/l	0.0154		0.000099	0.0338		0.000099	0.0014		0.000099		NA		0.00078		0.00021
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	162		30	107		10	98.1		3		NA		140		6

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-14SR
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA MCL	PA Act 2 MSC		MW-14SR			MW-14SR			MW-14SR			MW-14SR			MW-14SR		
Sample Date				11/25/2008			5/14/2009			11/24/2009			5/26/2010			11/23/2010		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.0384		0.0003	0.0123	J	0.0003	0.0186		0.0003	0.0476		0.0003	0.0178		0.0003
Arsenic	0.01[2]		mg/l	0.2650		0.00095	0.0577		0.00095	0.0994		0.00095	0.3450		0.00095	0.1360		0.00095
Cadmium	0.005		mg/l	0.0188		0.00021	0.0107		0.00021	0.0190		0.0002	0.0290		0.0002	0.0200		0.0002
Lead		0.005	mg/l	0.002		0.00005	0.00067	J	0.00005	0.00041	U	0.00005	0.00490		0.00005	0.00087	J	0.000052
Dissolved Metals																		
Antimony	0.006		mg/l	0.0329		0.0003	0.0043		0.0003	0.0054		0.0003	0.0076		0.0003	0.0019	U	0.0003
Arsenic	0.01[2]		mg/l	0.1940		0.00095	0.0498		0.00095	0.0192		0.00095	0.0084		0.00095	0.1110		0.00095
Cadmium	0.005		mg/l		U	0.00021	0.0029		0.0002	0.0203		0.0002	0.0191		0.0002	0.00025	J	0.0002
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	119	J	6	128	J	6	126		6	107		6	94.9		6

Sample Location	SDWA MCL	PA Act 2 MSC		MW-14SR			MW-14SR			MW-14SR			MW-14SR			MW-14SR		
Sample Date				5/26/2011			11/22/2011			5/22/2012			11/20/2012			1/23/2013		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.0034		0.0003	0.0056		0.00042	0.0086	J	0.00042	0.297*	J	0.00033	0.0409		0.00033
Arsenic	0.01[2]		mg/l	0.0241		0.00095	0.0199	J	0.00095	0.0496		0.00095	0.403*	J	0.0004	0.0439		0.0004
Cadmium	0.005		mg/l	0.0069		0.00021	0.0220		0.0002	0.0029		0.0002	0.440*	J	0.000082	0.0060	J	0.00012
Lead		0.005	mg/l	0.000072	UJ	5.2E-05	0.000093	J	0.00008	0.00017	J	0.00008	0.0011*	J	0.000047	0.0010		0.000073
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA		0.0061		0.00042	0.0119		0.00033	0.0210		0.00033
Arsenic	0.01[2]		mg/l	0.0164		0.00095	0.0064		0.00095	0.0509		0.00095	0.0553		0.0004	0.0348		0.0004
Cadmium	0.005		mg/l	0.0055		0.0002	0.0248		0.0002		NA		0.0017		0.000082		U	0.00012
Lead		0.005	mg/l		NA			NA			NA			NA			U	0.000073
Conventionals																		
Sulfate[1]	250		mg/l	117	J	3	103	J	3	97.5		3	93.1		6		NA	

Sample Location	SDWA MCL	PA Act 2 MSC		MW-14SR			MW-14SR			MW-14SR			MW-14SR			MW-14SR		
Sample Date				4/24/2013			10/22/2013			4/23/2014			10/23/2014			4/23/2015		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.0214		0.00034	0.0214		0.00034	0.0232		0.00034	0.0170		0.00033	0.0229		0.00033
Arsenic	0.01[2]		mg/l	0.0192		0.00042	0.0174		0.00042	0.0359		0.00078	0.0569		0.00082	0.0428		0.00082
Cadmium	0.005		mg/l	0.0010		0.00023	0.00026	J	0.00023	0.00084		0.00023	0.00026	J	0.00017	0.00100		0.00017
Lead		0.005	mg/l	0.00011	J	0.000073	0.00027	U	0.000085	0.00010	J	0.000085	0.00013	J	0.000082	0.00034	J	0.000082
Dissolved Metals																		
Antimony	0.006		mg/l	0.0150		0.00033	0.0166		0.00034	0.0203		0.00034	0.0129		0.00033	0.0197		0.00033
Arsenic	0.01[2]		mg/l	0.0194		0.0004	0.0169		0.00078	0.0306		0.00078	0.0573		0.00082	0.0359		0.00082
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	82.6		3	79.3		6	86.1		3	80.9		6	79.3		3

Sample Location	SDWA MCL	PA Act 2 MSC		MW-14SR			MW-14SR			MW-14SR			MW-14SR			MW-14SR		
Sample Date				10/20/2015			5/25/2016			10/11/2016			5/25/2017			10/24/2017		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.0140		0.00033	0.0143		0.00033	0.0120		0.00048	0.0098		0.00048	0.0137		0.00045
Arsenic	0.01[2]		mg/l	0.0580	J	0.00054	0.0310		0.00054	0.0164		0.00068	0.0314		0.00068	0.0386		0.00072
Cadmium	0.005		mg/l	0.00055		0.00023	0.00095	J	0.0002	0.00064		0.00019	0.00059		0.00019	0.00044	J	0.00015
Lead		0.005	mg/l		U	0.00013	0.00058	J	0.00013	0.00032	J	0.00009	0.000093	J	0.00009	0.00012	J	0.00011
Dissolved Metals																		
Antimony	0.006		mg/l	0.0118		0.00033	0.0101		0.00033	0.0109		0.00048	0.0087		0.00048	0.0094		0.001
Arsenic	0.01[2]		mg/l	0.0547		0.00054	0.0313		0.00054	0.0167		0.00068	0.0356		0.00068	0.0349		0.002
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	81	J	3	84.2		3	38	J	3	77.9	J	3	64.7		3

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.
* - Total metals results for the MW-14SR November 2012 sample qualified as Estimated due to significantly lower total metals concentrations detected in the duplicate sample. MW-14SRD (duplicate) sample results for antimony = 0.134 mg/l, arsenic = 0.195 mg/l, cadmium = 0.196 mg/l, lead = 0.0005 mg/l.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-15S
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA	PA Act 2		MW-15S			MW-15S			MW-15S			MW-15S			MW-15S		
Sample Date	MCL	MSC		2/13/2001			5/22/2001			9/5/2001			11/19/2001			2/25/2002		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.0019	J	0.00076	0.0037	U	0.0024	0.0049	U	0.0024		U	0.0024		U	0.0024
Arsenic	0.01[2]		mg/l	0.0088	J	0.0012	0.0044	UJ	0.0014	0.0531		0.0014	0.0692		0.0028	0.0591		0.0014
Cadmium	0.005		mg/l		U	0.0036		U	0.00064		U	0.00064			0.00064		U	0.00064
Lead		0.005	mg/l		U	0.0019		UJ	0.009		U	0.009			0.0018	0.0028	J	0.0018
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA		0.0563		0.0014	0.0396		0.0014	0.0747	J	0.0014
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			U	0.0036		NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	1080		75	890		75	1250	J	75	1370		75	1450		75

Sample Location	SDWA	PA Act 2		MW-15S			MW-15S			MW-15S			MW-15S			MW-15S		
Sample Date	MCL	MSC		5/30/2002			9/4/2002			11/25/2002			5/29/2003			11/25/2003		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.0014	J	0.00096	0.0012	J	0.00096	0.0041	U	0.00096		UJ	0.0025		U	0.0025
Arsenic	0.01[2]		mg/l	0.0061		0.0014	0.0583		0.0014	0.0095	UJ	0.0014	0.0028	J	0.0014		U	0.0014
Cadmium	0.005		mg/l		U	0.00094		U	0.00094		U	0.00094		U	0.00087		U	0.00087
Lead		0.005	mg/l		U	0.0012		U	0.0012		U	0.0024		UJ	0.0012		U	0.0012
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l	0.0067	U	0.0014	0.0512		0.0014	0.0066		0.0014	0.0058	J	0.0014	0.0035	J	0.0014
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	740		75	1370		75	1080		75	720		75	521		30

Sample Location	SDWA	PA Act 2		MW-15S			MW-15S			MW-15S			MW-15S			MW-15S		
Sample Date	MCL	MSC		5/6/2004			11/22/2004			5/3/2005			11/22/2005			5/19/2006		
Parameter			Units	Result	Q	MDL	Result	Q	RL	Result	Q	MDL	Result	Q	RL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.0017	J	0.001		UJ	0.005	0.000097	U	0.00009	0.0021		0.000064	0.00038	J	0.000038
Arsenic	0.01[2]		mg/l	0.0017	J	0.00085	0.0062		0.00085	0.0034		0.00066	0.0269		0.0033	0.0077		0.00033
Cadmium	0.005		mg/l		U	0.00076		U	0.00076		U	0.000087	0.00041		0.000087		U	0.000099
Lead		0.005	mg/l		U	0.00099		UJ	0.00099	0.00027	U	0.00021	0.0034		0.00018	0.00069	U	0.000047
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA		0.0029	J	0.00085		NA		0.0141		0.00066		NA	
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	512		49.5	561		30	534		30	542		30	594		30

Sample Location	SDWA	PA Act 2		MW-15S			MW-15S			MW-15S			MW-15S			MW-15S		
Sample Date	MCL	MSC		11/21/2006			5/15/2007			11/20/2007			1/16/2008			5/21/2008		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.00011	U	0.000038	0.00057	J	0.000044	0.0022		0.000044	0.00019	UJ	0.000044	0.00069	J	0.0003
Arsenic	0.01[2]		mg/l	0.0067		0.00067	0.0109		0.0007	0.207		0.0007	0.0126	J	0.0007	0.0131		0.00095
Cadmium	0.005		mg/l		U	0.000099		U	0.000099	0.00017	J	0.000099		U	0.000099		U	0.00021
Lead		0.005	mg/l	0.0001	J	0.000047	0.0012		0.000037	0.0011		0.000047	0.00014	UJ	0.000047	0.00083	J	0.00005
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l	0.0064		0.00067	0.0033		0.0007	0.222		0.0035		NA		0.0055		0.00095
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	577		30	501		50	480		15		NA		502		15

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-15S
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA MCL	PA Act 2 MSC		MW-15S			MW-15S			MW-15S			MW-15S			MW-15S		
Sample Date				11/24/2008			5/14/2009			11/23/2009			5/24/2010			11/23/2010		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals																		
Antimony	*0.006*		mg/l	0.00067	J	0.0003		U	0.0003	0.00044	U	0.0003		U	0.0003	0.002	U	0.0003
Arsenic	*0.01*[2]		mg/l	**0.137**		0.00095	0.0093		0.00095	**0.0171**		0.00095	0.0048		0.00095	**0.113**		0.00095
Cadmium	*0.005*		mg/l		U	0.00021		U	0.00021		U	0.0002		U	0.00021		U	0.0002
Lead		*0.005*	mg/l	0.00046	J	0.00005	0.000081	J	0.00005	0.0005	U	0.00005	0.00012	J	0.00005	0.0014		0.000052
Dissolved Metals																		
Antimony	*0.006*		mg/l		NA			NA			NA			NA			NA	
Arsenic	*0.01*[2]		mg/l	**0.133**		0.00095		NA		0.0068		0.00095		NA		**0.111**		0.00095
Cadmium	*0.005*		mg/l		NA			NA			NA			NA			NA	
Lead		*0.005*	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	*250*		mg/l	**612**	J	30	**468**	J	15	**491**		15	**426**		30	**352**		15

Sample Location	SDWA MCL	PA Act 2 MSC		MW-15S			MW-15S			MW-15S			MW-15S			MW-15S		
Sample Date				5/26/2011			11/21/2011			5/22/2012			11/20/2012			4/24/2013		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals																		
Antimony	*0.006*		mg/l		U	0.0003		U	0.00042	0.0018	U	0.00042		U	0.00033		U	0.00034
Arsenic	*0.01*[2]		mg/l	0.0047		0.00095	0.0036		0.00095	**0.0165**		0.00095	0.0083		0.0004	0.0036		0.00042
Cadmium	*0.005*		mg/l		U	0.0002		U	0.0002	0.0002	J	0.0002		U	0.000082		U	0.00023
Lead		*0.005*	mg/l	0.000081	UJ	0.000052	0.000081	J	0.00008	0.003		0.00008	0.00013	J	0.000047	0.00048	J	0.000073
Dissolved Metals																		
Antimony	*0.006*		mg/l		NA			NA			NA			NA			NA	
Arsenic	*0.01*[2]		mg/l		NA			NA		0.0059		0.00095		NA			NA	
Cadmium	*0.005*		mg/l		NA			NA			NA			NA			NA	
Lead		*0.005*	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	*250*		mg/l	**564**	J	15	**418**	J	30	**324**		15	**334**		15	**347**		15

Sample Location	SDWA MCL	PA Act 2 MSC		MW-15S			MW-15S			MW-15S			MW-15S			MW-15S		
Sample Date				10/21/2013			4/21/2014			10/22/2014			4/23/2015			10/19/2015		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals																		
Antimony	*0.006*		mg/l	0.00095	U	0.00034		U	0.00034	0.0018	U	0.00033	0.00067	J	0.00033	0.00092	J	0.00033
Arsenic	*0.01*[2]		mg/l	**0.0740**		0.00042	**0.0126**		0.00078	**0.0849**		0.00082	**0.0188**		0.00082	**0.0726**	J	0.00054
Cadmium	*0.005*		mg/l		U	0.00023		U	0.00023		U	0.00017		U	0.00017		U	0.00023
Lead		*0.005*	mg/l	0.00094	J	0.000085	0.00009	J	0.000085	0.00097	J	0.000082	0.00037	J	0.000082	0.00068	J	0.00013
Dissolved Metals																		
Antimony	*0.006*		mg/l		NA			NA			NA			NA			NA	
Arsenic	*0.01*[2]		mg/l	**0.0662**		0.00078	0.0071		0.00078	**0.0652**		0.00082	**0.0117**		0.00082	**0.0771**		0.00054
Cadmium	*0.005*		mg/l		NA			NA			NA			NA			NA	
Lead		*0.005*	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	*250*		mg/l	**366**		15	**318**		15	**331**		15	30.5		1.5	**386**	J	15

Sample Location	SDWA MCL	PA Act 2 MSC		MW-15S			MW-15S			MW-15S			MW-15S		
Sample Date				5/23/2016			10/10/2016			5/23/2017			10/23/2017		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals															
Antimony	*0.006*		mg/l		U	0.00033	0.0012		0.00048		U	0.00048	0.0016		0.00045
Arsenic	*0.01*[2]		mg/l	0.0053		0.00054	**0.0651**		0.00068	0.0090		0.00068	**0.1000**		0.00072
Cadmium	*0.005*		mg/l		U	0.0002		U	0.00019		U	0.00019		U	0.00015
Lead		*0.005*	mg/l		U	0.00013	0.00062	J	0.00009	0.00012	J	0.00009	0.00110		0.00011
Dissolved Metals															
Antimony	*0.006*		mg/l		NA			NA			NA			NA	
Arsenic	*0.01*[2]		mg/l		NA		**0.0598**		0.00068		NA		**0.0863**		0.002
Cadmium	*0.005*		mg/l		NA			NA			NA			NA	
Lead		*0.005*	mg/l		NA			NA			NA			NA	
Conventionals															
Sulfate[1]	*250*		mg/l	**324**		15	**382**		15	**296**	J	6	**310**		15

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-16SR
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA	PA Act 2		MW-16SR			MW-16SR			MW-16SR			MW-16SR			MW-16SR		
Sample Date	MCL	MSC		2/13/2001			5/23/2001			9/5/2001			11/20/2001			2/26/2002		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.00081	J	0.00076		U	0.0024		U	0.0024		U	0.0024		U	0.0024
Arsenic	0.01[2]		mg/l		U	0.0012		UJ	0.0014		U	0.0014		U	0.0014		U	0.0014
Cadmium	0.005		mg/l	0.0084	J	0.0036	0.0197	U	0.00064	0.0148		0.00064	0.0128		0.00064	0.0109		0.00064
Lead		0.005	mg/l	0.0056		0.0019		U	0.0018		U	0.0018		UJ	0.0018		U	0.0018
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	0.0082	J	0.0036		NA		0.015		0.00064	0.013		0.00064	0.0114		0.00094
Lead		0.005	mg/l	0.0028	J	0.0019		NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	75		6	69		6	46	J	3	40		3	35		6

Sample Location	SDWA	PA Act 2		MW-16SR			MW-16SR			MW-16SR			MW-16SR			MW-16SR		
Sample Date	MCL	MSC		5/30/2002			5/29/2003			5/6/2004			5/4/2005			5/19/2006		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.0024	J	0.00096		UJ	0.0025		UJ	0.001		U	0.00009	0.000058	J	0.000038
Arsenic	0.01[2]		mg/l		U	0.0014		UJ	0.0014		UJ	0.00085		U	0.00066	0.00094	J	0.00033
Cadmium	0.005		mg/l	0.0136		0.00094	0.0265		0.00087	0.029		0.00076	0.019		0.000087	0.0182		0.000099
Lead		0.005	mg/l		U	0.0012		UJ	0.0012		U	0.00099	0.00053	U	0.00021	0.0016	U	0.000047
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	0.0128		0.00094	0.0268		0.00087	0.0276		0.00076	0.0188		0.000087	0.0173		0.000099
Lead		0.005	mg/l		NA			NS			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	58		3	127		6	110		6	100		6	76.8		6

Sample Location	SDWA	PA Act 2		MW-16SR			MW-16SR			MW-16SR			MW-16SR			MW-16SR		
Sample Date	MCL	MSC		5/16/2007			5/21/2008			5/13/2009			5/25/2010			5/25/2011		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.000044		U	0.0003		U	0.0003		U	0.0003		U	0.0003
Arsenic	0.01[2]		mg/l		U	0.0007		U	0.00095		U	0.00095		U	0.00095	0.0011	J	0.00095
Cadmium	0.005		mg/l	0.0133	U	0.000099	0.0162		0.00021	0.0134		0.00021	0.0148		0.0002	0.0086		0.0002
Lead		0.005	mg/l	0.00055	J	0.000037	0.00079		0.00005	0.00098	J	0.00005	0.0024		0.00005	0.0012	J	0.000052
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	0.0125		0.000099	0.0173		0.00021	0.0142		0.0002	0.0153		0.0002	0.0083		0.0002
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	72.7		25	81.3		3	84.5	J	3	77.1		6	99.4	J	6

Sample Location	SDWA	PA Act 2		MW-16SR			MW-16SR			MW-16SR			MW-16SR			MW-16SR		
Sample Date	MCL	MSC		5/22/2012			4/23/2013			4/22/2014			4/22/2015			5/24/2016		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.00042		U	0.00034		U	0.00034		U	0.00033		U	0.00033
Arsenic	0.01[2]		mg/l		U	0.00095		U	0.00042		U	0.00078		U	0.00082		U	0.00054
Cadmium	0.005		mg/l	0.0114		0.0002	0.0116		0.00023	0.0093		0.00023	0.0072		0.00017	0.0088		0.0002
Lead		0.005	mg/l	0.0014		0.00008	0.0016		0.000073	0.0021		0.000085	0.0015		0.000082	0.00059	J	0.000130
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	0.0113		0.0002	0.0123		0.00012	0.0093		0.00023	0.0076		0.00017	0.0089		0.0002
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	64.6		3	67.5		3	55		1.5	54.9		1.5	56.5		1.5

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels

PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations

Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated

mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled

Shaded values indicate that the metal concentration exceeded Performance Standards.

1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.

2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-16SR
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	*SDWA MCL*	*PA Act 2 MSC*		MW-16SR		
Sample Date				5/24/2017		
Parameter			**Units**	**Result**	**Q**	**MDL**
Total Metals						
Antimony	*0.006*		mg/l		U	0.00048
Arsenic	*0.01*[2]		mg/l		U	0.00068
Cadmium	*0.005*		mg/l	**0.0065**		0.00019
Lead		*0.005*	mg/l	0.00044	J	0.00009
Dissolved Metals						
Antimony	*0.006*		mg/l		NA	
Arsenic	*0.01*[2]		mg/l		NA	
Cadmium	*0.005*		mg/l	**0.0069**		0.00019
Lead		*0.005*	mg/l		NA	
Conventionals						
Sulfate[1]	*250*		mg/l	56.4	J	1.5

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-17SR
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA MCL	PA Act 2 MSC		MW-17SR			MW-17SR			MW-17SR			MW-17SR			MW-17SR		
Sample Date				2/13/2001			5/21/2001			9/4/2001			11/19/2001			2/25/2002		
Parameter			Units	Result	Q	RL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.00076		U	0.0024		U	0.0024		U	0.0024		U	0.0024
Arsenic	0.01[2]		mg/l		U	0.0012		UJ	0.0014		U	0.0014		U	0.0014		U	0.0014
Cadmium	0.005		mg/l		U	0.0036	0.0019	U	0.00064	0.00066	J	0.00064	0.00076	J	0.00064	0.0016	U	0.00064
Lead		0.005	mg/l	0.004		0.0019		U	0.0018		U	0.0018		U	0.0018	0.002	J	0.0018
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	15.2		1.5	27.3		1.5	7.8	J	1.5	22.5		1.5	26.6		1.5

Sample Location	SDWA MCL	PA Act 2 MSC		MW-17SR			MW-17SR			MW-17SR			MW-17SR			MW-17SR		
Sample Date				5/29/2002			5/28/2003			5/5/2004			5/3/2005			5/18/2006		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.00096	J	0.00096		UJ	0.0025	0.0013	J	0.001		U	0.00009	0.000057	J	0.000038
Arsenic	0.01[2]		mg/l		U	0.0014		U	0.0014		UJ	0.00085		U	0.00066		U	0.00033
Cadmium	0.005		mg/l	0.0028	J	0.00094	0.0019	J	0.00087	0.0013	J	0.00076	0.0014		0.000087	0.0012		0.000099
Lead		0.005	mg/l	0.0019	J	0.0012	0.0042	J	0.0012		U	0.00099	0.00052	U	0.00021	0.00025	U	0.000047
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	60		3	34.8		1.5	25.6		1.5	27.6		1.5	20.8		1.5

Sample Location	SDWA MCL	PA Act 2 MSC		MW-17SR			MW-17SR			MW-17SR			MW-17SR			MW-17SR		
Sample Date				5/15/2007			5/21/2008			5/13/2009			5/24/2010			5/25/2011		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.000062	J	0.000044		U	0.0003		U	0.0003		U	0.0003		U	0.0003
Arsenic	0.01[2]		mg/l		U	0.00033		U	0.00095		U	0.00095		U	0.00095		U	0.00095
Cadmium	0.005		mg/l	0.0018	U	0.000099	0.0014		0.00021	0.0012		0.00021	0.00091		0.0002	0.00140		0.0002
Lead		0.005	mg/l	0.00032	J	0.000037	0.00095	J	0.00005	0.00035	J	0.00005	0.0011		0.00005	0.0008	J	0.000052
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	31.9		2.5	19.2		1.5	22.7	J	1.5	18.1		1.5	37.6	J	1.5

Sample Location	SDWA MCL	PA Act 2 MSC		MW-17SR			MW-17SR			MW-17SR			MW-17SR			MW-17SR		
Sample Date				5/21/2012			4/23/2013			4/22/2014			4/22/2015			5/24/2016		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.00042		U	0.00034		U	0.00034		U	0.00033		U	0.00033
Arsenic	0.01[2]		mg/l		U	0.00095		U	0.00042		U	0.00078		U	0.00082		U	0.00054
Cadmium	0.005		mg/l	0.00077		0.0002	0.00075		0.00023	0.00087		0.00023	0.00090		0.00017	0.00076		0.0002
Lead		0.005	mg/l	0.00065	J	0.00008	0.0007	J	0.000073	0.00075	J	0.000085	0.0012		0.000082	0.0025		0.00013
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	11.3		1.5	14.4		1.5	16.7		1.5	17.3		1.5	16.5		1.5

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels

PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations

Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated

mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled

Shaded values indicate that the metal concentration exceeded Performance Standards.

1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.

2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-17SR
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	*SDWA MCL*	*PA Act 2 MSC*		MW-17SR		
Sample Date				5/24/2017		
Parameter			**Units**	**Result**	**Q**	**MDL**
Total Metals						
Antimony	*0.006*		mg/l		U	0.00048
Arsenic	*0.01* [2]		mg/l		U	0.00068
Cadmium	*0.005*		mg/l	0.00092		0.00019
Lead		*0.005*	mg/l	0.00038	J	0.00009
Dissolved Metals						
Antimony	*0.006*		mg/l		NA	
Arsenic	*0.01* [2]		mg/l		NA	
Cadmium	*0.005*		mg/l		NA	
Lead		*0.005*	mg/l		NA	
Conventionals						
Sulfate[1]	*250*		mg/l	22.4	J	1.5

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-20S
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA	PA Act 2		MW-20S			MW-20S			MW-20S			MW-20S			MW-20S		
Sample Date	MCL	MSC		2/13/2001			5/23/2001			9/5/2001			11/20/2001			2/26/2002		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.00076		U	0.0024		U	0.0024		U	0.0024		U	0.0024
Arsenic	0.01[2]		mg/l		U	0.0012		UJ	0.0014		U	0.0014		U	0.0014		U	0.0014
Cadmium	0.005		mg/l		U	0.0036	0.002	U	0.00064	0.0021	J	0.00064	0.0022	J	0.00064	0.0016	U	0.00064
Lead		0.005	mg/l	0.0065		0.0019	0.005	U	0.0018	0.0029	U	0.0018	0.0019	U	0.0018	0.0039		0.0018
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l	0.0045	J	0.0019	0.0093	J	0.0018		NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	297		15	310		30	299	J	15	310			330		30

Sample Location	SDWA	PA Act 2		MW-20S			MW-20S			MW-20S			MW-20S			MW-20S		
Sample Date	MCL	MSC		5/30/2002			9/4/2002			11/25/2002			5/29/2003			11/25/2003		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.0016	U	0.00096		U	0.00096	0.002	U	0.00096		UJ	0.0025		U	0.0025
Arsenic	0.01[2]		mg/l		U	0.0014	0.0025	U	0.0014		UJ	0.0014		UJ	0.0014		U	0.0014
Cadmium	0.005		mg/l	0.0026	J	0.00094	0.002	U	0.00094	0.0016	J	0.00094	0.002	J	0.00087	0.0021	J	0.00087
Lead		0.005	mg/l	0.0049		0.0012	0.0056		0.0012	0.0043		0.0012	0.003	J	0.0012	0.0047		0.0012
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NS	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NS	
Cadmium	0.005		mg/l		NA			NA			NA			NA			NS	
Lead		0.005	mg/l		NA		0.0035		0.0012		NA			NA			NS	
Conventionals																		
Sulfate[1]	250		mg/l	400		30	390		30	402		30	379		30	530		30

Sample Location	SDWA	PA Act 2		MW-20S			MW-20S			MW-20S			MW-20S			MW-20S		
Sample Date	MCL	MSC		5/5/2004			11/22/2004			5/3/2005			11/22/2005			5/19/2006		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	RL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.002	UJ	0.001		UJ	0.005	0.00031	U	0.00009		U	0.000064		U	0.000038
Arsenic	0.01[2]		mg/l		UJ	0.00085	0.0018	J	0.00085		U	0.00066		U	0.0033	0.00048	J	0.00033
Cadmium	0.005		mg/l	0.002	J	0.00076	0.0019	U	0.00076	0.002		0.000087	0.0022		0.000087	0.0017		0.000099
Lead		0.005	mg/l	0.0026	U	0.00099	0.0042	UJ	0.00099	0.0041		0.00021	0.0051		0.00018	0.0036		0.000047
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA		0.0049		0.00018		NA	
Conventionals																		
Sulfate[1]	250		mg/l	519		75	522		30	501		30	513		30	502		30

Sample Location	SDWA	PA Act 2		MW-20S			MW-20S			MW-20S			MW-20S			MW-20S		
Sample Date	MCL	MSC		11/21/2006			5/15/2007			11/20/2007			5/21/2008			11/24/2008		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.000038		U	0.000044		U	0.000044		U	0.0003		U	0.0003
Arsenic	0.01[2]		mg/l		U	0.00067	0.00073	J	0.0007		U	0.0007		U	0.00095	0.00099	J	0.00095
Cadmium	0.005		mg/l	0.0016		0.000099	0.0014	U	0.000099	0.0016		0.000099	0.0013		0.00021	0.0014		0.00021
Lead		0.005	mg/l	0.004		0.000047	0.003		0.000037	0.0028		0.000047	0.0029		0.00005	0.0041		0.00005
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	434		30	431		50	420		15	385		15	381	J	15

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-20S
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA	PA Act 2		MW-20S			MW-20S			MW-20S			MW-20S			MW-20S		
Sample Date	MCL	MSC		5/14/2009			11/23/2009			5/24/2010			11/22/2010			5/25/2011		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.0003		U	0.0003		U	0.0003		U	0.0003		U	0.0003
Arsenic	0.01[2]		mg/l		U	0.00095		U	0.00095	0.0043		0.00095		U	0.00095	0.0015	J	0.00095
Cadmium	0.005		mg/l	0.0013		0.00021	0.00096		0.0002	0.0011		0.0002	0.0012		0.0002	0.00093		0.0002
Lead		0.005	mg/l	0.0035		0.00005	0.0034		0.00005	0.0098		0.00005	0.0029		0.000052	0.0044	J	0.000052
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA		0.0047		0.00005		NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	365	J	15	355		15	367		30	308		15	406	J	15

Sample Location	SDWA	PA Act 2		MW-20S			MW-20S			MW-20S			MW-20S			MW-20S		
Sample Date	MCL	MSC		11/21/2011			5/21/2012			11/19/2012			4/24/2013			10/21/2013		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.00042		U	0.00042		U	0.00033		U	0.00034		U	0.00034
Arsenic	0.01[2]		mg/l	0.0017	J	0.00095		U	0.00095	0.00046	J	0.0004		U	0.00042		U	0.00042
Cadmium	0.005		mg/l	0.00083		0.0002	0.00095		0.0002	0.001		0.000082	0.00071		0.00023	0.00095		0.00023
Lead		0.005	mg/l	0.0052		0.00008	0.005		0.00008	0.0052		0.000047	0.0055		0.000073	0.0029		0.000085
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l	0.0036		0.00008	0.0043		0.00008	0.0054		0.000047	0.0054		0.000047		NA	
Conventionals																		
Sulfate[1]	250		mg/l	328	J	30	354		30	373		7.5	343		15	296		6.0

Sample Location	SDWA	PA Act 2		MW-20S			MW-20S			MW-20S			MW-20S			MW-20S		
Sample Date	MCL	MSC		4/21/2014			10/22/2014			4/23/2015			10/19/2015			5/23/2016		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.00034		U	0.00033		U	0.00033		U	0.00033		U	0.00033
Arsenic	0.01[2]		mg/l		U	0.00078		U	0.00082		U	0.00082		U	0.00054		U	0.00054
Cadmium	0.005		mg/l	0.00100		0.00023	0.00087		0.00017	0.00100		0.00017	0.00082		0.00023	0.00080		0.0002
Lead		0.005	mg/l	0.0032		0.000085	0.0034		0.000082	0.0027		0.000082	0.0039		0.00013	0.0026		0.00013
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l		NA			NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	298		15	286		7.5	332		15	332	J	15	299		15

Sample Location	SDWA	PA Act 2		MW-20S			MW-20S			MW-20S		
Sample Date	MCL	MSC		10/10/2016			5/23/2017			10/23/2017		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals												
Antimony	0.006		mg/l		U	0.00048		U	0.00048		U	0.00045
Arsenic	0.01[2]		mg/l	0.001	J	0.00068		U	0.00068		U	0.00072
Cadmium	0.005		mg/l	0.00083		0.00019	0.00089		0.00019		U	0.00015
Lead		0.005	mg/l	0.0032		0.00009	0.0023		0.00009	0.0040		0.00011
Dissolved Metals												
Antimony	0.006		mg/l		NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA	
Cadmium	0.005		mg/l		NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA	
Conventionals												
Sulfate[1]	250		mg/l	301		15	333	J	15	300		15

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-21S
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA	PA Act 2		MW-21S			MW-21S			MW-21S			MW-21S			MW-21S		
Sample Date	MCL	MSC		2/14/2001			5/23/2001			9/5/2001			11/20/2001			2/26/2002		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l	0.00076	U	0.00076		U	0.0024		U	0.0024		U	0.0024		U	0.0024
Arsenic	0.01[2]		mg/l		U	0.0012		UJ	0.0014		U	0.0014		U	0.0014	0.0017	J	0.0014
Cadmium	0.005		mg/l	**0.015**		0.0036	**0.0136**	U	0.00064	**0.0157**		0.00064	**0.0191**		0.00064	**0.019**		0.00064
Lead		0.005	mg/l	0.00019	U	0.0019	0.0019	U	0.0018		U	0.0018	0.0031	UJ	0.0018	0.002	J	0.0018
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	**0.0157**		0.0036		NA		**0.0149**		0.00064	**0.0188**		0.00064	**0.0198**		0.00094
Lead		0.005	mg/l		NA			NA			NA			UJ	0.0018		NA	
Conventionals																		
Sulfate[1]	250		mg/l	54		3	51		3	56	J	3	71		3	66		7.5

Sample Location	SDWA	PA Act 2		MW-21S			MW-21S			MW-21S			MW-21S			MW-21S		
Sample Date	MCL	MSC		5/31/2002			5/29/2003			5/6/2004			5/3/2005			5/19/2006		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.00096		UJ	0.0025		UJ	0.001		U	0.00009	0.00038	J	0.000038
Arsenic	0.01[2]		mg/l		U	0.0014		U	0.0014		UJ	0.00085		U	0.00066	0.0017	J	0.00033
Cadmium	0.005		mg/l	**0.015**		0.00094	**0.0134**		0.00087	**0.0135**		0.00076	**0.0134**		0.000087	**0.0184**		0.000099
Lead		0.005	mg/l	0.0015	J	0.0012		UJ	0.0012		U	0.00099	0.00085	U	0.00021	0.0025	U	0.000047
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			U	0.0014		NA			NA			NA	
Cadmium	0.005		mg/l	**0.0147**		0.00094	**0.0133**		0.00087	**0.0133**		0.00076	**0.0129**		0.000087	**0.0187**		0.000099
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	50		3	49.9	NS	3	49.9		3	53.4		7.5	64.8		6

Sample Location	SDWA	PA Act 2		MW-21S			MW-21S			MW-21S			MW-21S			MW-21S		
Sample Date	MCL	MSC		5/16/2007			5/22/2008			5/13/2009			5/25/2010			5/26/2011		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.000044		U	0.0003		U	0.0003		U	0.0003		U	0.0003
Arsenic	0.01[2]		mg/l		U	0.0007		U	0.00095		U	0.00095		U	0.00095		U	0.00095
Cadmium	0.005		mg/l	**0.0157**	U	0.000099	**0.0161**		0.00021	**0.0184**		0.00021	**0.0148**		0.0002	**0.0139**		0.0002
Lead		0.005	mg/l	0.00077	J	0.000047	0.0012		0.00005	0.0012		0.00005	0.0016		0.00005	0.00079	J	0.000052
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	**0.0148**		0.000099	**0.0168**		0.00021	**0.0184**		0.0002	**0.0144**		0.0002	**0.0133**		0.0002
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	54.6		10	59.4		1.5	61.9	J	1.5	64.7		6	82.8	J	3

Sample Location	SDWA	PA Act 2		MW-21S			MW-21S			MW-21S			MW-21S			MW-21S		
Sample Date	MCL	MSC		5/22/2012			4/24/2013			4/22/2014			4/23/2015			5/24/2016		
Parameter			Units	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL	Result	Q	MDL
Total Metals																		
Antimony	0.006		mg/l		U	0.00042		U	0.00034		U	0.00034		U	0.00033		U	0.00033
Arsenic	0.01[2]		mg/l		U	0.00095		U	0.00042		U	0.00078	0.00098	J	0.00082		U	0.00054
Cadmium	0.005		mg/l	**0.0135**		0.0002	**0.0139**		0.00023	**0.0142**		0.00023	**0.0173**		0.00017	**0.0144**		0.0002
Lead		0.005	mg/l	0.00096	J	0.00008	0.0016		0.000073	0.0022		0.000085	0.0018		0.000082	0.0012		0.00013
Dissolved Metals																		
Antimony	0.006		mg/l		NA			NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	0.005		mg/l	**0.0146**		0.0002	**0.0136**		0.00012	**0.0141**		0.00023	**0.0159**		0.00017	**0.0139**		0.0002
Lead		0.005	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	250		mg/l	52.4		3	51.8		1.5	44.9		1.5	57.5		1.5	48.9		1.5

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-21S
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	*SDWA MCL*	*PA Act 2 MSC*		MW-21S		
Sample Date				5/25/2017		
Parameter			**Units**	**Result**	**Q**	**MDL**
Total Metals						
Antimony	*0.006*		mg/l		U	0.00048
Arsenic	*0.01*[2]		mg/l		U	0.00068
Cadmium	*0.005*		mg/l	**0.0139**		0.00019
Lead		*0.005*	mg/l	0.00069	J	0.00009
Dissolved Metals						
Antimony	*0.006*		mg/l		NA	
Arsenic	*0.01*[2]		mg/l		NA	
Cadmium	*0.005*		mg/l	**0.0139**		0.00019
Lead		*0.005*	mg/l		NA	
Conventionals						
Sulfate[1]	*250*		mg/l	51.6	J	1.5

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-11DR
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA	PA Act 2		MW-11DR			MW-11DR			MW-11DR			MW-11DR		
Sample Date	MCL	MSC		5/22/2001			5/29/2002			5/28/2003			5/4/2004		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals															
Antimony	*0.006*		mg/l		U	0.0024		U	0.00096		U	0.0025		UJ	0.001
Arsenic	*0.01*[2]		mg/l		UJ	0.0014		U	0.0014		U	0.0014		UJ	0.00085
Cadmium	*0.005*		mg/l		U	0.00064		U	0.00094		U	0.00087		U	0.00076
Lead		*0.005*	mg/l		U	0.0018		U	0.0012		U	0.0012		U	0.00099
Dissolved Metals															
Antimony	*0.006*		mg/l		NA			NA			NA			NA	
Arsenic	*0.01*[2]		mg/l		NA			NA			NA			NA	
Cadmium	*0.005*		mg/l		NA			NA			NA			NA	
Lead		*0.005*	mg/l		NA			NA			NA			NA	
Conventionals															
Sulfate[1]	*250*		mg/l		U	1.5		U	1.5		U	1.5		U	1.5

Sample Location	SDWA	PA Act 2		MW-11DR			MW-11DR			MW-11DR			MW-11DR		
Sample Date	MCL	MSC		5/3/2005			5/18/2006			5/15/2007			5/21/2008		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals															
Antimony	*0.006*		mg/l		U	0.00009		U	0.000038		U	0.000044		U	0.0003
Arsenic	*0.01*[2]		mg/l		U	0.00066		U	0.00033		U	0.0007		U	0.00095
Cadmium	*0.005*		mg/l		U	0.000087		U	0.000099		U	0.000099		U	0.00021
Lead		*0.005*	mg/l	0.00031	J	0.00021	0.00017	U	0.000047	0.000085	J	0.000037	0.00013	U	0.00005
Dissolved Metals															
Antimony	*0.006*		mg/l		NA			NA			NA			NA	
Arsenic	*0.01*[2]		mg/l		NA			NA			NA			NA	
Cadmium	*0.005*		mg/l		NA			NA			NA			NA	
Lead		*0.005*	mg/l		NA			NA			NA			NA	
Conventionals															
Sulfate[1]	*250*		mg/l		U	1.5		U	1.5		U	0.25	1.8	J	1.5

Sample Location	SDWA	PA Act 2		MW-11DR			MW-11DR		
Sample Date	MCL	MSC		4/22/2013			5/24/2017		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals									
Antimony	*0.006*		mg/l		U	0.00034		U	0.00048
Arsenic	*0.01*[2]		mg/l		U	0.00042		U	0.00068
Cadmium	*0.005*		mg/l		U	0.00023		U	0.00019
Lead		*0.005*	mg/l	0.00023	J	0.000073		U	0.00009
Dissolved Metals									
Antimony	*0.006*		mg/l		NA			NA	
Arsenic	*0.01*[2]		mg/l		NA			NA	
Cadmium	*0.005*		mg/l		NA			NA	
Lead		*0.005*	mg/l		NA			NA	
Conventionals									
Sulfate[1]	*250*		mg/l		U	1.5	2.4	J	1.5

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-14DR
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA MCL	PA Act 2 MSC		MW-14DR			MW-14DR			MW-14DR			MW-14DR		
Sample Date				5/22/2001			5/29/2002			5/28/2003			5/5/2004		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals															
Antimony	0.006		mg/l		U	0.0024	0.0022	U	0.00096		U	0.0025	0.0011	UJ	0.001
Arsenic	0.01[2]		mg/l		UJ	0.0014		U	0.0014		U	0.0014		UJ	0.00085
Cadmium	0.005		mg/l	0.0011	U	0.00064		U	0.00094		U	0.00087		U	0.00076
Lead		0.005	mg/l		U	0.0018		U	0.0012		U	0.0012		U	0.00099
Dissolved Metals															
Antimony	0.006		mg/l		NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA	
Cadmium	0.005		mg/l		NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA			NA	
Conventionals															
Sulfate[1]	250		mg/l	28.5		1.5	148		7.5	81.3		6	32.5		1.5

Sample Location	SDWA MCL	PA Act 2 MSC		MW-14DR			MW-14DR			MW-14DR			MW-14DR		
Sample Date				5/2/2005			5/18/2006			5/14/2007			5/20/2008		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals															
Antimony	0.006		mg/l	0.00026	U	0.00009		U	0.000038	0.000057	J	0.000044		U	0.0003
Arsenic	0.01[2]		mg/l		U	0.00066		U	0.00033		U	0.00033		U	0.00095
Cadmium	0.005		mg/l		U	0.000087		U	0.000099		U	0.000099		U	0.00021
Lead		0.005	mg/l	0.0013	U	0.00021	0.00048	U	0.000047	0.00047	J	0.000037	0.0015		0.00005
Dissolved Metals															
Antimony	0.006		mg/l		NA			NA			NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA			NA			NA	
Cadmium	0.005		mg/l		NA			NA			NA			NA	
Lead		0.005	mg/l		NA			NA			NA			NA	
Conventionals															
Sulfate[1]	250		mg/l	57.1		6	31.8		1.5	31.2		10	35.5		1.5

Sample Location	SDWA MCL	PA Act 2 MSC		MW-14DR			MW-14DR		
Sample Date				4/24/2013			5/25/2017		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals									
Antimony	0.006		mg/l		U	0.00034		U	0.00048
Arsenic	0.01[2]		mg/l		U	0.00042		U	0.00068
Cadmium	0.005		mg/l		U	0.00023		U	0.00019
Lead		0.005	mg/l	0.00073	J	0.000073	0.00026	J	0.00009
Dissolved Metals									
Antimony	0.006		mg/l		NA			NA	
Arsenic	0.01[2]		mg/l		NA			NA	
Cadmium	0.005		mg/l		NA			NA	
Lead		0.005	mg/l		NA			NA	
Conventionals									
Sulfate[1]	250		mg/l	30.5		1.5	33.9	J	1.5

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-15D
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA MCL	PA Act 2 MSC		MW-15D			MW-15D			MW-15D			MW-15D			MW-15D		
Sample Date				5/22/2001			5/29/2002			5/27/2003			5/4/2004			5/3/2005		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals																		
Antimony	*0.006*		mg/l		U	0.0024	0.00099	U	0.00096		U	0.0025	0.001	UJ	0.001		U	0.00009
Arsenic	*0.01*[2]		mg/l		UJ	0.0014		U	0.0014		U	0.0014		UJ	0.00085		U	0.00066
Cadmium	*0.005*		mg/l	**0.0073**	U	0.00064	0.0042	J	0.00094	0.0038	UJ	0.00087	0.0038	J	0.00076	0.0039		0.000087
Lead		*0.005*	mg/l		U	0.0018		U	0.0012		UJ	0.0012		U	0.00099	0.00079	U	0.00021
Dissolved Metals																		
Antimony	*0.006*		mg/l		NA			NA			NA			NA			NA	
Arsenic	*0.01*[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	*0.005*		mg/l	**0.0052**	**J**	0.00064		NA			NA			NA			NA	
Lead		*0.005*	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	*250*		mg/l	45		3	41		3	39		3	41.5		3	38.2		6

Sample Location	SDWA MCL	PA Act 2 MSC		MW-15D			MW-15D			MW-15D			MW-15D			MW-15D		
Sample Date				5/19/2006			5/15/2007			5/20/2008			5/12/2009			5/24/2010		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals																		
Antimony	*0.006*		mg/l	0.0013		0.000038	0.00028	J	0.000044		U	0.0003		U	0.0003		U	0.0003
Arsenic	*0.01*[2]		mg/l	0.00039	J	0.00033		U	0.0007		U	0.00095		U	0.00095		U	0.00095
Cadmium	*0.005*		mg/l	0.0039		0.000099	0.0034	U	0.000099	0.0032		0.00021	0.0025		0.00021	0.0024		0.0002
Lead		*0.005*	mg/l	**0.0121***		0.000047	0.00036	J	0.000037	0.00044	J	0.00005	0.00018	J	0.00005	0.000068	J	0.00005
Dissolved Metals																		
Antimony	*0.006*		mg/l		NA			NA			NA			NA			NA	
Arsenic	*0.01*[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	*0.005*		mg/l		NA			NA			NA			NA			NA	
Lead		*0.005*	mg/l	**0.0068***		0.000047		NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	*250*		mg/l	37.3		3	37.4		5	36.9		1.5	38.3	J	1.5	38.7		1.5

Sample Location	SDWA MCL	PA Act 2 MSC		MW-15D			MW-15D			MW-15D			MW-15D			MW-15D		
Sample Date				5/26/2011			5/23/2012			4/24/2013			4/21/2014			4/23/2015		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals																		
Antimony	*0.006*		mg/l		U	0.0003		U	0.00042		U	0.00034		U	0.00034		U	0.00033
Arsenic	*0.01*[2]		mg/l		U	0.00095		U	0.00095		U	0.00042		U	0.00078		U	0.00082
Cadmium	*0.005*		mg/l	0.0024		0.0002	0.0022		0.0002	0.0022		0.00023	0.0021		0.00023	0.0021		0.00017
Lead		*0.005*	mg/l	0.000068	UJ	0.000052		U	0.00008	0.00008	J	0.000073		U	0.000085	0.00031	J	0.000082
Dissolved Metals																		
Antimony	*0.006*		mg/l		NA			NA			NA			NA			NA	
Arsenic	*0.01*[2]		mg/l		NA			NA			NA			NA			NA	
Cadmium	*0.005*		mg/l		NA			NA			NA			NA			NA	
Lead		*0.005*	mg/l		NA			NA			NA			NA			NA	
Conventionals																		
Sulfate[1]	*250*		mg/l	45.5	J	1.5	37.0		1.5	36.7		1.5	31.5		1.5	35.7		1.5

Sample Location	SDWA MCL	PA Act 2 MSC		MW-15D			MW-15D		
Sample Date				5/23/2016			5/23/2017		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals									
Antimony	*0.006*		mg/l		U	0.00033		U	0.00048
Arsenic	*0.01*[2]		mg/l		U	0.00054		U	0.00068
Cadmium	*0.005*		mg/l	0.0017		0.0002	0.0016		0.00019
Lead		*0.005*	mg/l		U	0.00013		U	0.00009
Dissolved Metals									
Antimony	*0.006*		mg/l		NA			NA	
Arsenic	*0.01*[2]		mg/l		NA			NA	
Cadmium	*0.005*		mg/l		NA			NA	
Lead		*0.005*	mg/l		NA			NA	
Conventionals									
Sulfate[1]	*250*		mg/l	33.8		1.5	34.4	J	1.5

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.
* - During the May 2006 sampling event, the groundwater sample from MW-15D could not be collected using a peristaltic pump (as in previous events) and was collected with a bailer. The sampling technique is believed to have caused an increase in turbidity and lead concentration.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-16DR
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA MCL	PA Act 2 MSC		MW-16DR			MW-16DR			MW-16DR			MW-16DR		
Sample Date				5/22/2001			5/29/2002			5/28/2003			5/4/2004		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals															
Antimony	*0.006*		mg/l		U	0.0024		U	0.00096		U	0.0025	0.0011	UJ	0.001
Arsenic	*0.01*[2]		mg/l		UJ	0.0014		U	0.0014		U	0.0014		UJ	0.00085
Cadmium	*0.005*		mg/l	0.006	U	0.00064		U	0.00094		U	0.00087		U	0.00076
Lead		*0.005*	mg/l		U	0.0018		U	0.0012		U	0.0012		U	0.00099
Dissolved Metals															
Antimony	*0.006*		mg/l		NA			NA			NA			NA	
Arsenic	*0.01*[2]		mg/l		NA			NA			NA			NA	
Cadmium	*0.005*		mg/l		UJ	0.00064		NA			NA			NA	
Lead		*0.005*	mg/l		NA			NA			NA			NA	
Conventionals															
Sulfate[1]	*250*		mg/l		U	1.5	1.8	U	1.5		U	1.5		U	1.5

Sample Location	SDWA MCL	PA Act 2 MSC		MW-16DR			MW-16DR			MW-16DR			MW-16DR		
Sample Date				5/2/2005			5/18/2006			5/14/2007			5/21/2008		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals															
Antimony	*0.006*		mg/l		U	0.00009		U	0.000038		U	0.000044		U	0.0003
Arsenic	*0.01*[2]		mg/l		U	0.00066		U	0.00033		U	0.0007		U	0.00095
Cadmium	*0.005*		mg/l		U	0.000087		U	0.000099		U	0.000099		U	0.00021
Lead		*0.005*	mg/l	0.00083	U	0.00021		U	0.000047	0.000081	J	0.000037	0.00024	U	0.00005
Dissolved Metals															
Antimony	*0.006*		mg/l		NA			NA			NA			NA	
Arsenic	*0.01*[2]		mg/l		NA			NA			NA			NA	
Cadmium	*0.005*		mg/l		NA			NA			NA			NA	
Lead		*0.005*	mg/l		NA			NA			NA			NA	
Conventionals															
Sulfate[1]	*250*		mg/l		U	1.5		U	1.5		U	2.5		U	1.5

Sample Location	SDWA MCL	PA Act 2 MSC		MW-16DR			MW-16DR		
Sample Date				4/23/2013			5/25/2017		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals									
Antimony	*0.006*		mg/l		U	0.00034		U	0.00048
Arsenic	*0.01*[2]		mg/l		U	0.00042		U	0.00068
Cadmium	*0.005*		mg/l		U	0.00023		U	0.00019
Lead		*0.005*	mg/l	0.0003		0.000073	0.00017	J	0.00009
Dissolved Metals									
Antimony	*0.006*		mg/l		NA			NA	
Arsenic	*0.01*[2]		mg/l		NA			NA	
Cadmium	*0.005*		mg/l		NA			NA	
Lead		*0.005*	mg/l		NA			NA	
Conventionals									
Sulfate[1]	*250*		mg/l		U	1.5	2.1	J	1.5

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled
Shaded values indicate that the metal concentration exceeded Performance Standards.
1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.
2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

TABLE 3
TOTAL AND DISSOLVED METAL AND SULFATE DATA SUMMARY TABLE 2001-2017
MW-17D
Tonolli Corporation Superfund Site
Nesquehoning, Pennsylvania

Sample Location	SDWA MCL	PA Act 2 MSC		MW-17D			MW-17D			MW-17D			MW-17D		
Sample Date				5/21/2001			5/29/2002			5/27/2003			5/5/2004		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals															
Antimony	*0.006*		mg/l		U	0.0024	0.0017	U	0.00096		UJ	0.0025		UJ	0.001
Arsenic	*0.01*[2]		mg/l		UJ	0.0014		U	0.0014		U	0.0014		UJ	0.00085
Cadmium	*0.005*		mg/l		U	0.00064		U	0.00094		U	0.00087		U	0.00076
Lead		*0.005*	mg/l	**0.0293**	**J**	0.0018	0.004		0.0012	0.0013	J	0.0012	0.0022	U	0.00099
Dissolved Metals															
Antimony	*0.006*		mg/l		NA			NA			NA			NA	
Arsenic	*0.01*[2]		mg/l		NA			NA			NA			NA	
Cadmium	*0.005*		mg/l		NA			NA			NA			NA	
Lead		*0.005*	mg/l	**0.0059**	**J**	0.0018		NA			NA			NA	
Conventionals															
Sulfate[1]	*250*		mg/l		U	1.5	1.7		1.5		U	1.5		U	1.5

Sample Location	SDWA MCL	PA Act 2 MSC		MW-17D			MW-17D			MW-17D			MW-17D		
Sample Date				5/3/2005			5/18/2006			5/15/2007			5/21/2008		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals															
Antimony	*0.006*		mg/l		U	0.00009		U	0.000038		U	0.000044		U	0.0003
Arsenic	*0.01*[2]		mg/l		U	0.00066		U	0.00033		U	0.0007	0.0016	J	0.00095
Cadmium	*0.005*		mg/l		U	0.000087		U	0.000099		U	0.000099		U	0.00021
Lead		*0.005*	mg/l	0.0014		0.00021	0.00088	U	0.000047	0.001	U	0.000037	0.001		0.00005
Dissolved Metals															
Antimony	*0.006*		mg/l		NA			NA			NA			NA	
Arsenic	*0.01*[2]		mg/l		NA			NA			NA			NA	
Cadmium	*0.005*		mg/l		NA			NA			NA			NA	
Lead		*0.005*	mg/l		NA			NA			NA			NA	
Conventionals															
Sulfate[1]	*250*		mg/l		U	1.5		U	1.5		U	2.5		U	1.5

Sample Location	SDWA MCL	PA Act 2 MSC		MW-17D			MW-17D		
Sample Date				4/23/2013			5/24/2017		
Parameter			**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
Total Metals									
Antimony	*0.006*		mg/l		U	0.00034		U	0.00048
Arsenic	*0.01*[2]		mg/l	0.00056	J	0.00042		U	0.00068
Cadmium	*0.005*		mg/l		U	0.00023		U	0.00019
Lead		*0.005*	mg/l	0.00071	J	0.000073	0.00051	J	0.00009
Dissolved Metals									
Antimony	*0.006*		mg/l		NA			NA	
Arsenic	*0.01*[2]		mg/l		NA			NA	
Cadmium	*0.005*		mg/l		NA			NA	
Lead		*0.005*	mg/l		NA			NA	
Conventionals									
Sulfate[1]	*250*		mg/l		U	1.5	2.1	J	1.5

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels

PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations

Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated

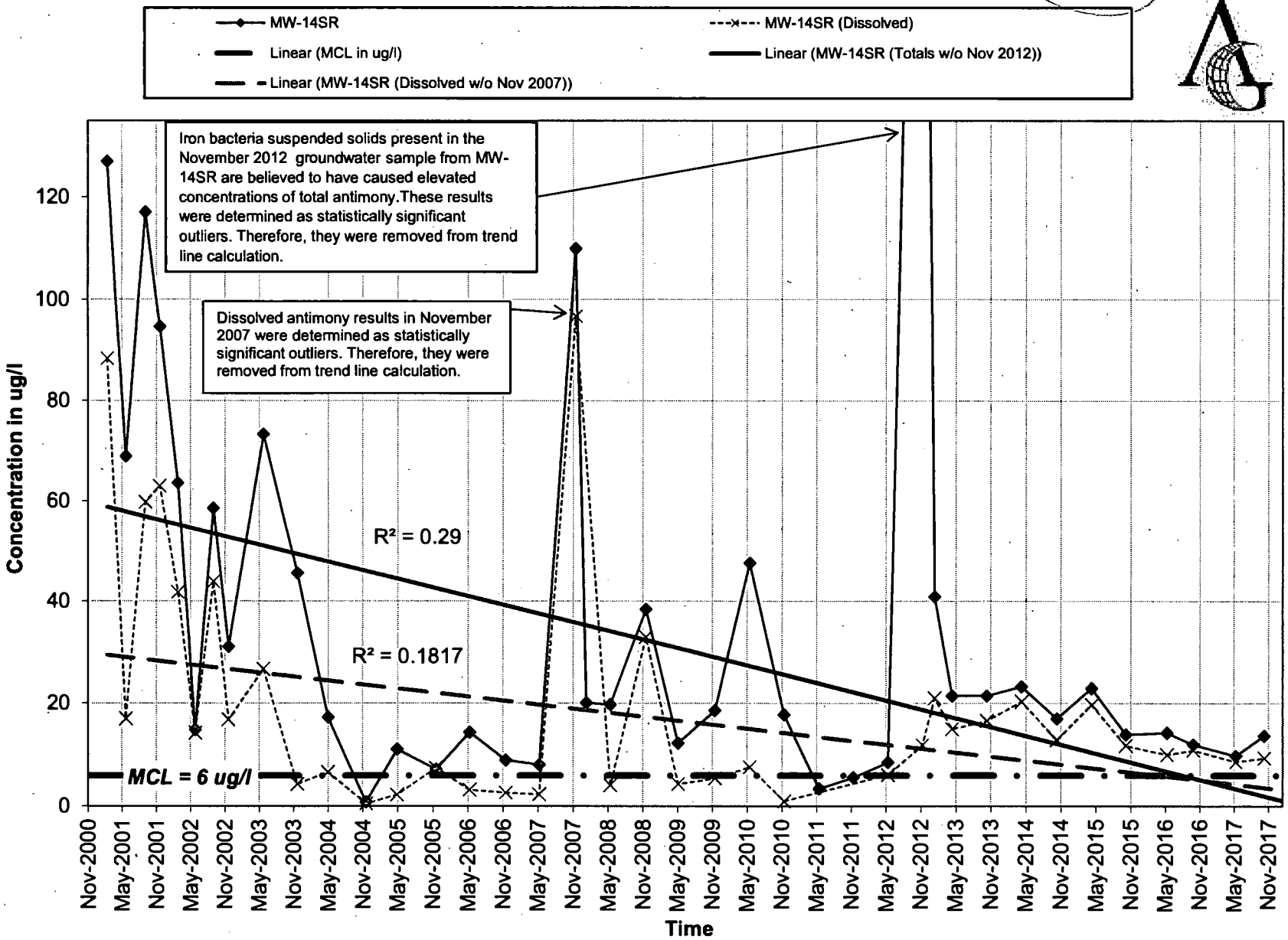
mg/l - milligrams per liter, NA - Not analyzed, NS - Not sampled

Shaded values indicate that the metal concentration exceeded Performance Standards.

1 - Sulfate is a secondary contaminant MCL, but a performance standard was not established in the ROD.

2 - SDWA MCL for arsenic changed from 0.05 mg/l to 0.01 mg/l in January 2006. Exceedence shading was not updated to reflect this change for data collected prior to January 2006.

Variation in Antimony Concentration (Total and Dissolved) vs Time at MW-14SR



Note: For sampling results which were less than the detection limit, results were assumed to be half of the detection limit to plot the trend lines.

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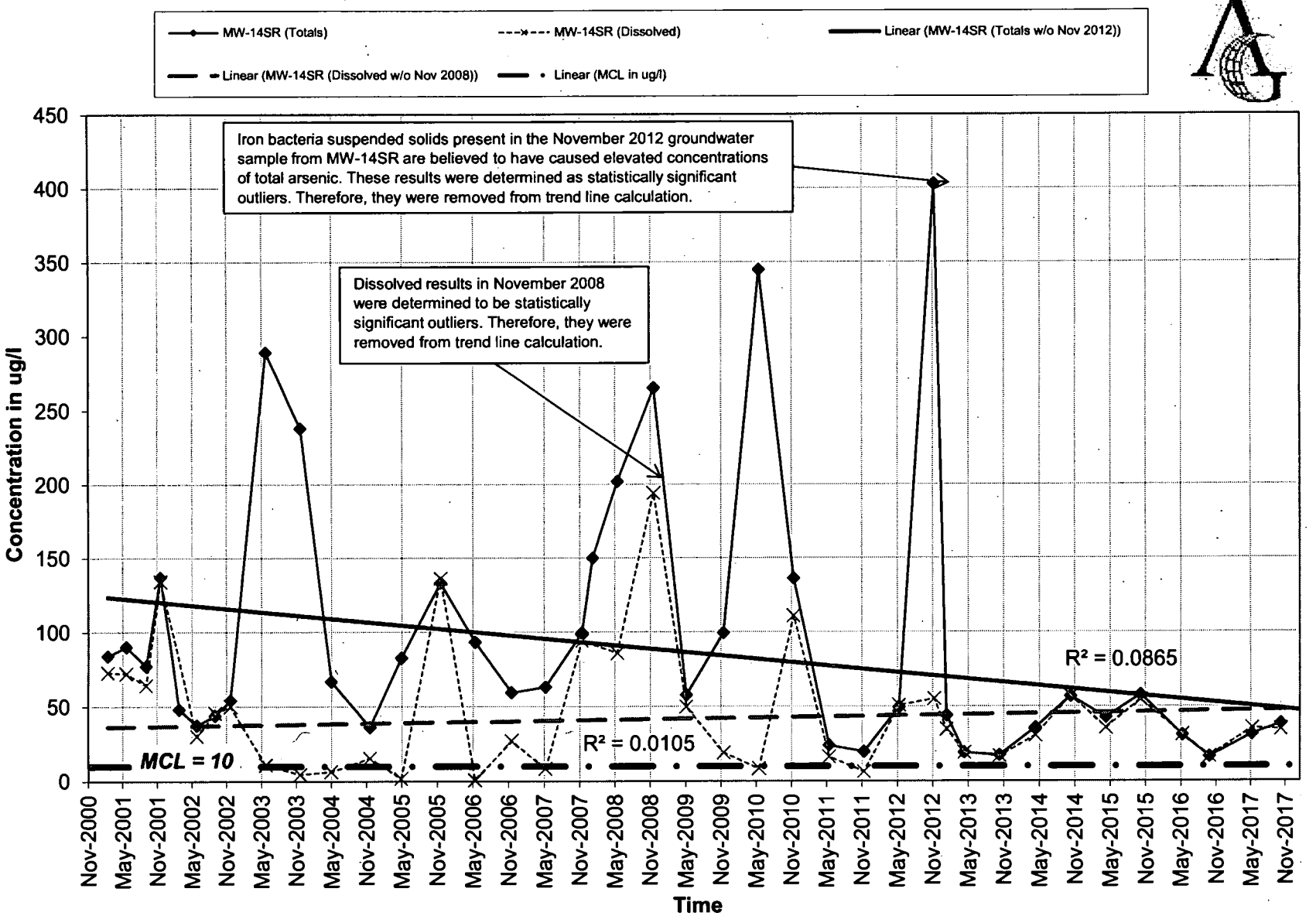
Variation in Arsenic Concentration (Total and Dissolved) vs Time at MW-14SR



Note: For sampling results which were less than the detection limit, results were assumed to be half of the detection limit to plot the trend lines.

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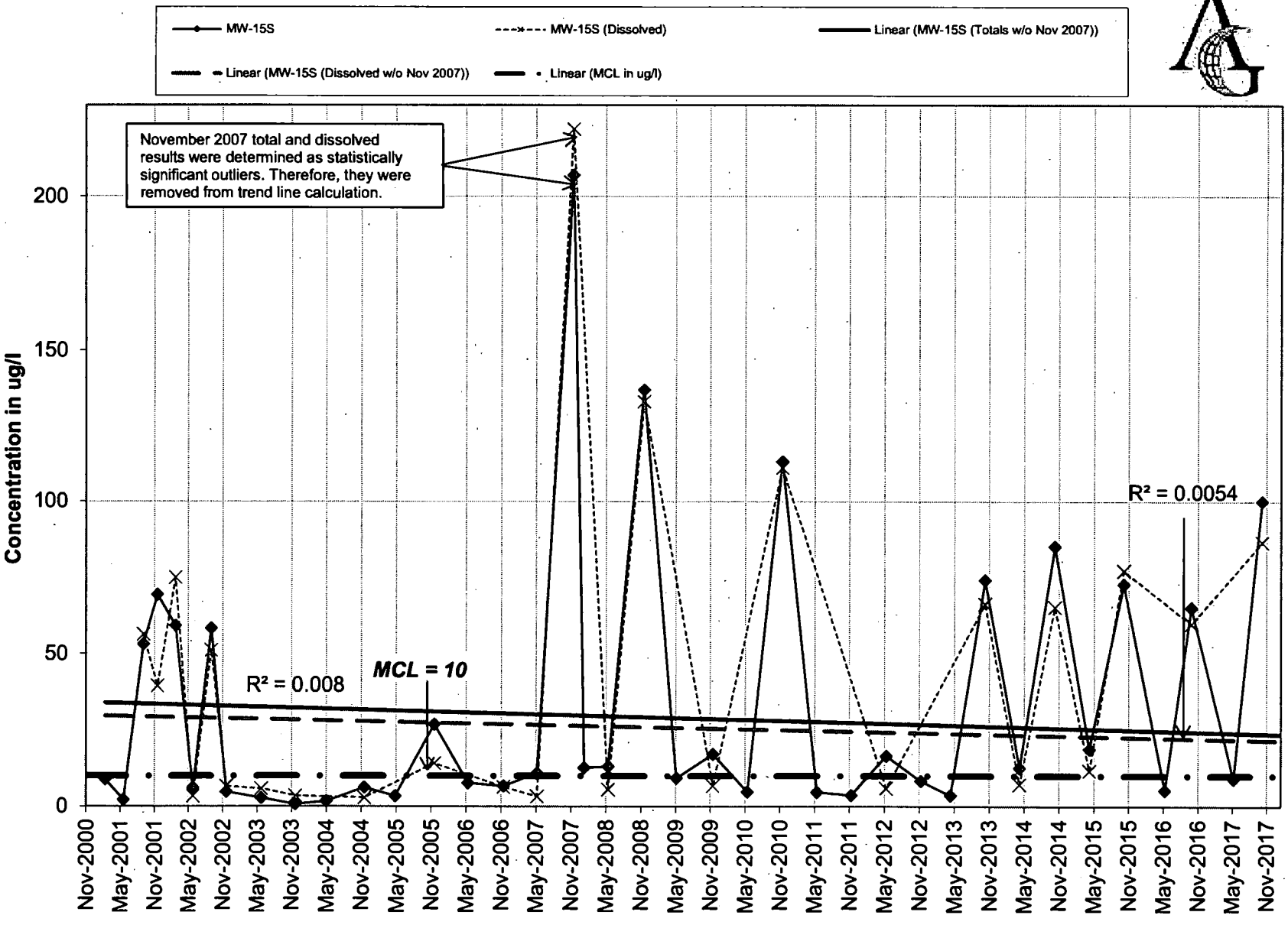
Variation in Arsenic Concentration (Total and Dissolved) vs Time at MW-15S



Note: For purposes of drafting the dissolved trend line, total results were included for sample dates when no dissolved results were available.

Note: For sampling results which were less than the detection limit, results were assumed to be half of the detection limit to plot the trend lines.

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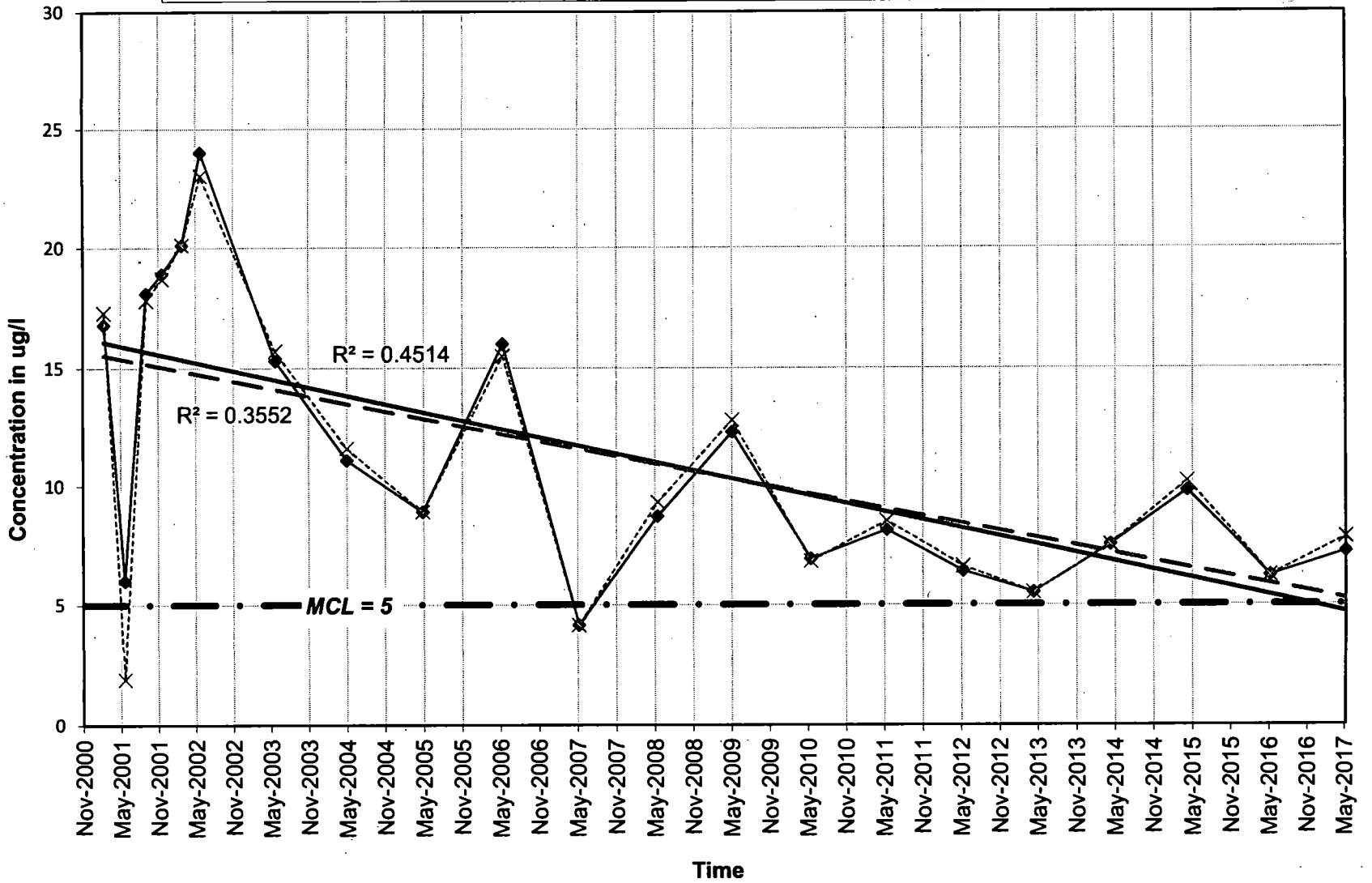
Variation in Cadmium Concentration (Total and Dissolved) vs Time at MW-11SR



Note: For sampling results which were less than the detection limit, results were assumed to be half of the detection limit to plot the trend lines.

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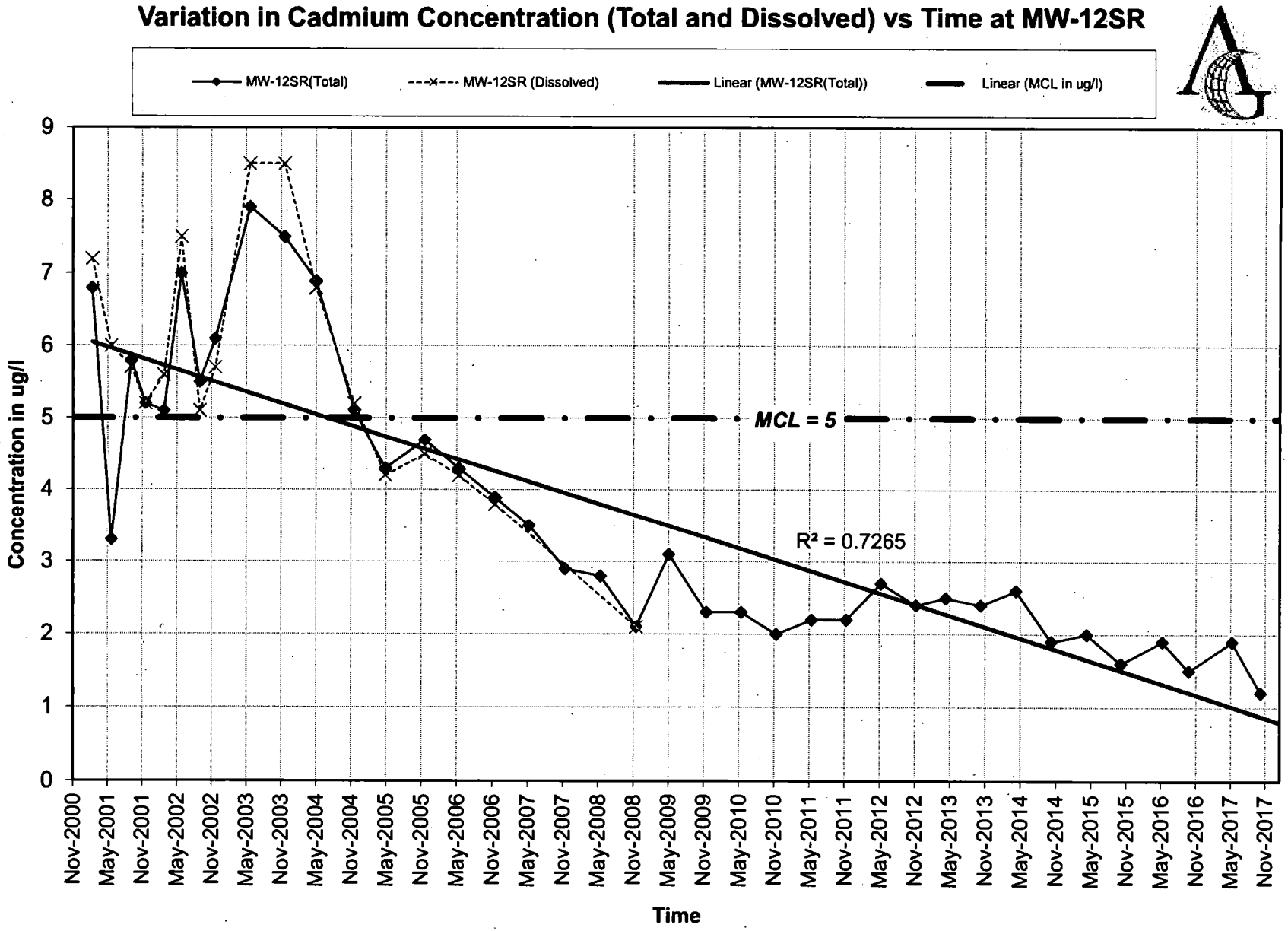
Variation in Cadmium Concentration (Total and Dissolved) vs Time at MW-12SR



Note: For sampling results which were less than the detection limit, results were assumed to be half of the detection limit to plot the trend lines.

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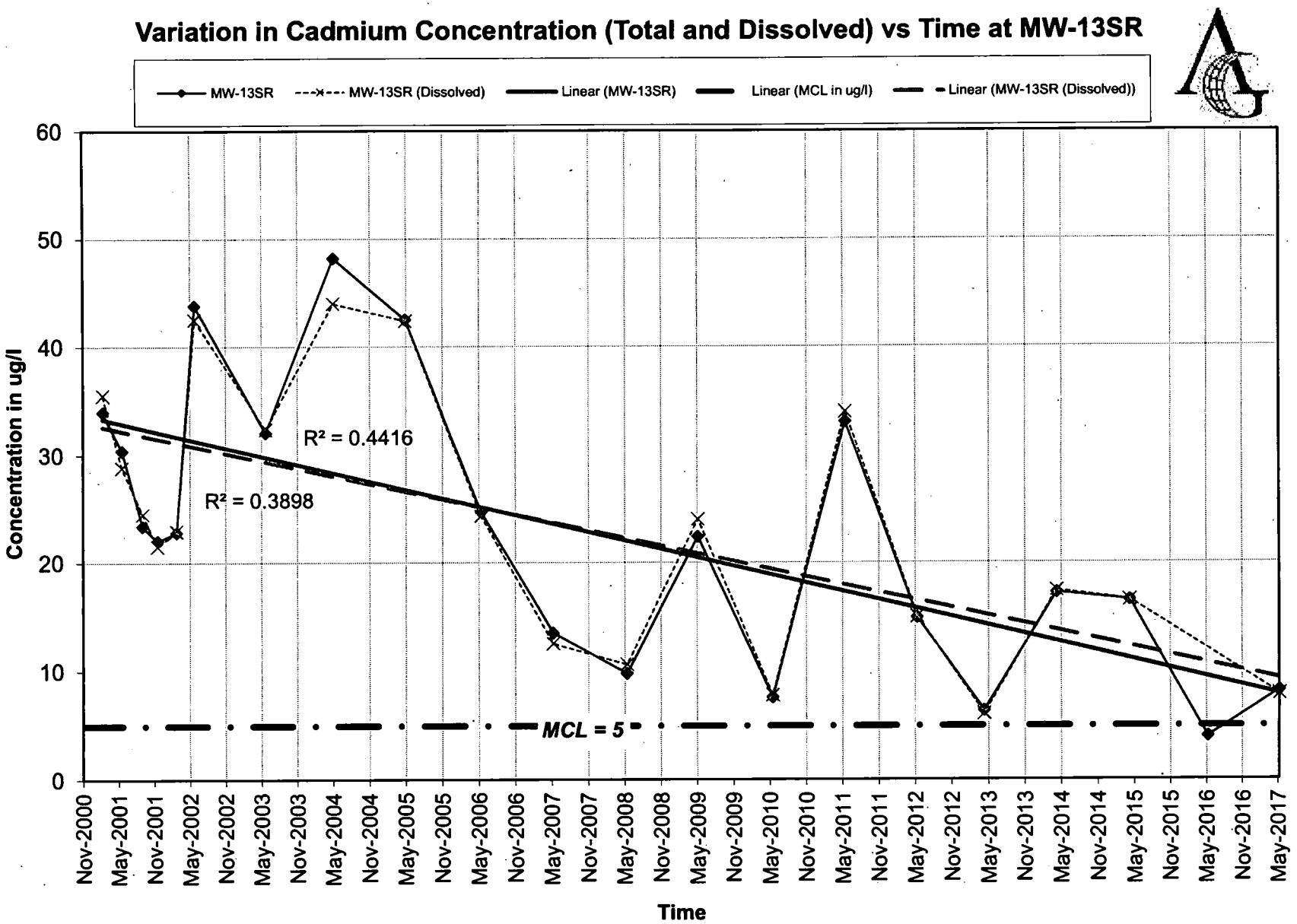
Variation in Cadmium Concentration (Total and Dissolved) vs Time at MW-13SR



Note: For sampling results which were less than the detection limit, results were assumed to be half of the detection limit to plot the trend lines.

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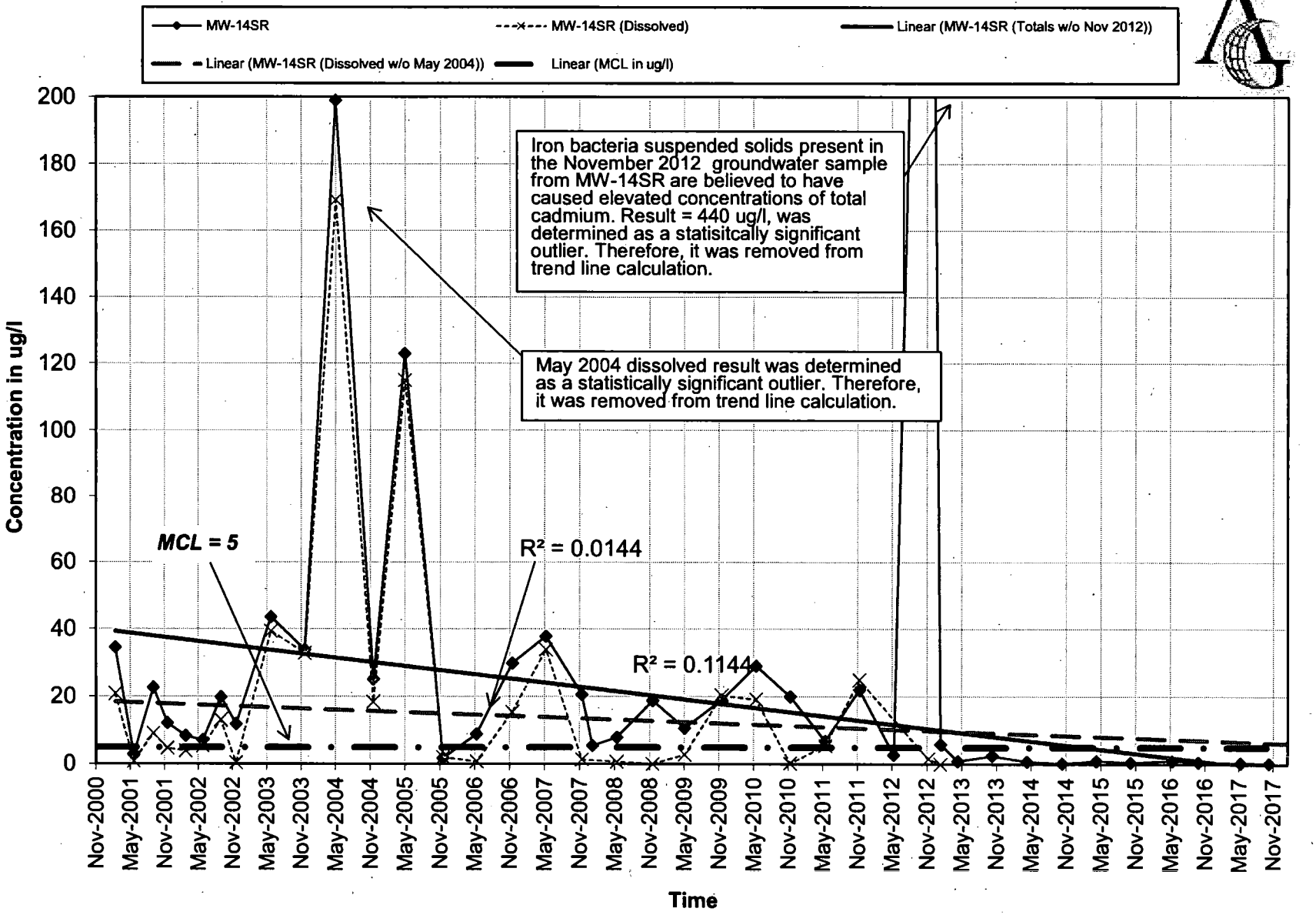
Variation in Cadmium Concentration (Total and Dissolved) vs Time at MW-14SR



Note: For sampling results which were less than the detection limit, results were assumed to be half of the detection limit to plot the trend lines.

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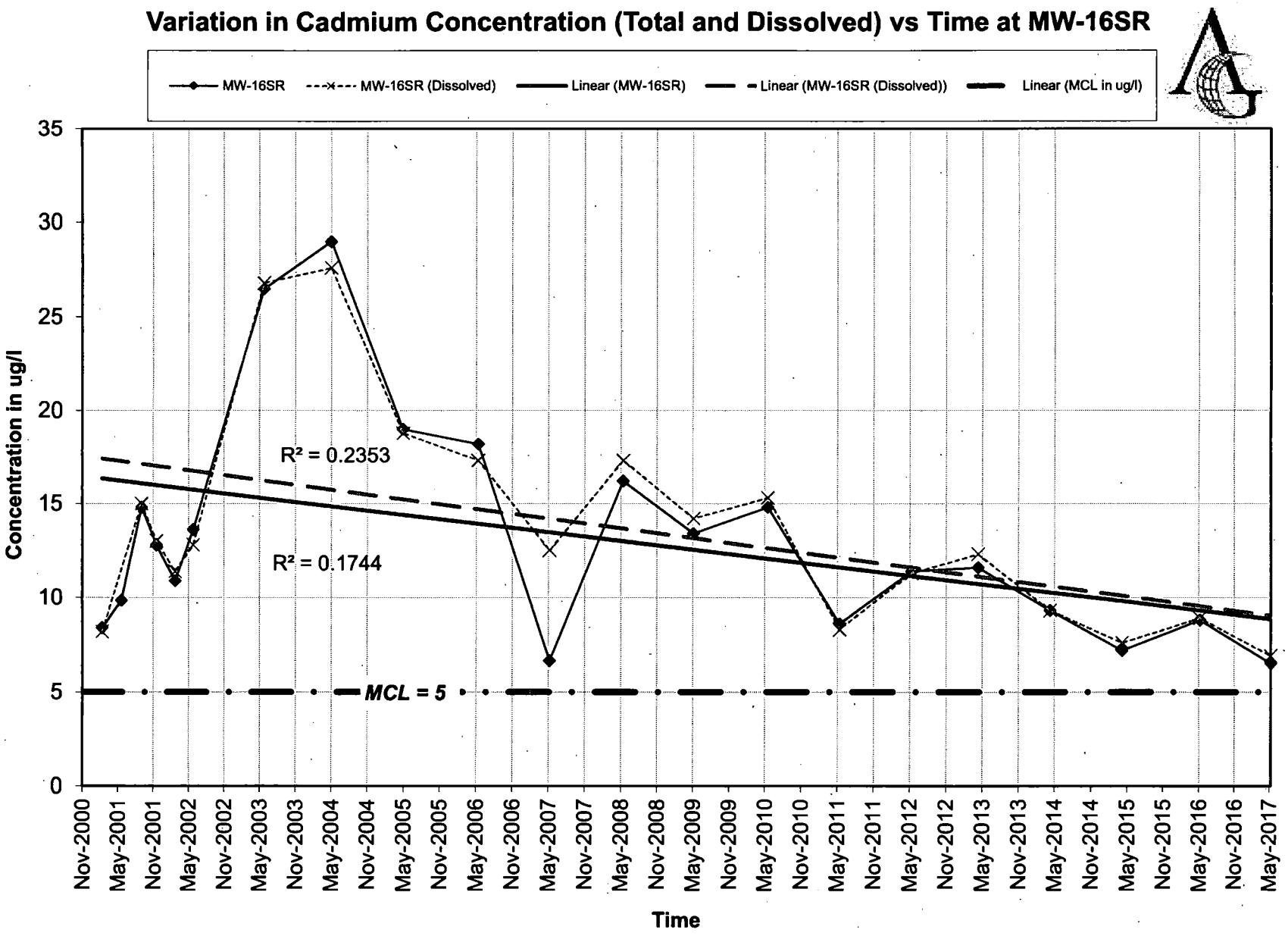
Variation in Cadmium Concentration (Total and Dissolved) vs Time at MW-16SR



Note: For sampling results which were less than the detection limit, results were assumed to be half of the detection limit to plot the trend lines.

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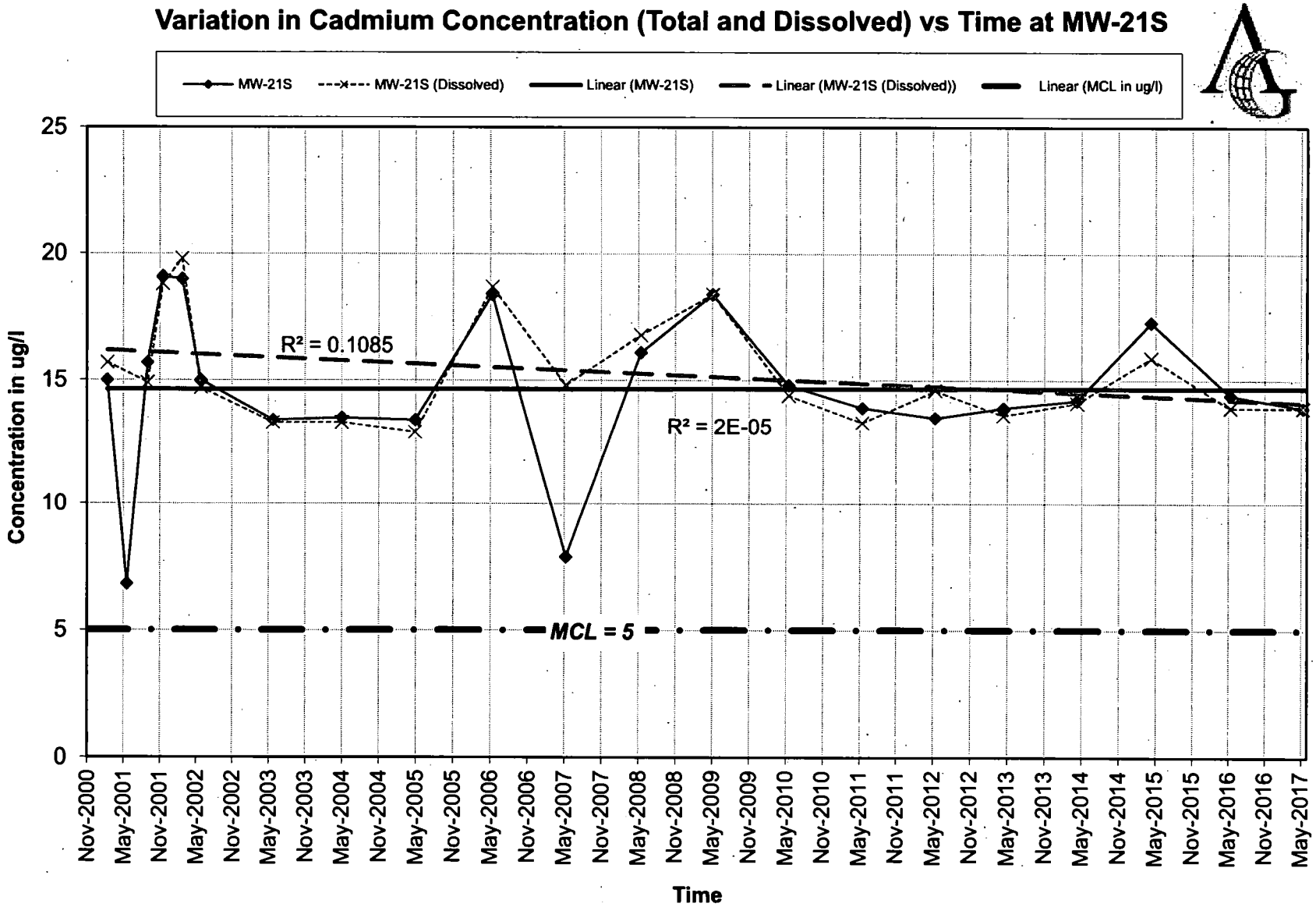
Variation in Cadmium Concentration (Total and Dissolved) vs Time at MW-21S



Note: For sampling results which were less than the detection limit, results were assumed to be half of the detection limit to plot the trend lines.

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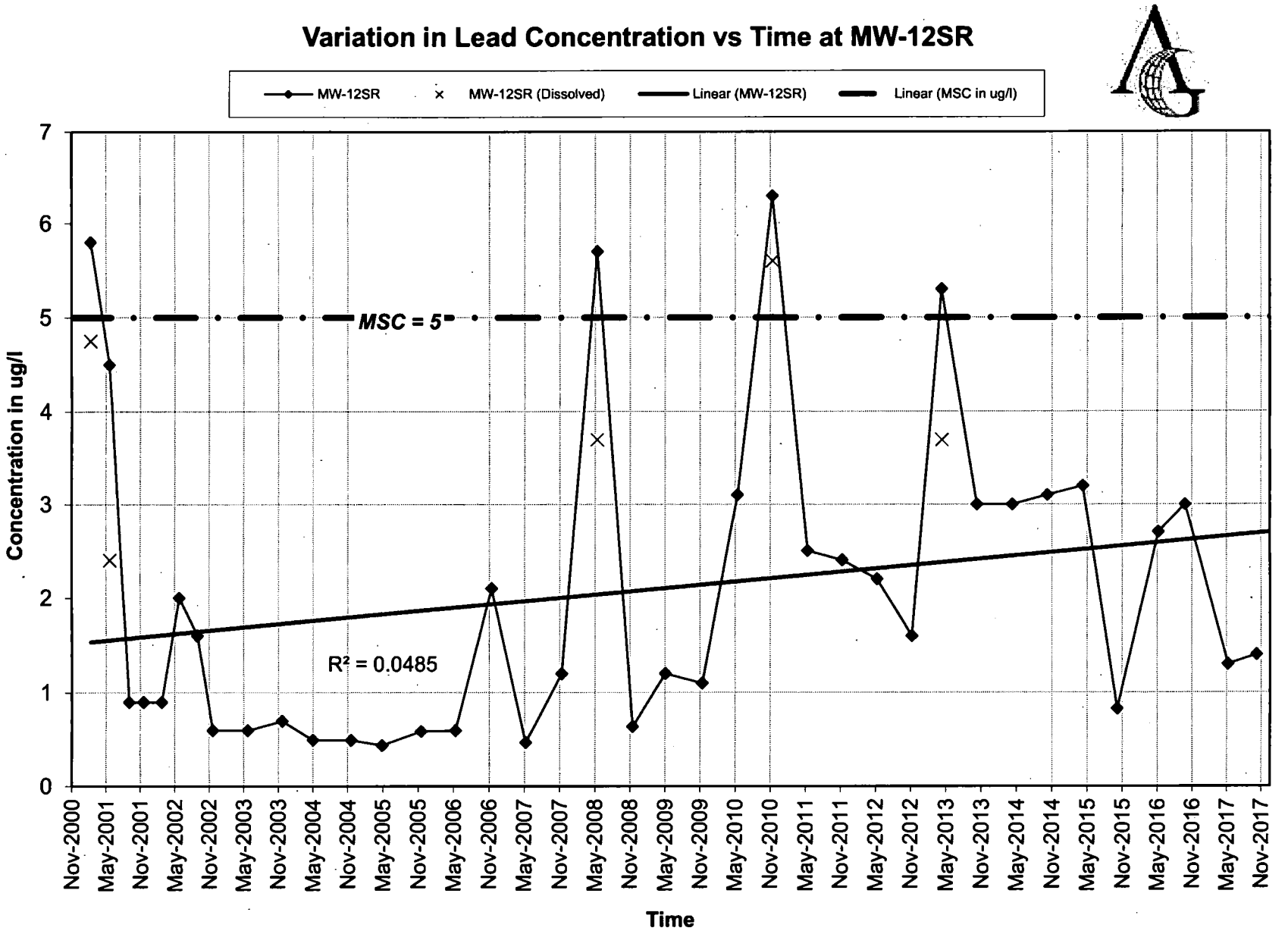
Variation in Lead Concentration vs Time at MW-12SR



Note: For sampling results which were less than the detection limit, results were assumed to be half of the detection limit to plot the trend lines.

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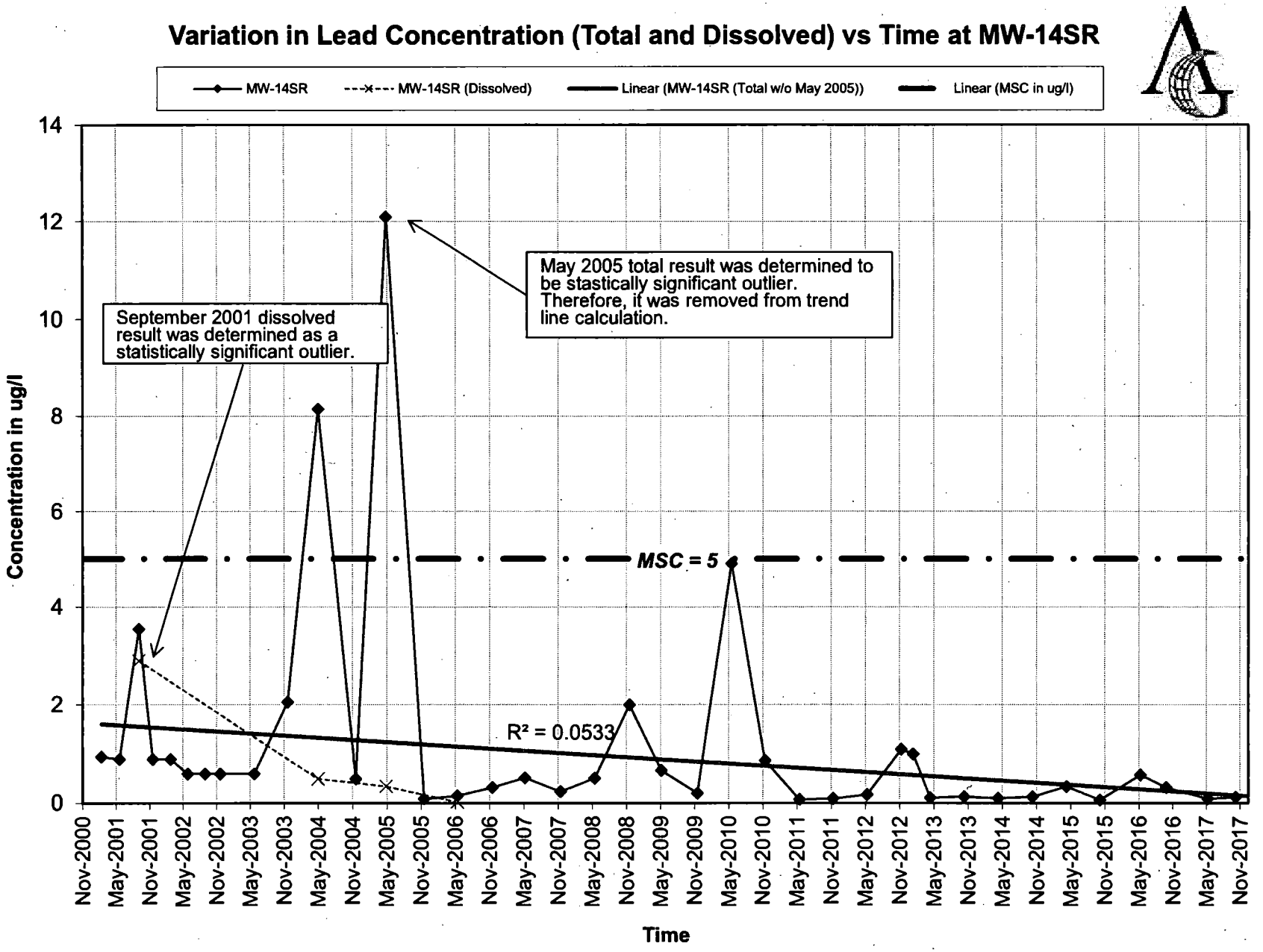
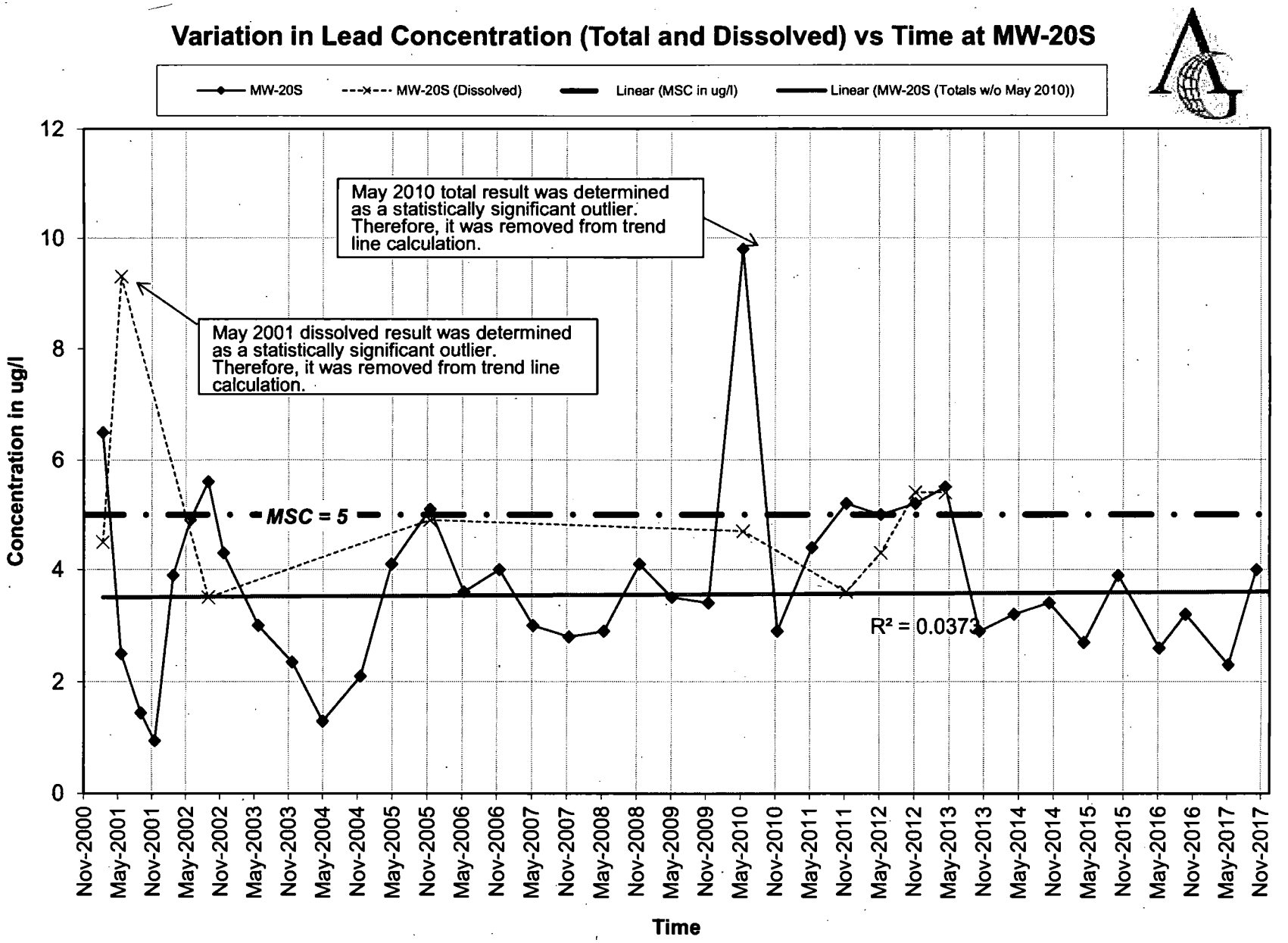
Variation in Lead Concentration (Total and Dissolved) vs Time at MW-14SR



Note: For sampling results which were less than the detection limit, results were assumed to be half of the detection limit to plot the trend lines.

G:\Projects\1996\96248-Tonolli Corp Superfund Site\Work Documents\Qtrly. GW Sampling\2017\2nd Half 2017\A

Variation in Lead Concentration (Total and Dissolved) vs Time at MW-20S



Note: For sampling results which were less than the detection limit, results were assumed to be half of the detection limit to plot the trend lines.

G:\Projects\1996\96248-Tonolli Corp Superfund Site\Work Documents\Qtrly. GW Sampling\2017\2nd Half 2017\A

APPENDIX E –SURFACE WATER AND PORE WATER DATA

TABLE 2
AUGUST 2017 SURFACE WATER RESULTS AND PADEP CRITERIA
Tonolli Superfund Site
Nesquehoning, Pennsylvania

Fish and Aquatic Life Criteria		Human Health	Sample Location		SW-1			Tributary-1			SW-2			SW-3			SW-4			SW-5		
			Lab ID		9186217-9186218			9186215-9186216			9186213-9186214			9186211-9186212			9186209-9186210			9186209-9186210		
			Sample Date		8/29/2017			8/29/2017			8/29/2017			8/29/2017			8/29/2017			8/29/2017		
			Matrix		Surface Water			Surface Water			Surface Water			Surface Water			Surface Water			Surface Water		
			Remarks																			
Continuous	**Maximum**	**Criteria**	**Parameter**	**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
			Total Metals																			
0.22	1.1	0.0056	Antimony	mg/L		U	0.00045		U	0.00045		U	0.00045		U	0.00045		U	0.00045		U	0.00045
0.15	0.34	0.01	Arsenic	mg/L		U	0.00072		U	0.00072		U	0.00072		U	0.00072		U	0.00072		U	0.00072
0.000072	0.00036	NC	Cadmium	mg/L		U	0.00015		U	0.00015		U	0.00015		U	0.00015		U	0.00015		U	0.00015
0.00035	0.0090	NC	Lead	mg/L		U	0.00011	**0.0046**		0.00011		U	0.00011		U	0.00011		U	0.00011		U	0.00011
			Dissolved Metals																			
0.22	1.1	0.0056	Antimony	mg/L		U	0.00045		U	0.00045		U	0.00045		U	0.00045		U	0.00045		U	0.00045
0.15	0.34	0.01	Arsenic	mg/L		U	0.00072		U	0.00072		U	0.00072		U	0.00072		U	0.00072		U	0.00072
0.000072	0.00036	NC	Cadmium	mg/L		U	0.00015		U	0.00015		U	0.00015		U	0.00015		U	0.00015		U	0.00015
0.00035	0.0090	NC	Lead	mg/L		U	0.00011	**0.0036**		0.00011		U	0.00011		U	0.00011		U	0.00011		U	0.00011
			Conventionals																			
-	-	-	Hardness, as CaCO3	mg/L	17.1		3	34.5		3	13.3		3	15.9		3	16		3	19.7		3

Hardness Value Upstream = 17.1

Gray shaded cells indicate calculations that reference the Hardness Value of upstream (background) surface water sample (SW-1)

Bold print indicate criteria exceedence

Q - Qualifier

MDL - Minimum Detection Limit

U - Not Detected

mg/l - milligram per liter

NC - Criteria not developed

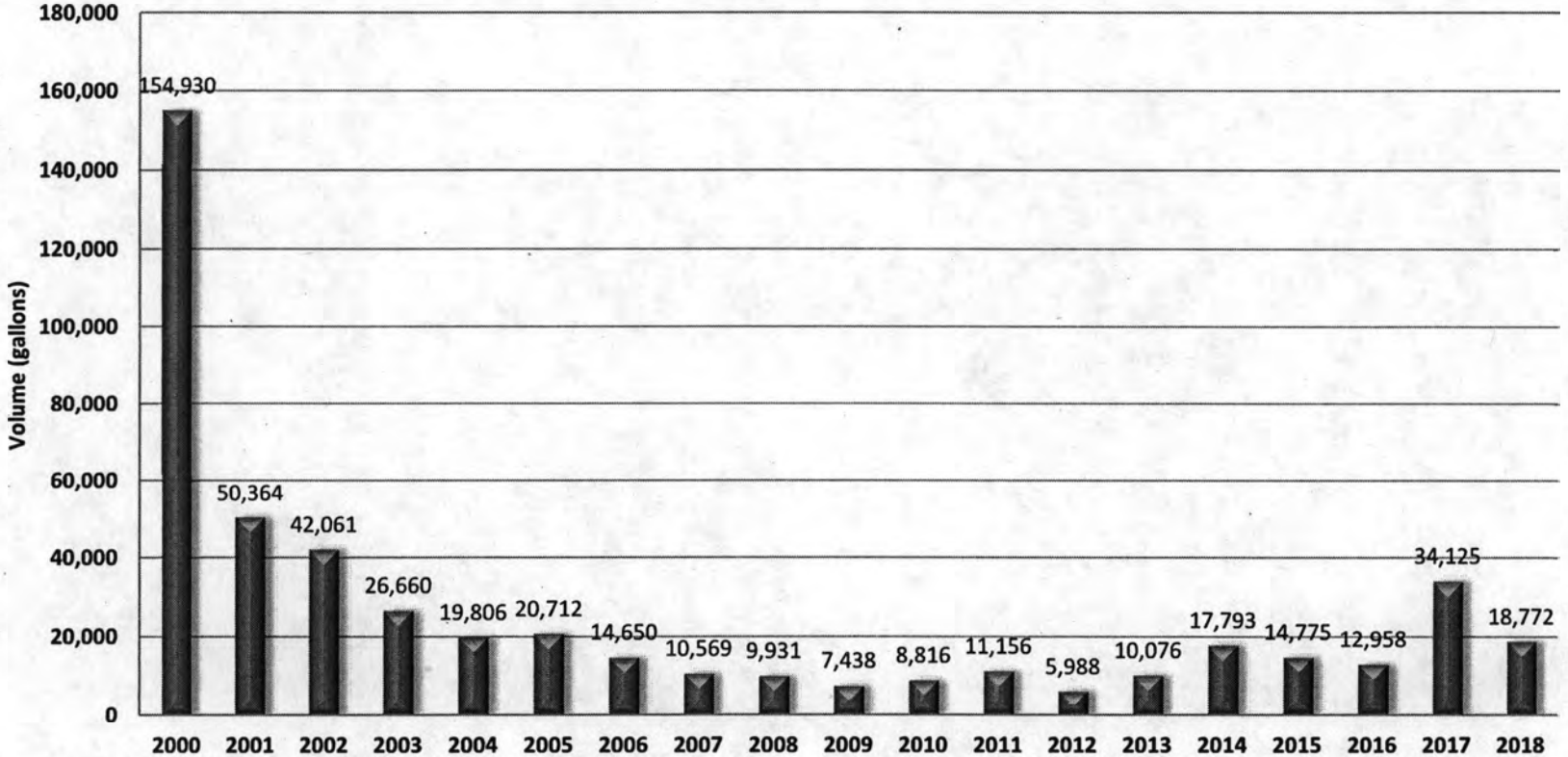
TABLE 3
AUGUST 2017 PORE WATER RESULTS AND SITE CRITERIA
Tonolli Superfund Site
Nesquehoning, Pennsylvania

SDWA MCL	PA Act 2 MSC	Sample Location		PW-1			PW-1D			PW-2			PW-3		
		Lab ID		9186223-9186224			9186225-9186226			9186221-9186222			9186219-9186220		
		Sample Date		8/29/2017			8/29/2017			8/29/2017			8/29/2017		
		Matrix		Pore Water			Pore Water			Pore Water			Pore Water		
		Notes					Duplicate of PW-1								
		Parameter	**Units**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**	**Result**	**Q**	**MDL**
		Total Metals													
0.006		Antimony	mg/L	**0.009**	J	0.00045	**0.0165**	J	0.00045		U	0.00045		U	0.00045
0.01		Arsenic	mg/L	0.0041	J	0.00072	0.0078	J	0.00072	0.0012	J	0.00072		U	0.00072
0.005		Cadmium	mg/L	0.0021	J	0.00015	0.0032	J	0.00015		U	0.00015		U	0.00015
	0.005	Lead	mg/L	**0.0907**	J	0.00011	**0.154**	J	0.00011	0.00047	J	0.00011		U	0.00011
		Dissolved Metals													
0.006		Antimony	mg/L	0.0049		0.00045	0.0050		0.00045		U	0.00045		U	0.00045
0.01		Arsenic	mg/L	0.0017	J	0.00072	0.0017	J	0.00072	0.001	J	0.00072		U	0.00072
0.005		Cadmium	mg/L	0.0018		0.00015	0.0017		0.00015		U	0.00015		U	0.00015
	0.005	Lead	mg/L	0.0048		0.00011	**0.0051**		0.00011	0.00012	J	0.00011		U	0.00011
		Conventionals													
-	-	Hardness, as CaCO3	mg/L	112		3	108		3	18.9		3	46.5		3

SDWA MCL - Safe Drinking Water Act Maximum Contaminant Levels
PA Act 2 MSC - Pennsylvania Act 2 Medium Specific Concentrations
Q - Qualifier, MDL - Method detection limit, U - Not detected, J - Estimated
mg/l - milligrams per liter
Bold values indicate that the metal concentration exceeded the MCL or MSC

APPENDIX F – LANDFILL LEACHATE

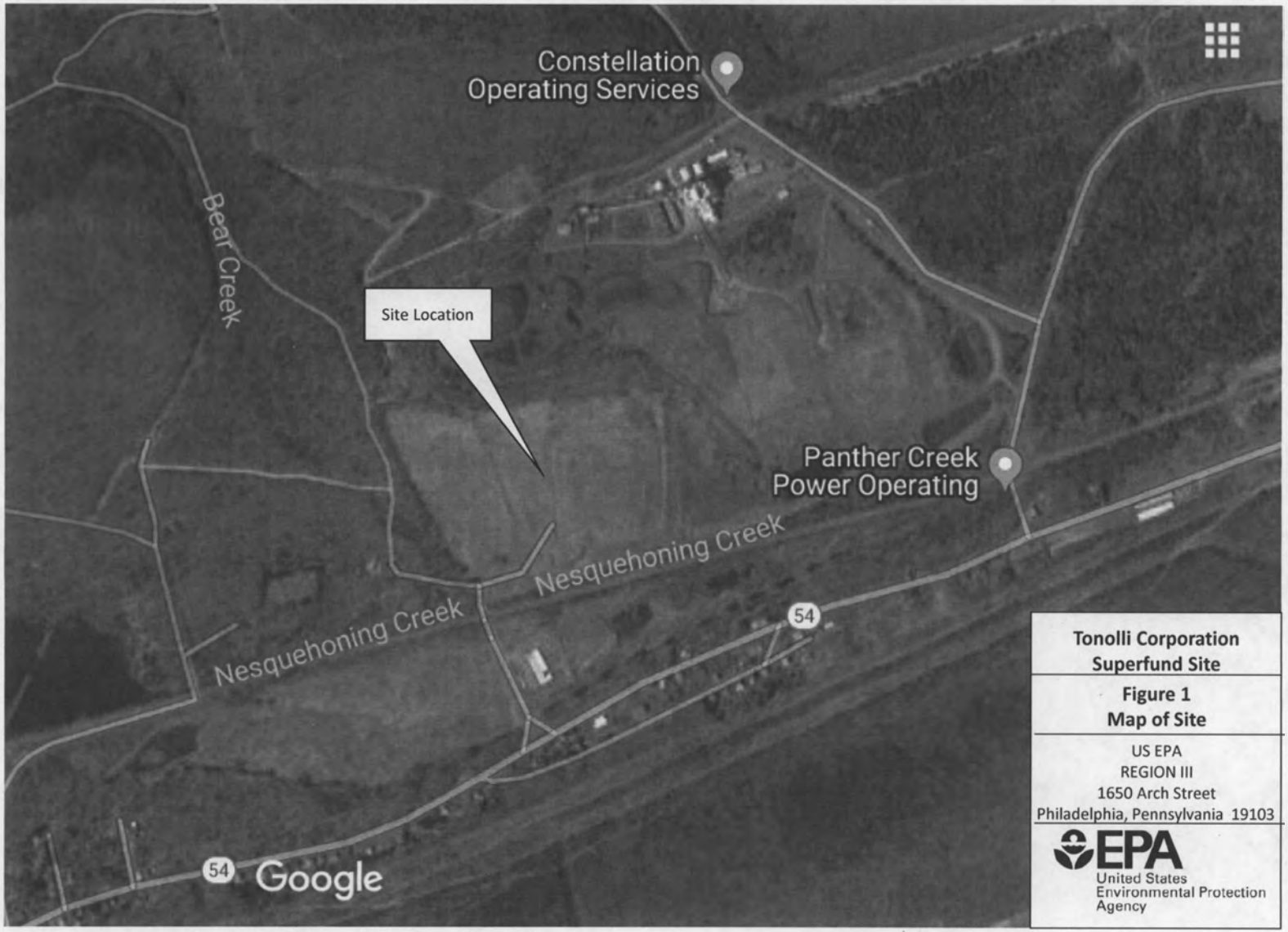
Figure 1
Tonolli Corporation Superfund Site
Annual Landfill Leachate Recovery Rates (2000 - April 30, 2018)



Notes:

1) Approximately 154,930 gallons of leachate were recovered from the closed landfill, treated on-site, and discharged into Nesquehoning Creek during a period of about one year from 12/8/1999 to 12/13/2000.
2) The leachate recovery rate for 2018 includes the time period from 1/1/2018 through 4/30/2018.

Figure 1 Site Location Map



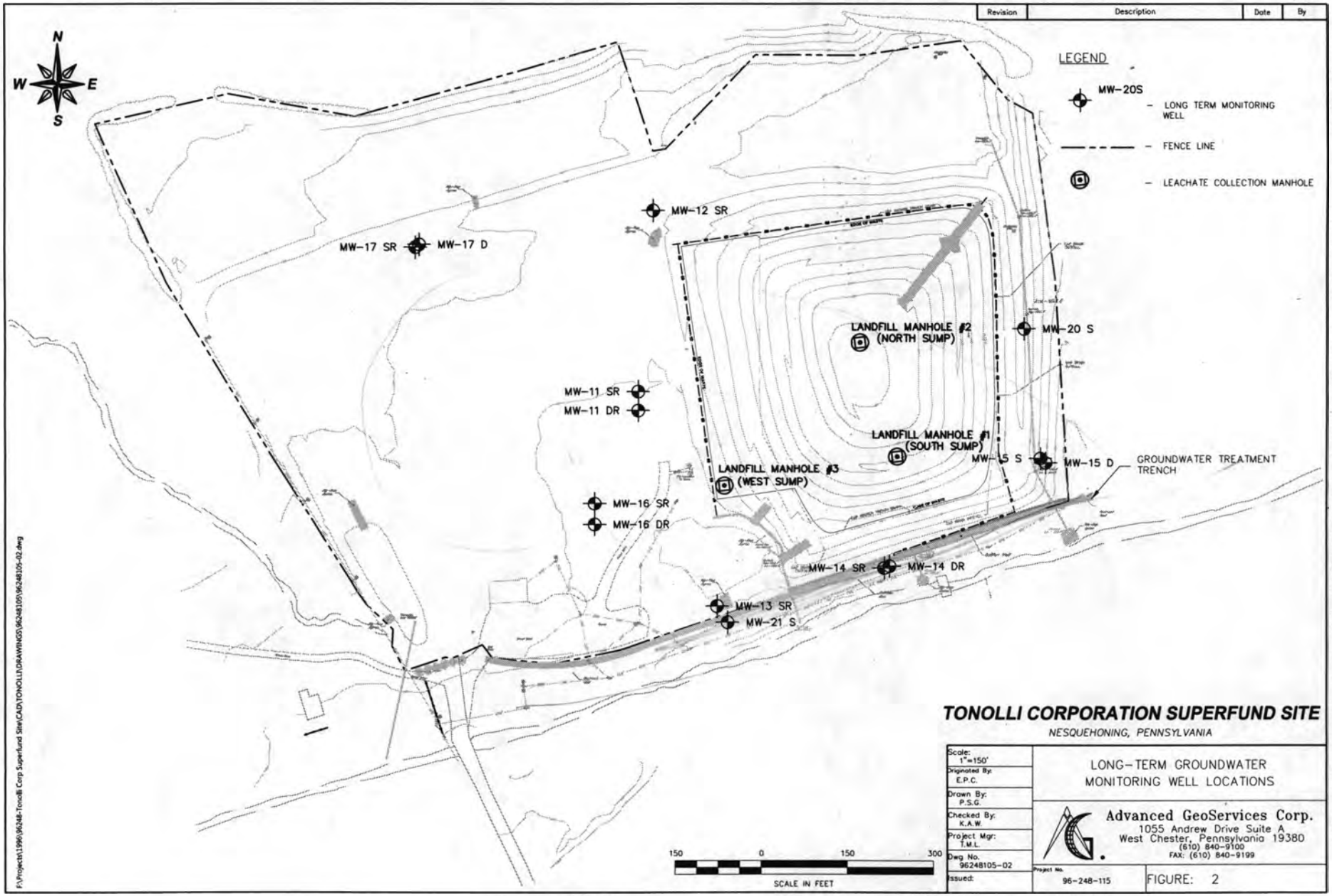
Tonolli Corporation
Superfund Site

Figure 1
Map of Site

US EPA
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103

EPA
United States
Environmental Protection
Agency

Figure 2 Site Map with location of ground water monitoring wells



Revision	Description	Date	By

F:\Projects\1996\96248-Tonolli Corp Superfund Site\CAD\TONOLLI\DRAWINGS\96248105\96248105-02.dwg

TONOLLI CORPORATION SUPERFUND SITE

NESQUEHONING, PENNSYLVANIA

Scale: 1"=150'	LONG-TERM GROUNDWATER MONITORING WELL LOCATIONS
Originated By: E.P.C.	
Drawn By: P.S.G.	
Checked By: K.A.W.	
Project Mgr: T.M.L.	
Dwg No. 96248105-02	
Issued:	

Advanced GeoServices Corp.
1055 Andrew Drive Suite A
West Chester, Pennsylvania 19380
(610) 840-9100
FAX: (610) 840-9199

Project No. 96-248-115

FIGURE: 2

Figure 3 Site map depicting parcels

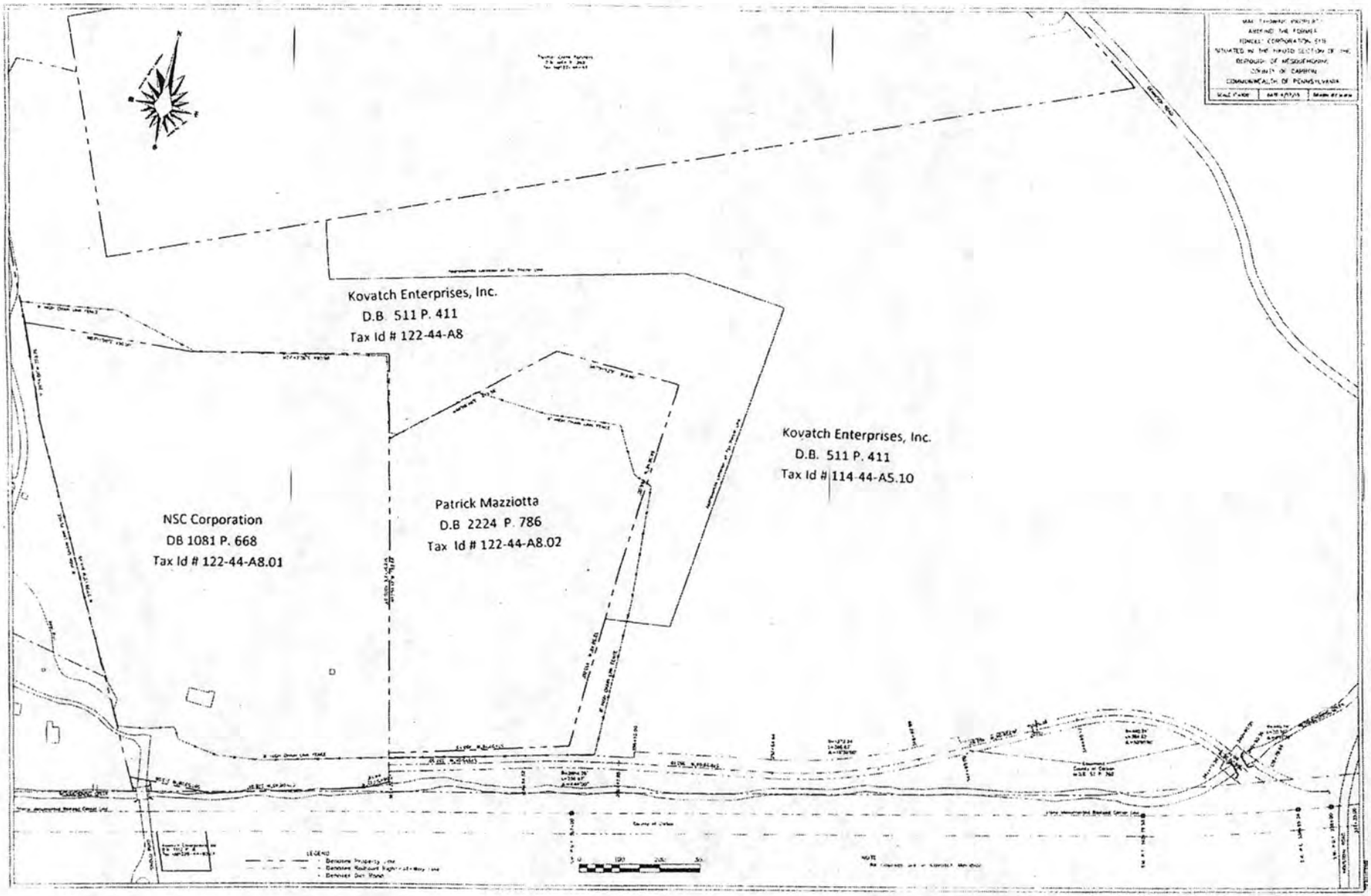
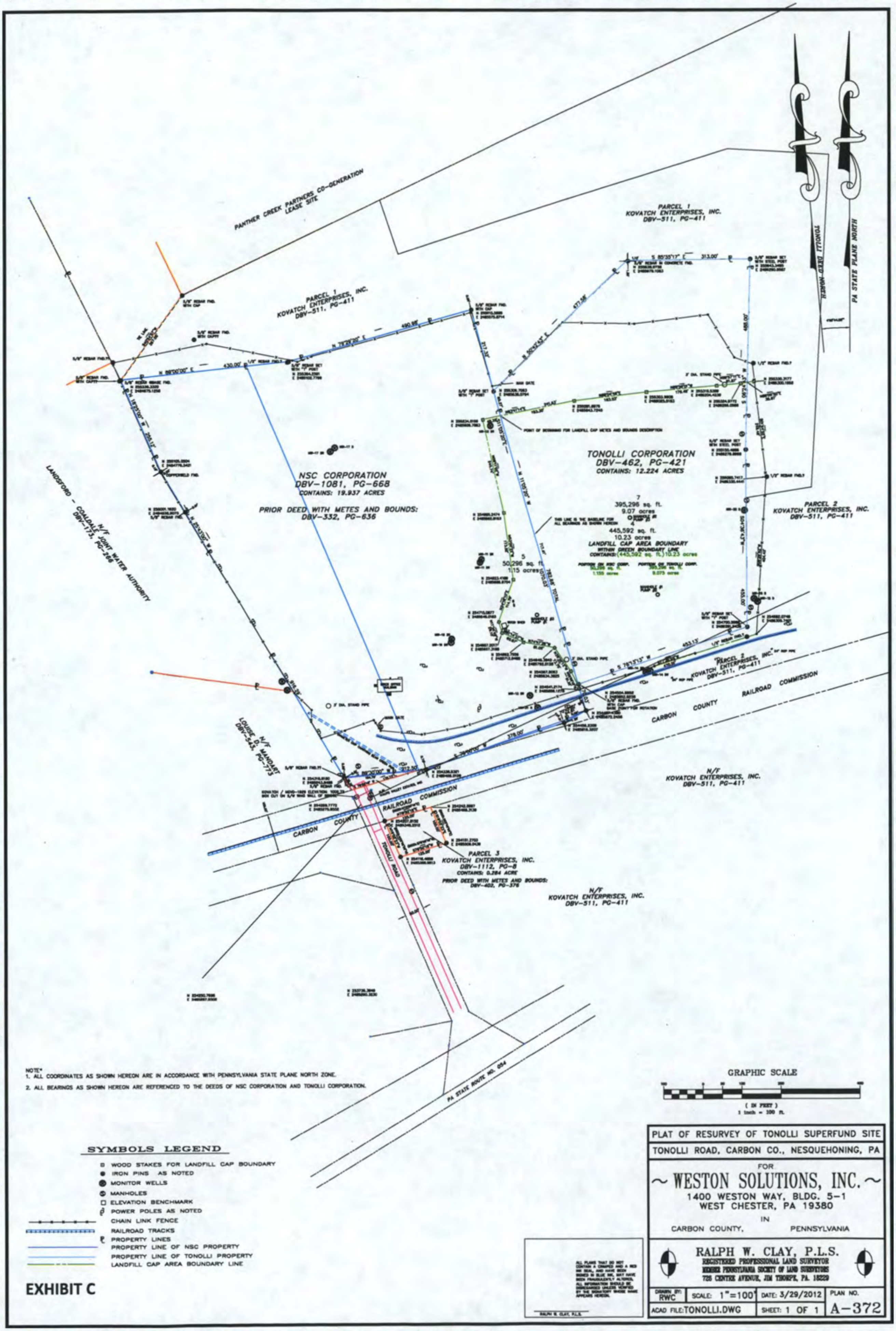

Kovatch Enterprises, Inc.
D.B. 511 P. 411
Tax Id # 122-44-A8
Kovatch Enterprises, Inc.
D.B. 511 P. 411
Tax Id # 114-44-A5.10
NSC Corporation
DB 1081 P. 668
Tax Id # 122-44-A8.01
Patrick Mazziotta
D.B 2224 P. 786
Tax Id # 122-44-A8.02

Exhibit A

Figure 4 Site map depicting extent of landfill cap


PANTHER CREEK PARTNERS CO-GENERATION LEASE SITE
PARCEL 1
KOVATCH ENTERPRISES, INC.
DBV-311, PG-411
KOVATCH PARCEL 1
KOVATCH ENTERPRISES, INC.
DBV-511, PG-411
TONOLLI CORPORATION
DBV-462, PG-421
CONTAINS: 12.224 ACRES
NSC CORPORATION
DBV-1081, PG-668
CONTAINS: 19.937 ACRES
PRIOR DEED WITH METES AND BOUNDS:
DBV-332, PG-636
LANDSFORD - COALDALE JOINT WATER AUTHORITY
DBV-173, PG-266
395,296 sq. ft.
9.07 acres
445,592 sq. ft.
10.23 acres
LANDFILL CAP AREA BOUNDARY
50,296 sq. ft.
1.15 acres
PARCEL 2
KOVATCH ENTERPRISES, INC.
DBV-511, PG-411
CARBON COUNTY RAILROAD COMMISSION
N/F
LOUISE D. MANDARI
N/F
KOVATCH ENTERPRISES, INC.
DBV-511, PG-411
PARCEL 3
KOVATCH ENTERPRISES, INC.
DBV-1112, PG-8
CONTAINS: 0.284 ACRE
PRIOR DEED WITH METES AND BOUNDS:
DBV-402, PG-376
TONOLLI ROAD
PA STATE ROUTE NO. 054
TONOLLI DEED NORTH
PA STATE PLANE NORTH
NOTE:
1. ALL COORDINATES AS SHOWN HEREON ARE IN ACCORDANCE WITH PENNSYLVANIA STATE PLANE NORTH ZONE.
2. ALL BEARINGS AS SHOWN HEREON ARE REFERENCED TO THE DEEDS OF NSC CORPORATION AND TONOLLI CORPORATION.
GRAPHIC SCALE
(IN FEET)
1 inch = 100 ft.
SYMBOLS LEGEND
WOOD STAKES FOR LANDFILL CAP BOUNDARY
IRON PINS AS NOTED
MONITOR WELLS
MANHOLES
ELEVATION BENCHMARK
POWER POLES AS NOTED
CHAIN LINK FENCE
RAILROAD TRACKS
PROPERTY LINES
PROPERTY LINE OF NSC PROPERTY
PROPERTY LINE OF TONOLLI PROPERTY
LANDFILL CAP AREA BOUNDARY LINE
PLAT OF RESURVEY OF TONOLLI SUPERFUND SITE
TONOLLI ROAD, CARBON CO., NESQUEHONING, PA
FOR
~ WESTON SOLUTIONS, INC. ~
1400 WESTON WAY, BLDG. 5-1
WEST CHESTER, PA 19380
IN
CARBON COUNTY, PENNSYLVANIA
RALPH W. CLAY, P.L.S.
REGISTERED PROFESSIONAL LAND SURVEYOR
DRAWN BY: RWC
SCALE: 1"=100'
DATE: 3/29/2012
PLAN NO. A-372
ACAD FILE: TONOLLI.DWG
SHEET: 1 OF 1
RALPH W. CLAY, P.L.S.
EXHIBIT C