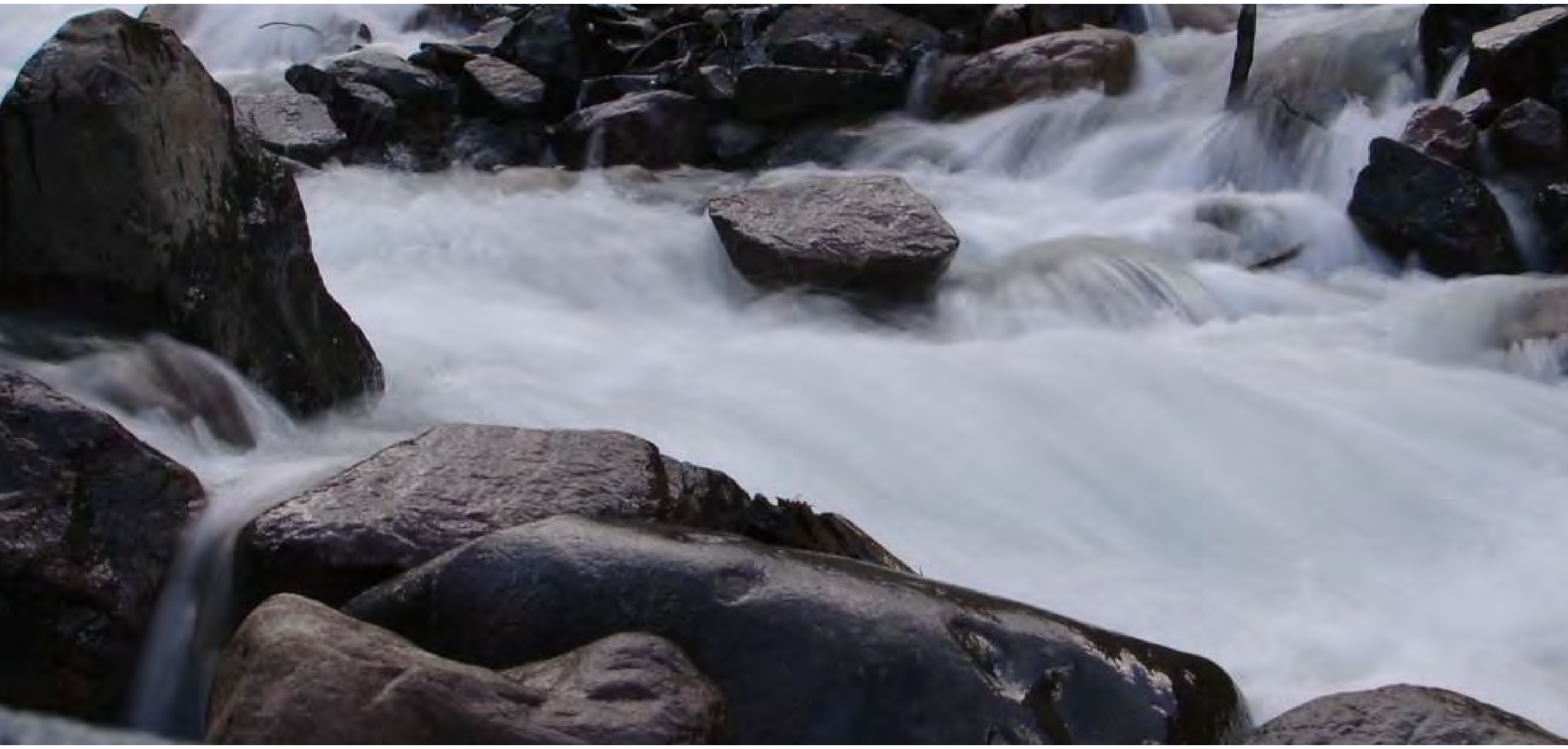
Blue Pearl Mining Inc.

BLUE PEARL MINING

DAVIDSON PROJECT:
Predicted Groundwater and Surface Water Chemistry Before, During, and After Mining, Based on MODFLOW Modelling, and Empirical and Predicted Geochemistry



Rescan™ Environmental Services Ltd.
Sixth Floor - 1111 West Hastings Street
Vancouver, BC Canada V6E 2J3
Tel: (604) 689-9460 Fax: (604) 687-4277

Rescan™ Engineers & Scientists

November 2009

Acknowledgement

This report consists of 5 chapters. Chapters 1, 2, and 3 were written by Kevin Morin PhD., PGeo. of Minesite Drainage Assessment Group (MDAG). Chapters 4 and 5 were written by Jason Rempel, MSc., GIT of Rescan, with assistance from Kevin Morin.

Report Summary

The Davidson Project is in the review stage of its Environmental Assessment Application. One request from the Environmental Assessment Office and regulatory agencies is the prediction of water chemistry in groundwaters and surface waters, based the latest groundwater modelling. This report illustrates and discusses the temporal trends in groundwater and surface water chemistry before, during, and after mining. It is based on empirical and predicted geochemistry and on the latest groundwater modelling using the MODFLOW model (Cho, 2009).

Most of the physical hydrogeologic effect of the proposed mining at Davidson will be (1) a lowering of the water table within the surrounding granodiorite during operation and (2) a re-stabilization of the water table as a result of recharge within the granodiorite after closure. Thus, the flows and the corresponding percentages from the granodiorite will be the primary changes affecting downgradient chemistry during and after mining at Davidson.

To predict aqueous concentrations numerically, initial “boundary conditions” were calculated using mass balance along flowpaths. These included the aqueous chemistries of the granodiorite and site-specific non-granodiorite waters. Then, composite water chemistries were calculated for each available element before, during, and after mining at a specific location. This was done for (1) hypothetical distilled water with zero concentrations as a dilution demonstration example, (2) average Davidson groundwater, (3) five site specific groundwater wells, and (4) four surface-water monitoring points in Glacier Gulch Creek and in the Kathlyn Creek systems. All results are shown in the appendices.

The results of these calculations indicate that there will be minor changes to water quality as a result of the Project. For most parameters, water quality will improve during the mine life as granodiorite water is removed from the groundwater system, treated and discharged. Following closure, when the underground workings will recharge with groundwater, the rebounding water table and the higher hydraulic conductivity in the granodiorite as a result of the mine workings combine to produce increased concentrations for most parameters. The predicted increases are generally small, and are not expected to have an impact on water quality for downstream water users.

Table of Contents

List of Appendices

List of Figures

FIGURE **PAGE**

1. Introduction

The Davidson Project is in the review stage of its Environmental Assessment Application. One request from the Environmental Assessment Office and regulatory agencies is the prediction of water chemistry in groundwaters and surface waters, based on a recent update of groundwater modelling.

This report illustrates and discusses the temporal trends in groundwater and surface-water chemistry before, during, and after mining. These trends are based on current chemistry and on the updated groundwater modelling, as discussed in previously submitted documents for the Davidson Project, primarily:

Cho, H.J. 2009. Update of MODFLOW Model of Davidson Project. Memorandum to J. Rempel, dated March 4, 2009. 64 p.

Morin, K.A., and N.M. Hutt (Minesite Drainage Assessment Group). 2008. Davidson Project - Prediction of Metal Leaching and Acid Rock Drainage, Phase 2. Appendix C4 of Davidson Project - Application for Environmental Assessment Certificate, dated May 9, 2008.

Rescan Environmental Services Ltd. 2006a. Davidson Project Hydrology Baseline Study. Appendix F1 of Davidson Project - Application for Environmental Assessment Certificate, dated September 2006.

Rescan Environmental Services Ltd. 2008. Davidson Project Groundwater Baseline Study. Appendix F2 of Davidson Project - Application for Environmental Assessment Certificate, dated January 2008.

Rescan Environmental Services Ltd. 2006b. Davidson Project Water Quality Baseline Studies Report 2005-2006. Appendix F3 of Davidson Project - Application for Environmental Assessment Certificate, dated December 2006.

In general, the existing 1066 Adit has been mostly a passive conduit for the groundwater within the granodiorite rock unit that surrounds the mine and ore (Chapter 6 of Morin and Hutt, 2008). In other words, the 1066 Adit did not significantly affect the flow or the chemistry of the granodiorite water draining through it – the mine did not significantly increase or decrease aqueous concentrations.

As a result, the mine is not an independent source of contaminated water with elevated aqueous concentrations of some elements. Instead, the granodiorite rock surrounding the mine is both a source of some elevated elements and of some notably low elements.

As it flows downgradient, this granodiorite groundwater moves partially to some wells and partially into some creeks. The percentages of granodiorite water passing through wells and creeks were estimated by Cho (2009). These percentages become the key for predicting trends in aqueous concentrations through time.

Also, most of the physical hydrogeologic effect of the proposed mining at Davidson will be (1) a lowering of the water table within the surrounding granodiorite during operation and (2) a re-stabilization of the water table as a result of recharge within the granodiorite after closure. Thus, the flows and the corresponding percentages from the granodiorite will be the primary changes affecting downgradient chemistry during and after mining at Davidson.

These changes in flows and associated chemistry are described mathematically in Chapter 2. Then Chapters 3 and 4 illustrate the predicted changes in downgradient chemistry in wells and creeks, respectively, for selected parameters that are of key interest for the project (e.g., As, Mo), or that were considered representative of the range of results. Individual predictions through time are compiled for all elements of interest in the appendices.

2. Methodology for Predicting Water Chemistry

The water chemistry found in a well or surface-water monitoring station is often a composite from several flowpaths and sources. For example, for an aqueous parameter such as molybdenum, arsenic, or sulphate, the composite concentration based on mass balance would be:

$$C_{MP} * \left(\frac{P_{S1} + P_{S2} + P_{S3} + \ldots}{100} \right) = \left[(C_{S1} - A_1 + a_1) * (P_{S1}/100) \right] + \left[(C_{S2} - A_2 + a_2) * (P_{S2}/100) \right] + \left[(C_{S3} - A_3 + a_3) * (P_{S3}/100) \right] + \ldots$$

[Equation 2-1]

where:

C = Concentration

P = Percentage contribution

A = Attenuation along pathway between source (S) and Monitoring Point (MP)

a = Addition along pathway between S and MP

Depending on the number of sources contributing to a monitoring point, Equation 2-1 can become very complex.

Groundwater flow and chemistry from the granodiorite surrounding the Davidson mine have been characterized, and granodiorite flow is the primary variable during and after mining (Chapter 1). As a result, wells and creeks downgradient of the proposed Davidson mine can be simplified to:

$$C_{MP} * \left(\frac{P_G + P_N}{100} \right) = \left[(C_G - A_G + a_G) * (P_G / 100) \right] + \left[(C_N - A_N + a_N) * (P_N / 100) \right]$$ [Equation 2-2]

where G is granodiorite source and N is non-granodiorite source.

If flow and loading rather than percentage is used, Equation 2 can be adjusted for surface water sites:

$$C_{MP} * F_{MP} = \left[(C_G - A_G + a_G) * (F_G) \right] + \left[(C_N - A_N + a_N) * (F_N) \right]$$ [Equation 2-3]

where F is flow.

Equation 2 can be further simplified if down gradient attenuation and addition along flowpaths are generally independent of variations in percentage of flow:

$$C_{MP} * \left(\frac{P_G + P_N}{100} \right) = \left[(C_G) * (P_G / 100) \right] + \left[(C_N) * (P_N / 100) - A_G + a_G - A_N + a_N \right] = [TERM1] + [TERM2]$$

[Equation 2-4]

where $\left[(C_G) * (P_G / 100) \right]$ is TERM 1, and $\left[(C_N) * (P_N / 100) - A_G + a_G - A_N + a_N \right]$ is TERM2.

Equation 2-4 is used in two ways in this report. First, all individual contributions to TERM 2 are rarely known. Therefore, TERM 2 is calculated here, using Equation 2-4 in reverse, as a composite value by:

1. subtracting TERM 1 based on known information

2. from the current average Concentrations at the Davidson Monitoring Point, for each individual element,

3. with % of Water set at 100%.

TERM 2 was calculated this way from early-time data in Cho (2009), with Year -50 for Wells (before the 1066 Adit in the 1960's) and Year 0 for creeks. As a result, geochemical effects of operation and post-closure could then be calculated relative to these early times.

Once early-time TERM 2 was calculated for each element at each monitoring location, Equation 2-4 was then used in the forward direction. TERM 2 remained constant for all times. For TERM1, C_G remained constant for all times, and P_G varied according to results from Cho (2009). This means that the sum of % of water was often less than 100% (the initial boundary condition) during operation, consistent with the decreased water table in the granodiorite at those times. Also, the sum was often greater than 100% after closure, consistent with the higher water table in the granodiorite at that time.

For these calculations, C_G was taken from Tables 9-4 and 9-9 of Morin and Hutt (2008). These tables provided ranges of predicted granodiorite concentrations during operation and after closure. As a conservative approach, the higher range, whether during operation or after closure, was used for all predictions. Furthermore, for each element, the highest value in the higher range from these tables was used for all predictions.

3. Predicted Groundwater Concentrations at Wells

Chapter 2 and Equation 2-4 explained the mathematical approach used for predicting groundwater and surface-water chemistry before, during, and after mining at Davidson. To illustrate how this approach was implemented, Section 3.1 looks at the geochemical effects of mixing various proportions of granodiorite groundwater with distilled water (zero concentrations) in a downgradient well or creek. Because distilled water with zero concentrations is not applicable to the Davidson Project, Section 3.2 provides a more realistic scenario based on average Davidson groundwater. Finally, Section 3.3 presents predicted trends through time for specific wells near the Davidson Project. Selected elements and locations are discussed in this chapter to explain trends, and all available elements are compiled in the appendices.

3.1 GRANODIORITE GROUNDWATER MIXING WITH DISTILLED WATER IN A WELL

The proportions of granodiorite water mixed with distilled water (zero concentrations) were approximately 0.3% (based on predicted varying percentages through time for Well 49768 in Cho, 2009), approximately 4% (based on Well RES-DAV-01A), and approximately 36% granodiorite water (based on Well RES-DAV-04). All results are compiled in Appendices A1 through A3, with selected parameters discussed in detail below.

As examples, dissolved aluminum, arsenic, copper, and molybdenum were predicted through time, based on various percentages of granodiorite water and various distances from the granodiorite (Figures 3-1 to 3-4). Because hardness can correlate with toxicity, it has been plotted in Figure 3-5. Because its granodiorite values were mixed with non-granodiorite water (distilled water) with zero concentration, hardness trends of course mimic those of the dissolved metals. Also, sulphate can act as a geochemically conservative tracer in some Davidson groundwaters and surface waters, and it is plotted in Figure 3-6. Again, these and all other available elements are plotted in Appendices A1 to A3.

The temporal trends in Figures 3-1 to 3-6 show that groundwater flow from the granodiorite was initially high before the original 1066 Adit was mined in the 1960's. The flow and corresponding aqueous concentrations decrease through time due to mine operation and lowering of the water table in the granodiorite. However, not all downgradient locations experience the same decease in concentration immediately for two reasons. First, there is a lag time between the water table decrease in the granodiorite and when this effect reaches a downgradient location. This lag time increases as distance from the granodiorite increases, and as other factors like hydraulic conductivity vary along flowpaths. Second, the smaller the percentage of water from granodiorite at a particular location, the smaller the initial concentration and the smaller the decrease when the mining-induced effect arrives. After the mine closes, the percentages of granodiorite water increase as the water table in the granodiorite recovers.

This approach of mixing granodiorite water with distilled water with zero concentrations is simply an exercise in calculating dilution. The differences between various elements and parameters reflect the initial concentrations in the granodiorite water. Also, for all elements, the temporal trends are identical at a particular percentage of granodiorite water and at a location, although the absolute values differ. However, this is not realistic for the Davidson Project, nor for most natural waters. Non-granodiorite water does not have zero concentrations for all elements, but a different background concentration for each. In some cases, the background concentration in the nongranodiorite water at Davidson is higher, so that granodiorite water actually dilutes and lowers the composite concentration. This is opposite to that depicted in Figures 3-1 to 3-6, and is discussed in Section 3.2.

Also, each element actually experiences differing attenuation or addition along flowpaths. Where attenuation is significant, the concentrations predicted here with distilled water can be unrealistically high. Therefore, the next section uses average Davidson groundwater to illustrate more realistically the more variable chemistry predicted through time.

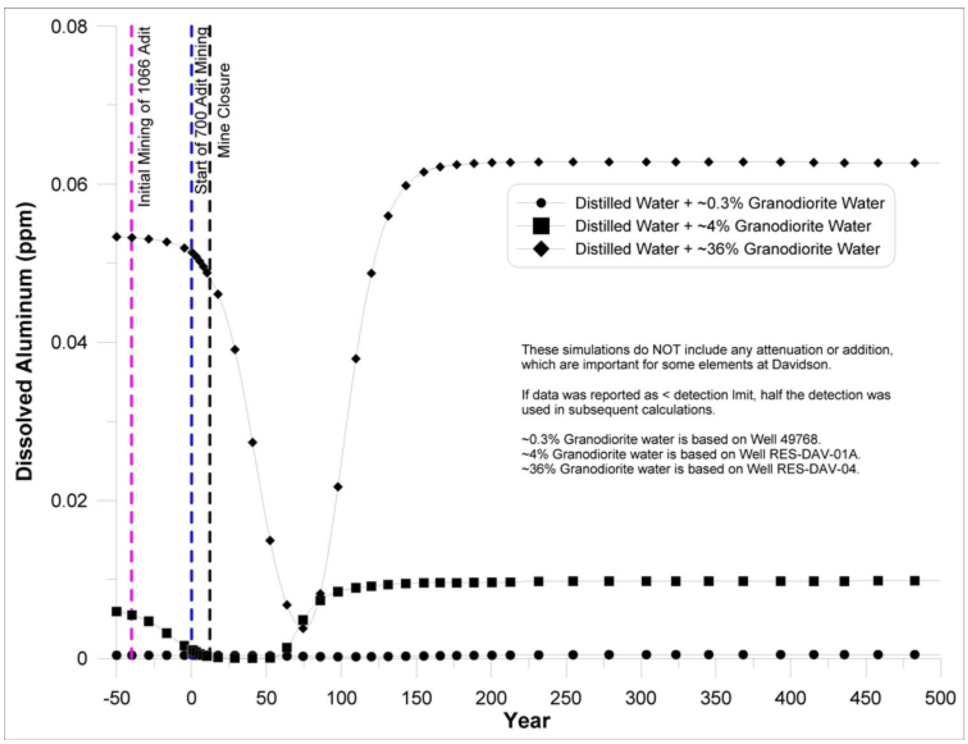


Figure 3-1. Temporal trends in dissolved aluminum based on mixing of distilled water with varying percentages of granodiorite water, before, during, and after mining at Davidson.

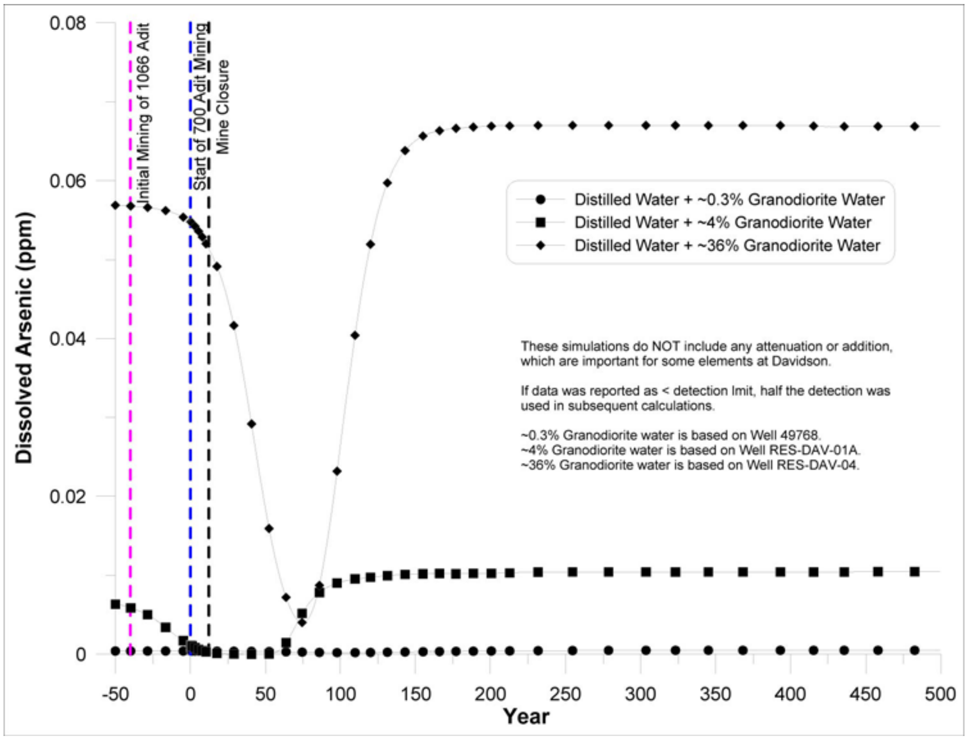


Figure 3-2. Temporal trends in dissolved arsenic based on mixing of distilled water with varying percentages of granodiorite water, before, during, and after mining at Davidson.

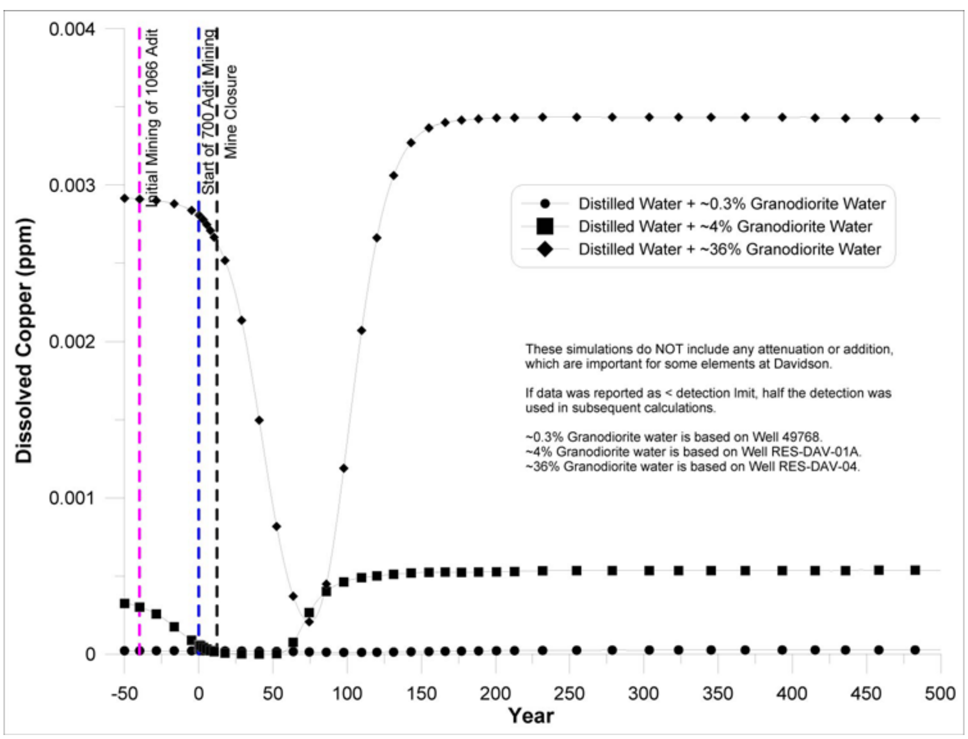


Figure 3-3. Temporal trends in dissolved copper based on mixing of distilled water with varying percentages of granodiorite water, before, during, and after mining at Davidson.

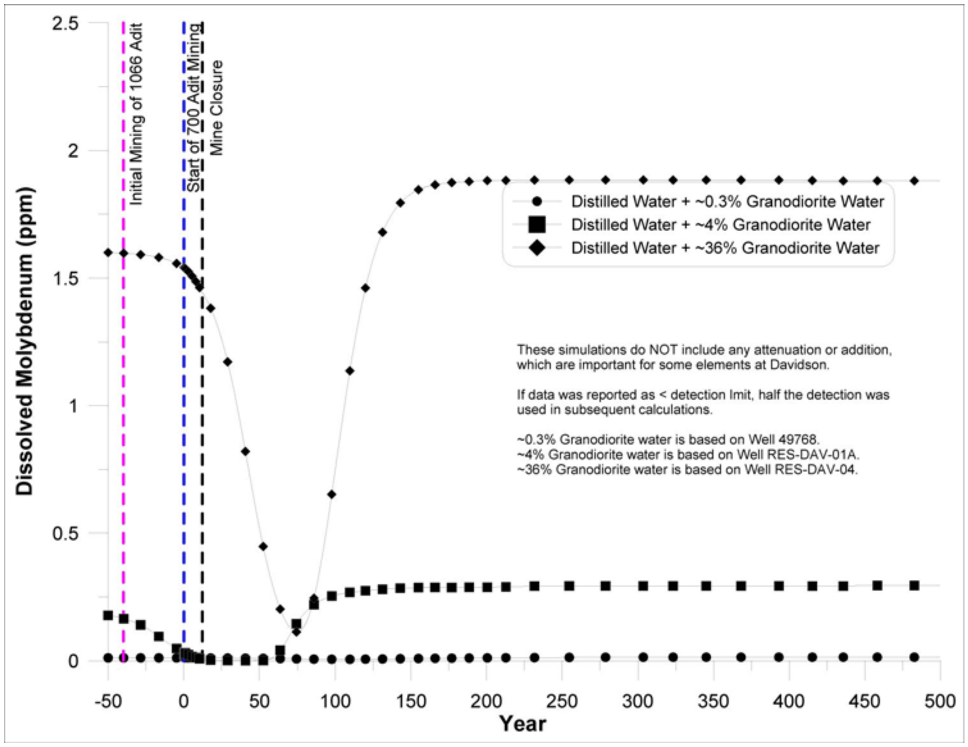


Figure 3-4. Temporal trends in dissolved molybdenum based on mixing of distilled water with varying percentages of granodiorite water, before, during, and after mining at Davidson.

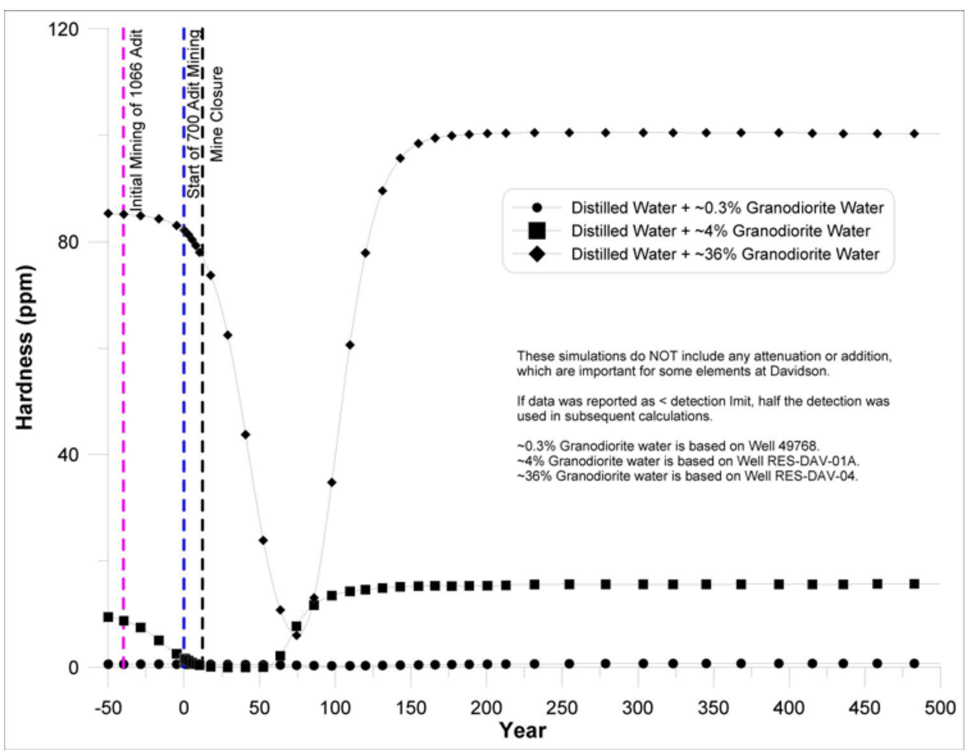


Figure 3-5. Temporal trends in hardness based on mixing of distilled water with varying percentages of granodiorite water, before, during, and after mining at Davidson.

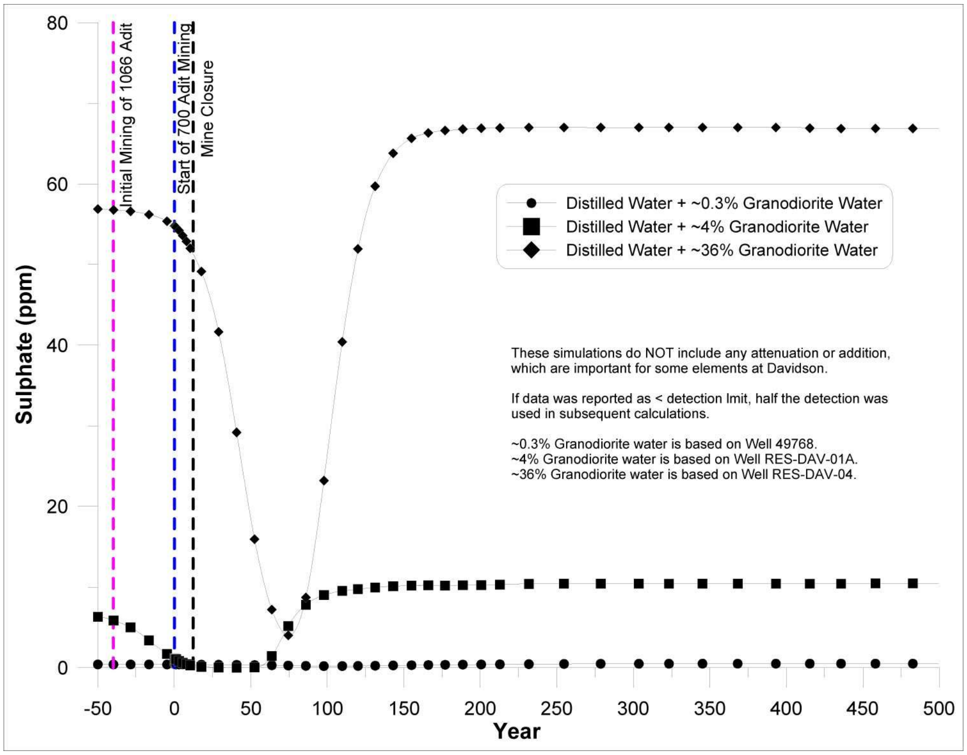


Figure 3-6. Temporal trends in sulphate based on mixing of distilled water with varying percentages of granodiorite water, before, during, and after mining at Davidson.

3.2 GRANODIORITE GROUNDWATER MIXING WITH AVERAGE DAVIDSON GROUNDWATER IN A WELL

Rescan (2008) provided data for average groundwater chemistry near the Davidson Project (including Tables 3.4-1, 3.5-1, and 3.5-2 in that reference). The average groundwater was then used in the calculation of TERM 2 in Equation 2-4, to mathematically remove the granodiorite contribution at Year -50 (initial boundary conditions). This shows a more realistic and typical response of downgradient chemistry at Davidson than distilled water (Section 3.1).

This approach also represents the average predicted response at any downgradient location with mixing percentages and temporal trends typical of ~0.3% granodiorite water in Well 49768, ~4% granodiorite water in Well RES-DAV-01A, and ~36% granodiorite water in Well RES-DAV-04 (Cho, 2009). All results are compiled in Appendices B1 through B3, and selected elements and trends are discussed below.

To illustrate the range of concentrations that may be expected at the base of Hudson Bay Mountain, predicted groundwater concentration were calculated by assuming average groundwater conditions for three wells that cover the range of P_G contributions as outlined in Figures 47 to 50 in Cho, 2009: 0.3% (based Well 49768), approximately 4% (based on Well RES-DAV-01A), and approximately 36% (based on Well RES-DAV-04).

For dissolved aluminum (Figure 3-7), the general trends through time when mixing with average Davidson groundwater are similar to those with distilled water (Figure 3-1). However, because granodiorite water is mixing with detectable background aluminum concentrations, the predicted concentrations are higher than Figure 3-1.

Dissolved arsenic with average Davidson groundwater (Figure 3-8) is notably different from its distilled-water counterpart (Figure 3-2), in that negative concentrations are predicted at some times for the higher percentages of granodiorite water. These predicted negative values are not errors. They represent the effect of excess calculated attenuation when the percentage of granodiorite water temporally decreases. In other words, if 36% granodiorite water carries 0.16 mg/L before any attenuation, yet produces a composite concentration below 0.002 mg/L at early times, then there is significant attenuation along flowpaths. This attenuation for arsenic has been documented at Davidson, such as between Stations A1 and A5 (Morin and Hutt, 2008). Thus, actual dissolved-arsenic concentrations would be greater than zero during this time, but less than the initial concentrations below 0.002 mg/L.

Dissolved copper with average Davidson groundwater and granodiorite water (Figure 3-9) is also notably different from its distilled-water counterpart (Figure 3-3). In this case, dissolved copper is higher in the average Davidson groundwater. As a result, a lower contribution from granodiorite caused by mining eventually results in less downgradient dilution and higher composite concentrations. However, as the water table recovers and this effect migrates downgradient, dissolved copper concentrations fall to their lowest levels long after closure due to increased granodiorite water. This should not be mistaken during mine operation and after closure as a plume of increased concentration moving out of the mine area.

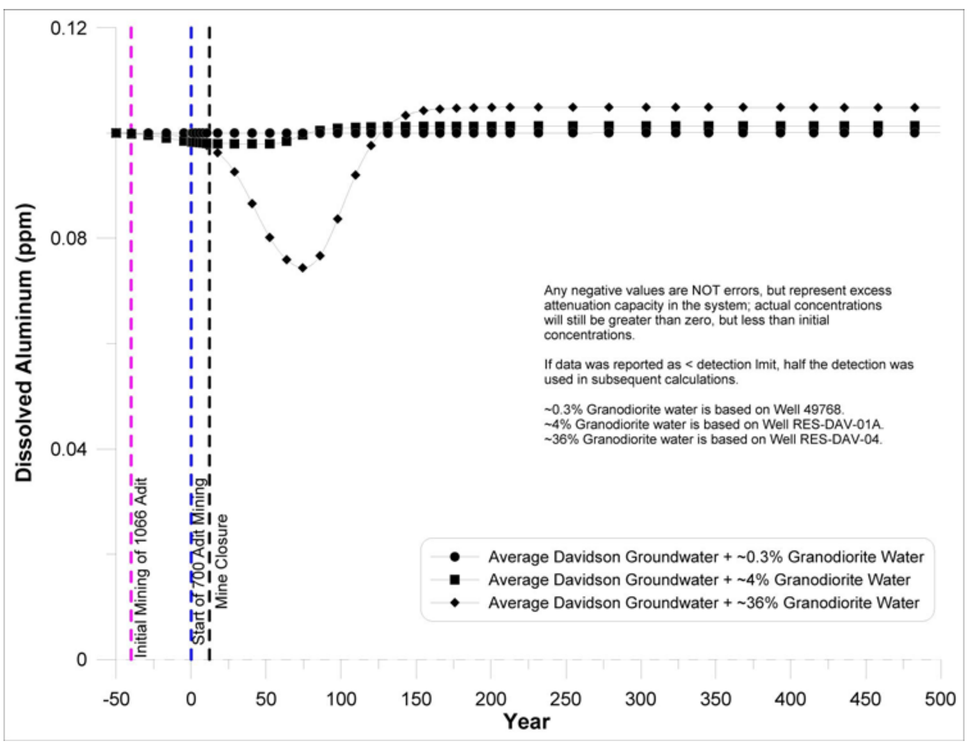


Figure 3-7. Temporal trends in dissolved aluminum based on mixing of average Davidson groundwater with varying percentages of granodiorite water, before, during, and after mining at Davidson.

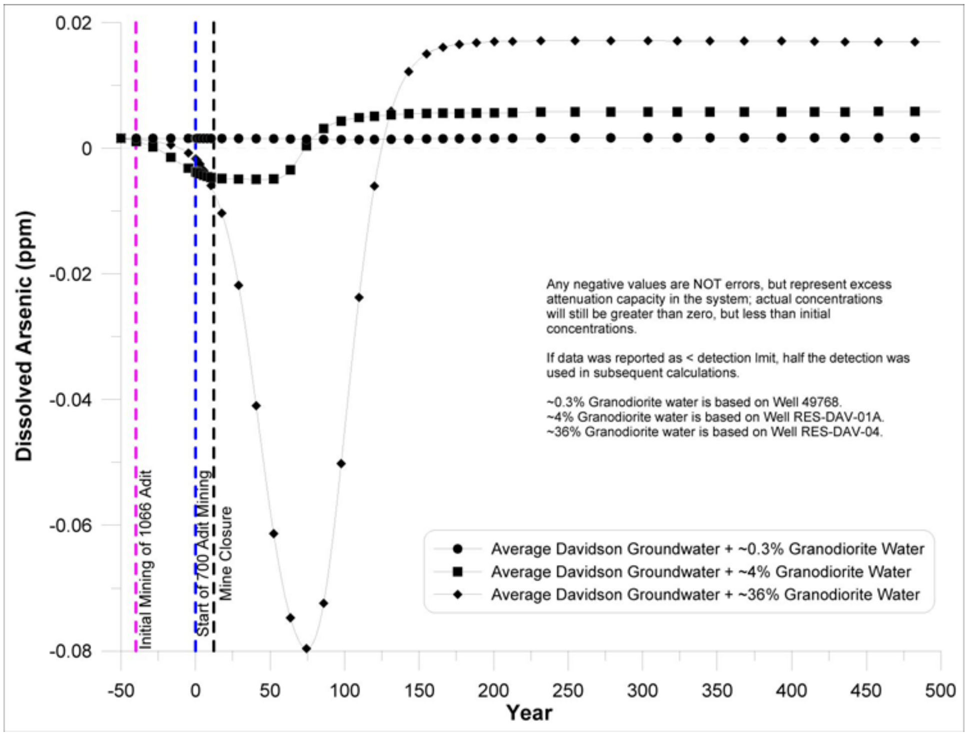


Figure 3-8. Temporal trends in dissolved arsenic based on mixing of average Davidson groundwater with varying percentages of granodiorite water, before, during, and after mining at Davidson.

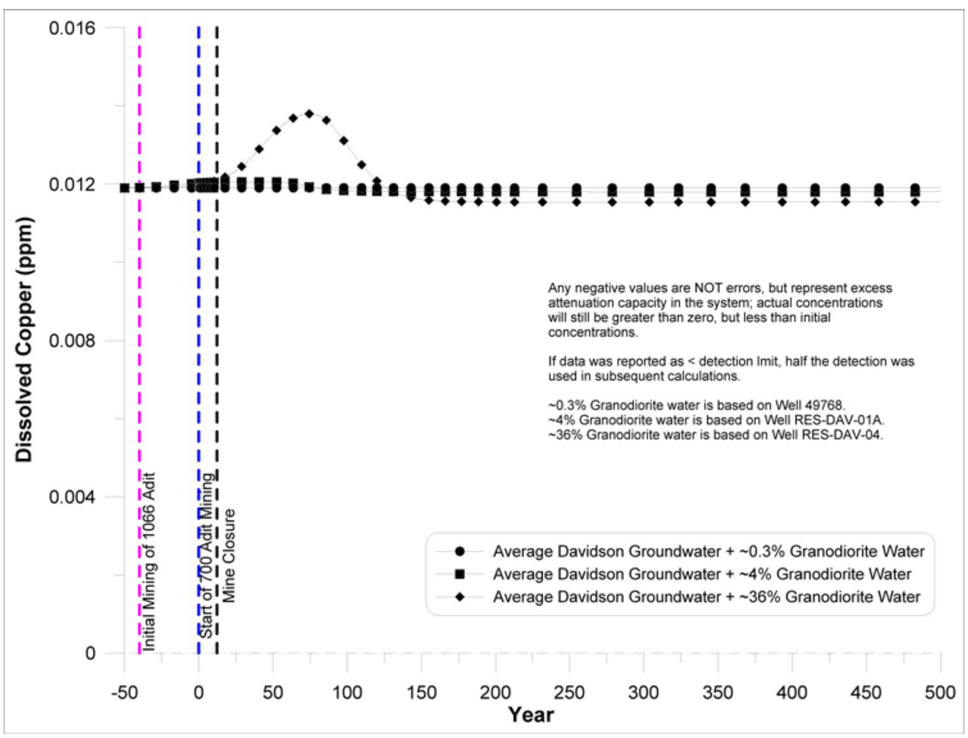


Figure 3-9. Temporal trends in dissolved copper based on mixing of average Davidson groundwater with varying percentages of granodiorite water, before, during, and after mining at Davidson.

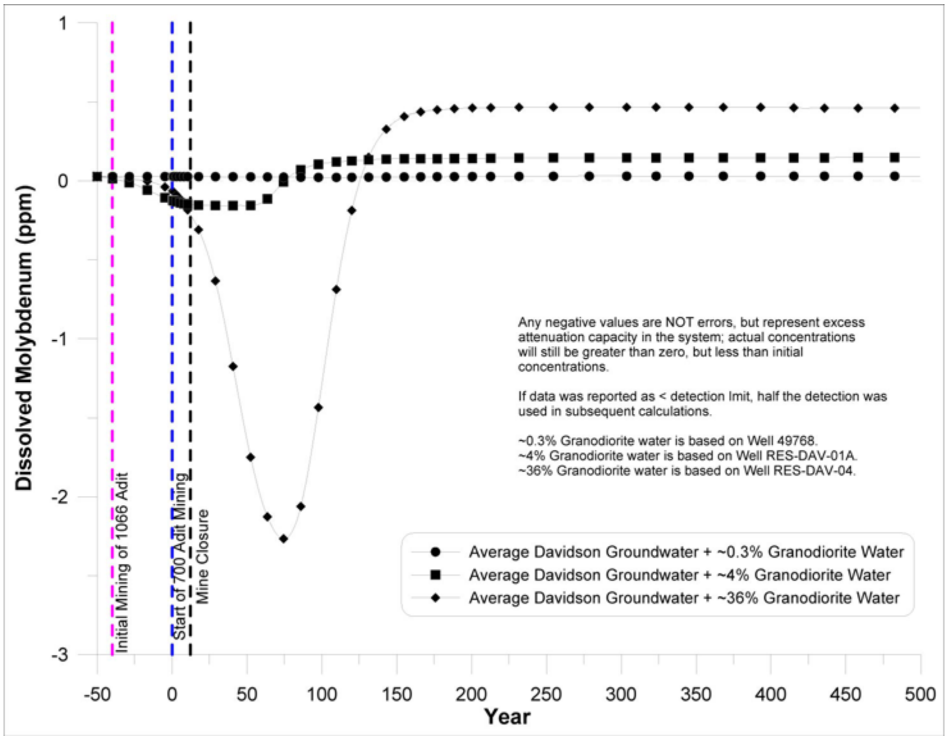


Figure 3-10. Temporal trends in dissolved molybdenum based on mixing of average Davidson groundwater with varying percentages of granodiorite water, before, during, and after mining at Davidson.

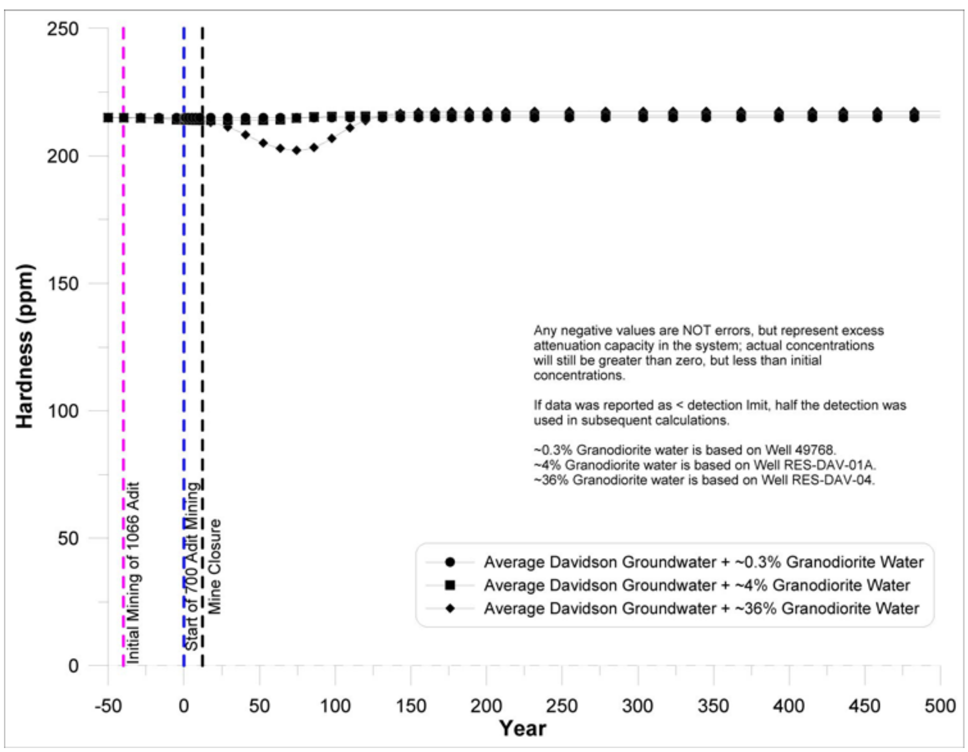


Figure 3-11. Temporal trends in hardness based on mixing of average Davidson groundwater with varying percentages of granodiorite water, before, during, and after mining at Davidson.

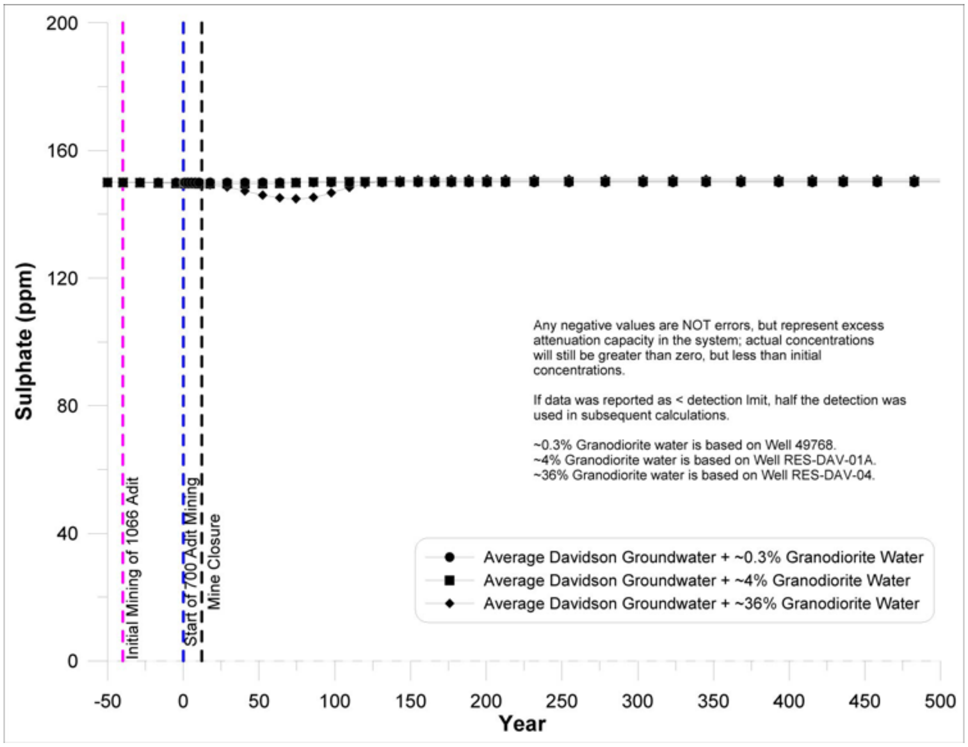


Figure 3-12. Temporal trends in sulphate based on mixing of average Davidson groundwater with varying percentages of granodiorite water, before, during, and after mining at Davidson.

Like dissolved arsenic (Figure 3-8), dissolved molybdenum displays negative values at intermediate times and higher granodiorite-water percentages (Figure 3-10). Again, the negative values indicate excess calculated attenuation in the system, and actual concentrations will be likely be less than the initial concentration of 0.03 mg/L during these times.

Hardness (Figure 3-11) and sulphate (Figure 3-12) show relatively little variation through time and with varying granodiorite-water percentages. This is due to similar average concentrations for these parameters in both average Davidson groundwater and granodiorite groundwater.

3.3 PREDICTED CONCENTRATIONS FOR SPECIFIC WELLS

With the examples of Sections 3.1 and 3.2 in mind, trends for specific wells will be discussed here for selected parameters. However, all available elements and wells with sufficient data are compiled in the appendices.

For example, dissolved aluminum often remains between 0.02 and 0.04 mg/L for Wells RESDAV-01A, RES-DAV-03, and RES-DAV04 (Figure 3-13). The lowest levels of aluminum at Well RES-DAV–1A occur sooner than at Well RES-DAV-04, because it is closer to the granodiorite. However, the temporal decrease is more substantial at Well RES-DAV-04 due to its higher percentage of granodiorite water. These observations are consistent with Figures 42 to 50 of Cho (2009).

The predicted negative values for dissolved aluminum at RES-DAV-04 in Figure 3-13 are not errors. They represent the effect of excess calculated attenuation when the percentage of granodiorite water temporally decreases. Thus, actual concentrations would be greater than zero during this time, but less than the initial concentrations around 0.025 mg/L.

Dissolved aluminum at two other, residential wells, RES-Arnold and RES-Martin (Figure 3-13), were predicted to remain around 0.005 mg/L. Their relatively minor decreases and increases in dissolved aluminum cannot be seen on the scale of this figure, but are shown separately in the appendices.

Dissolved arsenic in these five wells was predicted to remain below roughly 0.003 mg/L through time (Figure 3-14). However, after more than a century after mine closure and the water table within the granodiorite recovers, dissolved arsenic in RES-DAV-04 is predicted to increase and stabilize around 0.017 mg/L. Again, negative concentrations during intermediate times for some wells are not errors (Figure 3-14), but reflect excess calculated attenuation in the system. Thus, actual concentrations would be greater than zero during this time, but less than the initial concentrations below 0.003 mg/L.

For dissolved copper (Figure 3-15), most wells will contain relatively low concentrations near or below 0.001 mg/L. However, Well RES-Arnold will contain approximately 0.03 mg/L on average, with relatively small changes during operation and after closure. This is because RESArnold receives little granodiorite water (<0.06% with up to 0.008 mg/L) and its dominant background non-granodiorite water contains around 0.03 mg/L on average.

Unlike dissolved copper (Figure 3-15), Well RES-DAV-04 shows more notable variations through time for dissolved molybdenum (Figure 3-16), more like aluminum and arsenic (Figures 3-13 and 3-14). Except for RES-DAV-04 reaching nearly 0.45 mg/L after more than a century, concentrations remain below 0.15 mg/L for dissolved molybdenum in these wells.

Because hardness can correlate with toxicity, predicted hardness is plotted for the five wells in Figure 3-17. No extreme changes in hardness are predicted for the wells, which can be seen better as logarithmic values in Figure 3-18. RES-DAV-04 is predicted to have the greatest variations. It rises to higher values at lower granodiorite percentages, due to its elevated non-granodiorite level of approximately 690 mg/L.

Sulphate can act as a geochemically conservative tracer in some Davidson groundwaters and surface waters. Its concentrations (Figures 3-19 and 3-20), like hardness, are not predicted to fluctuate widely at the five wells. However, predictions for sulphate at RES-DAV-04 still have significant increases at intermediate times as the granodiorite percentage decreases, due to high background non-granodiorite levels.

These peaks of concentrations for hardness and sulphate at RES-DAV-04, caused by the temporary decrease in granodiorite water from the mine area, should not be mistaken as a plume of increased concentration moving out of the mine area. In other words, the decreased dilution by granodiorite water from the mine area allows peaks of background water to dominate, rather than contributing the higher concentrations itself.

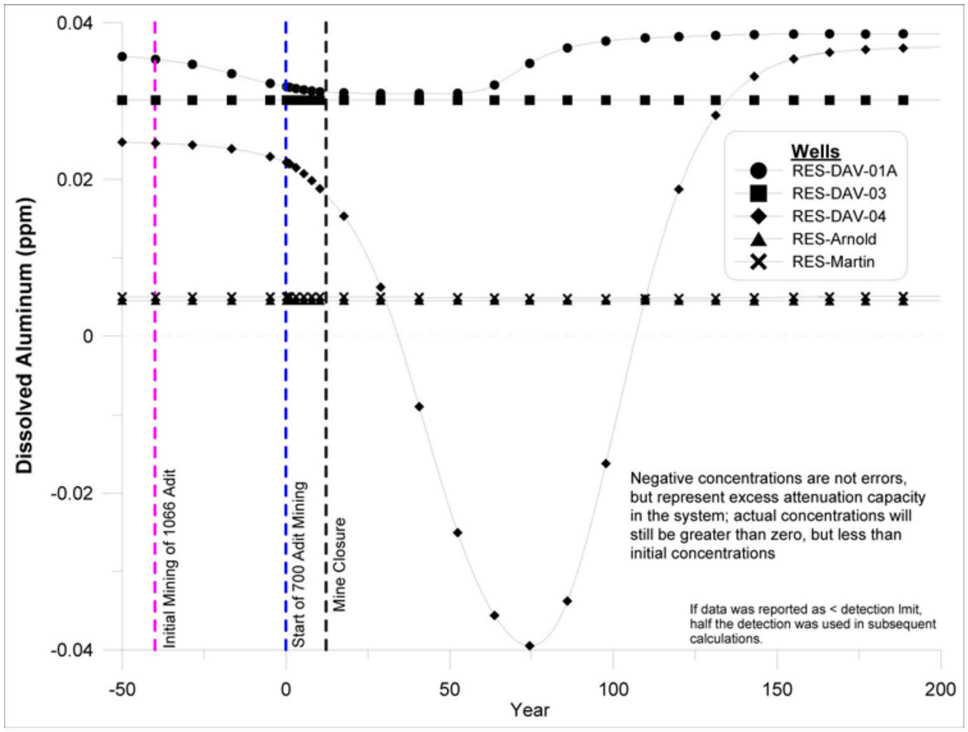


Figure 3-13. Temporal trends in dissolved aluminum at five wells before, during, and after mining at Davidson.

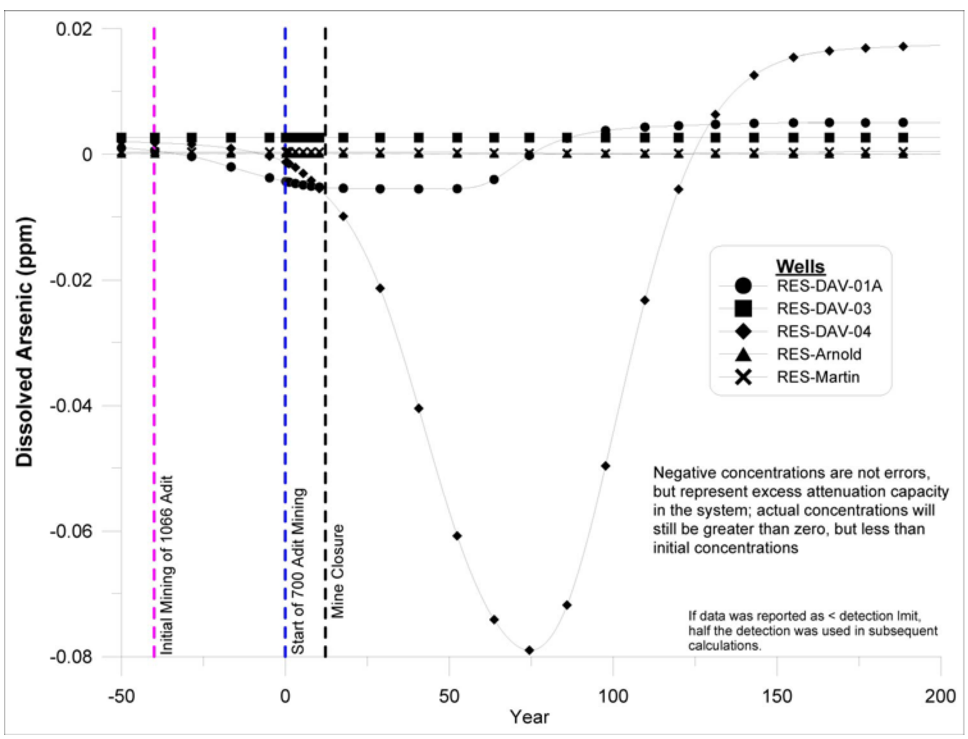


Figure 3-14. Temporal trends in dissolved arsenic at five wells before, during, and after mining at Davidson.

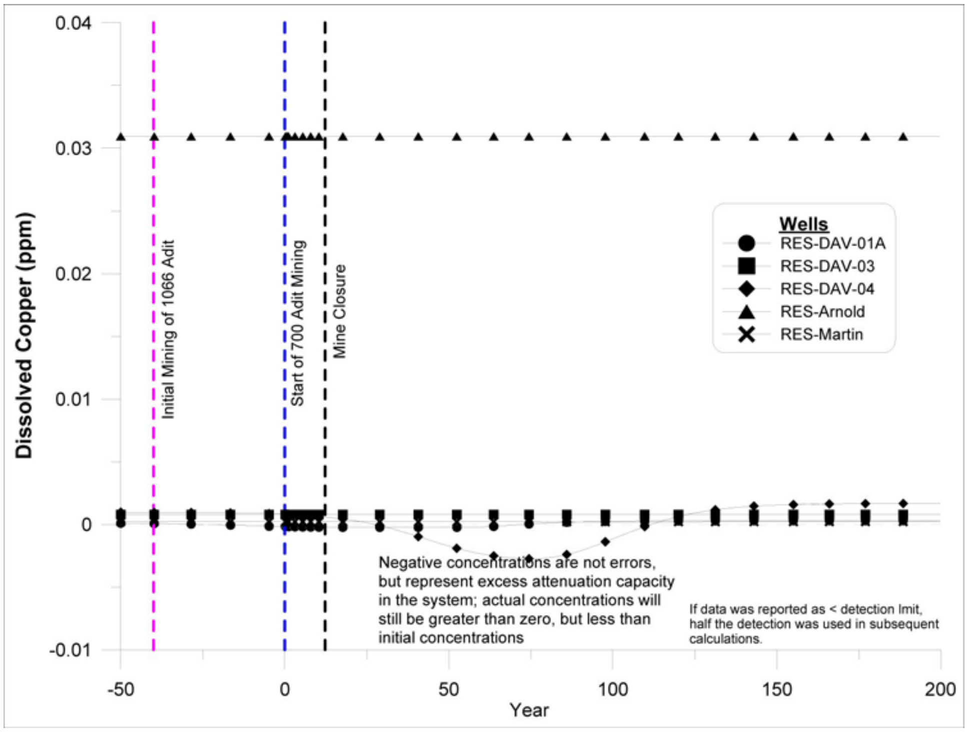


Figure 3-15. Temporal trends in dissolved copper at five wells before, during, and after mining at Davidson.

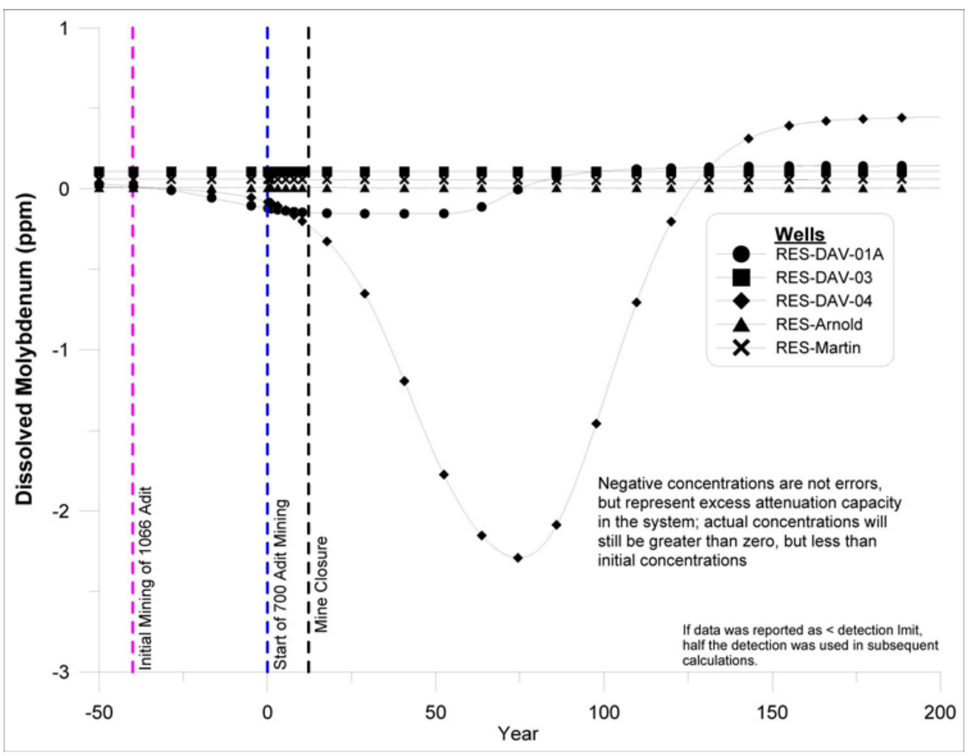


Figure 3-16. Temporal trends in dissolved molybdenum at five wells before, during, and after mining at Davidson.

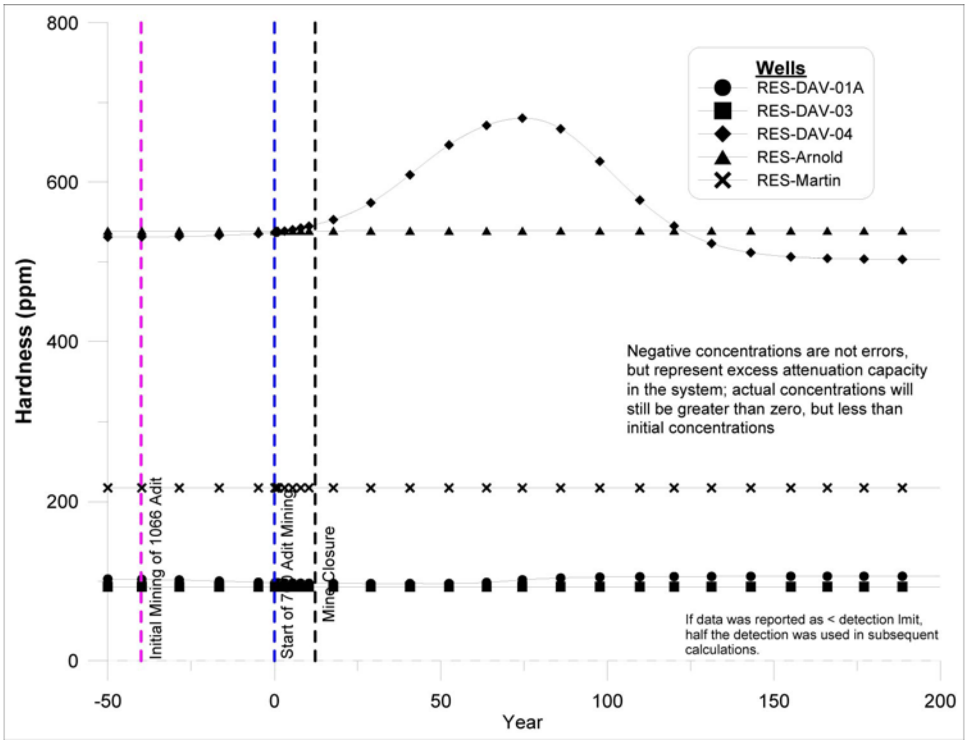


Figure 3-17. Temporal trends in hardness at five wells before, during, and after mining at Davidson (arithmetic scale).

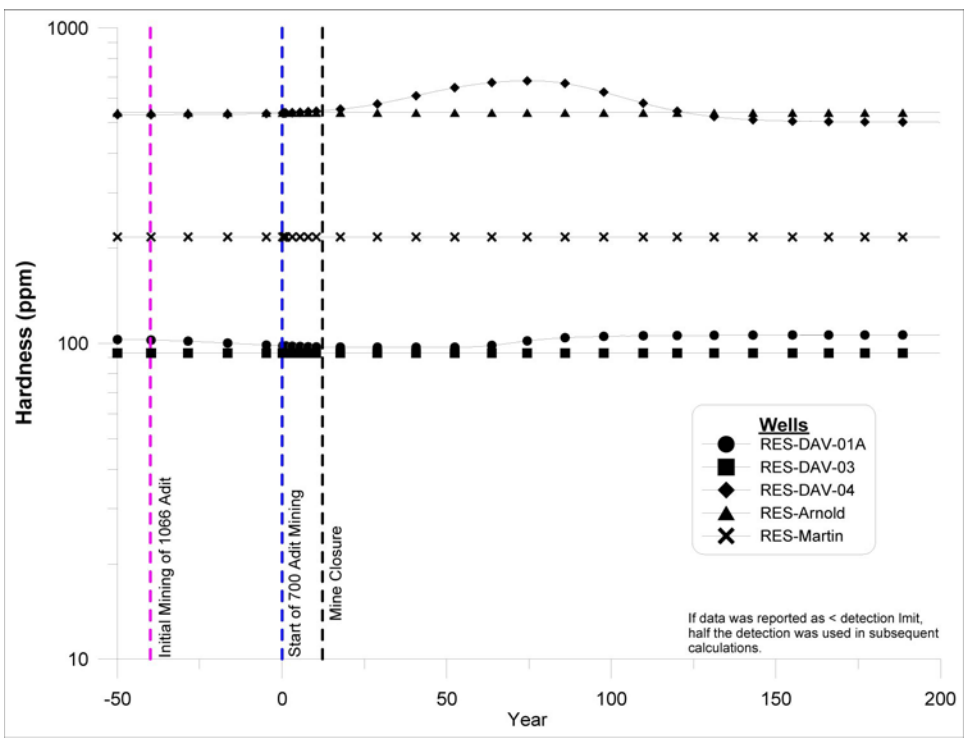


Figure 3-18. Temporal trends in hardness at five wells before, during, and after mining at Davidson (logarithmic scale).

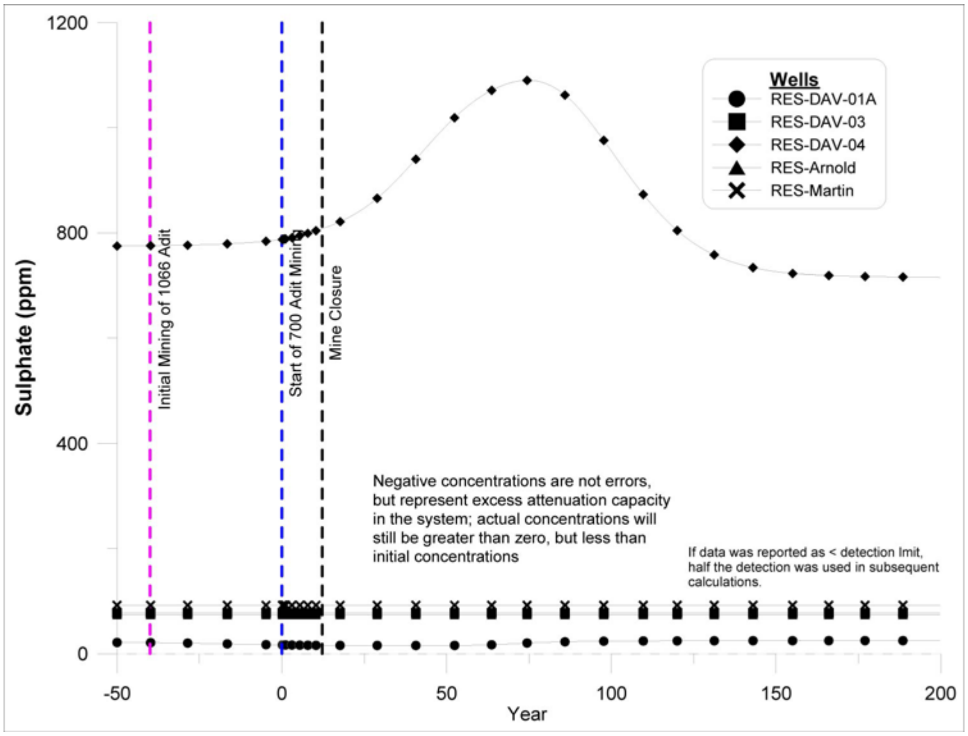


Figure 3-19. Temporal trends in sulphate at five wells before, during, and after mining at Davidson (arithmetic scale).

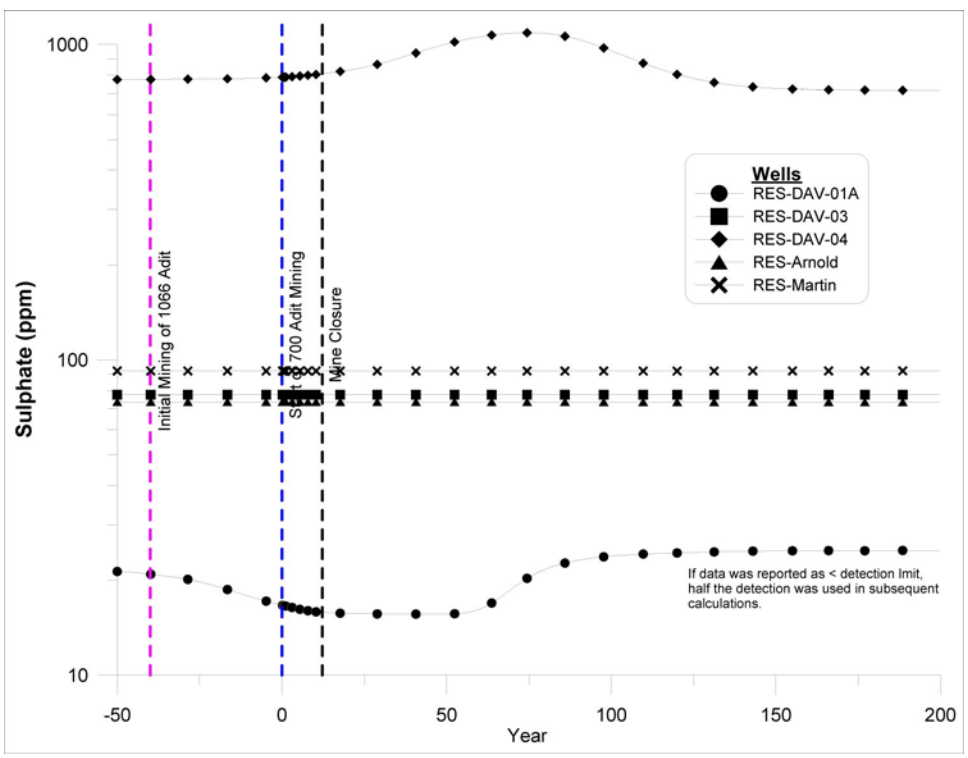


Figure 3-20. Temporal trends in sulphate at five wells before, during, and after mining at Davidson (logarithmic scale)

4. Predicted Surface Water Concentrations at Creek Monitoring Stations

A similar approach used for wells is used here for surface-water predictions through time. Using results from the MODFLOW model, estimates of groundwater supply and % granodiorite contribution were made for four zonebudget locations. Results for these areas were combined with stream flow and baseline water quality data from nearby monitoring stations (Table 4-1).

Table 4-1 Summary of Data Sources for Stream Calculations

Stream	Zonebudget(s)	Baseline Water Quality Monitoring Station	Baseline Flow Monitoring Station
Glacier Gulch (GG4)	Glacier Gulch Upper	GG4	GG4a
Kathlyn Creek Trib A3 (KC3)	Kath A3	KC3	KC316
Kathlyn Creek Trib A (Kath TribA)	Kath A3 Kath Tribs	KC1	scaled KC1[A]
Kathlyn Creek (KC1)	Kath A3 Kath Tribs Kathlyn Ck	KC1	KC1

A: Flow was not directly monitored at this location, but was estimated by scaling KC1 estimates by the ratio of watershed areas.

Initial boundary conditions were calculated at Year 0 (start of mining) for each stream using average total stream flow for 2006 to 2008 and the average stream chemistry (total and dissolved) at a particular location. For the granodiorite contribution in the total metals calculations, it was assumed that total metals = dissolved metals predictions.

Table 4-2 summarizes results for each of the zonebudgets for model runs Calib1B, Calib2 and Calib3 described in Cho (2009). These model runs use similar assumptions except for their treatment of the granodiorite area. The granodiorite discharge predicted from the model was converted to P_G, for Equation 2-4, by dividing the granodiorite groundwater discharge by the average total stream flow at each location.

4.1 GLACIER GULCH CREEK UPPER (GG4)

The resulting varying flow and chemistry at GG4 is shown through mine operation (Years 0 to 12) and after mine closure for all available elements and parameters in Appendix H. Selected parameters are discussed below, to explain the various trends. Detection limits and water quality guidelines are included in the graphs to provide context. It is important to note when comparing model results with guideline values that model results are based on long-term average flow conditions, with upper bound granodiorite water quality predictions.

For dissolved aluminum (Figure 4-1), there is relatively little variation in time and among simulations, with total concentrations remaining between 0.30 and 0.32 mg/L, and dissolved between 0.02 and 0.03 mg/L. Note that baseline total concentrations exceed CCME Freshwater Aquatic Life Guidelines, but dissolved concentrations remain below both BC Drinking Water and Freshwater Aquatic Life Guidelines throughout the various model runs. The primary reason for the relatively small variation is the granodiorite water comprises only 4 to 10% of the water at GG4, at a concentration less than an order of magnitude higher than the non-granodiorite water.

Table 4-2 Summary of Boundary Condition (Year 0) % Contribution Calculations for Streams

Stream	Calib 1B	Calib 2	Calib 3	Average Total Stream Flow
	Year 0 Total Groundwater Recharge to Stream (L/s)			(L/s)
GG4	19	20	20	162
KC3	4.0	4.2	4.2	28
Kath TribA	25	25	25	75
KC1	31	32	32	120
	Modeled % Contribution from Granodiorite in Groundwater Recharge			
GG4	41	38	82	
KC3	21	8	11	
Kath TribA	10	1.3	1.8	
KC1	7.8	1.0	1.4	
	Calculated % Contribution from Granodiorite in Total Stream Flow (P_G)			
GG4	4.8	4.8	10.2	
KC3	3.0	1.1	1.7	
Kath TribA	3.3	0.4	0.6	
KC1	2.1	0.3	0.4	

Also, the four simulations of dissolved aluminum show decreasing concentrations during and just after mining. This is a response to the lower water table in the granodiorite during mining and the corresponding decrease in granodiorite water entering Glacier Gulch Creek Upper. This is followed by increasing concentrations, as the water table recovers and rises above existing levels, and thus contributes more granodiorite water to Glacier Gulch Creek Upper.

Dissolved arsenic (Figure 4-2) shows general trends like aluminum, but with some important differences. The three simulations all produce negative concentrations during and just after mining. These are not errors, but represent excess calculated attenuation capacity along flow paths. Thus, the actual concentrations are predicted to be above zero, but less than the initial level of 0.0008 mg/L. After closure, dissolved arsenic concentrations climb above the initial concentrations due to the recovery of the water table in the granodiorite, however results remain below all guideline values.

Dissolved copper shows relatively little variation in time and among simulations (Figure 4-3). This is due to the similar concentrations of the maximum granodiorite water (0.0082 mg/L) and the average concentration at GG4 (0.0095 mg/L). If an average (0.0044 mg/L), rather than maximum, granodiorite concentration were used in these calculations, dissolved copper at GG4 would increase during and just after mining, because there would be less “dilution” by granodiorite water. Then GG4 concentrations would decrease after closure below 0.0082 mg/L, as dilution by granodiorite water increased and exceeded initial levels. This should not be mistaken during mine operation as a plume of increased concentration moving out of the mine area. Instead, it reflects decreased dilution of elevated background levels during operation.

Molybdenum shows somewhat higher variation through time and among simulations (Figure 4-4). The primary reason for this is the large difference between the granodiorite and non-granodiorite concentrations. However, there is a substantial amount of attenuation along flowpaths for molybdenum. The high maximum granodiorite concentration of 4.5 mg/L has to be highly attenuated so that an average concentration of only 0.054 mg/L is measured at GG4. Thus, even when 4 to 10% of the flow is attributed to granodiorite water, much of the original molybdenum concentration does not reach GG4. This attenuation is relatively smaller than for dissolved arsenic, which produces negative concentrations, but is still significant. It is important to note that baseline average molybdenum concentrations at GG4 exceed drinking water and CCME Aquatic Life guidelines.

Hardness can correlate with toxicity and sulphate can act as a tracer of granodiorite water at some places around the Davidson Project, so the trends of these parameters were plotted (Figure 4-5). Overall, there is little predicted variation through time and among simulations.

4.2 KATHLYN CREEK TRIBUTARY A3 (KC3)

Chemistry at KC3 showed some geochemical signatures resembling granodiorite groundwater, whereas KC16 did not. Thus, the flow data from the hydrology station KC316 was used with the predicted MODFLOW groundwater percentages at Kathlyn Creek Triburatry A3 and with the water chemistry data at KC3. Predicted trends for all available elements and parameters are compiled in Appendix I.

Dissolved aluminum at this creek location shows little difference among the four simulations and little difference through time (Figure 4-6). This is due to similar concentrations of dissolved aluminum in both the granodiorite and non-granodiorite waters. Water quality exceeds all guideline values under existing (baseline) conditions and into the future.

Arsenic levels (Figure 4-7) increase post closure, but remain well below guideline levels.

Dissolved copper is predicted to be relatively constant and similar among all simulations (Figure 4-8). This is due to similar concentrations in both the granodiorite and non-granodiorite waters at KC3.

Molybdenum shows relatively larger variability through time and among the simulations (Figure 4-9). While initial conditions are above CCME Freshwater Aquatic Life Guidelines, these concentrations drop below the guideline during operation as groundwater flows decrease. Post closure concentrations rise above baseline conditions, but remain below other guideline values. It is important to note that the CCME Freshwater Aquatic Life Guideline for molybdenum is known to be excessively low, as it was derived based on studies that did not use current and approved standard toxicity testing methods, and could not be replicated (Rescan, 2006c).

Hardness and sulphate (Figure 4-10) show relatively low variability through time and among the simulations. Thus, their concentrations are not predicted to vary substantially during mining and after closure.

4.3 KATHLYN CREEK TRIBUTARY A (KATH TRIBA)

Predictions for Kath TribA were made just above the confluence with the main stem of Kathlyn Creek. Results are based on the sum of the zonebudgets KathA3 and Kath Tribs (refer to Figure 15 from Cho, 2009). Regular baseline sampling was not collected at this location; therefore average baseline water chemistry and stream flow from KC1 were used. Streamflow was scaled down based on the contributing watershed area. Predicted trends for all available elements and parameters are compiled in Appendix J.

Results for aluminum, arsenic, copper, molybdenum, hardness and sulphate are presented in Figures 4-11 to 4-15, respectively. In general, the trends are similar to what was described for GG4 and KC3.

Concentrations for Calib1B are higher than for Calib 2 and Calib 3. The source of this difference is summarized in Table 4-3, which summarizes inputs from the two zone budgets used in the calculations. For Calib 1B, the model predicts 8% granodiorite contribution at Time 0 to the Kath Tribs zone budget, but 0% contribution from this same zone for both Calib 2 and Calib3. Therefore, for Calib2 and Calib3 the only granodiorite contribution is that from KathA3.

Table 4-3 Summary of Granodiorite Contribution Calculations for Kath TribA

Model Run	Zonebudget	Baseline (Year 0) Groundwater Recharge (L/s)	Steady-State Groundwater Recharge (L/s)	Baseline (Year 0) Granodiorite Contribution (%)
Calib 1B	Kath A3	4.0	4.4	21
	Kath Tribs	20.5	21.4	8
	Total	*24.5*	*25.8*	*10*
Calib 2	Kath A3	4.2	4.5	8
	Kath Tribs	20.7	21.6	0
	Total	*24.9*	*26.1*	*0.1*
Calib 3	Kath A3	4.2	4.5	11
	Kath Tribs	20.6	21.5	0
	Total	*24.8*	*26.0*	*0.2*

4.4 KATHLYN CREEK (KC1)

Predictions for Kathlyn Creek (KC1) were made just above Lake Kathlyn. Results are based on the sum of three zonebudgets: KathA3, Kath Tribs, and Kathlyn Creek (refer to Figure 15 from Cho, 2009). Predicted trends for all available elements and parameters are compiled in Appendix K.

For the Kathlyn Creek zonebudget, the model predicts 0% granodiorite contribution for all three scenarios (Table 4-4). Therefore the granodiorite contribution for Calib1B is the combination of contribution from KathA3 and Kath tribs; and the only granodiorite contribution for Calib2 and Calib3 is that from KathA3.

Results for aluminum, arsenic, copper, molybdenum, hardness and sulphate are presented in Figures 4-16 to 4-20, respectively. In general, results for each parameter are similar to what was described for the other locations, with decreases in concentration during the mine life, followed by slight increases after closure.

Table 4-4 Summary of Granodiorite Contribution Calculations for KC1

Model Run	Zonebudget	Baseline (Year 0) Groundwater Recharge (L/s)	Steady-State Groundwater Recharge (L/s)	Baseline (Year 0) Granodiorite Contribution (%)
Calib 1B	Kath A3	4.0	4.4	21
	Kath Tribs	20.5	21.4	8
	Kathlyn Ck	7.0	7.9	0
	Total	*31.5*	*33.7*	*8*
Calib 2	Kath A3	4.2	4.5	8
	Kath Tribs	20.7	21.6	0
	Kathlyn Ck	7.2	8.2	0
	Total	*32.1*	*34.3*	*1.0*
Calib 3	Kath A3	4.2	4.5	11
	Kath Tribs	20.6	21.5	0
	Kathlyn Ck	7.2	8.2	0
	Total	*32*	*34.2*	*1.4*

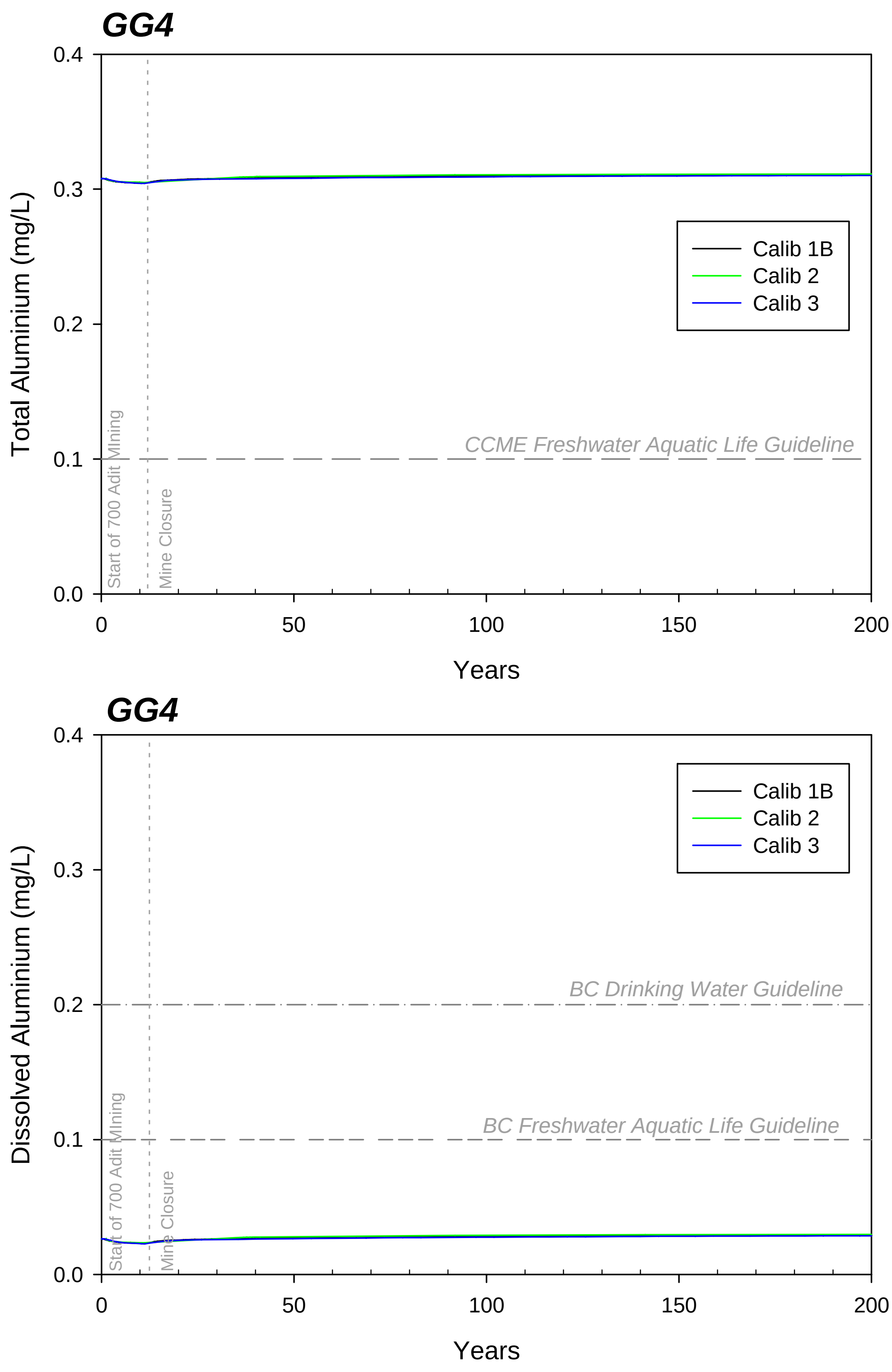


Figure 4-1. Temporal trends in total and dissolved aluminum at surface-water monitoring station GG4 (Glacier Gulch Upper) during and after mining at Davidson.

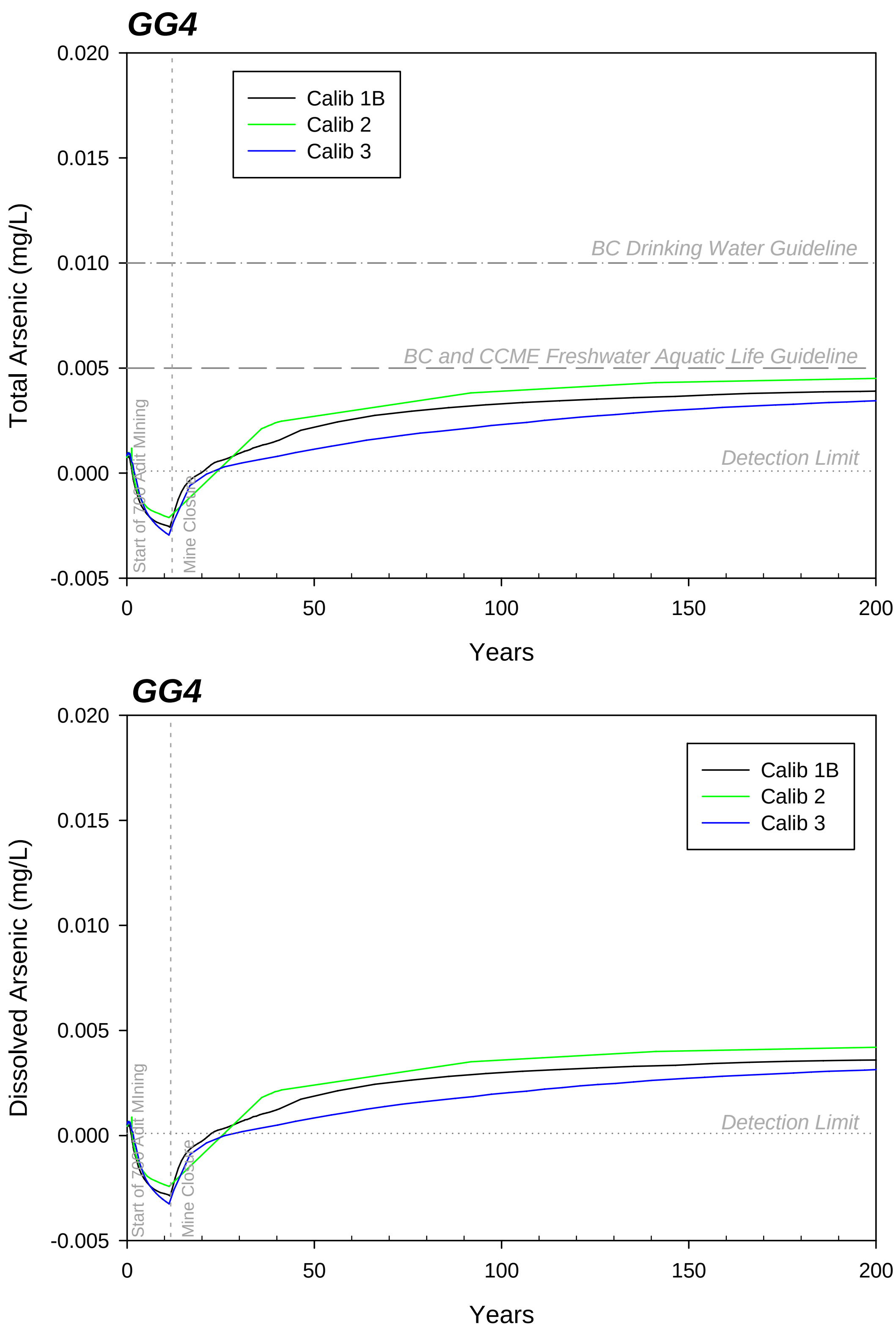
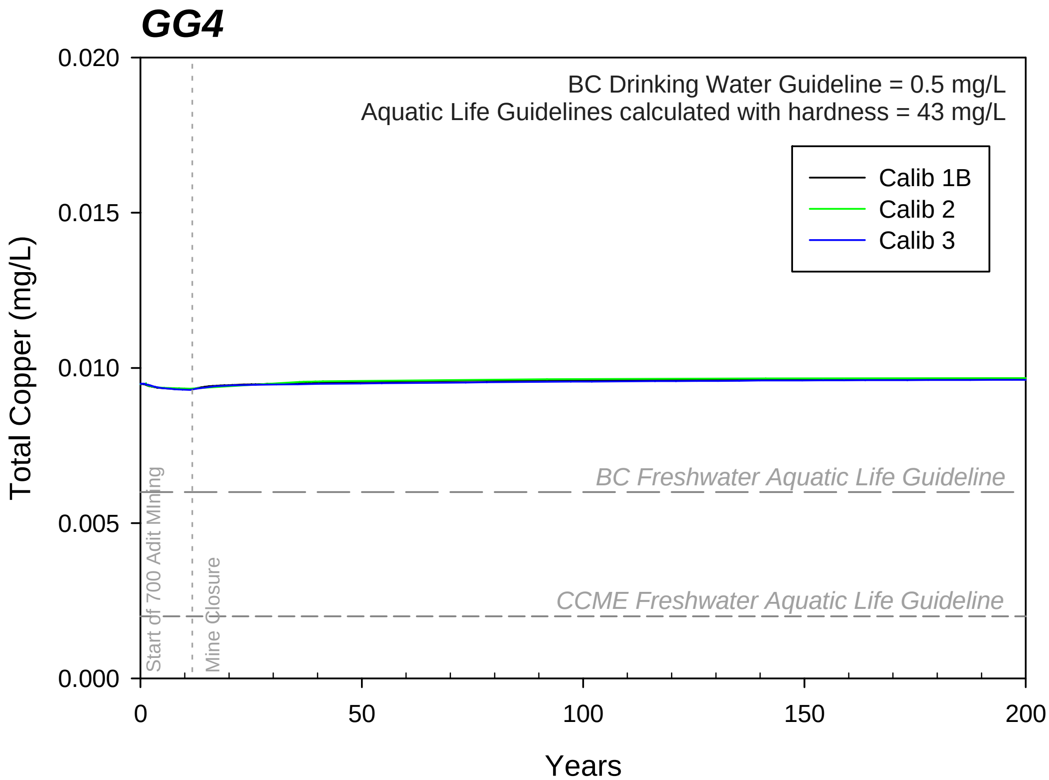


Figure 4-2. Temporal trends in total and dissolved arsenic at surface-water monitoring station GG4 (Glacier Gulch Upper) during and after mining at Davidson.



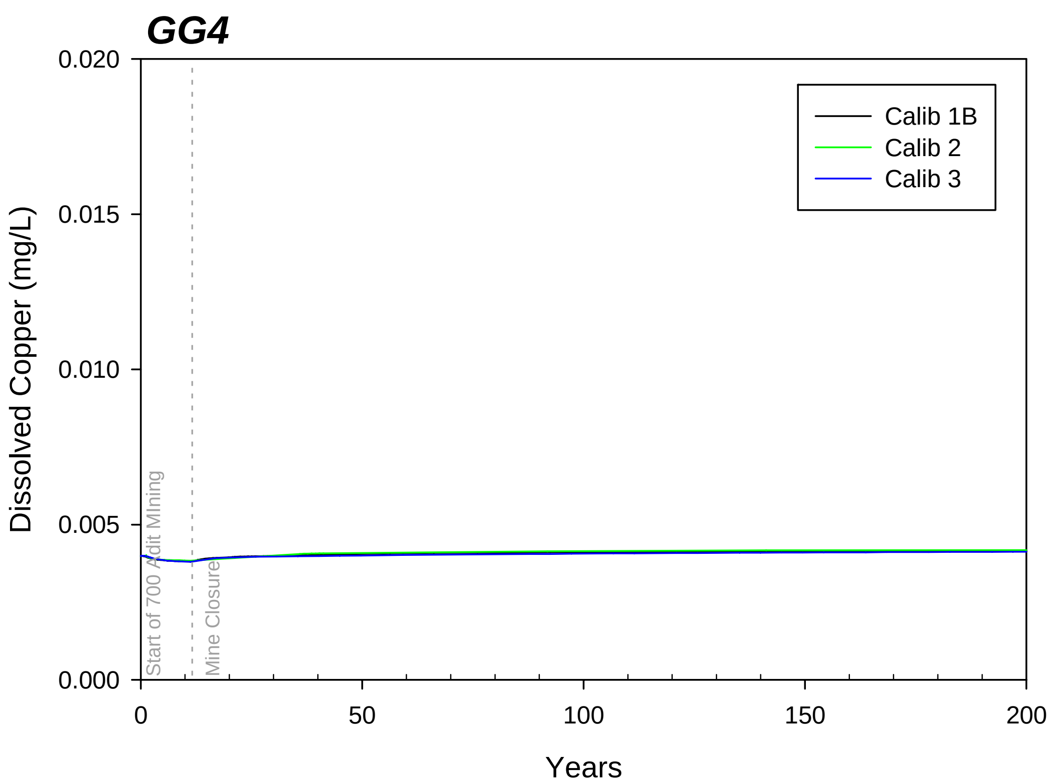
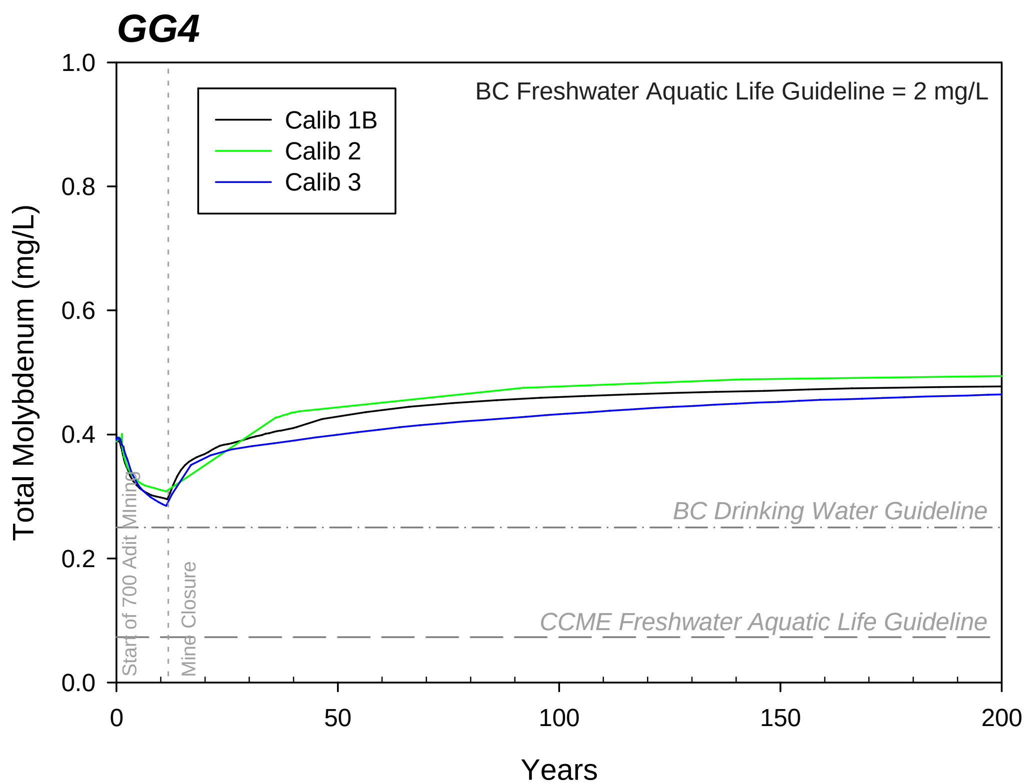


Figure 4-3. Temporal trends in total and dissolved copper at surface-water monitoring station GG4 (Glacier Gulch Upper) during and after mining at Davidson.



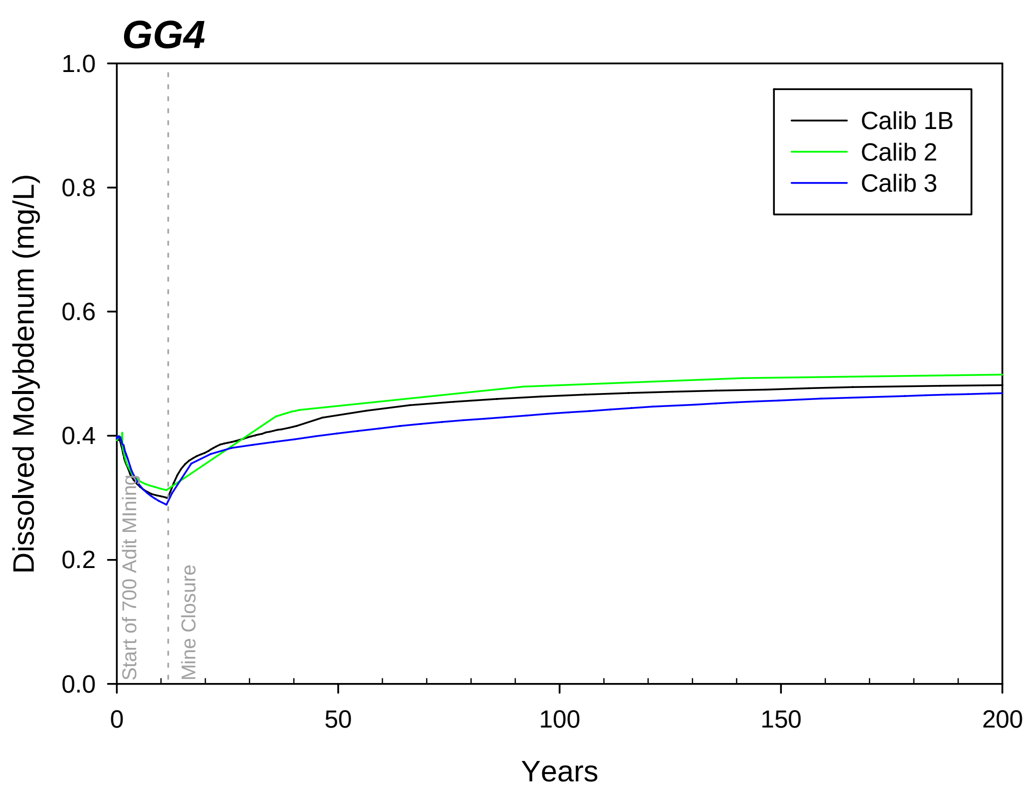
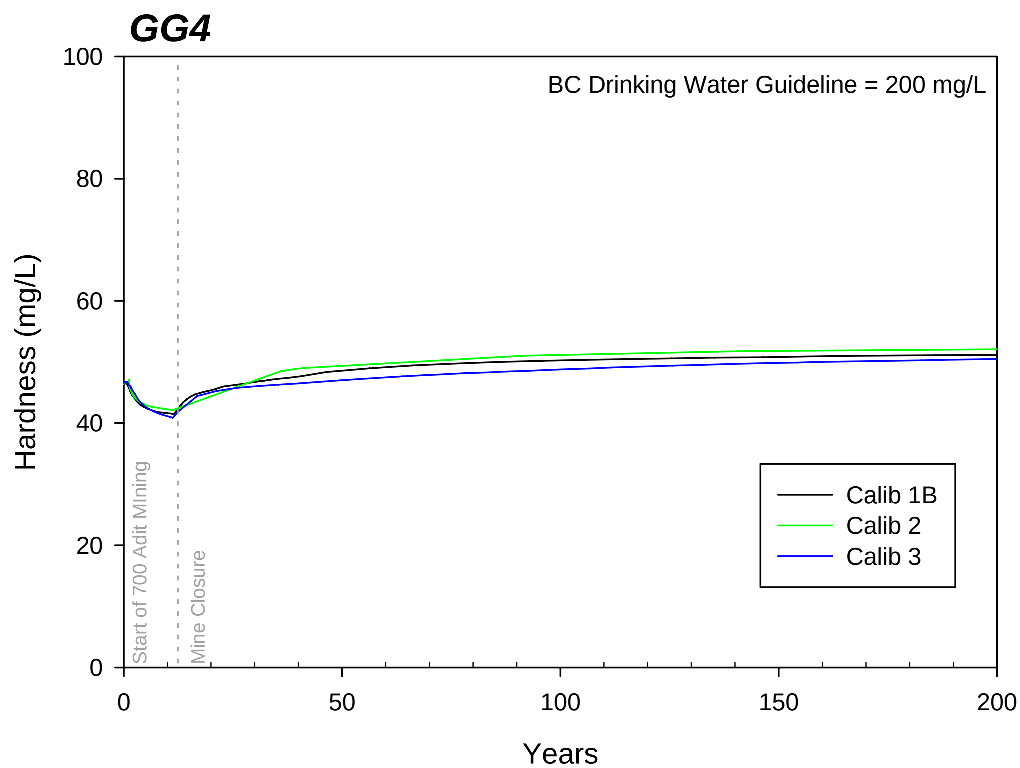


Figure 4-4. Temporal trends in total and dissolved molybdenum at surface-water monitoring station GG4 (Glacier Gulch Upper) during and after mining at Davidson.



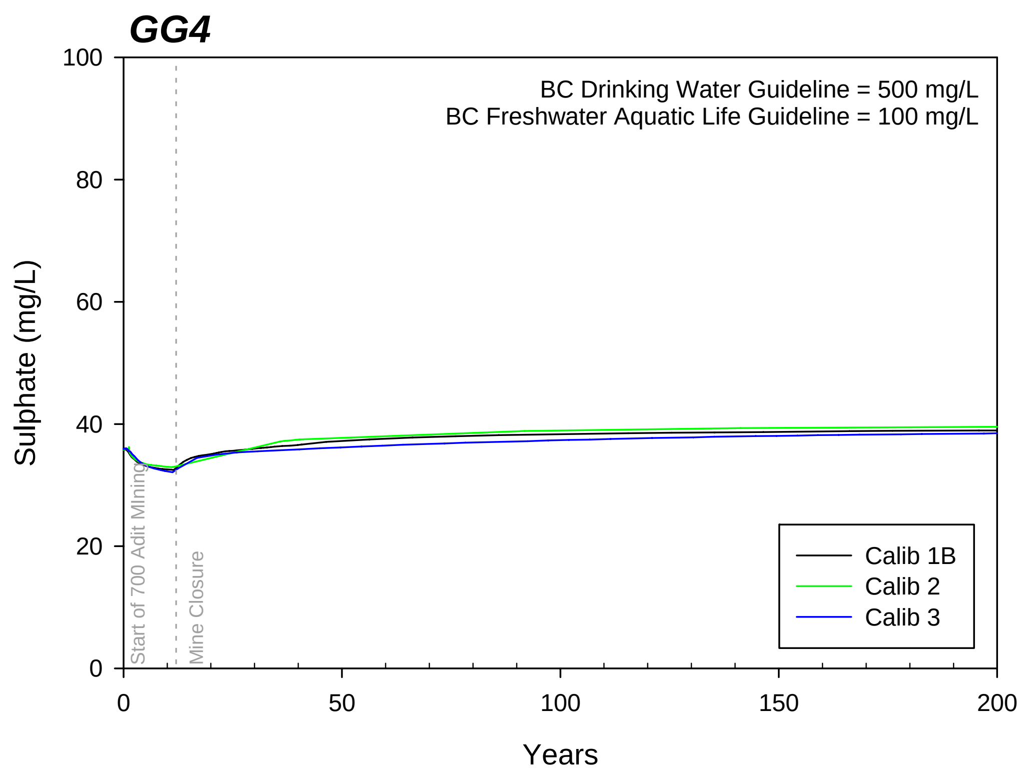


Figure 4-5. Temporal trends in hardness and sulphate at surface-water monitoring station GG4 (Glacier Gulch Upper) during and after mining at Davidson.

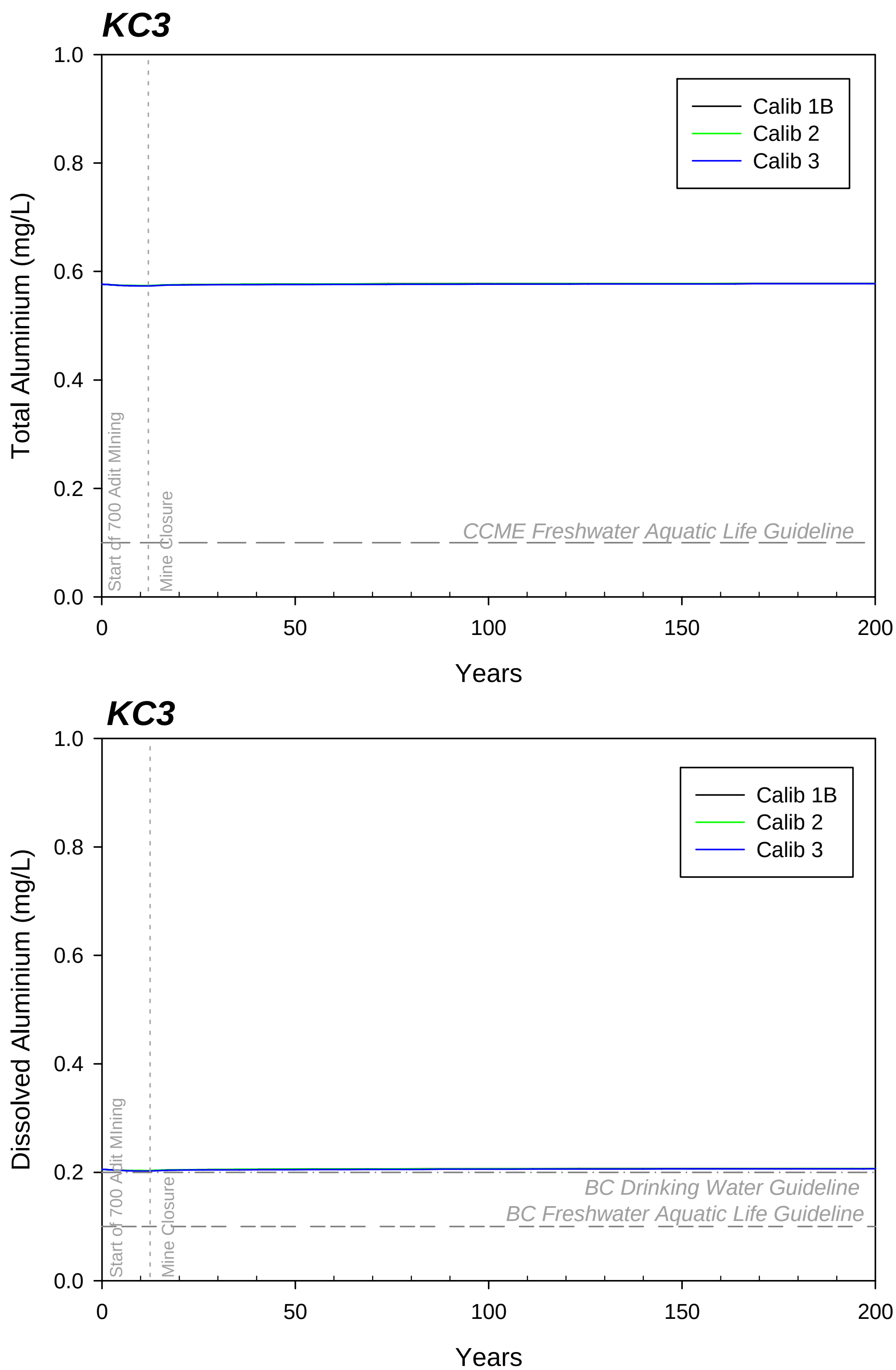
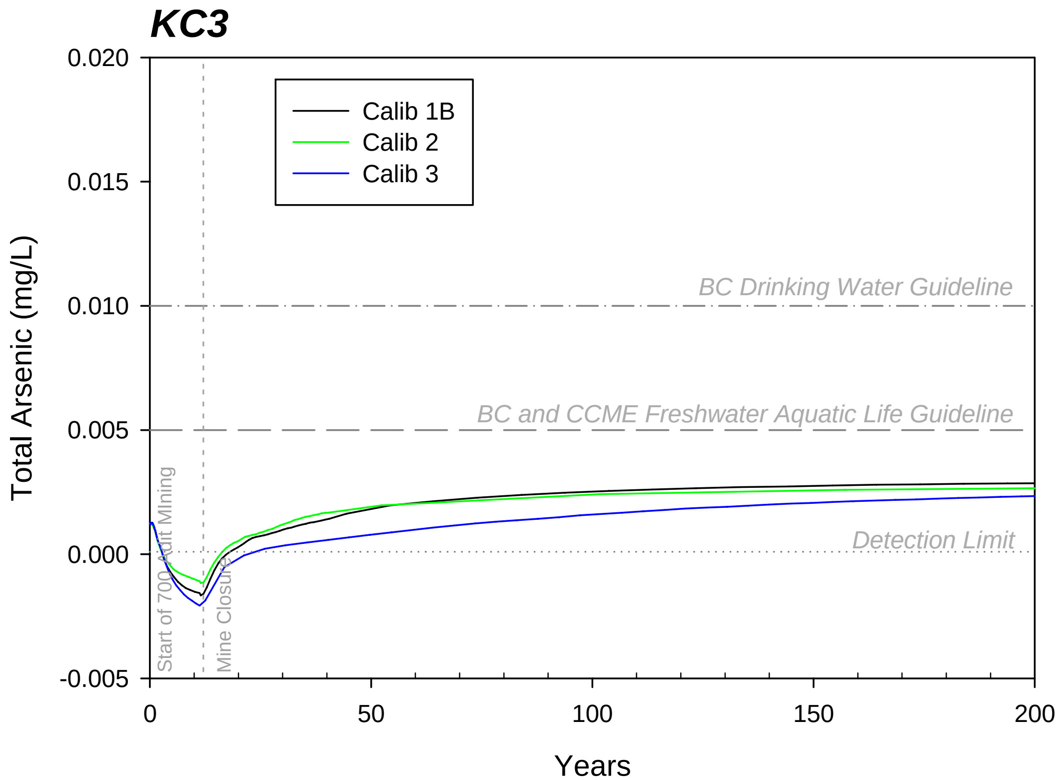


Figure 4-6. Temporal trends in total and dissolved aluminum at surface-water monitoring station KC3 (Kathlyn Tributary A3) during and after mining at Davidson.



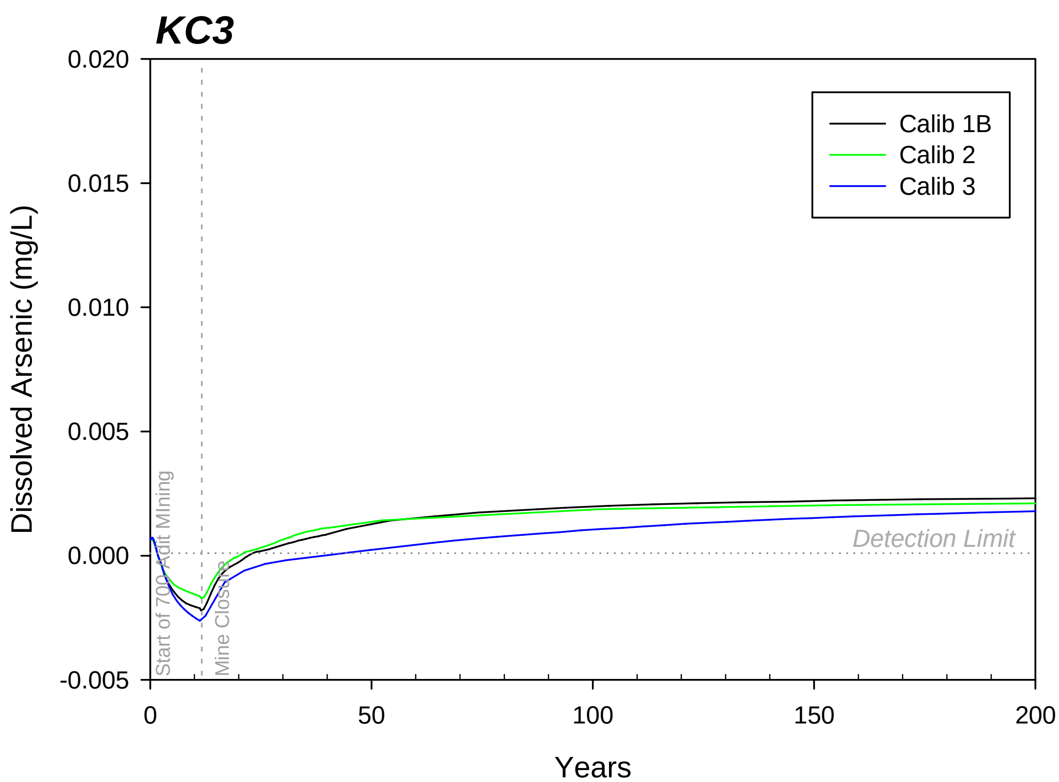
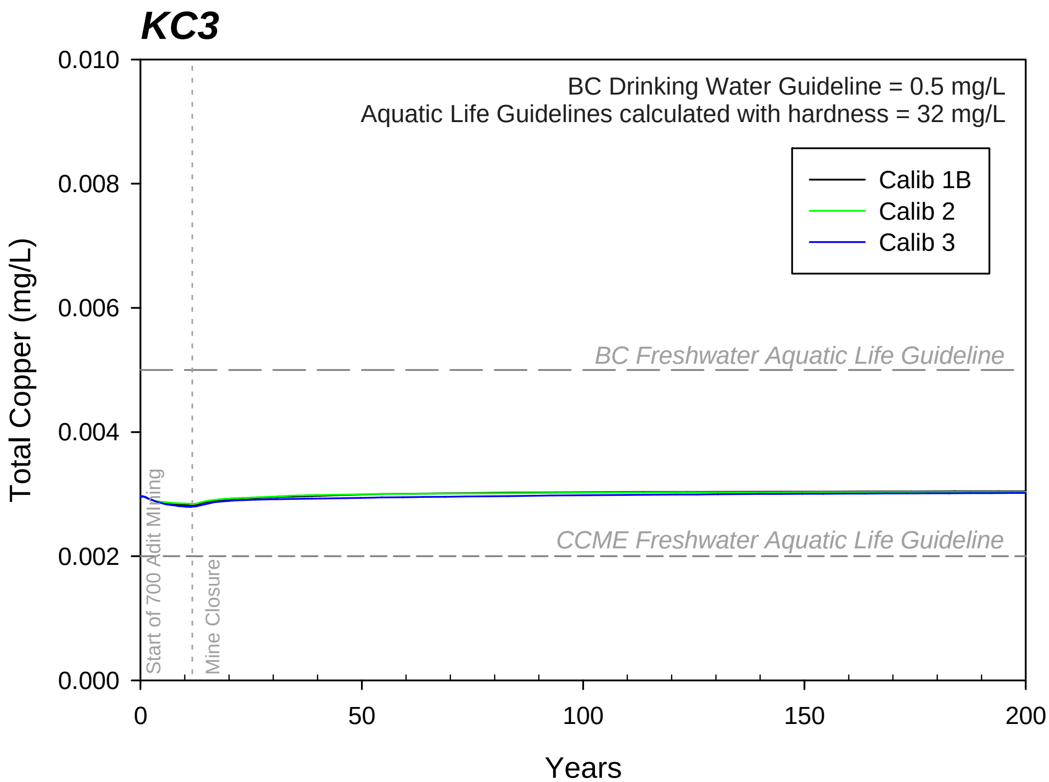


Figure 4-7. Temporal trends in total and dissolved arsenic at surface-water monitoring station KC3 (Kathlyn Tributary A3) during and after mining at Davidson.



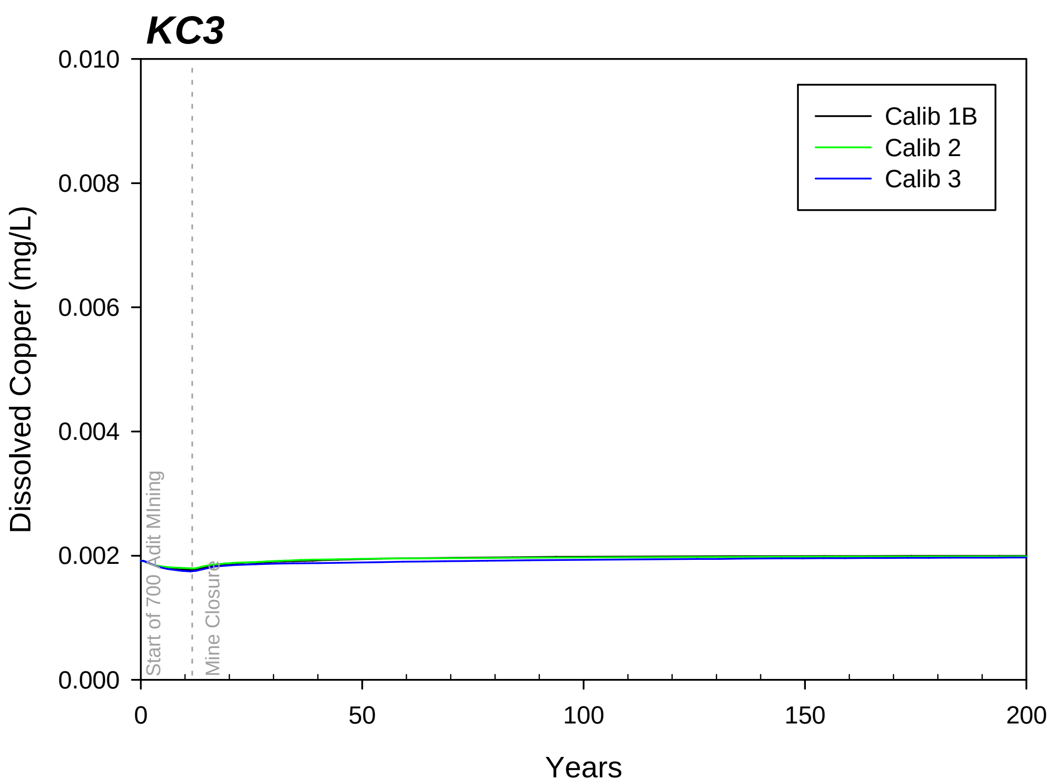
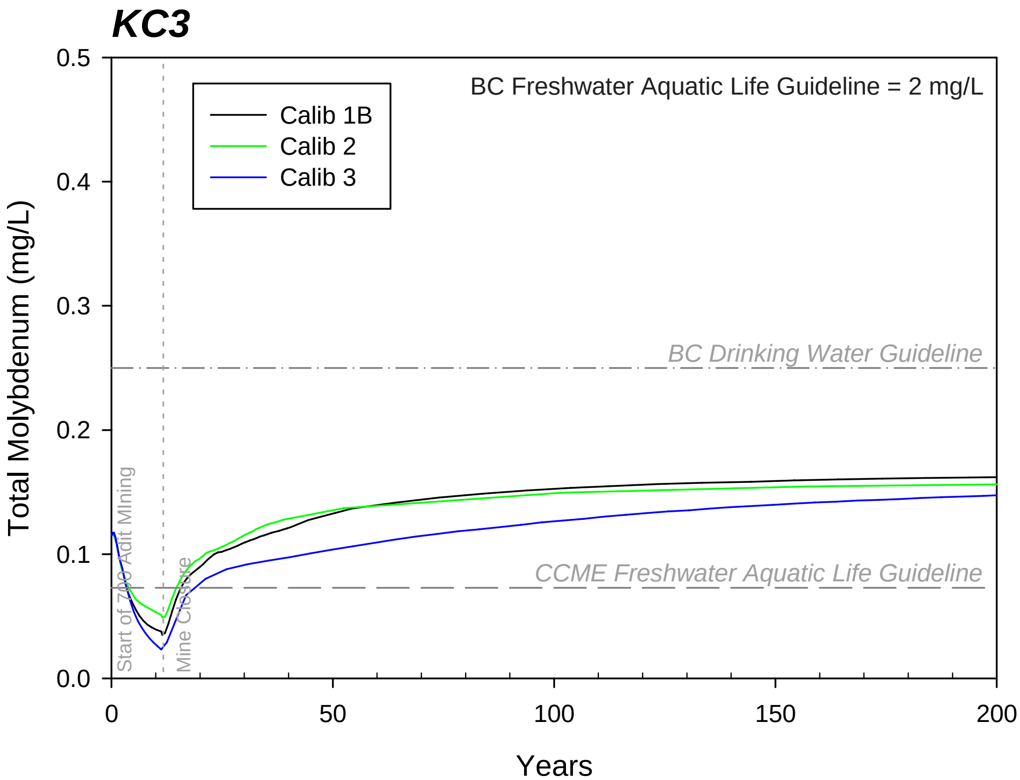


Figure 4-8. Temporal trends in total and dissolved copper at surface-water monitoring station KC3 (Kathlyn Tributary A3) during and after mining at Davidson.



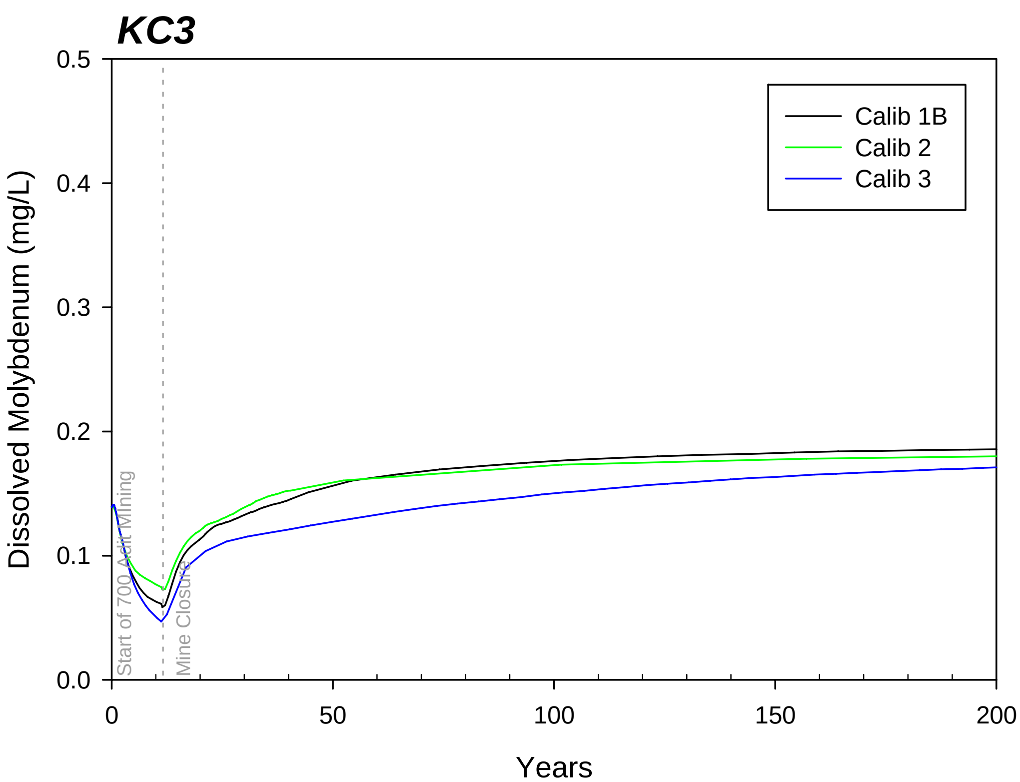
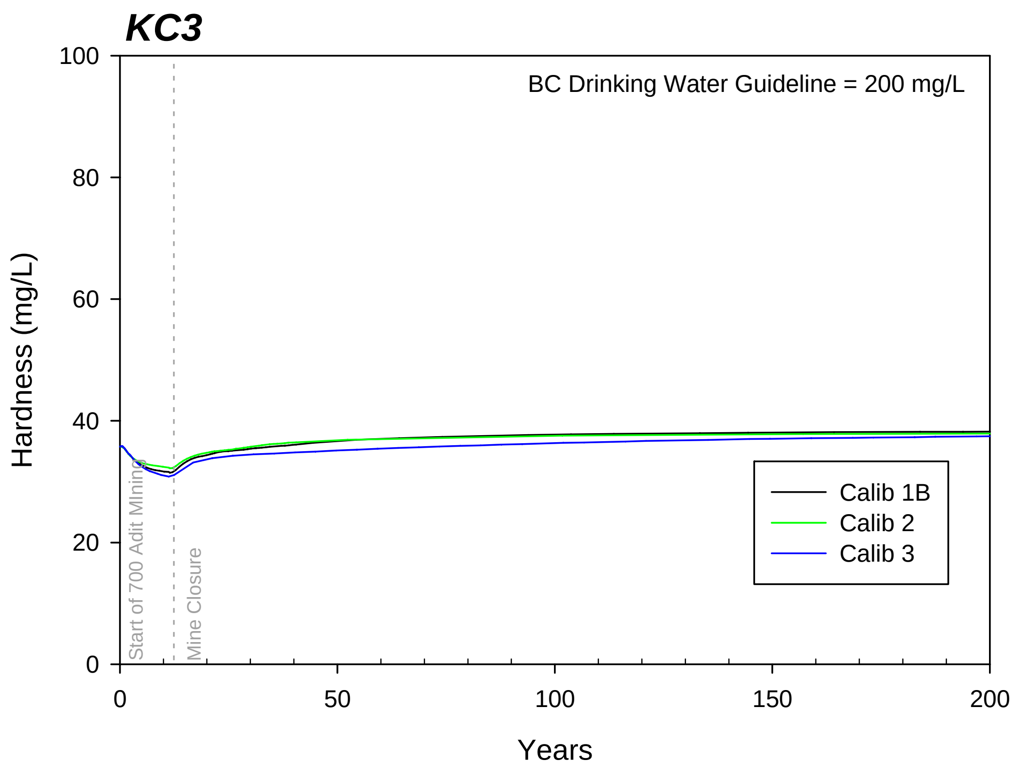


Figure 4-9. Temporal trends in total and dissolved molybdenum at surface-water monitoring station KC3 (Kathlyn Tributary A3) during and after mining at Davidson.



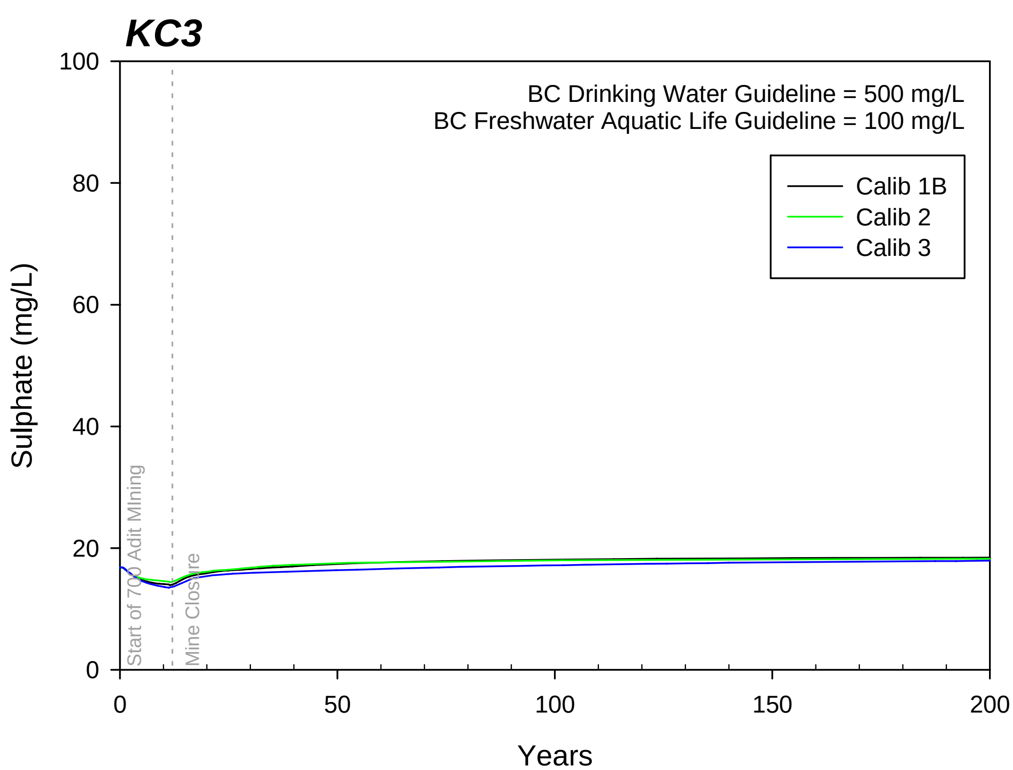


Figure 4-10. Temporal trends in hardness and sulphate at surface-water monitoring station KC3 (Kathlyn Tributary A3) during and after mining at Davidson.

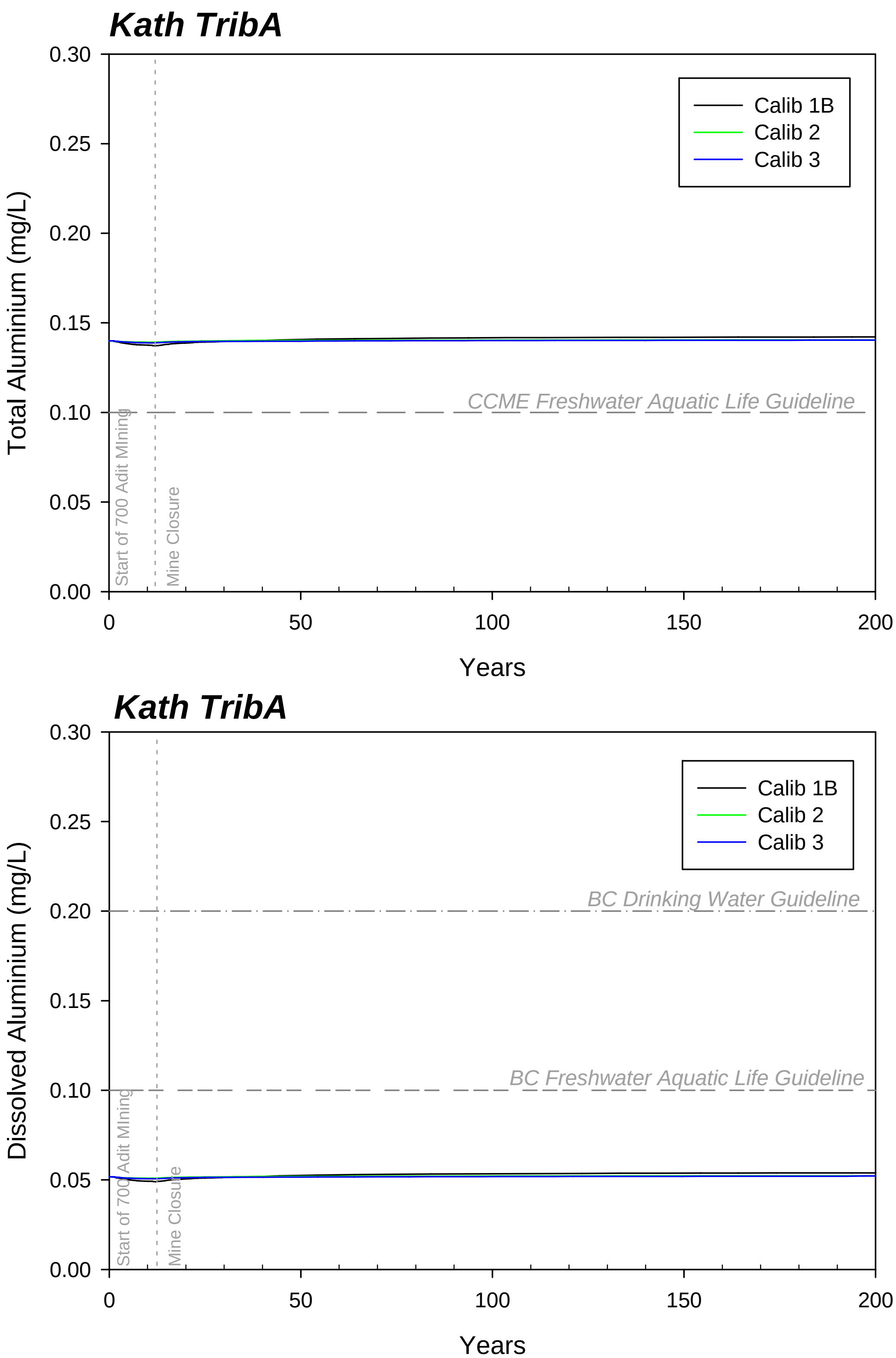
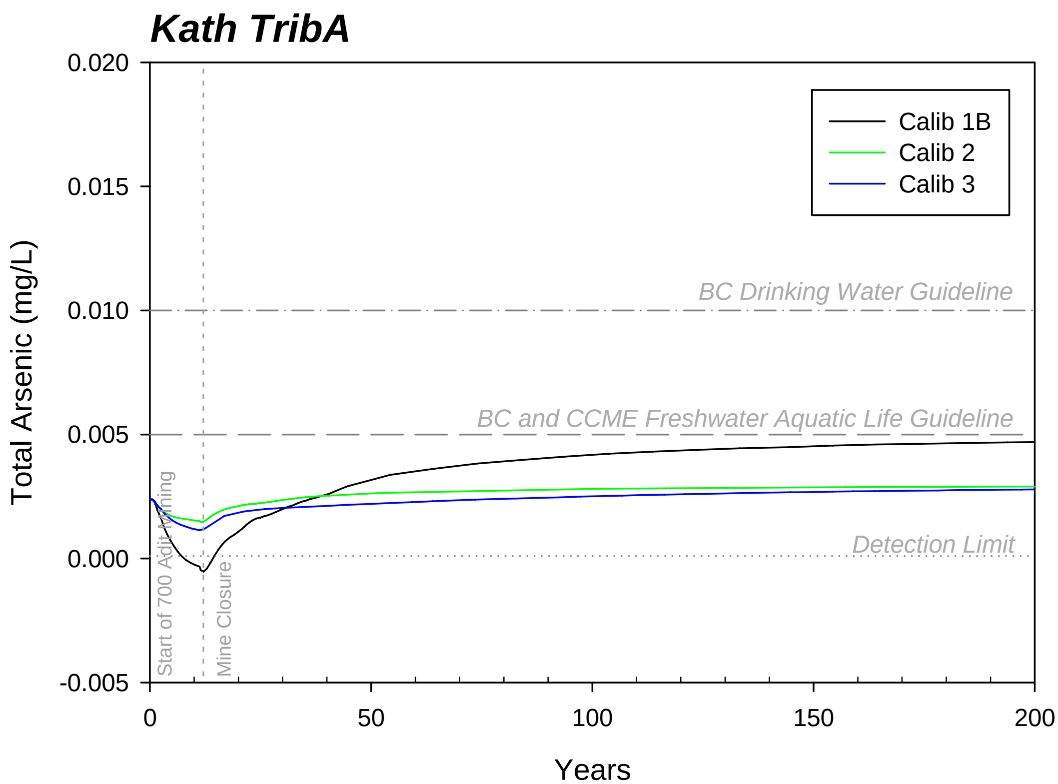


Figure 4-11. Temporal trends in total and dissolved aluminum at surface-water monitoring station Kath TribA (Kathlyn Tributary A) during and after mining at Davidson.



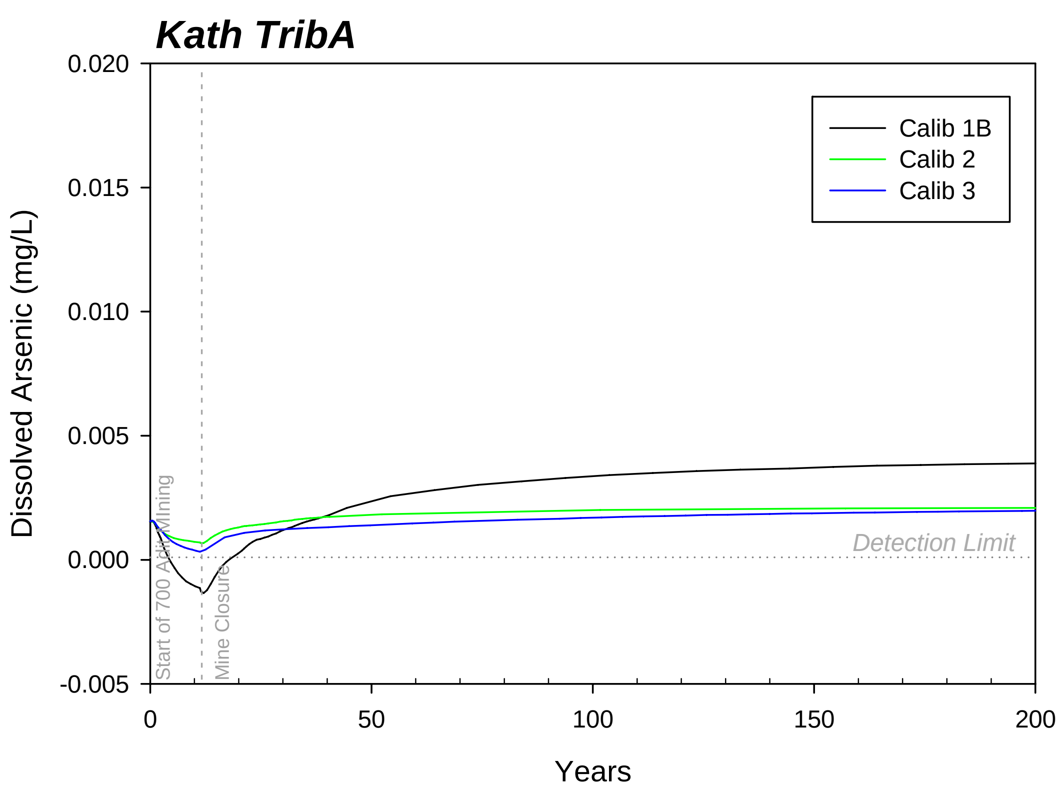
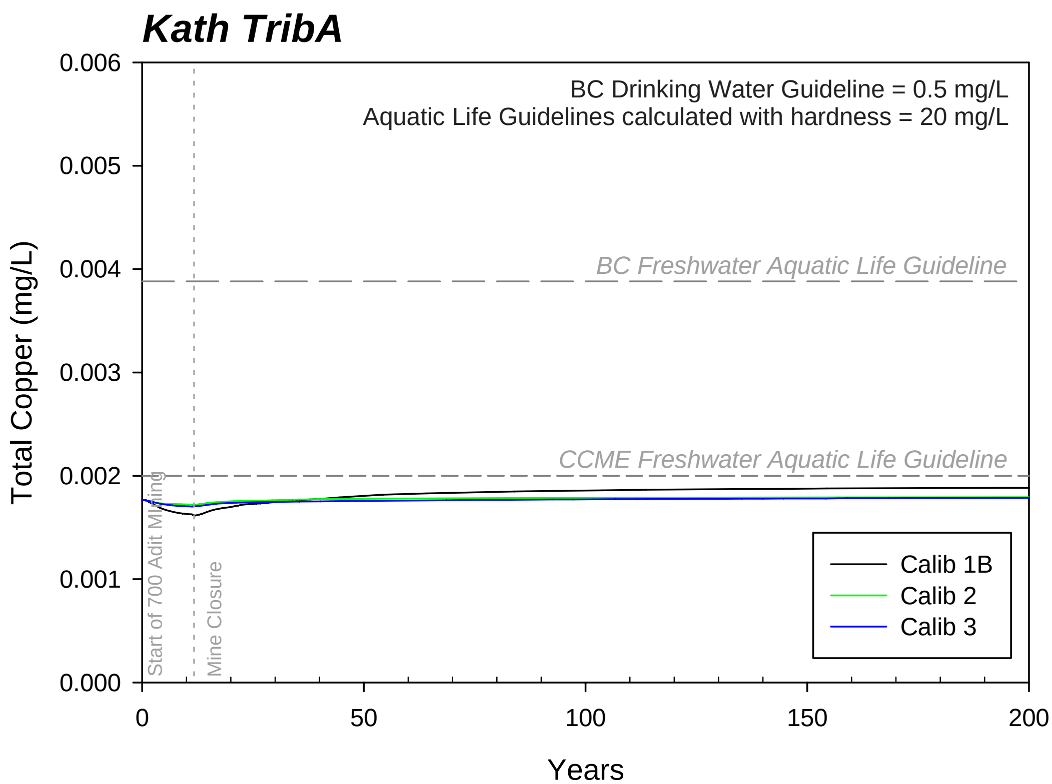


Figure 4-12. Temporal trends in total and dissolved arsenic at surface-water monitoring station Kath TribA (Kathlyn Tributary A) during and after mining at Davidson.



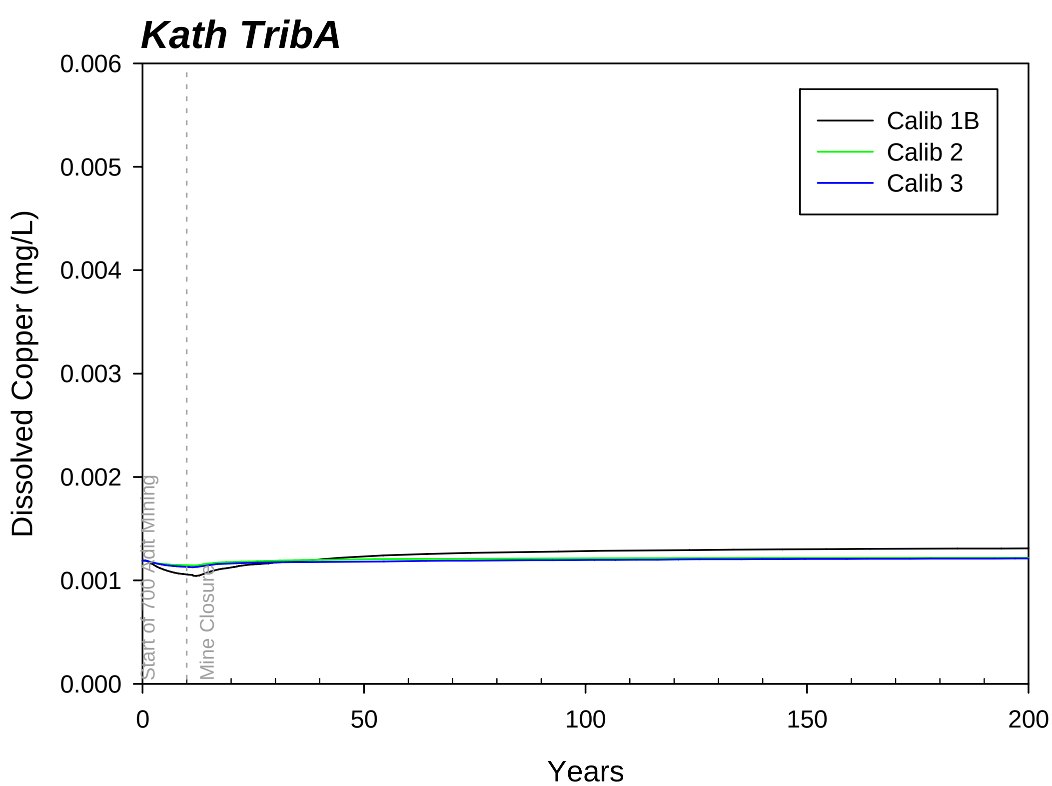


Figure 4-13. Temporal trends in total and dissolved copper at surface-water monitoring station Kath TribA (Kathlyn Tributary A) during and after mining at Davidson.

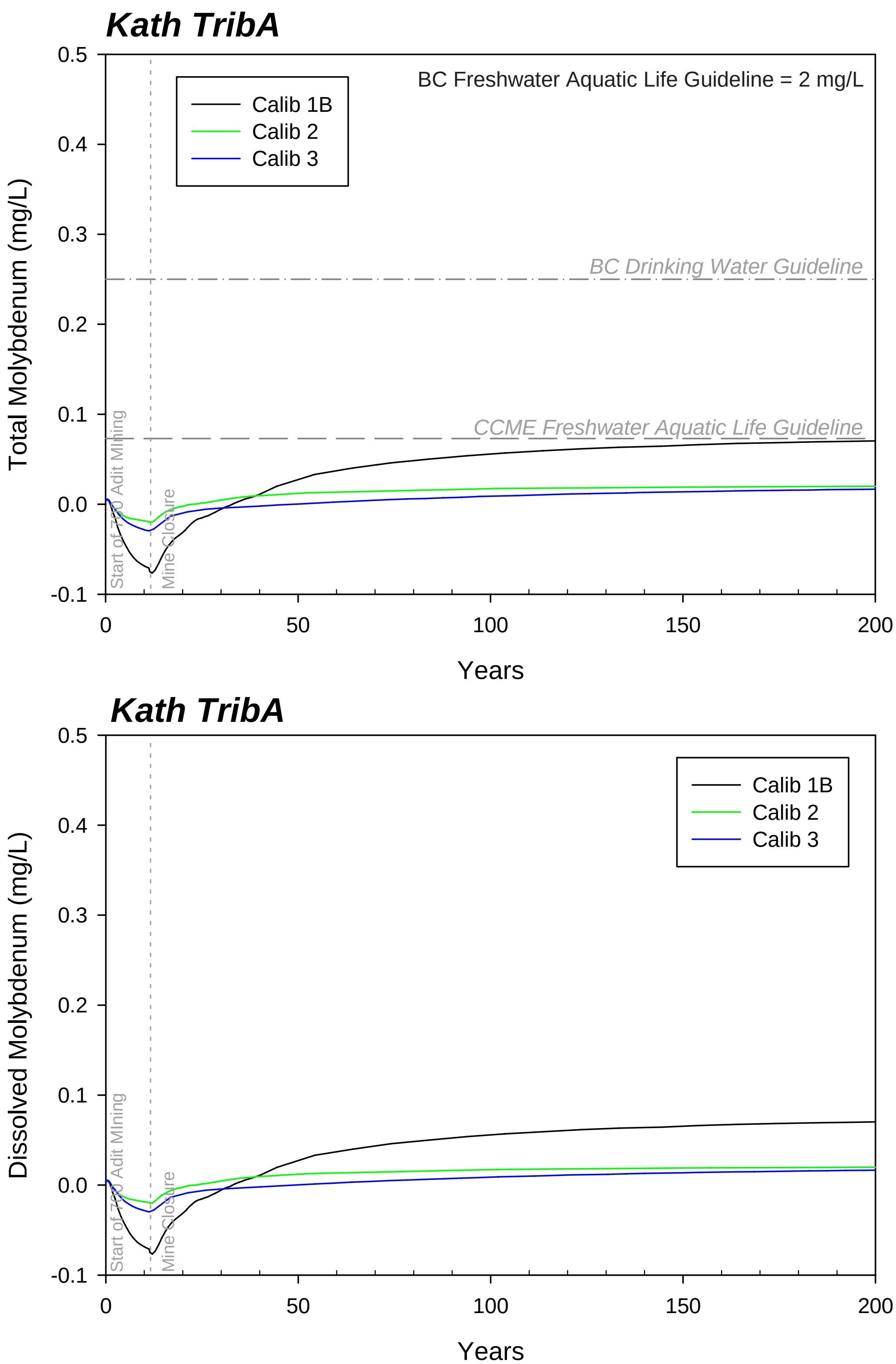
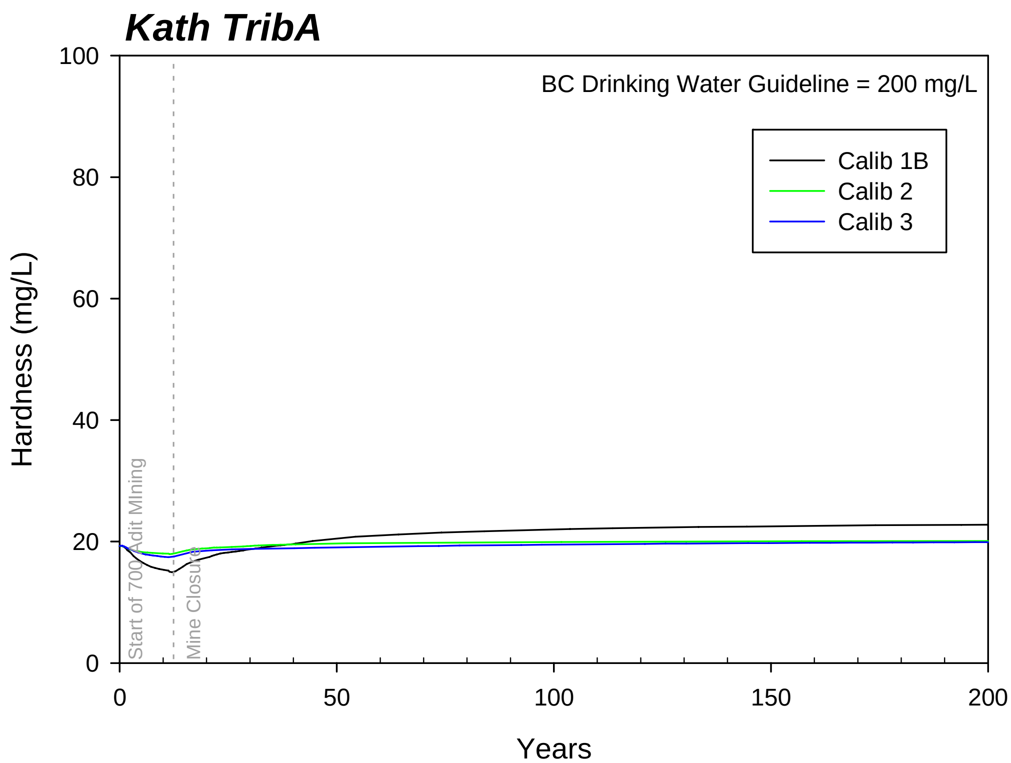


Figure 4-14. Temporal trends in total and dissolved molybdenum at surface-water monitoring station Kath TribA (Kathlyn Tributary A) during and after mining at Davidson.



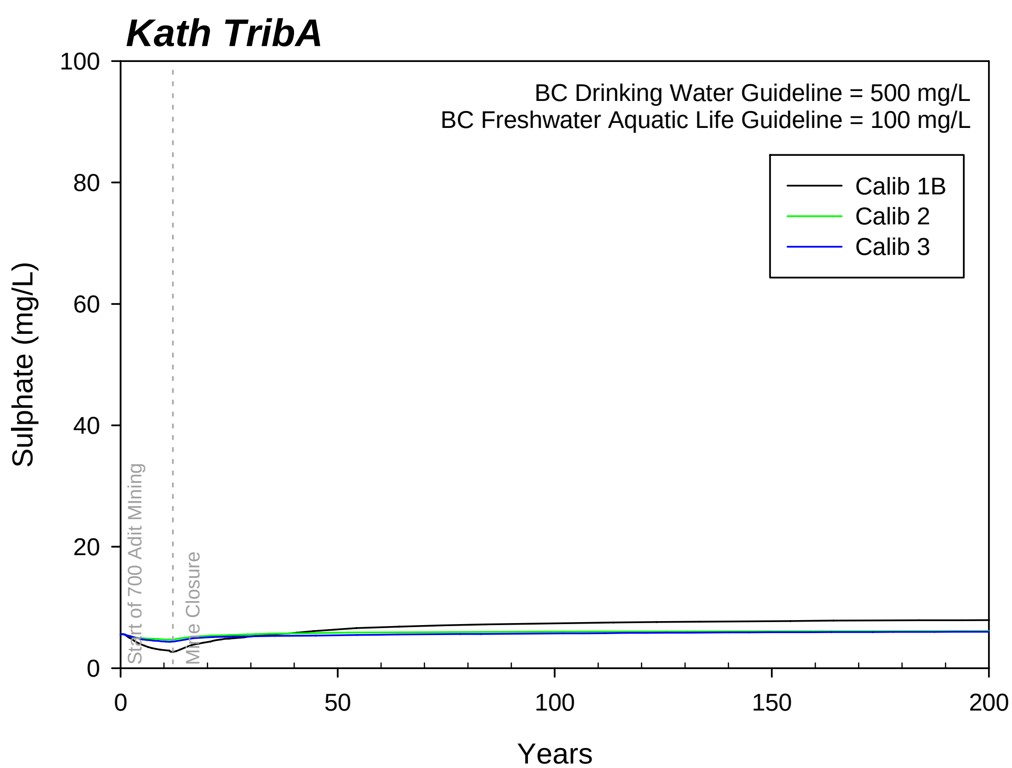


Figure 4-15. Temporal trends in hardness and sulphate at surface-water monitoring station Kath TribA (Kathlyn Tributary A) during and after mining at Davidson.

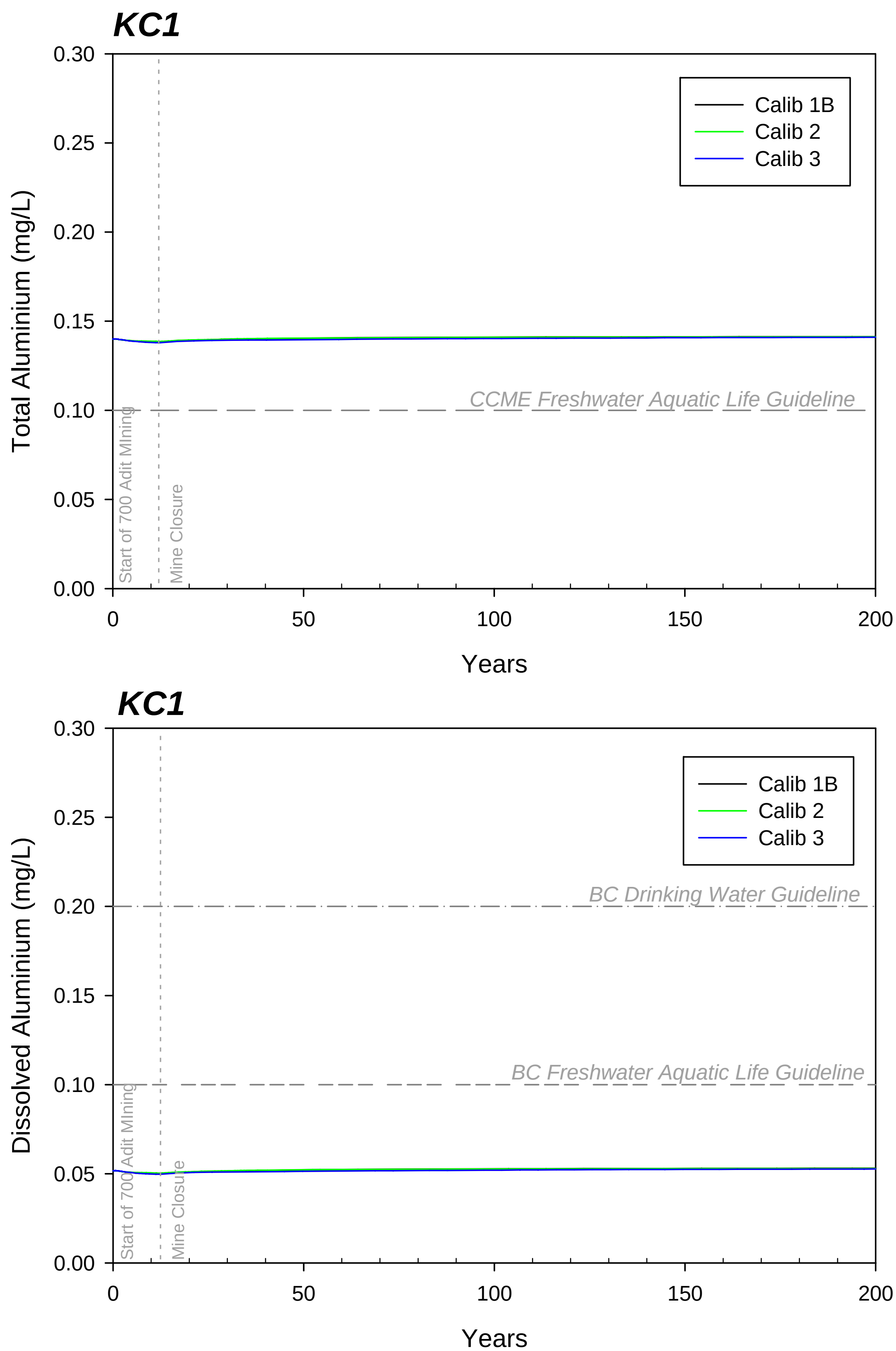


Figure 4-16. Temporal trends in total and dissolved aluminum at surface-water monitoring station KC1 (Kathlyn Creek) during and after mining at Davidson.

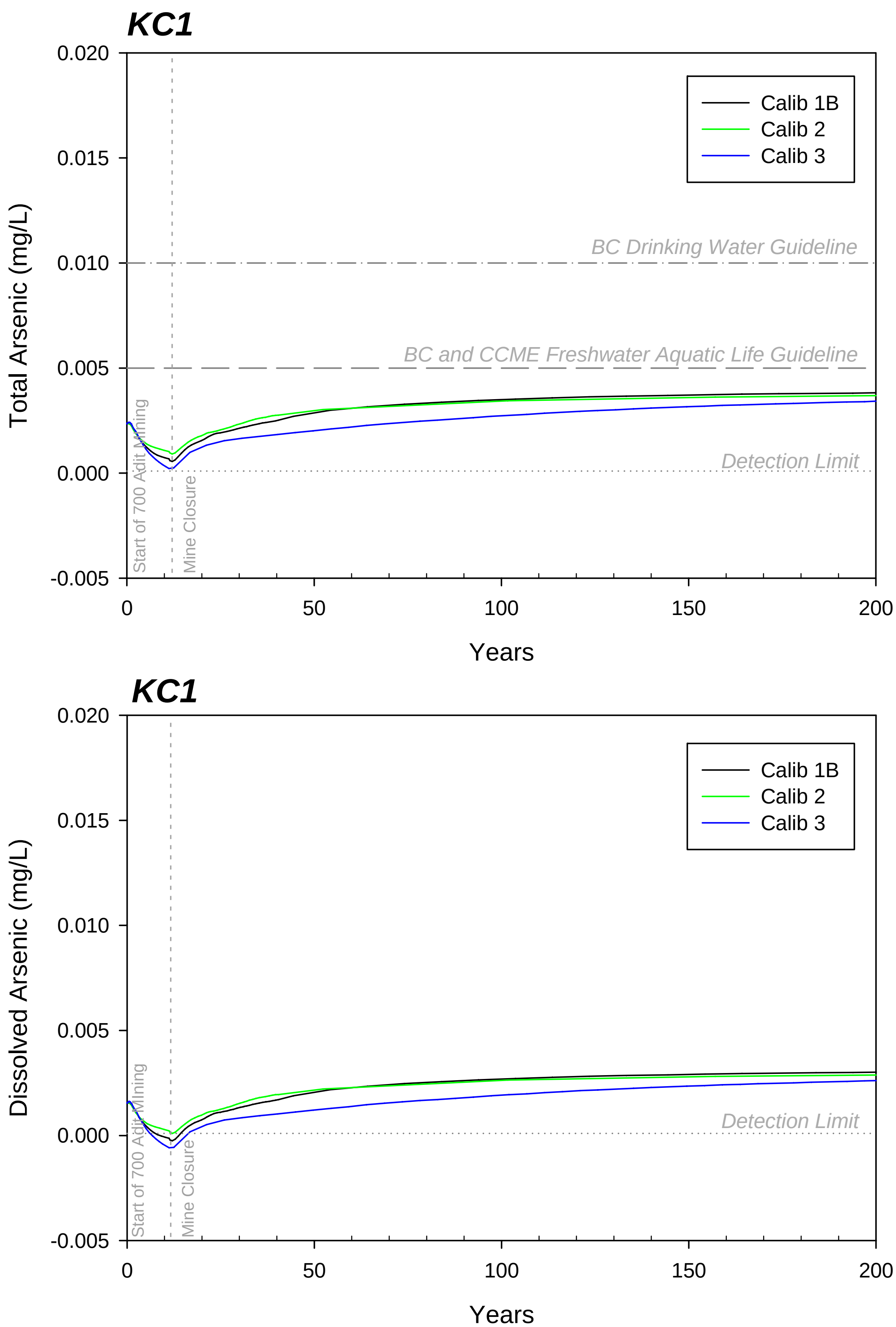
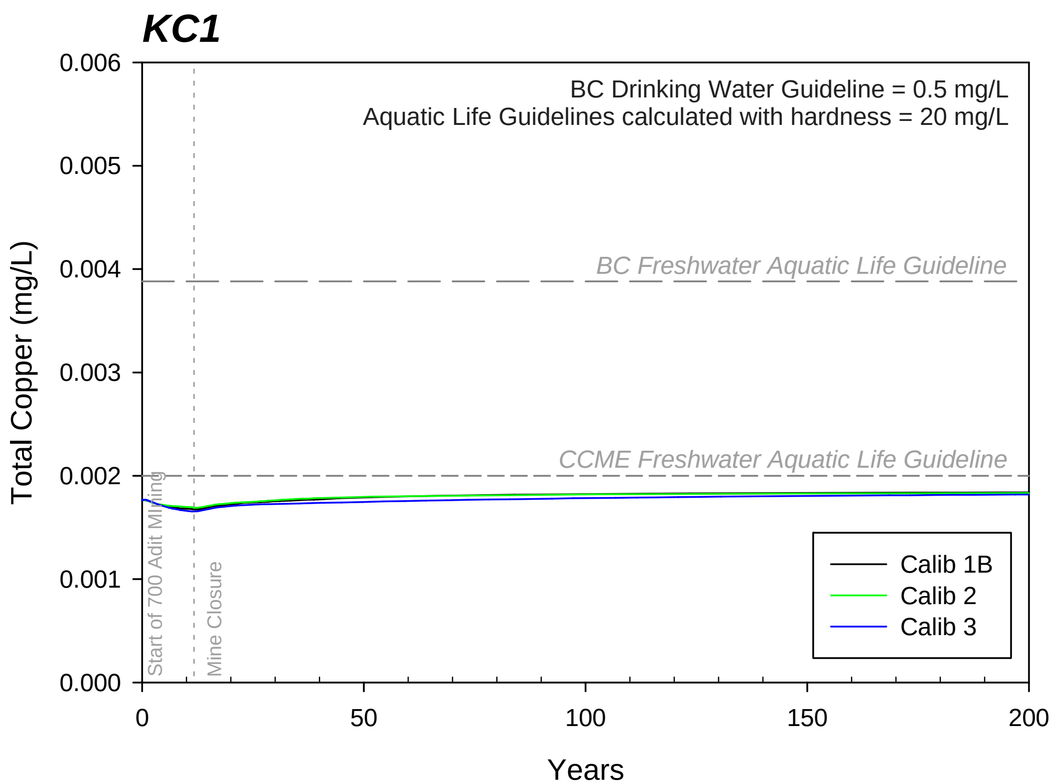


Figure 4-17. Temporal trends in total and dissolved arsenic at surface-water monitoring station KC1(Kathlyn Creek) during and after mining at Davidson.



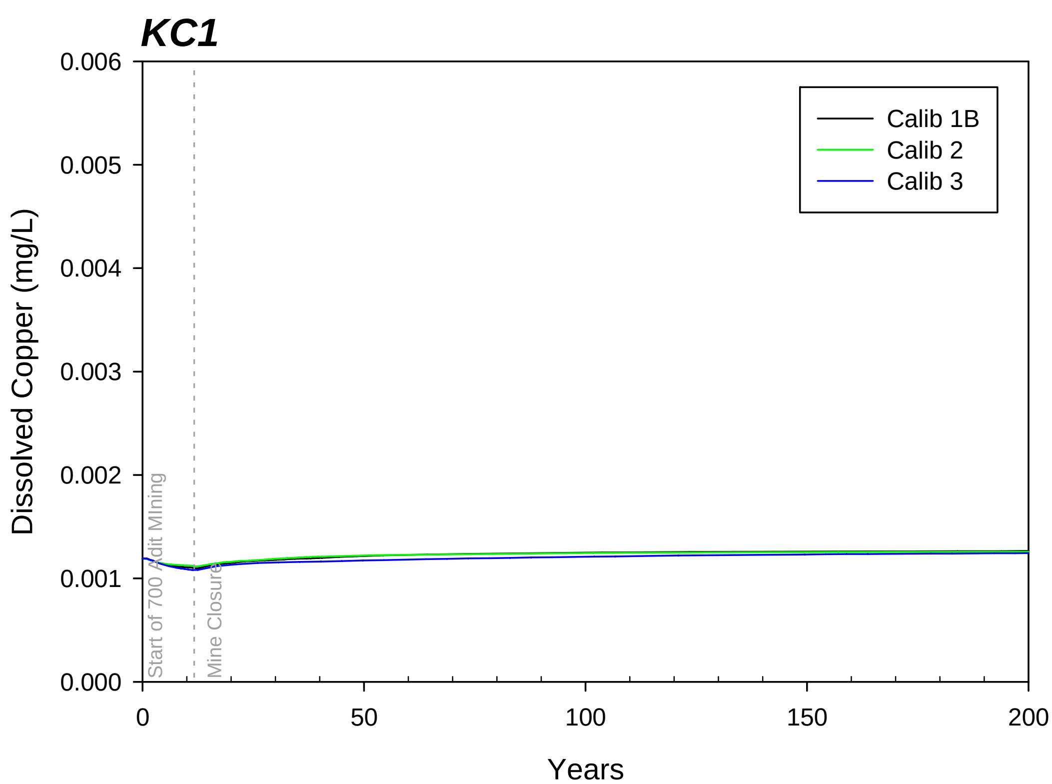


Figure 4-18. Temporal trends in total and dissolved copper at surface-water monitoring station KC1 (Kathlyn Creek) during and after mining at Davidson.

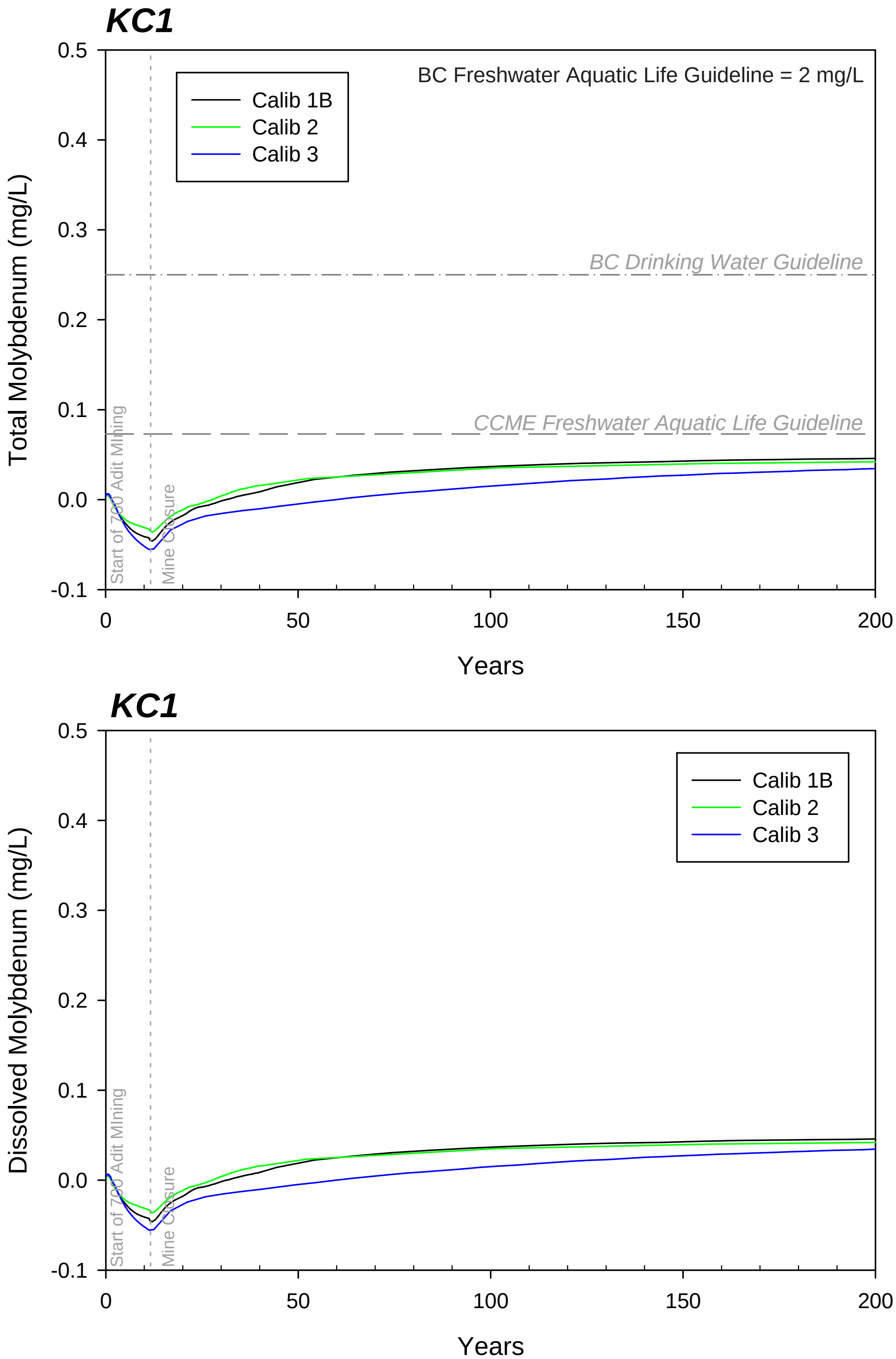
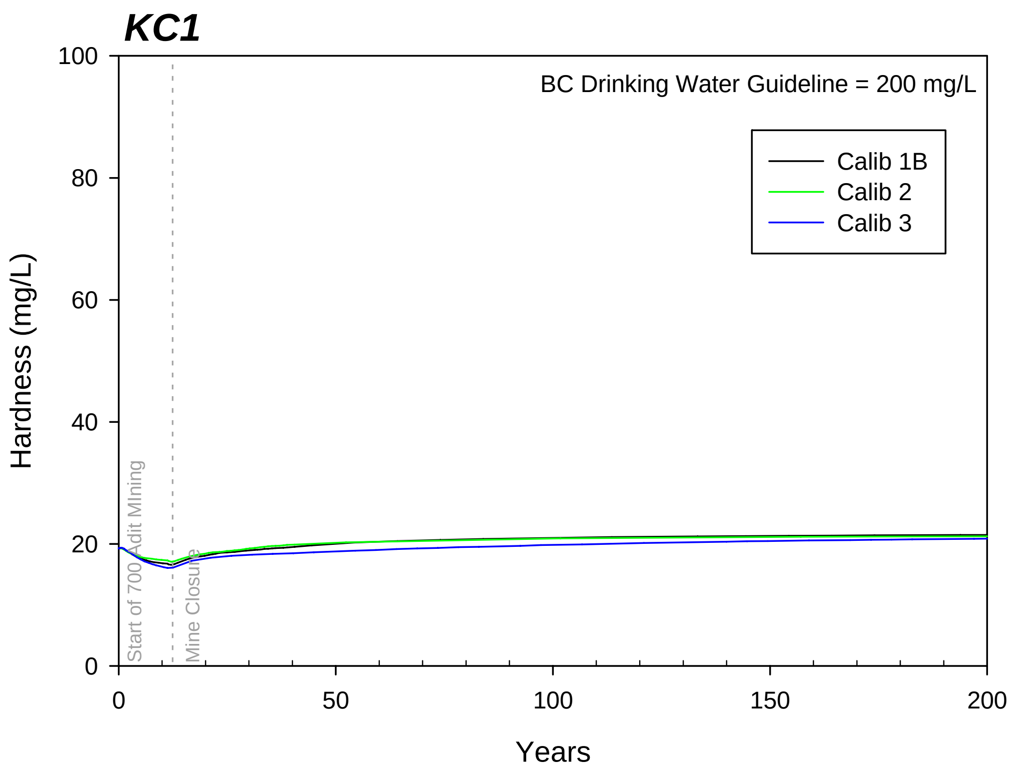


Figure 4-19. Temporal trends in total and dissolved molybdenum at surface-water monitoring station KC1 (Kathlyn Creek) during and after mining at Davidson.



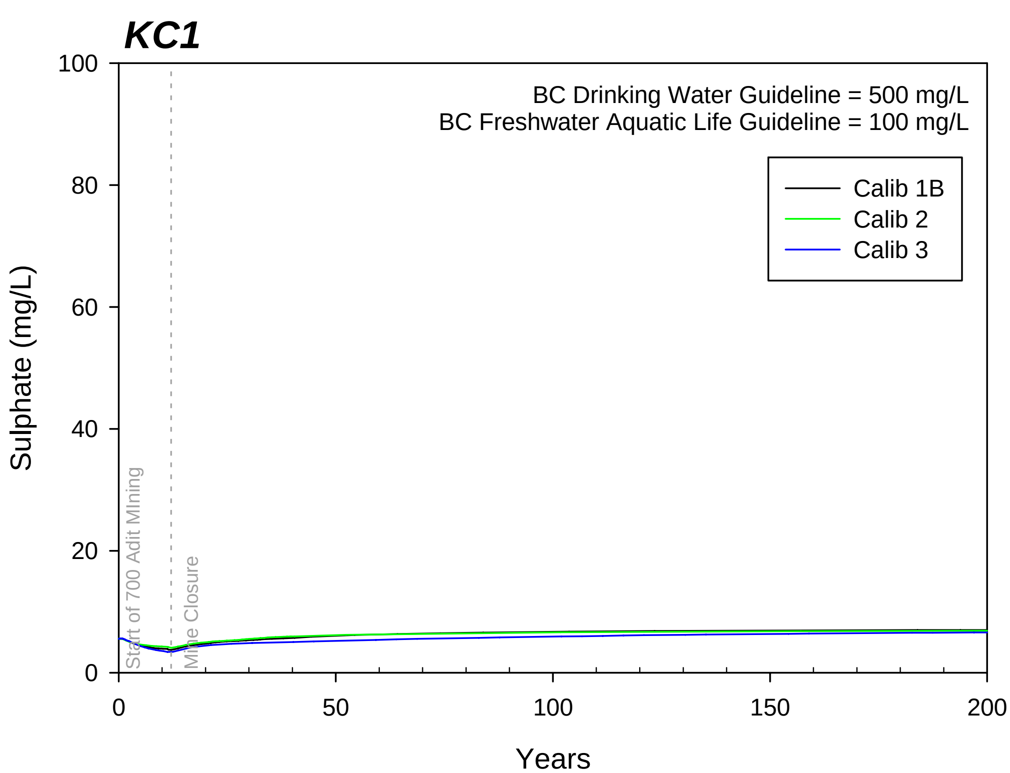


Figure 4-20. Temporal trends in hardness and sulphate at surface-water monitoring station KC1 (Kathlyn Creek) during and after mining at Davidson.

5. Discussion and Conclusions

5.1 ASSUMPTIONS

Calculation of predicted well concentrations was relatively straightforward, because MODFLOW is specifically designed to generate these results. Using the modelled % granodiorite contributions to the various wells, mass balance calculations were used to generate water quality predictions. The predictions are considered conservative because assumptions for granodiorite water quality were based on the highest values for each parameter from Morin and Hutt, 2008.

The calculation of stream water quality predictions was somewhat more complicated, and required a combination of assumptions. Where possible, conservative assumptions have been used to ensure predictions are near the upper end of the expected range. Key assumptions include:

- The % granodiorite contribution to the streams was determined in MODFLOW using a combination of MODPATH and Zonebudget. This method is inherently conservative (*e.g.*, over-predicts granodiorite contribution), because it does not account for mixing with groundwater from other parts of the catchment or from recharge between the granodioirite source area and the stream.
- For zonebudgets with granodiorite contribution greater than zero, the water quality predictions are calculated by assuming that any future change in groundwater recharge (positive or negative) is due to change in granodiorite contribution. We know this is a conservative assumption, because some zonebudgets exhibited change in groundwater recharge rate, but 0% contribution from granodiorite. This indicates that some the change in groundwater recharge may be supplied by non-granodiorite water.
- For zonebudgets with granodiorite contribution of zero (Calib 2 and Calib 3 for Kath Tribs zone, and all three runs for Kathlyn Creek zone), modelled changes in groundwater recharge rates were ignored in the mass balance calculation, as incorporating this flow would violate the assumption of a constant TERM 2 in Equation 2-4. Ignoring this flow is a conservative assumption, as these sources would provide additional dilution from non-granodiorite water.
- The water quality predictions are based on average stream flow as MODFLOW results are representative of long-term average conditions.
- Granodiorite water quality used in the predictions was based on the highest values for each parameter from Morin and Hutt, 2008.

5.2 GROUNDWATER WELLS

Results from the MODFLOW modelling provided estimates of percent granodiorite contribution to many wells within the model domain (refer to Figures 49 and 50 in Cho, 2009). For water supply wells at the base of Hudson Bay Mountain, the baseline percent granodiorite ranges from <0.1 to 2%. For existing and proposed monitoring wells further up the hillside, baseline granodiorite contribution ranges from 0.2 to 50%. After closure, once the water table re-stabilizes, the higher hydraulic conductivity in the granodiorite (due to the presence of the underground workings) results in a slightly higher percent granodiorite contribution. At the end of the model runs (500 years into the future), the percent granodiorite range increases to <0.1 to 2.5% for the supply wells, and 1.4 to 57% for the monitoring wells.

Using these modelled changes in percent granodiorite contribution, water quality predictions were made for a number of wells. Results were calculated by assuming average baseline groundwater quality for a subset of 3 wells (Well 49768, RES-DAV-01A, and RES-DAV-04) that covered the range of percent granodiorite contributions (0.3%, 4%, and 36% respectively). Predictions were also calculated for 5 wells that have site specific baseline data (RES-DAV-01A, RES-DAV-03, RES-DAV-04, RES-Arnold, and RES-Martin). The results for all wells show a decrease in concentrations related to mine operation, followed by an increase in concentrations after closure. The magnitude of these changes differs between wells. As expected, higher variability is observed for wells with higher percent granodiorite contribution. Therefore the largest changes in concentration are observed at the existing and proposed monitoring wells (which have been specifically sited to be able to monitor change). For the water supply wells, which have very low percent granodiorite contribution, the predicted change is very small and would not impact the quality of water in these wells.

5.3 CREEKS

Results of the MODFLOW modelling were also used to derive predictions of water quality in Glacier Gulch and Kathlyn creeks, which flow over and below the deposit area. Glacier Gulch Creek is not directly a drinking water source; however during the spring/summer months some water from the creek is diverted into Club Creek to augment flow through Lake Kathlyn. There are water users on Club Creek and Lake Kathlyn. Tributaries of Kathlyn Creek provide water supply to local residents. As well, both creeks support important fisheries values further downstream.

The model estimates of groundwater recharge to streams with time were used to derive the water quality predictions. For Glacier Gulch Creek (GG4), baseline granodiorite contribution was estimated from the model to be 6.6% of average total stream flow (range 4.8 to 10.2% depending on the model calibration). This increases to 9.0% (range 7.0 to 12.4%) after closure. For Kathlyn Trib A3 (KC3), granodiorite contribution increased from 1.9% (range 1.1 to 3.0%) of average total stream flow under baseline conditions to 3.1% (range 2.3 to 4.2%) after closure. Kathlyn Trib A granodiorite contribution increased from 1.4% (range 0.4 to 3.3%) of average total stream flow under baseline conditions to 2.3% (range 0.8 to 5.0%) after closure. Kathlyn Creek (KC1) granodiorite contribution increased from 0.9% (range 0.3 to 2.1%) of average total stream flow at baseline to 1.9% (range 1.3 to 3.2%) after closure.

Table 5-1 summarizes the water quality predictions for the four stream locations. Results are presented as the average of the three model calibrations. It is evident from the ratios that only small increases are expected for aluminum, copper, hardness and sulphate. Larger increases are expected for arsenic and molybdenum, though values remain below guideline levels (unless baseline conditions already exceed guidelines).

Table 5-1 Summary of Stream Water Quality Predictions (average of model calibrations)

Parameter	Baseline (mg/L)	Steady State Prediction (mg/L)	SteadyState:Baseline	Baseline (mg/L)	Steady State Prediction (mg/L)	SteadyState:Baseline
	Glacier Gulch Upper (GG4)			Kathlyn Trib A3 (KC3)		
T-Al	0.308	0.311	1.01	0.576	0.578	1.00
D-Al	0.026	0.030	1.14	0.205	0.207	1.01
T-As	0.0008	0.0046	5.61	0.0012	0.0030	2.46
D-As	0.0005	0.0043	8.29	0.0007	0.0024	3.66
T-Cu	0.009	0.010	1.02	0.003	0.003	1.03
D-Cu	0.004	0.004	1.05	0.002	0.002	1.05
T-Mo	0.39	0.50	1.27	0.12	0.17	1.43
D-Mo	0.39	0.50	1.27	0.14	0.19	1.36
Hardness	47	52	1.12	36	38	1.07
Sulphate	36	40	1.11	17	19	1.11
	Kathlyn Trib A			Kathlyn Creek (KC1)		
T-Al	0.140	0.141	1.01	0.140	0.141	1.01
D-Al	0.052	0.053	1.02	0.052	0.053	1.03
T-As	0.0024	0.0037	1.57	0.0024	0.0040	1.70
D-As	0.0016	0.0029	1.87	0.0016	0.0032	2.06
T-Cu	0.002	0.002	1.04	0.002	0.002	1.05
D-Cu	0.001	0.001	1.06	0.001	0.001	1.07
T-Mo	0.005	0.043	8.81	0.005	0.051	10.56
D-Mo	0.005	0.043	8.88	0.005	0.051	10.65
Hardness	19	21	1.10	19	22	1.13
Sulphate	6	7	1.24	6	7	1.30

5.4 CONCLUSION

The calculations outlined in this report summarize water quality predictions both for wells and streams in the Davidson Project area. The results of these calculations indicate that there will be minor changes to water quality as a result of the Project. For most parameters, water quality will improve during the mine life as granodiorite water is removed from the groundwater system, treated and discharged. Following closure, when the underground workings will recharge with groundwater, the rebounding water table and the higher hydraulic conductivity in the granodiorite as a result of the mine workings combine to produce increased concentrations for most parameters. The predicted increases, derived using various conservative assumptions, are small and are not expected to have an impact on water quality for downstream water users. In reality, the groundwater discharged from the mountain below the mine workings is very likely to be similar to pre-mining conditions.

6. References

Cho, H.J. 2009. *Update of MODFLOW Model of Davidson Project*. Memorandum to J. Rempel, dated March 4, 2009. 64 p.

Morin, K.A., and N.M. Hutt (Minesite Drainage Assessment Group). 2008. *Davidson Project - Prediction of Metal Leaching and Acid Rock Drainage, Phase 2*. Appendix C4 of Davidson Project - Application for Environmental Assessment Certificate, dated May 9, 2008.

Rescan Environmental Services Ltd. 2006a. *Davidson Project Hydrology Baseline Study*. Appendix F1 of Davidson Project - Application for Environmental Assessment Certificate, dated September 2006.

Rescan Environmental Services Ltd. 2008. *Davidson Project Groundwater Baseline Study*. Appendix F2 of Davidson Project - Application for Environmental Assessment Certificate, dated January 2008.

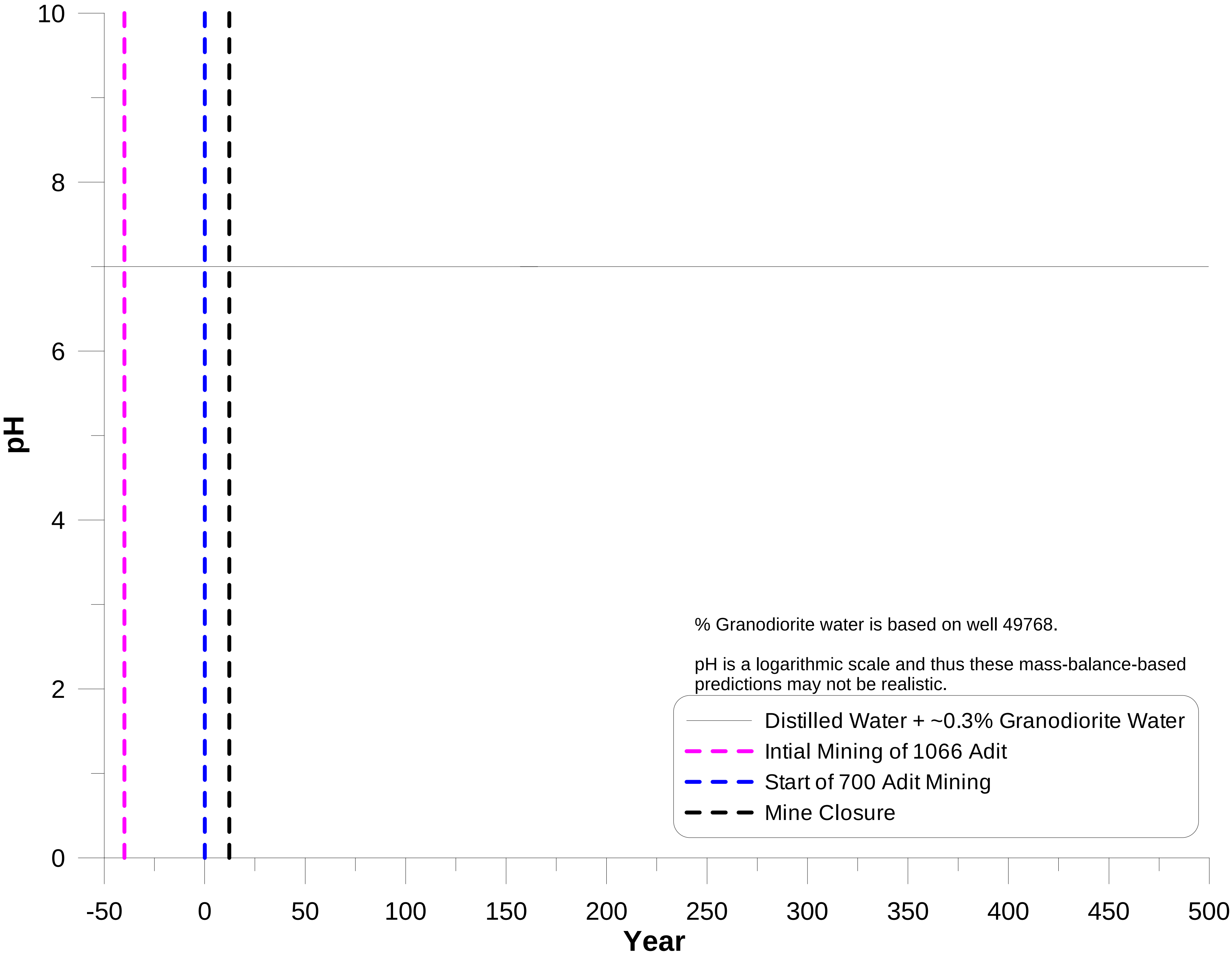
Rescan Environmental Services Ltd. 2006b. *Davidson Project Water Quality Baseline Studies Report 2005-2006*. Appendix F3 of Davidson Project - Application for Environmental Assessment Certificate, dated December 2006.

Rescan Environmental Services Ltd. 2006c. *EKATI Diamond Mine Tier 1 Aquatic Ecological Risk Assessment for Molybdenum*. Prepared for BHP Billiton Diamonds Inc. by Rescan Environmental Services, September 2006.

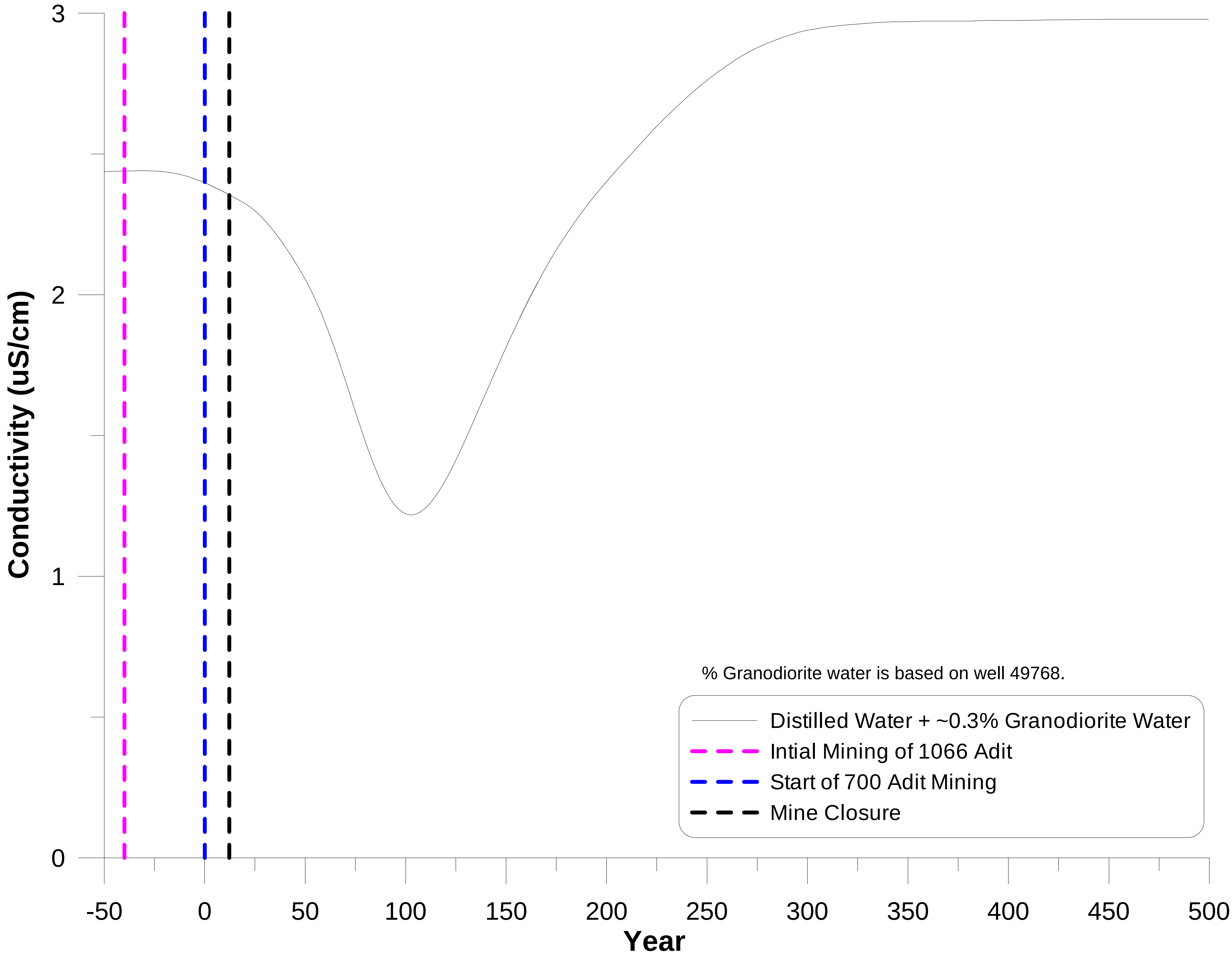
APPENDIX A.

ESTIMATED CONCENTRATIONS FOR A WELL RECEIVING DISTILLED GROUNDWATER WITH ZERO CONCENTRATIONS AND VARYING PERCENTAGES OF GRANODIORITE GROUNDWATER, BEFORE MINING, DURING OPERATION, AND AFTER CLOSURE

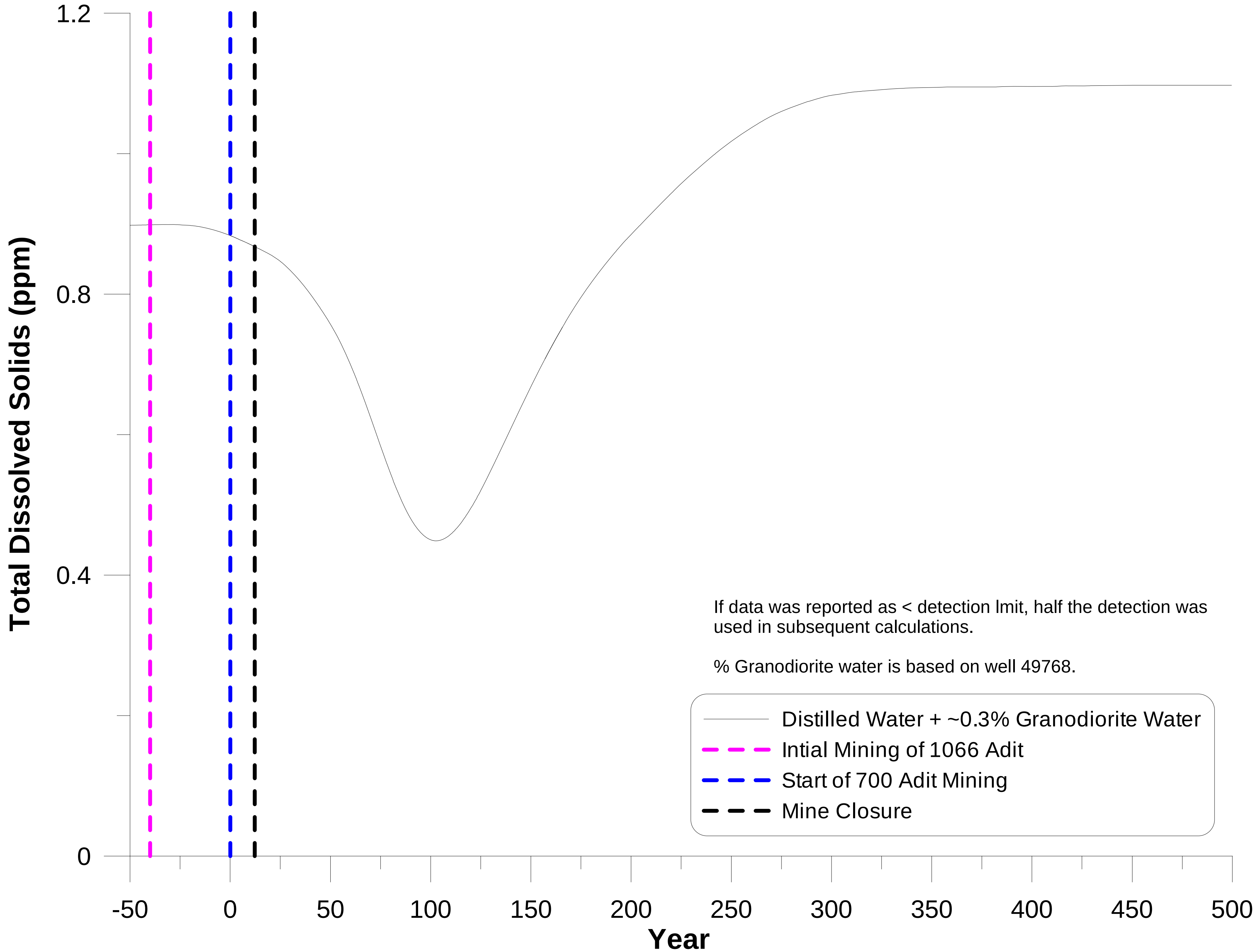
A1. ~0.3% GRANODIORITE GROUNDWATER AND ~99.7% DISTILLED GROUNDWATER BEFORE MINING, BASED ON PREDICTED TRENDS FOR WELL 49768

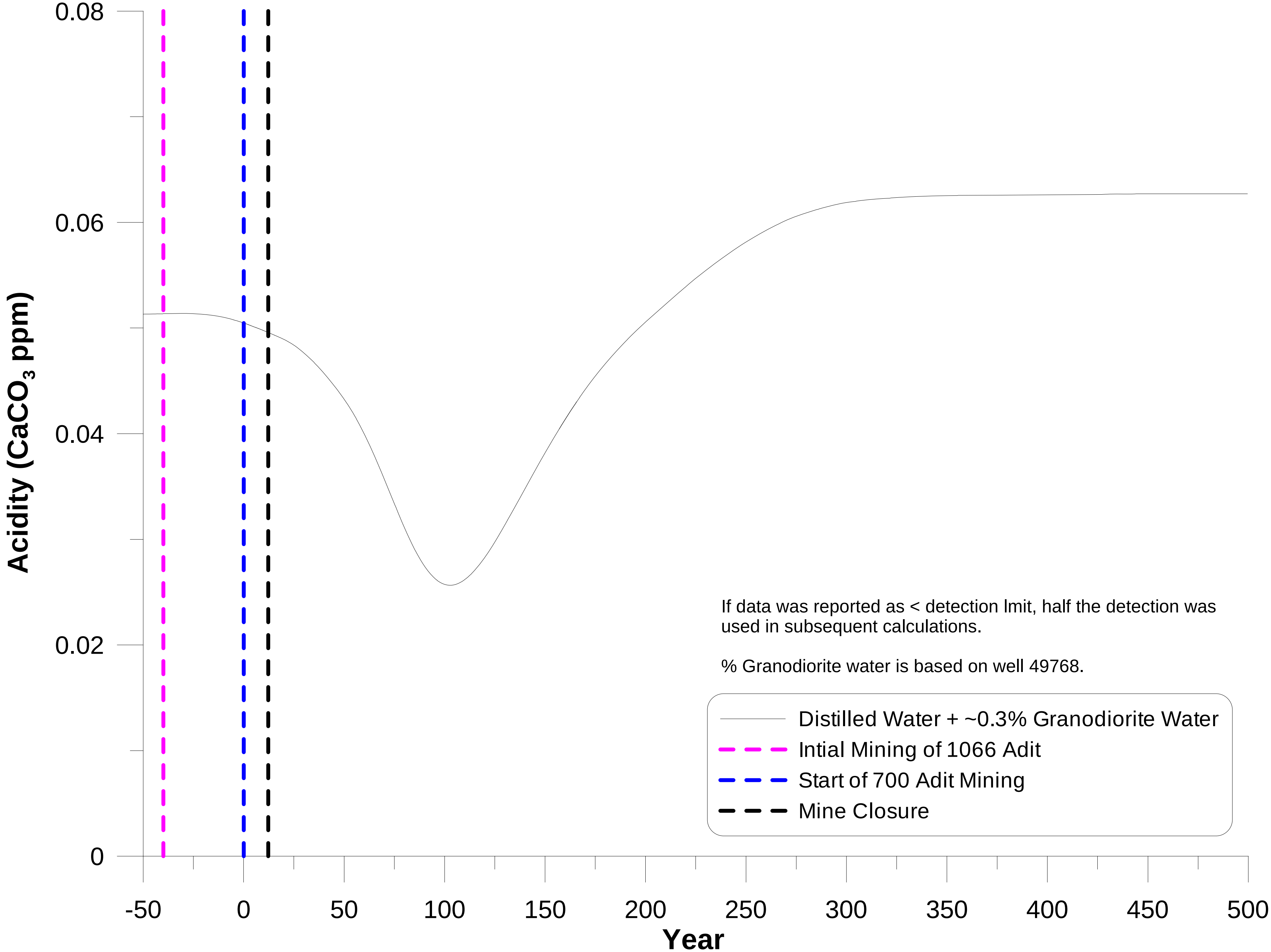


10
8
6
4
2
0
pH
-50
0
50
100
150
200
250
300
350
400
450
500
Year
% Granodiorite water is based on well 49768.
pH is a logarithmic scale and thus these mass-balance-based predictions may not be realistic.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

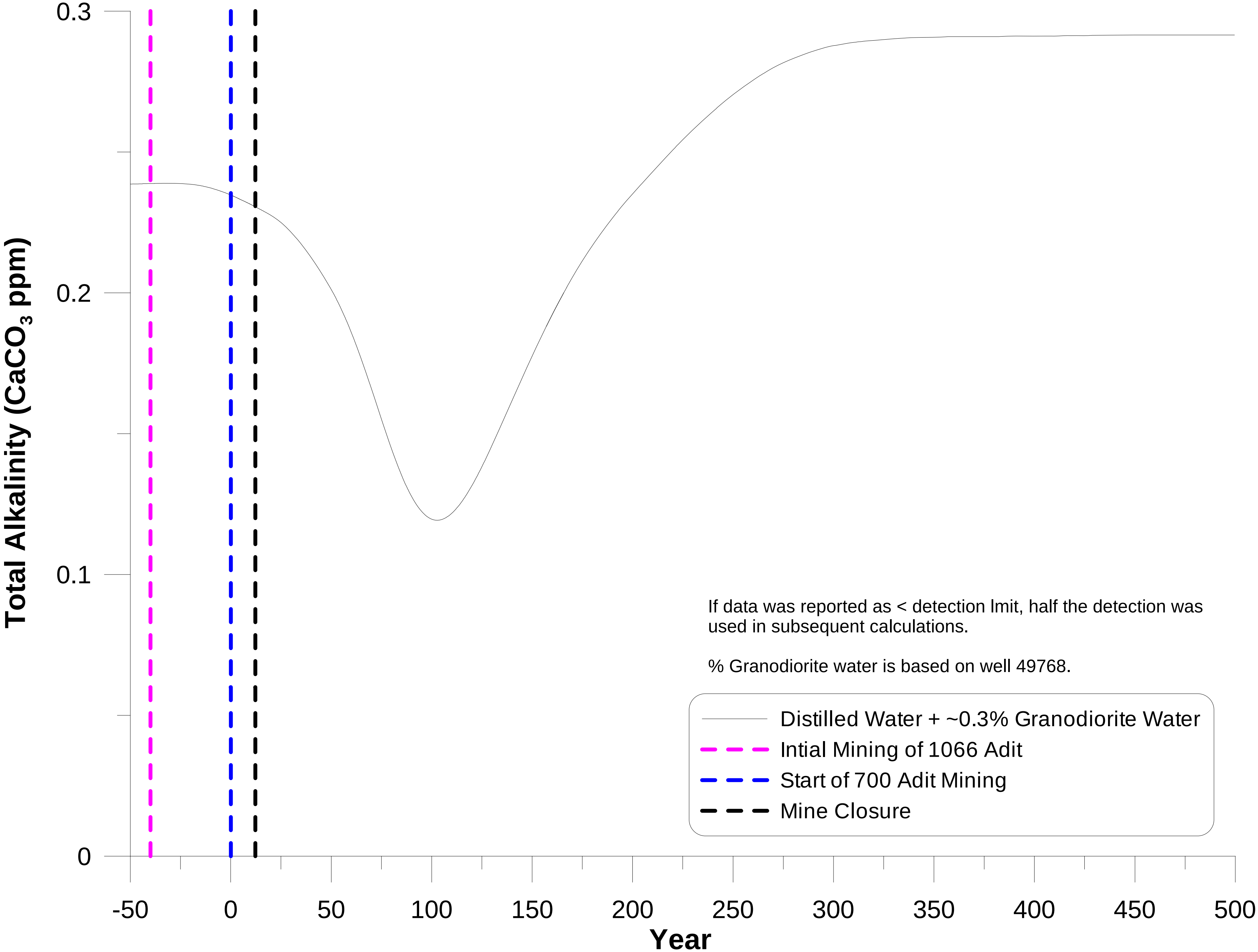


3
2
1
0
Conductivity (uS/cm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

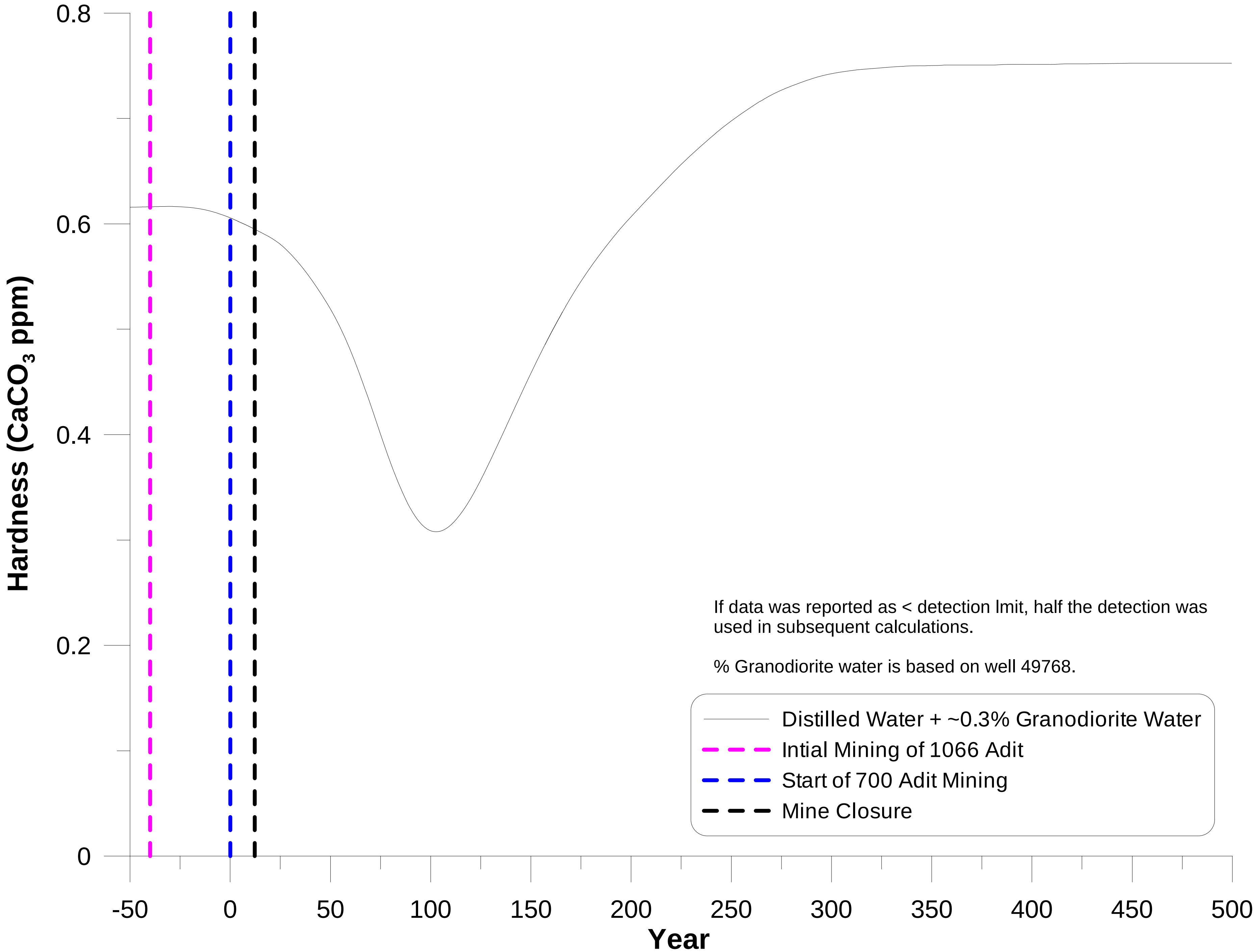

1.2
0.8
0.4
0
Total Dissolved Solids (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

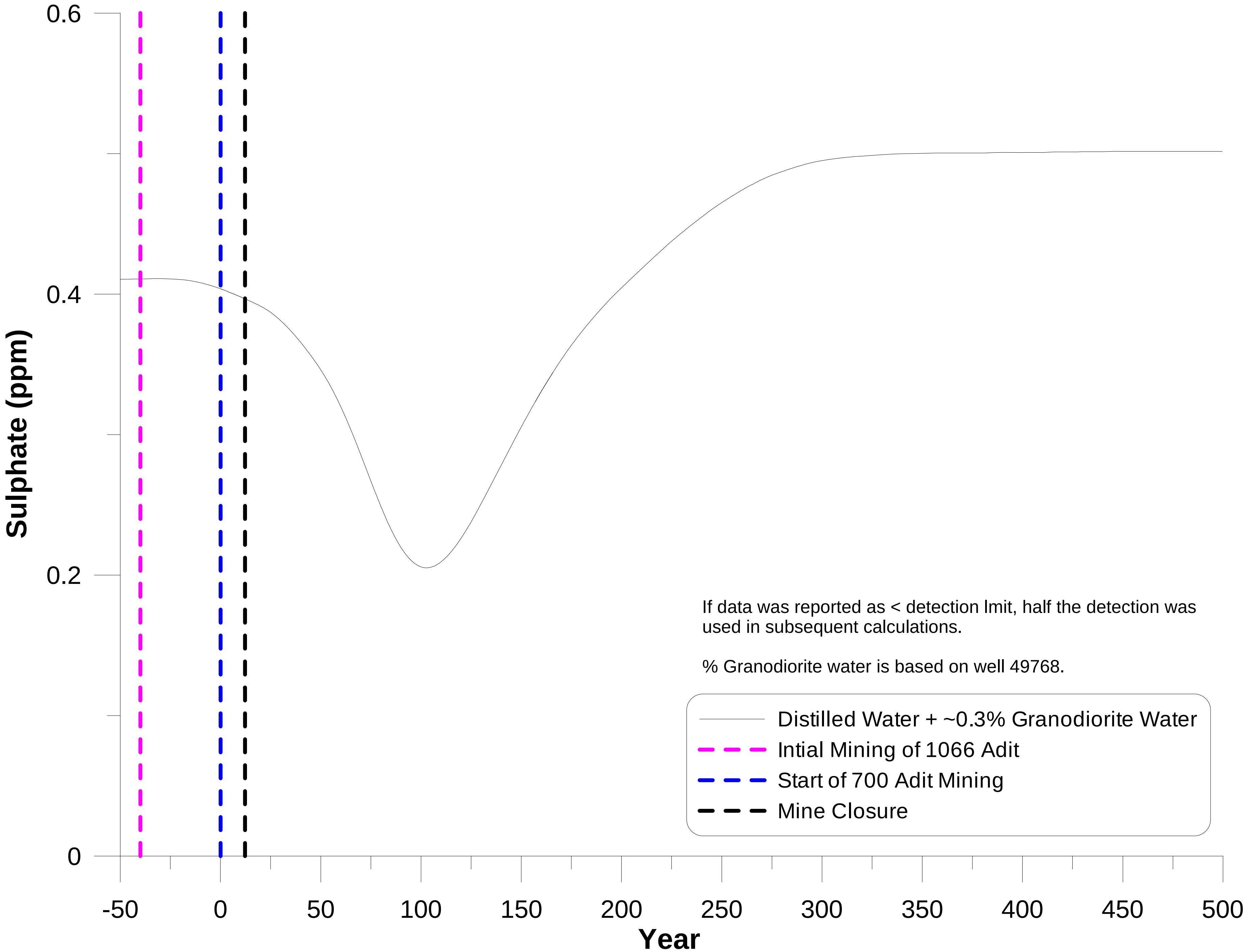


0.08
0.06
0.04
0.02
0
Acidity (CaCO3 ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

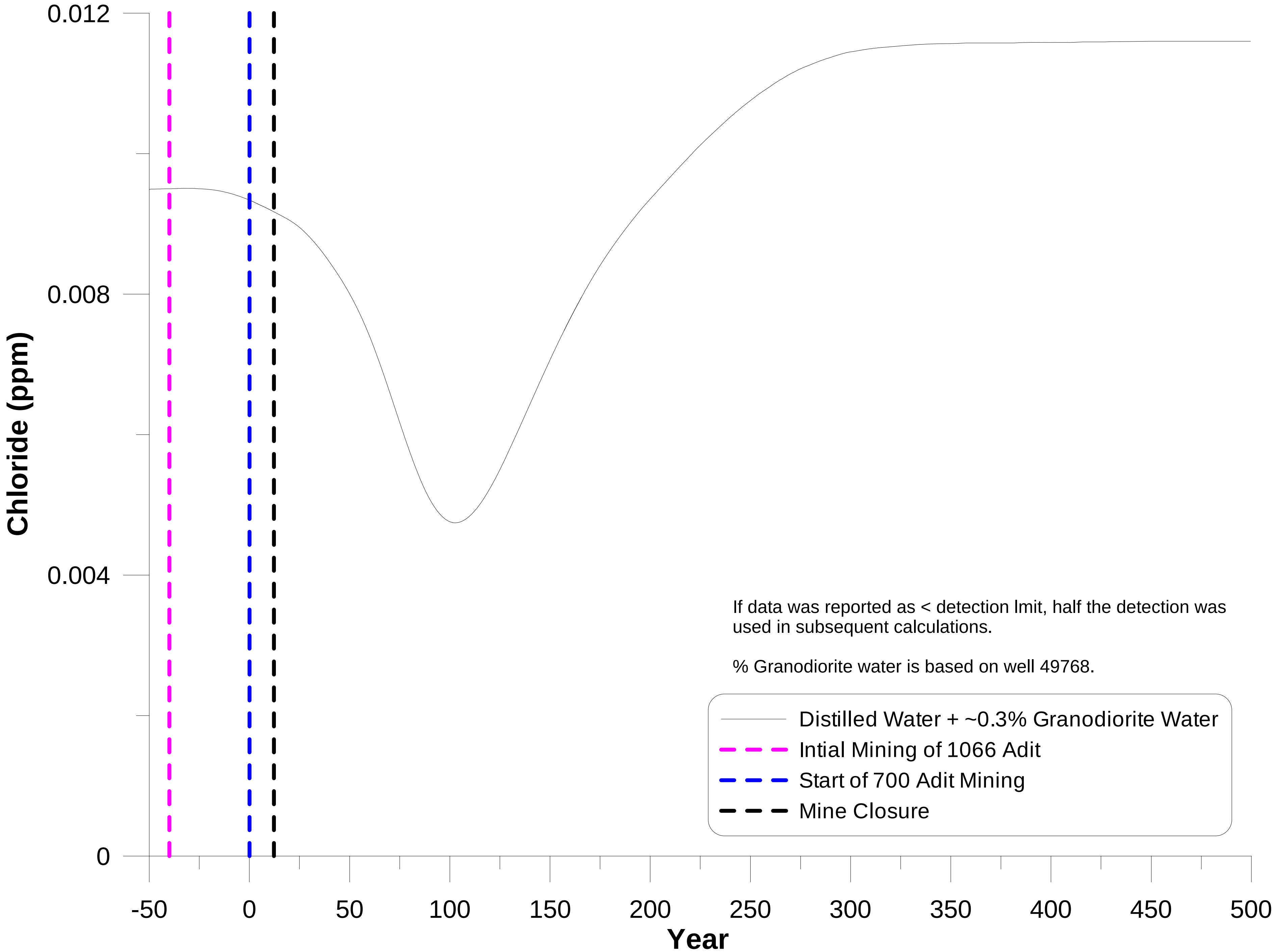


Total Alkalinity (CaCO3 ppm)
0.3
0.2
0.1
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

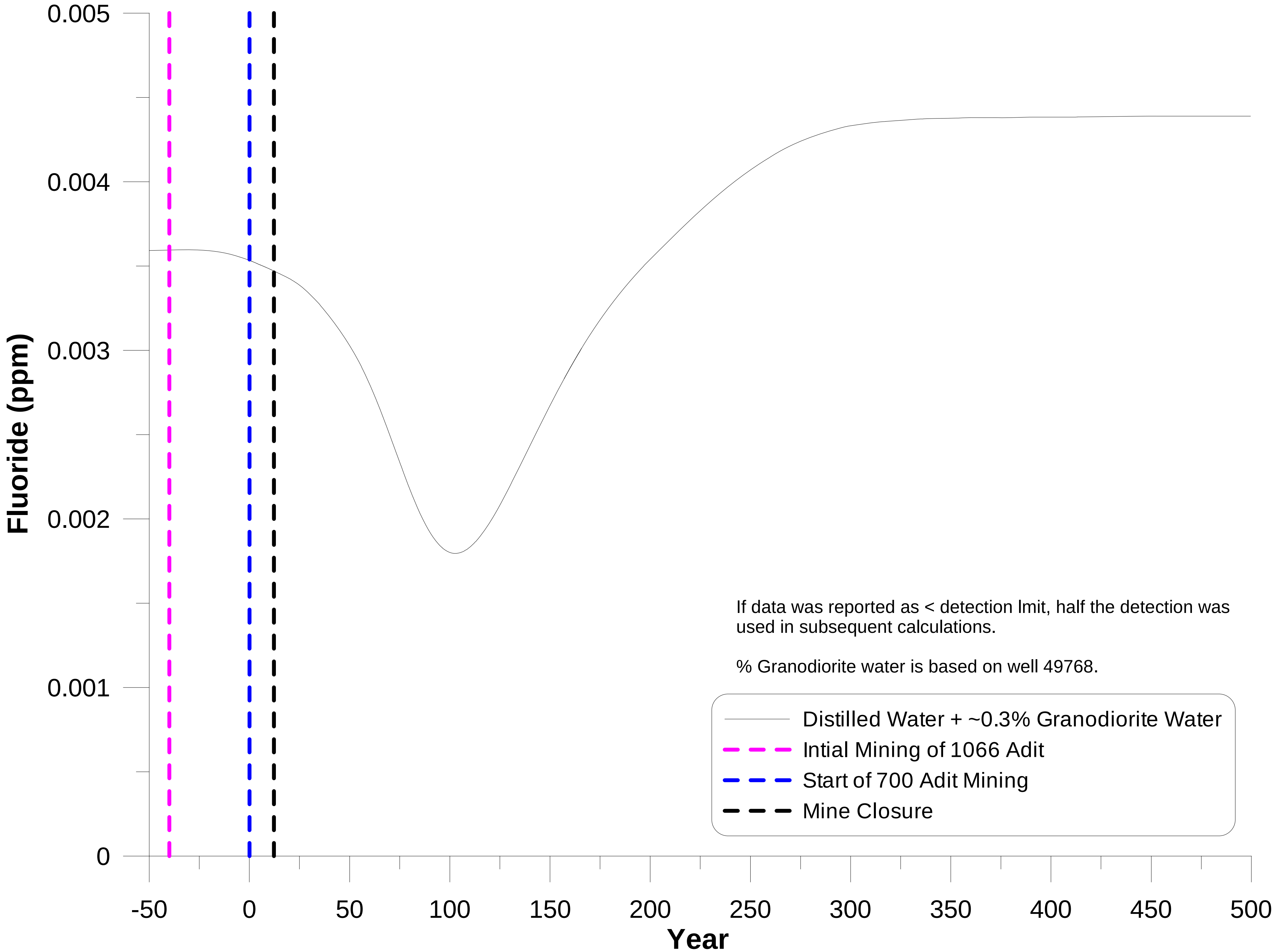

Hardness (CaCO3 ppm)
Year
0.8
0.6
0.4
0.2
0
-50
0
50
100
150
200
250
300
350
400
450
500
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



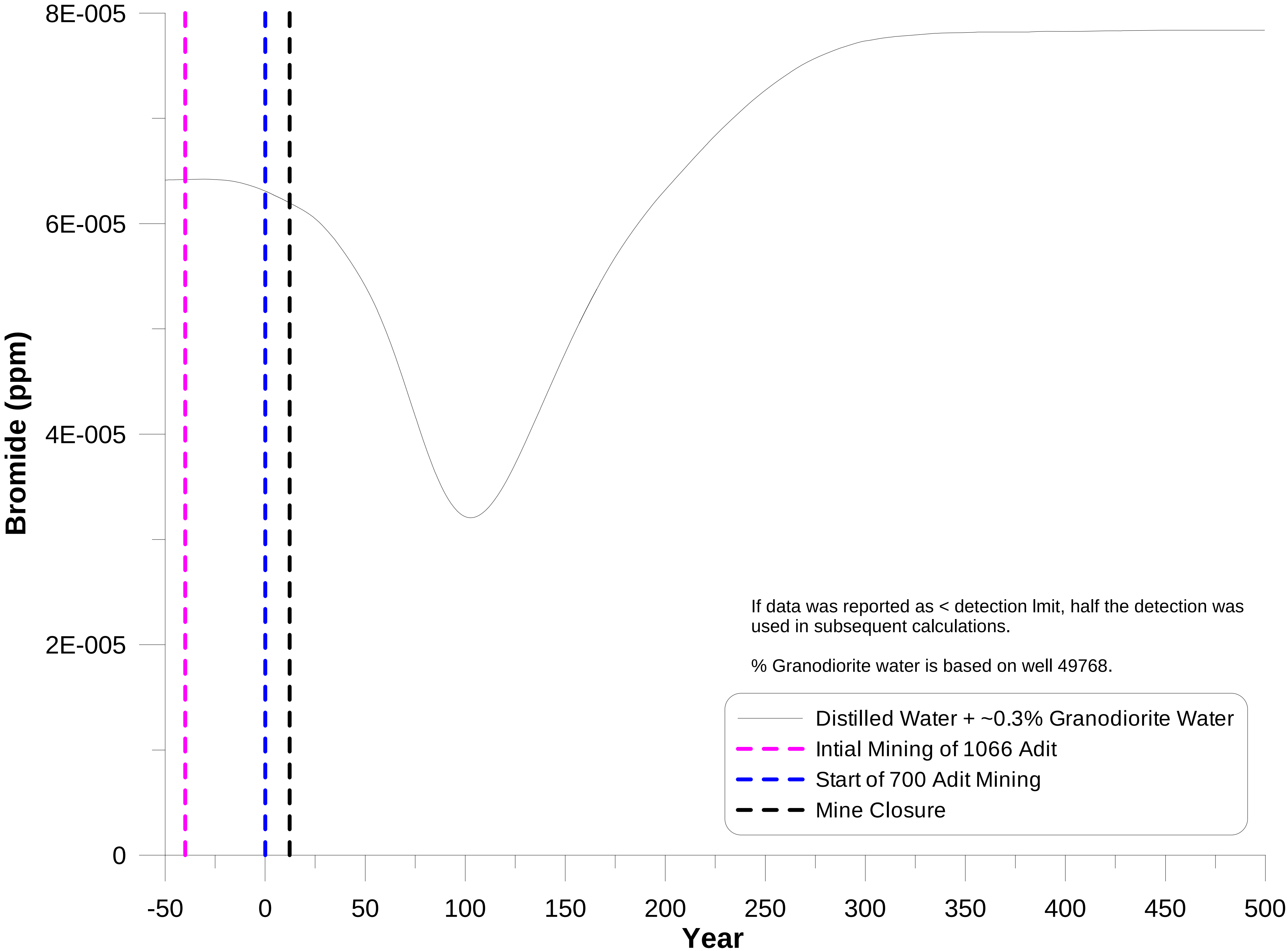
Sulphate (ppm)
0.6
0.4
0.2
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

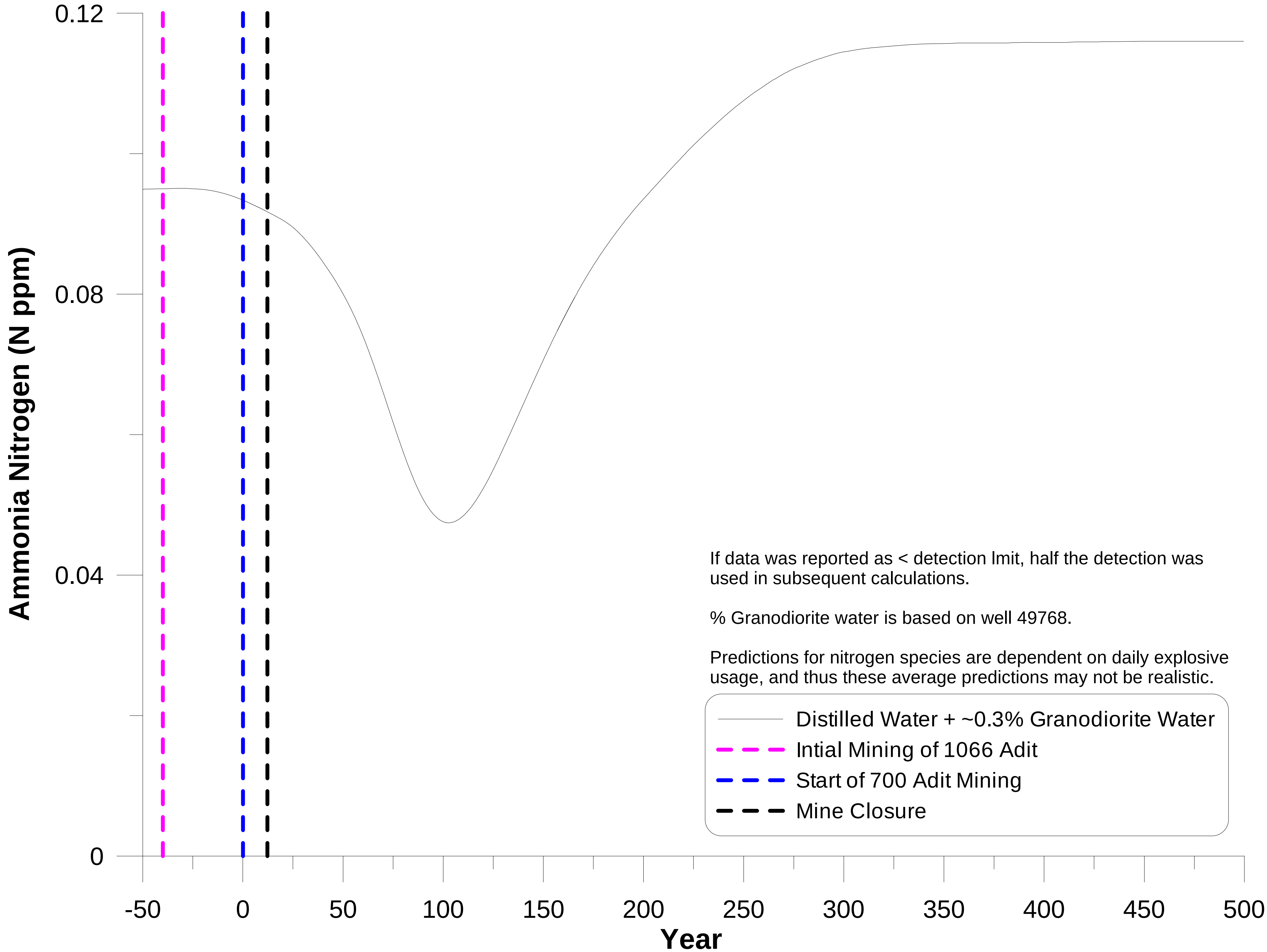


Chloride (ppm)
0.012
0.008
0.004
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

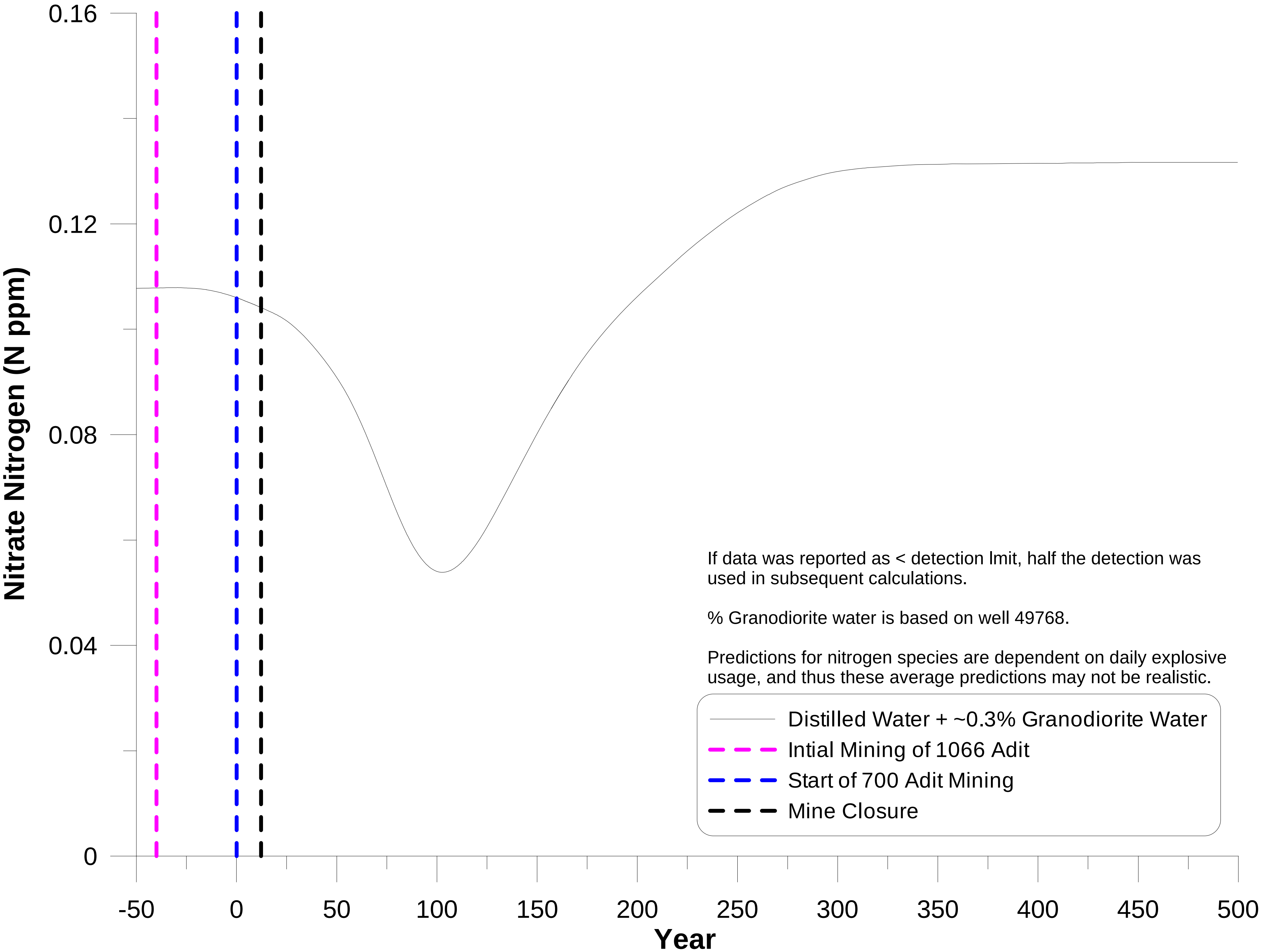


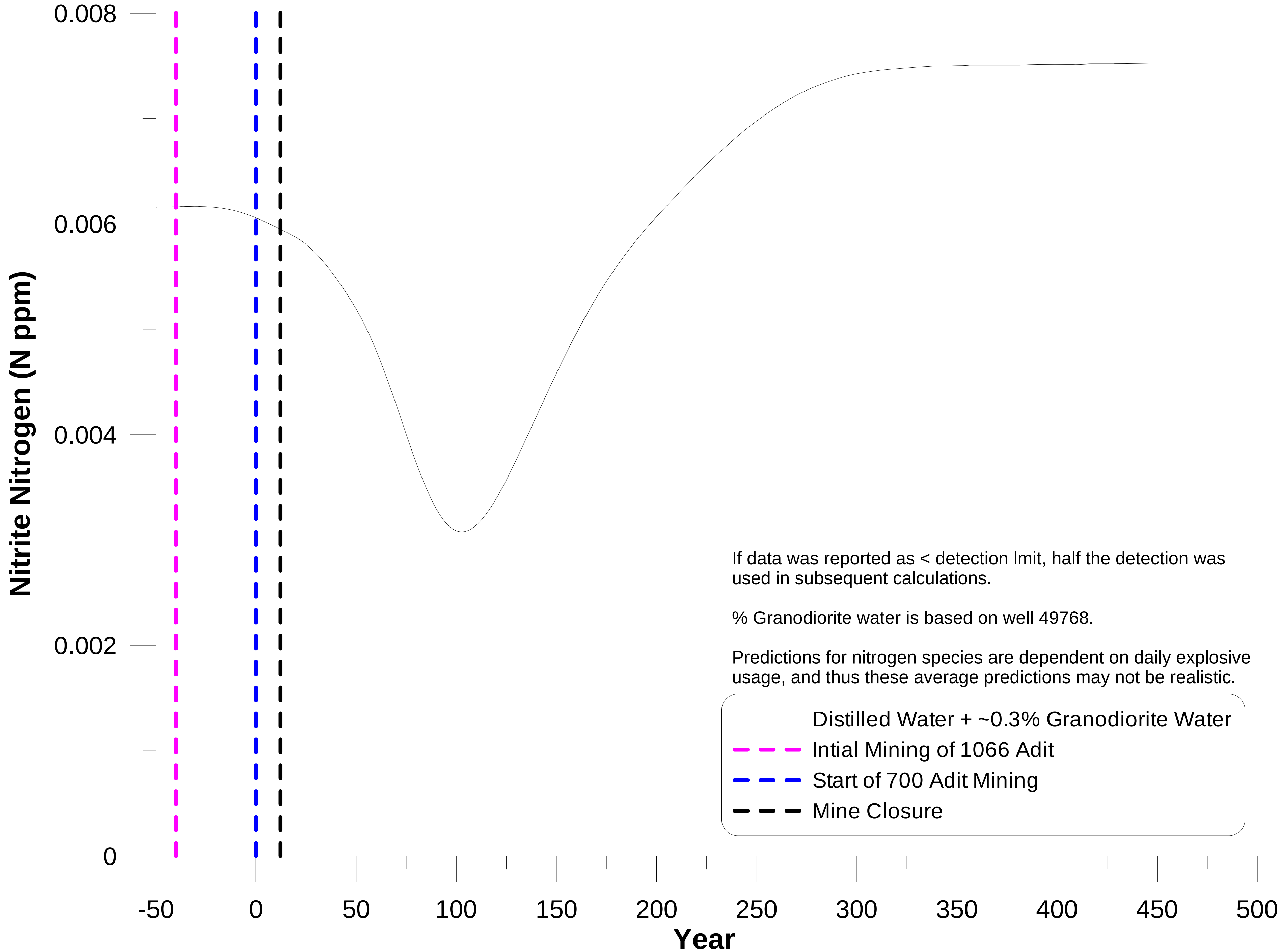
0.005
0.004
0.003
0.002
0.001
0
Fluoride (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure


8E-005
6E-005
4E-005
2E-005
0
Bromide (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

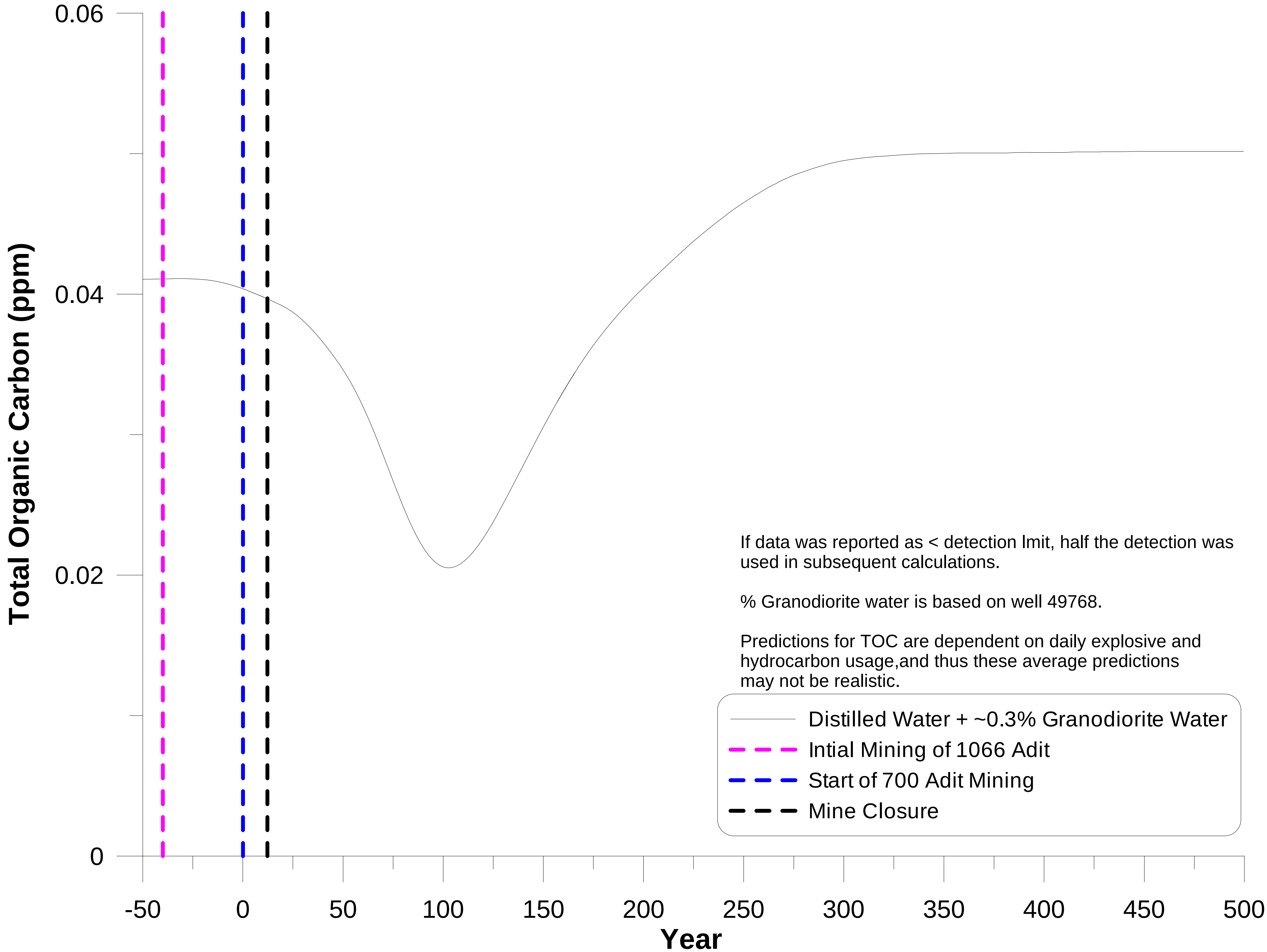


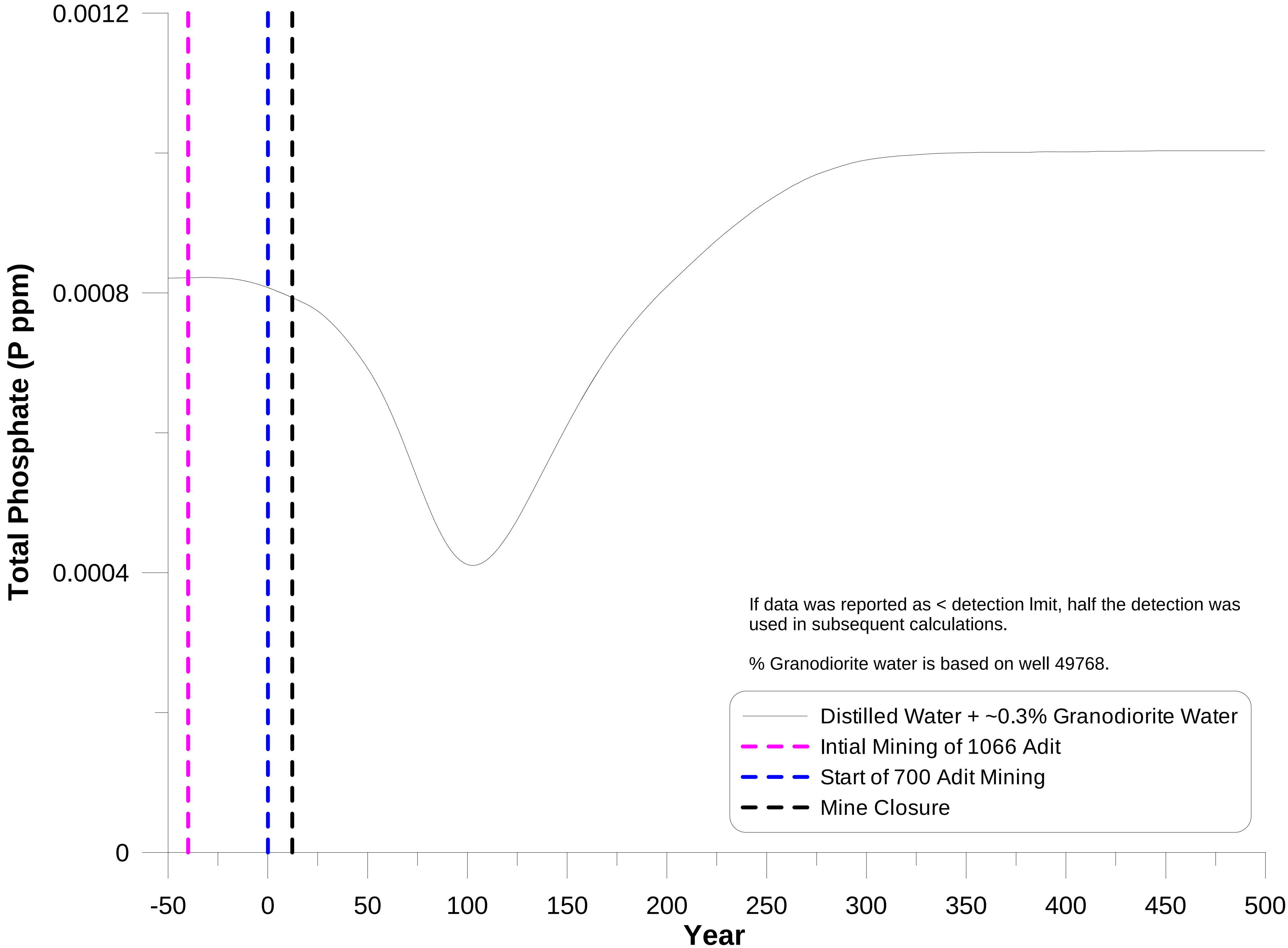
0.12
0.08
0.04
0
Ammonia Nitrogen (N ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure


0.16
0.12
0.08
0.04
0
Nitrate Nitrogen (N ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

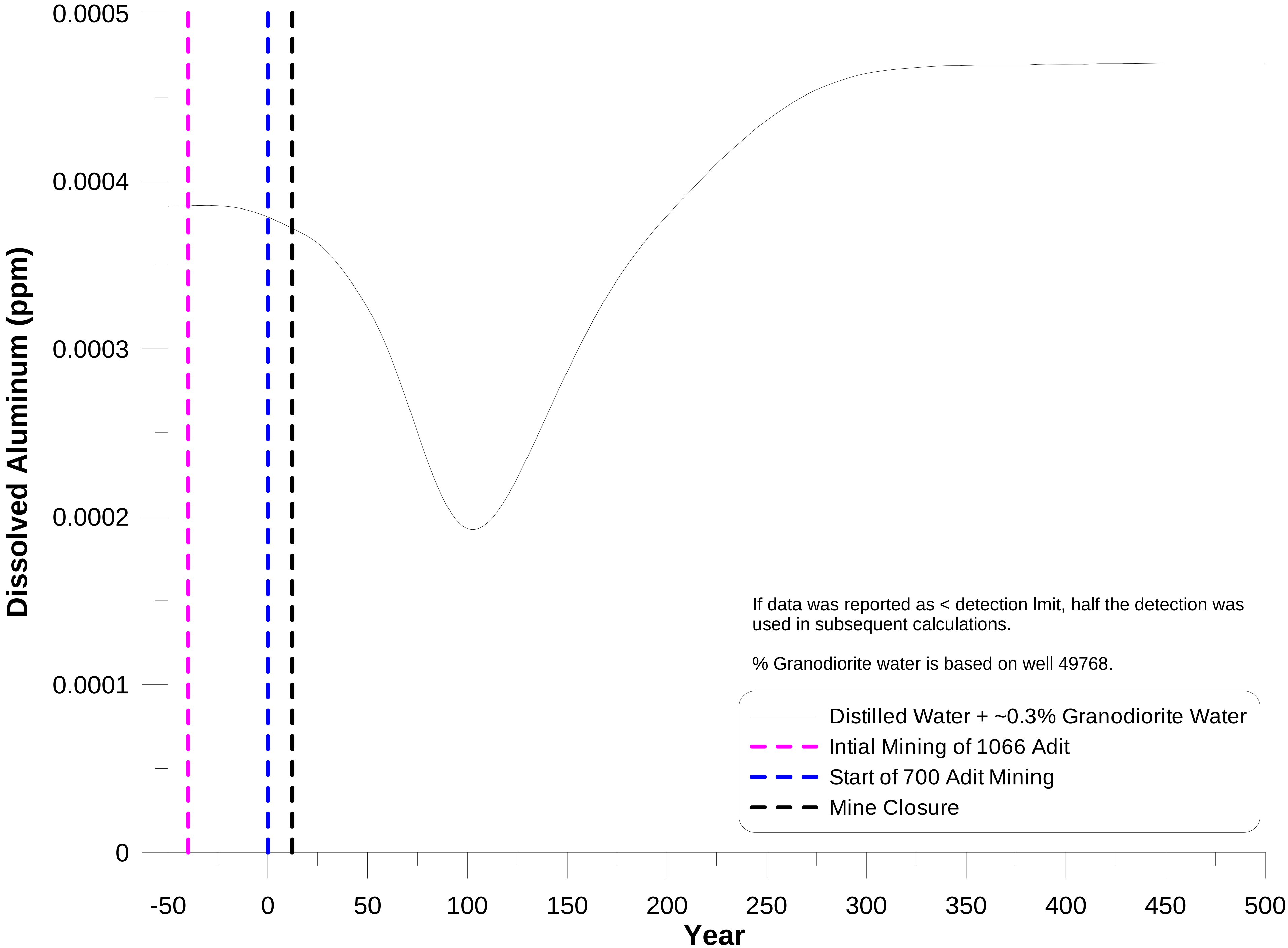


Nitrite Nitrogen (N ppm)
0.008
0.006
0.004
0.002
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

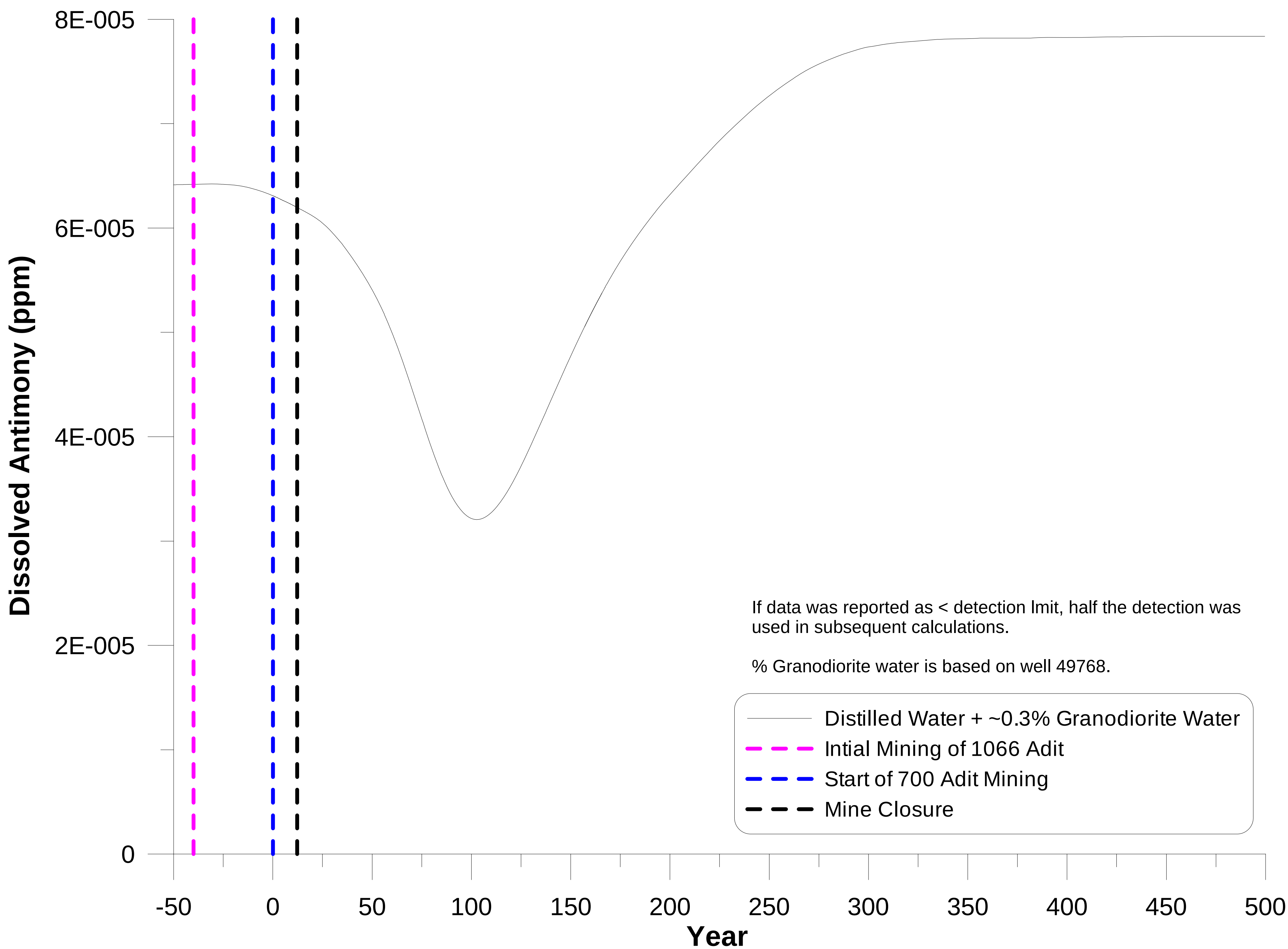

0.06
0.04
0.02
0
Total Organic Carbon (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Predictions for TOC are dependent on daily explosive and hydrocarbon usage,and thus these average predictions may not be realistic.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



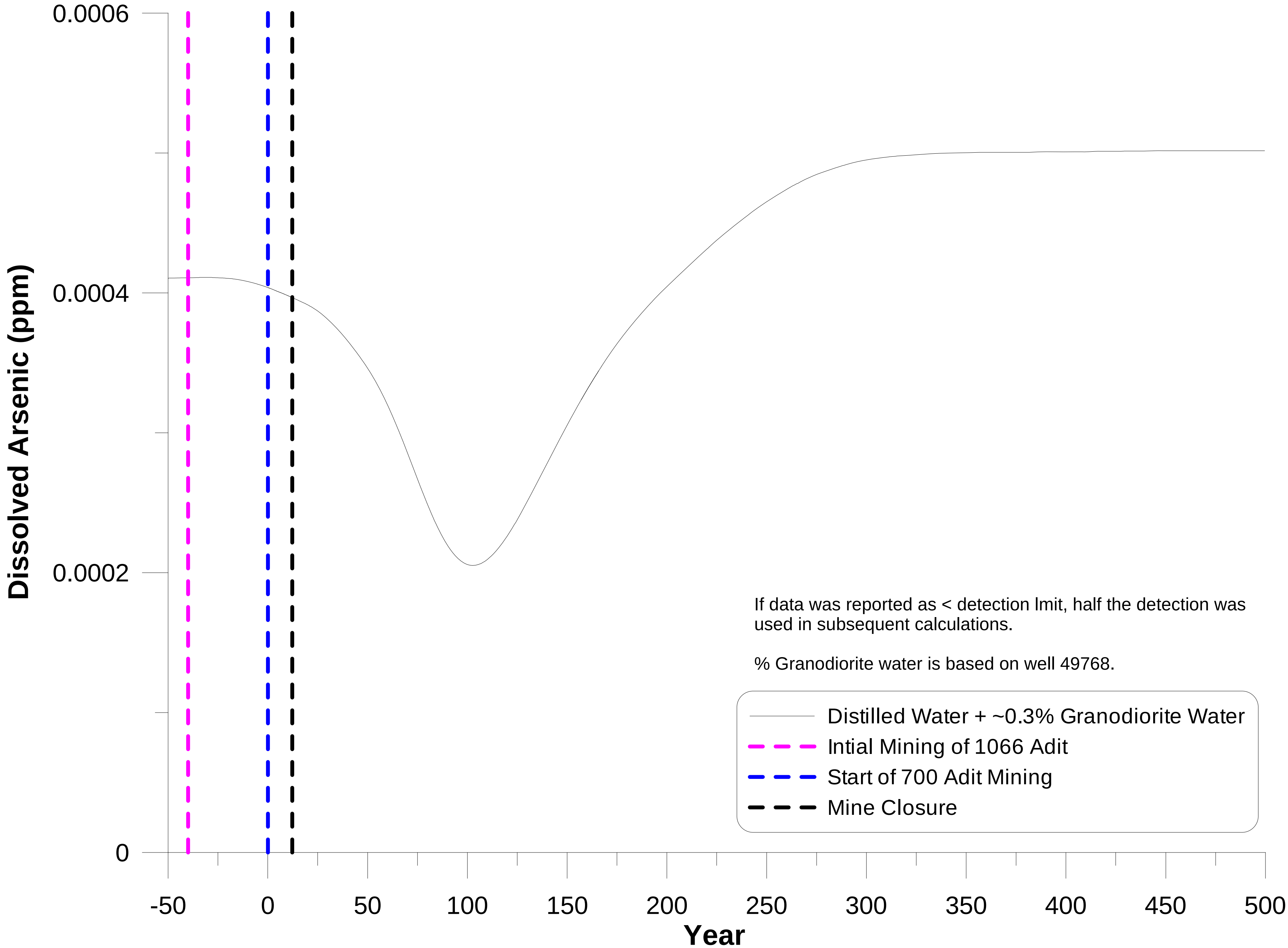
0.0012
0.0008
0.0004
0
Total Phosphate (P ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

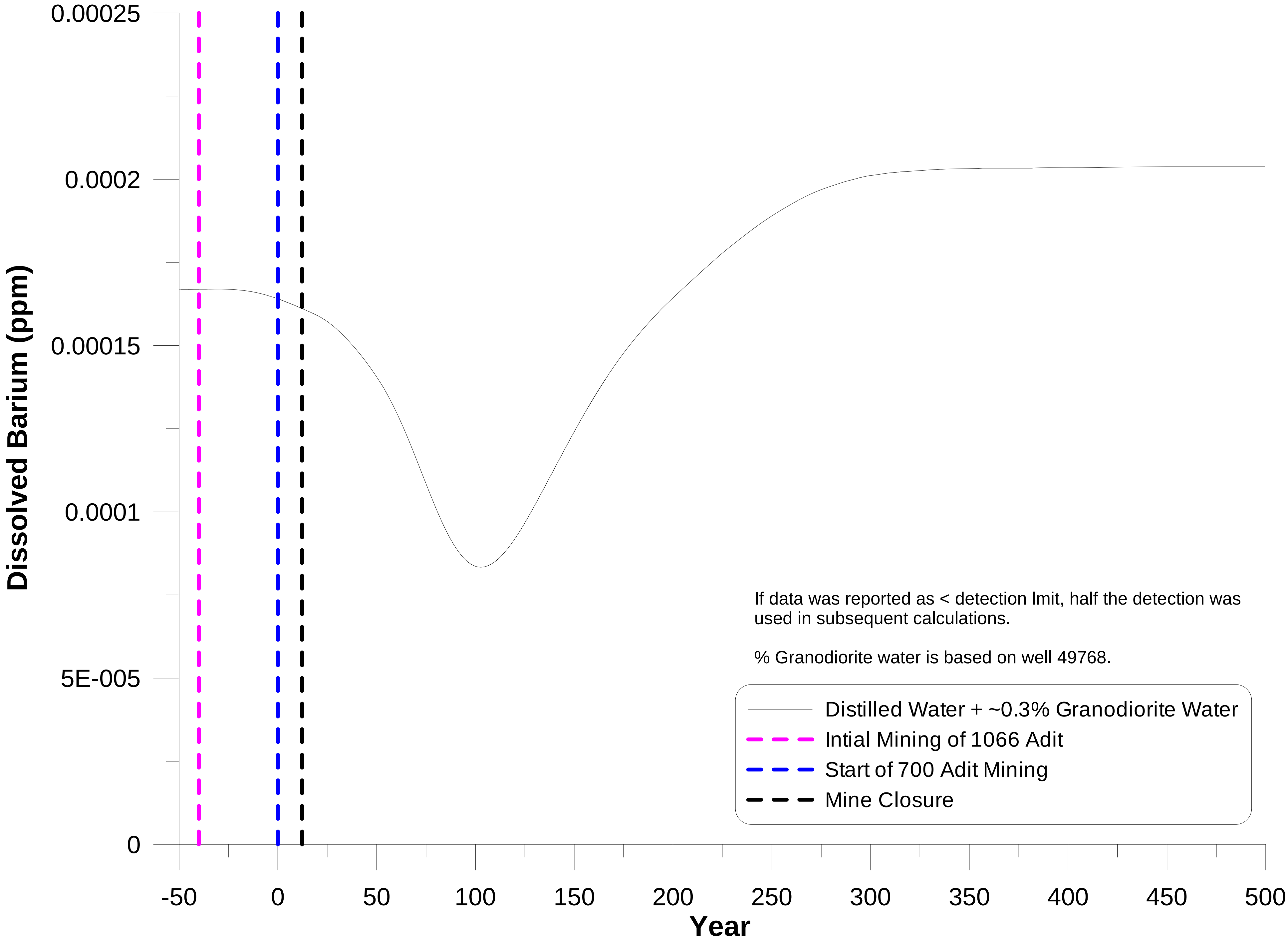


Dissolved Aluminum (ppm)
0.0005
0.0004
0.0003
0.0002
0.0001
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

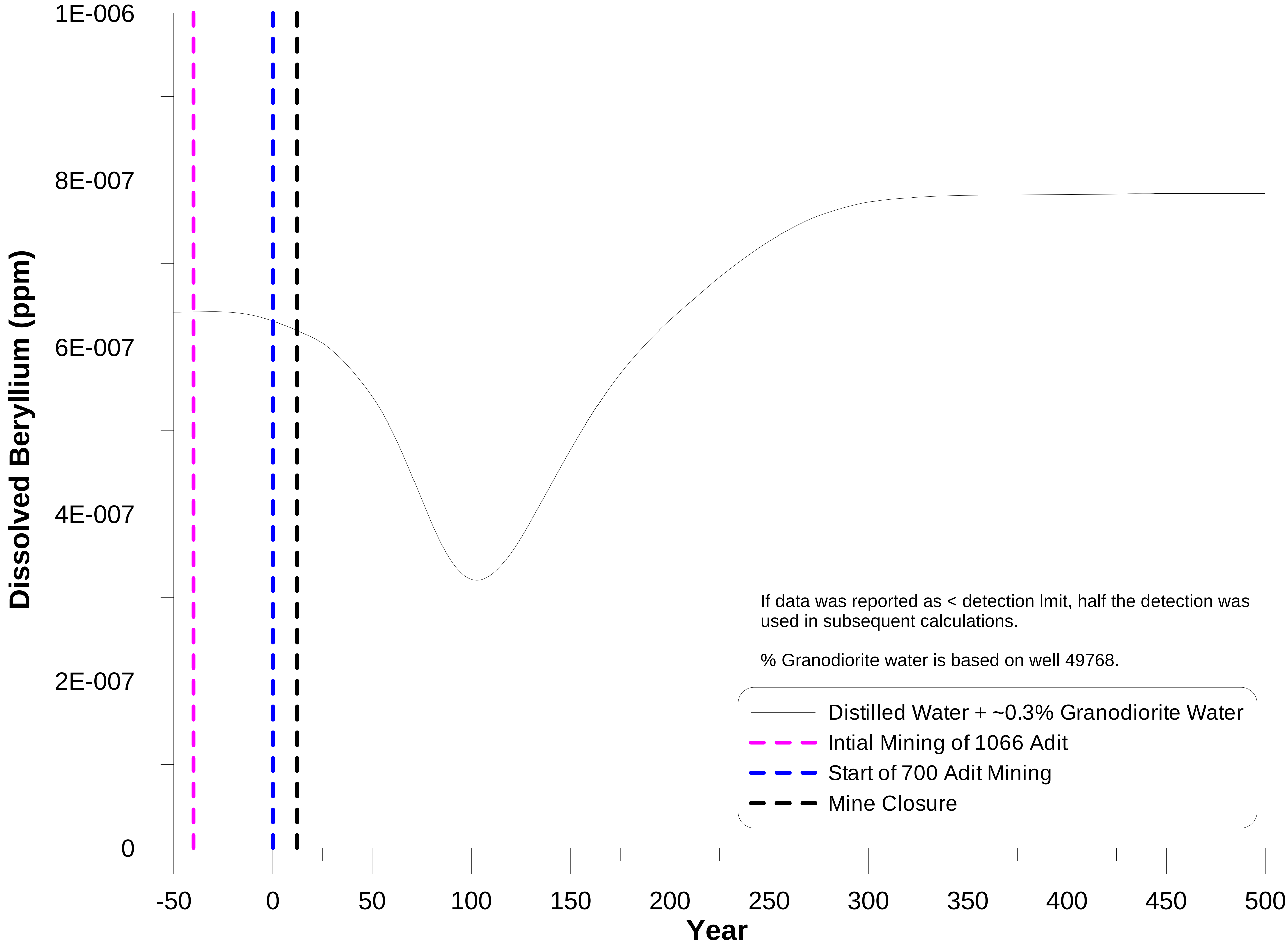


8E-005
6E-005
4E-005
2E-005
0
Dissolved Antimony (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

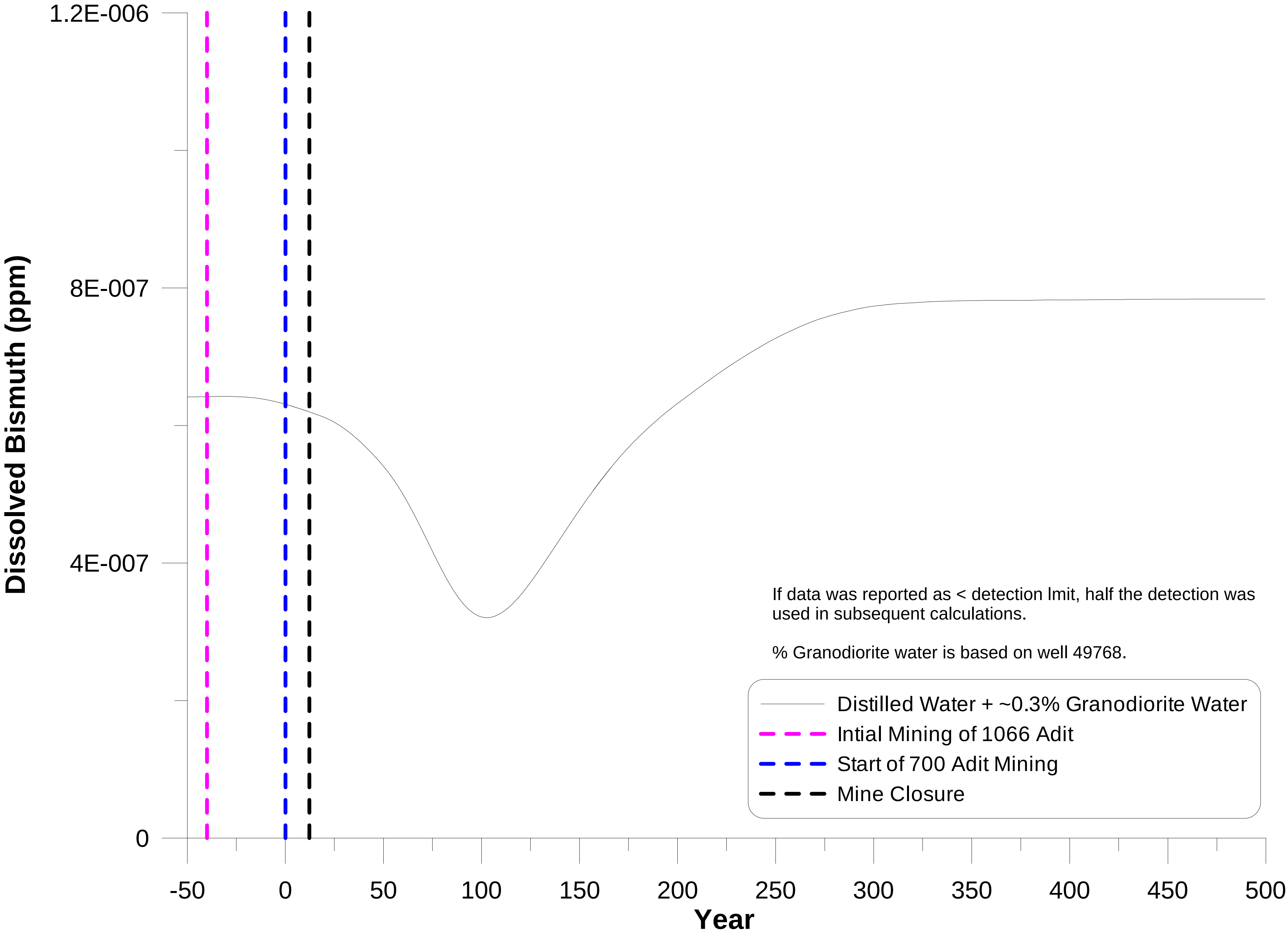

0.0006
0.0004
0.0002
0
Dissolved Arsenic (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



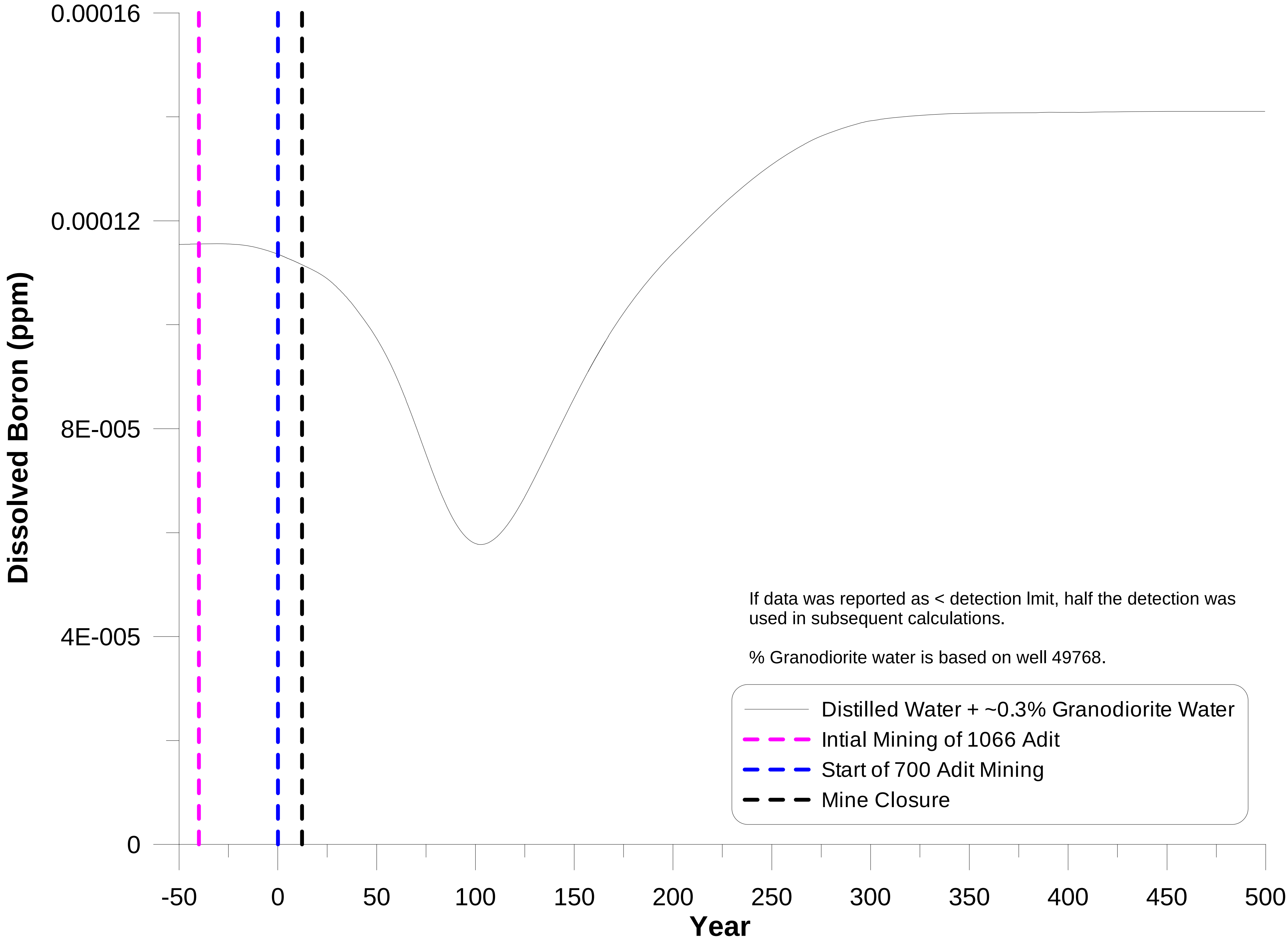
0.00025
0.0002
0.00015
0.0001
5E-005
0
Dissolved Barium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



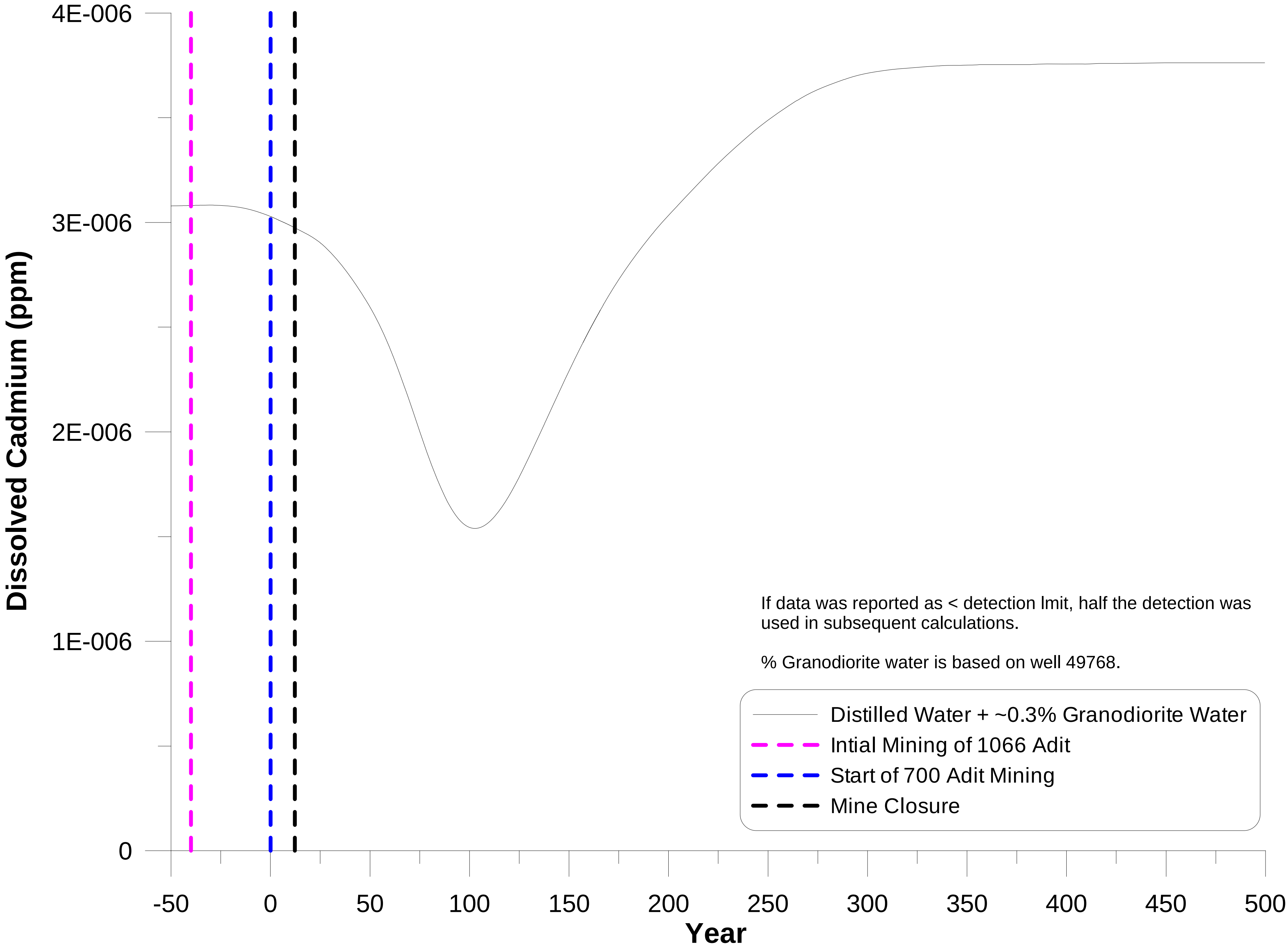
1E-006
8E-007
6E-007
4E-007
2E-007
0
Dissolved Beryllium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

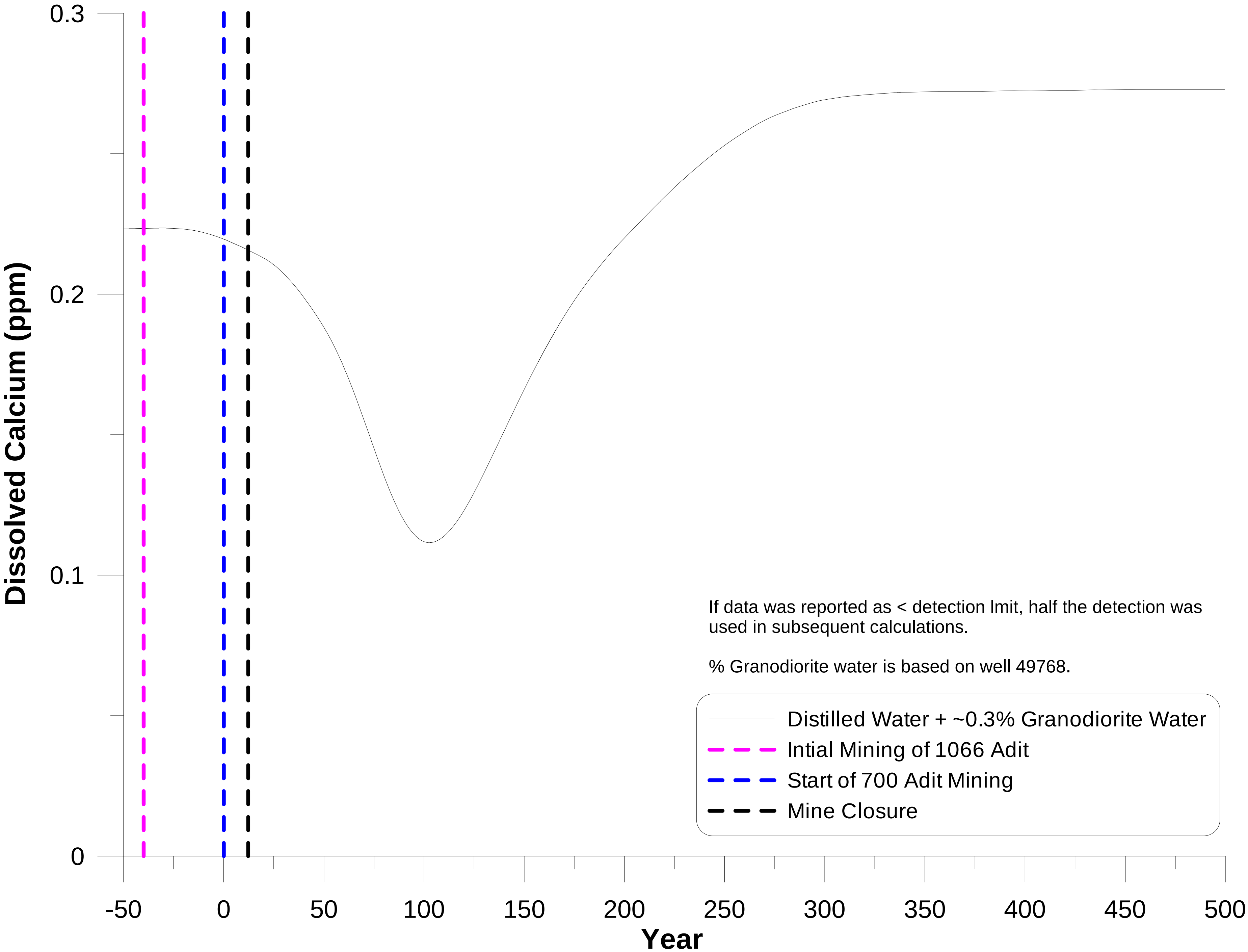


Dissolved Bismuth (ppm)
1.2E-006
8E-007
4E-007
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

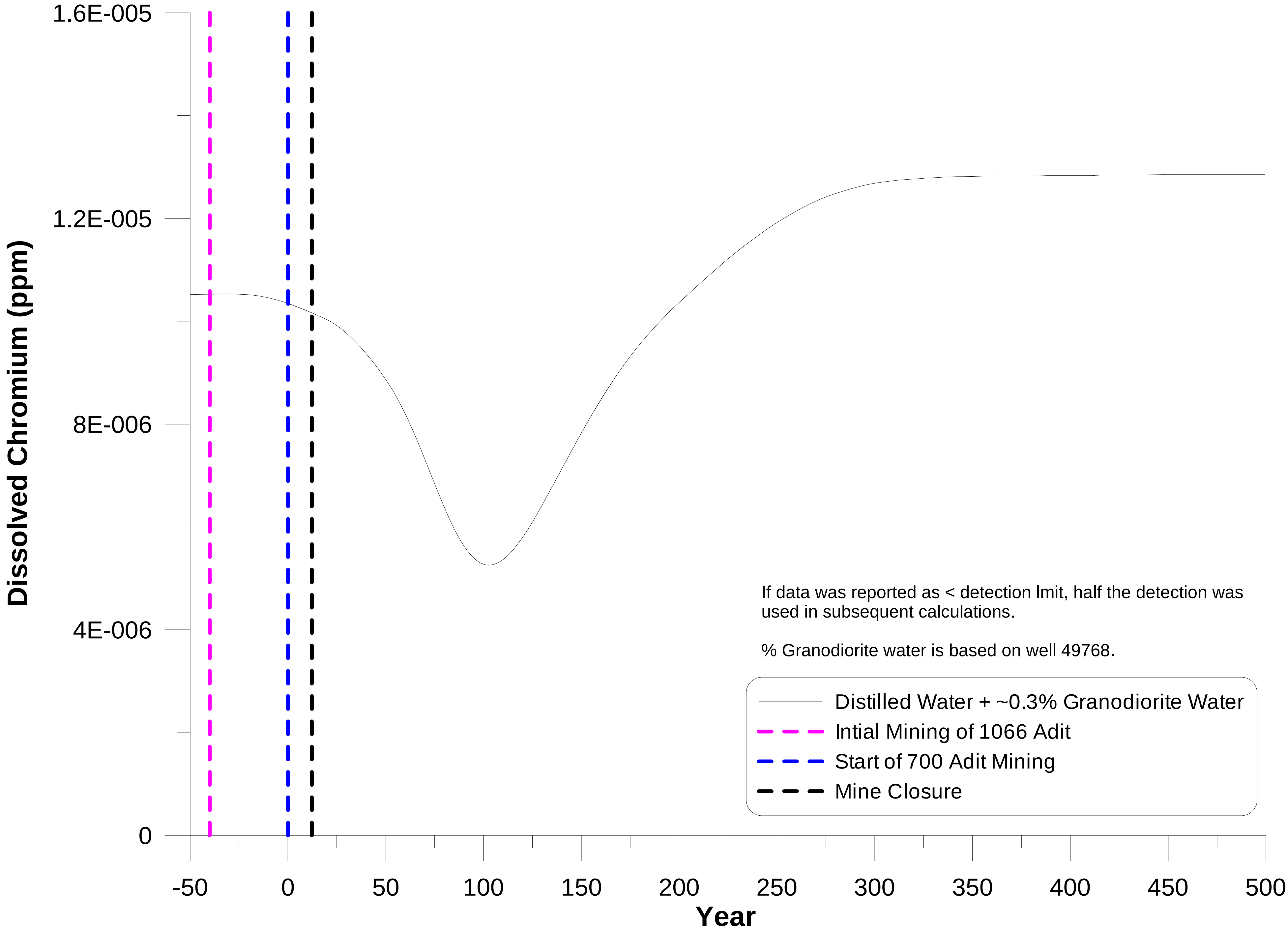


0.00016
0.00012
8E-005
4E-005
0
Dissolved Boron (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

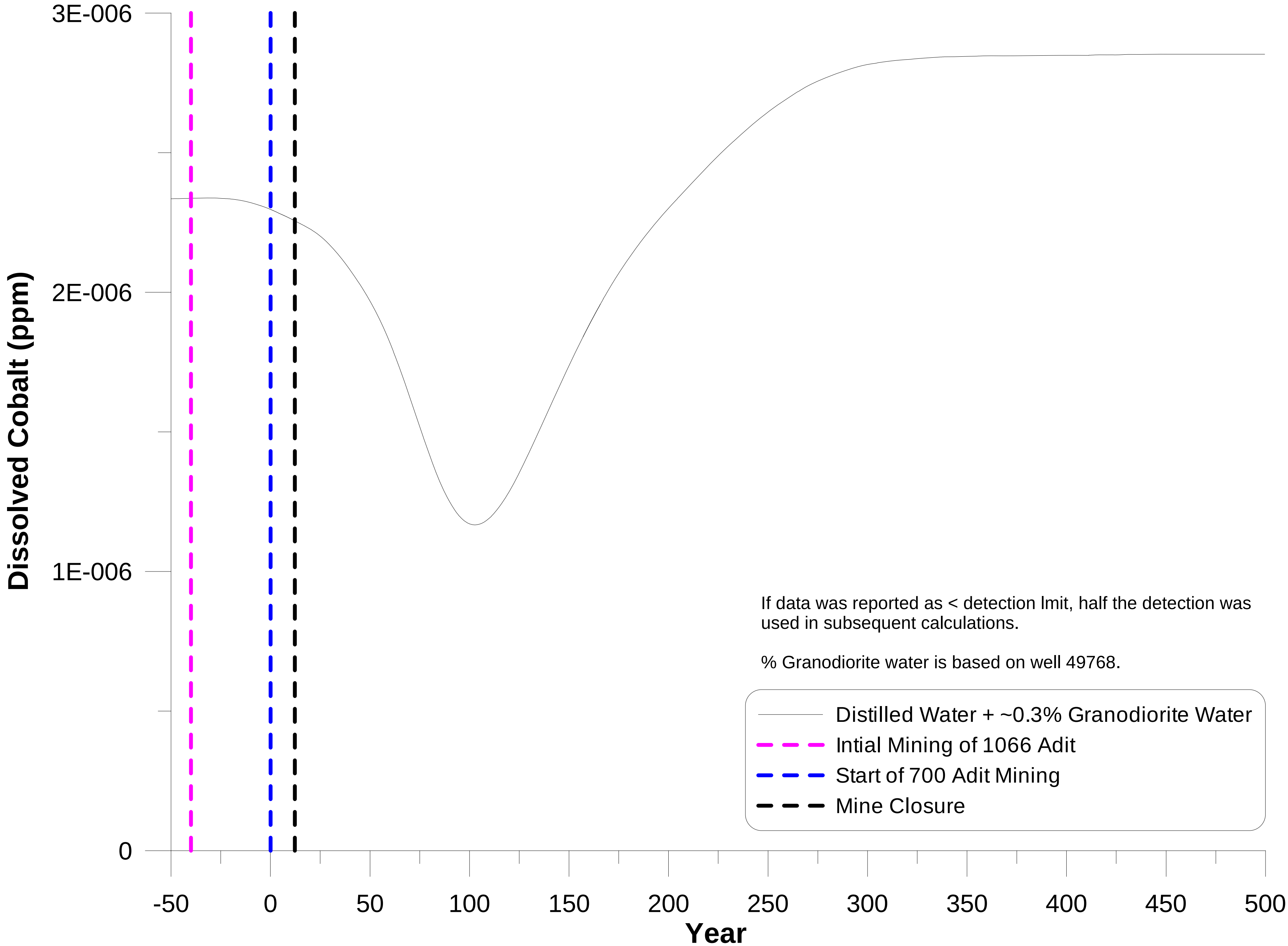

4E-006
3E-006
2E-006
1E-006
0
Dissolved Cadmium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



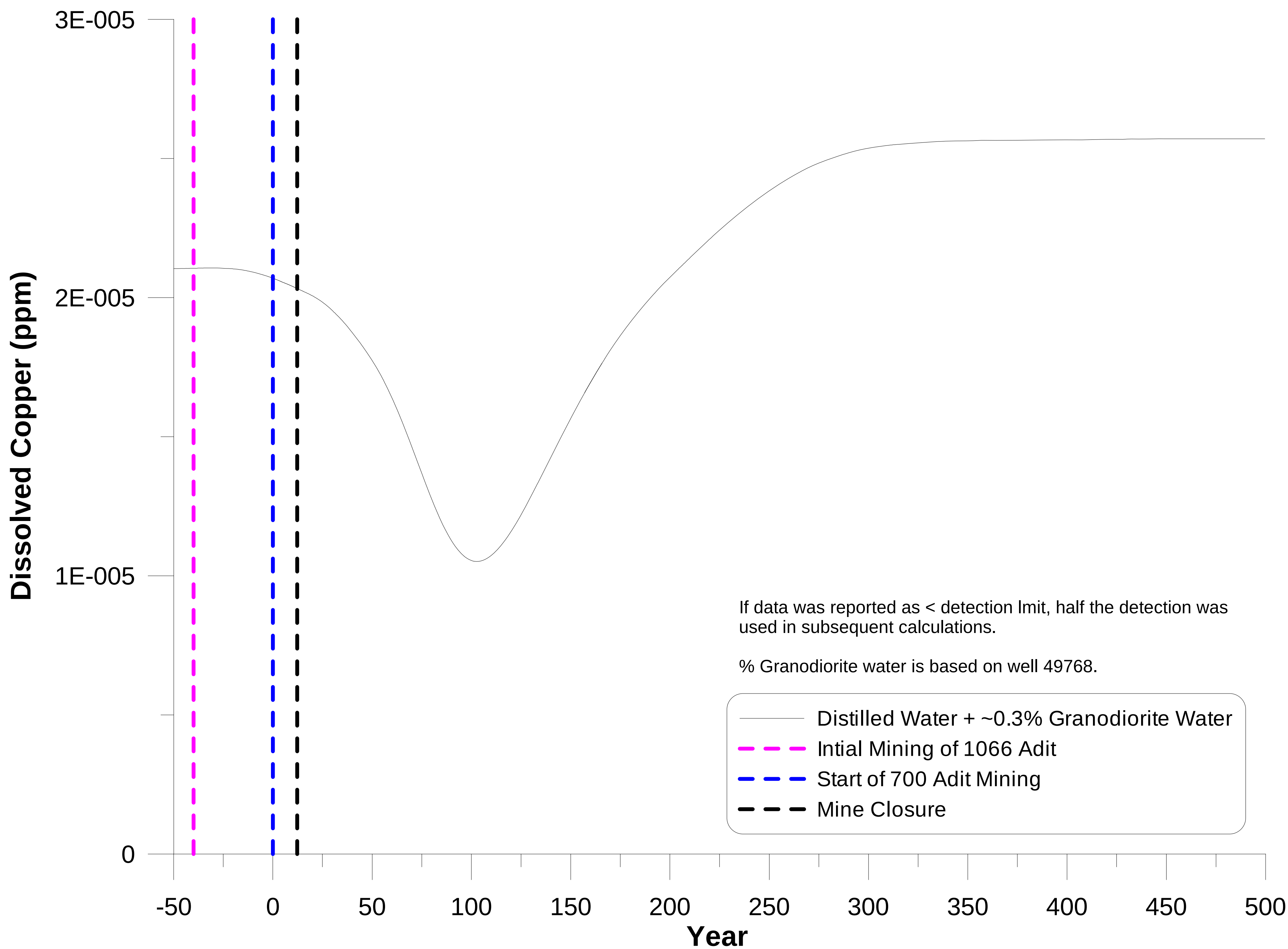
0.3
0.2
0.1
0
Dissolved Calcium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



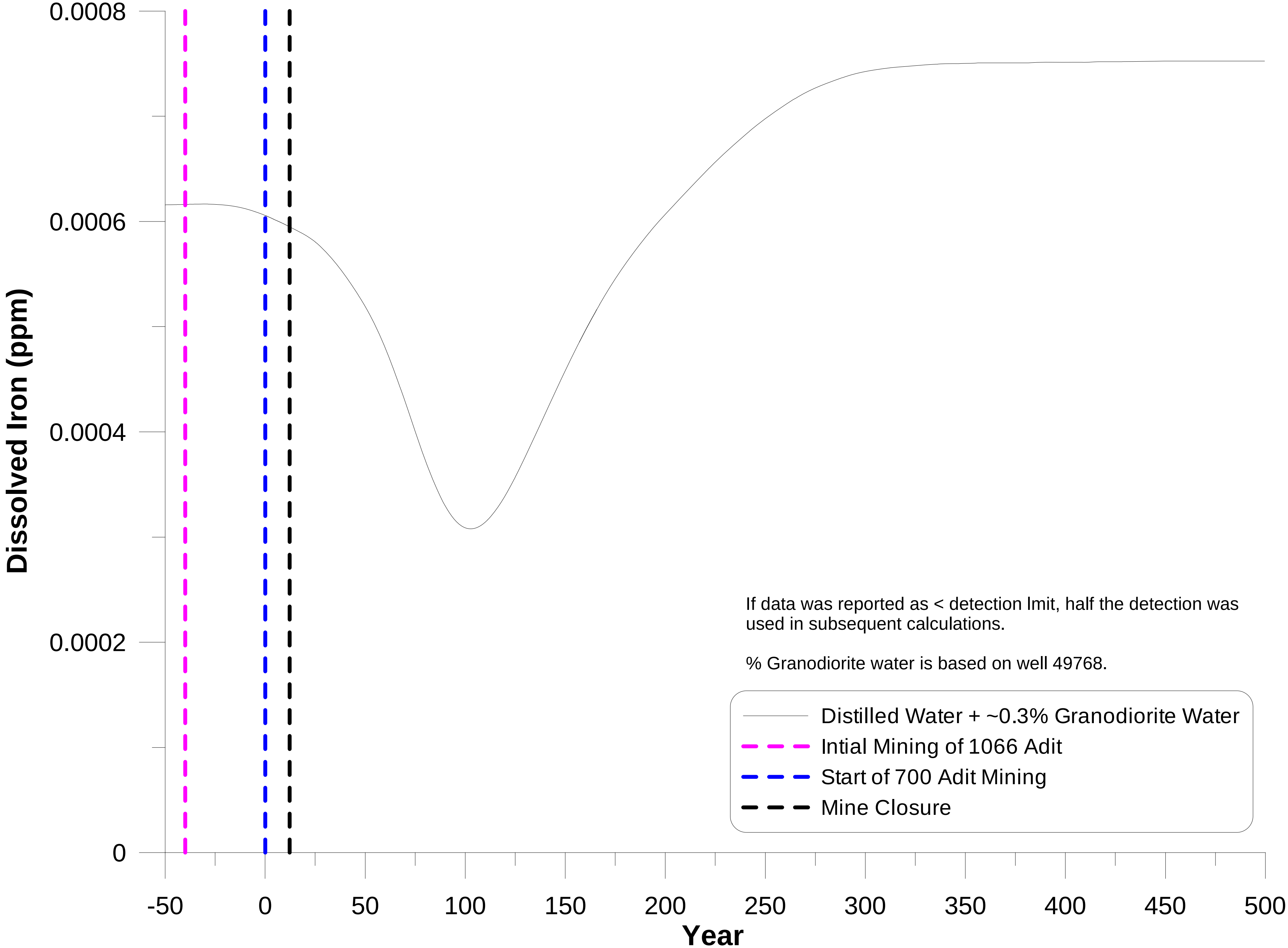
1.6E-005
1.2E-005
8E-006
4E-006
0
Dissolved Chromium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



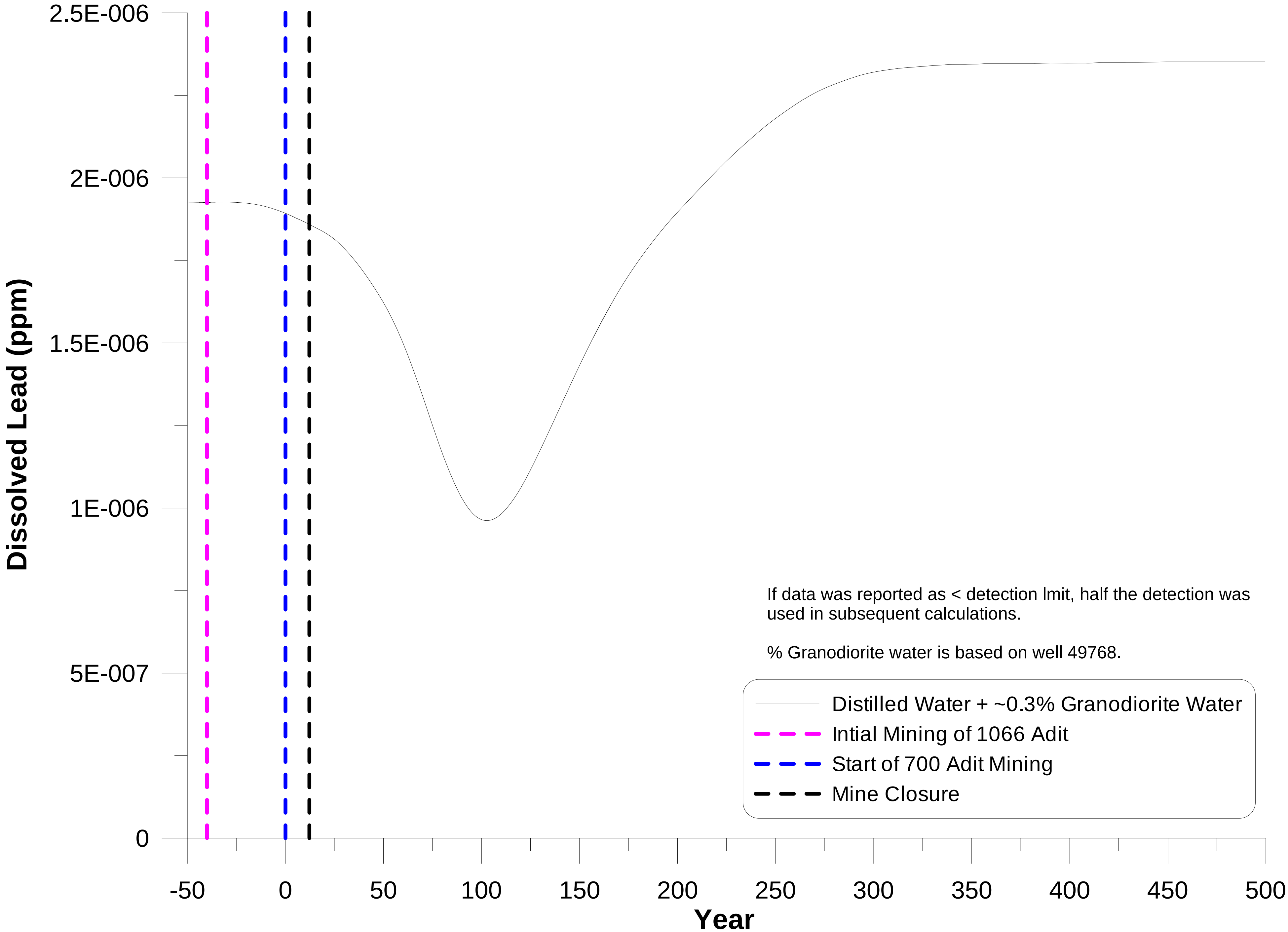
3E-006
2E-006
1E-006
0
Dissolved Cobalt (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



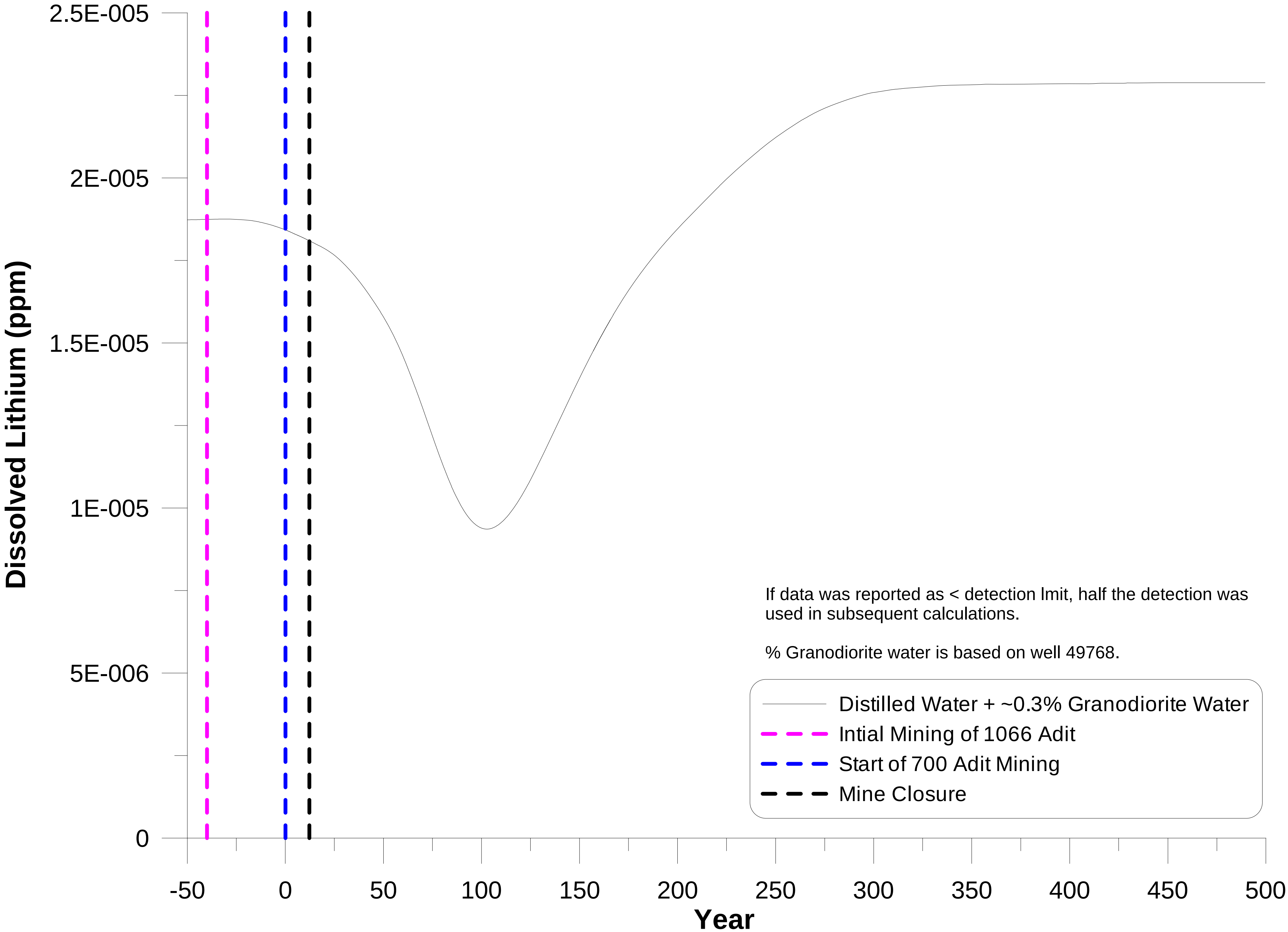
3E-005
2E-005
1E-005
0
Dissolved Copper (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



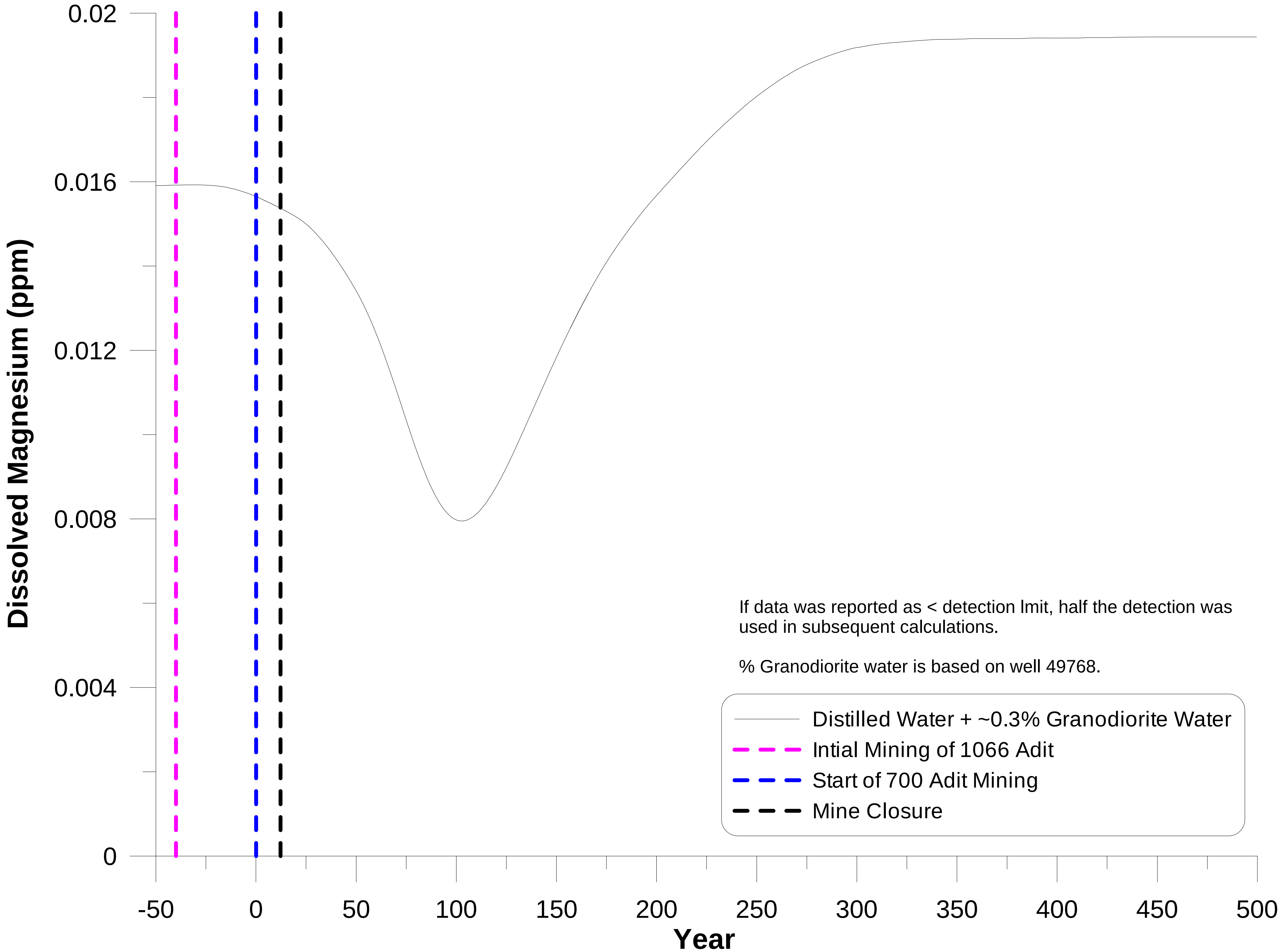
0.0008
0.0006
0.0004
0.0002
0
Dissolved Iron (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



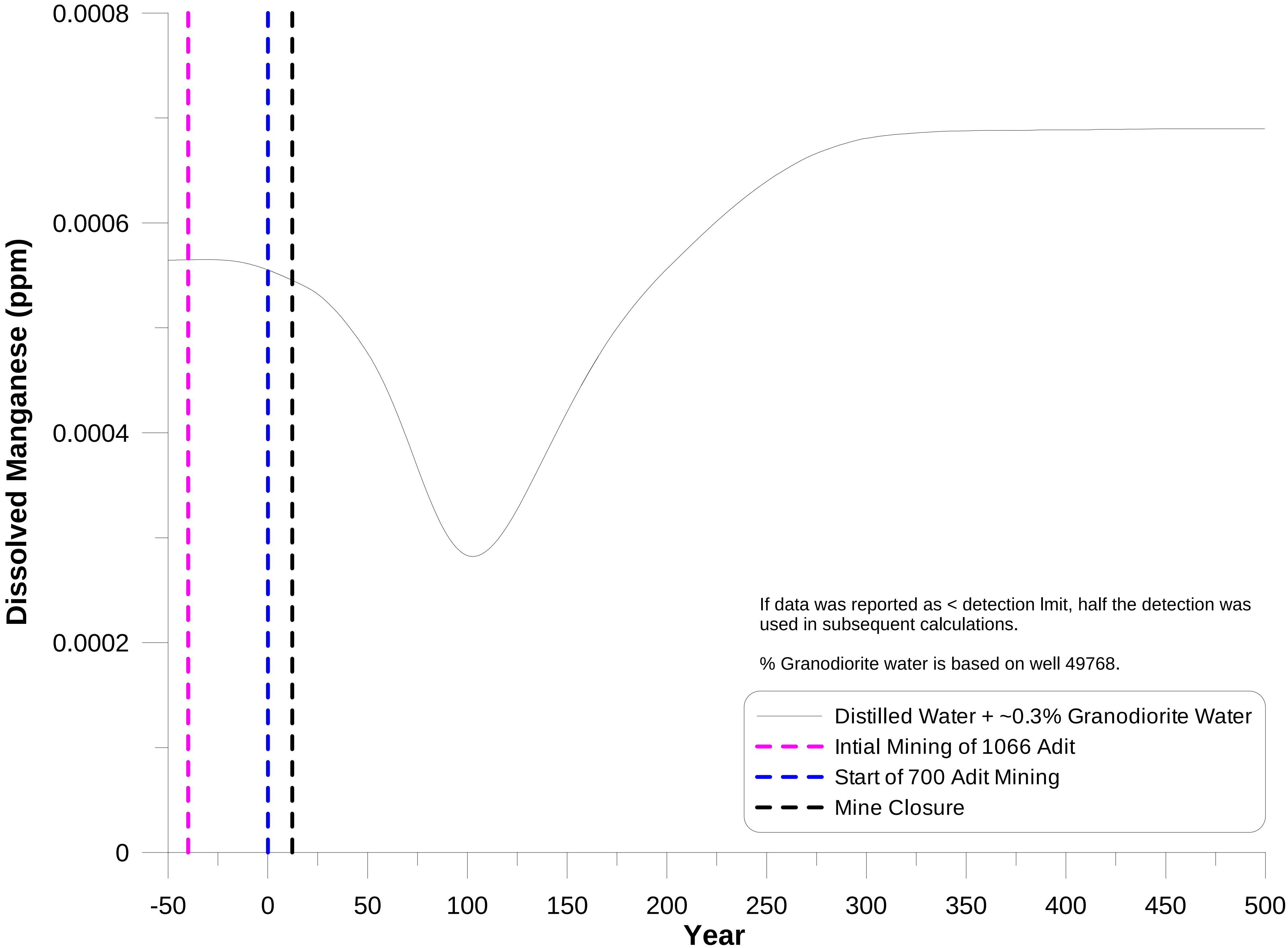
Dissolved Lead (ppm)
2.5E-006
2E-006
1.5E-006
1E-006
5E-007
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

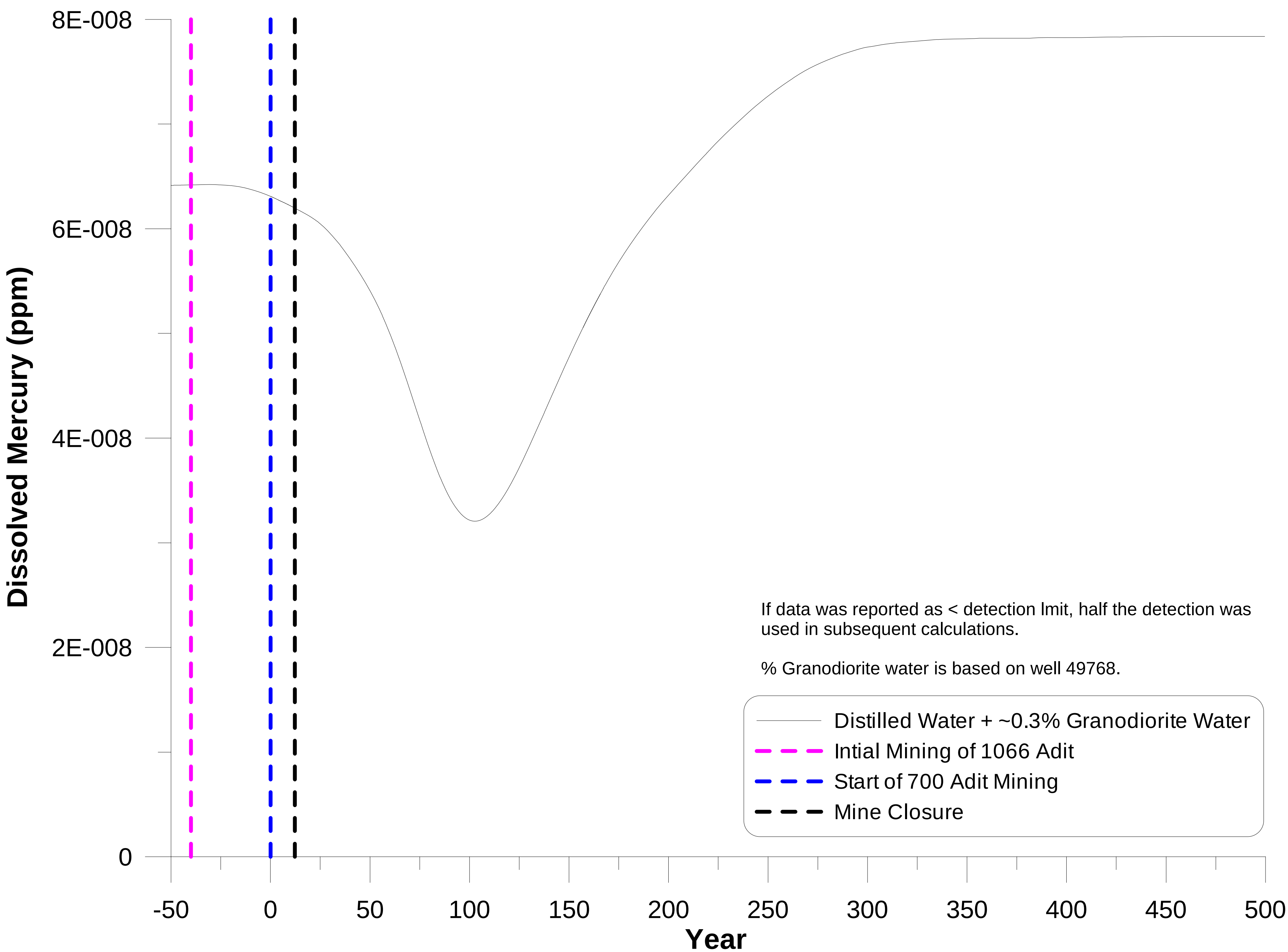


2.5E-005
2E-005
1.5E-005
1E-005
5E-006
0
Dissolved Lithium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

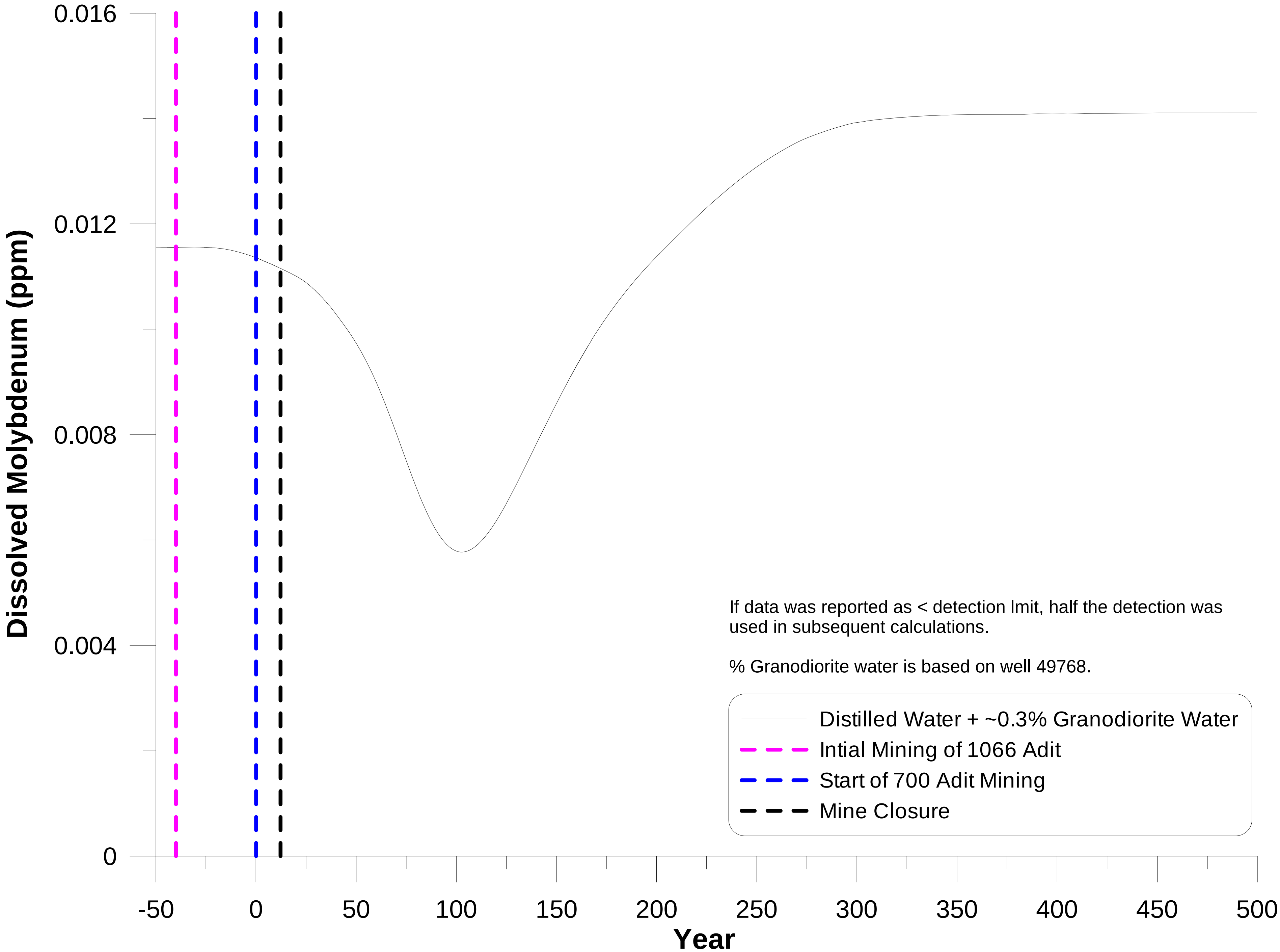


Dissolved Magnesium (ppm)
0.02
0.016
0.012
0.008
0.004
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

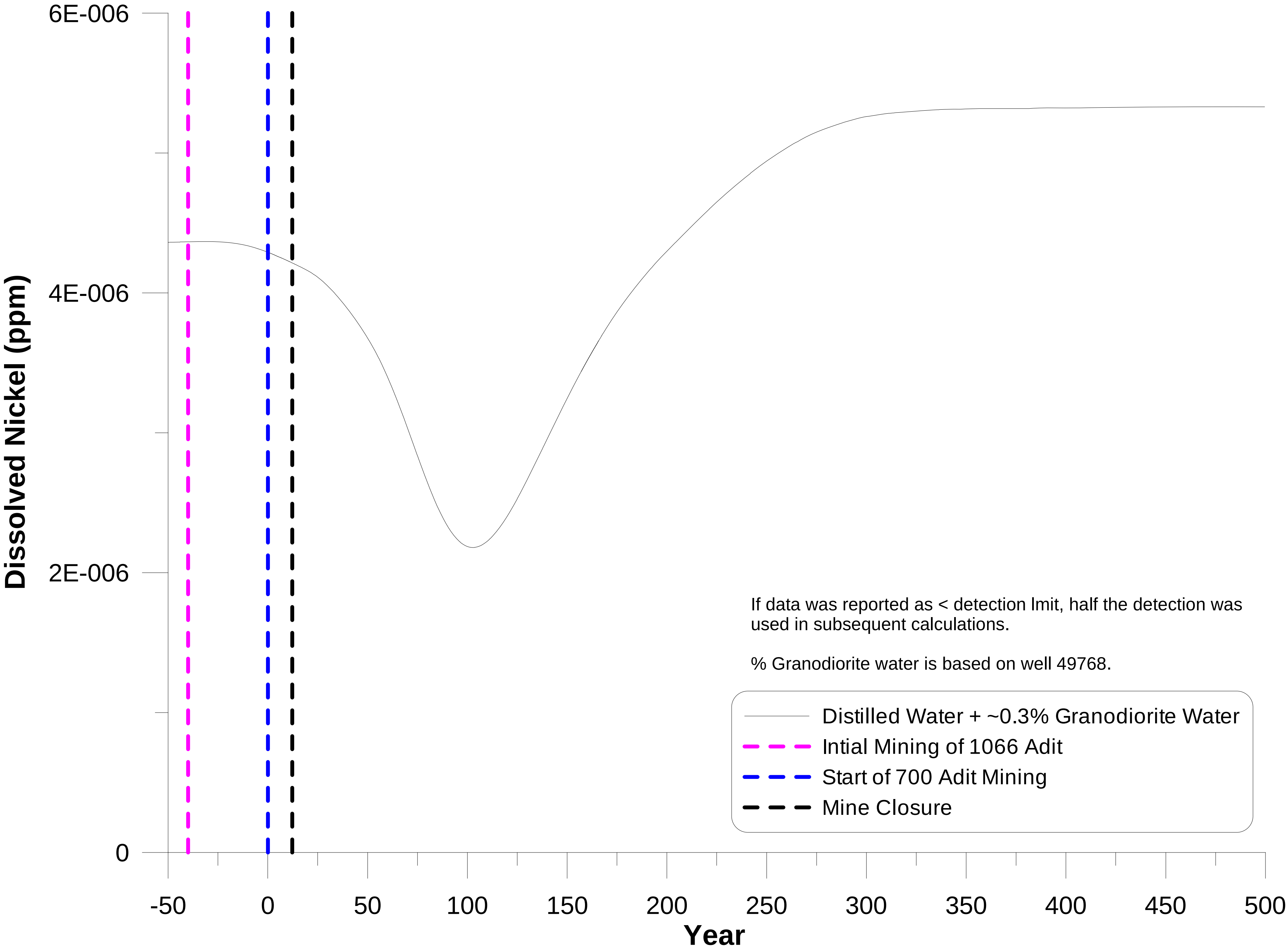

Dissolved Manganese (ppm)
0.0008
0.0006
0.0004
0.0002
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



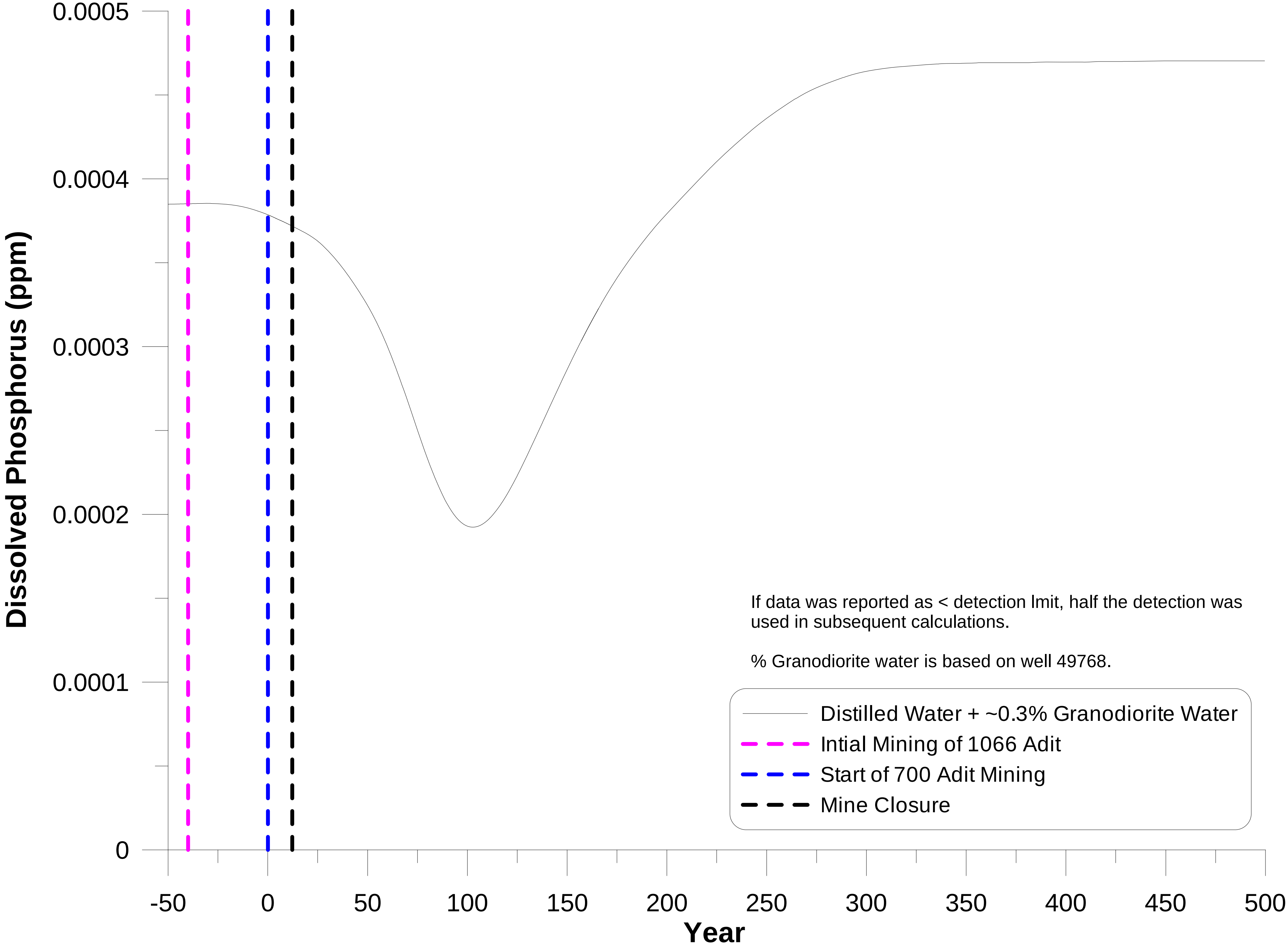
8E-008
6E-008
4E-008
2E-008
0
Dissolved Mercury (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



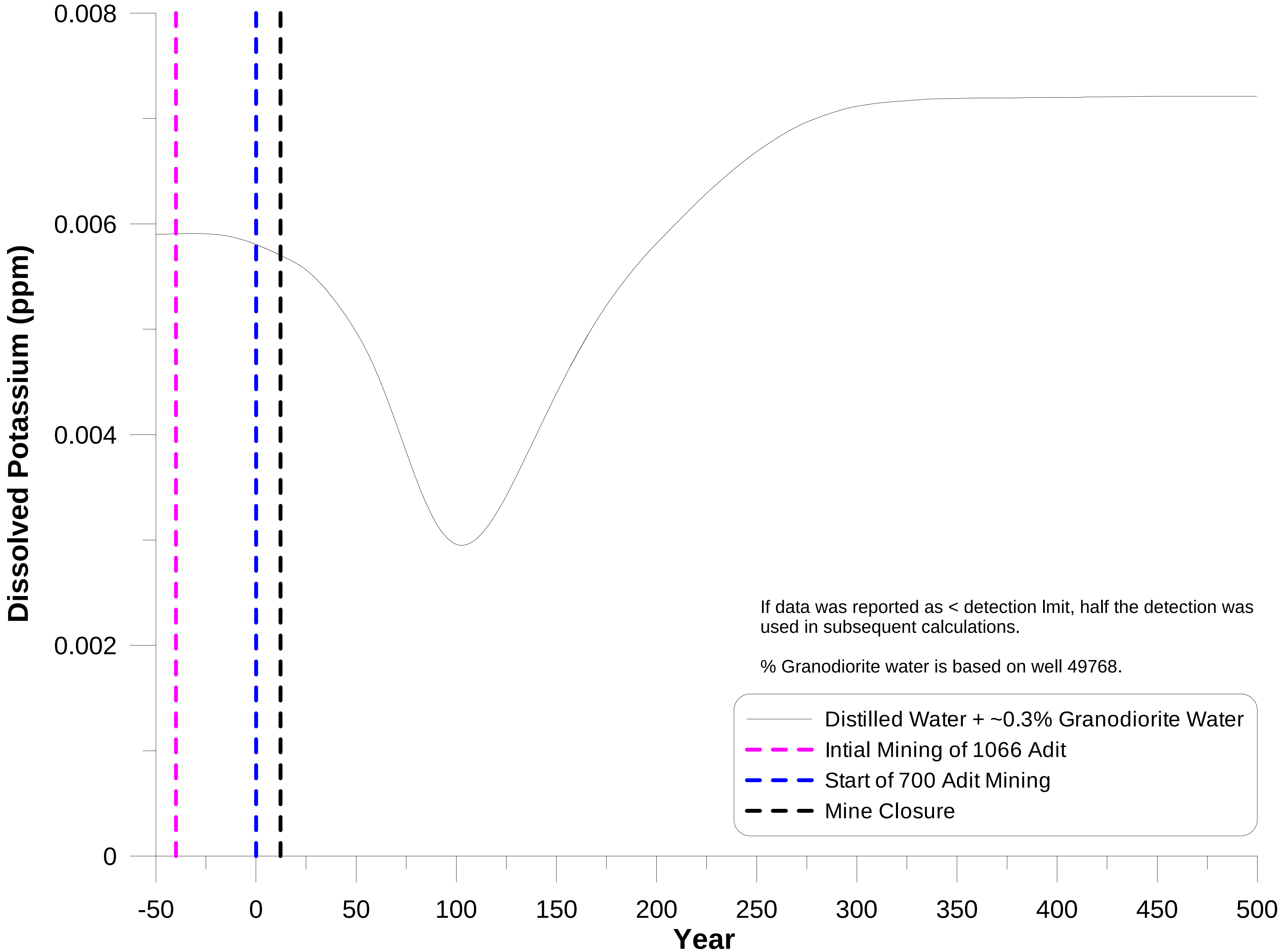
Dissolved Molybdenum (ppm)
0.016
0.012
0.008
0.004
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



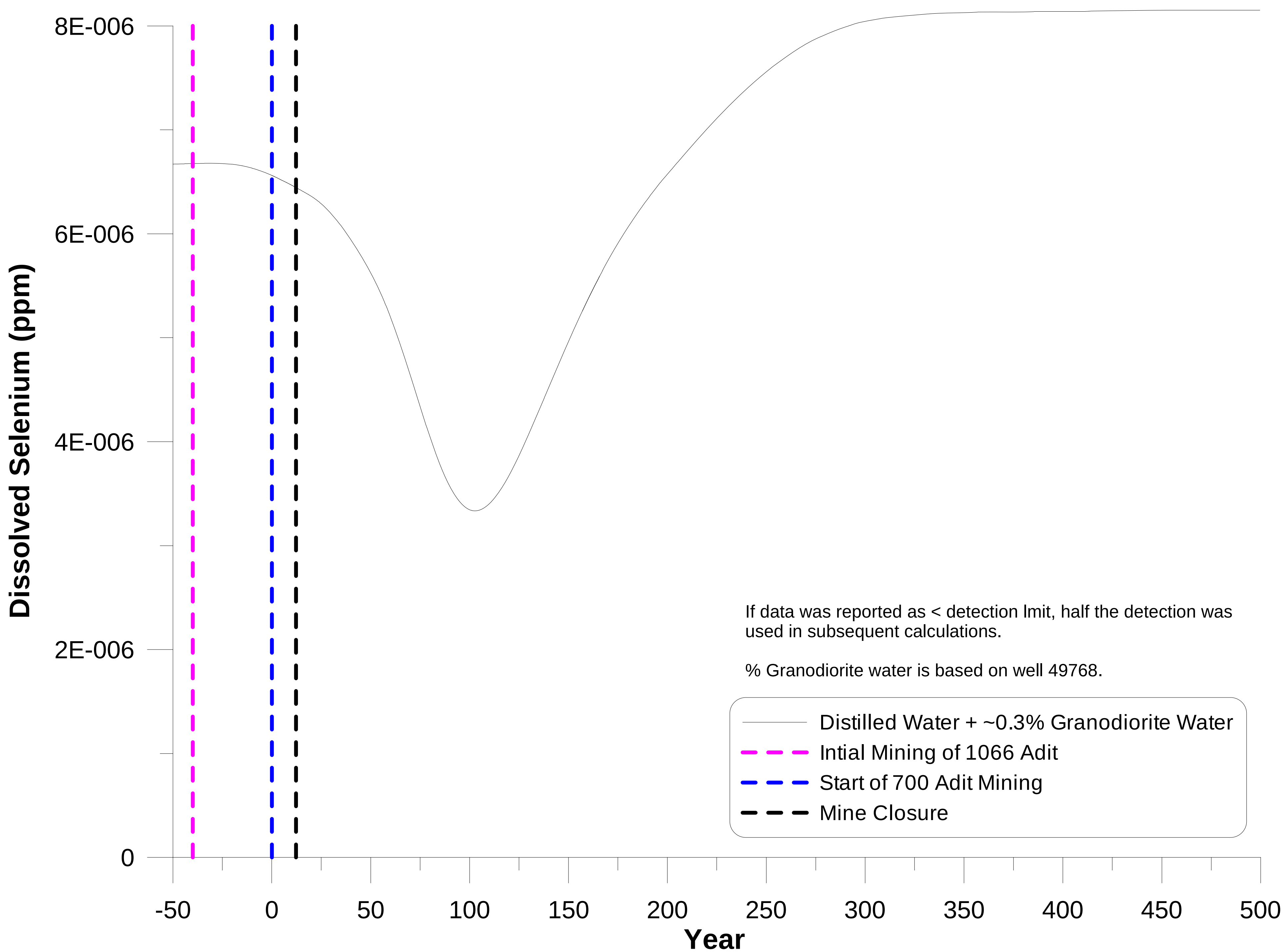
6E-006
4E-006
2E-006
0
Dissolved Nickel (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

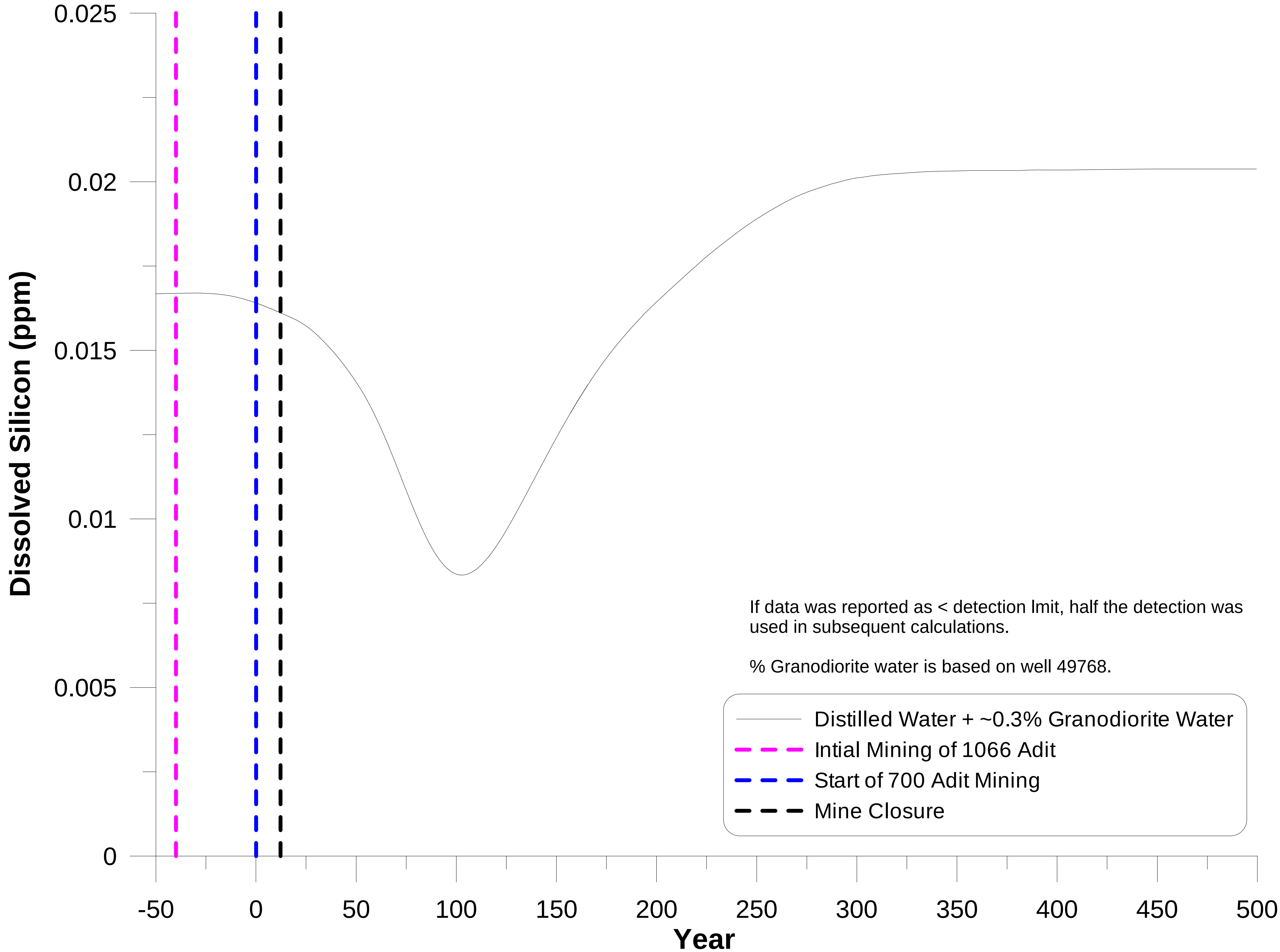


0.0005
0.0004
0.0003
0.0002
0.0001
0
Dissolved Phosphorus (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

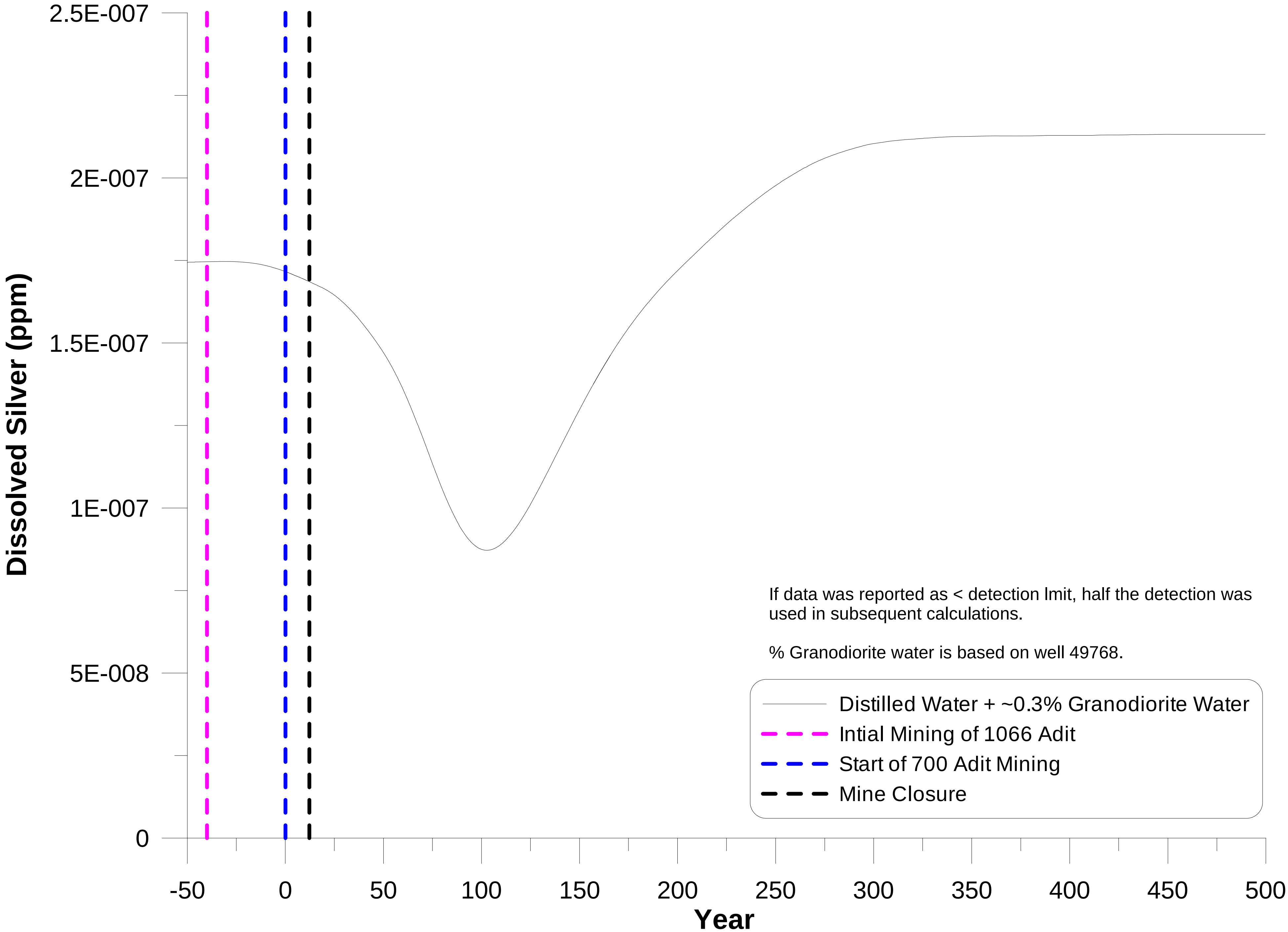


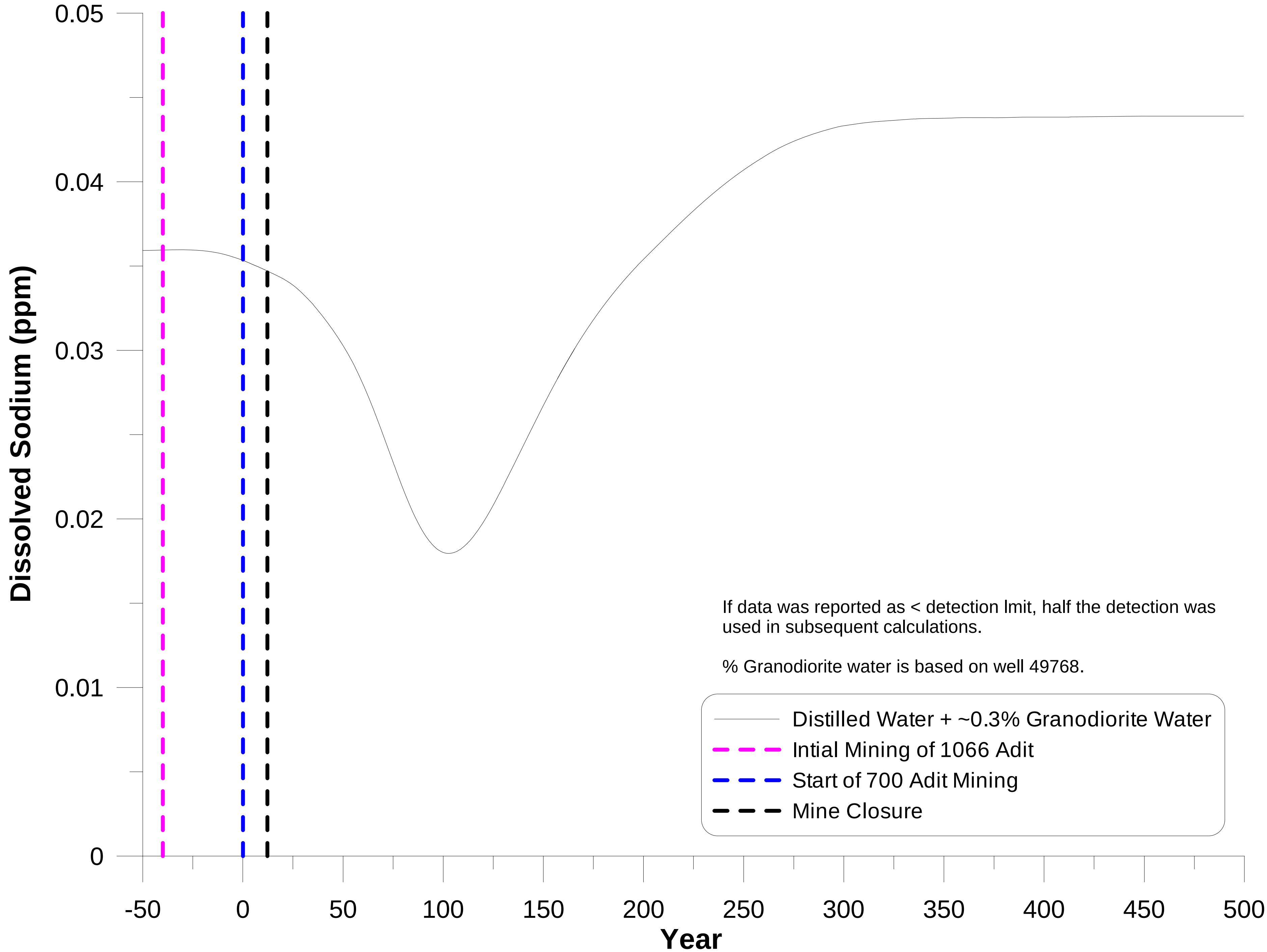
Dissolved Potassium (ppm)
0.008
0.006
0.004
0.002
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure


8E-006
6E-006
4E-006
2E-006
0
Dissolved Selenium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

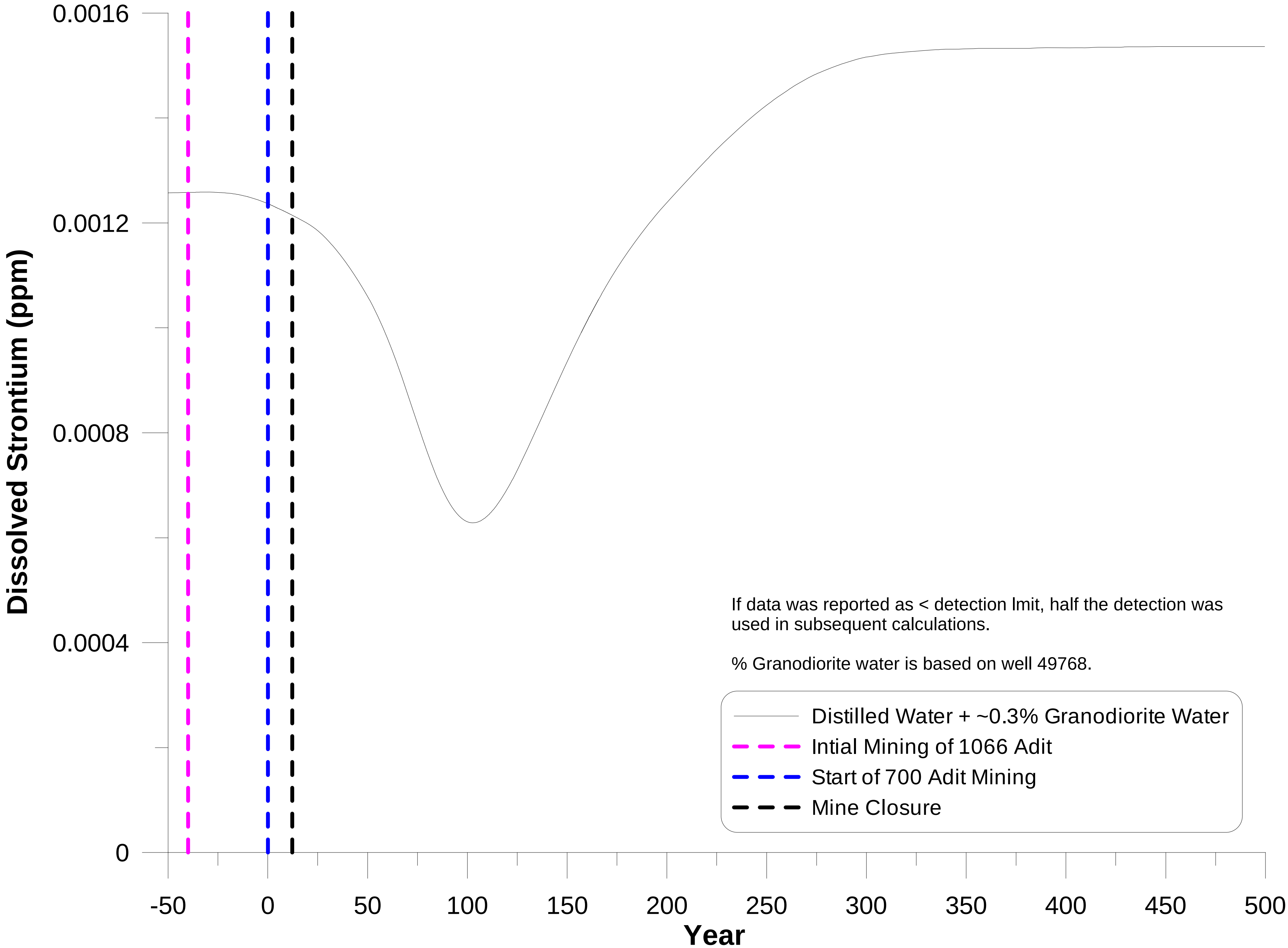


0.025
0.02
0.015
0.01
0.005
0
Dissolved Silicon (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

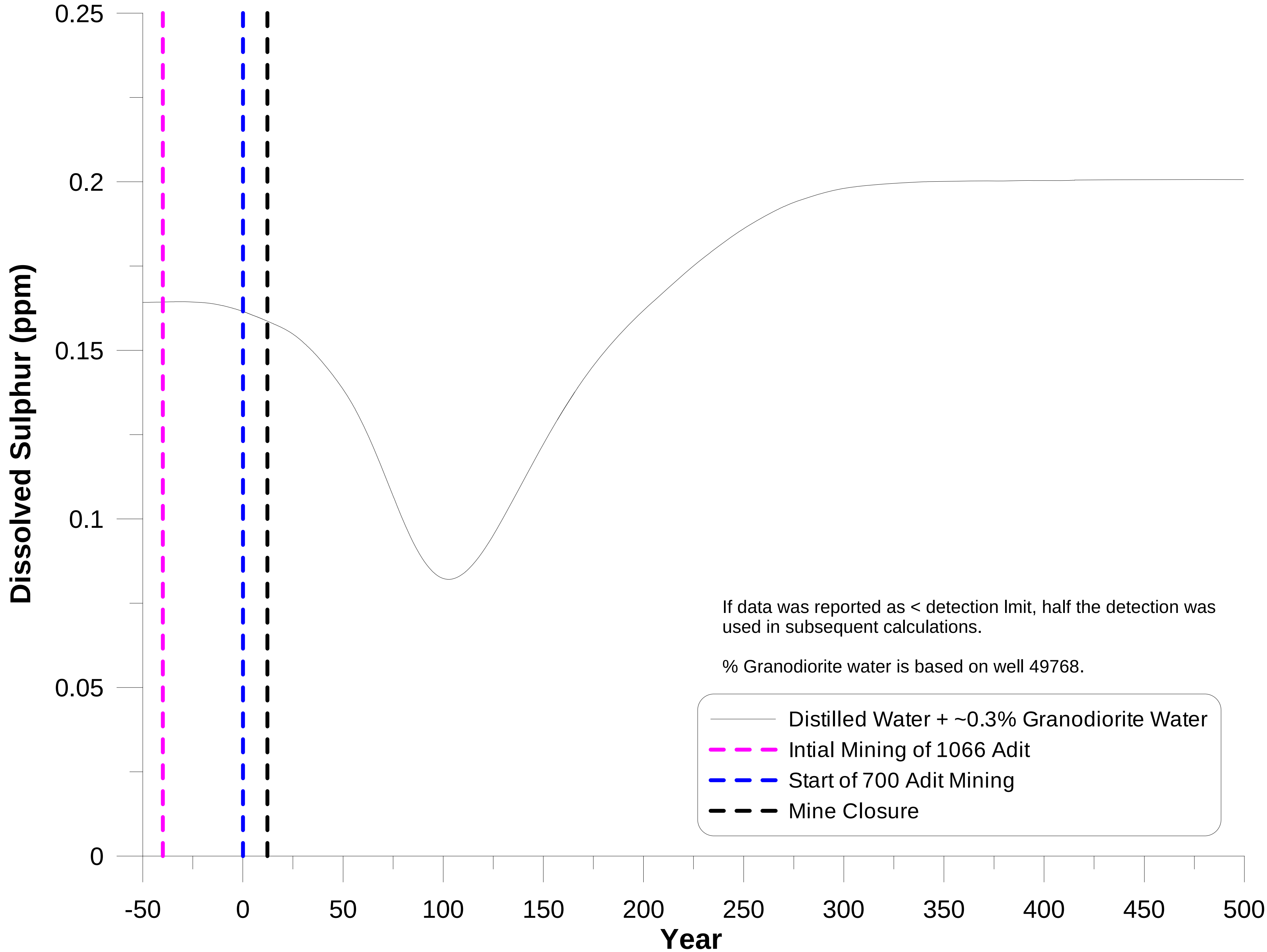

2.5E-007
2E-007
1.5E-007
1E-007
5E-008
0
Dissolved Silver (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



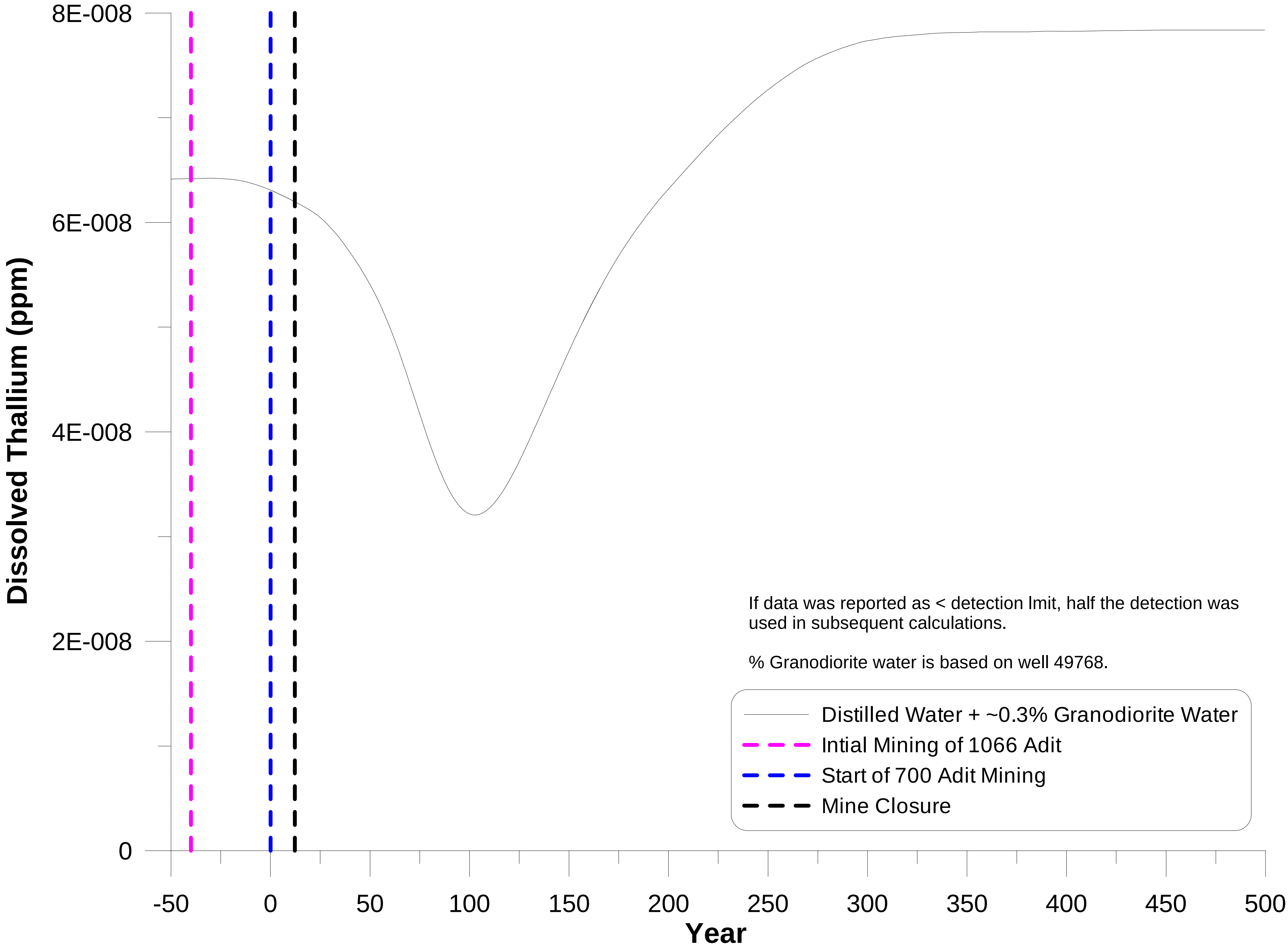
0.05
0.04
0.03
0.02
0.01
0
Dissolved Sodium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



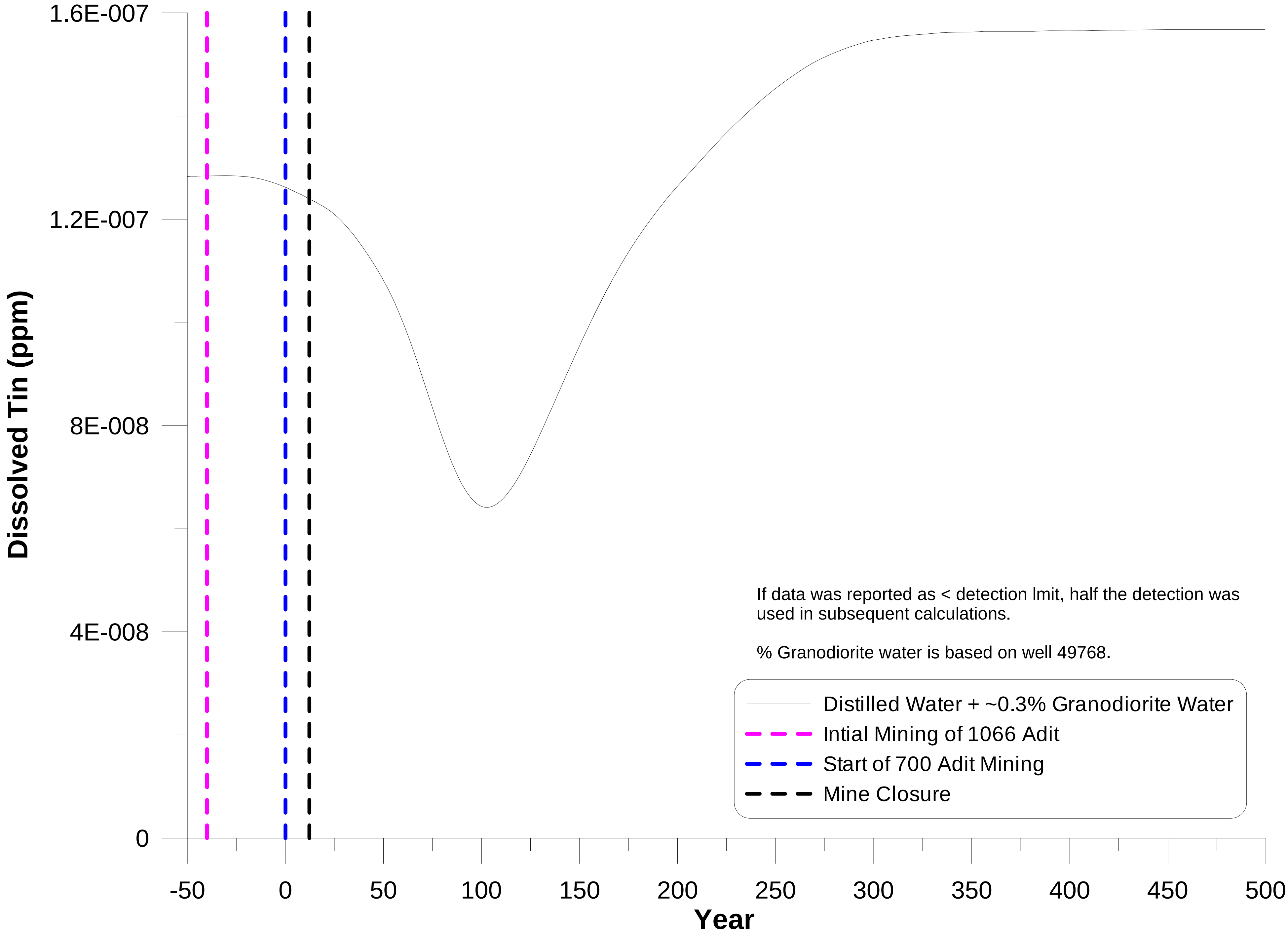
Dissolved Strontium (ppm)
0.0016
0.0012
0.0008
0.0004
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

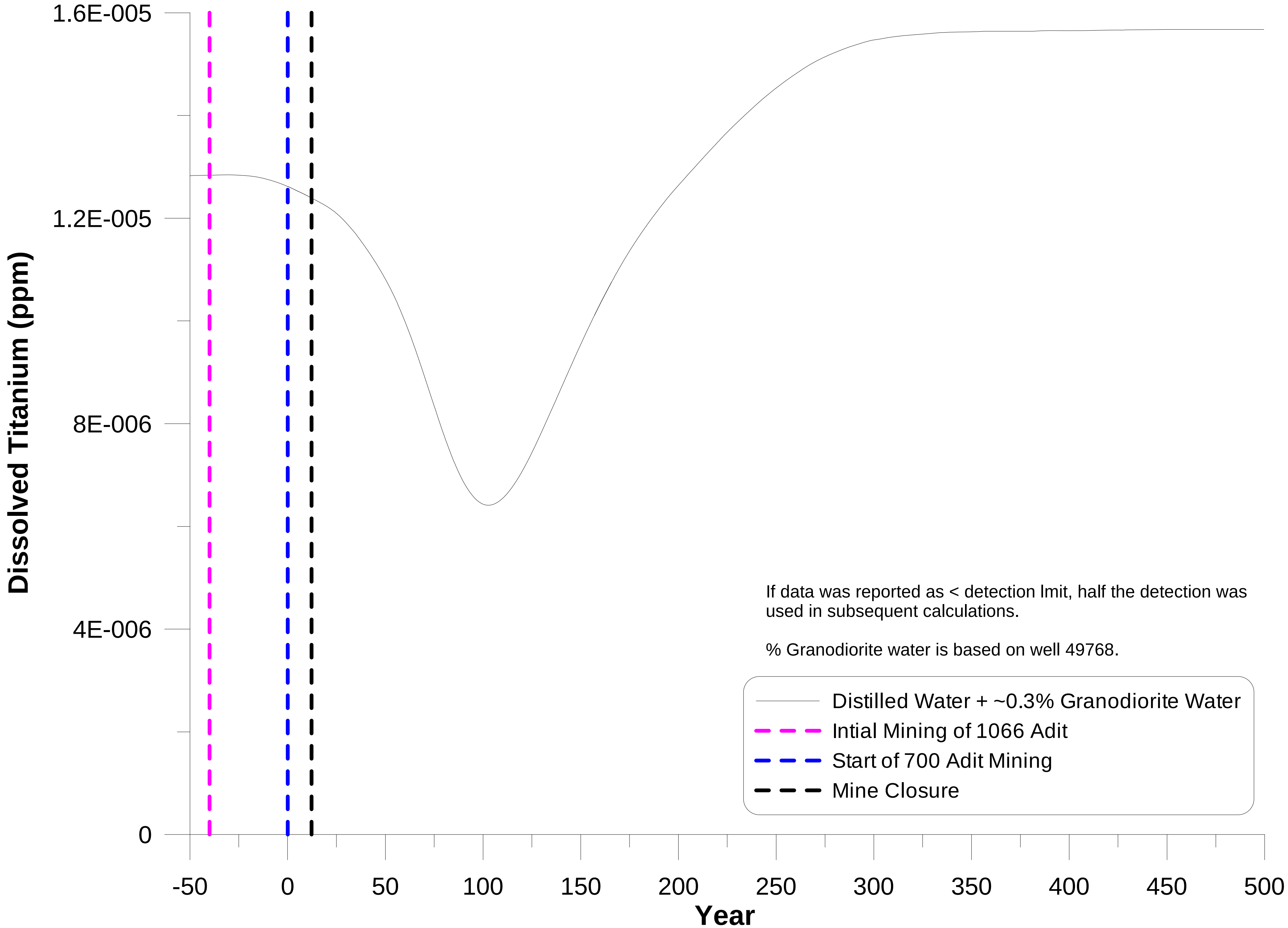


0.25
0.2
0.15
0.1
0.05
0
Dissolved Sulphur (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

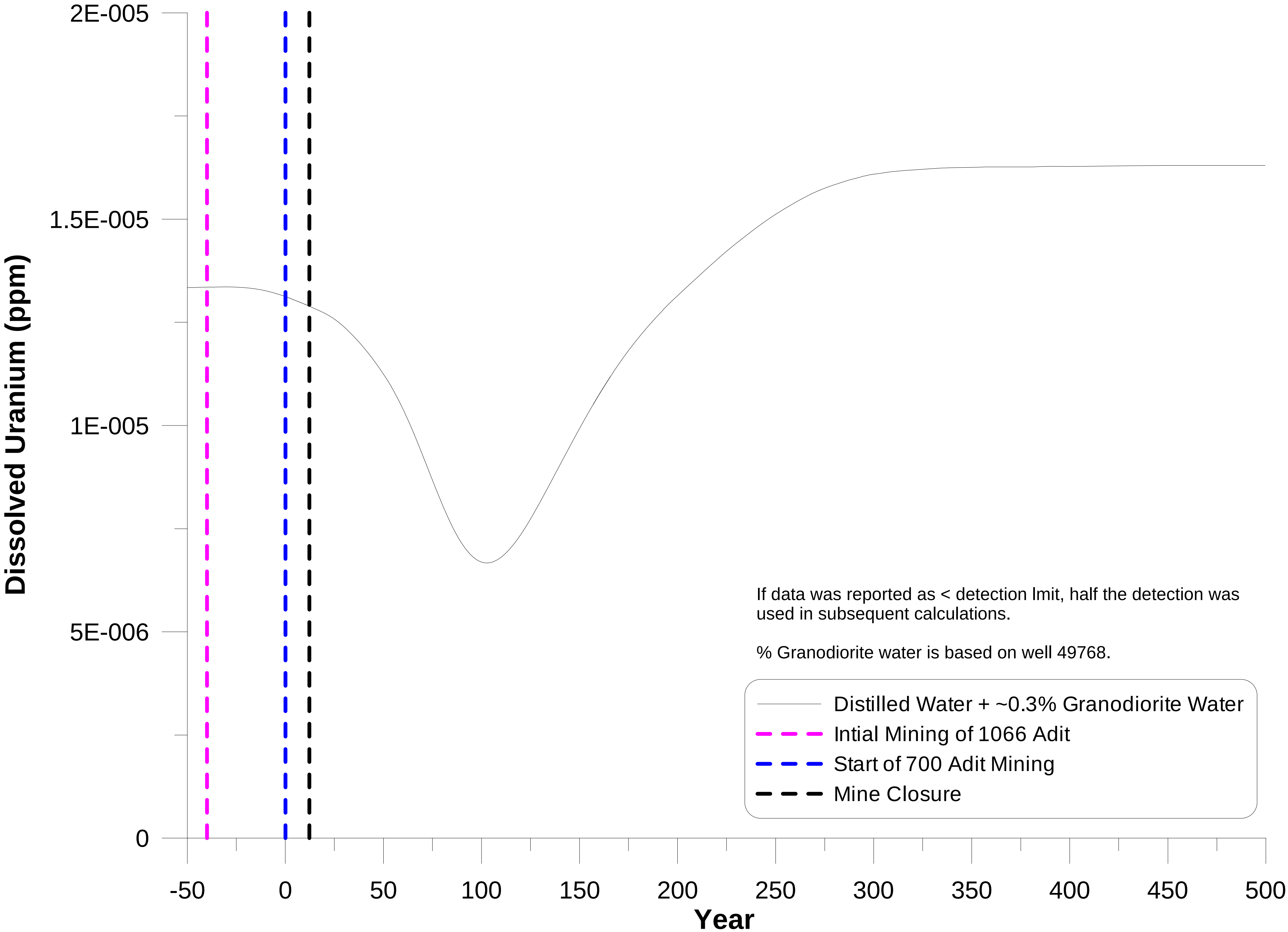


Dissolved Thallium (ppm)
8E-008
6E-008
4E-008
2E-008
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

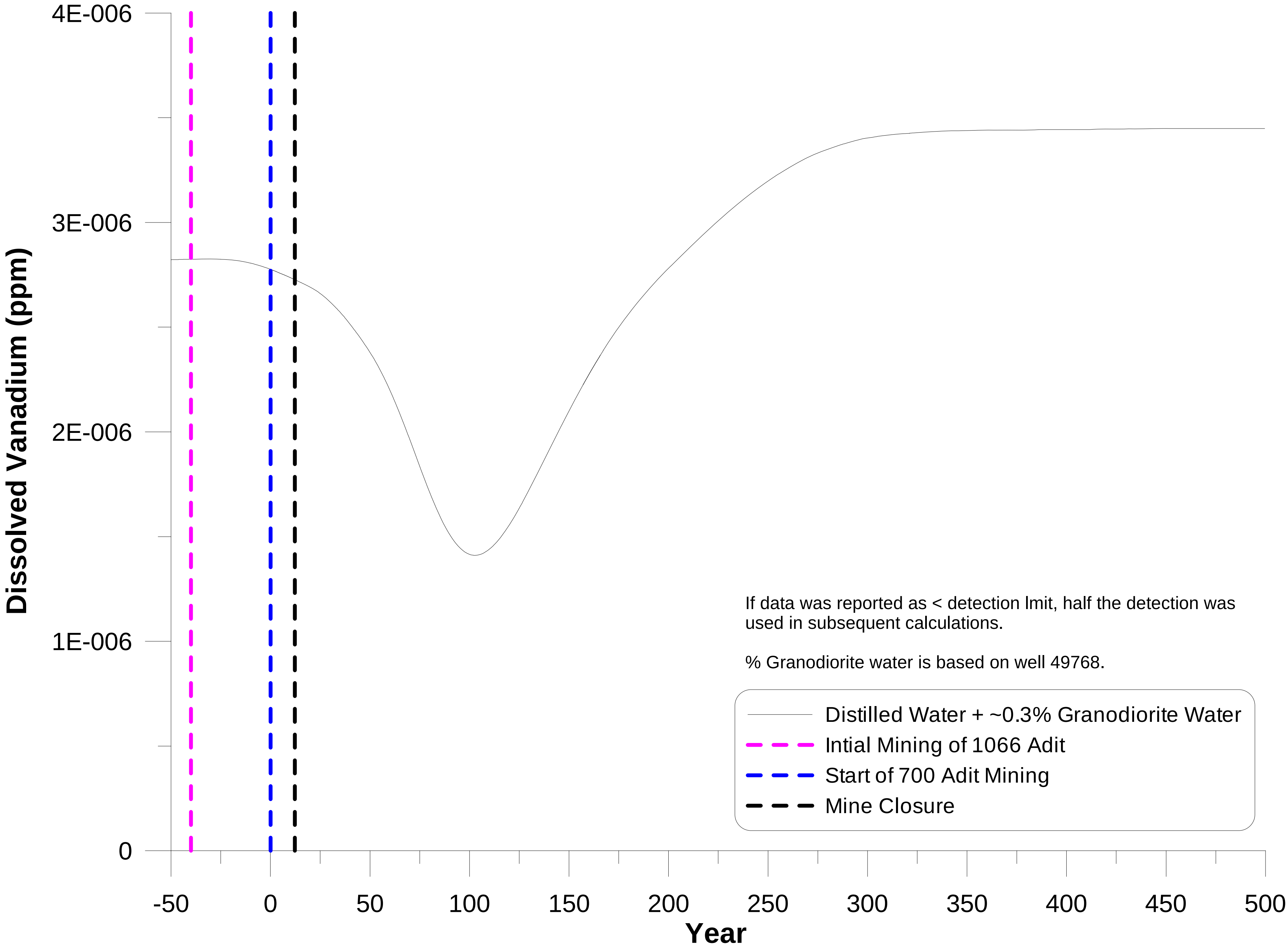

Dissolved Tin (ppm)
1.6E-007
1.2E-007
8E-008
4E-008
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



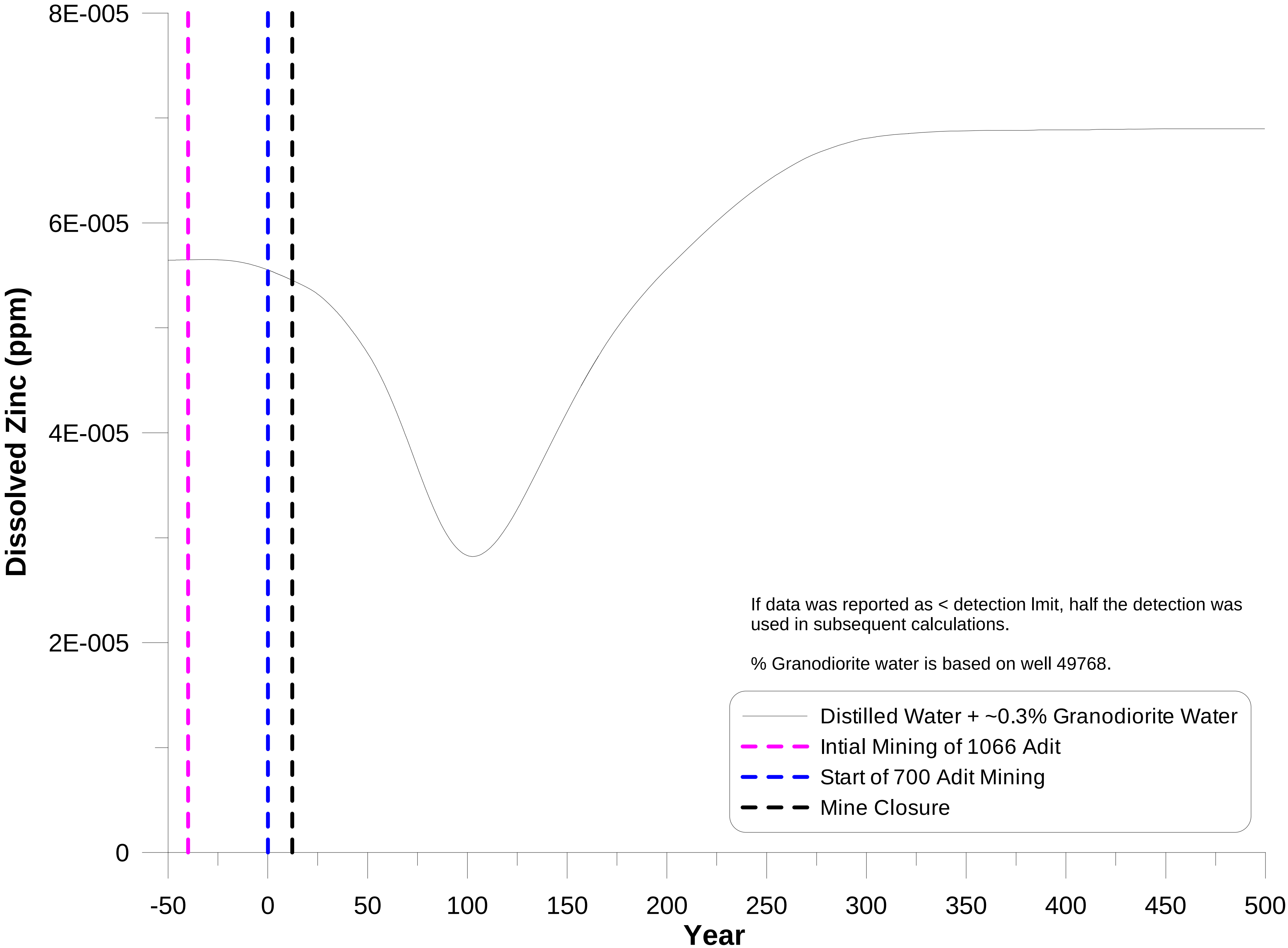
1.6E-005
1.2E-005
8E-006
4E-006
0
Dissolved Titanium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



2E-005
1.5E-005
1E-005
5E-006
0
Dissolved Uranium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

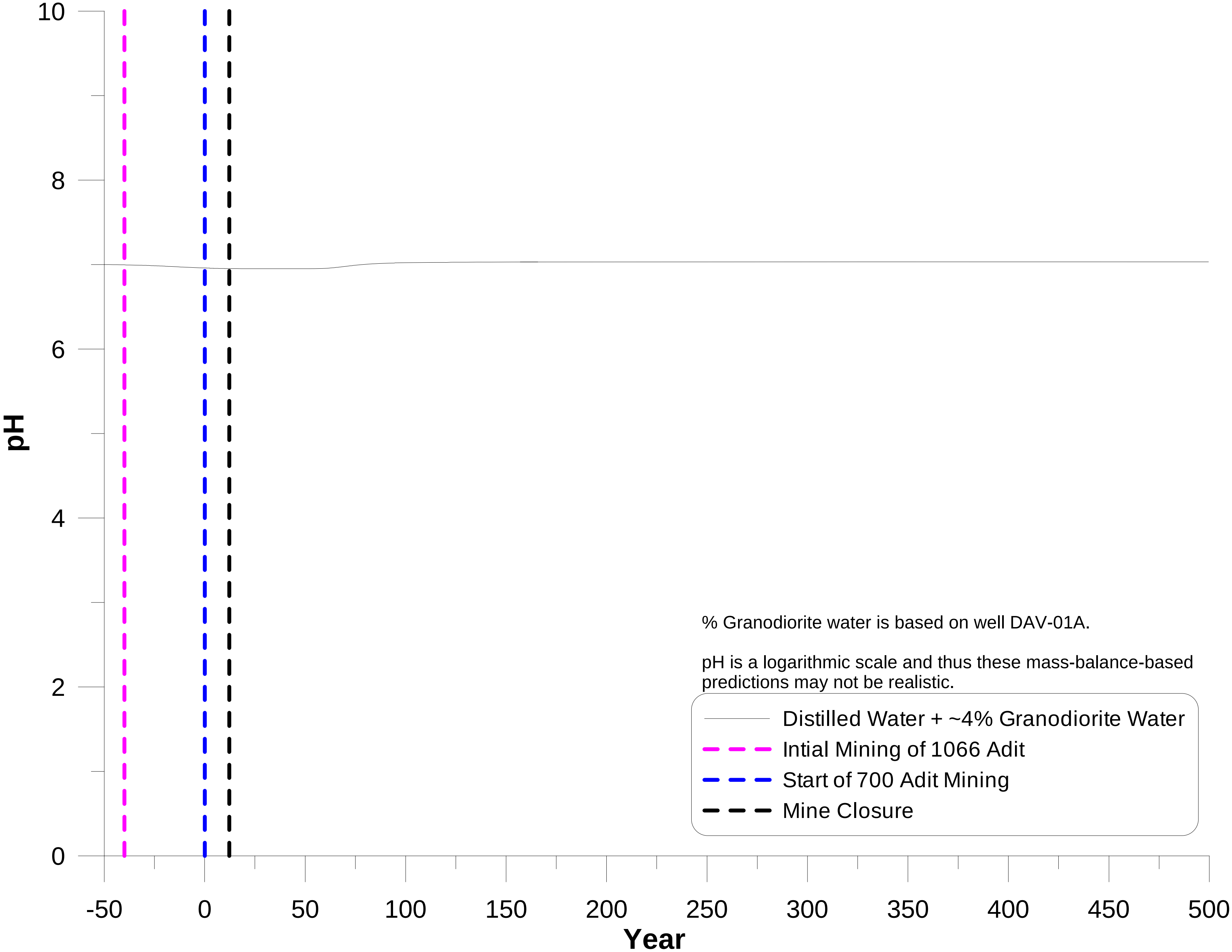


Dissolved Vanadium (ppm)
4E-006
3E-006
2E-006
1E-006
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

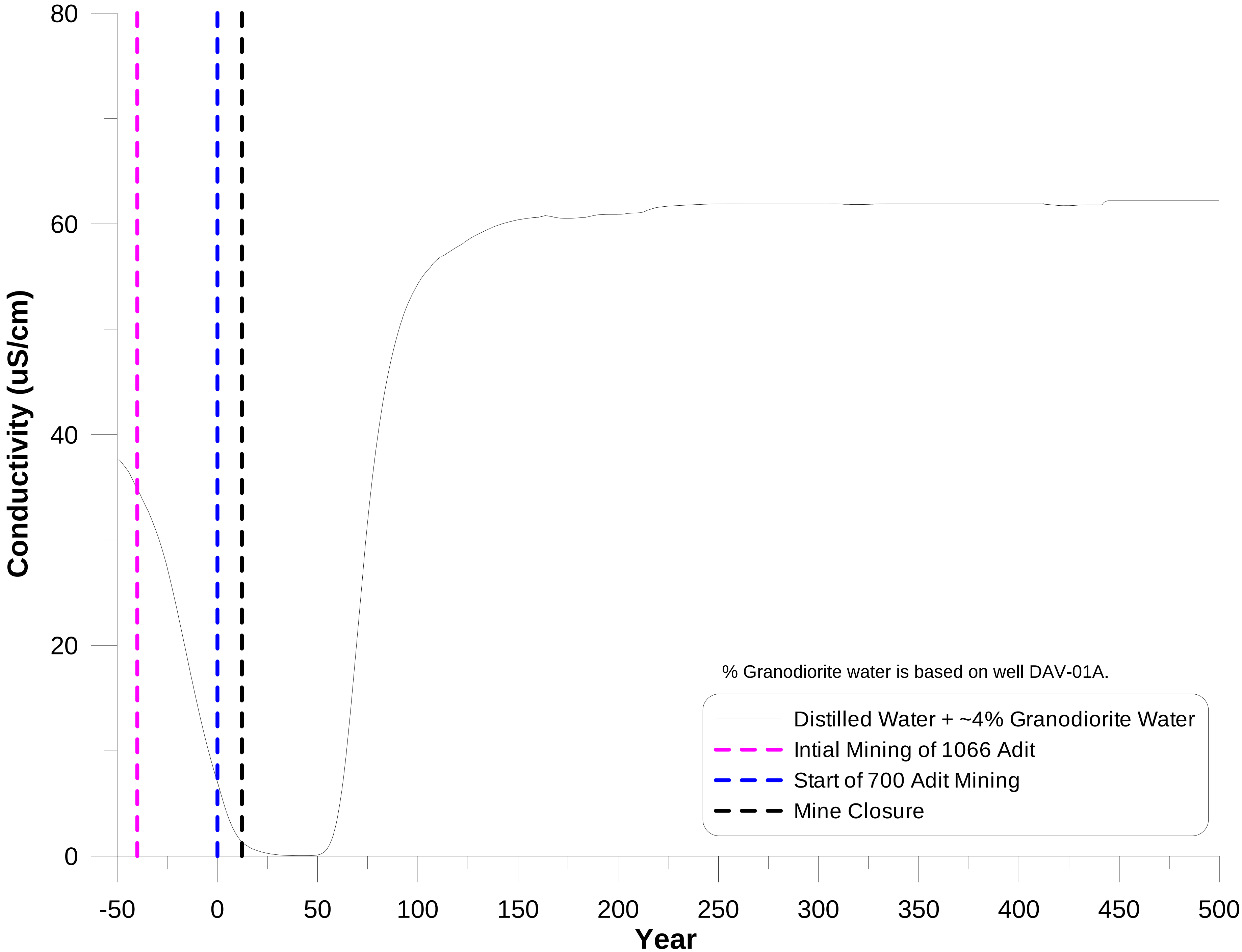


8E-005
6E-005
4E-005
2E-005
0
Dissolved Zinc (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Distilled Water + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

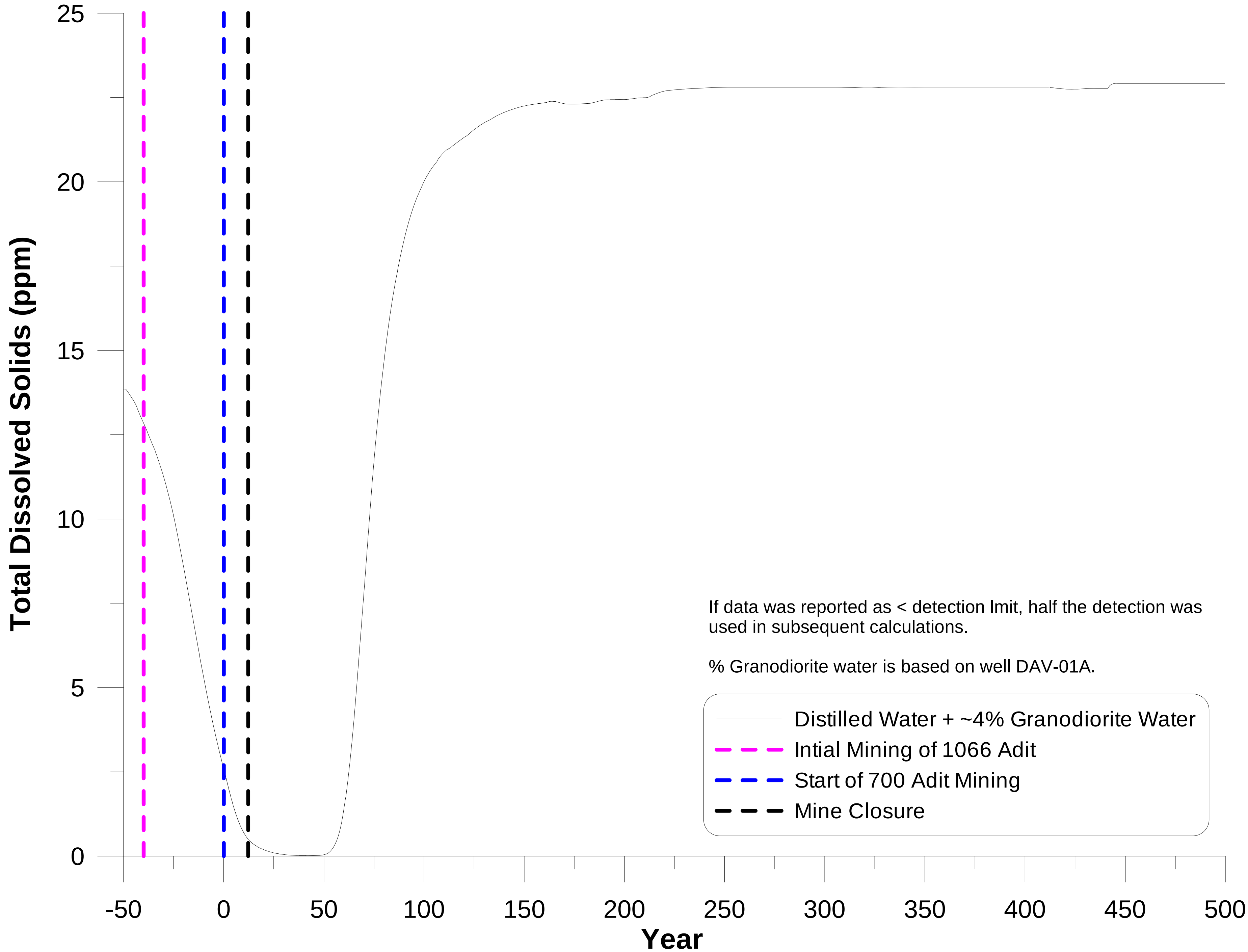
A2. ~4% GRANODIORITE GROUNDWATER AND ~96% DISTILLED GROUNDWATER BEFORE MINING, BASED ON PREDICTED TRENDS FOR WELL RES-DAV-01A



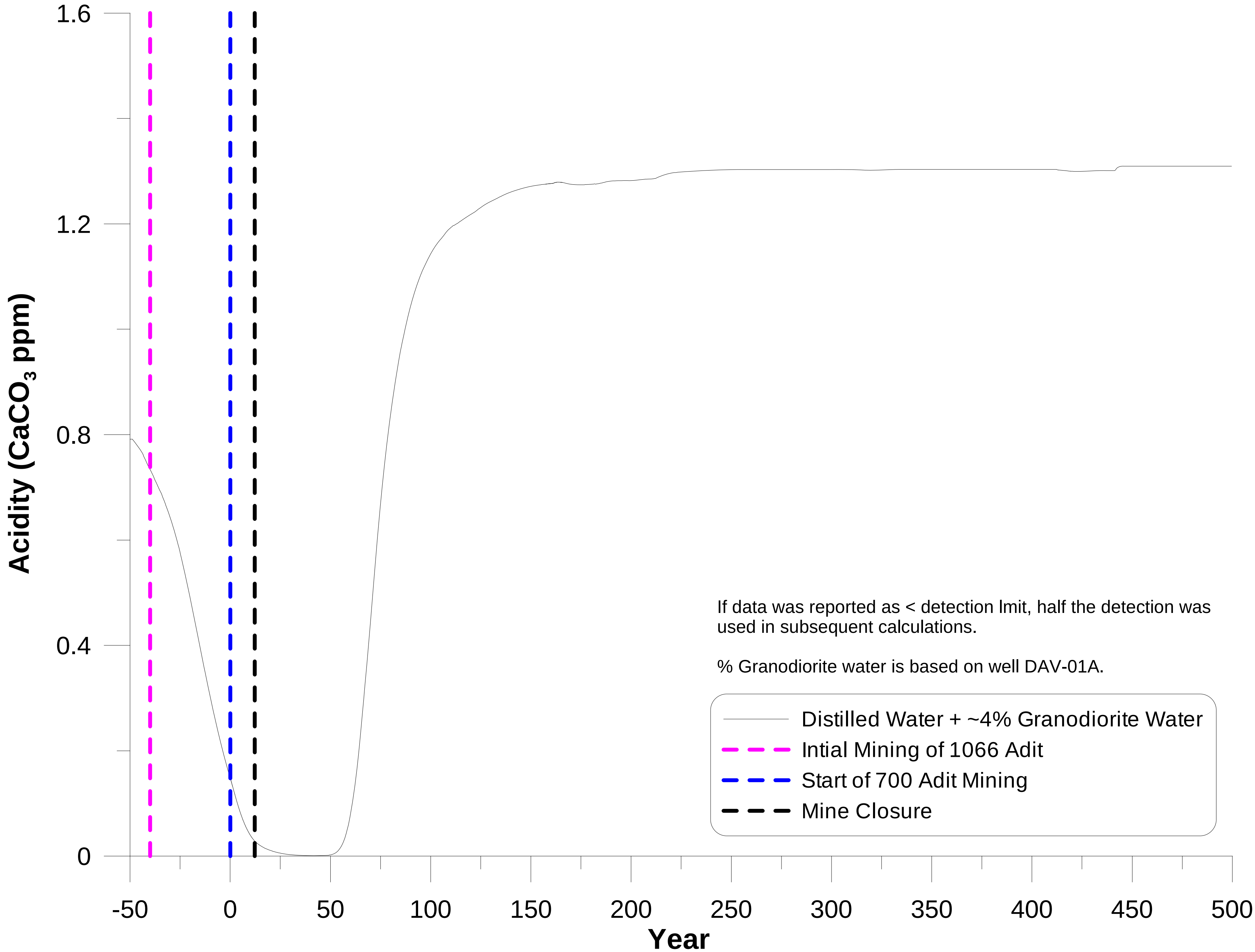
10
8
6
4
2
0
pH
-50
0
50
100
150
200
250
300
350
400
450
500
Year
% Granodiorite water is based on well DAV-01A.
pH is a logarithmic scale and thus these mass-balance-based predictions may not be realistic.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



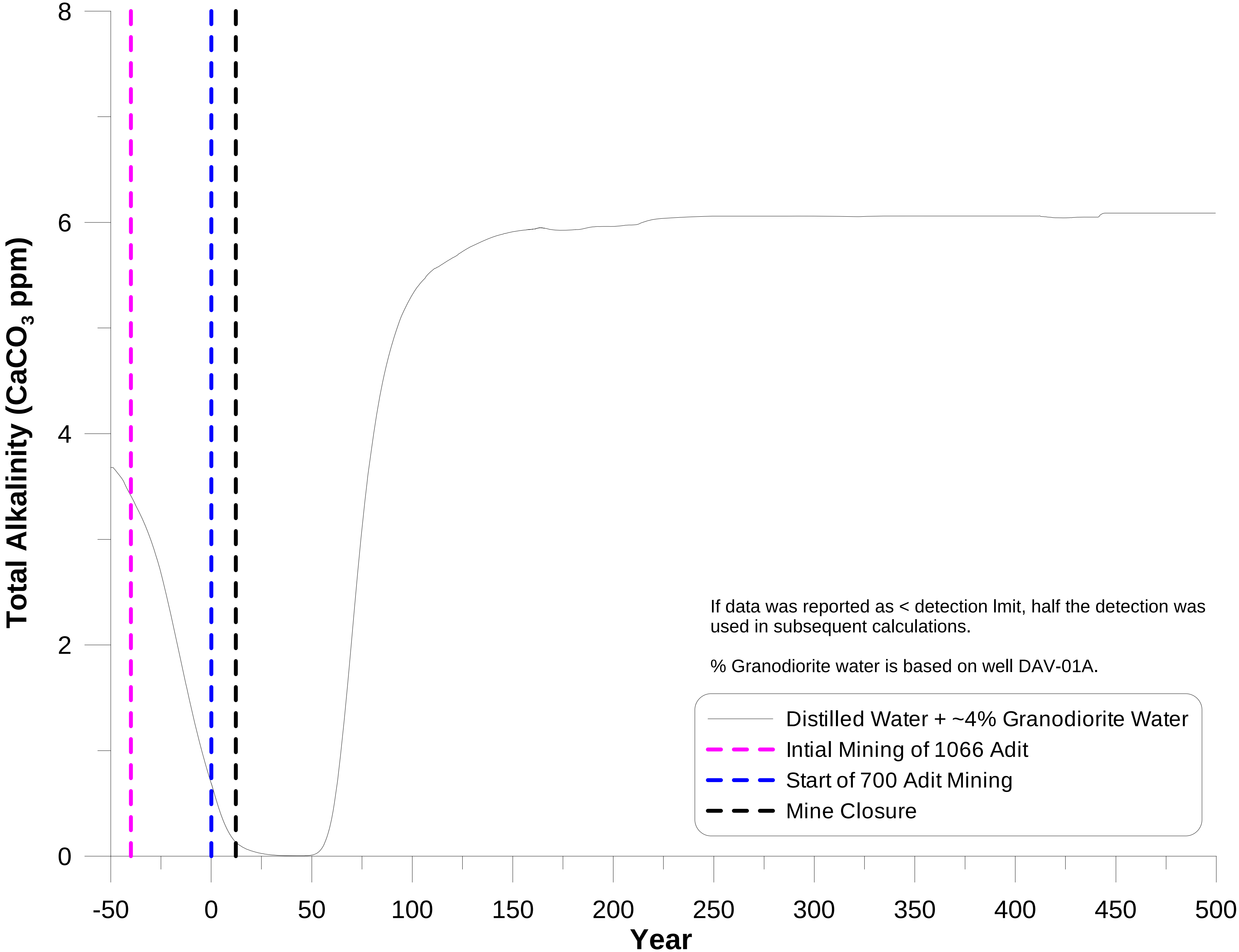
80
60
40
20
0
Conductivity (uS/cm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



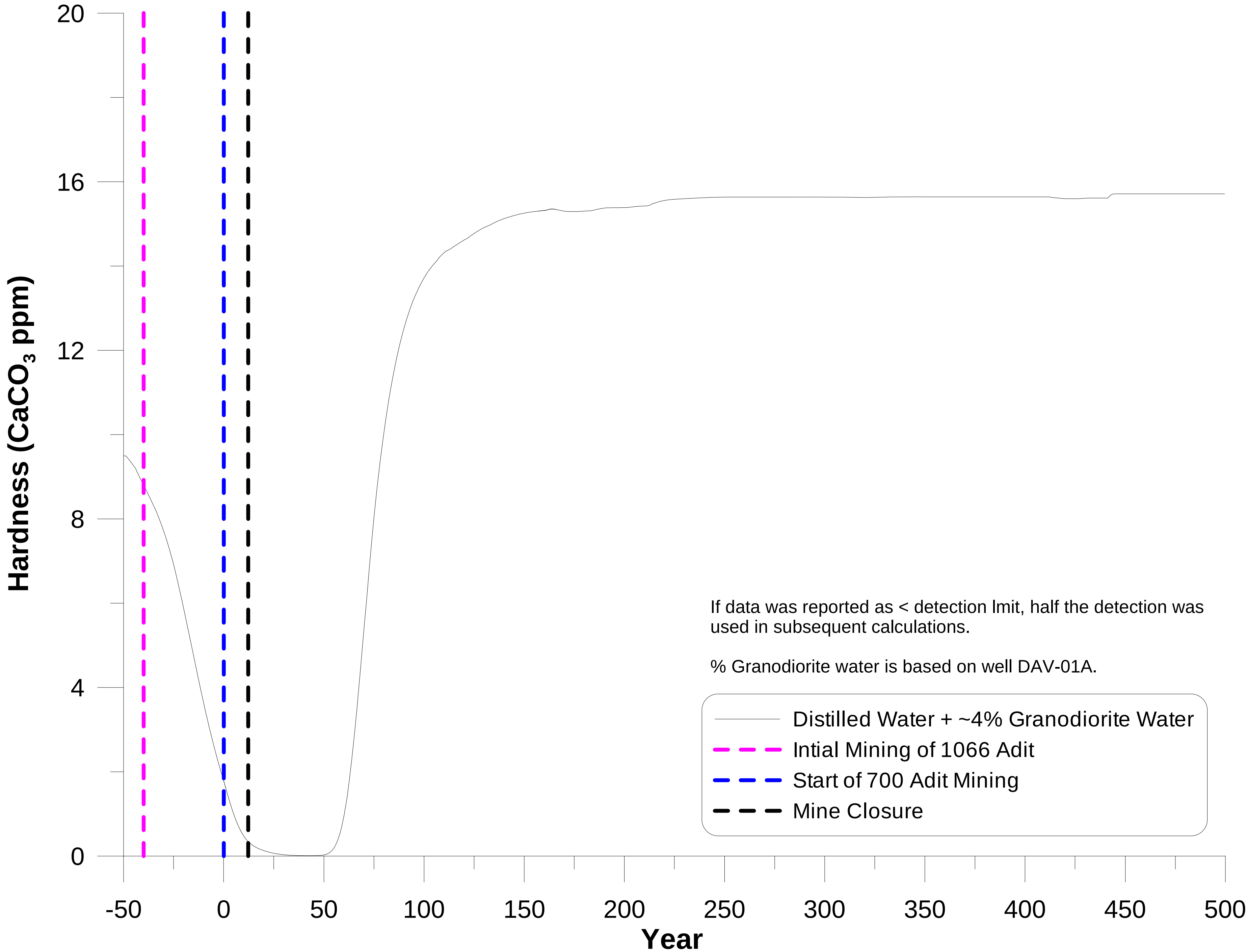
Total Dissolved Solids (ppm)
25
20
15
10
5
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



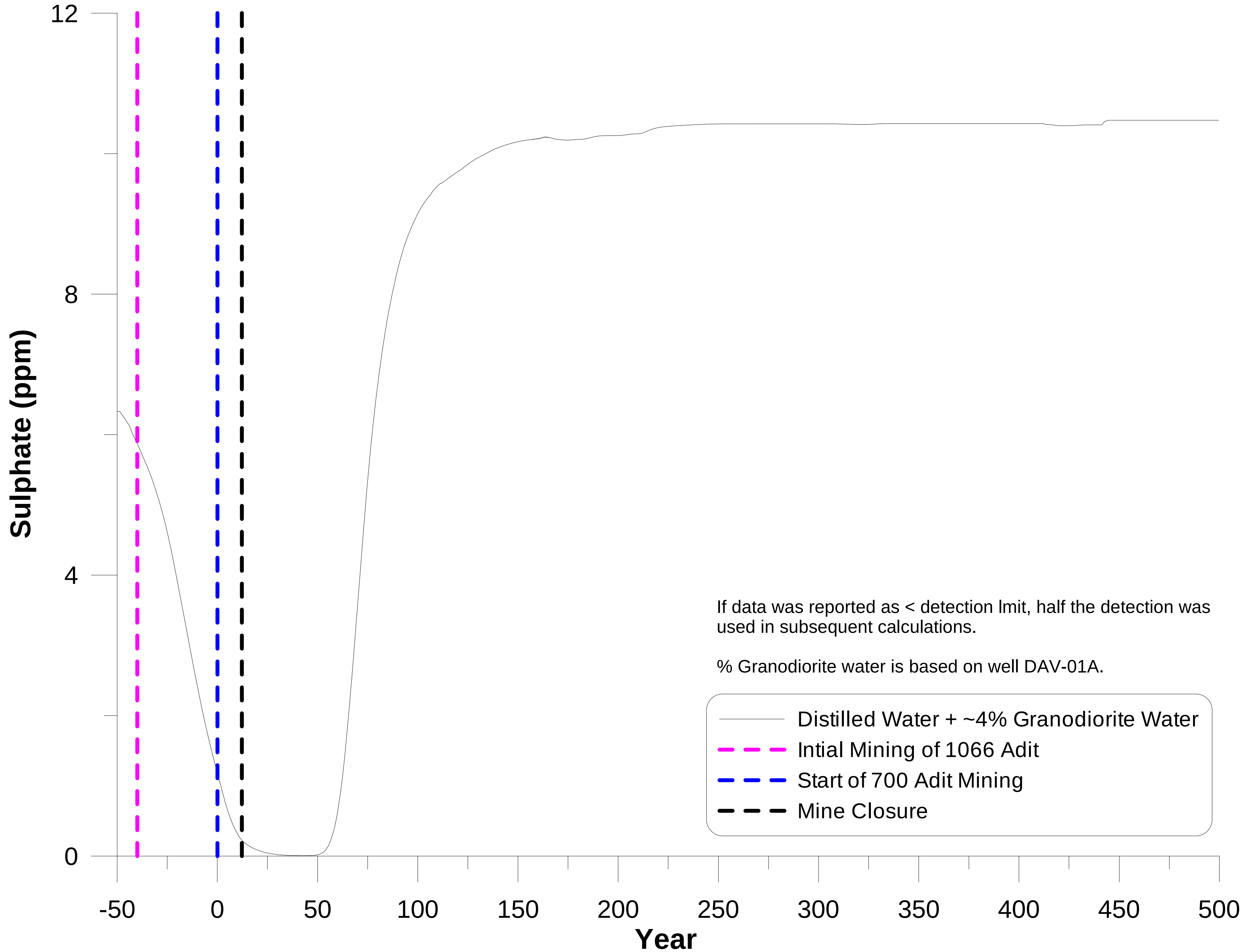
1.6
1.2
0.8
0.4
0
Acidity ($CaCO_3$ ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



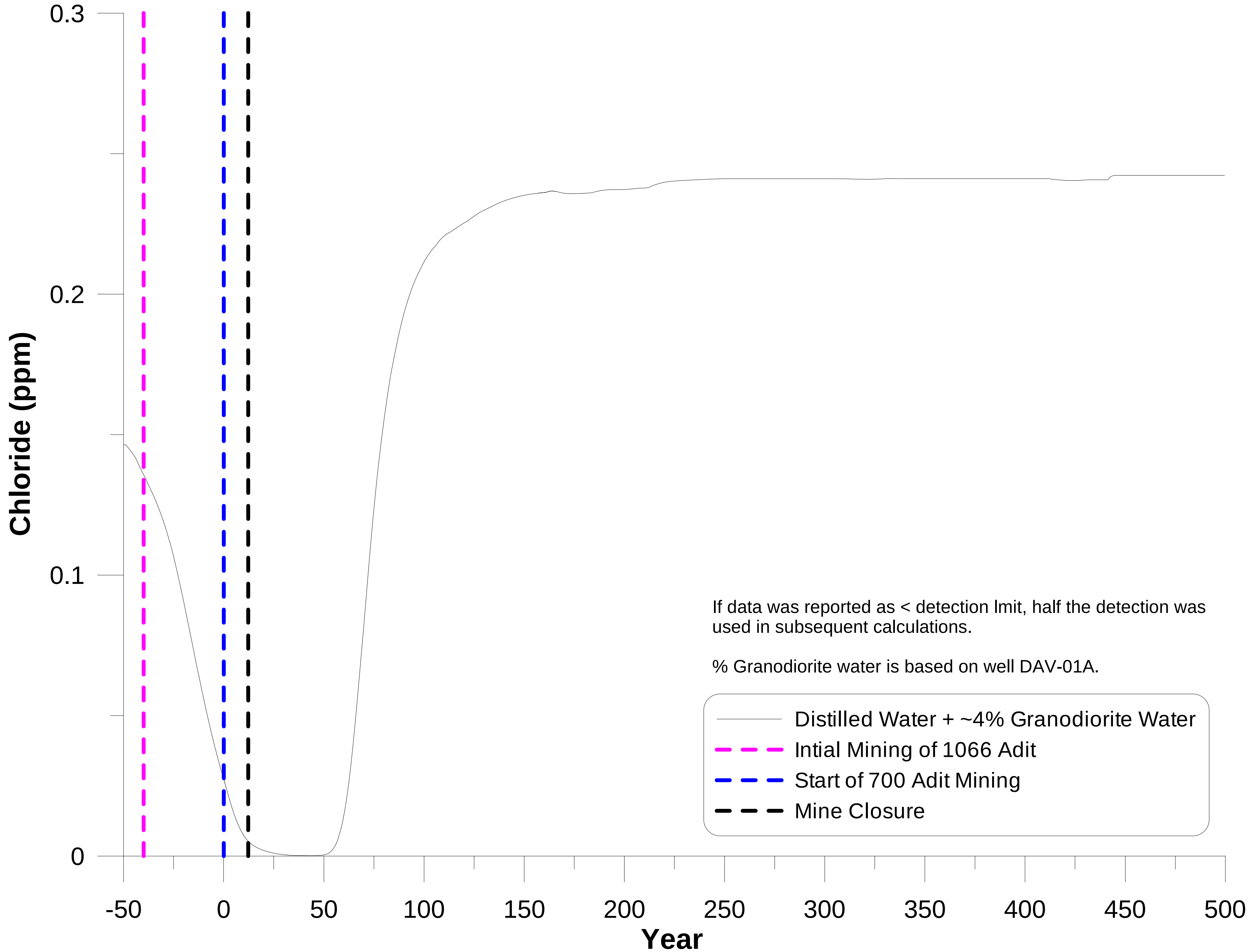
Total Alkalinity ($CaCO_3$ ppm)
8
6
4
2
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



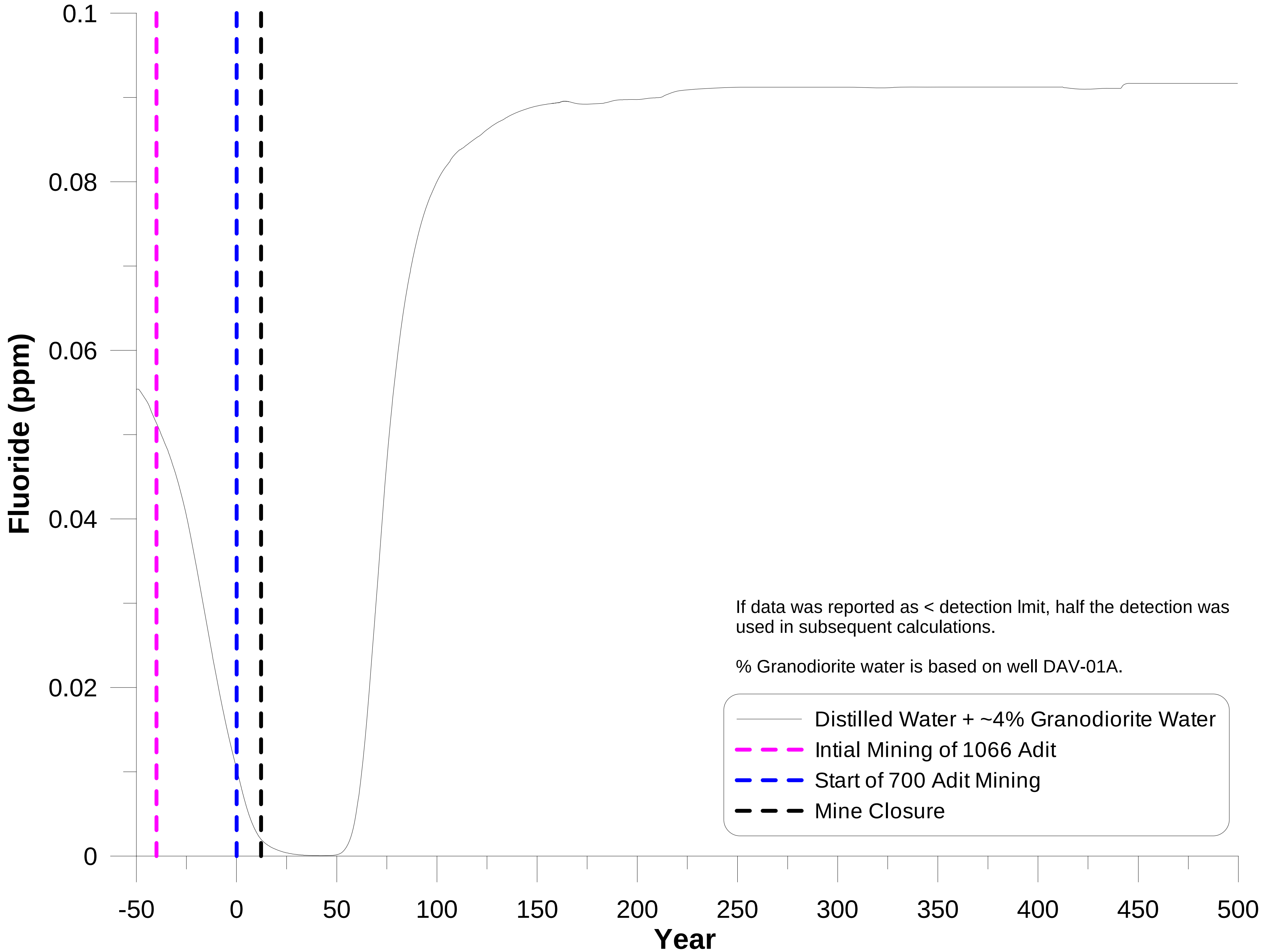
20
16
12
8
4
0
Hardness ($CaCO_3$ ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



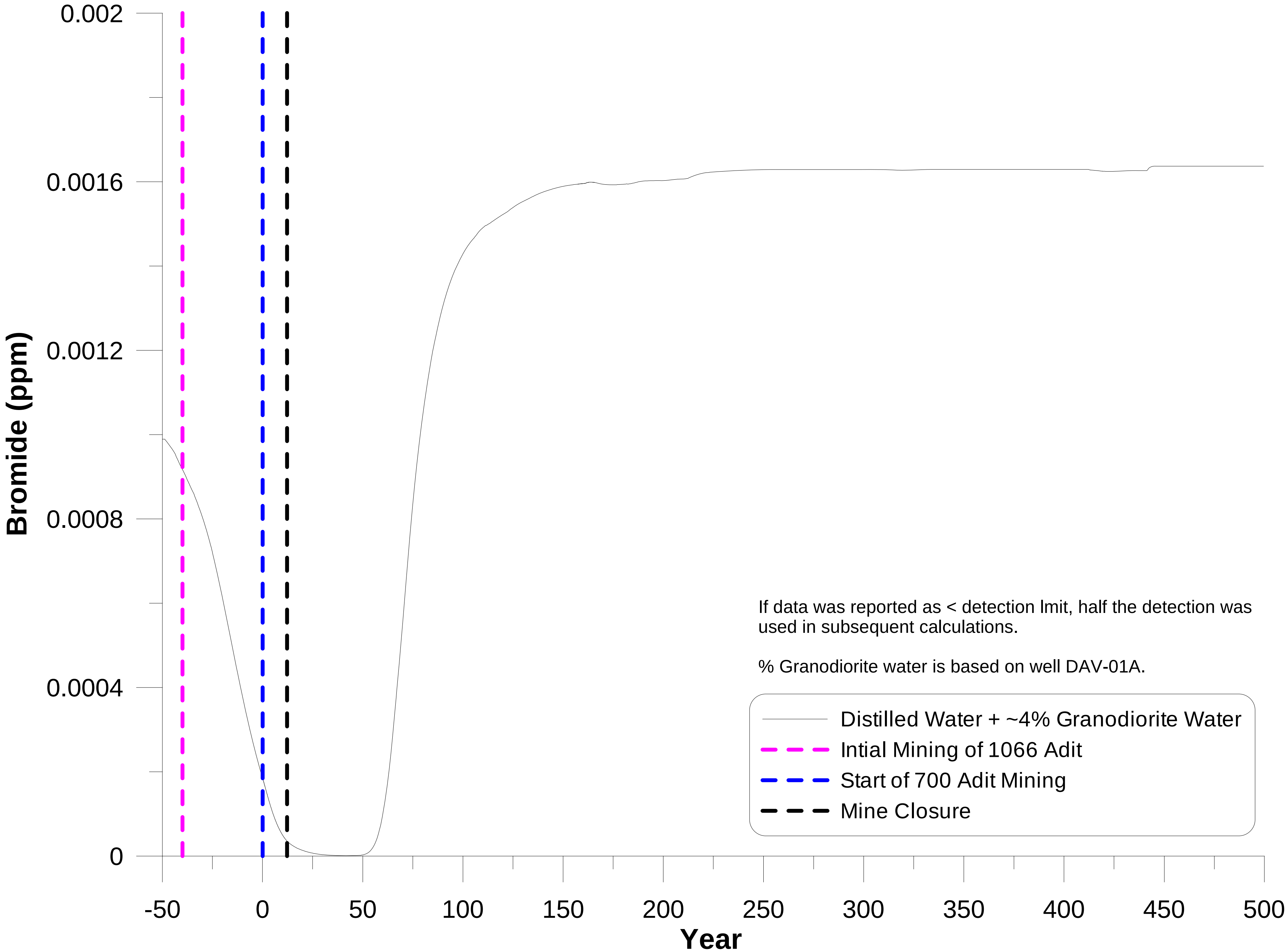
12
8
4
0
Sulphate (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



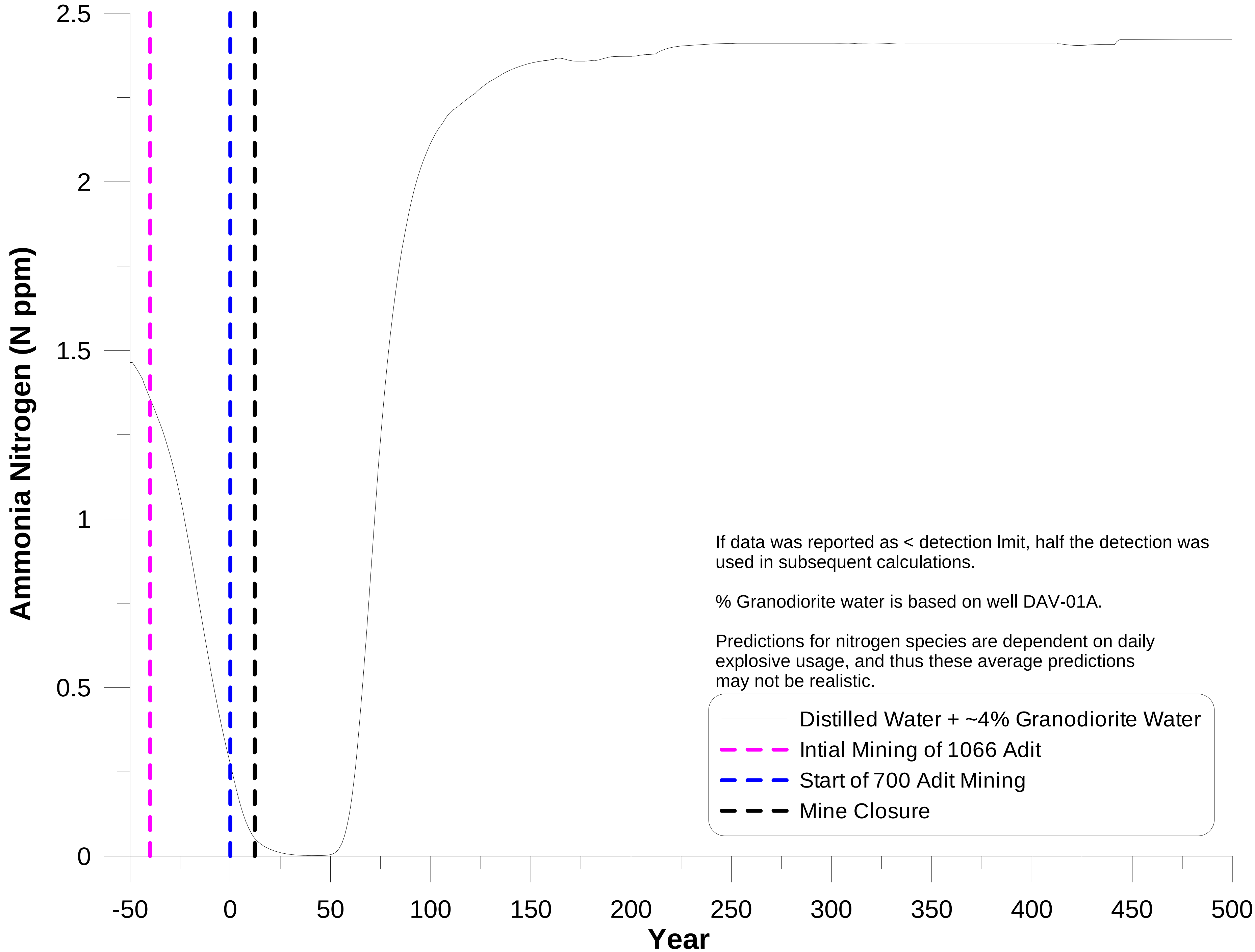
0.3
0.2
0.1
0
Chloride (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



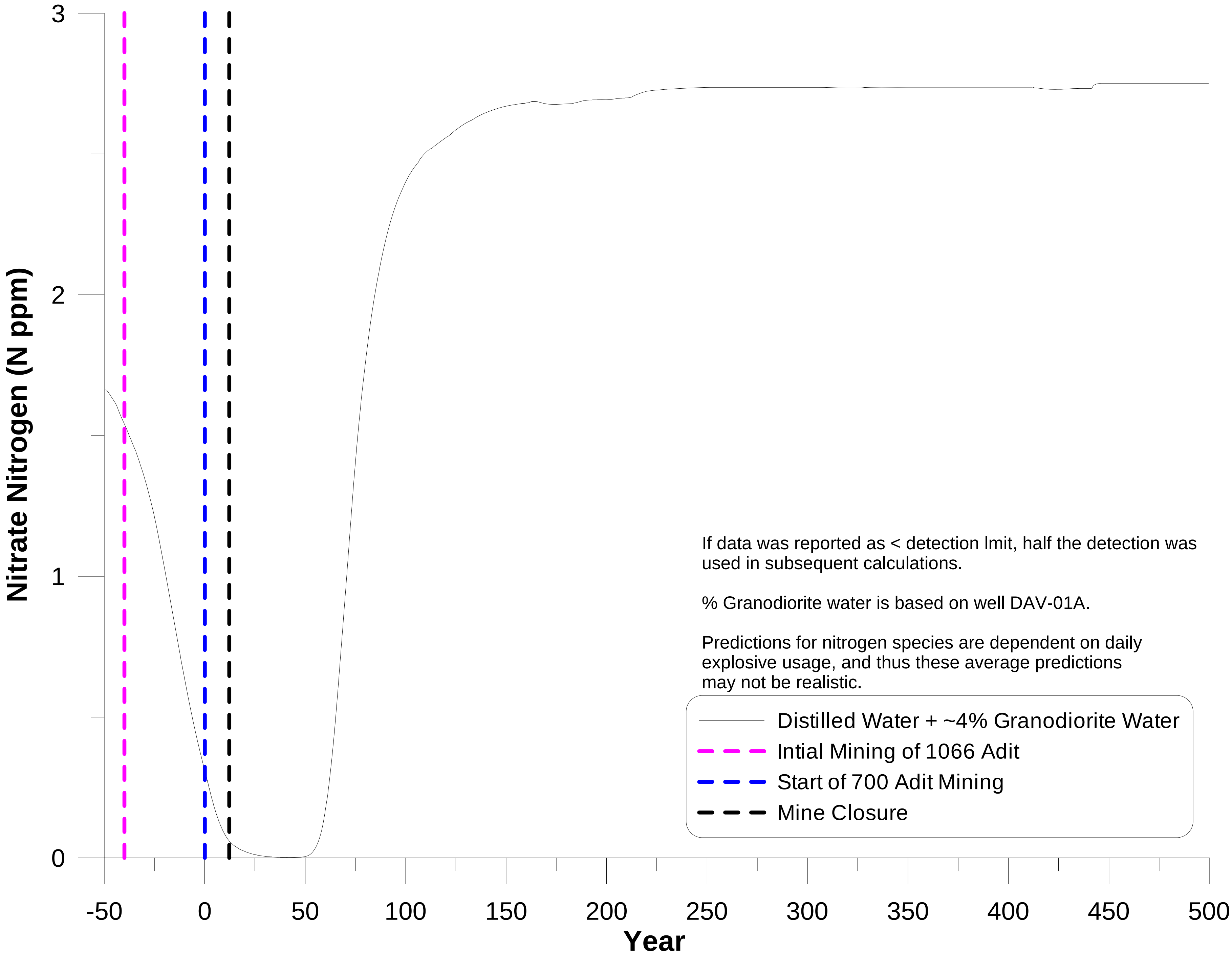
0.1
0.08
0.06
0.04
0.02
0
Fluoride (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



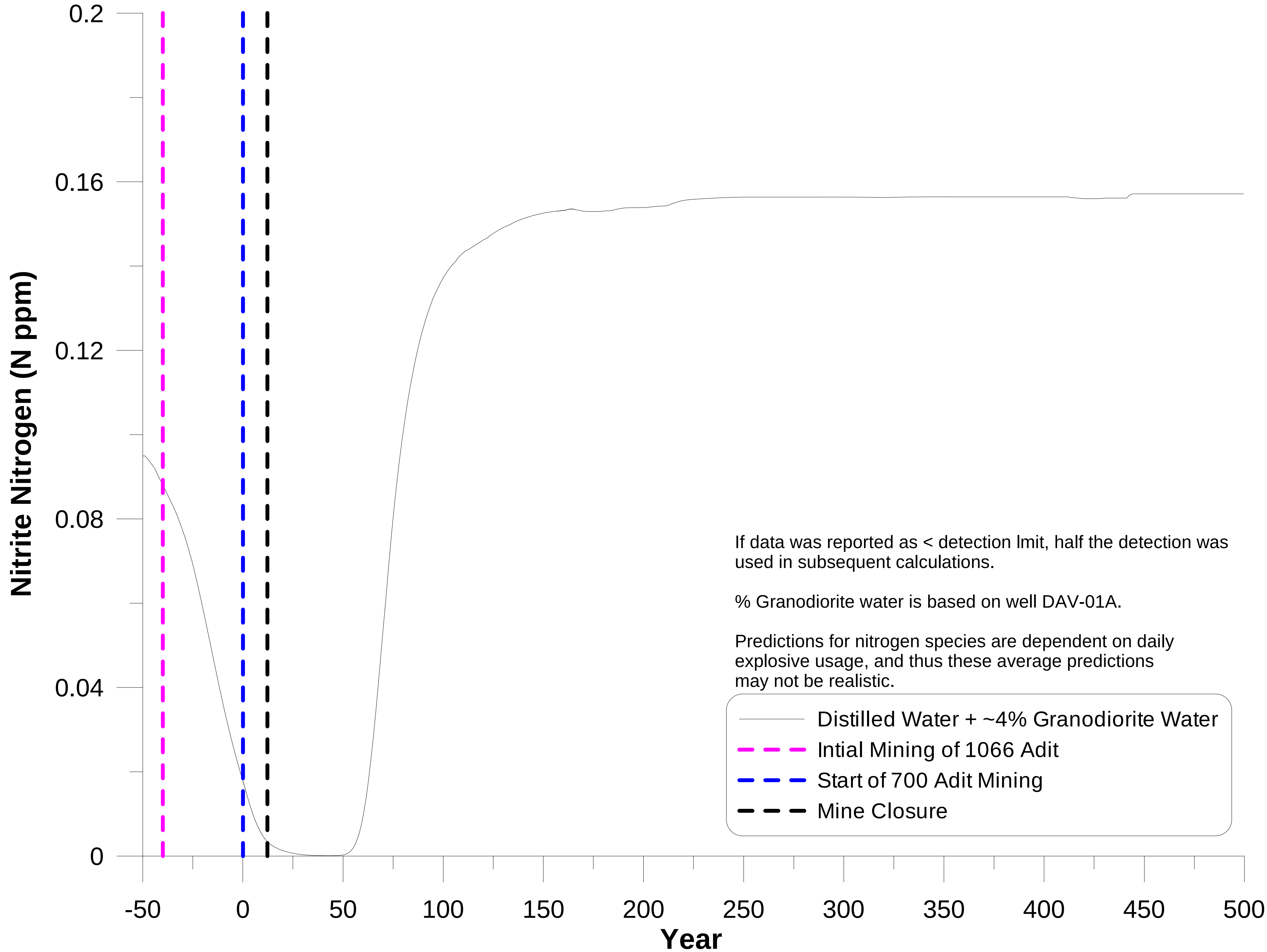
0.002
0.0016
0.0012
0.0008
0.0004
0
Bromide (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



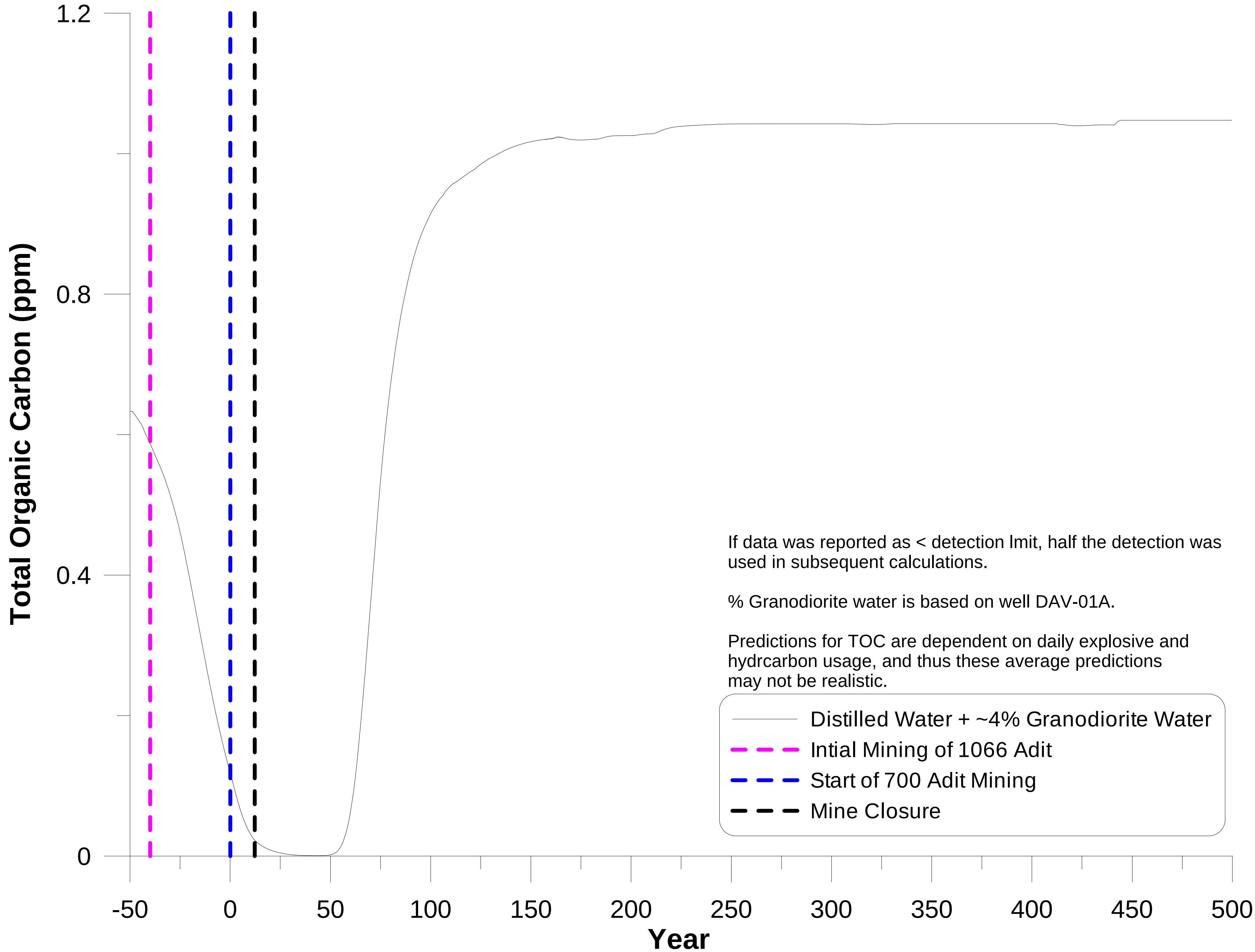
Ammonia Nitrogen (N ppm)
2.5
2
1.5
1
0.5
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



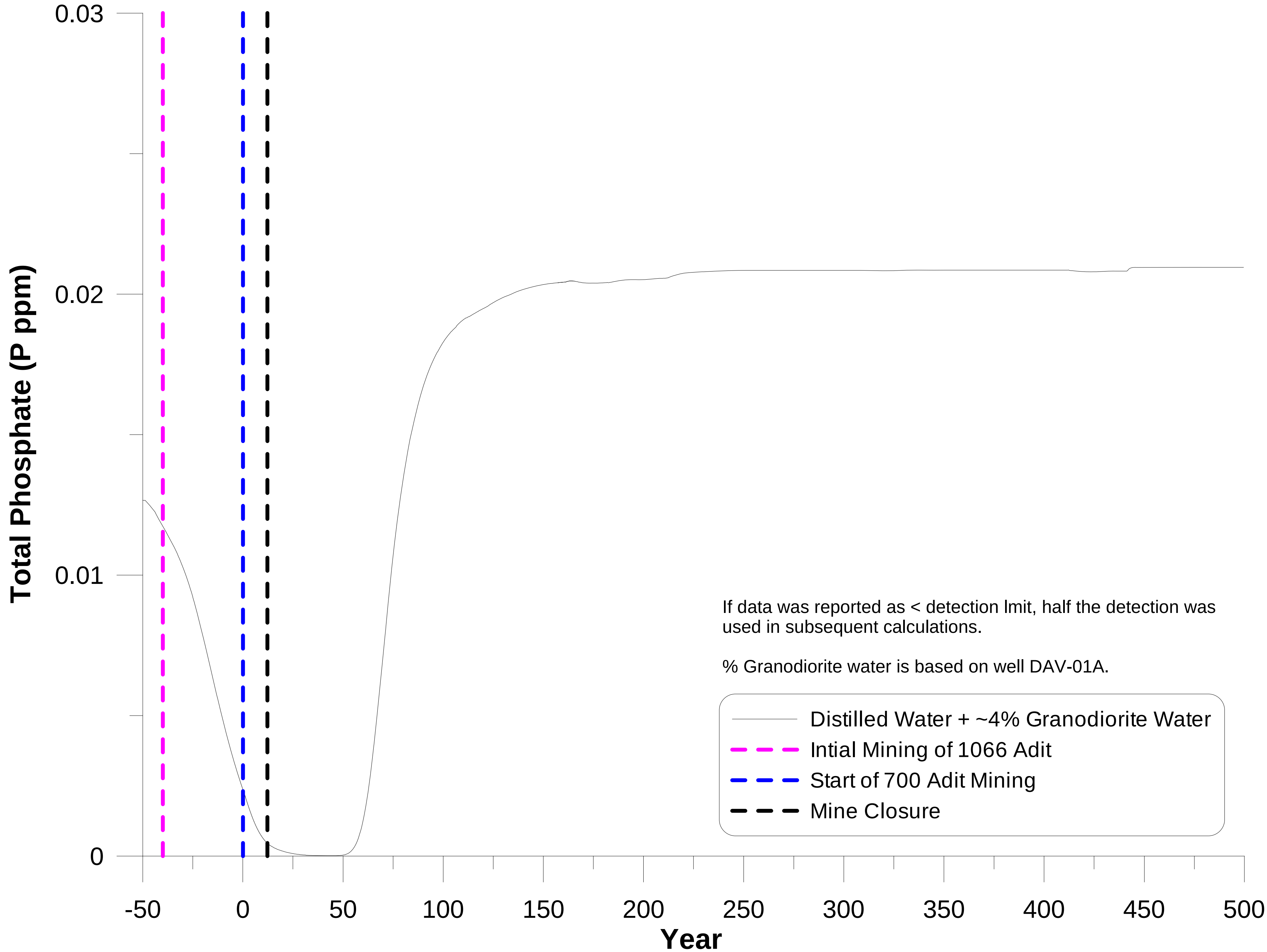
Nitrate Nitrogen (N ppm)
3
2
1
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



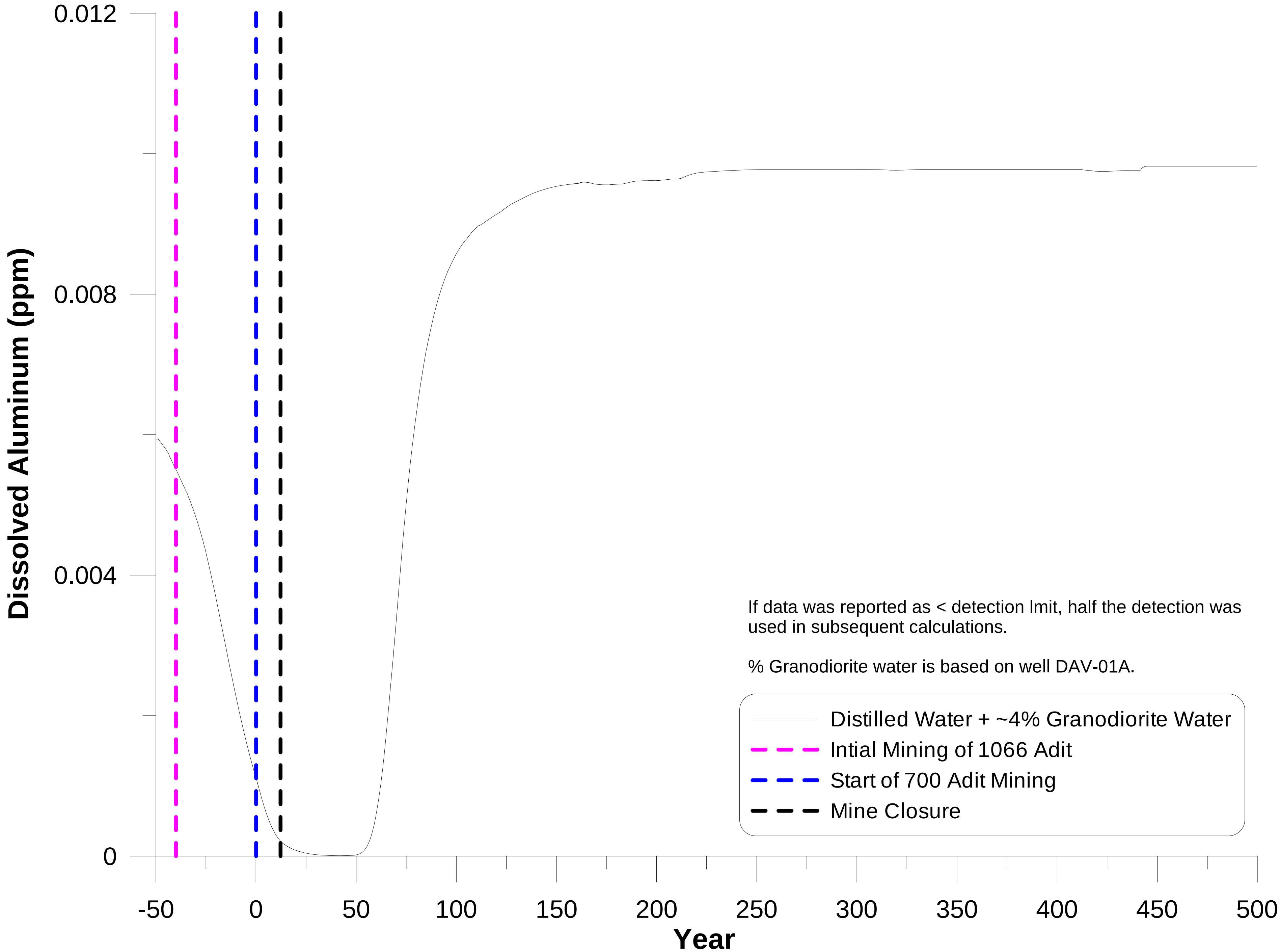
0.2
0.16
0.12
0.08
0.04
0
Nitrite Nitrogen (N ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



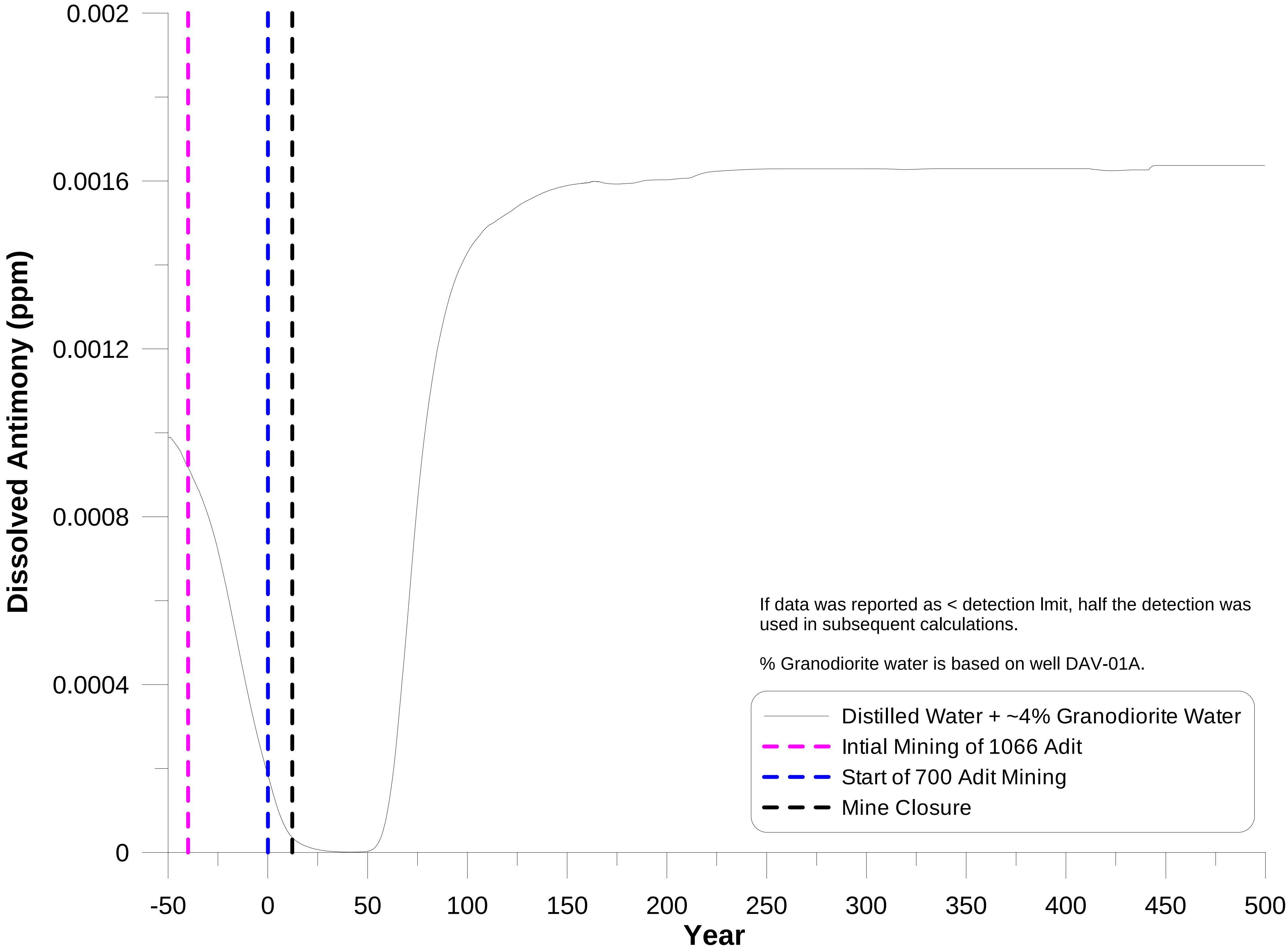
1.2
0.8
0.4
0
Total Organic Carbon (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Predictions for TOC are dependent on daily explosive and hydrcarbon usage, and thus these average predictions may not be realistic.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

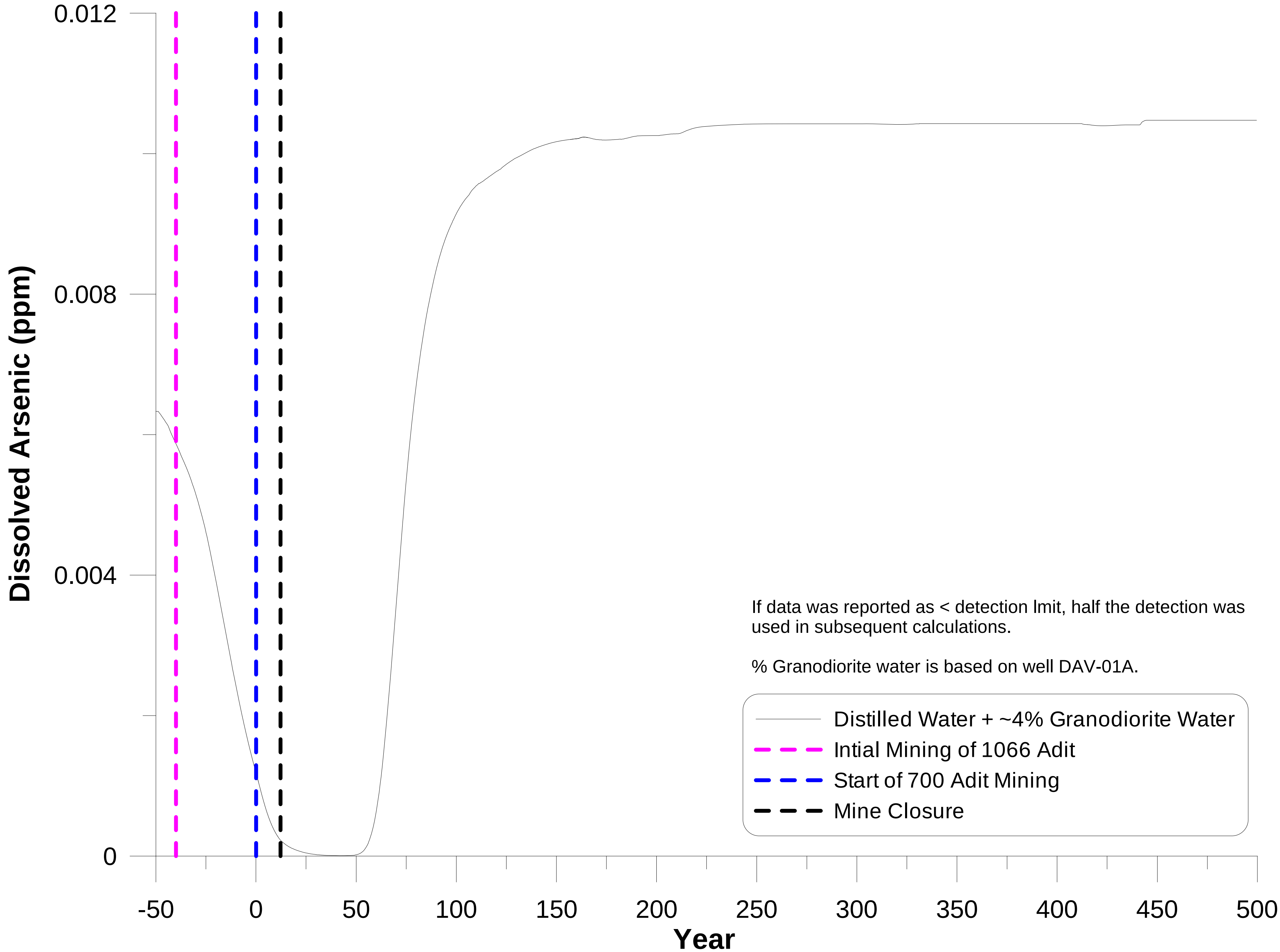


Total Phosphate (P ppm)
0.03
0.02
0.01
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

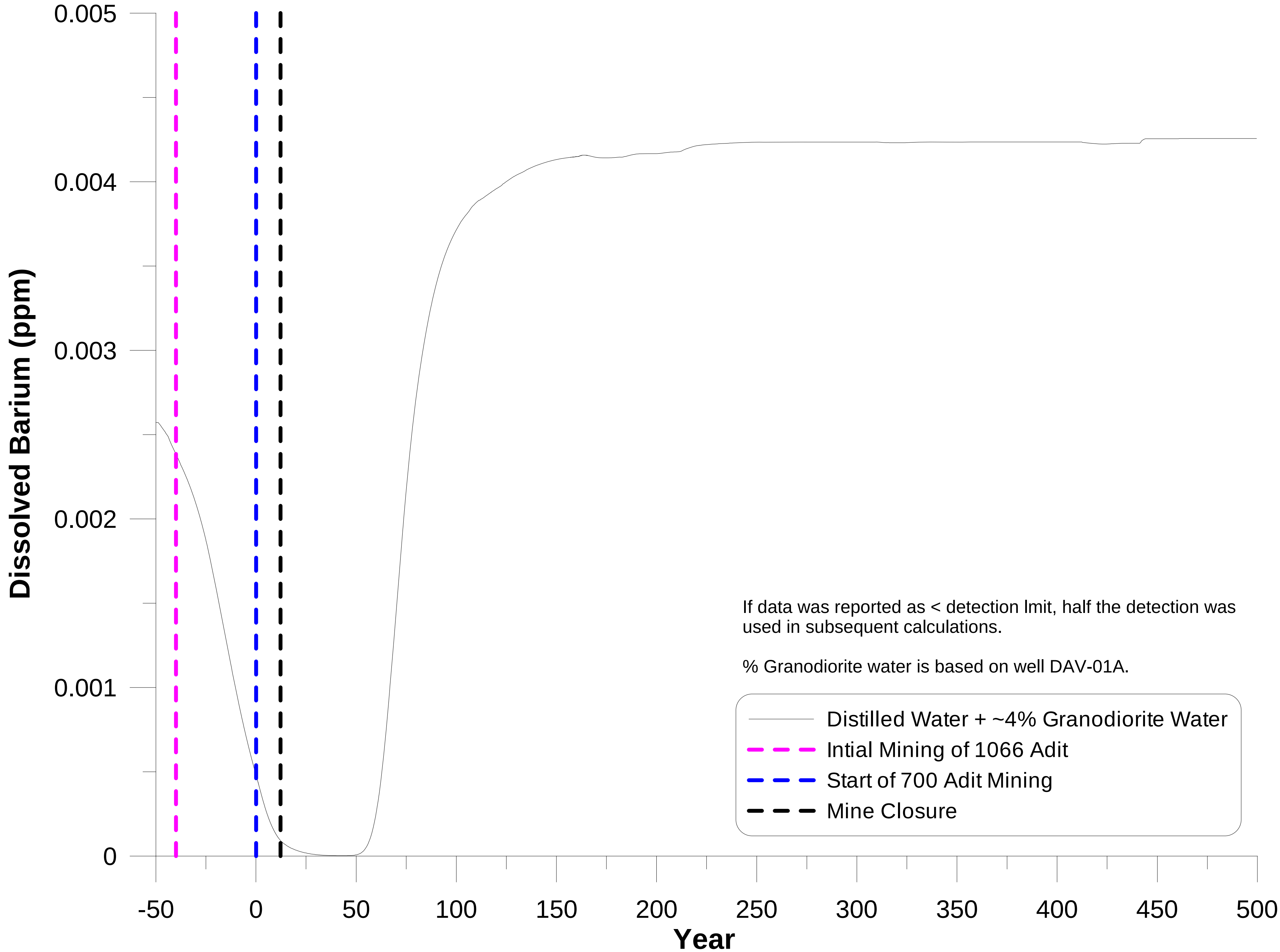


0.012
0.008
0.004
0
Dissolved Aluminum (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

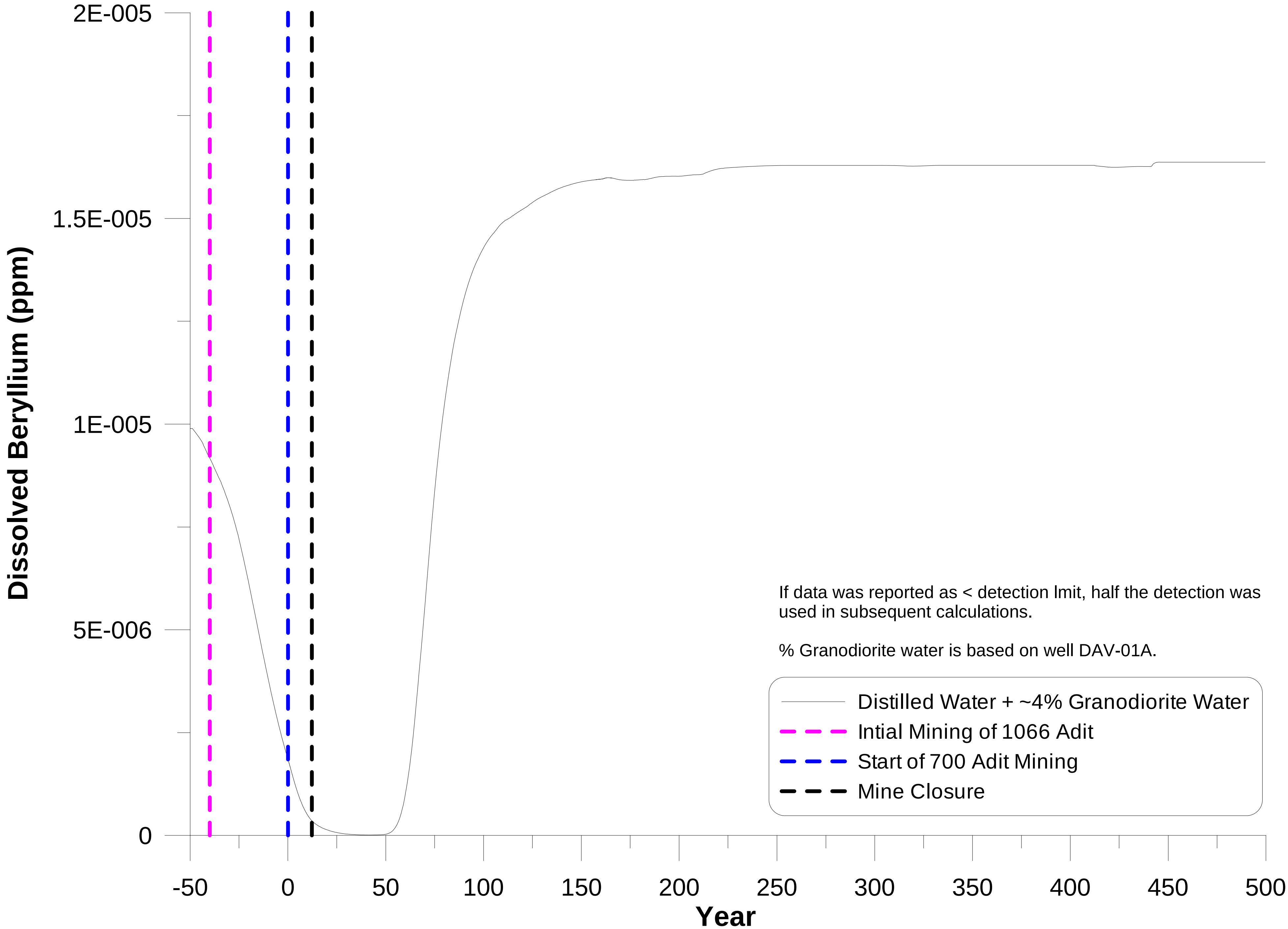

0.002
0.0016
0.0012
0.0008
0.0004
0
Dissolved Antimony (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



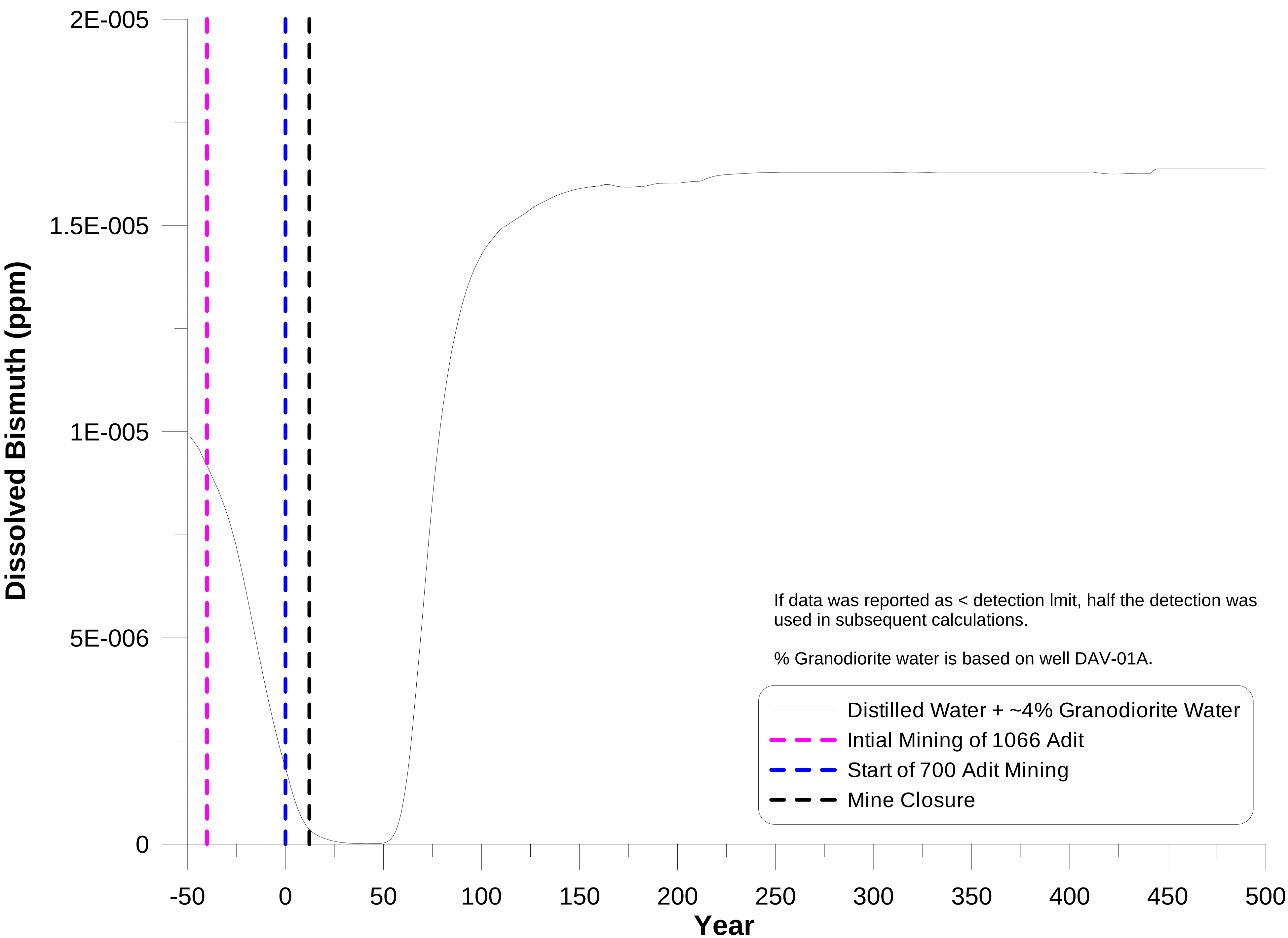
Dissolved Arsenic (ppm)
0.012
0.008
0.004
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



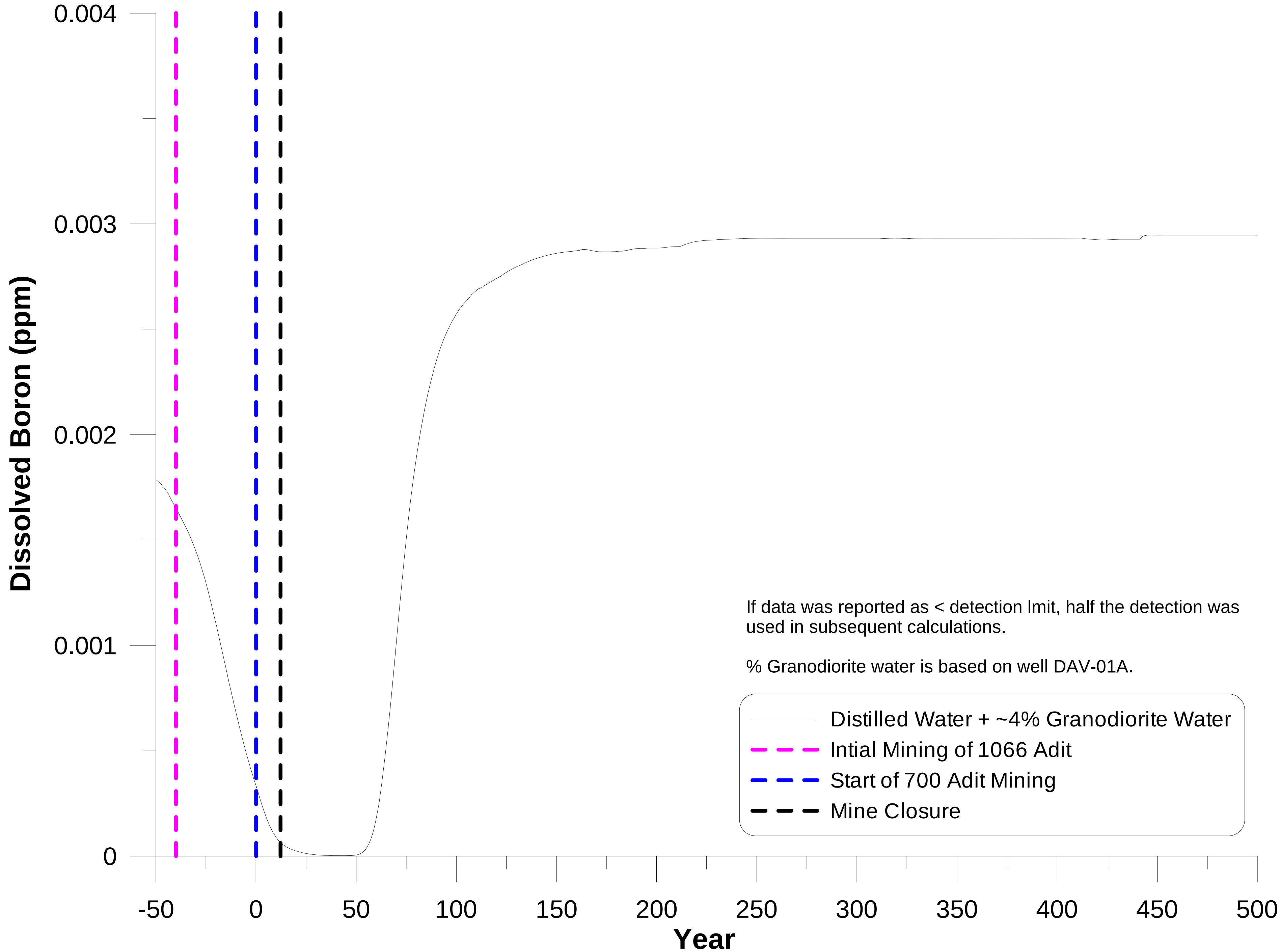
Dissolved Barium (ppm)
0.005
0.004
0.003
0.002
0.001
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



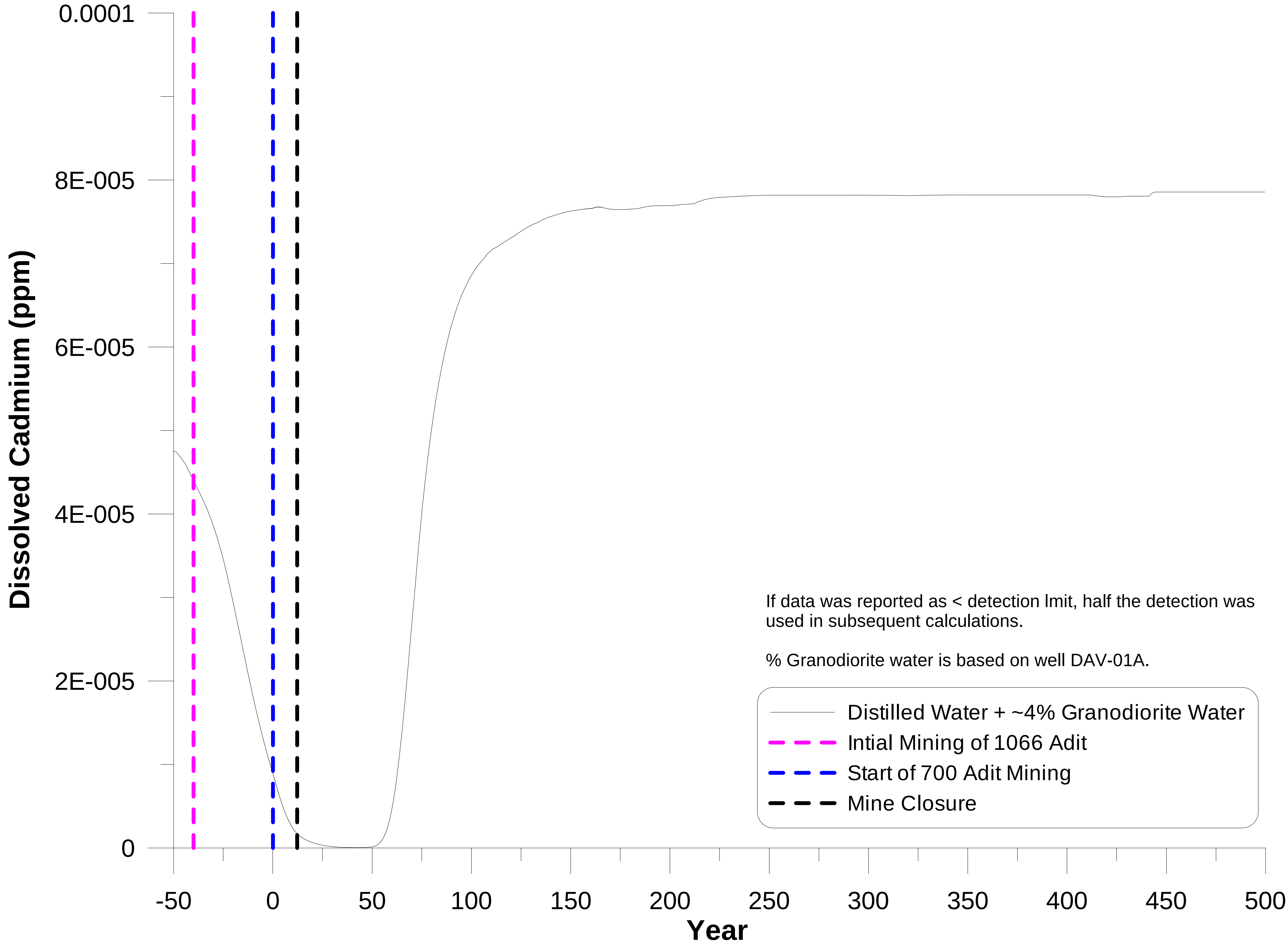
2E-005
1.5E-005
1E-005
5E-006
0
Dissolved Beryllium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

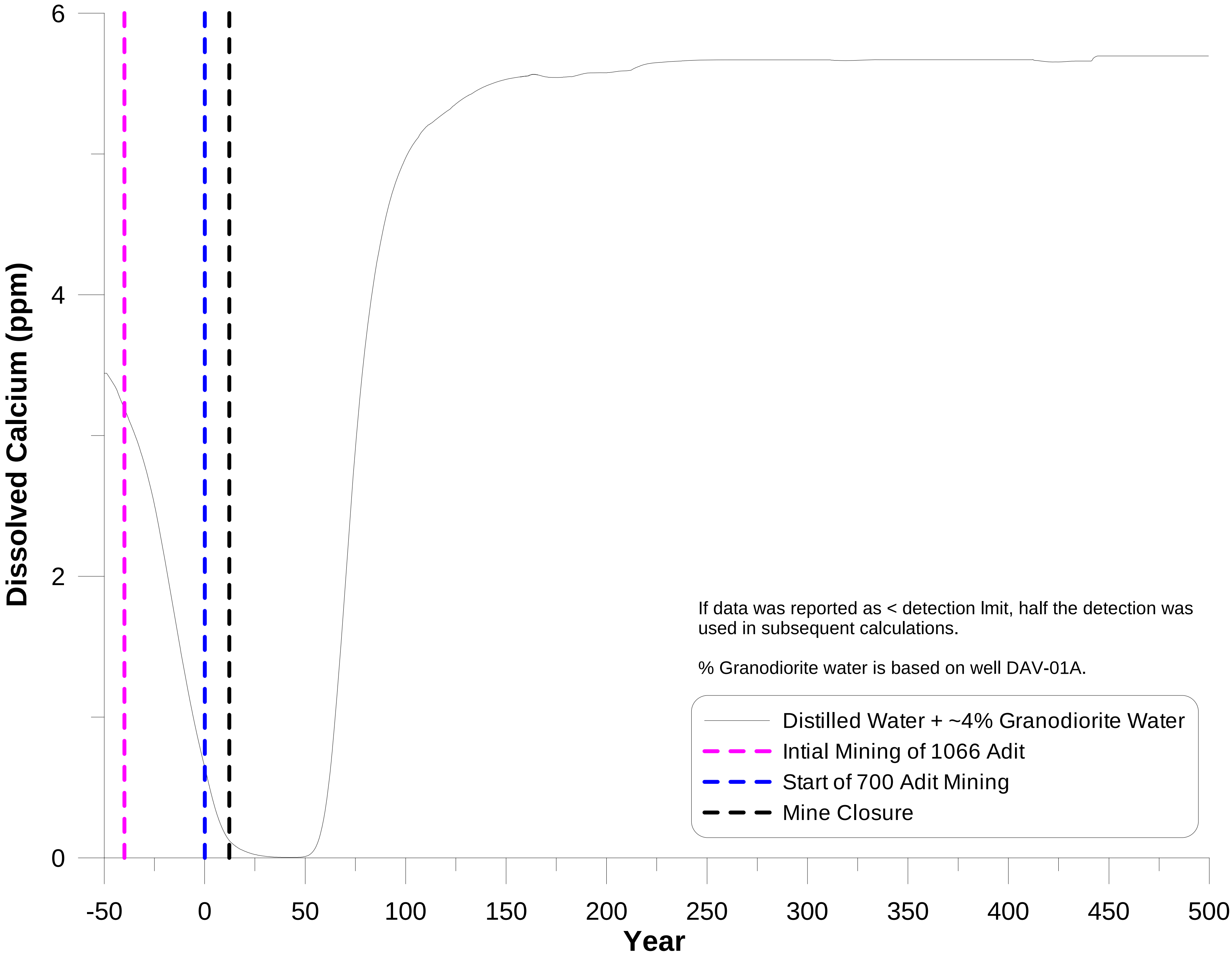


2E-005
1.5E-005
1E-005
5E-006
0
Dissolved Bismuth (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

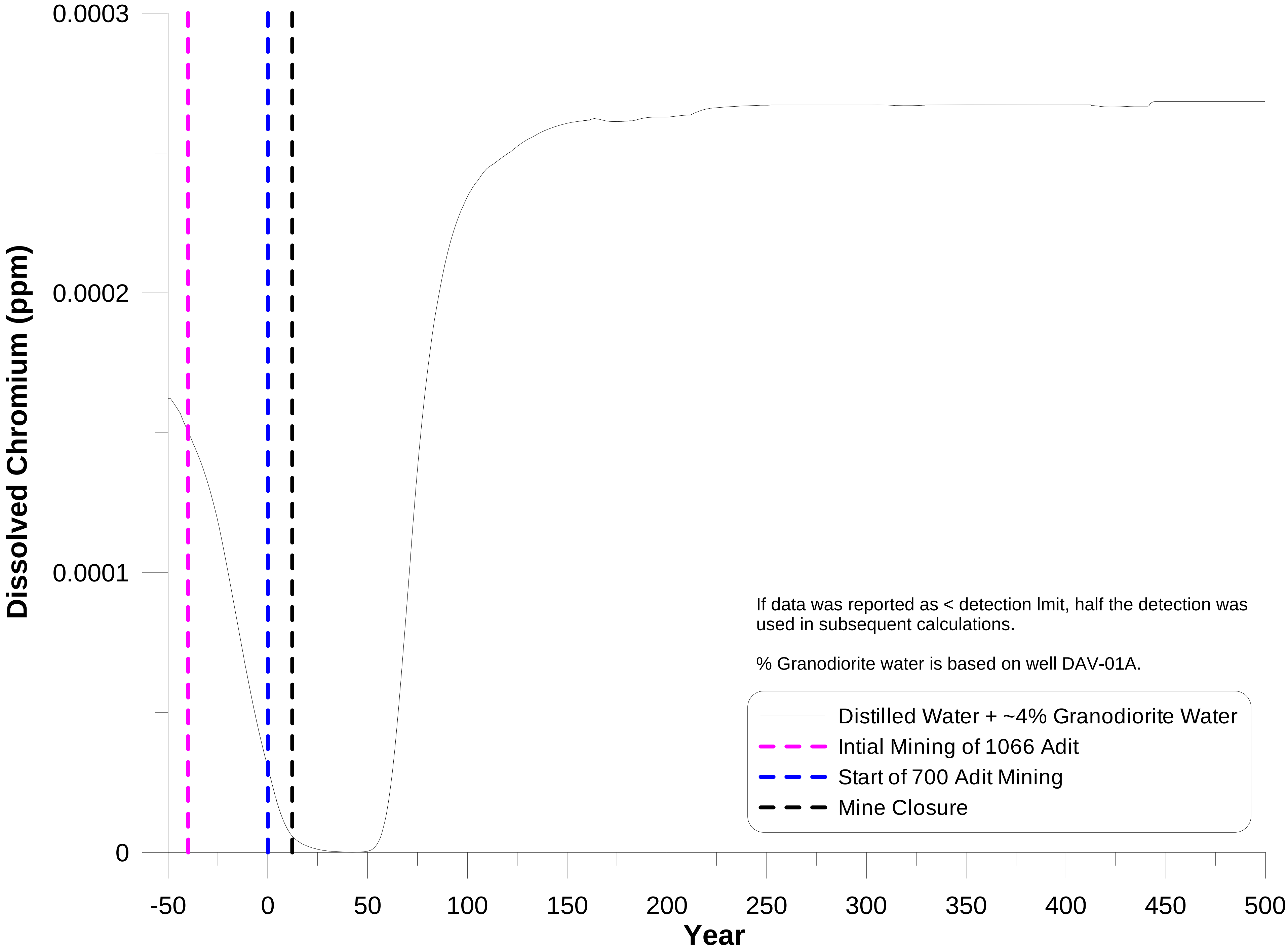


0.004
0.003
0.002
0.001
0
Dissolved Boron (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

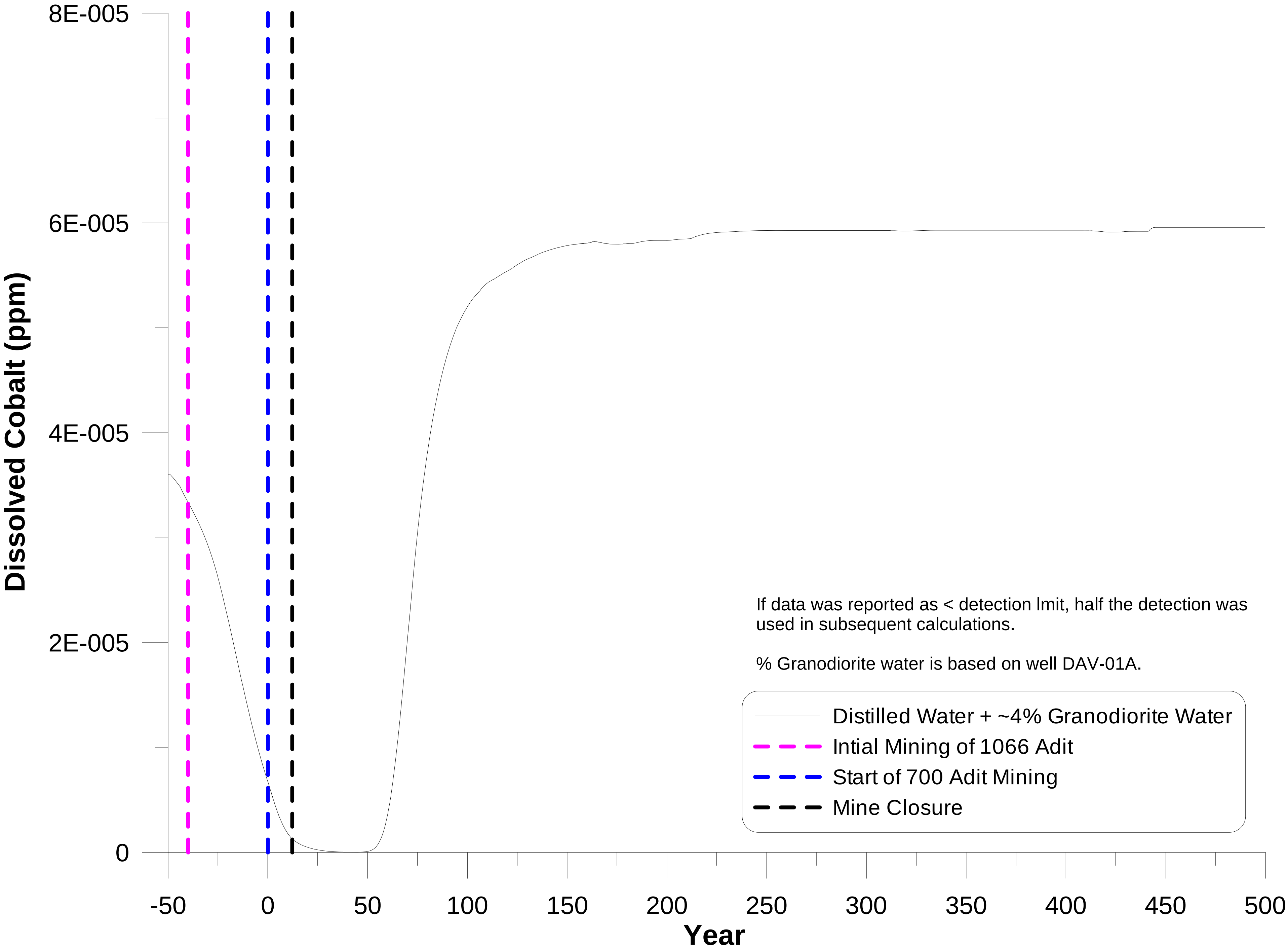

0.0001
8E-005
6E-005
4E-005
2E-005
0
Dissolved Cadmium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



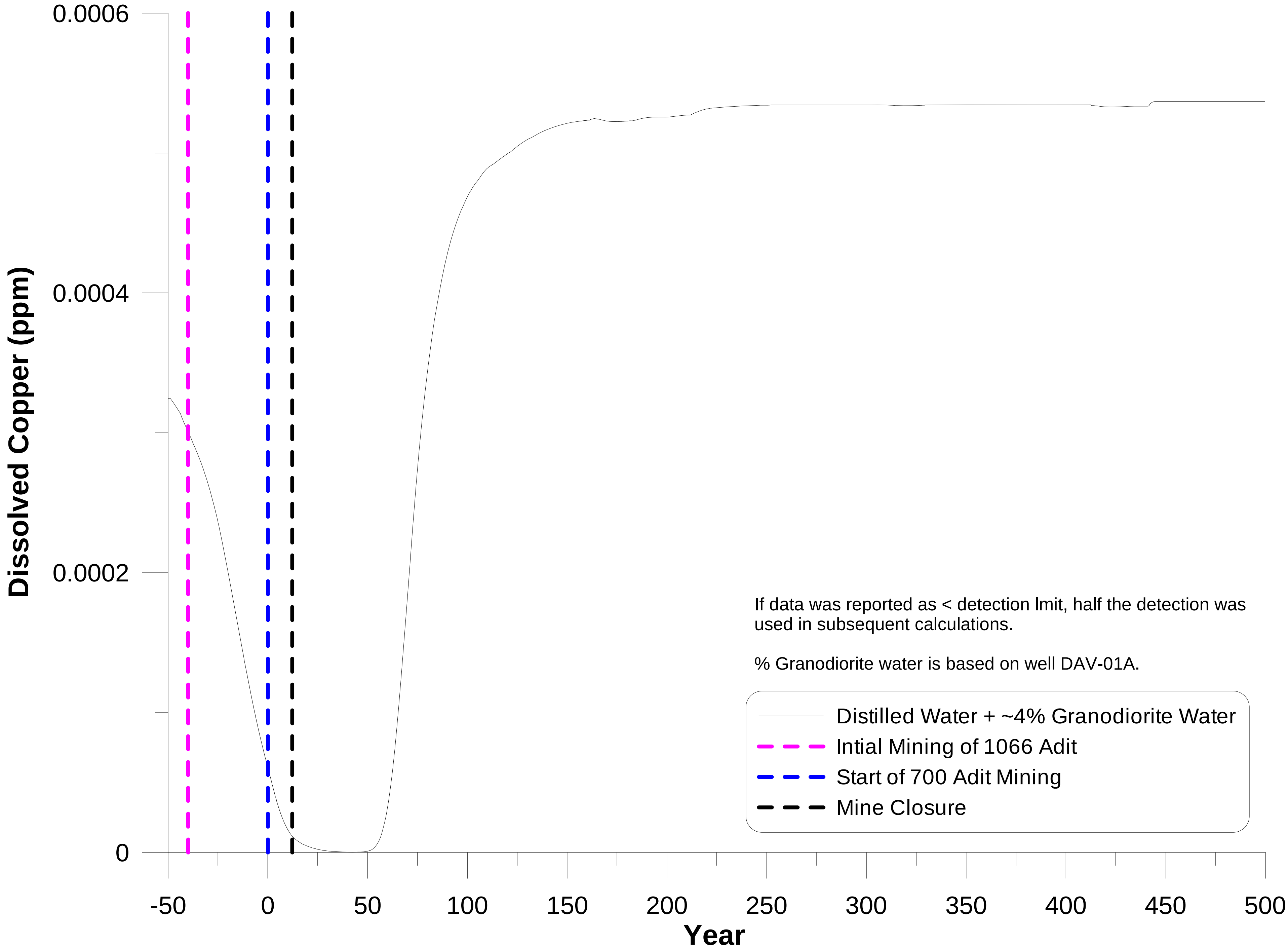
6
4
2
0
Dissolved Calcium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



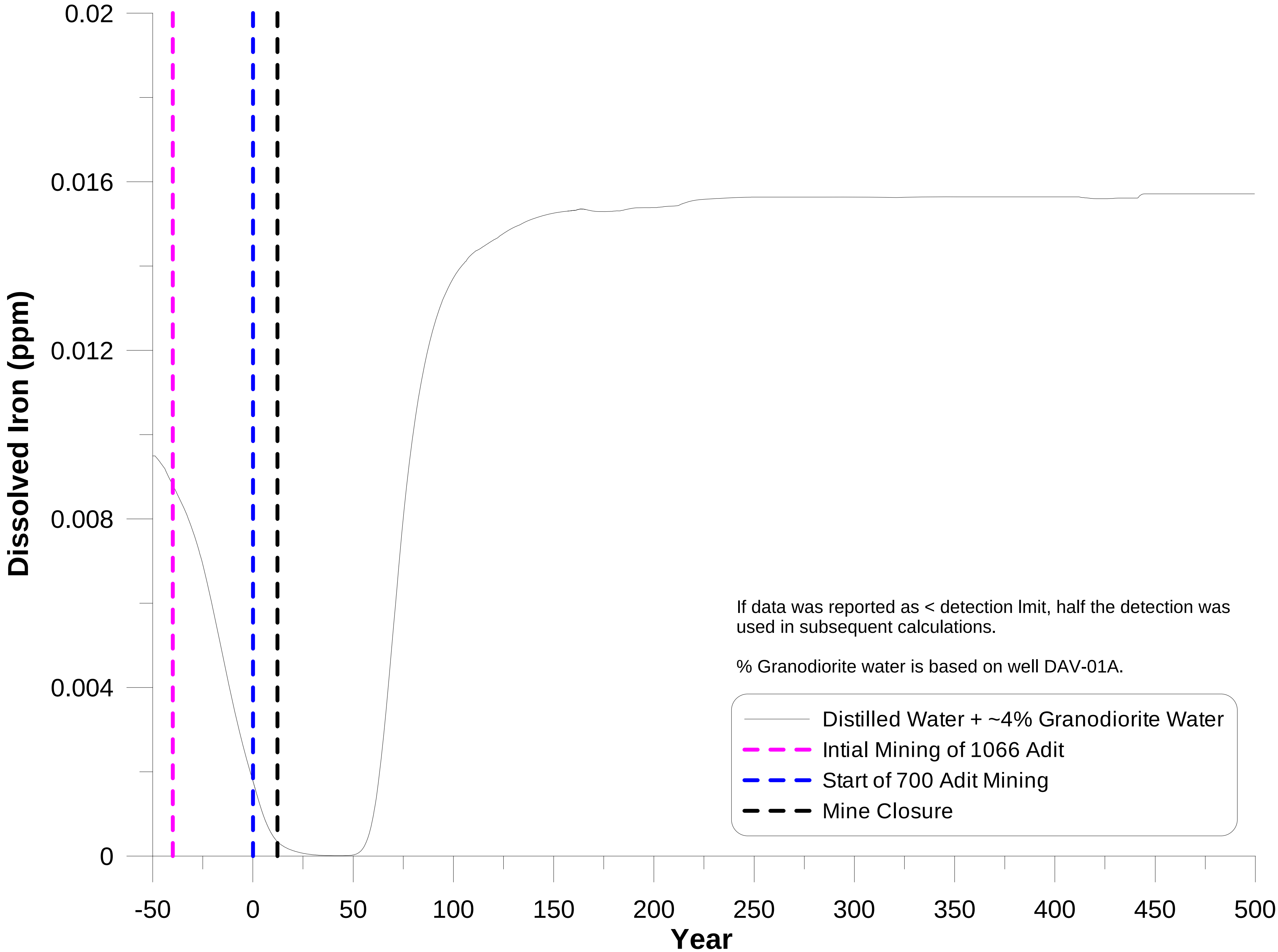
0.0003
0.0002
0.0001
0
Dissolved Chromium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



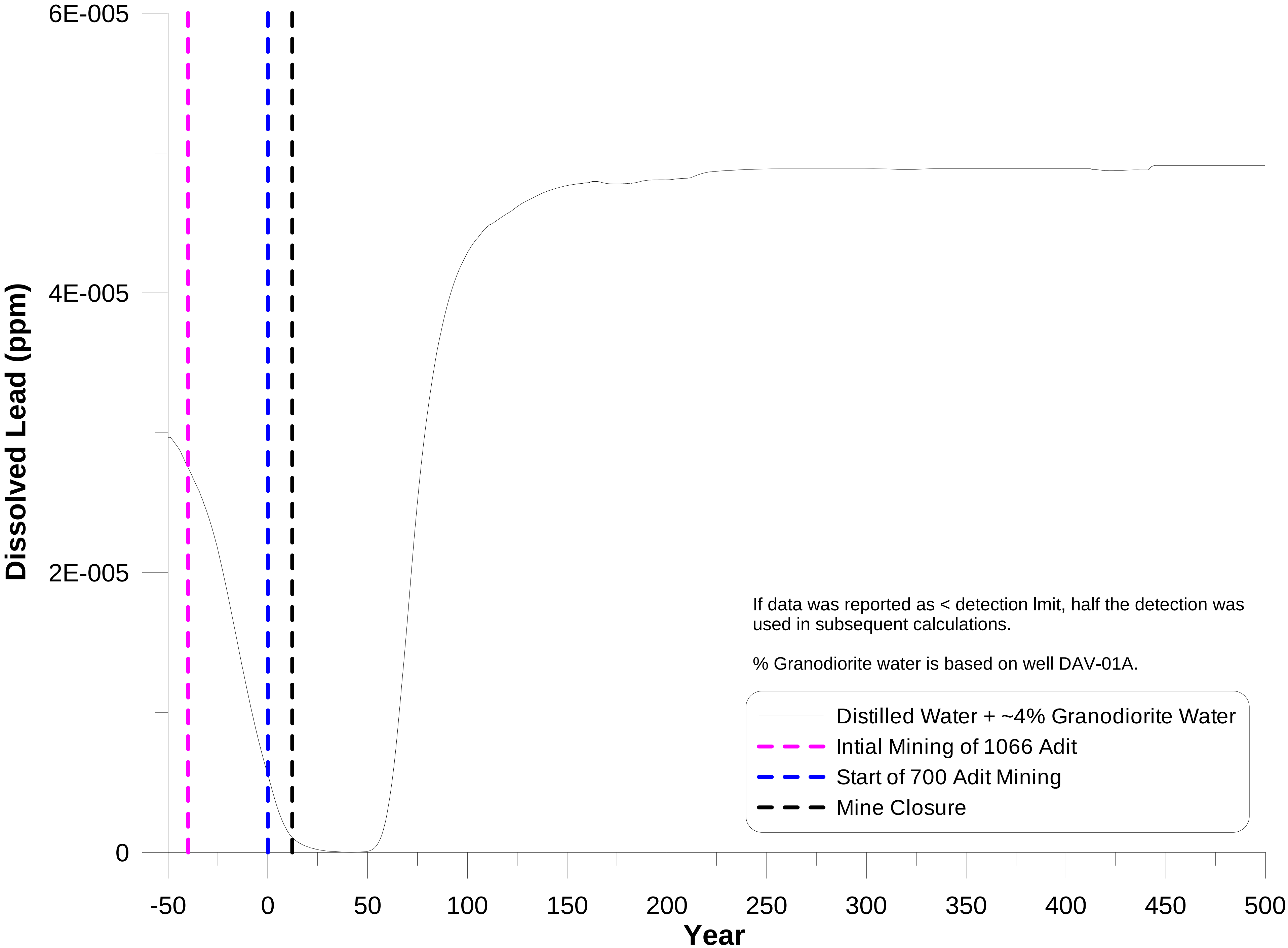
8E-005
6E-005
4E-005
2E-005
0
Dissolved Cobalt (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

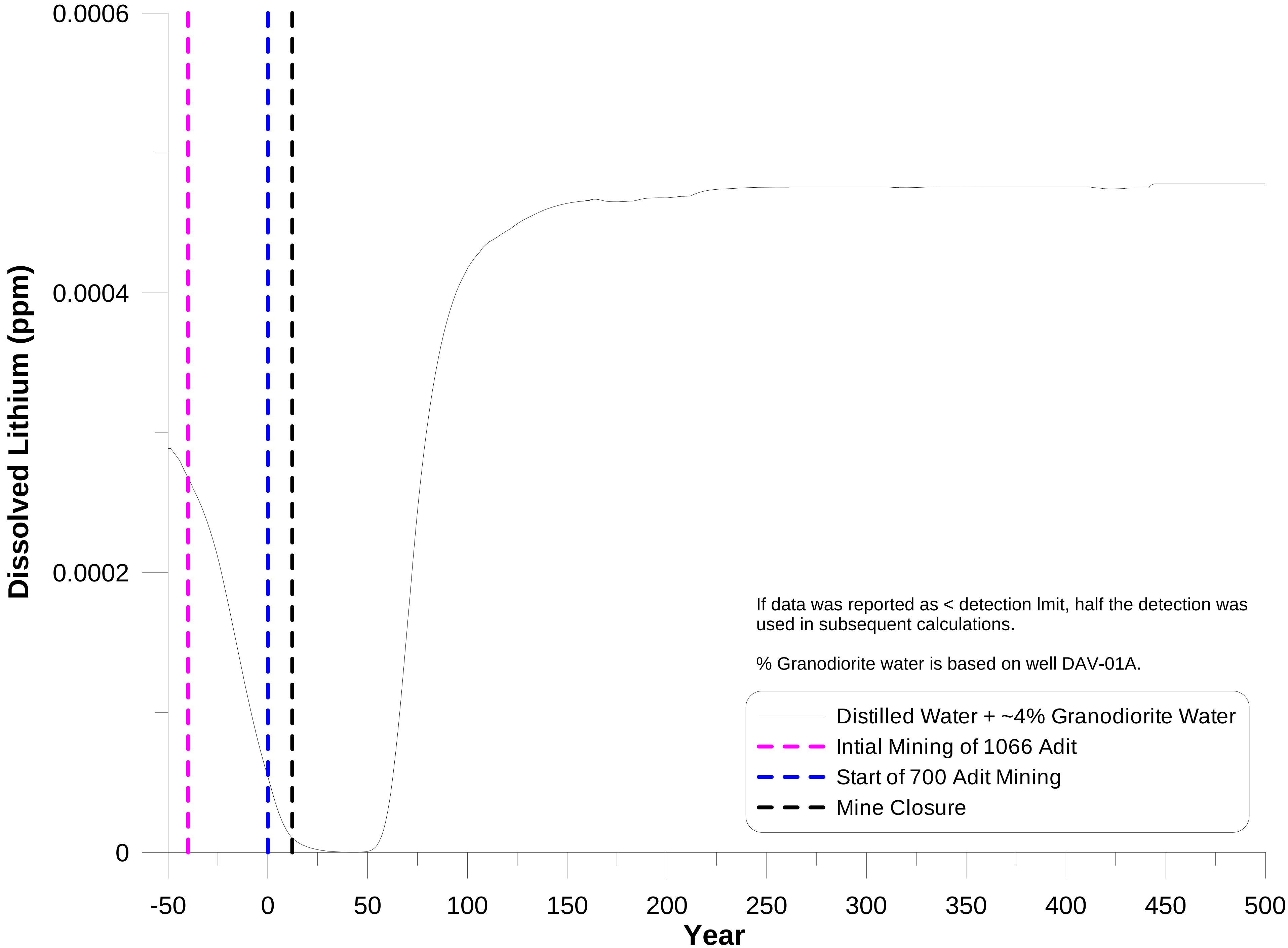


0.0006
0.0004
0.0002
0
Dissolved Copper (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

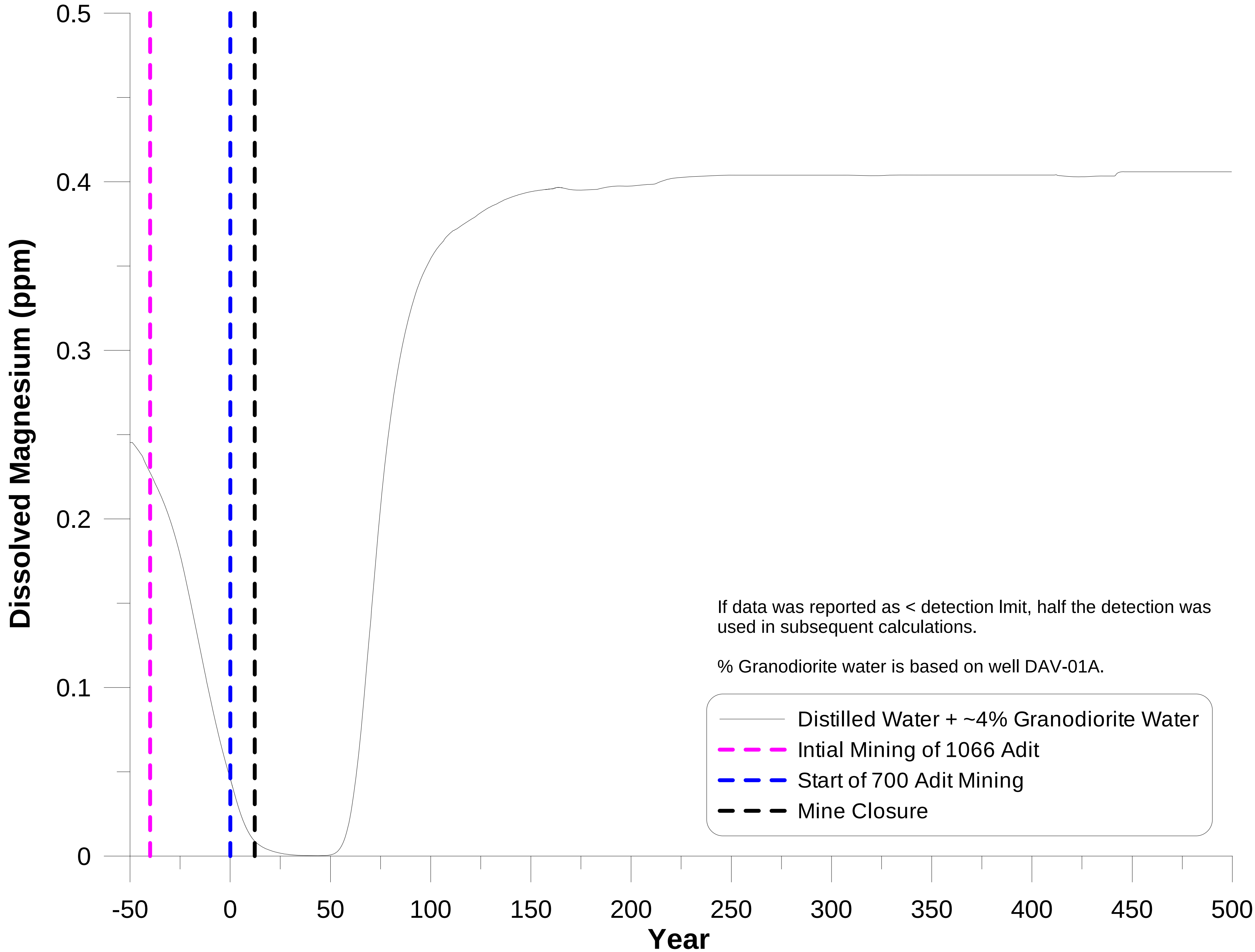


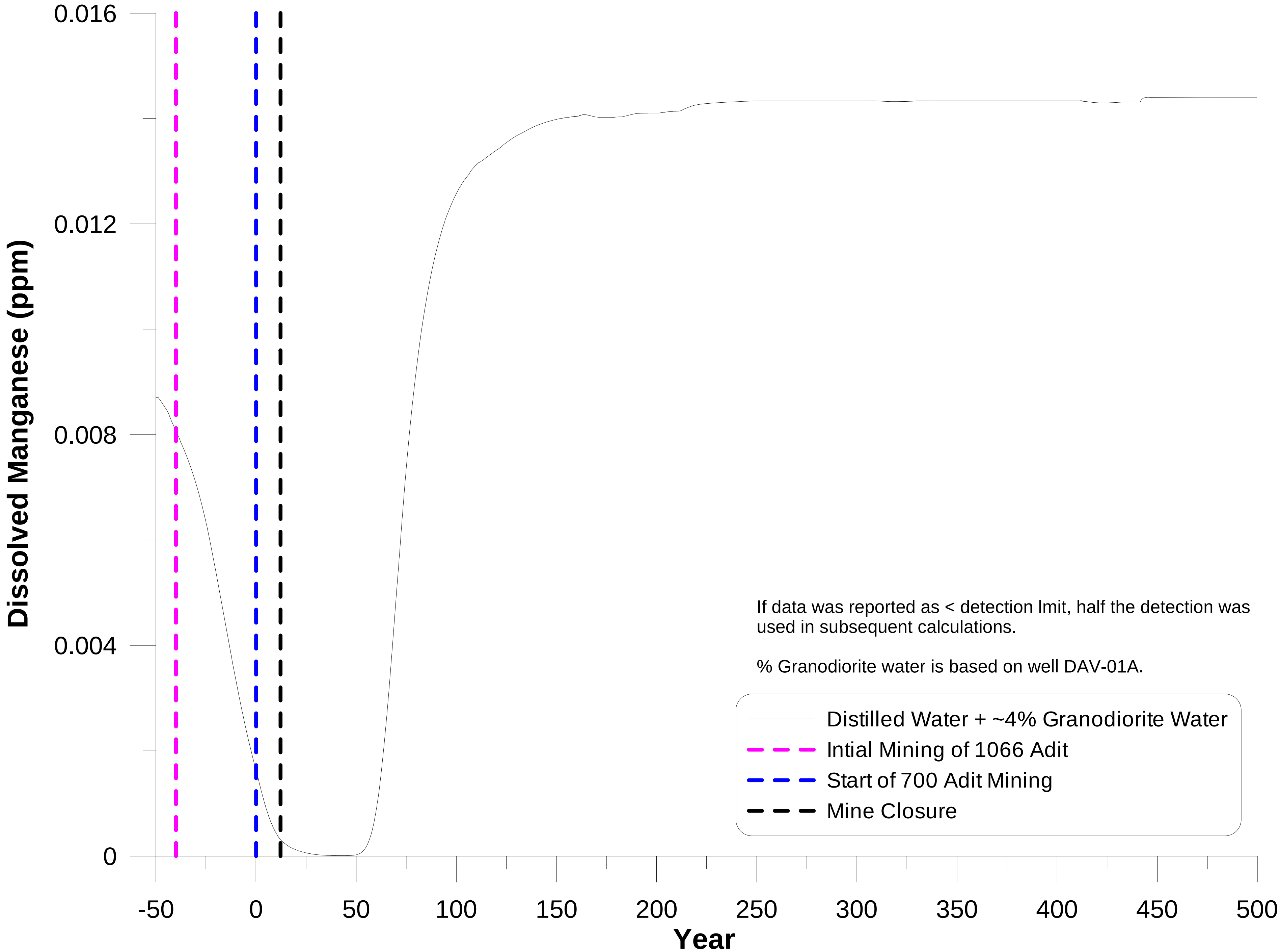
Dissolved Iron (ppm)
0.02
0.016
0.012
0.008
0.004
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

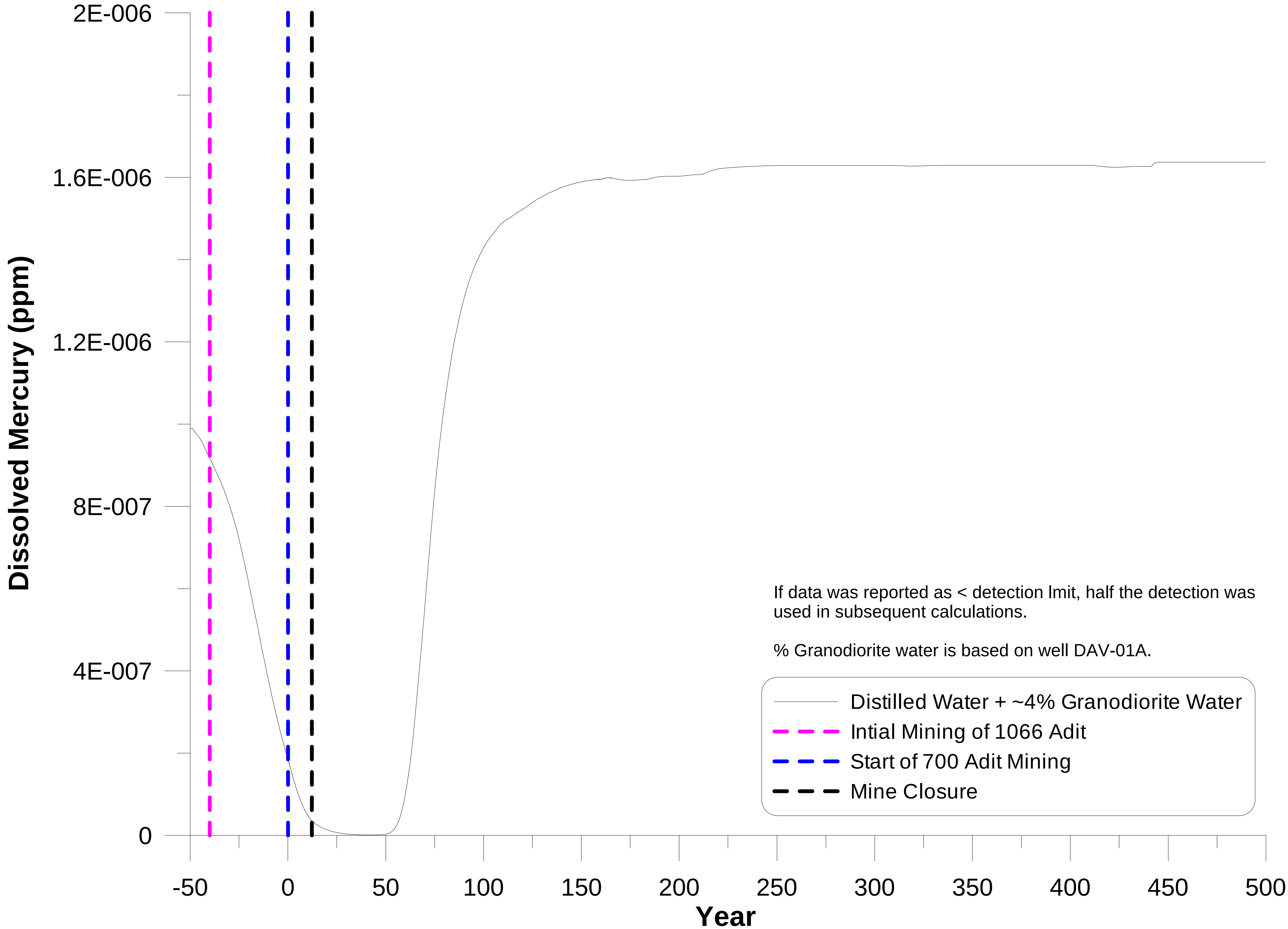

6E-005
4E-005
2E-005
0
Dissolved Lead (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



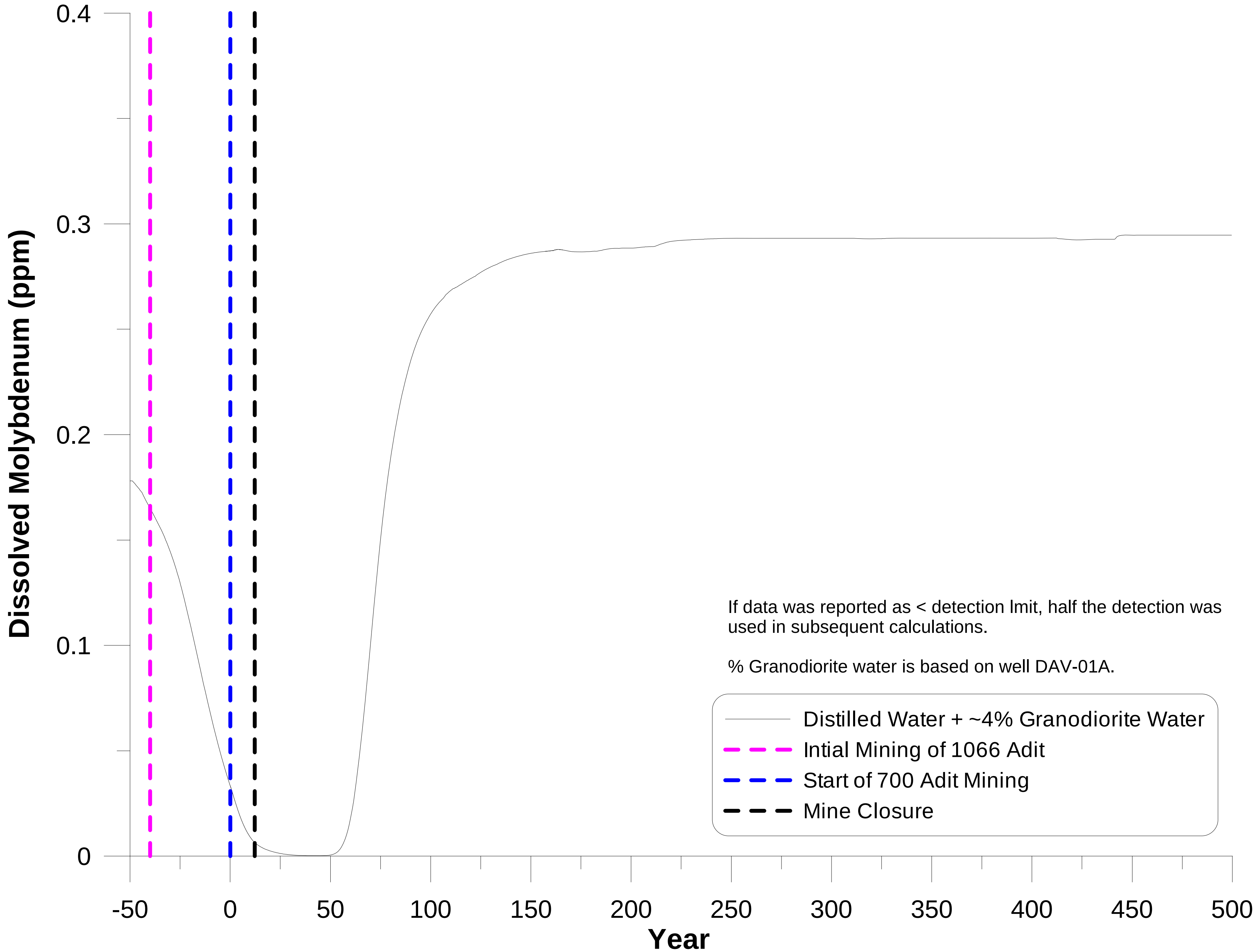
Dissolved Lithium (ppm)
0.0006
0.0004
0.0002
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

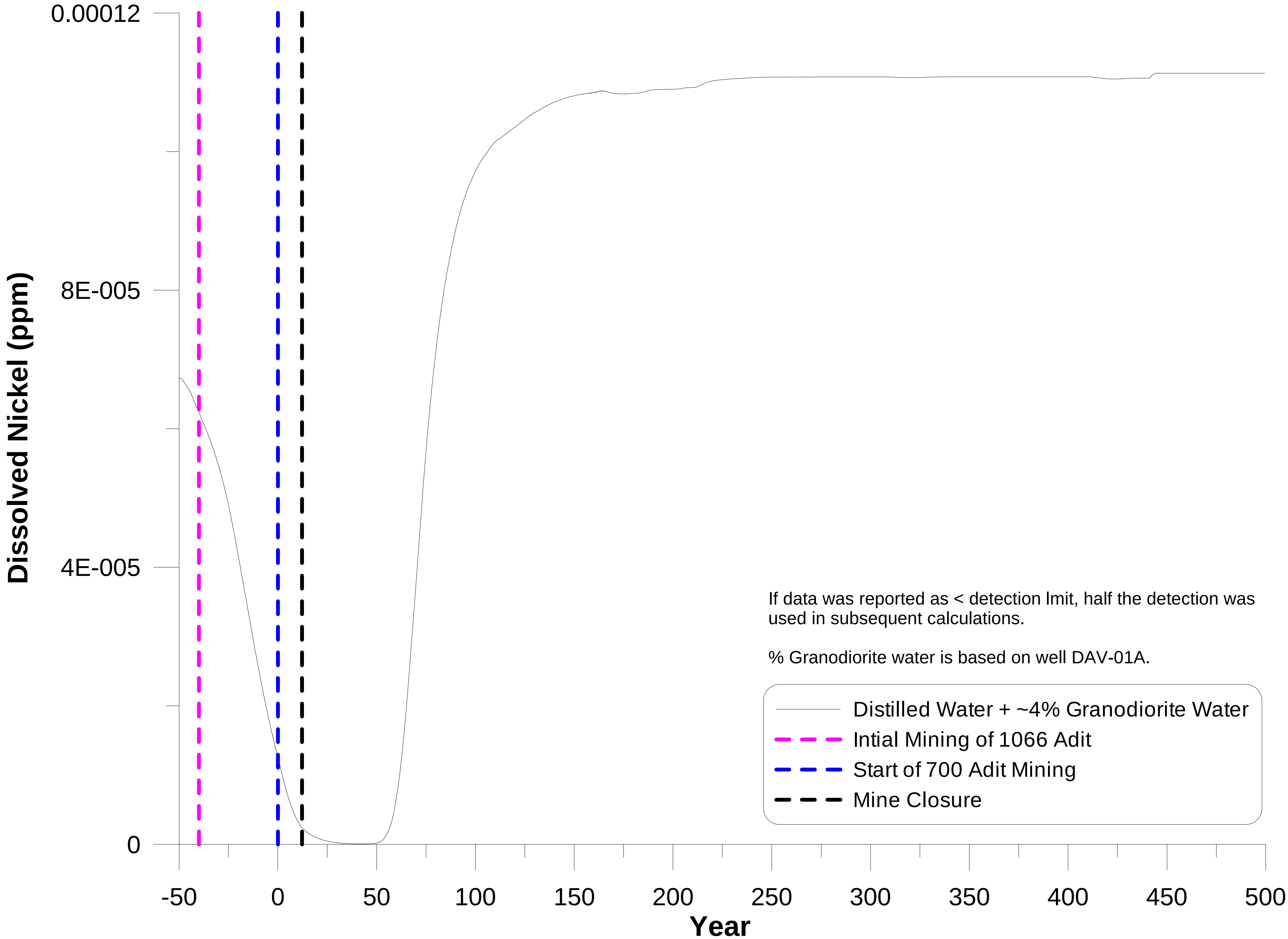

Dissolved Magnesium (ppm)
0.5
0.4
0.3
0.2
0.1
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

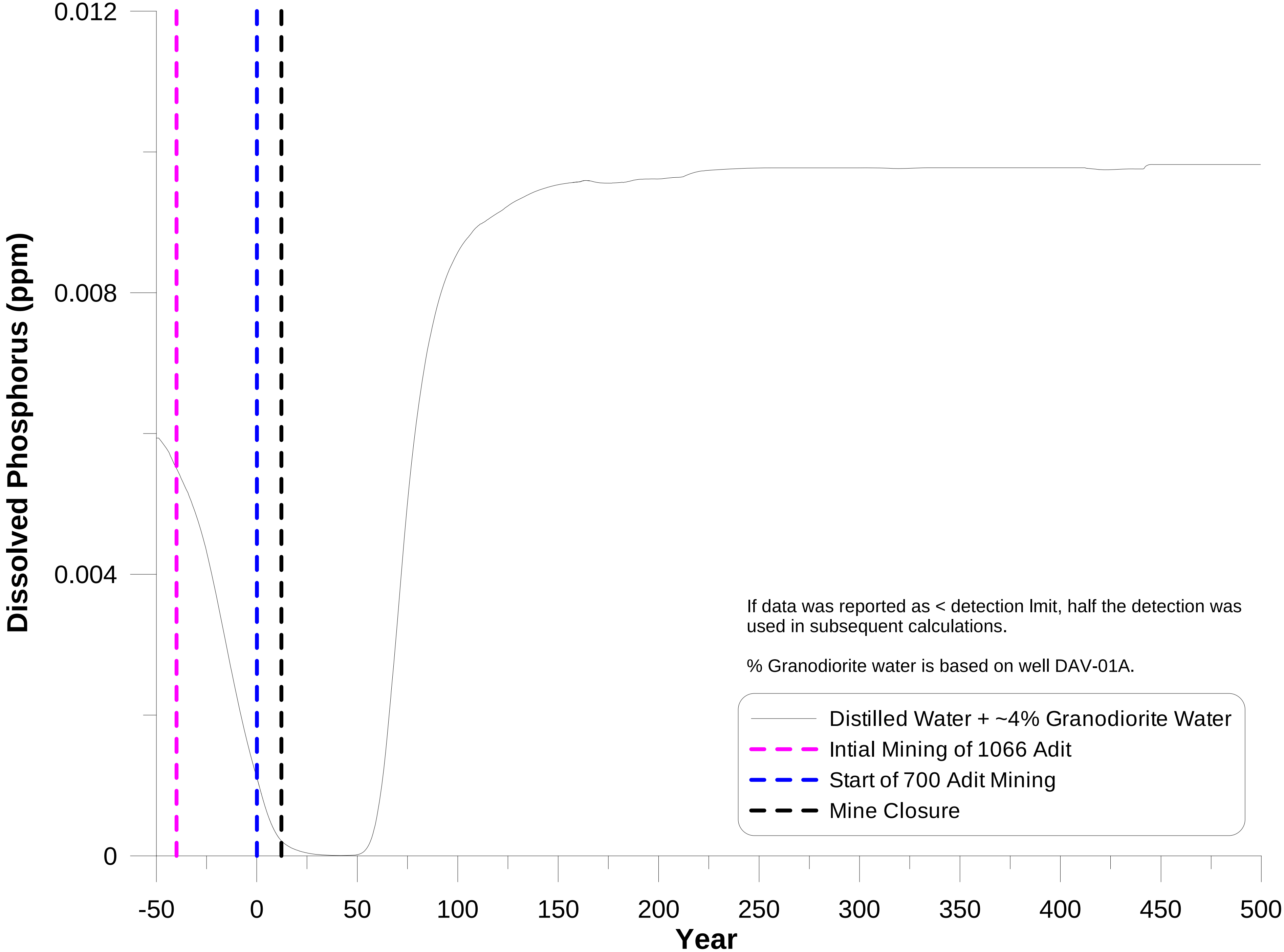

0.016
0.012
0.008
0.004
0
Dissolved Manganese (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



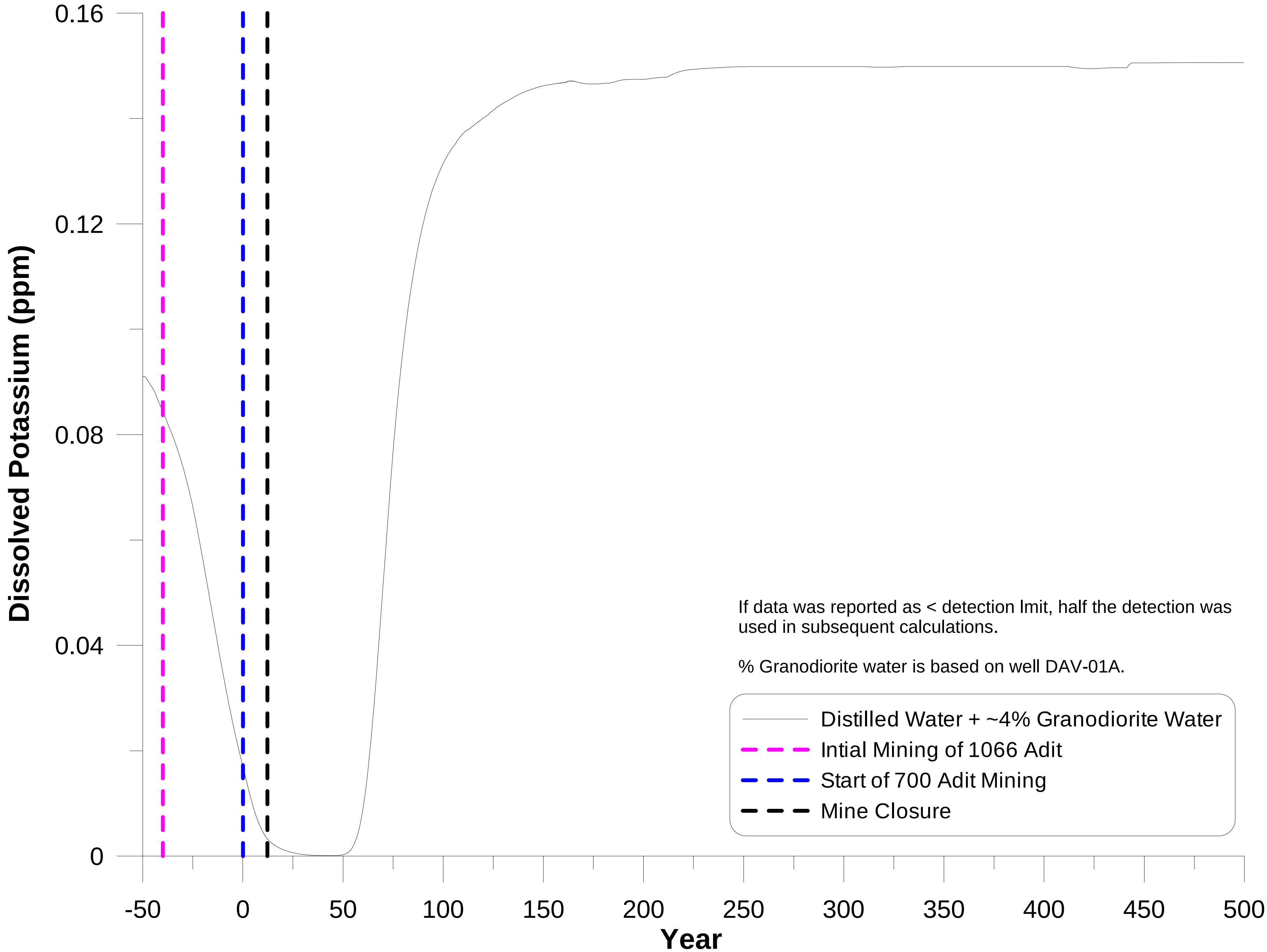
Dissolved Mercury (ppm)
2E-006
1.6E-006
1.2E-006
8E-007
4E-007
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure


Dissolved Molybdenum (ppm)
0.4
0.3
0.2
0.1
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

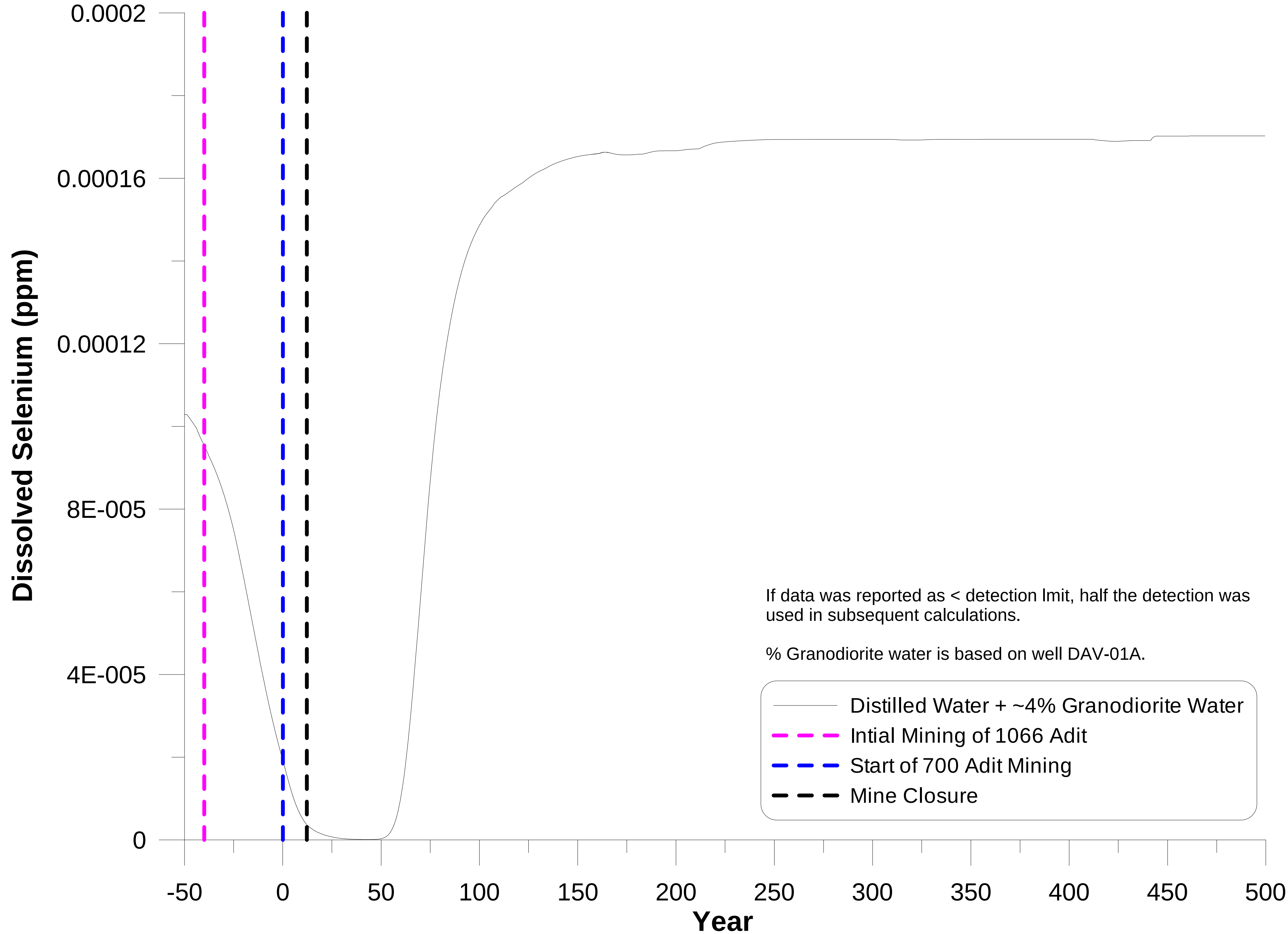

0.00012
8E-005
4E-005
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
Dissolved Nickel (ppm)
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



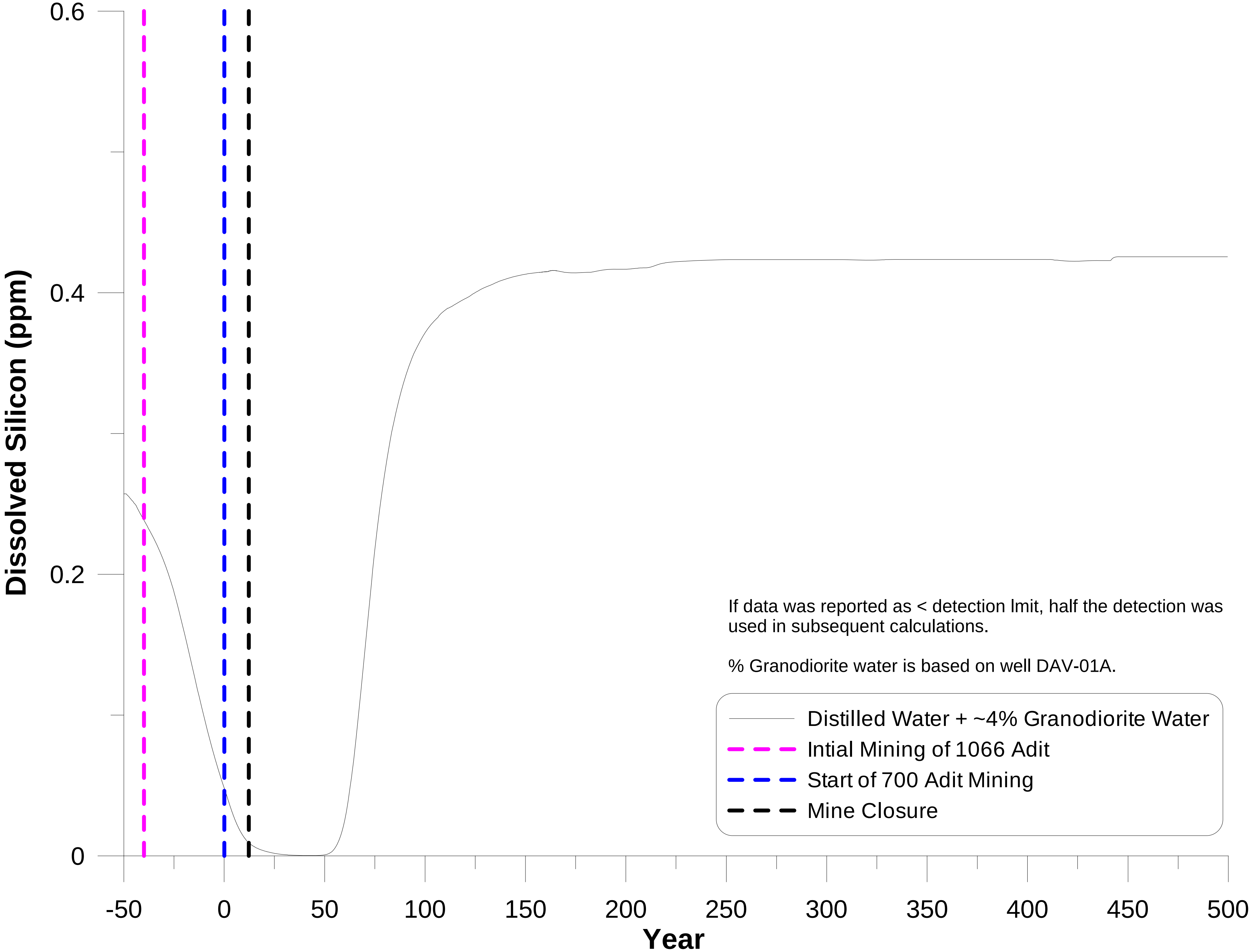
0.012
0.008
0.004
0
Dissolved Phosphorus (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



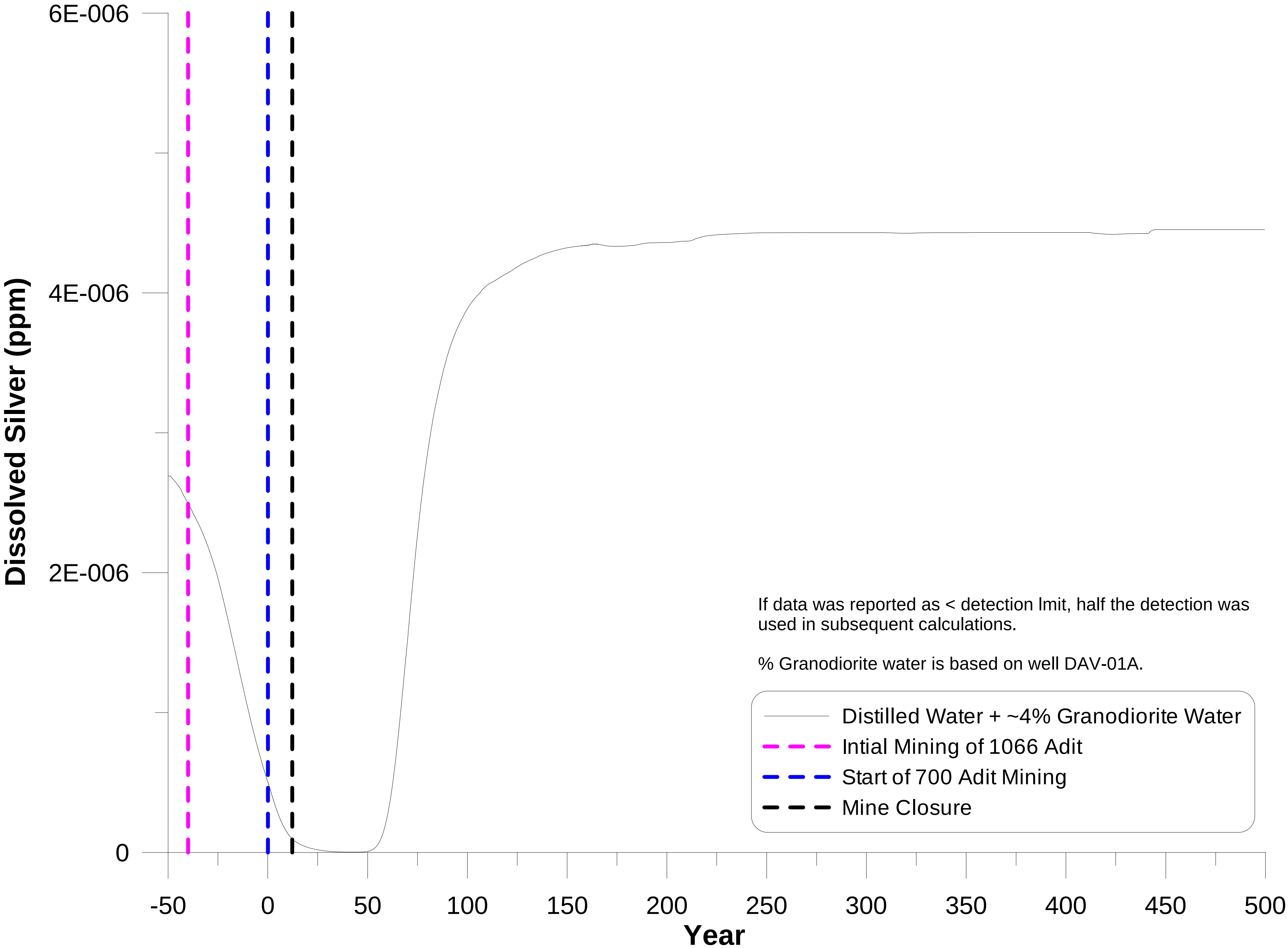
0.16
0.12
0.08
0.04
0
Dissolved Potassium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



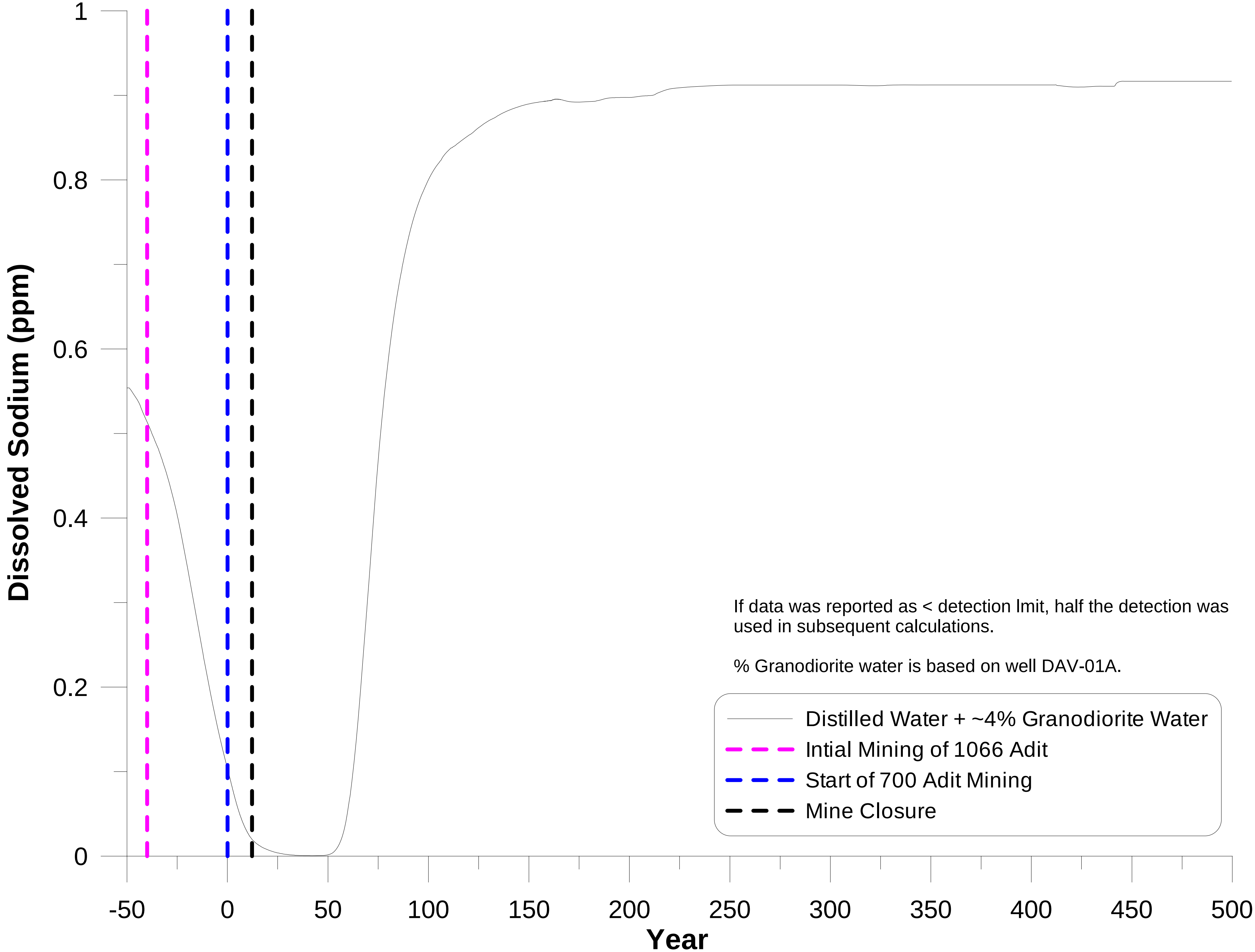
Dissolved Selenium (ppm)
0.0002
0.00016
0.00012
8E-005
4E-005
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



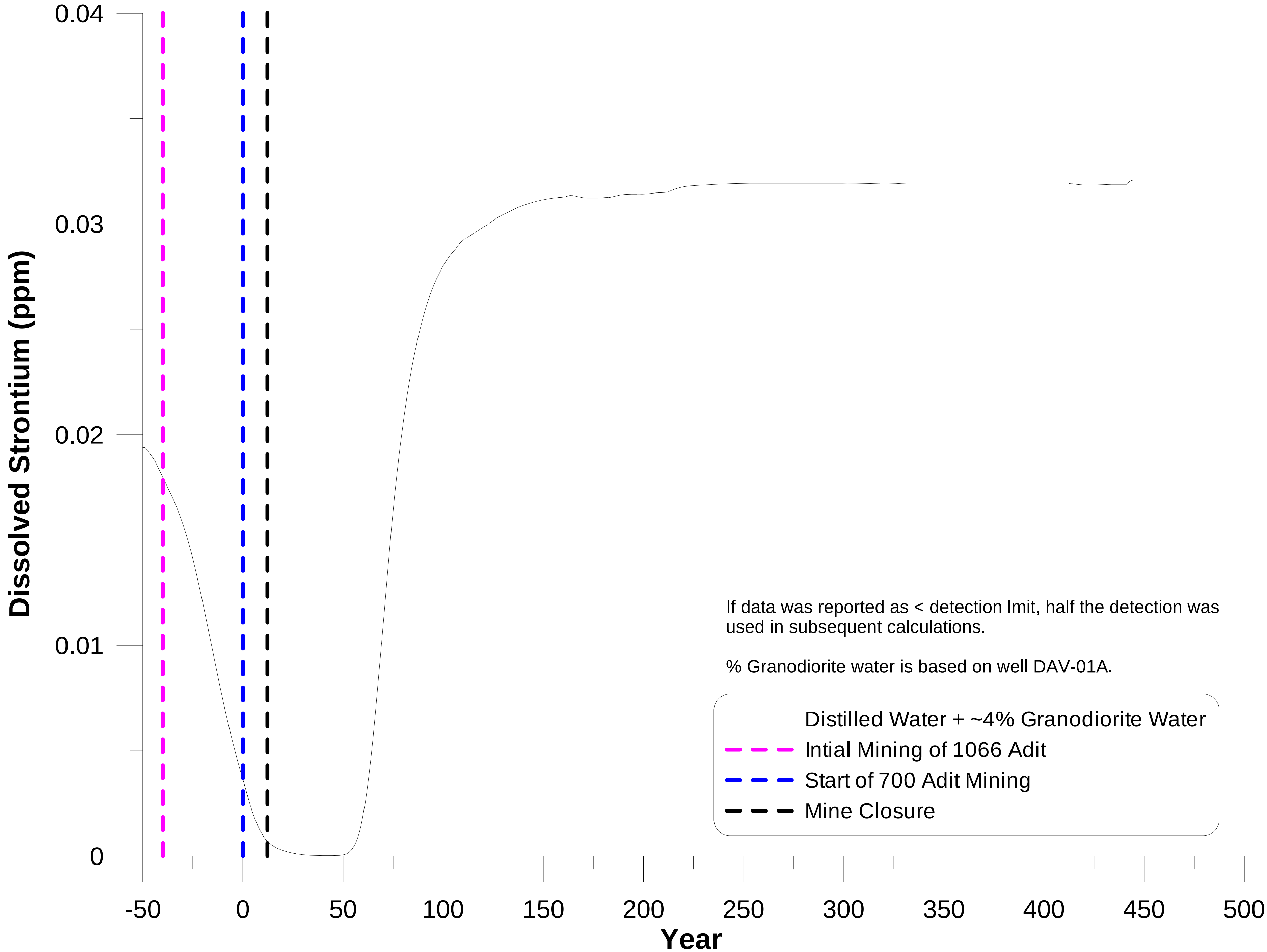
0.6
0.4
0.2
0
Dissolved Silicon (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



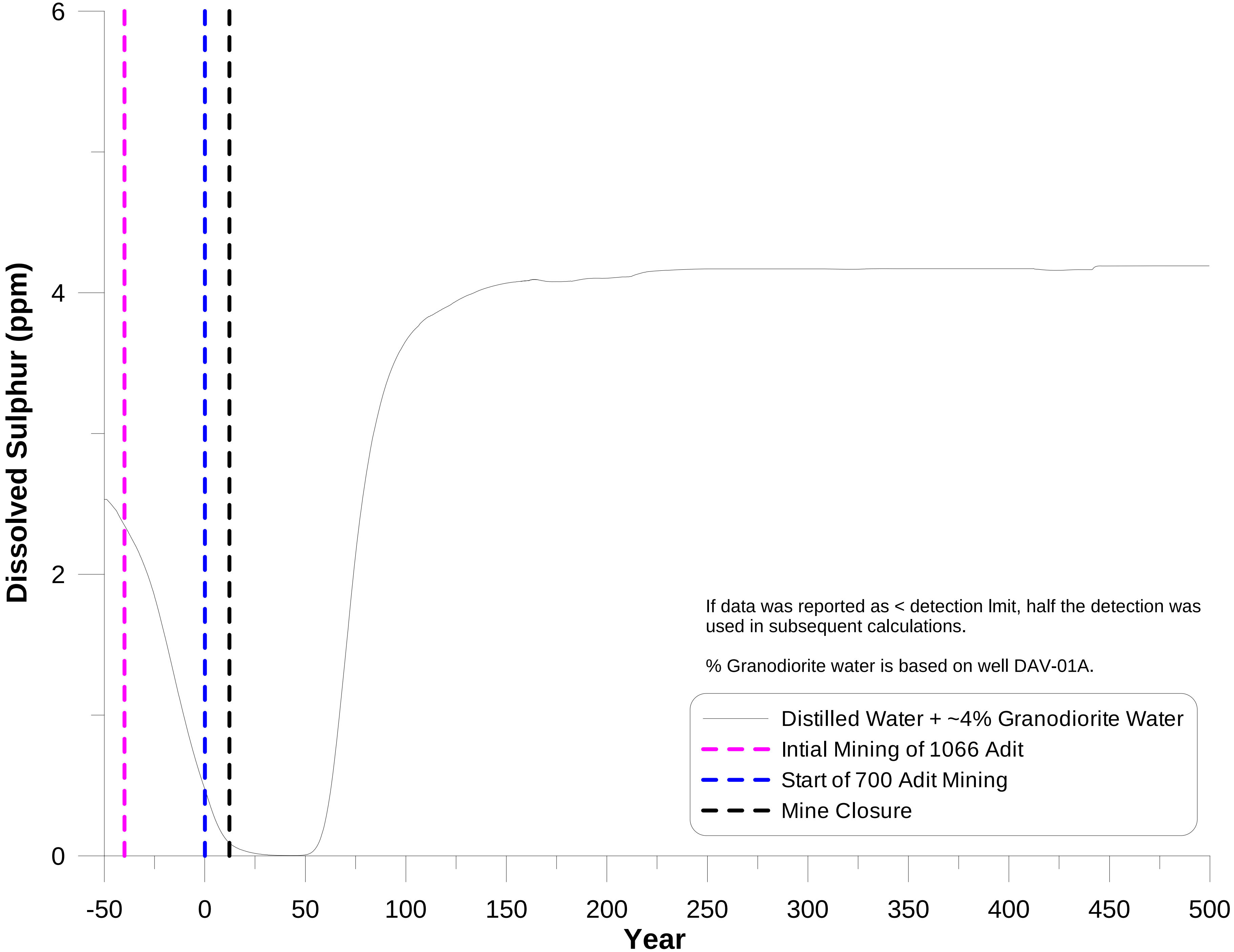
6E-006
4E-006
2E-006
0
Dissolved Silver (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

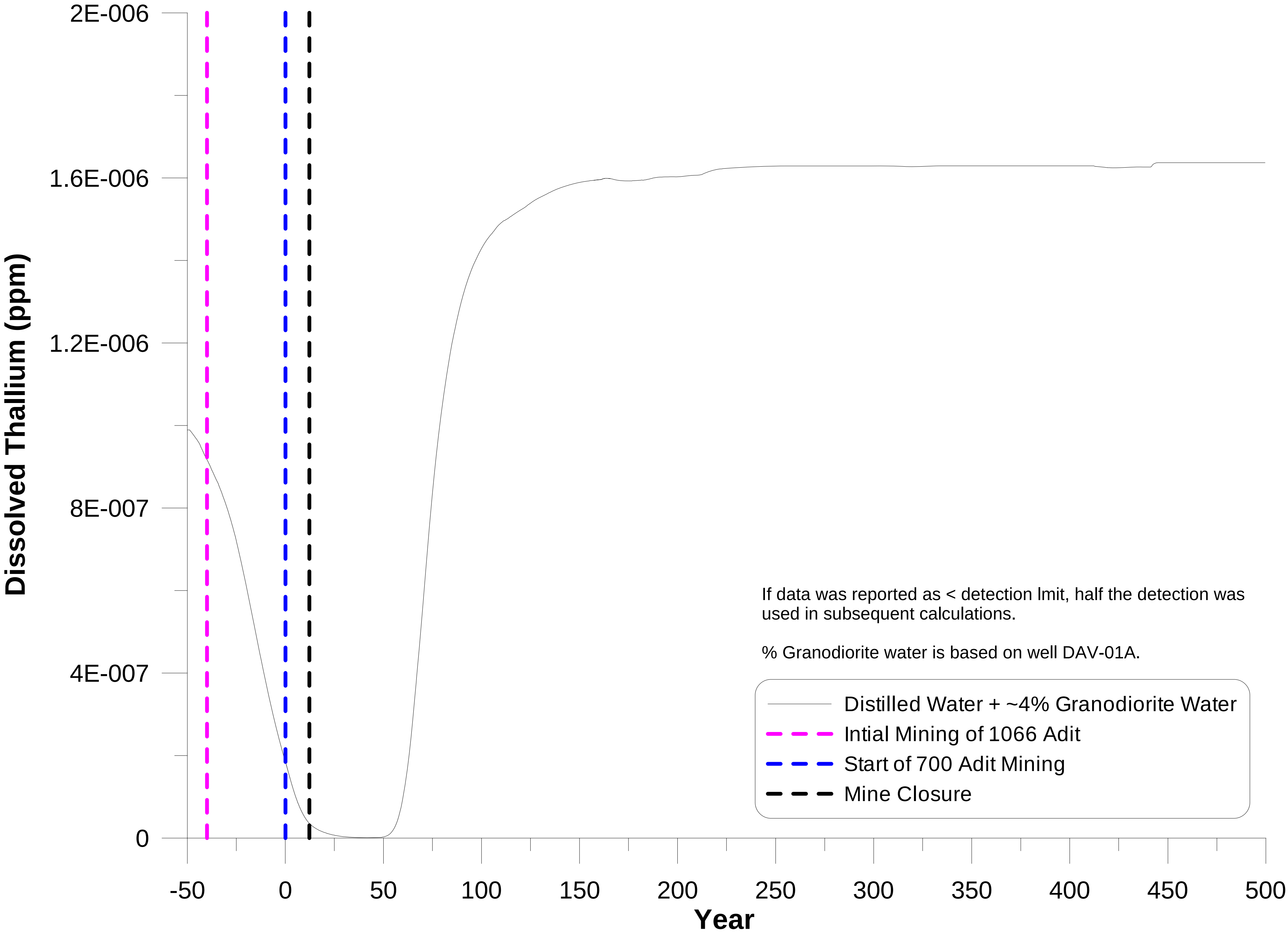


Dissolved Sodium (ppm)
1
0.8
0.6
0.4
0.2
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

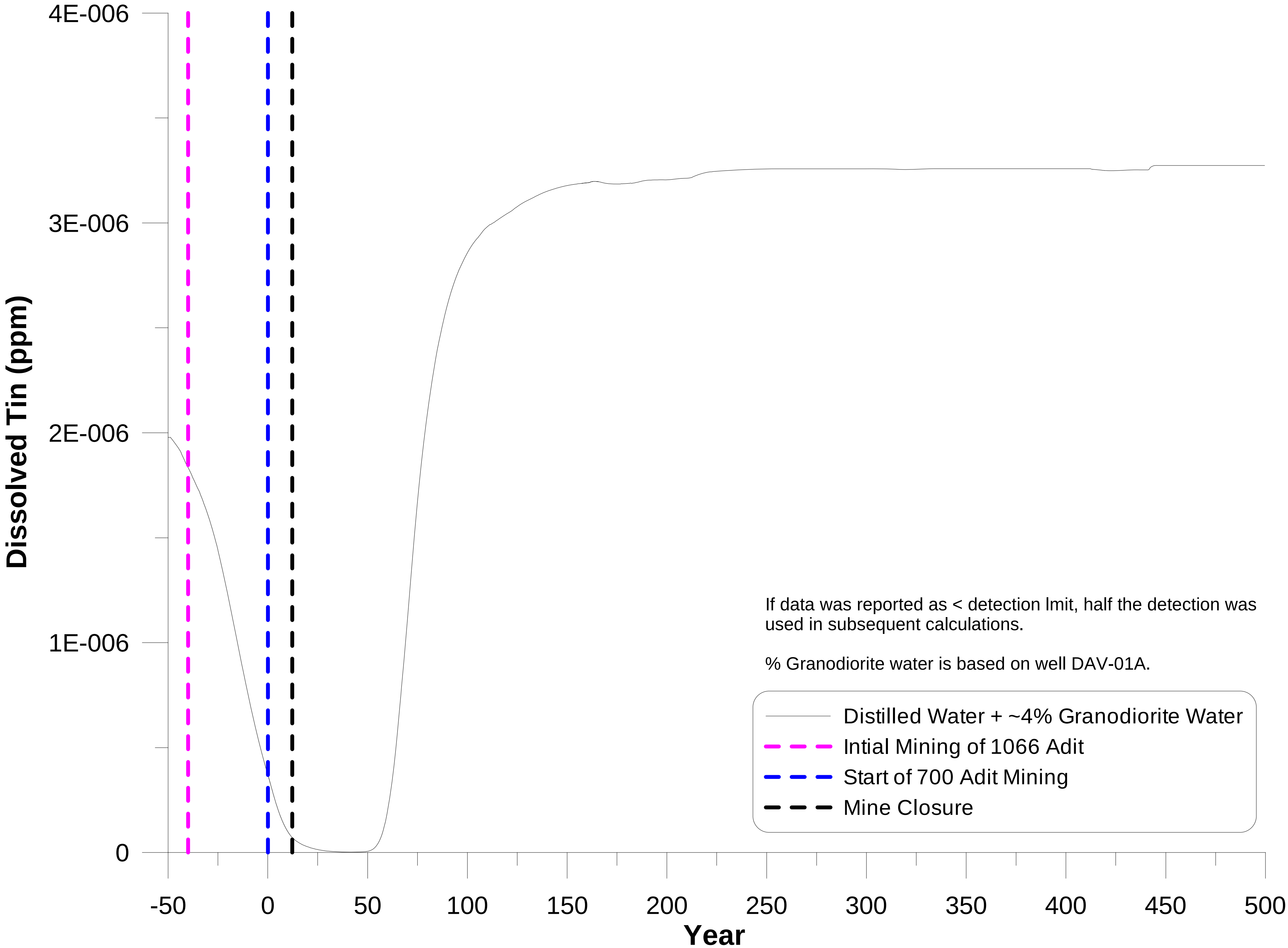


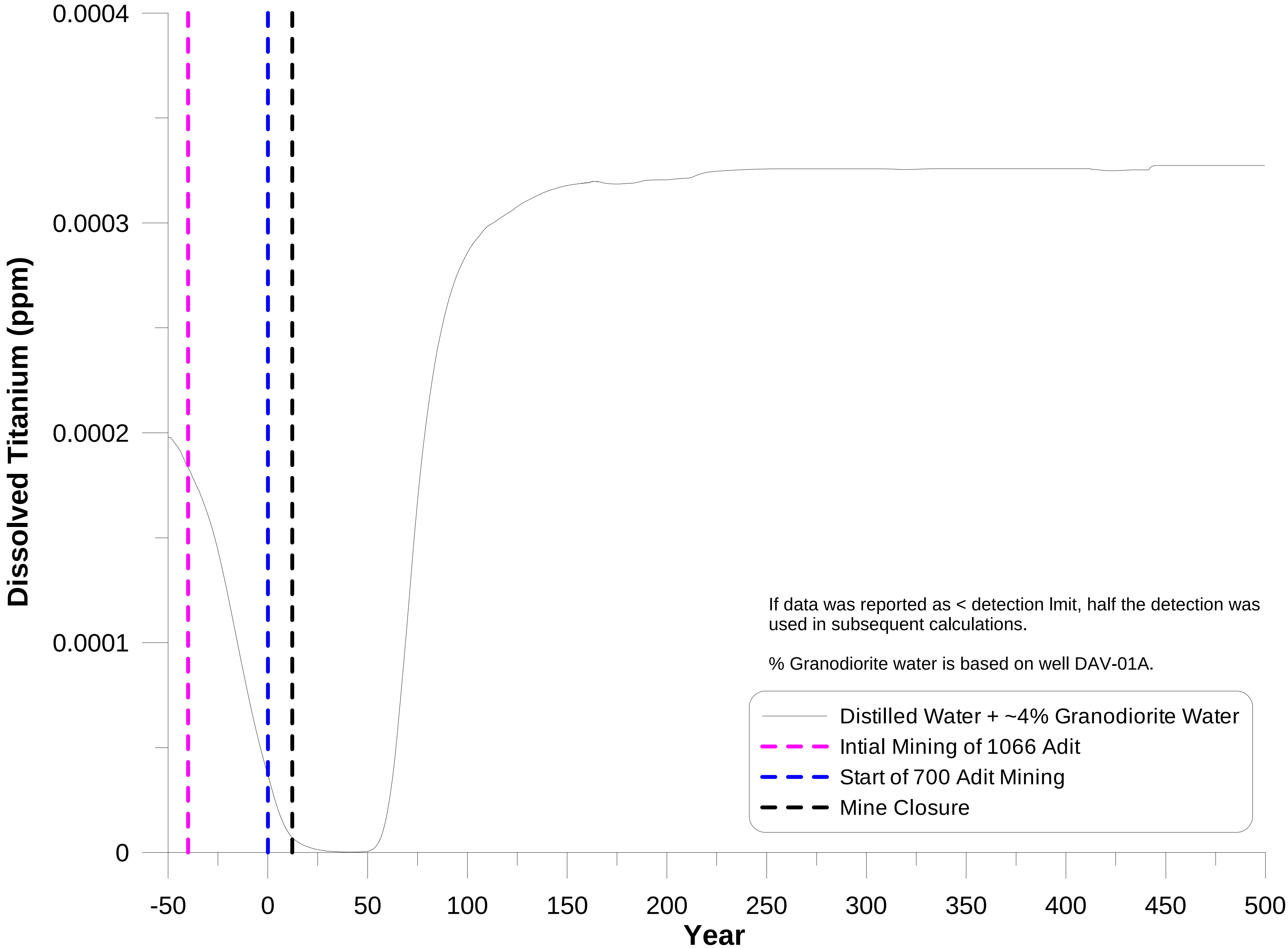
Dissolved Strontium (ppm)
0.04
0.03
0.02
0.01
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure


6
4
2
0
Dissolved Sulphur (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

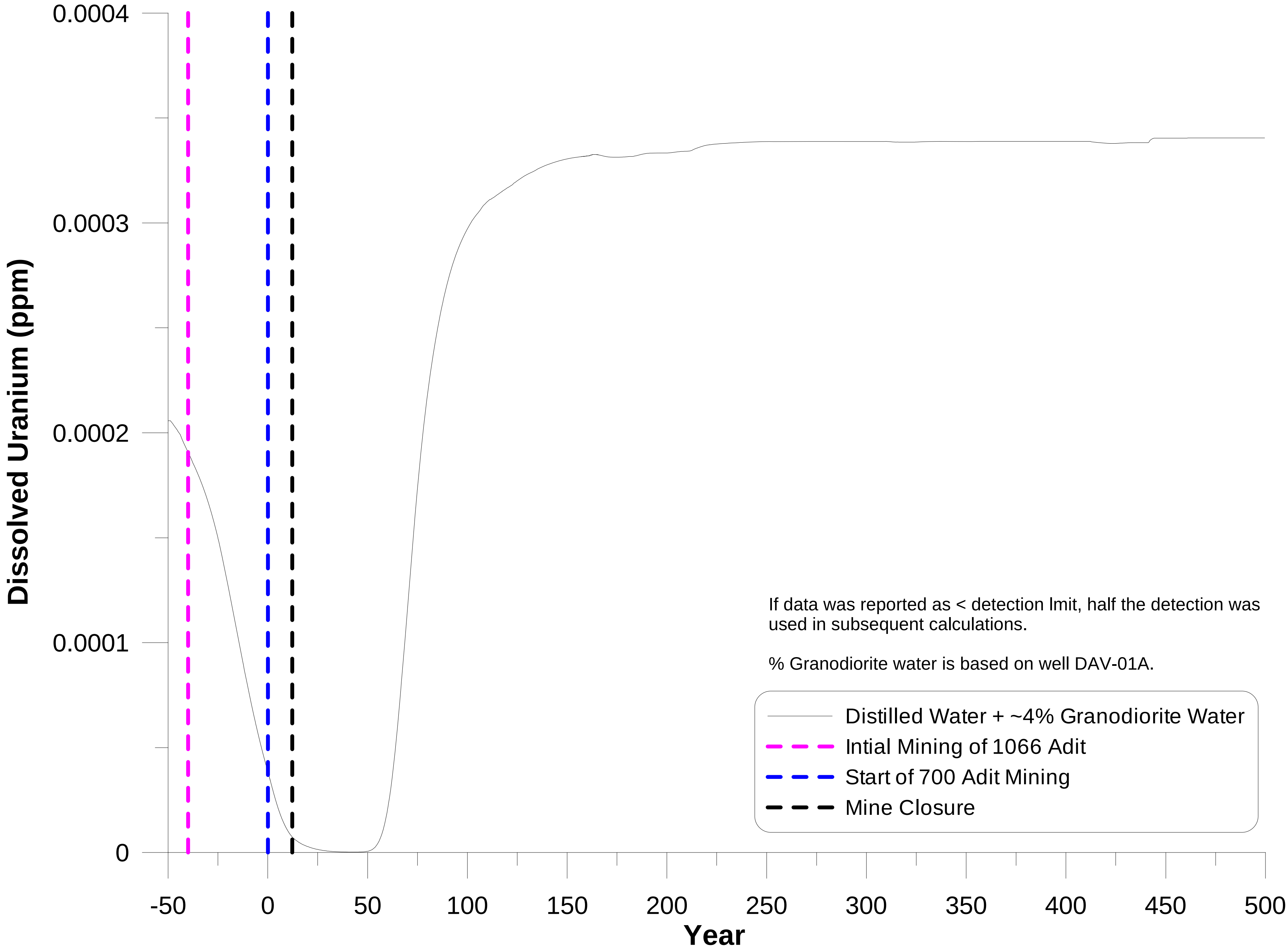


2E-006
1.6E-006
1.2E-006
8E-007
4E-007
0
Dissolved Thallium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

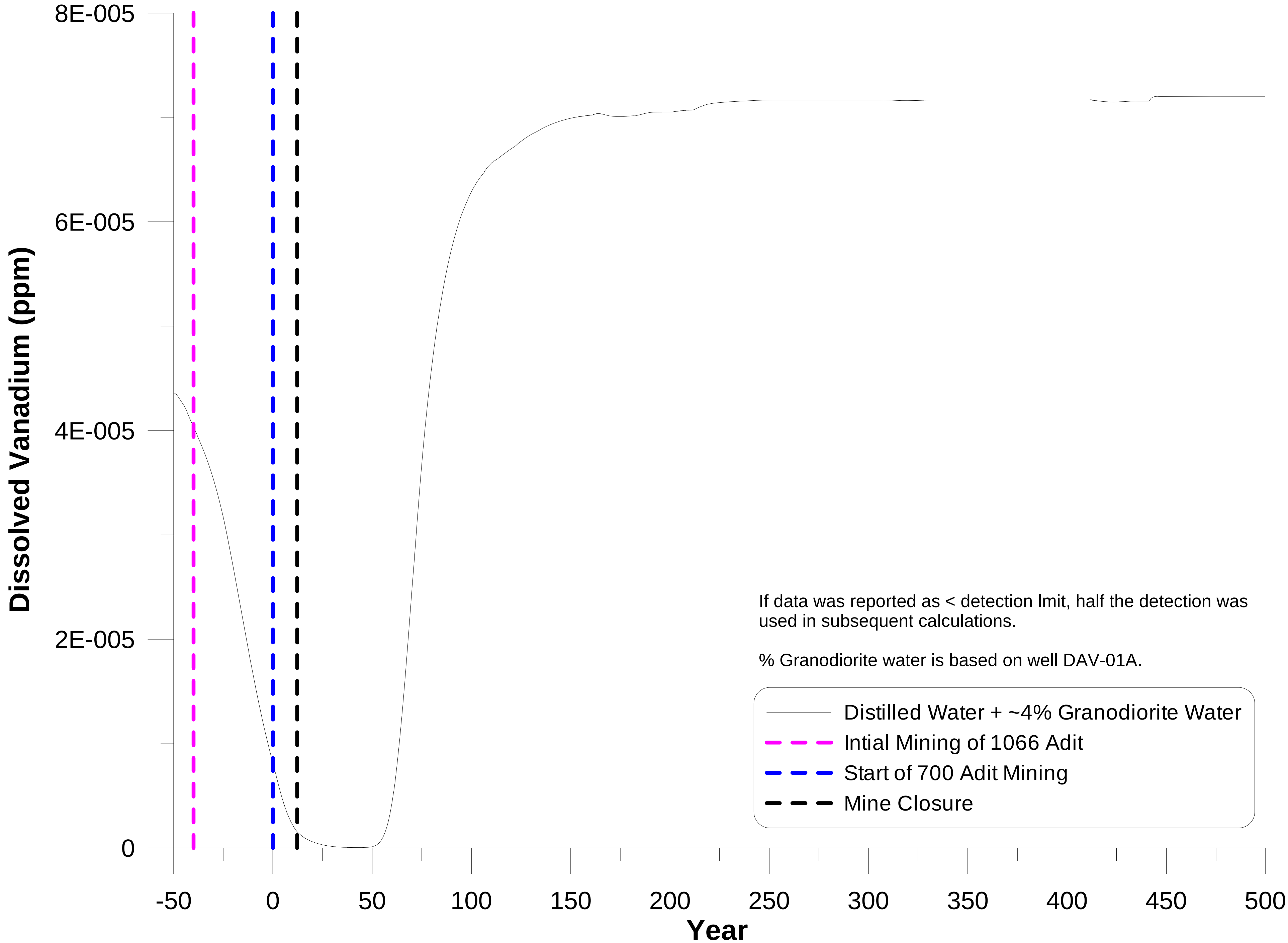

4E-006
3E-006
2E-006
1E-006
0
Dissolved Tin (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



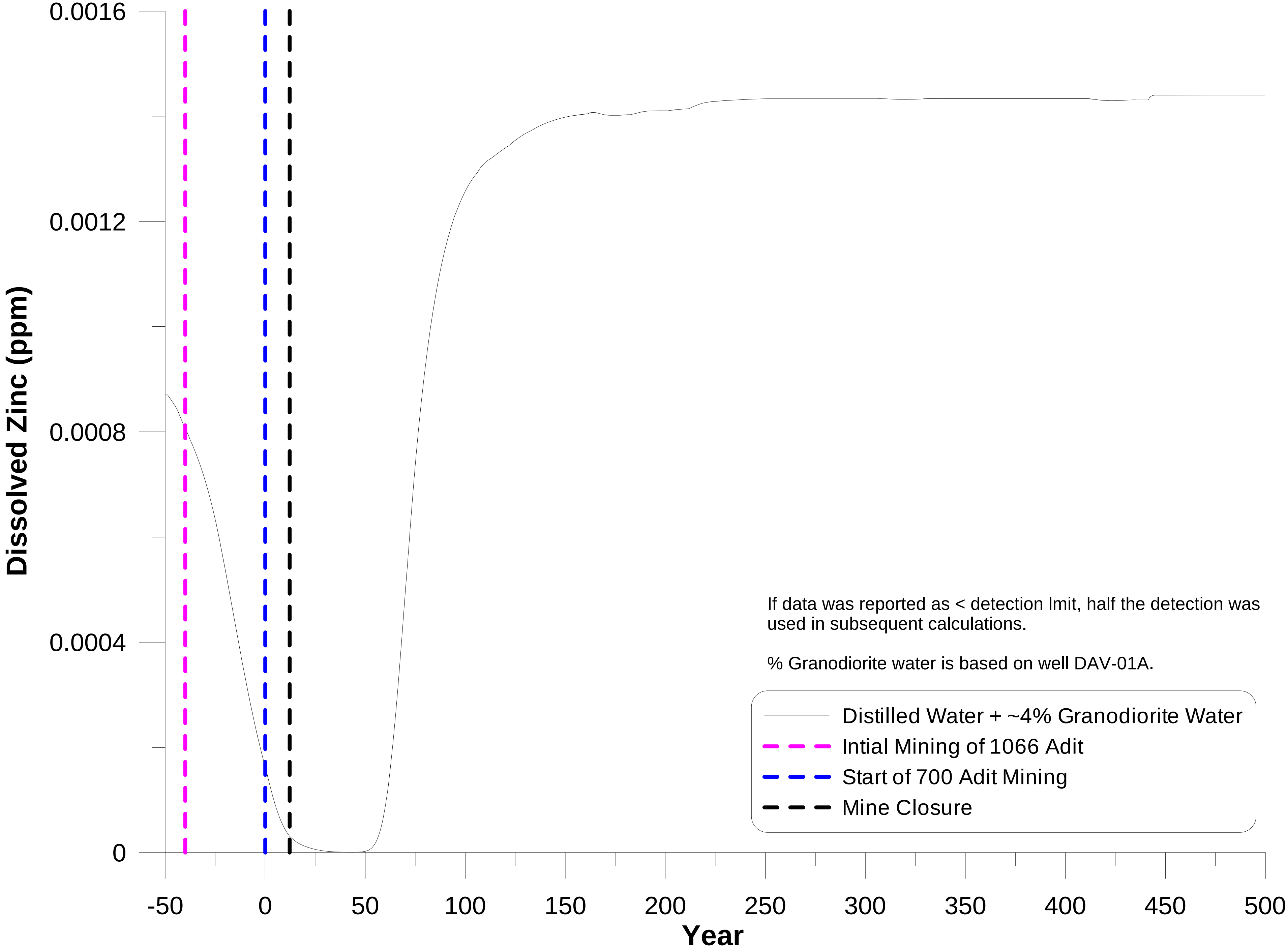
Dissolved Titanium (ppm)
0.0004
0.0003
0.0002
0.0001
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



0.0004
0.0003
0.0002
0.0001
0
Dissolved Uranium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

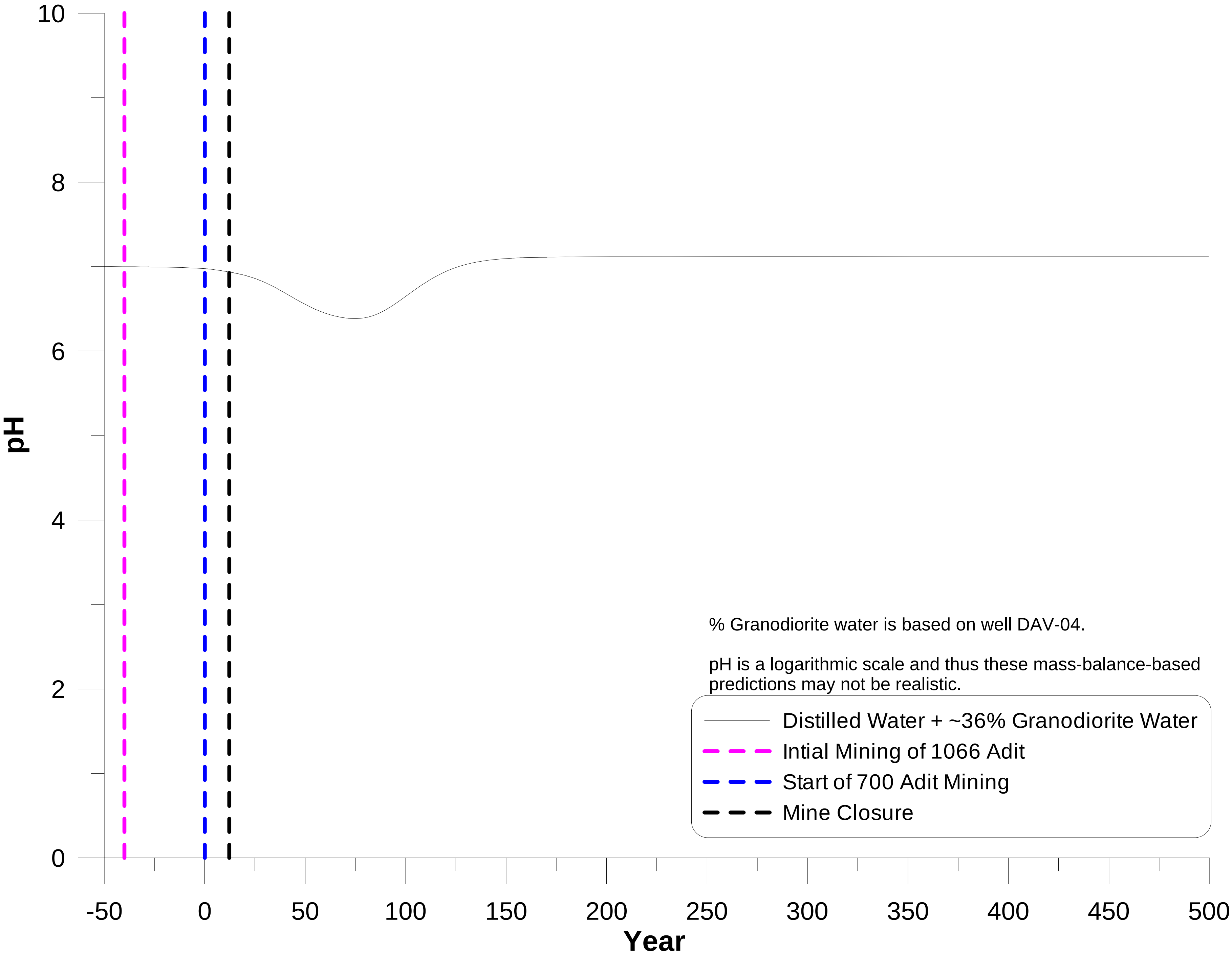


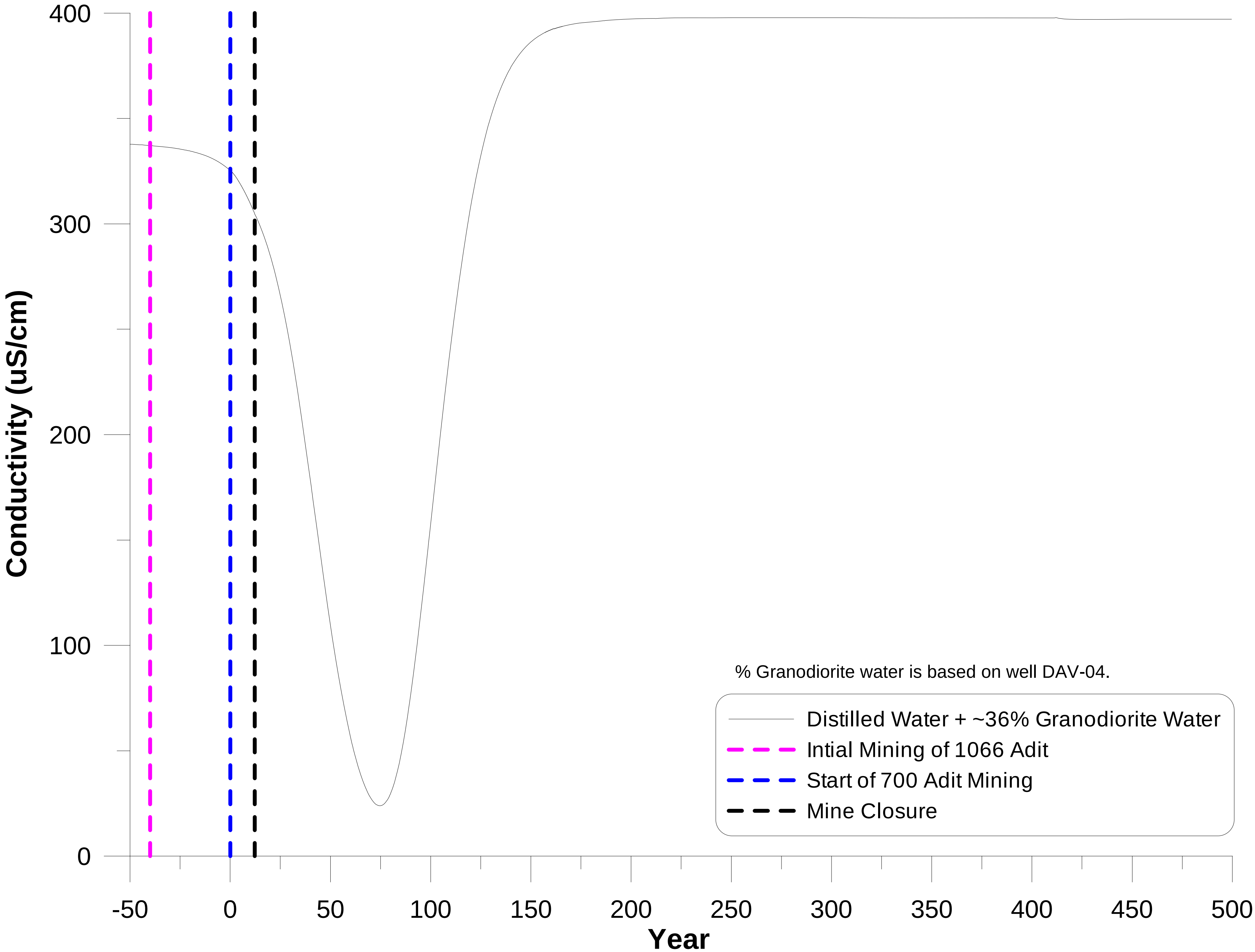
Dissolved Vanadium (ppm)
8E-005
6E-005
4E-005
2E-005
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



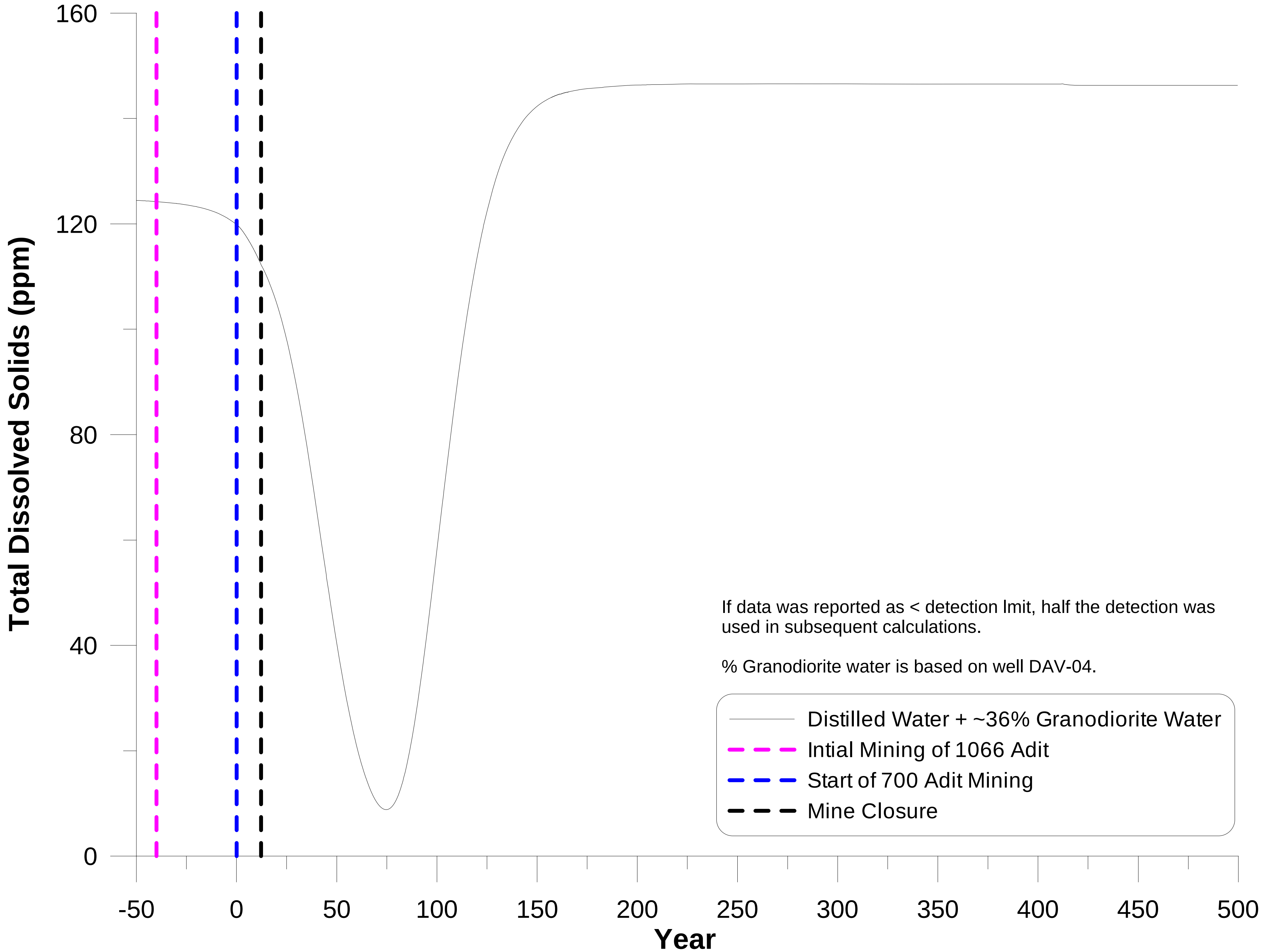
0.0016
0.0012
0.0008
0.0004
0
Dissolved Zinc (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-01A.
Distilled Water + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

A3. ~36% GRANODIORITE GROUNDWATER AND ~64% DISTILLED GROUNDWATER BEFORE MINING, BASED ON PREDICTED TRENDS FOR WELL RES-DAV-04

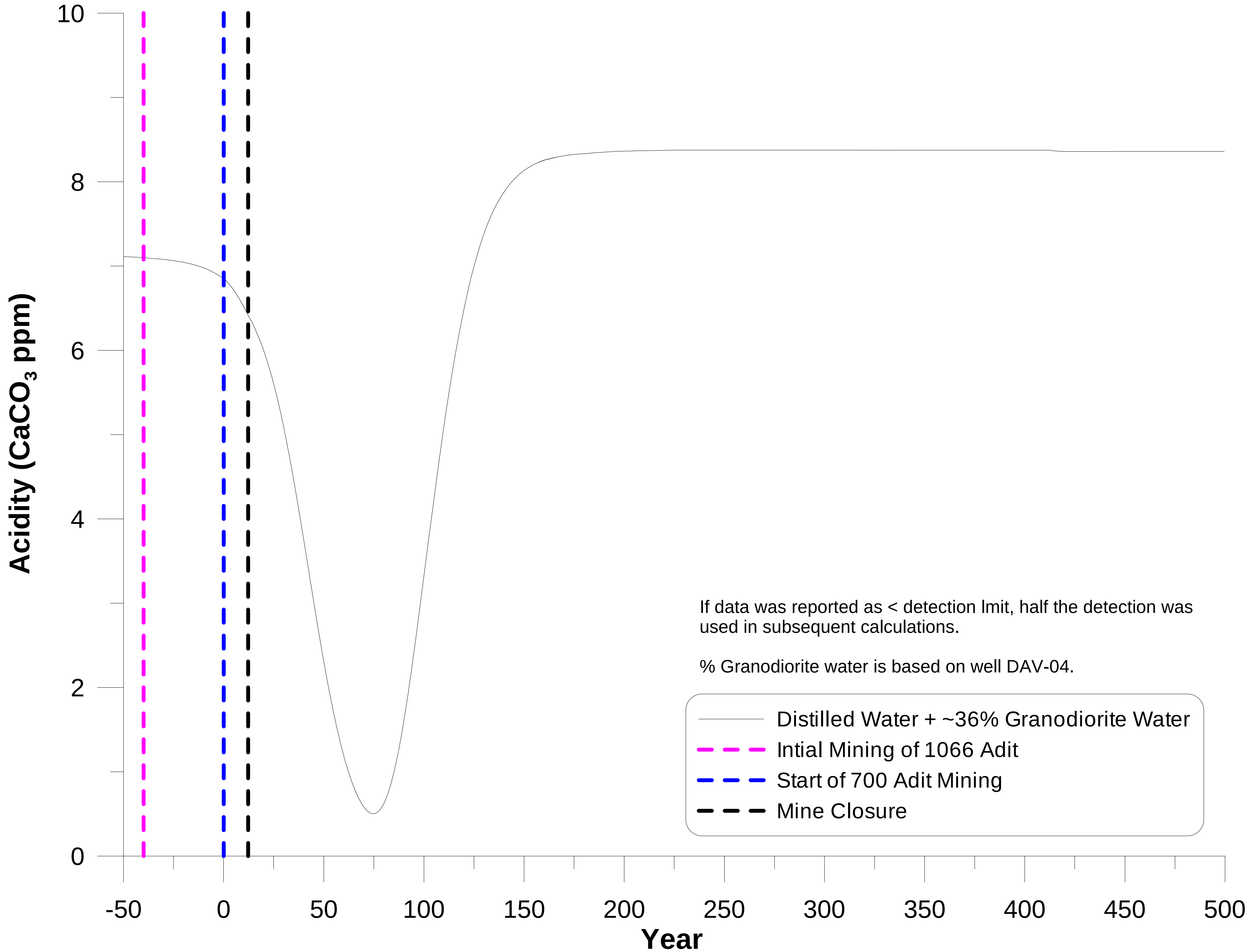

10
8
6
4
2
0
pH
-50
0
50
100
150
200
250
300
350
400
450
500
Year
% Granodiorite water is based on well DAV-04.
pH is a logarithmic scale and thus these mass-balance-based predictions may not be realistic.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



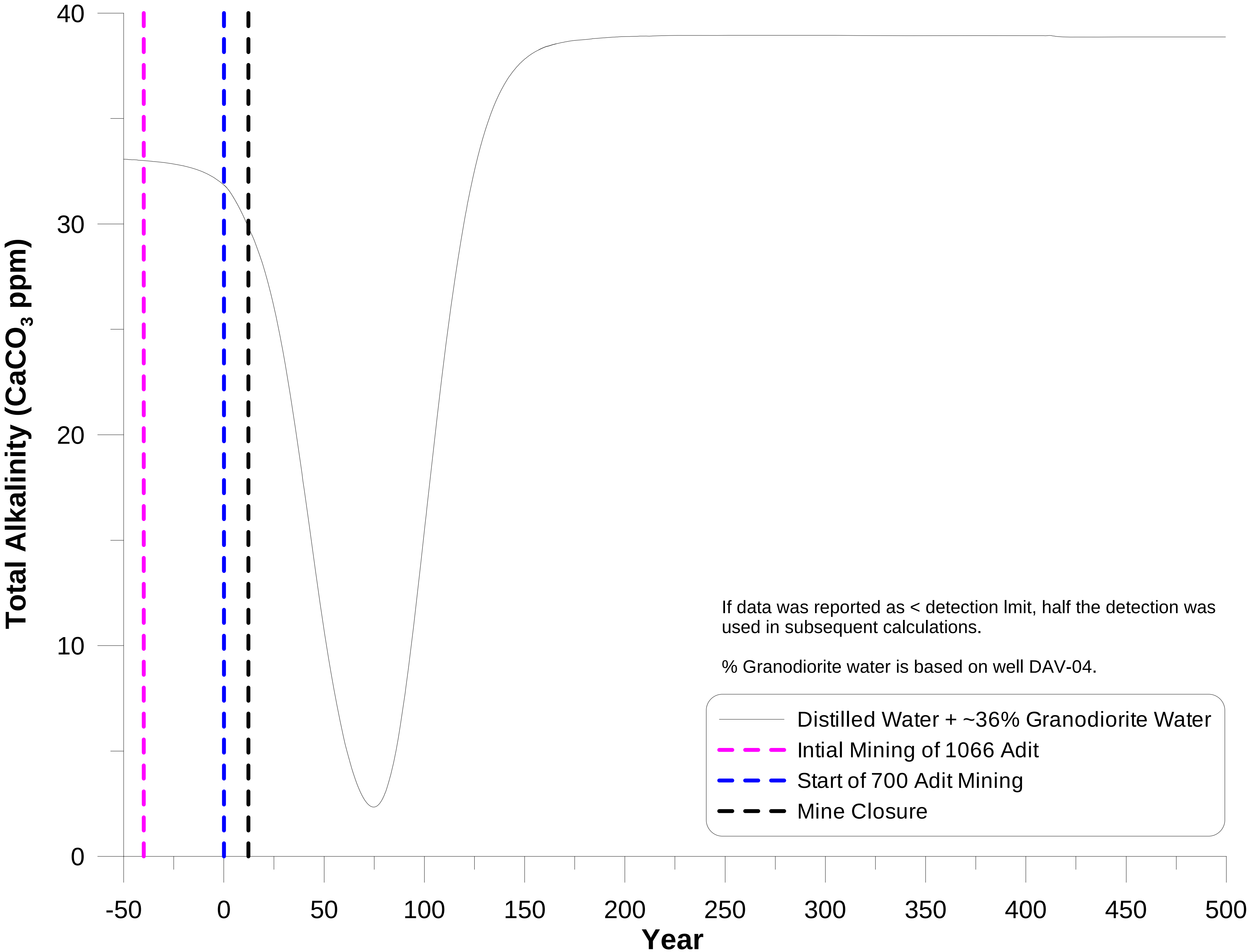
Conductivity (uS/cm)
400
300
200
100
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



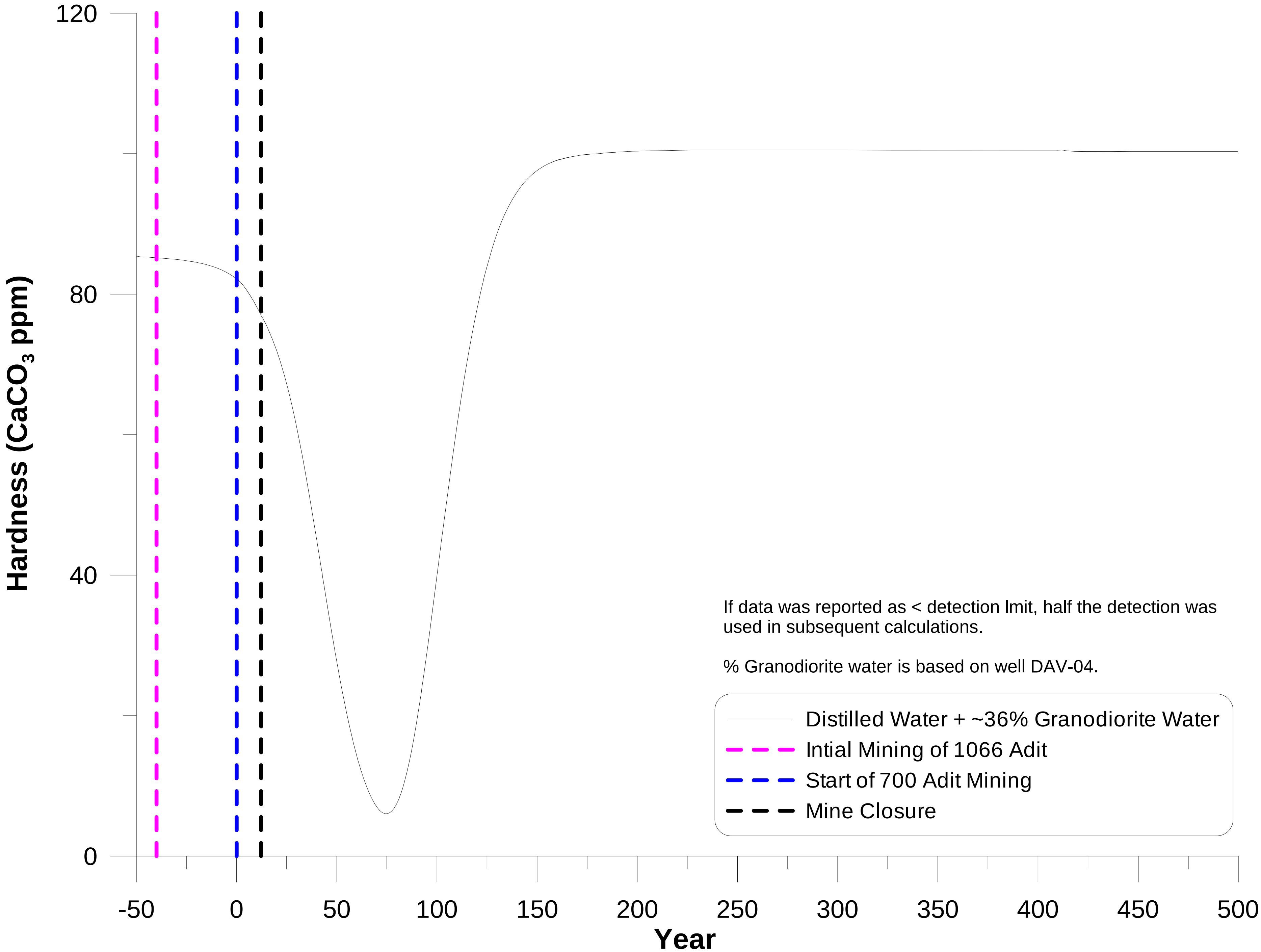
160
120
80
40
0
Total Dissolved Solids (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



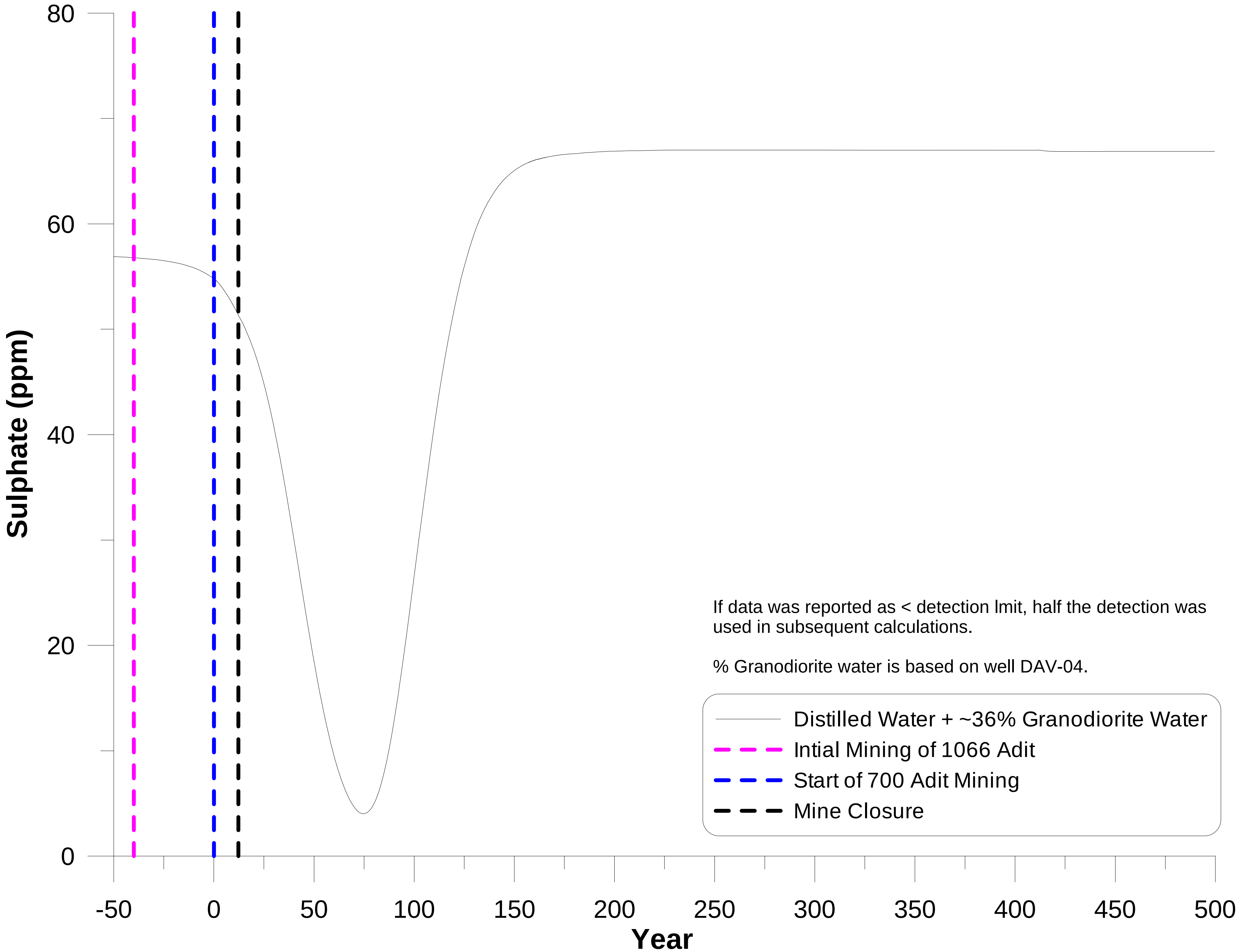
Acidity (CaCO3 ppm)
10
8
6
4
2
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



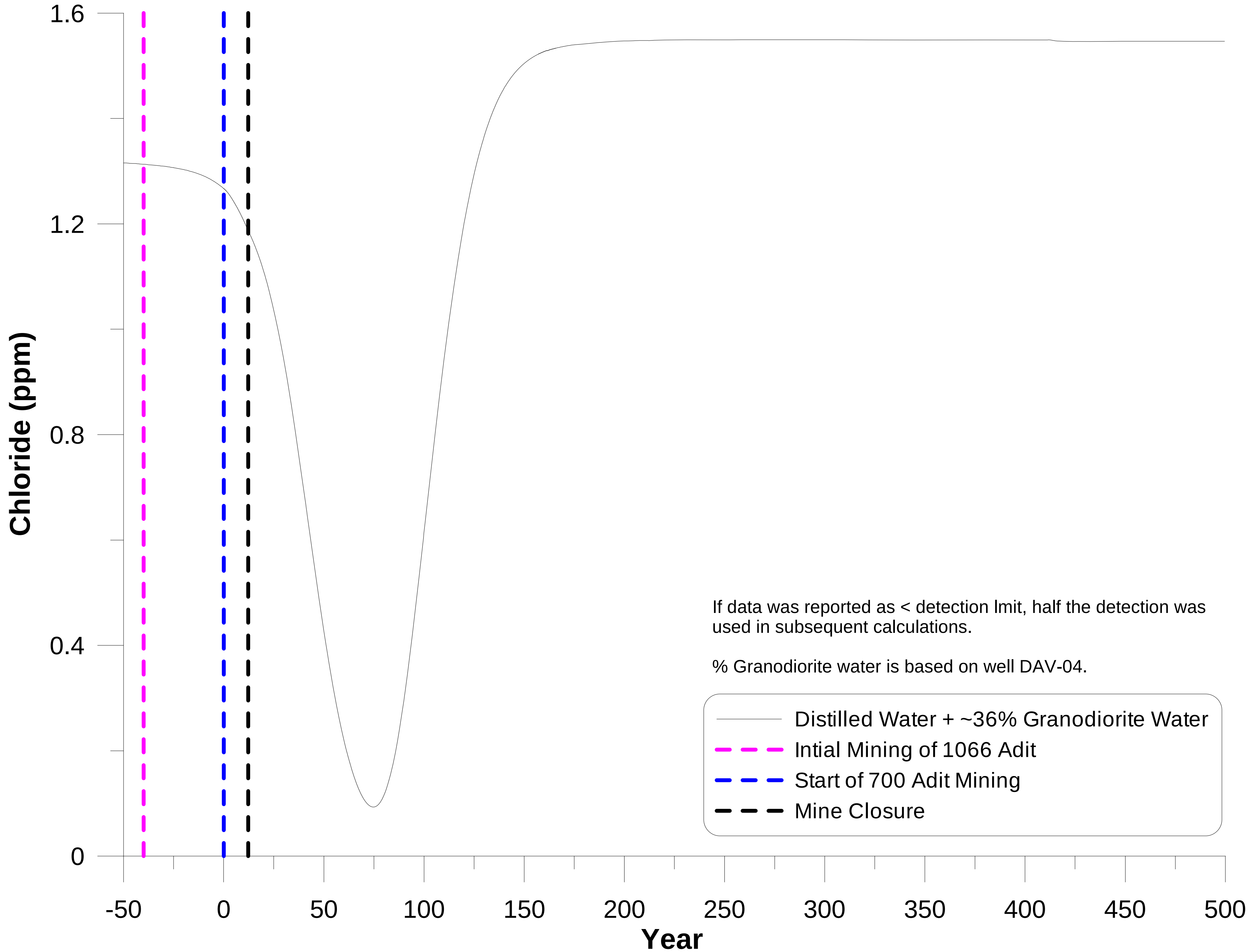
Total Alkalinity ($CaCO_3$ ppm)
40
30
20
10
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



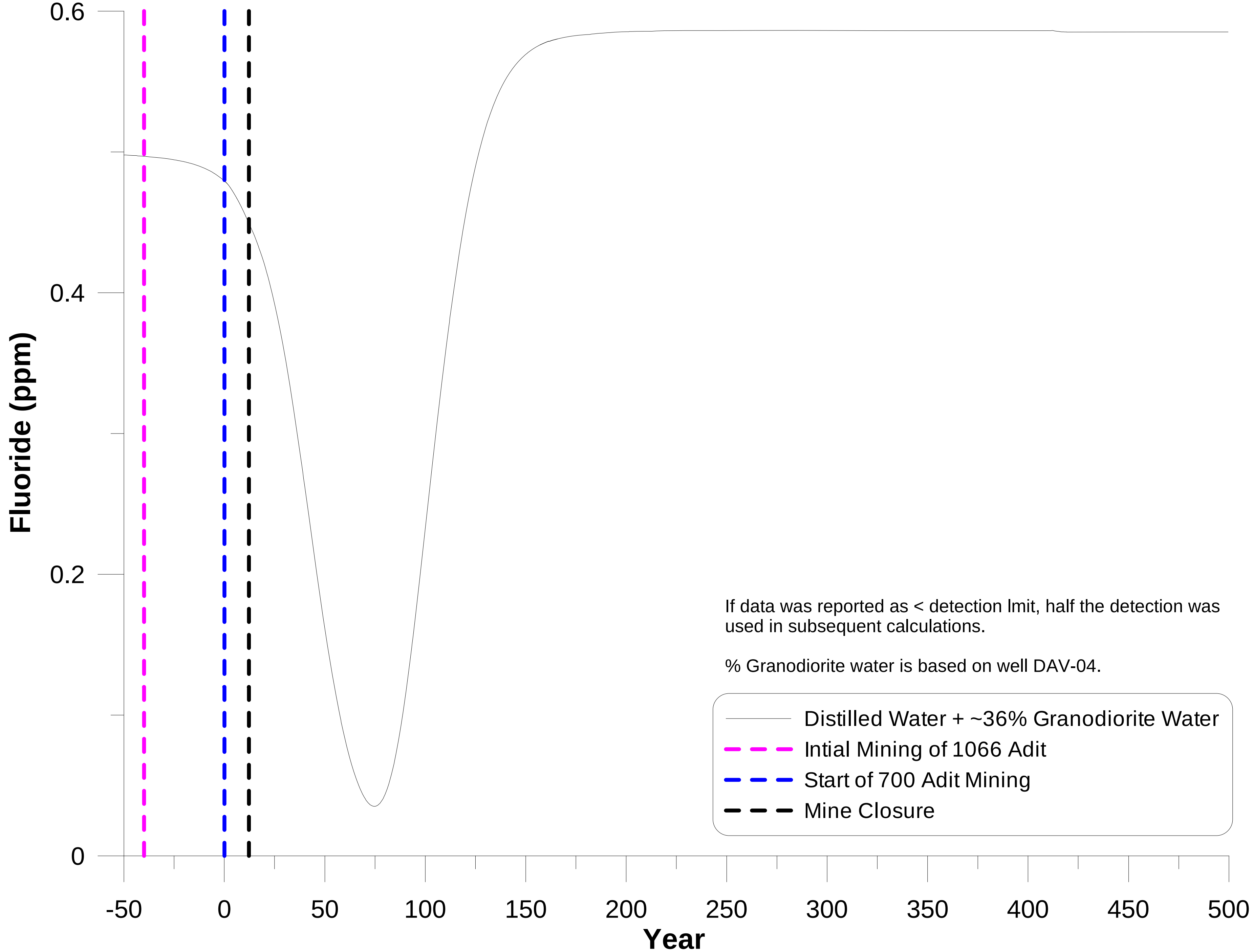
Hardness ($CaCO_3$ ppm)
120
80
40
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



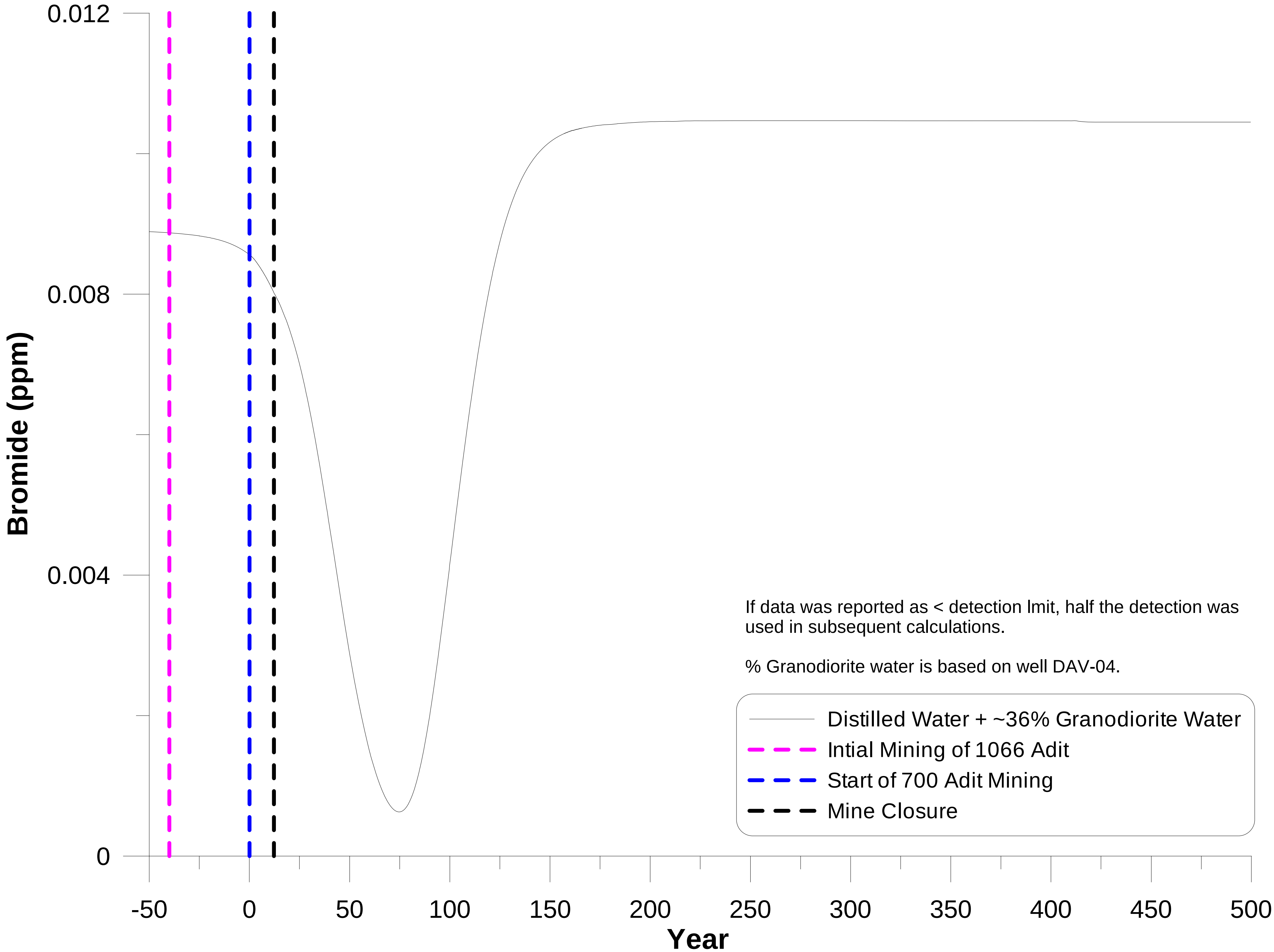
80
60
40
20
0
Sulphate (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



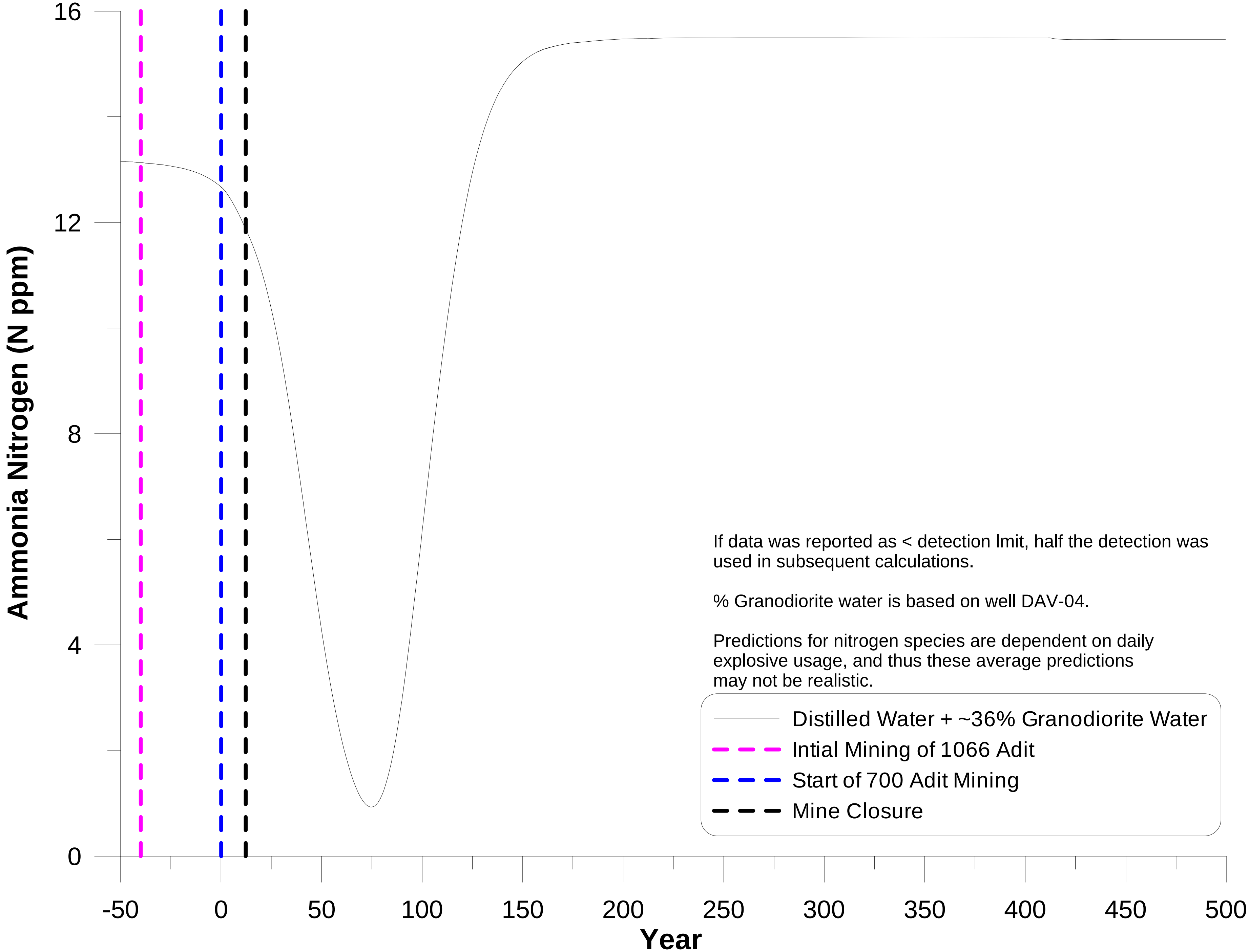
1.6
1.2
0.8
0.4
0
Chloride (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



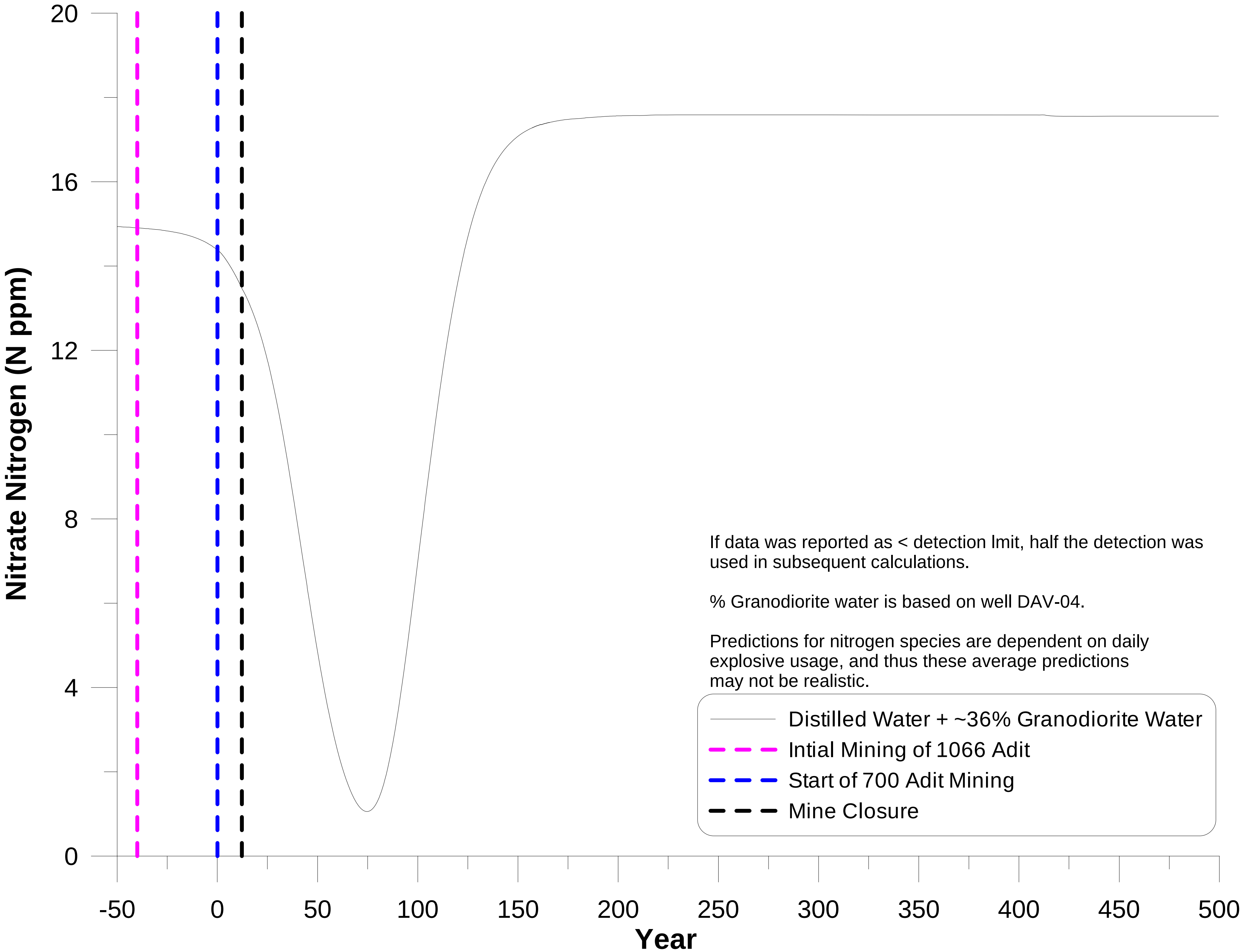
Fluoride (ppm)
0.6
0.4
0.2
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



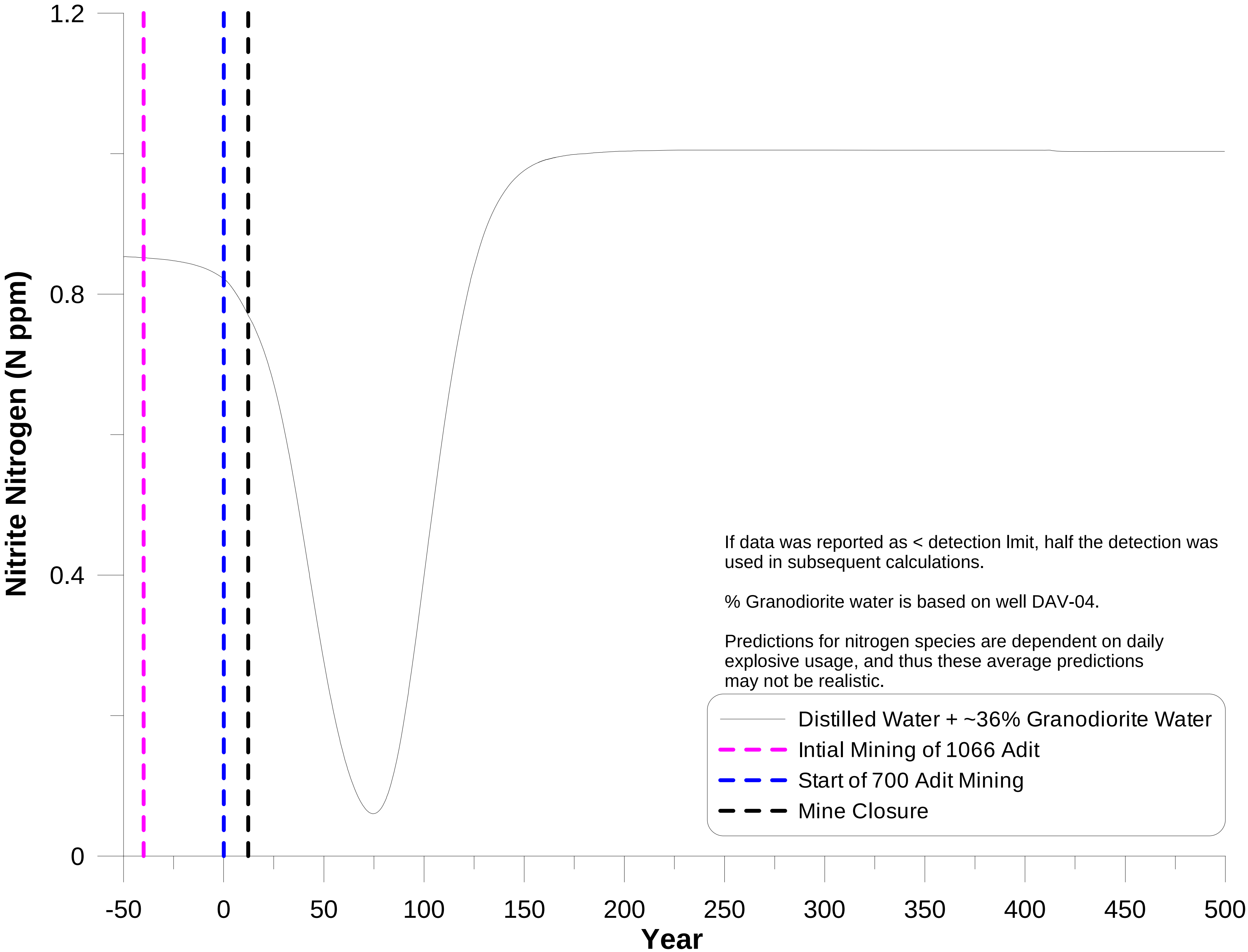
Bromide (ppm)
0.012
0.008
0.004
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

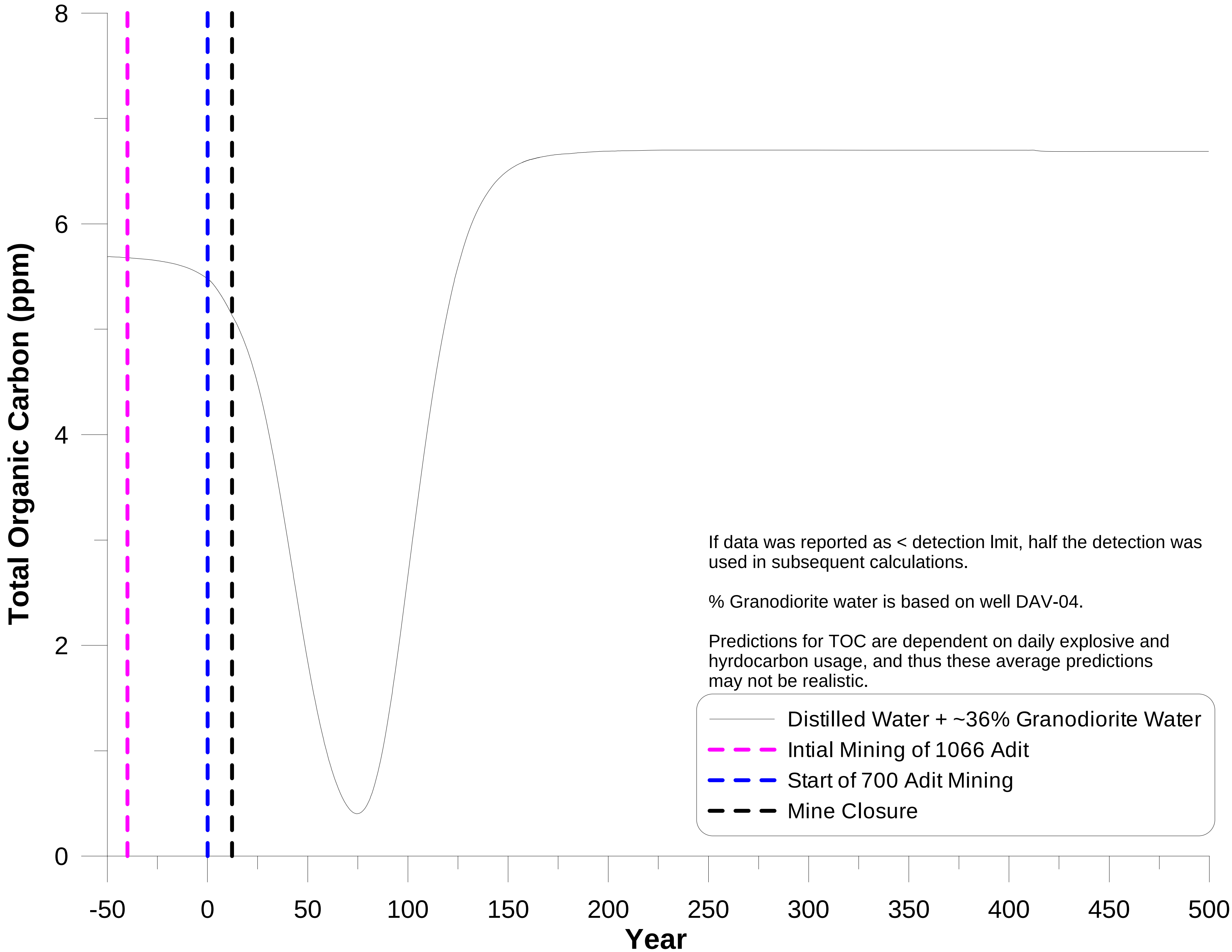


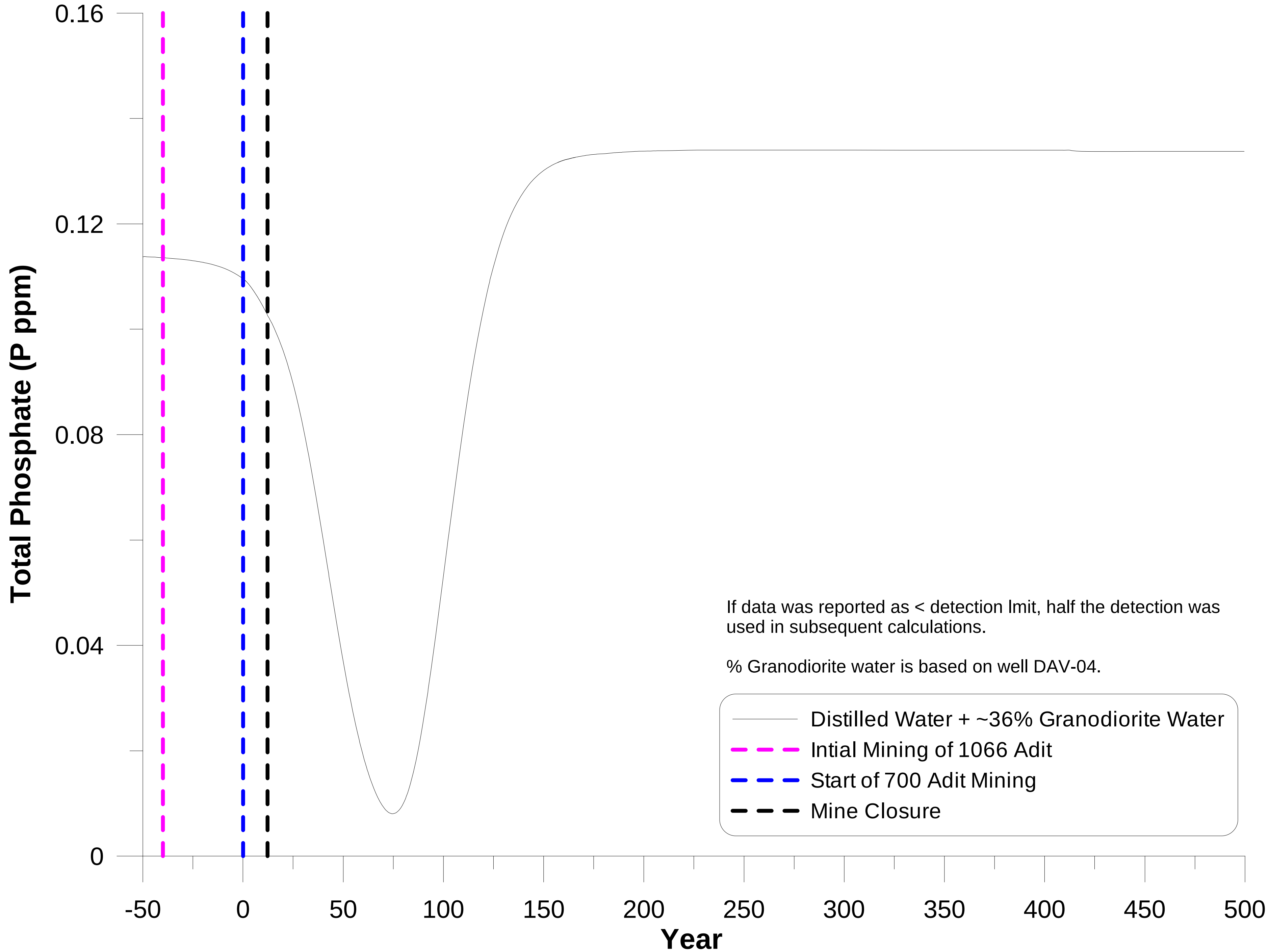
Ammonia Nitrogen (N ppm)
16
12
8
4
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



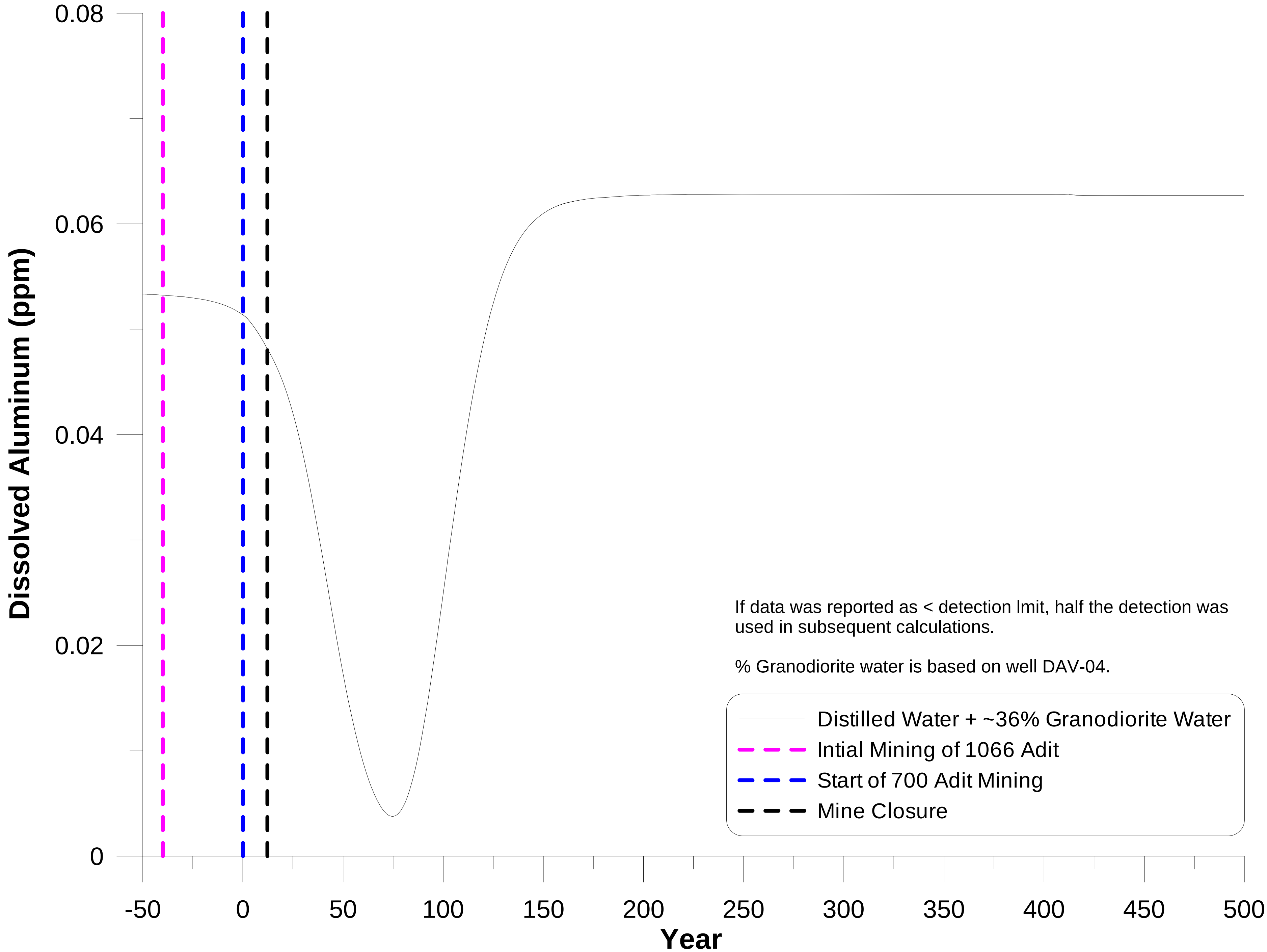
Nitrate Nitrogen (N ppm)
20
16
12
8
4
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

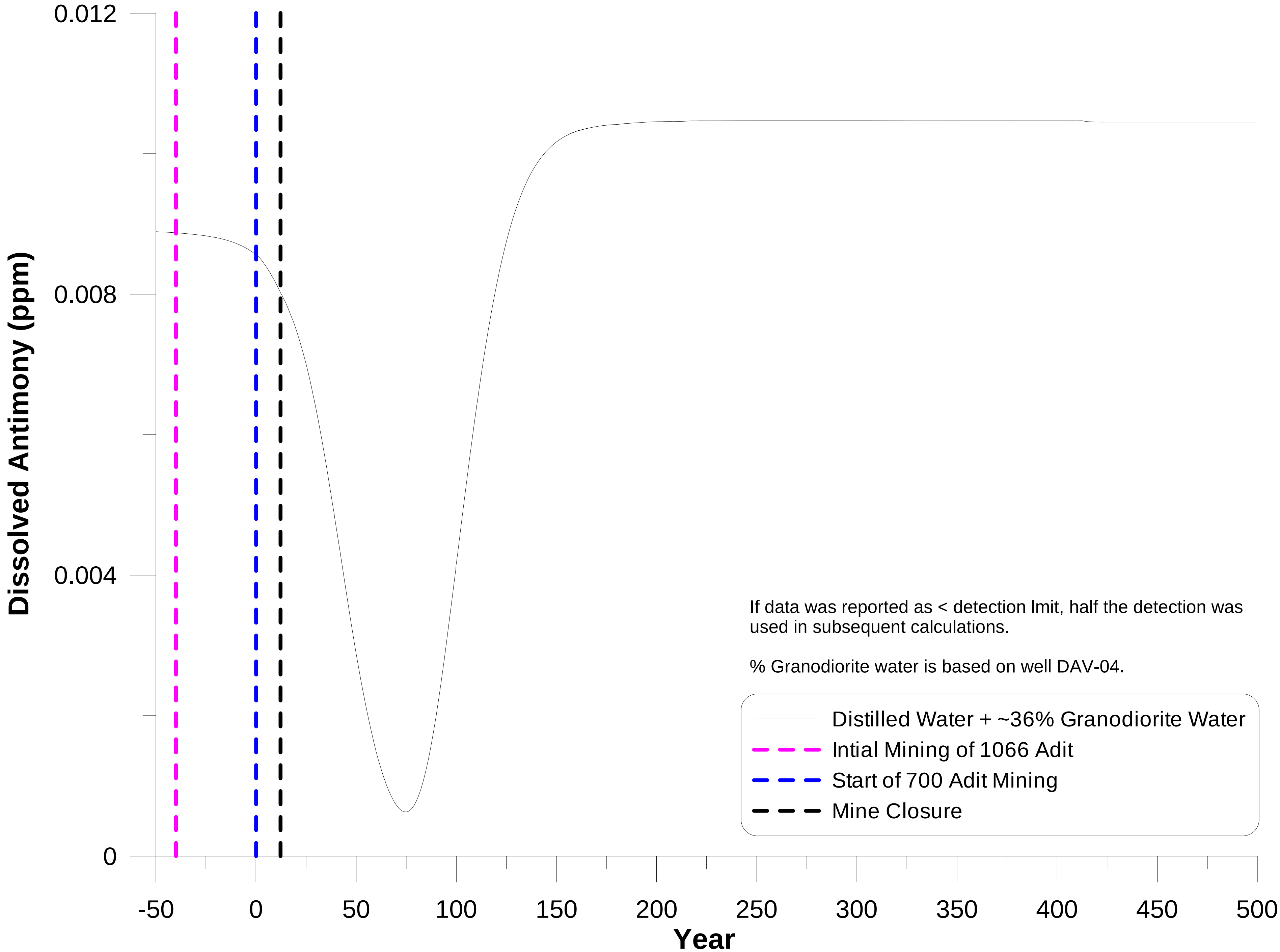

1.2
0.8
0.4
0
Nitrite Nitrogen (N ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure


Total Organic Carbon (ppm)
8
6
4
2
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Predictions for TOC are dependent on daily explosive and hyrdocarbon usage, and thus these average predictions may not be realistic.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

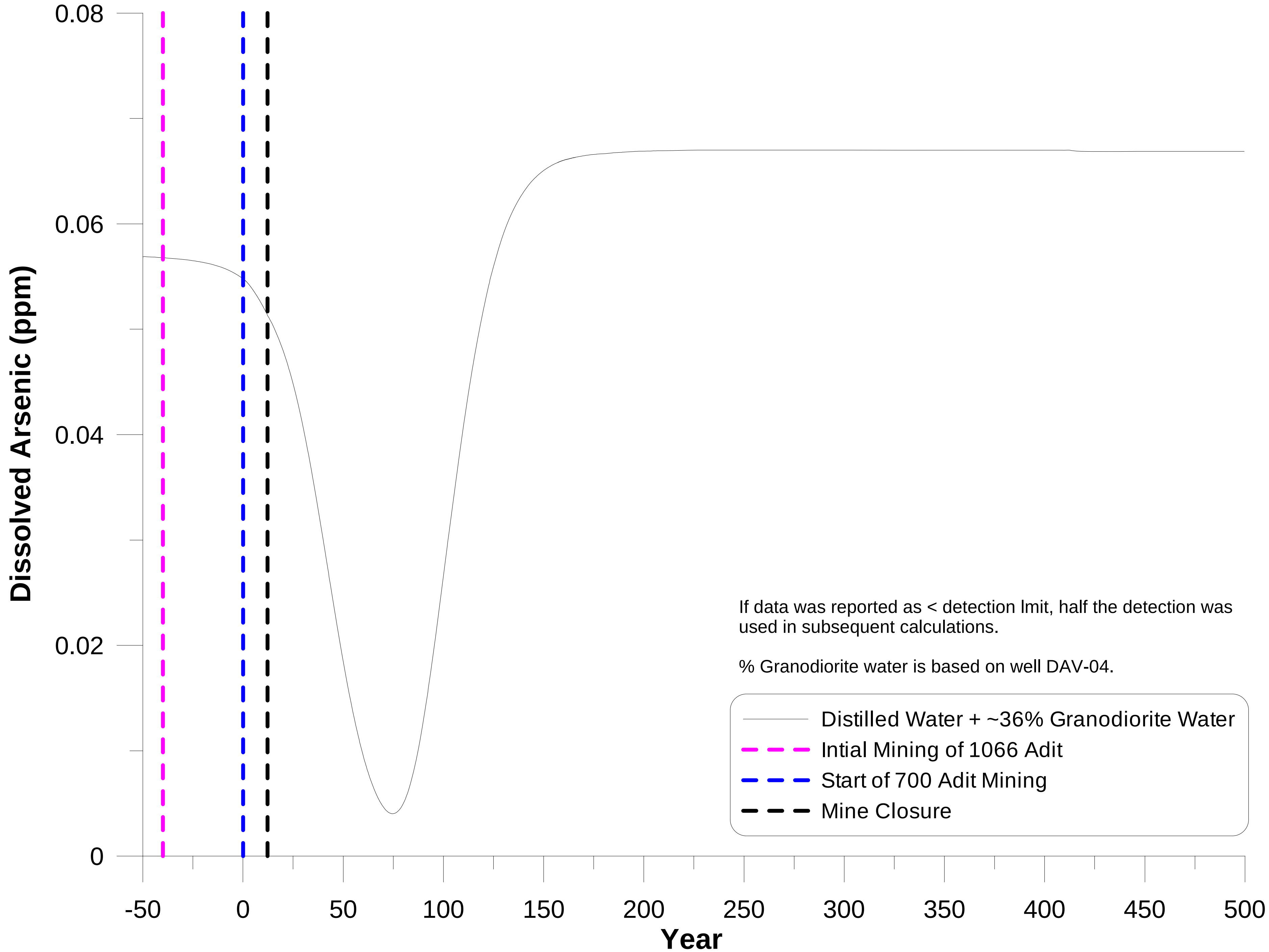


Total Phosphate (P ppm)
0.16
0.12
0.08
0.04
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

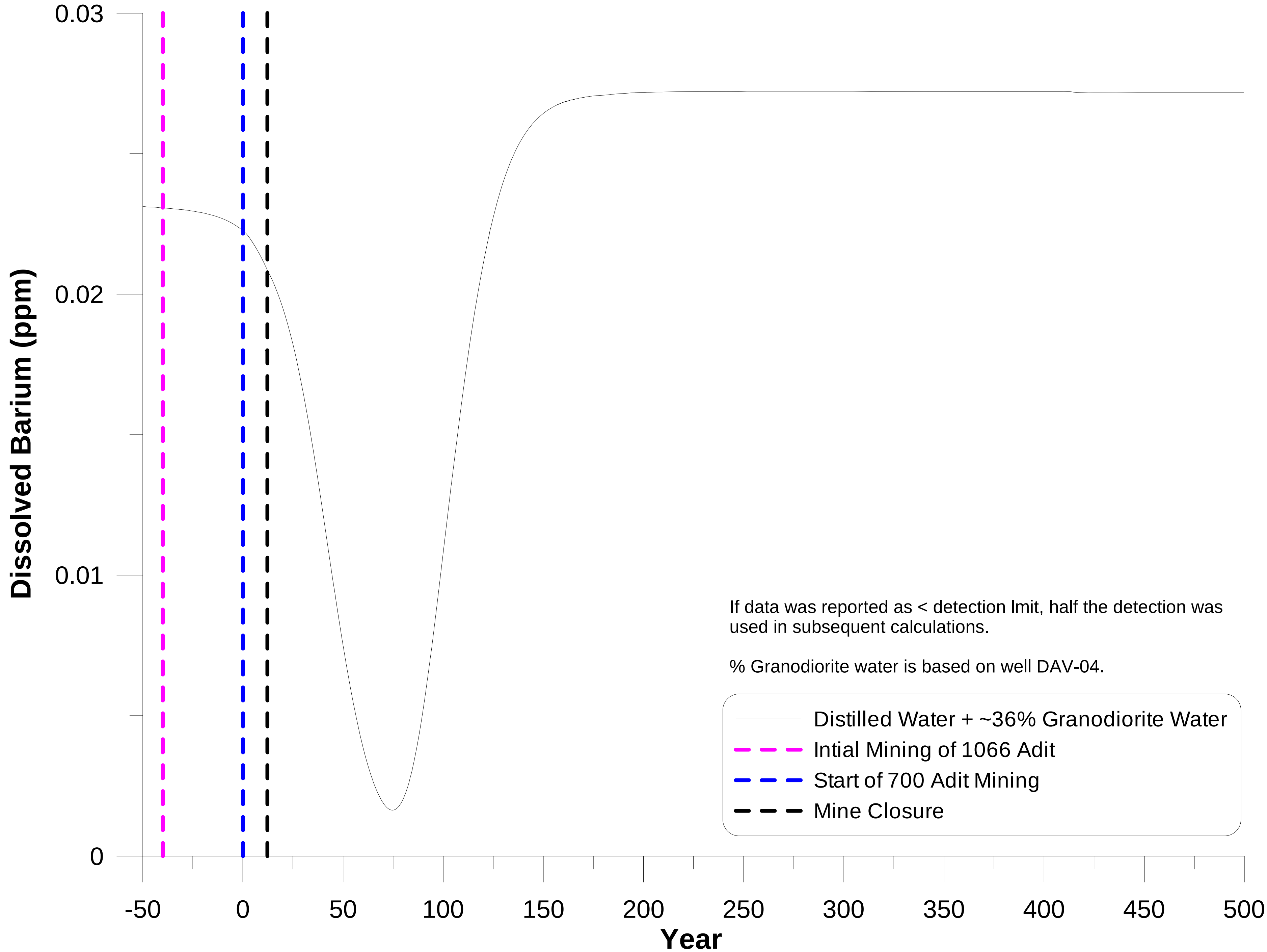

0.08
0.06
0.04
0.02
0
Dissolved Aluminum (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

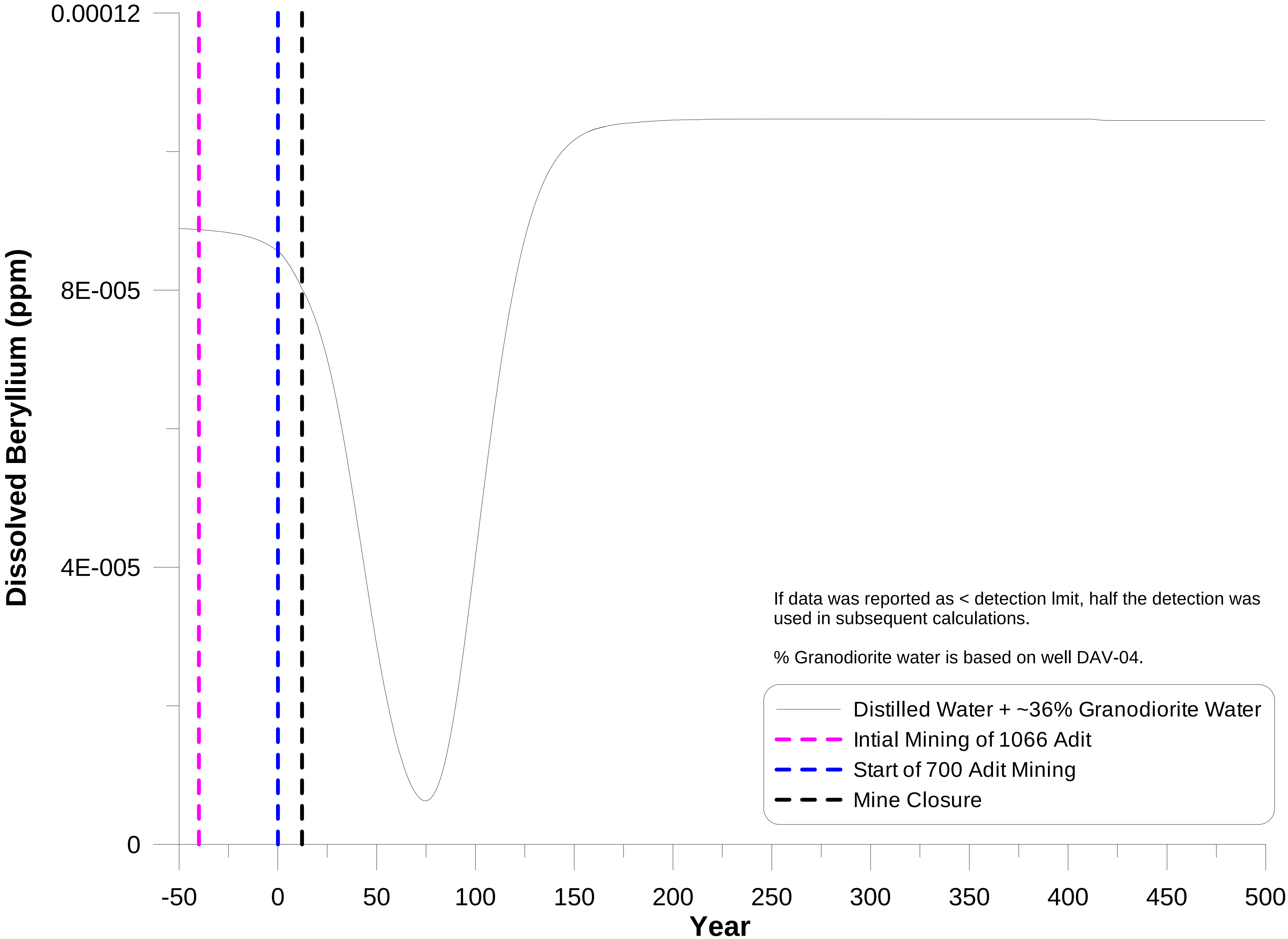


0.012
0.008
0.004
0
Dissolved Antimony (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

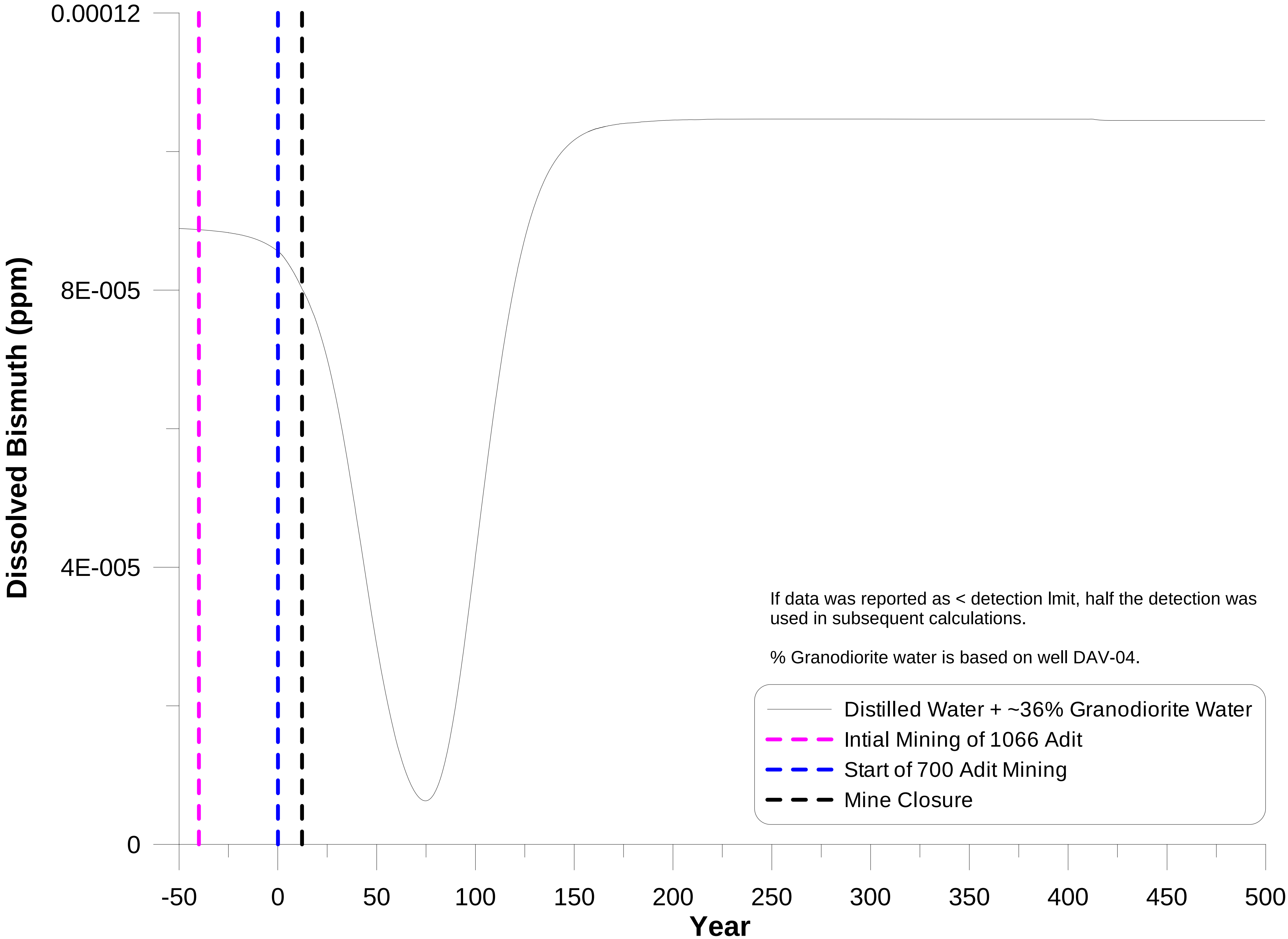


Dissolved Arsenic (ppm)
0.08
0.06
0.04
0.02
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

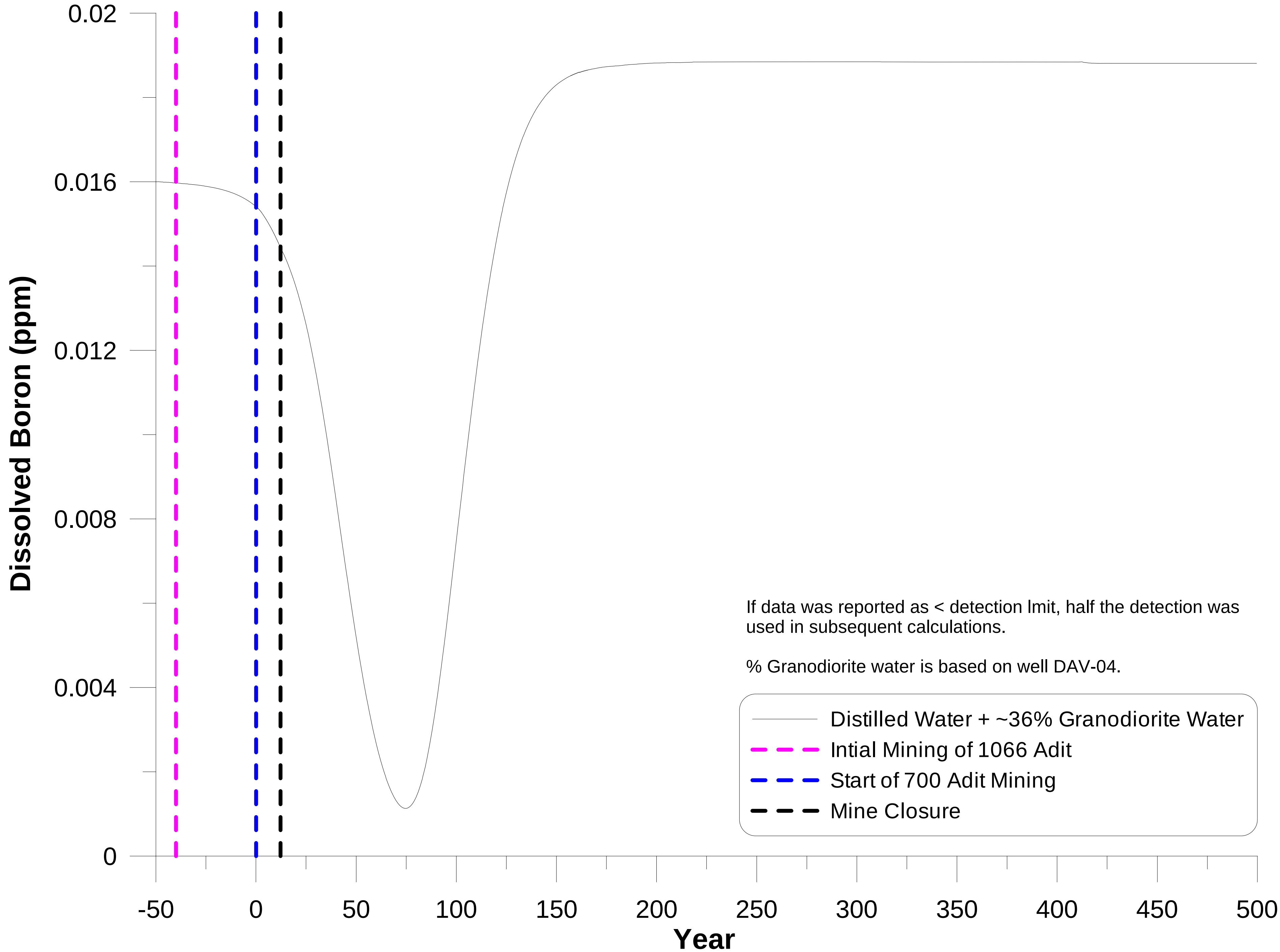

Dissolved Barium (ppm)
0.03
0.02
0.01
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



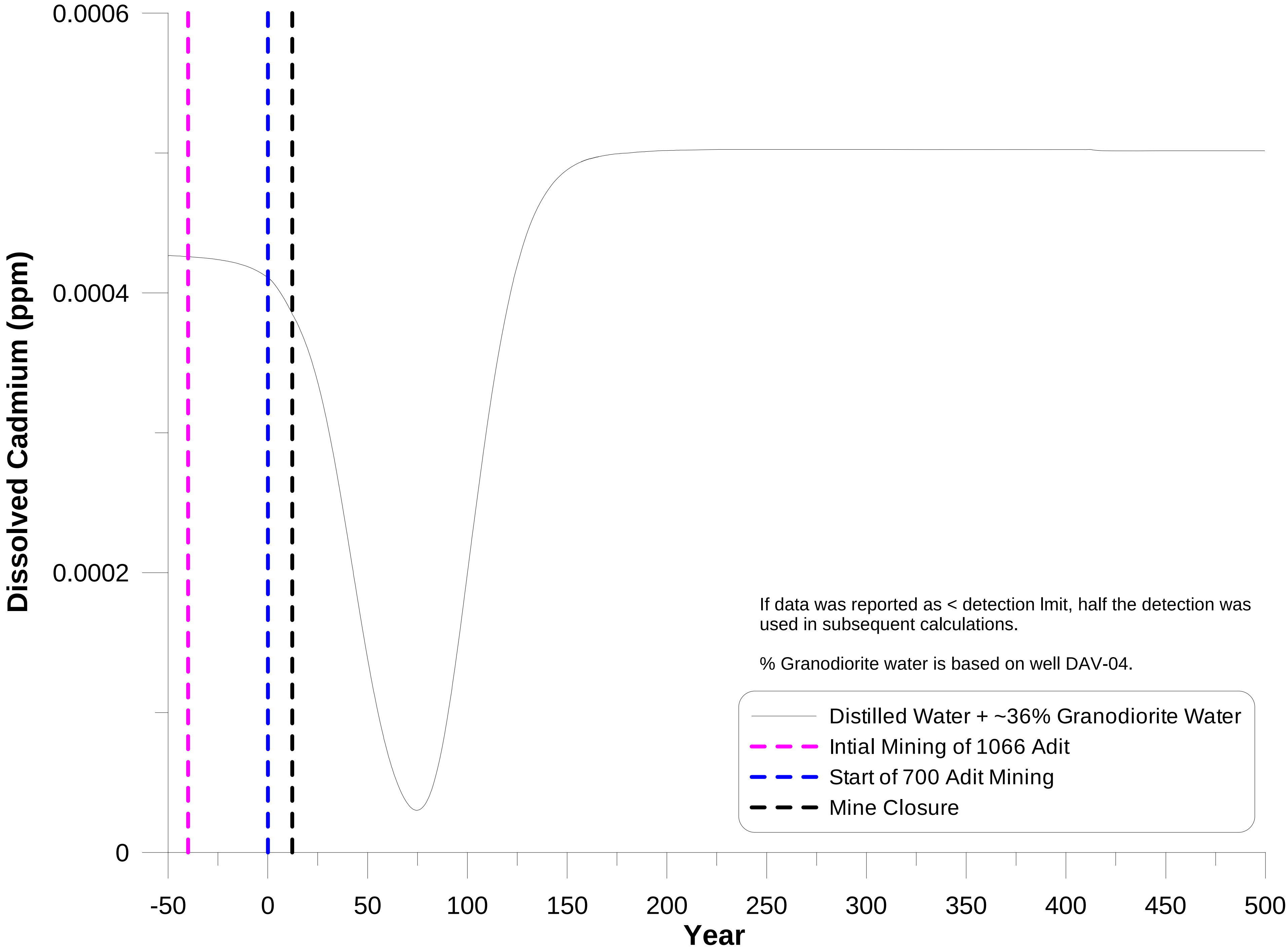
0.00012
8E-005
4E-005
0
Dissolved Beryllium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



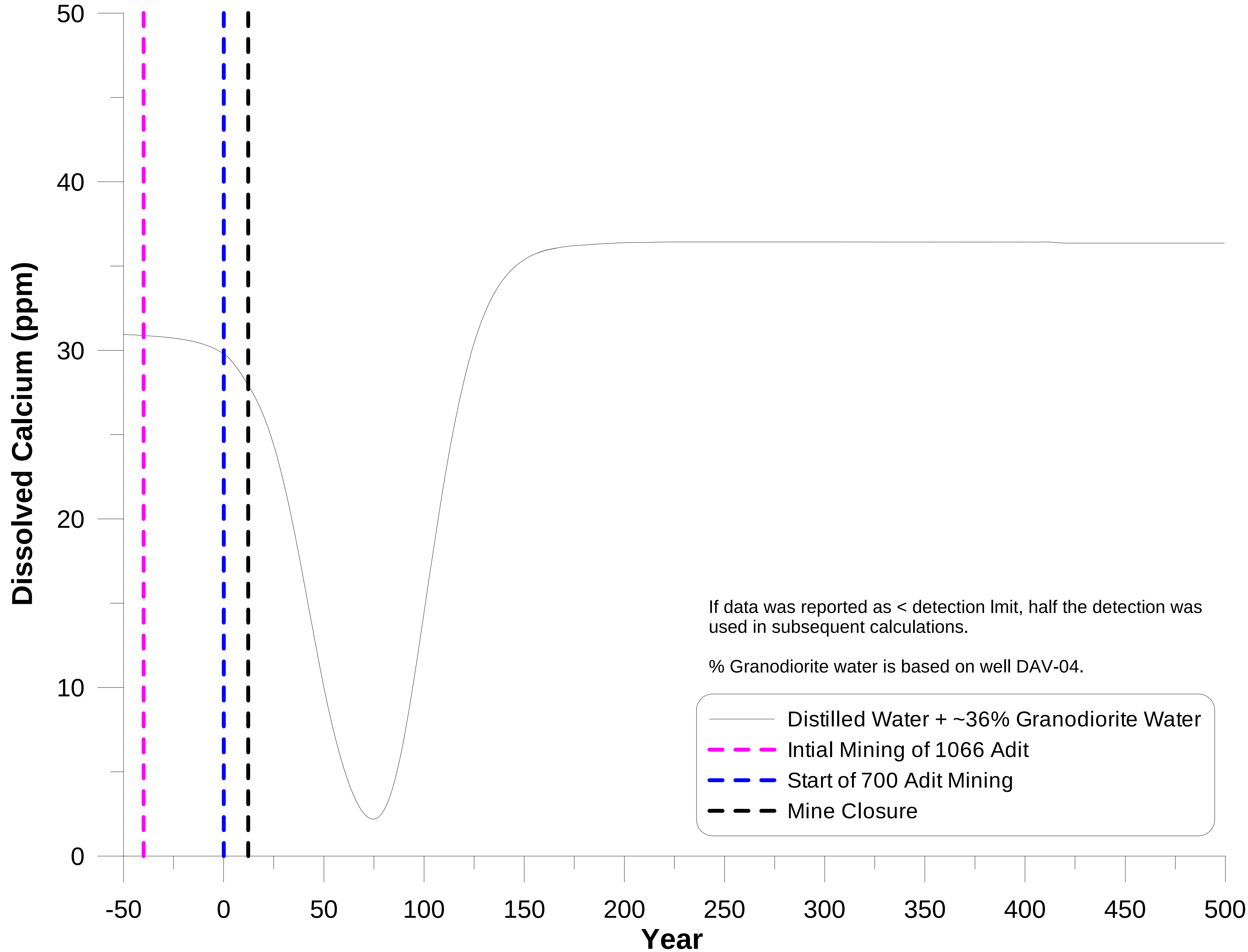
0.00012
8E-005
4E-005
0
Dissolved Bismuth (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



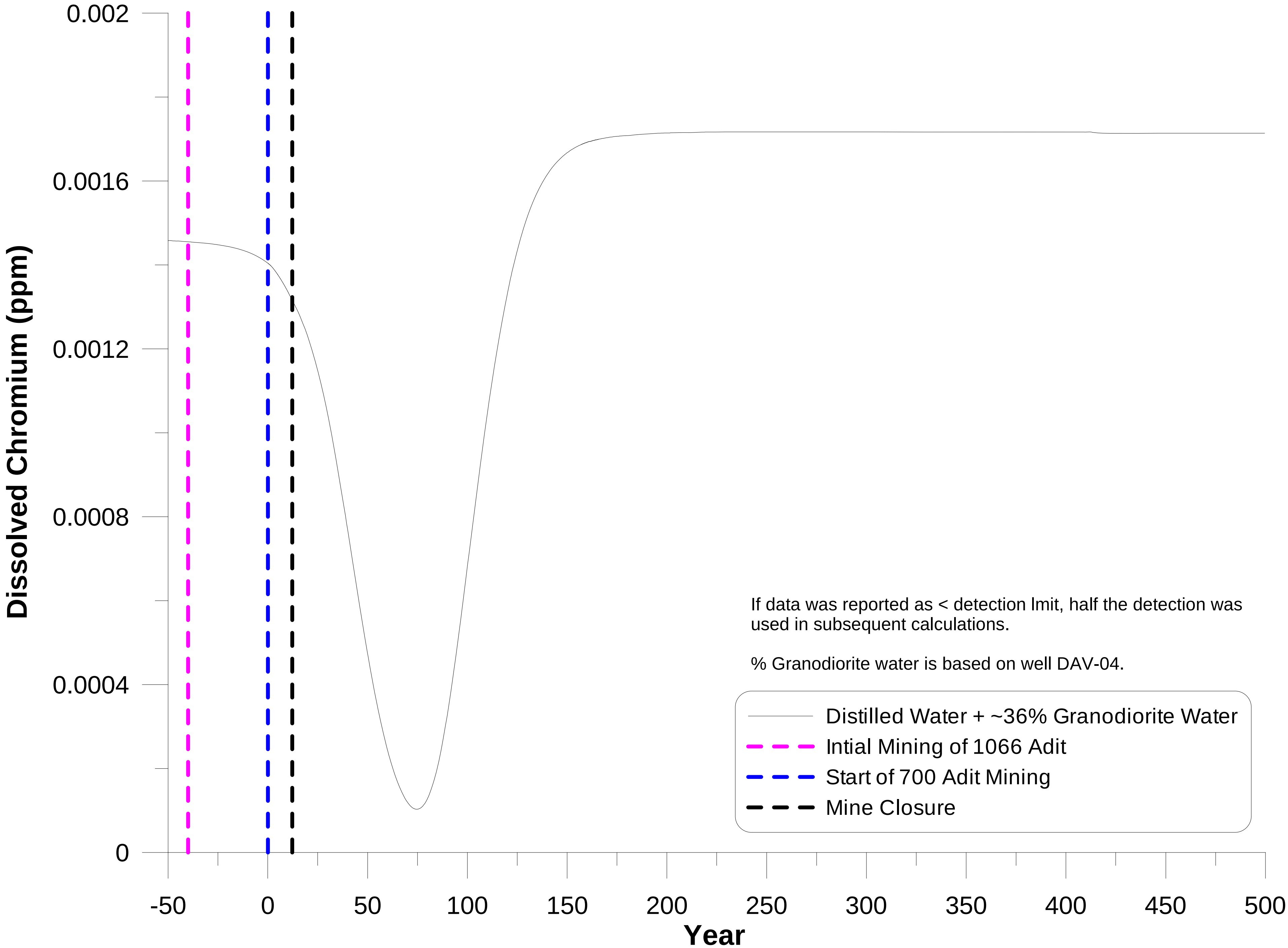
0.02
0.016
0.012
0.008
0.004
0
Dissolved Boron (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



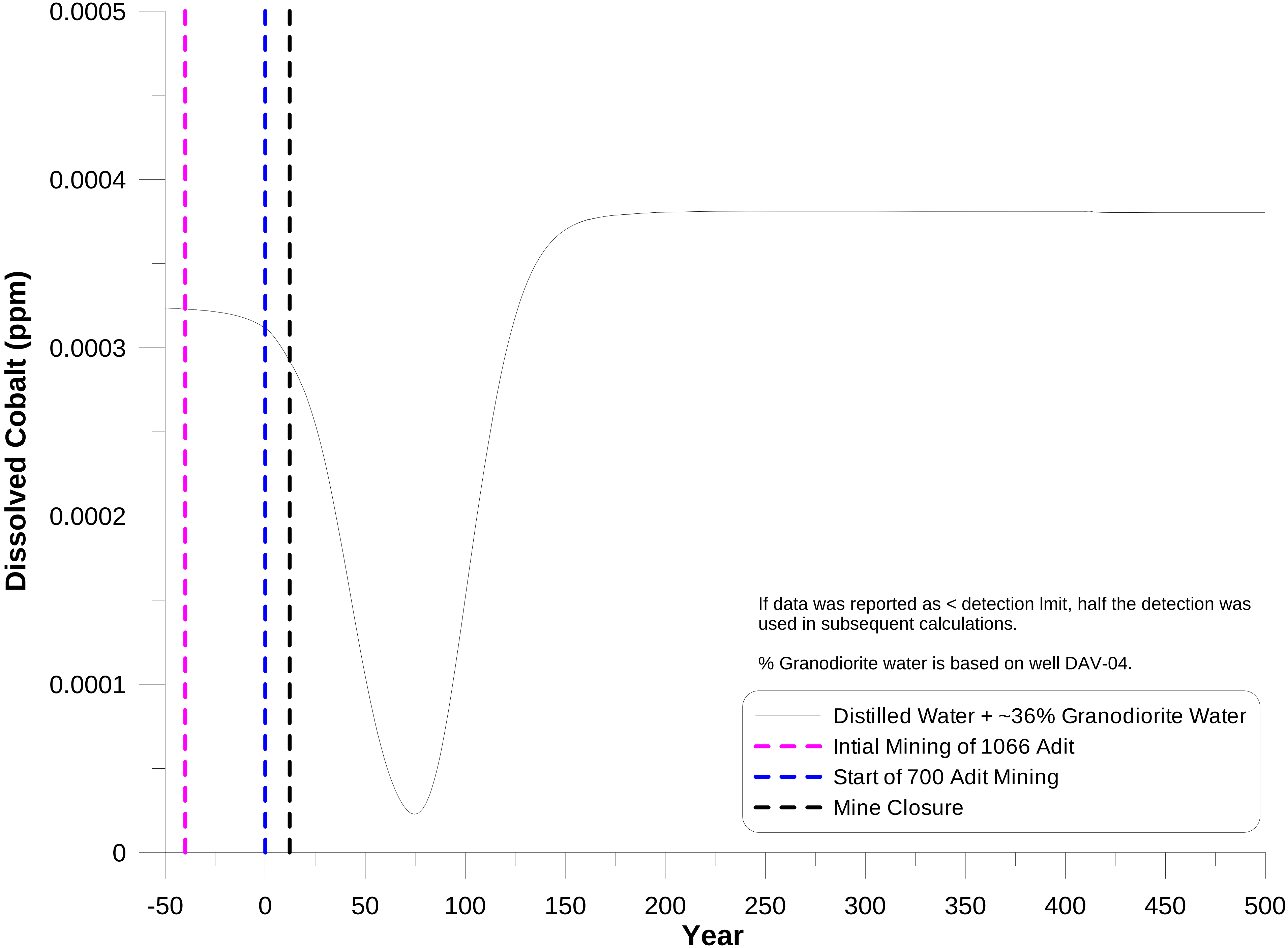
0.0006
0.0004
0.0002
0
Dissolved Cadmium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



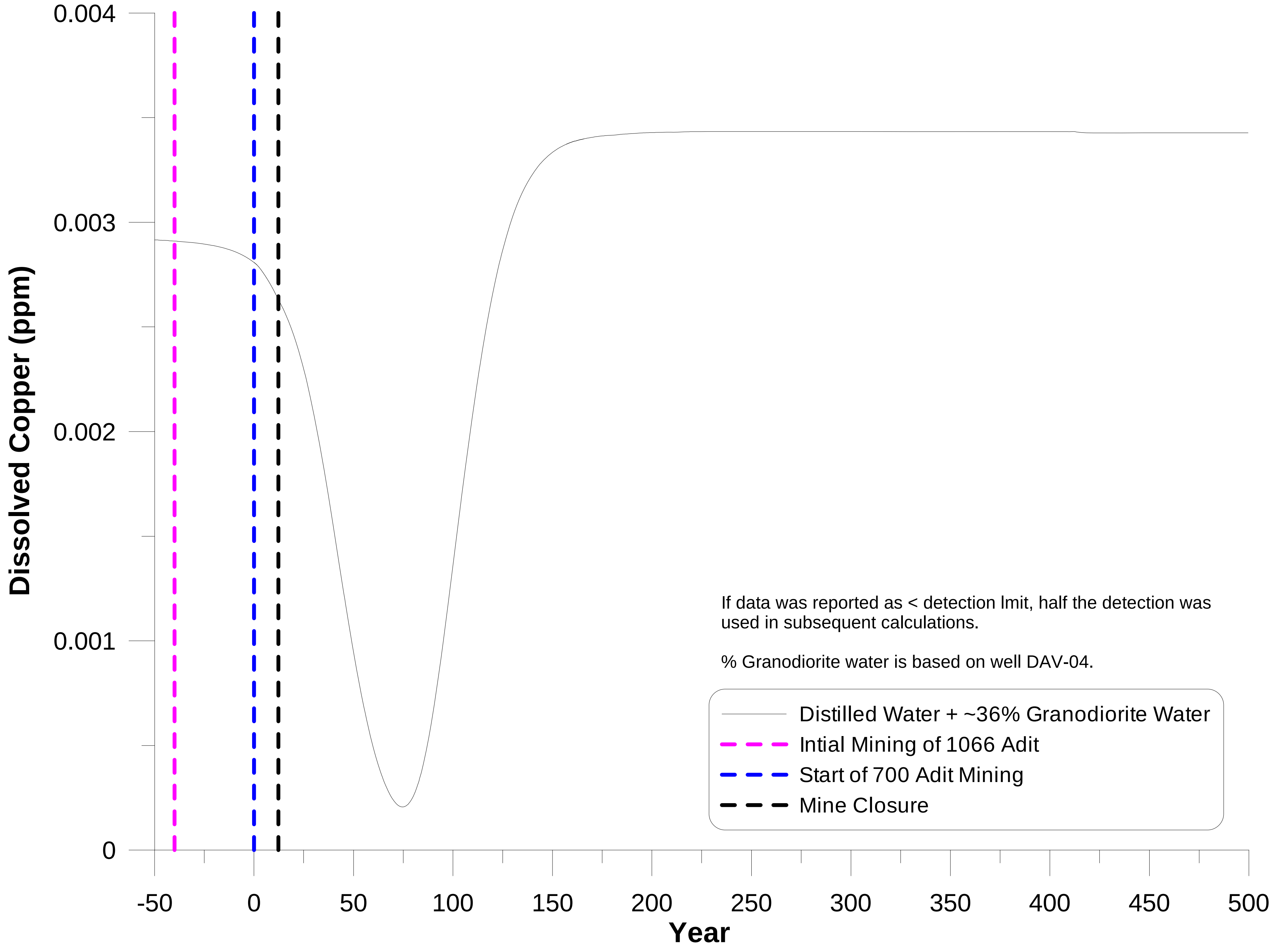
Dissolved Calcium (ppm)
50
40
30
20
10
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

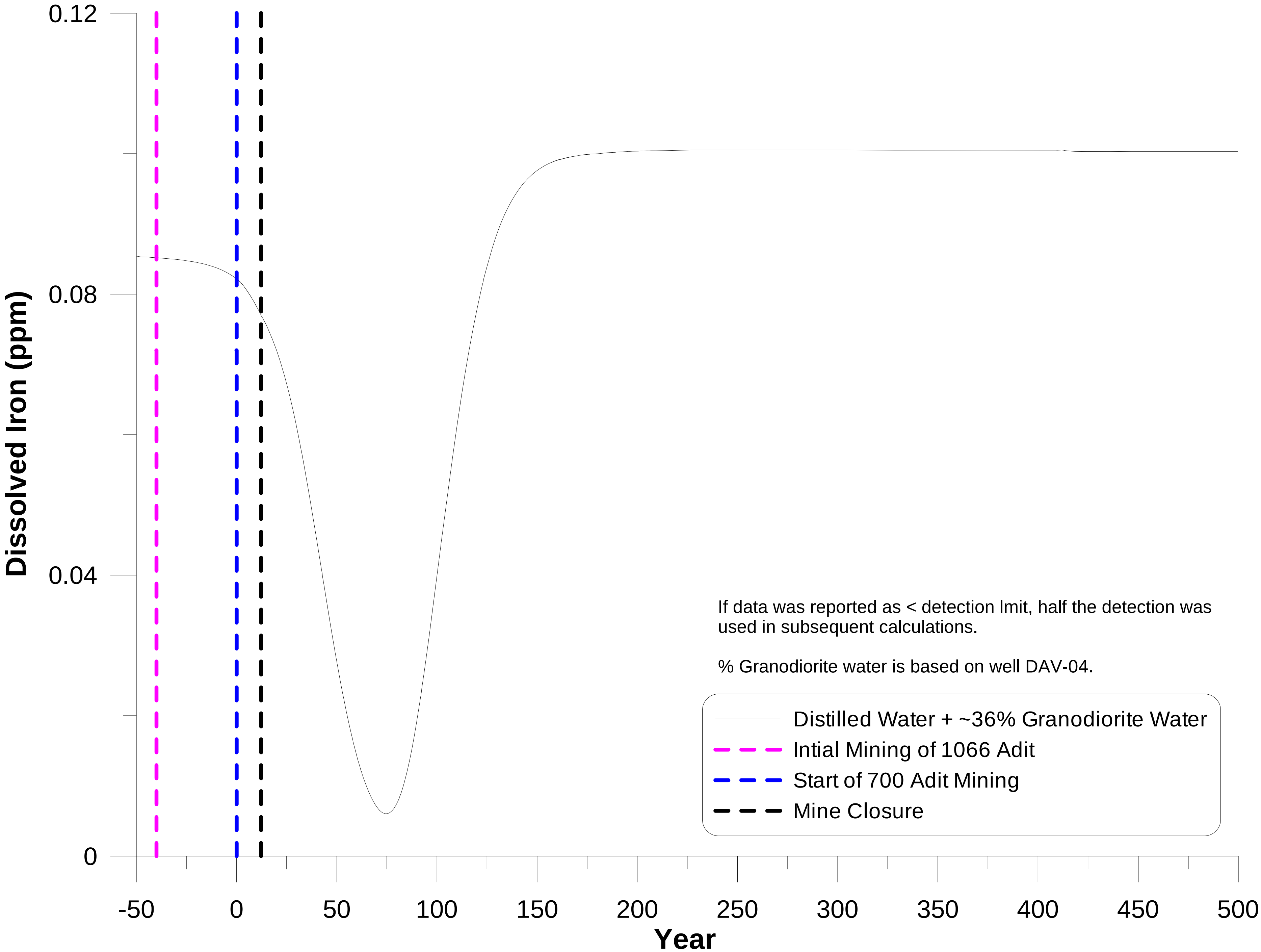


Dissolved Chromium (ppm)
0.002
0.0016
0.0012
0.0008
0.0004
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

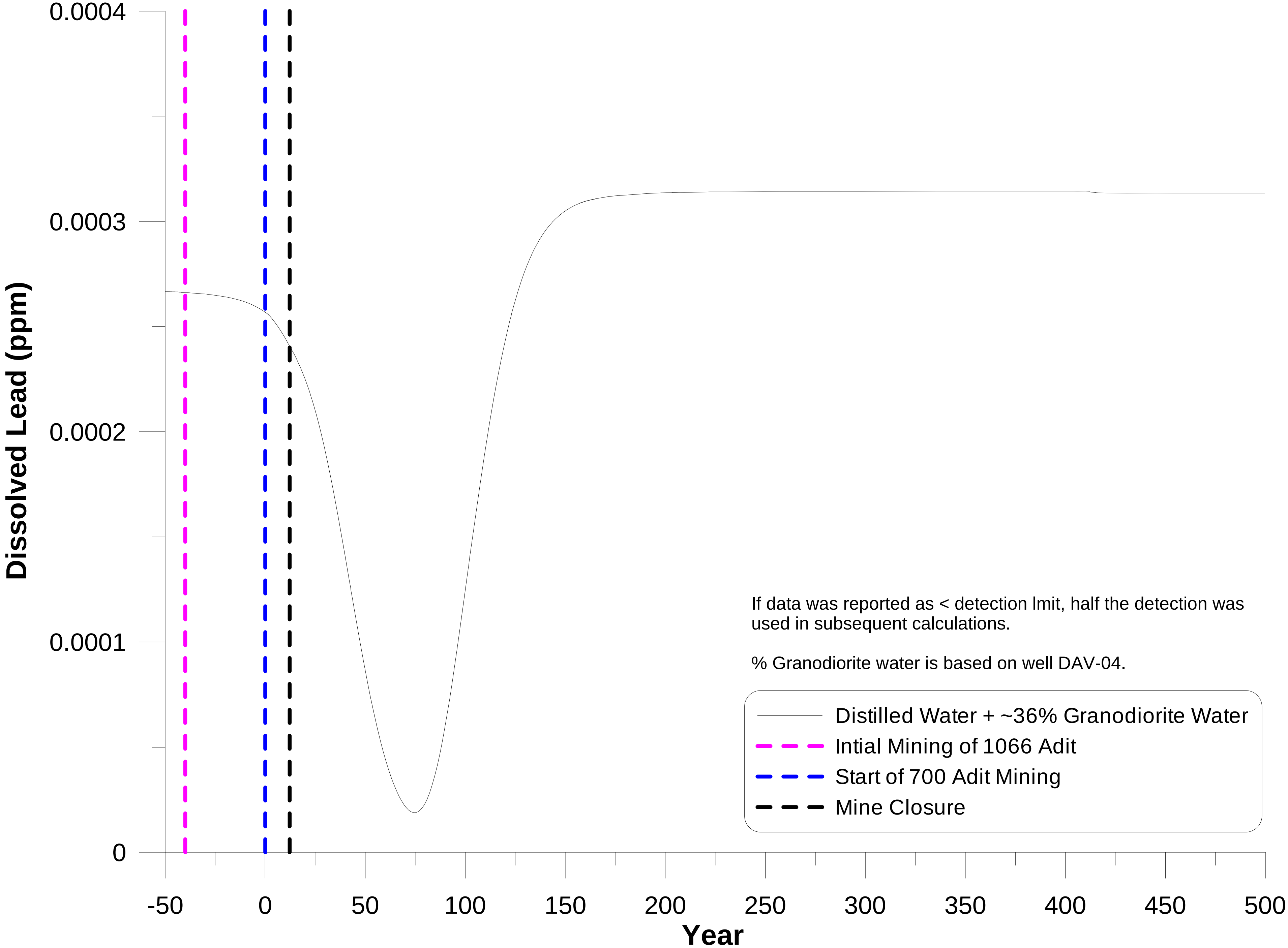


0.0005
0.0004
0.0003
0.0002
0.0001
0
Dissolved Cobalt (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

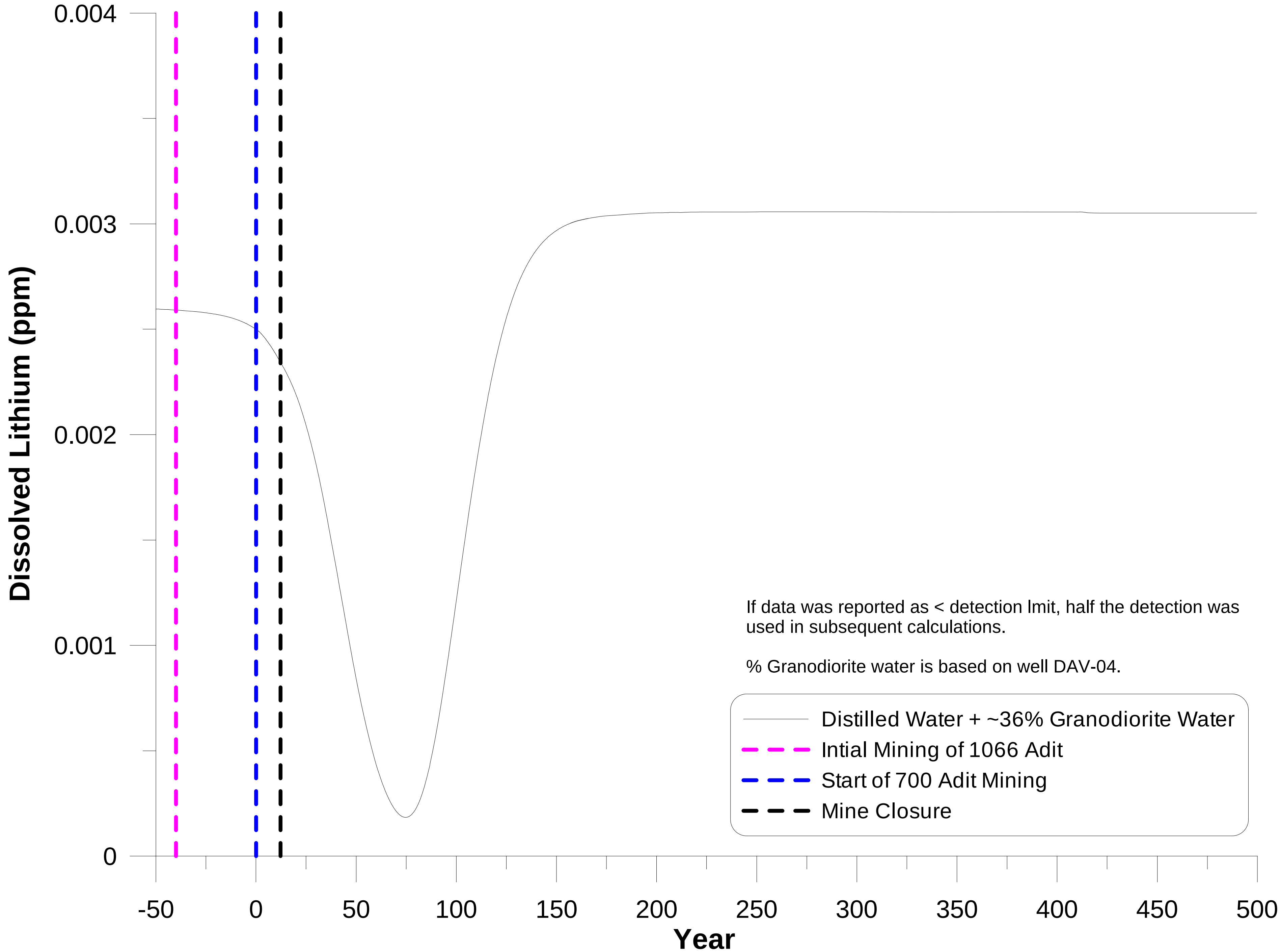

Dissolved Copper (ppm)
0.004
0.003
0.002
0.001
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



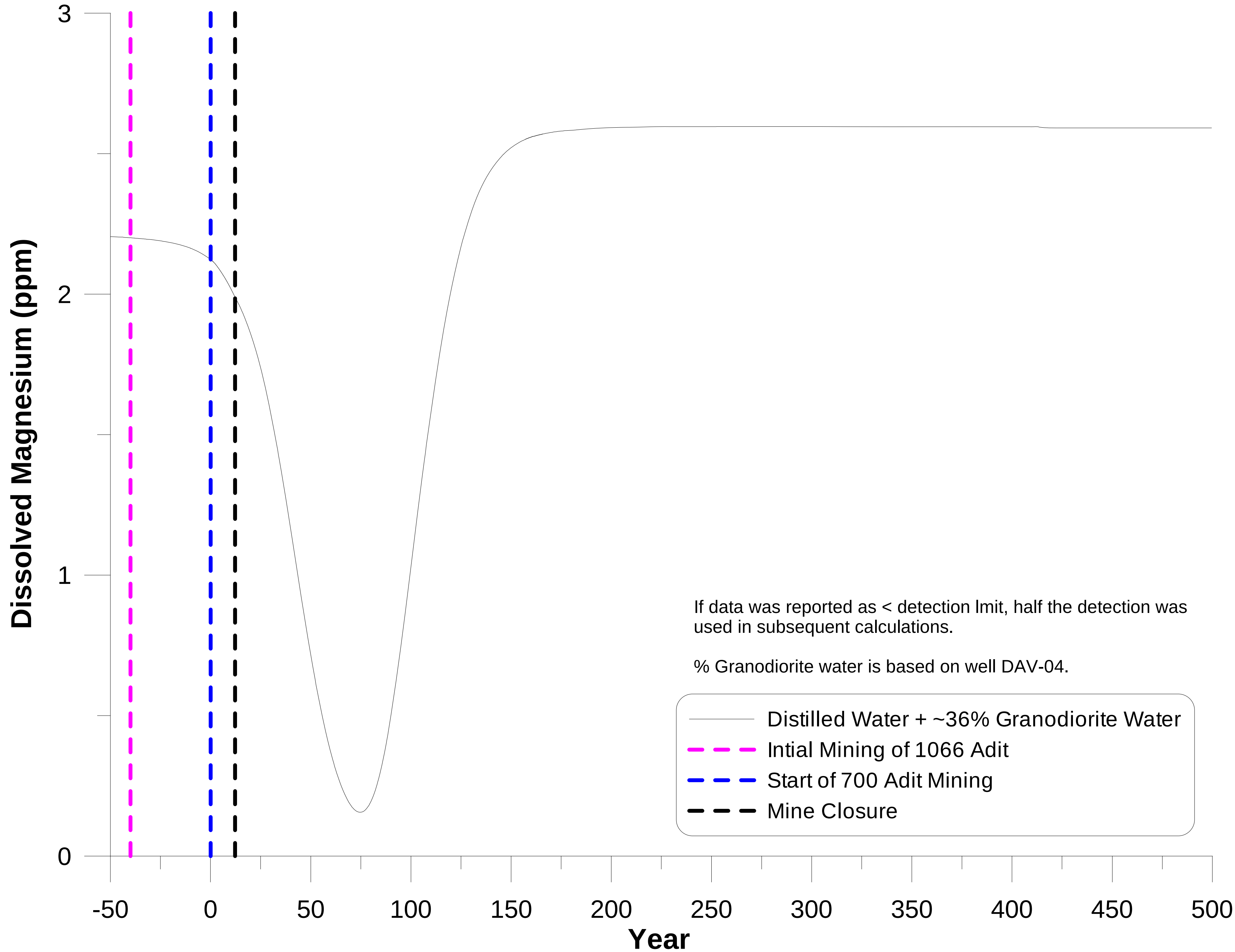
Dissolved Iron (ppm)
0.12
0.08
0.04
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



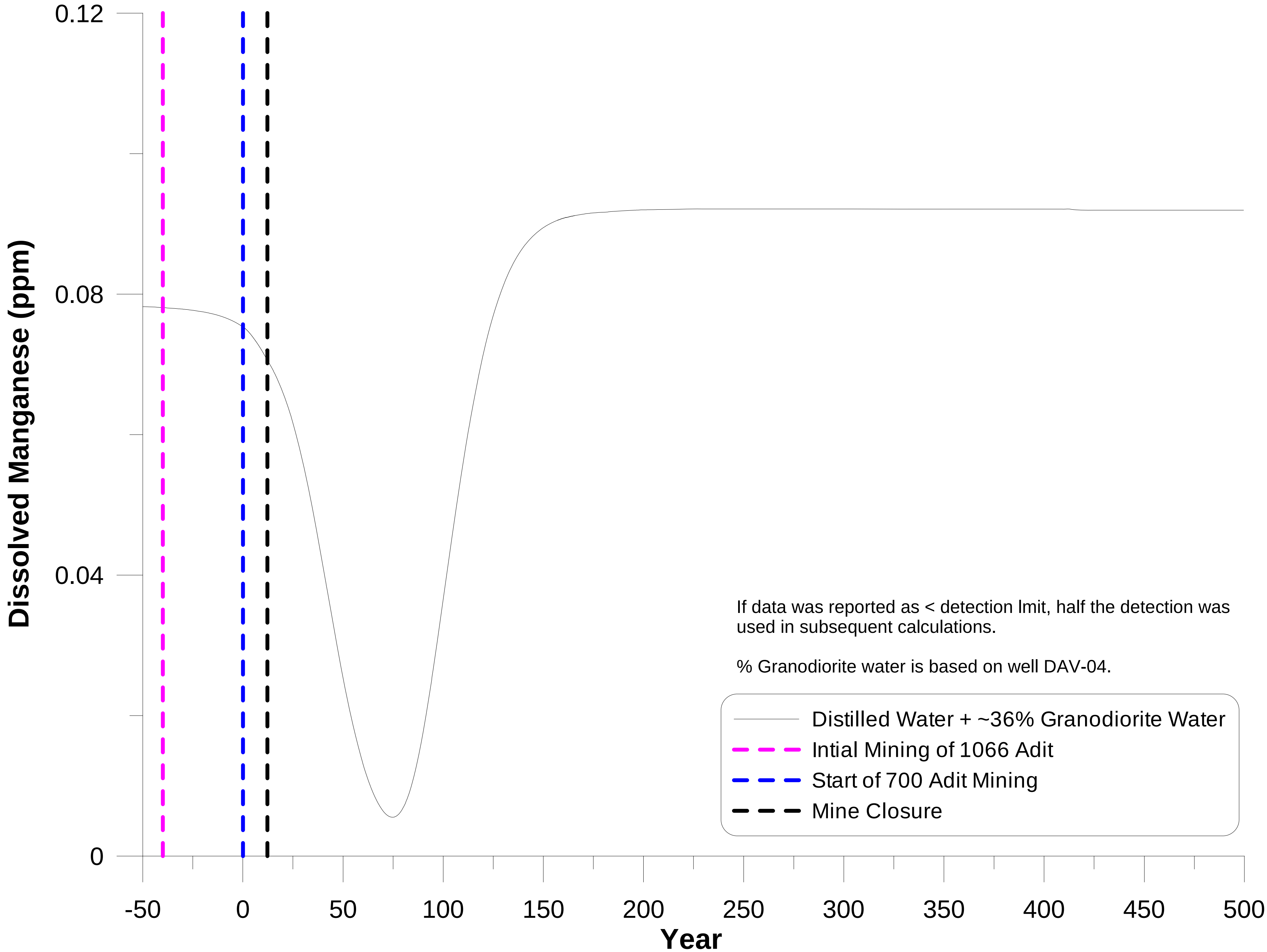
0.0004
0.0003
0.0002
0.0001
0
Dissolved Lead (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



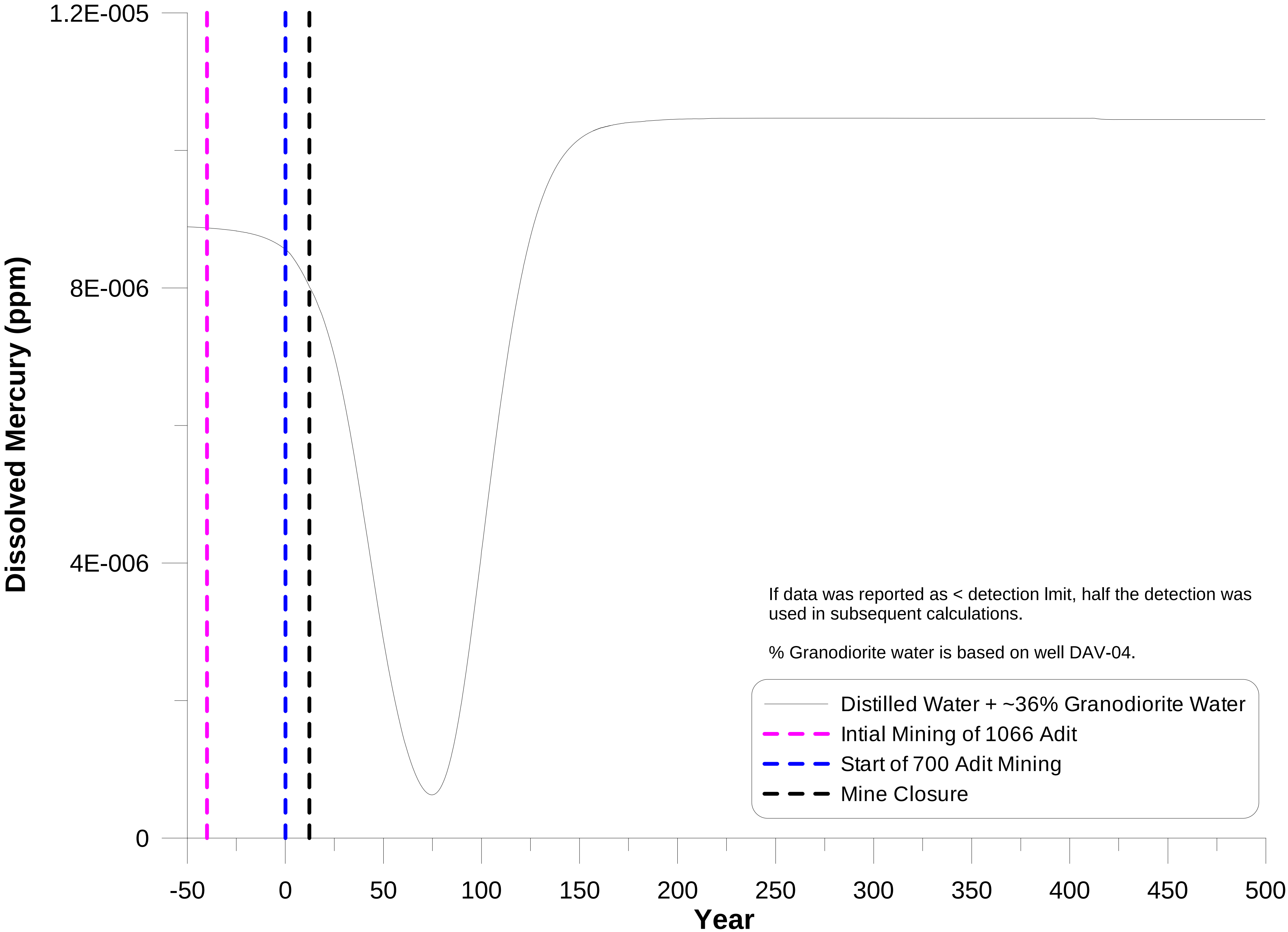
0.004
0.003
0.002
0.001
0
Dissolved Lithium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



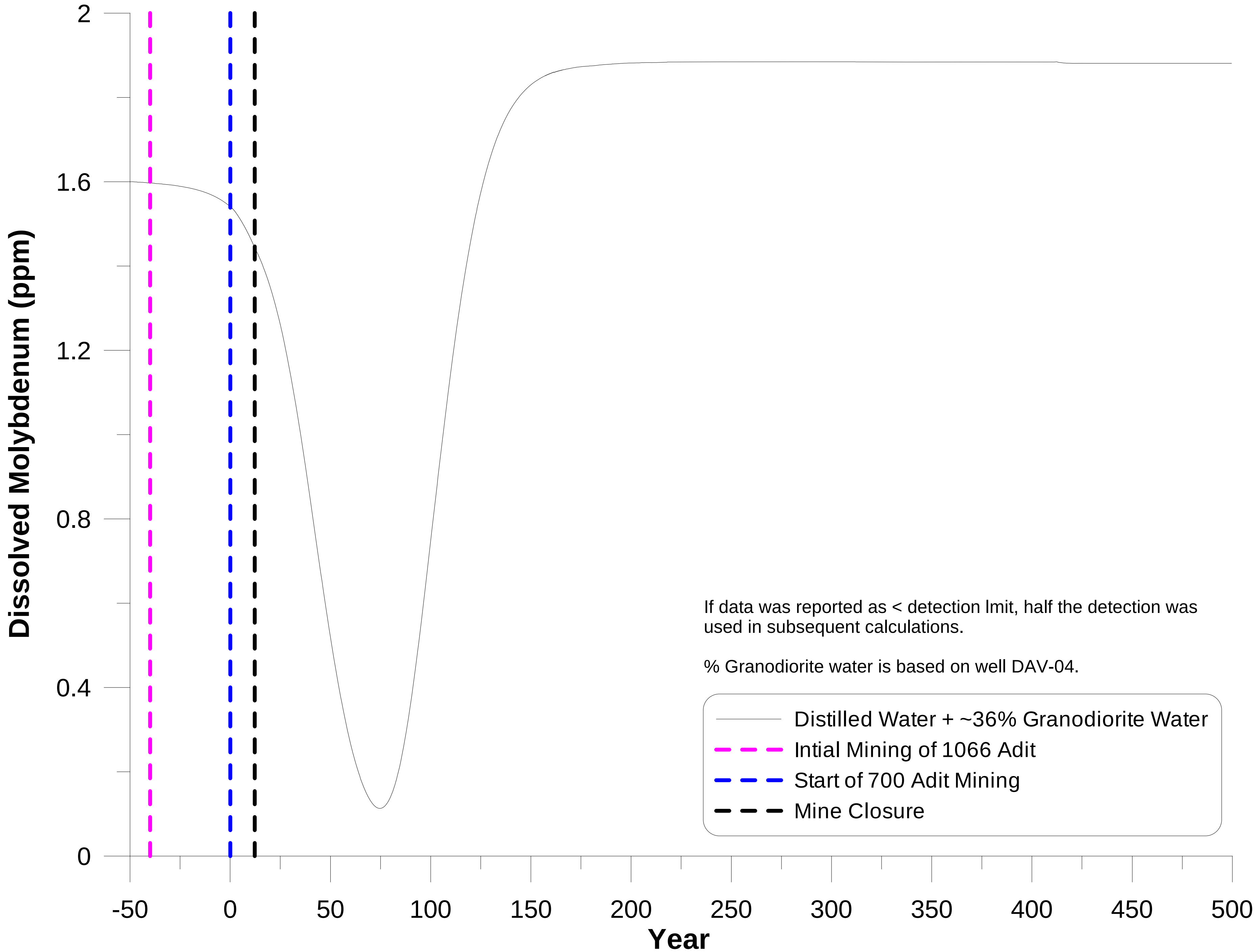
Dissolved Magnesium (ppm)
3
2
1
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



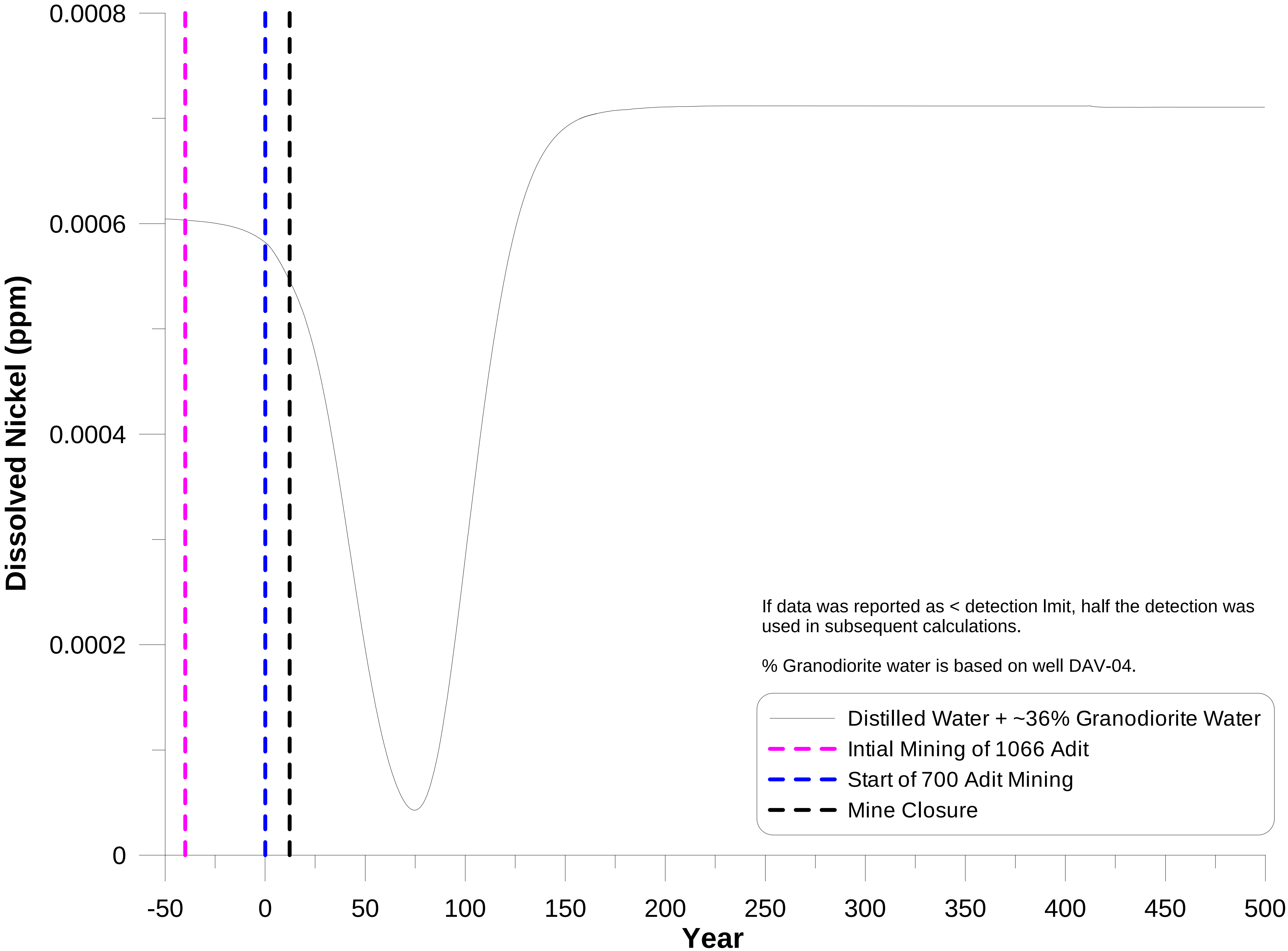
0.12
0.08
0.04
0
Dissolved Manganese (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



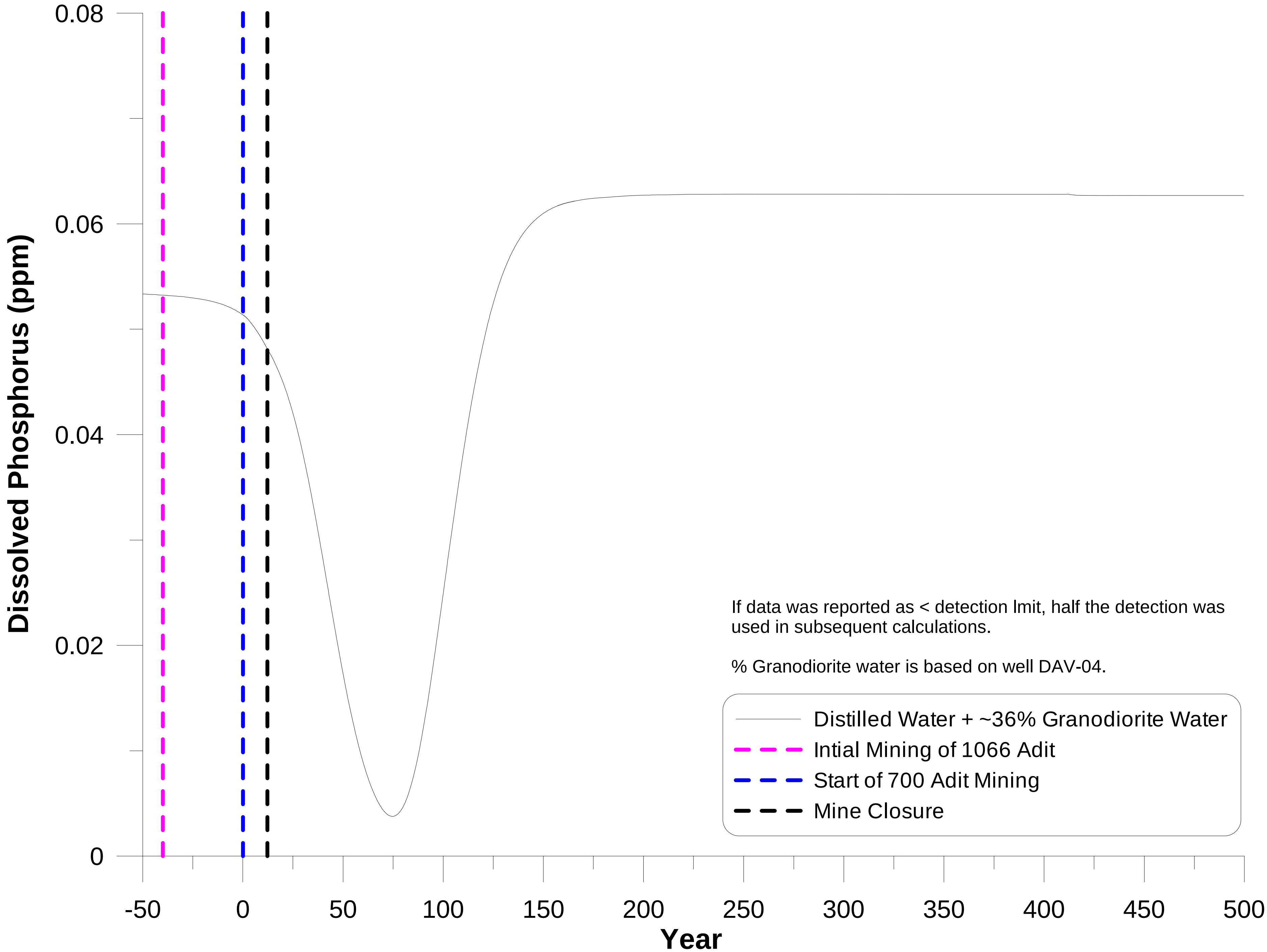
1.2E-005
8E-006
4E-006
0
Dissolved Mercury (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



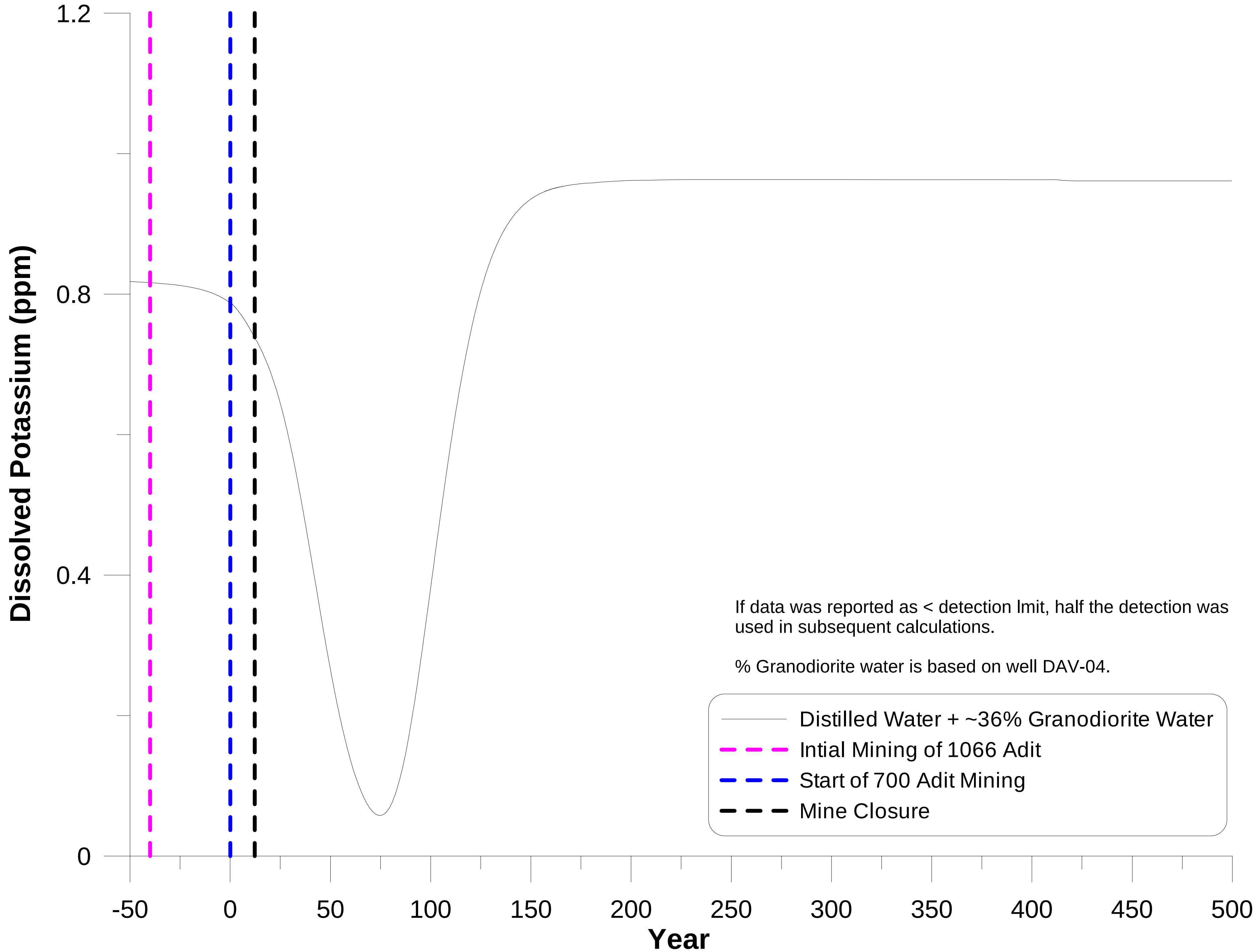
Dissolved Molybdenum (ppm)
2
1.6
1.2
0.8
0.4
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

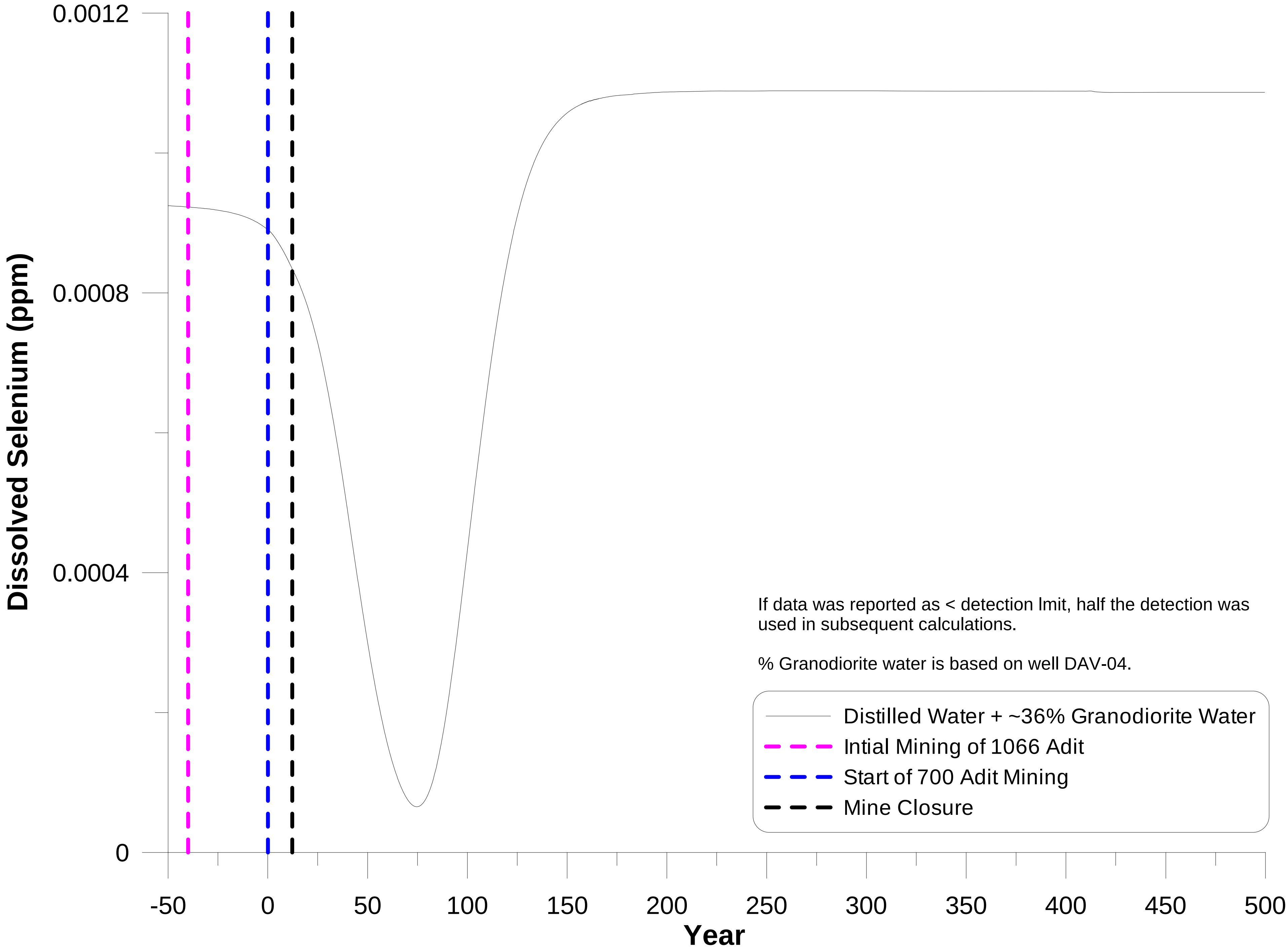


Dissolved Nickel (ppm)
0.0008
0.0006
0.0004
0.0002
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

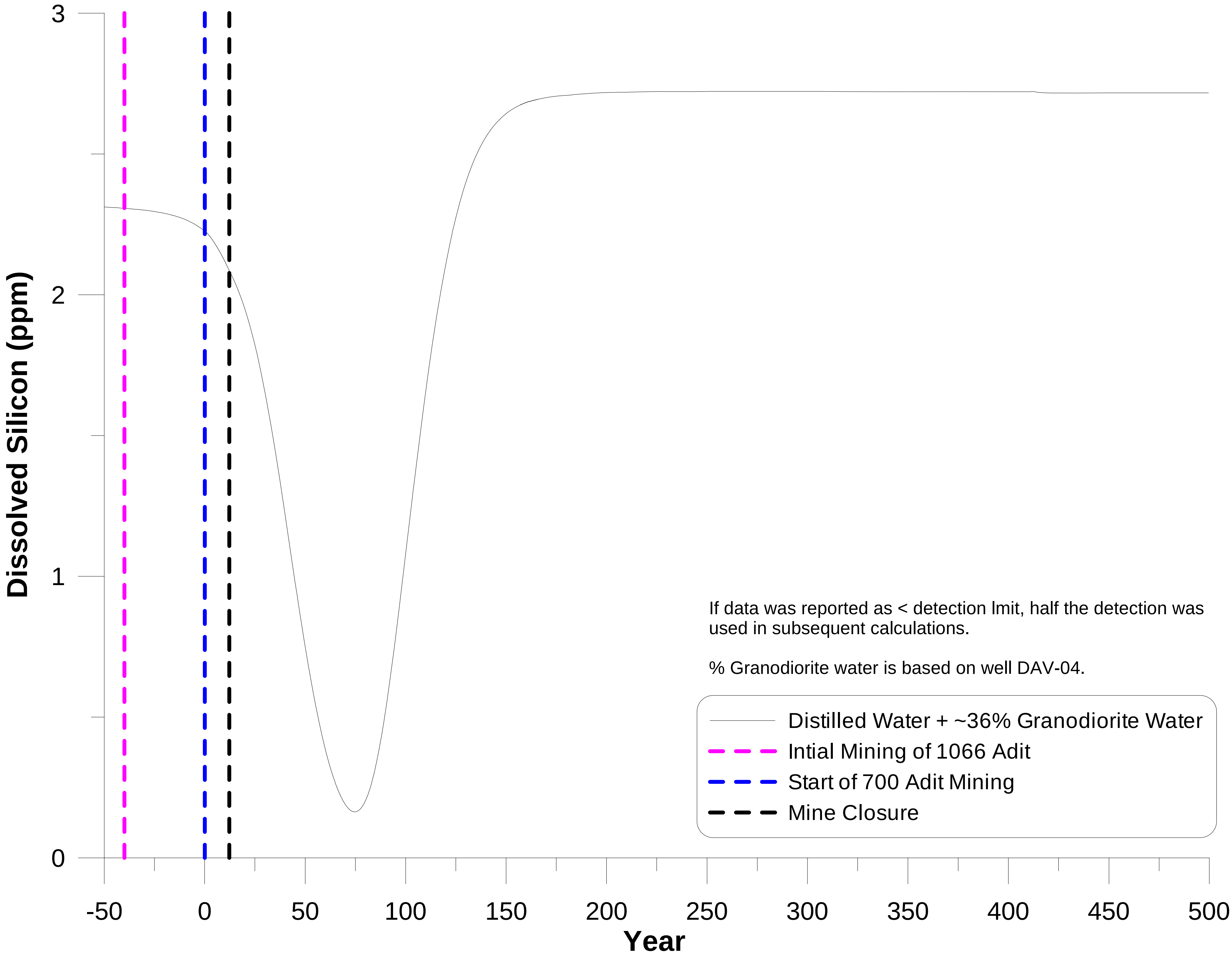


0.08
0.06
0.04
0.02
0
Dissolved Phosphorus (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

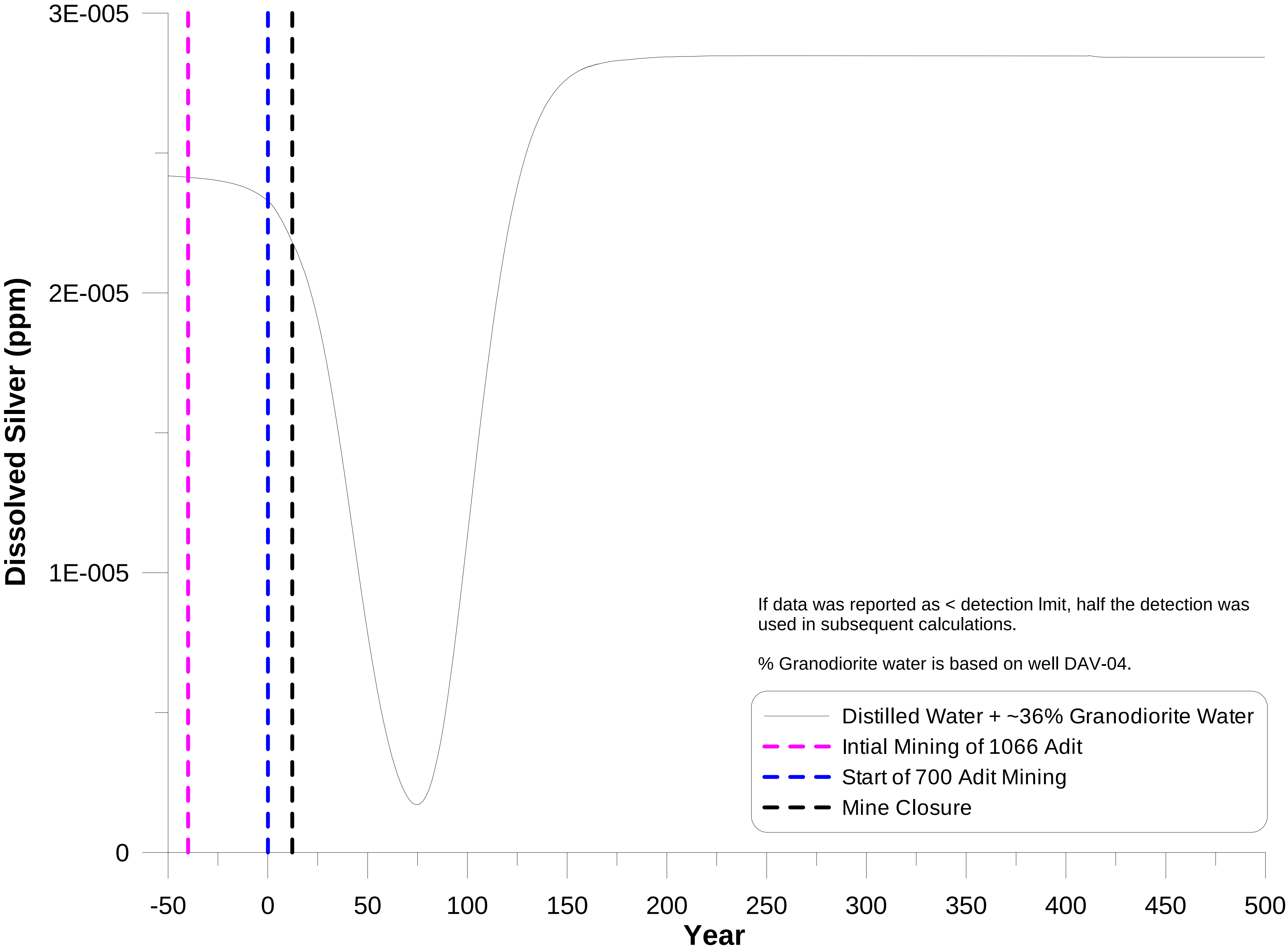

Dissolved Potassium (ppm)
1.2
0.8
0.4
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



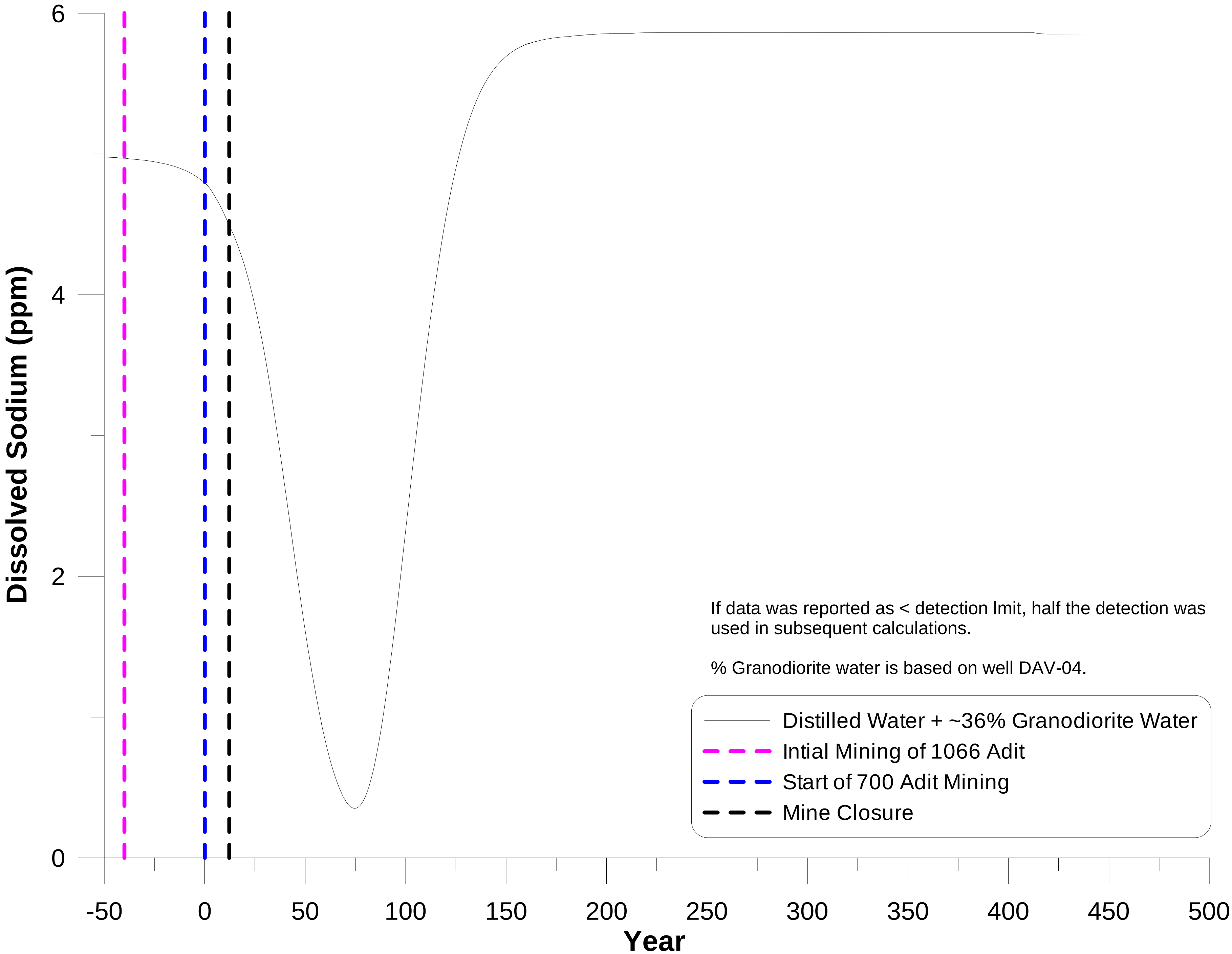
Dissolved Selenium (ppm)
0.0012
0.0008
0.0004
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



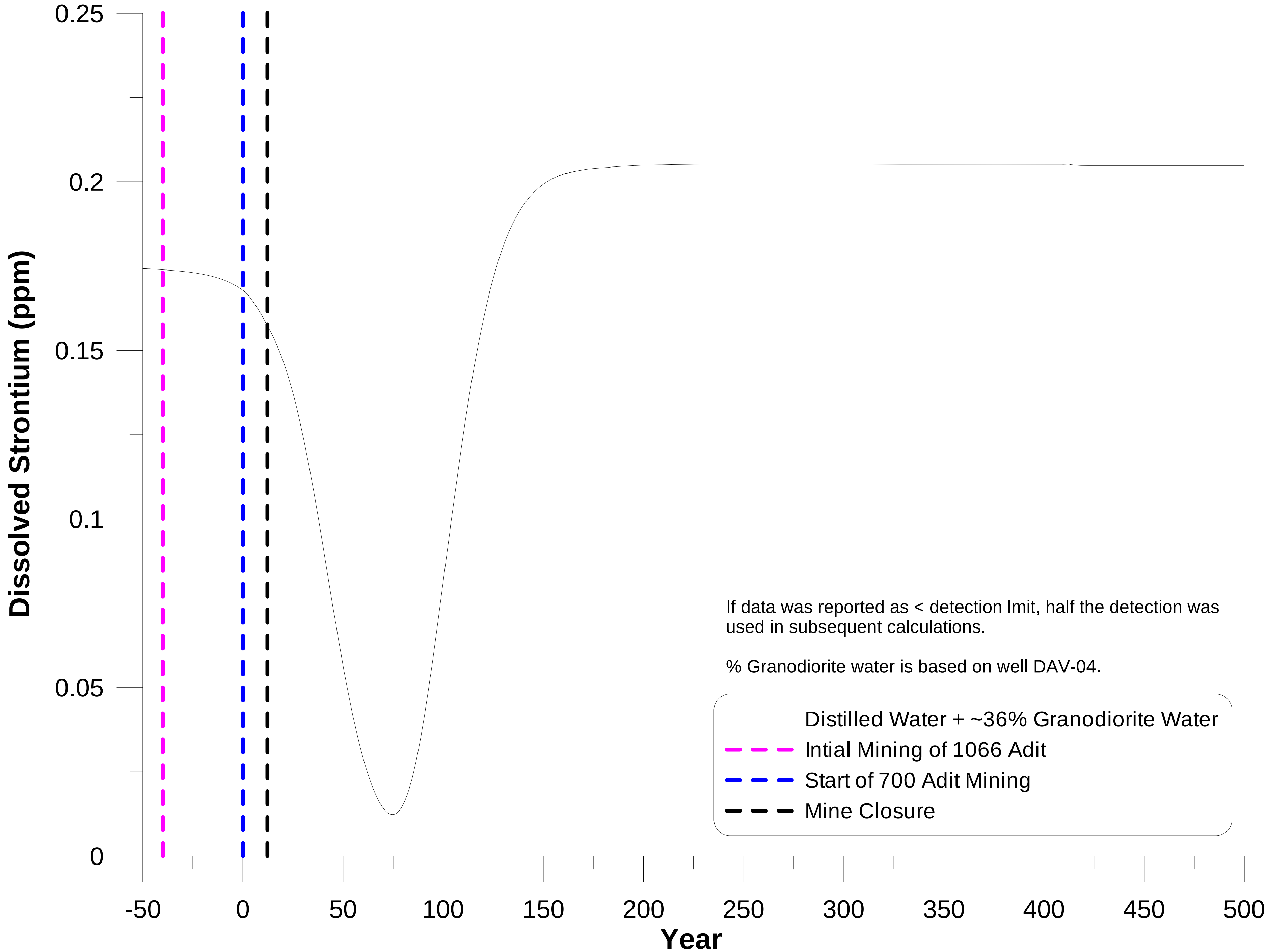
Dissolved Silicon (ppm)
3
2
1
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

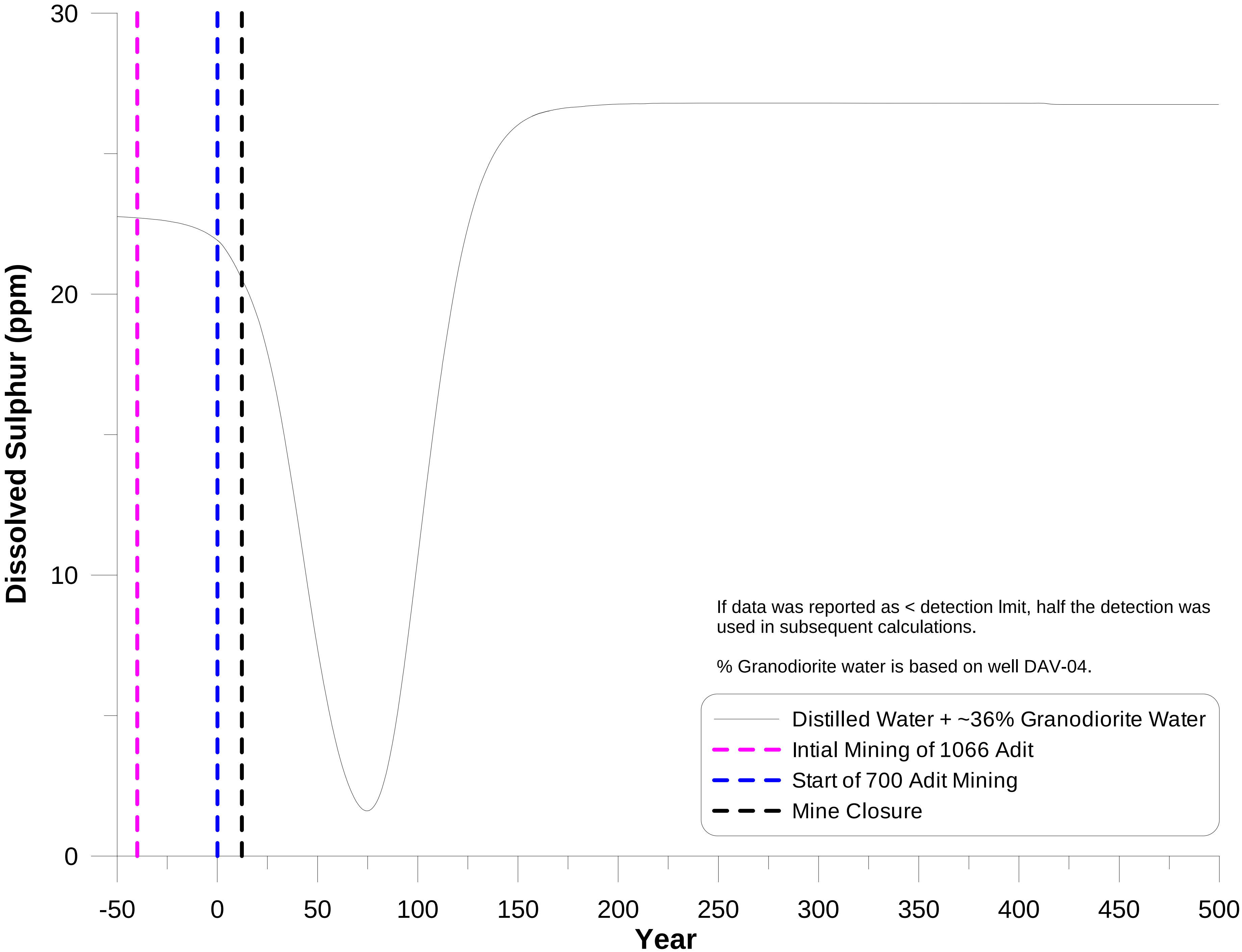


Dissolved Silver (ppm)
3E-005
2E-005
1E-005
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

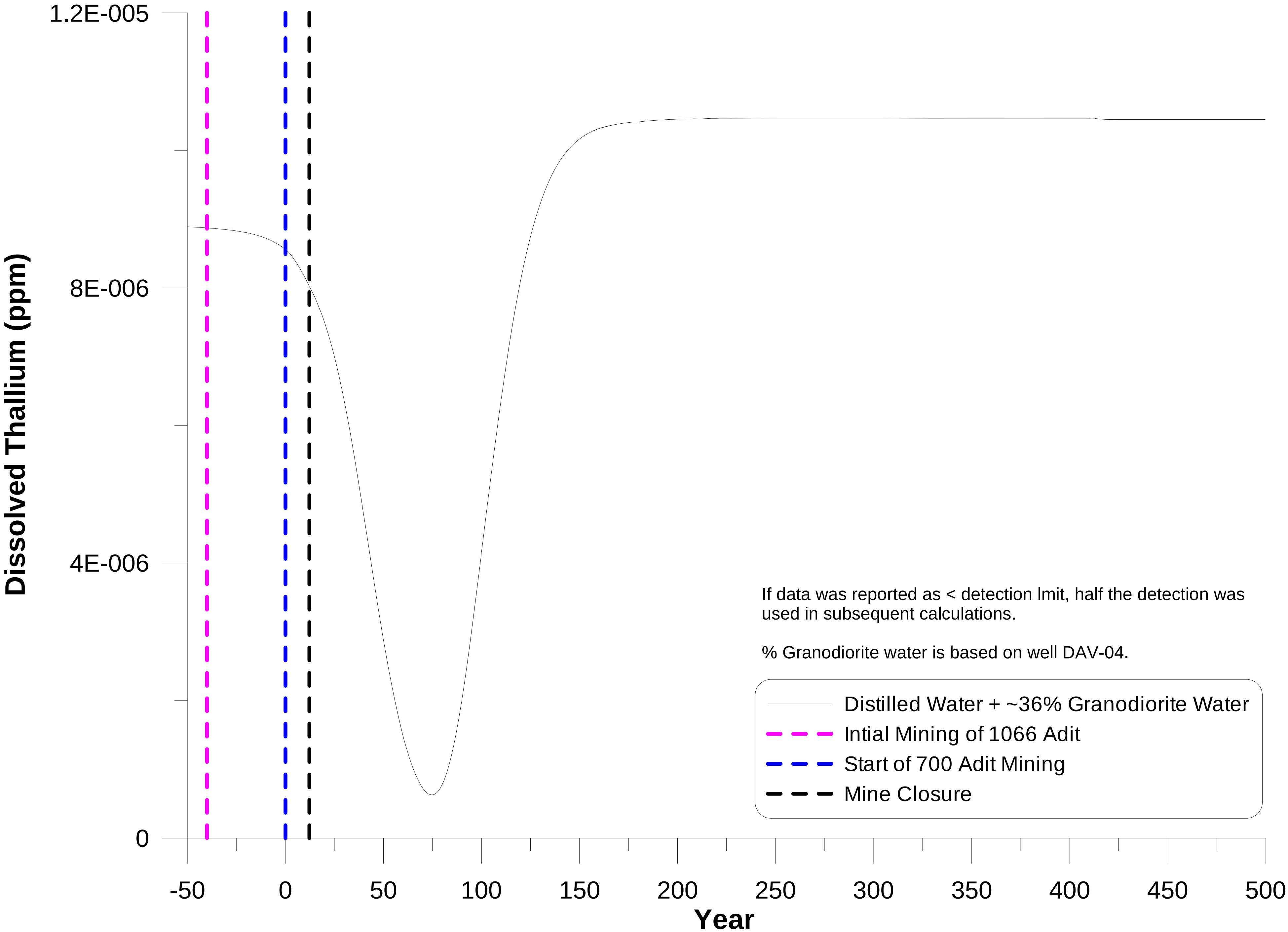


Dissolved Sodium (ppm)
6
4
2
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

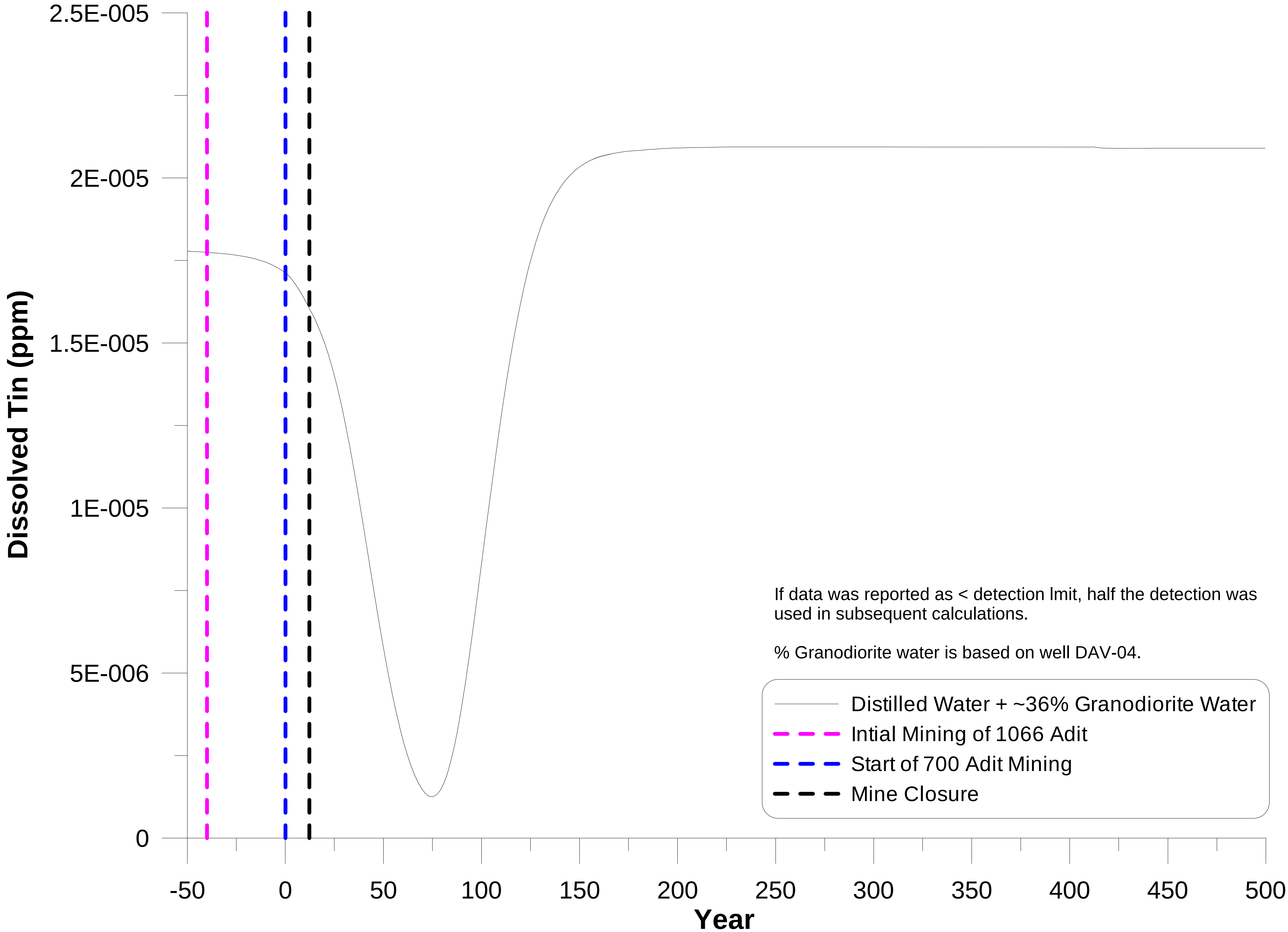

Dissolved Strontium (ppm)
0.25
0.2
0.15
0.1
0.05
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



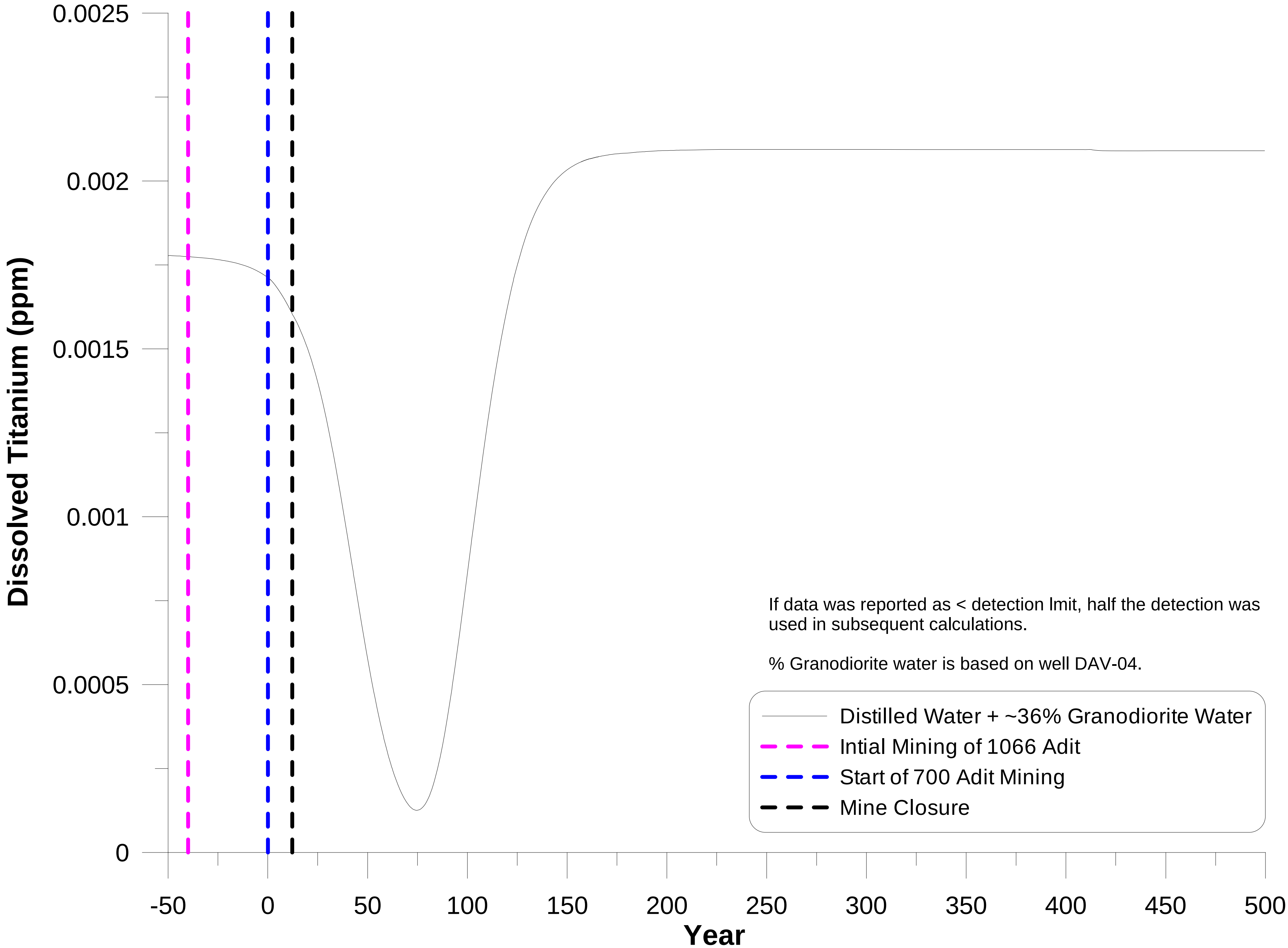
30
20
10
0
Dissolved Sulphur (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

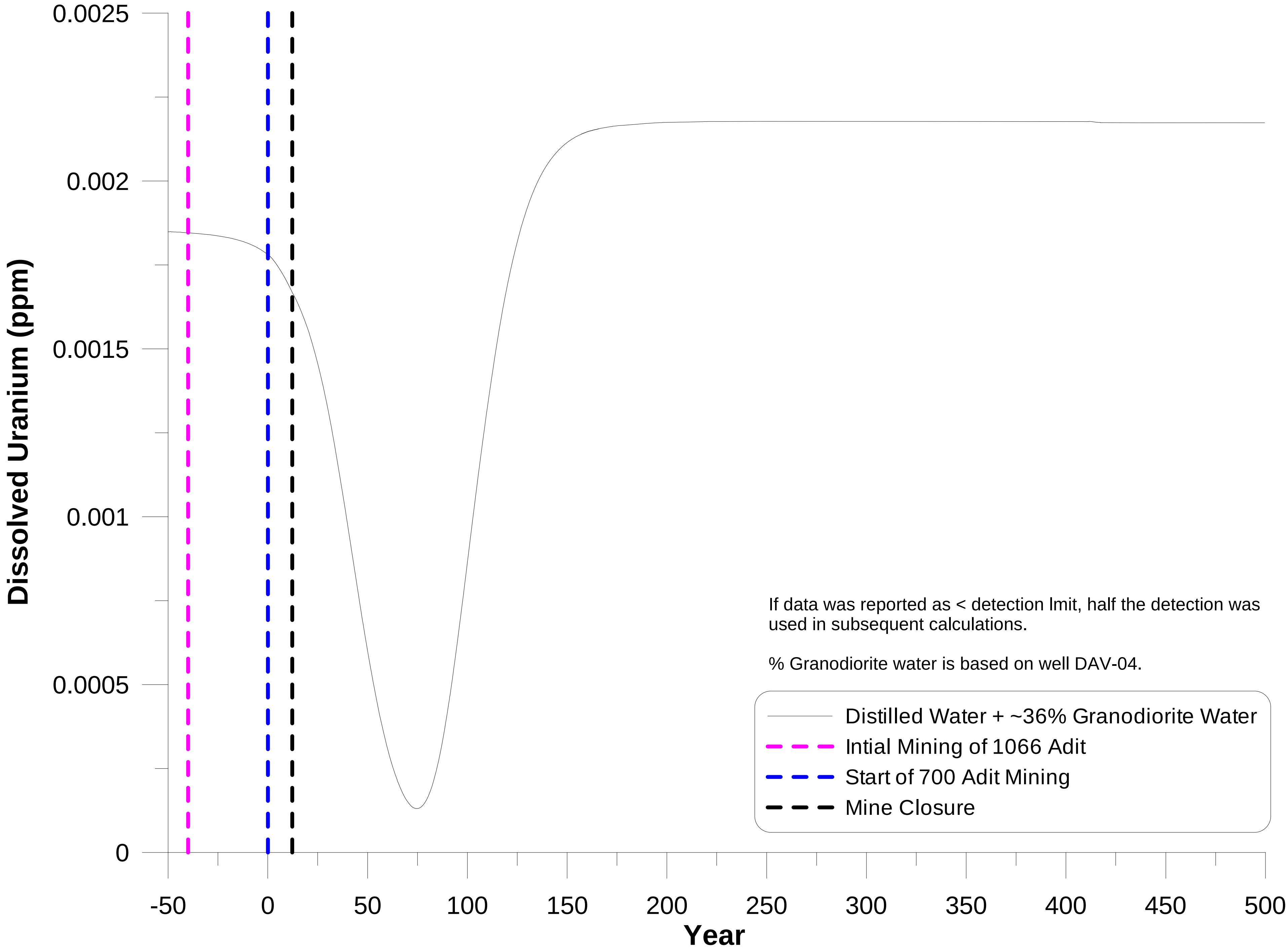


Dissolved Thallium (ppm)
1.2E-005
8E-006
4E-006
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

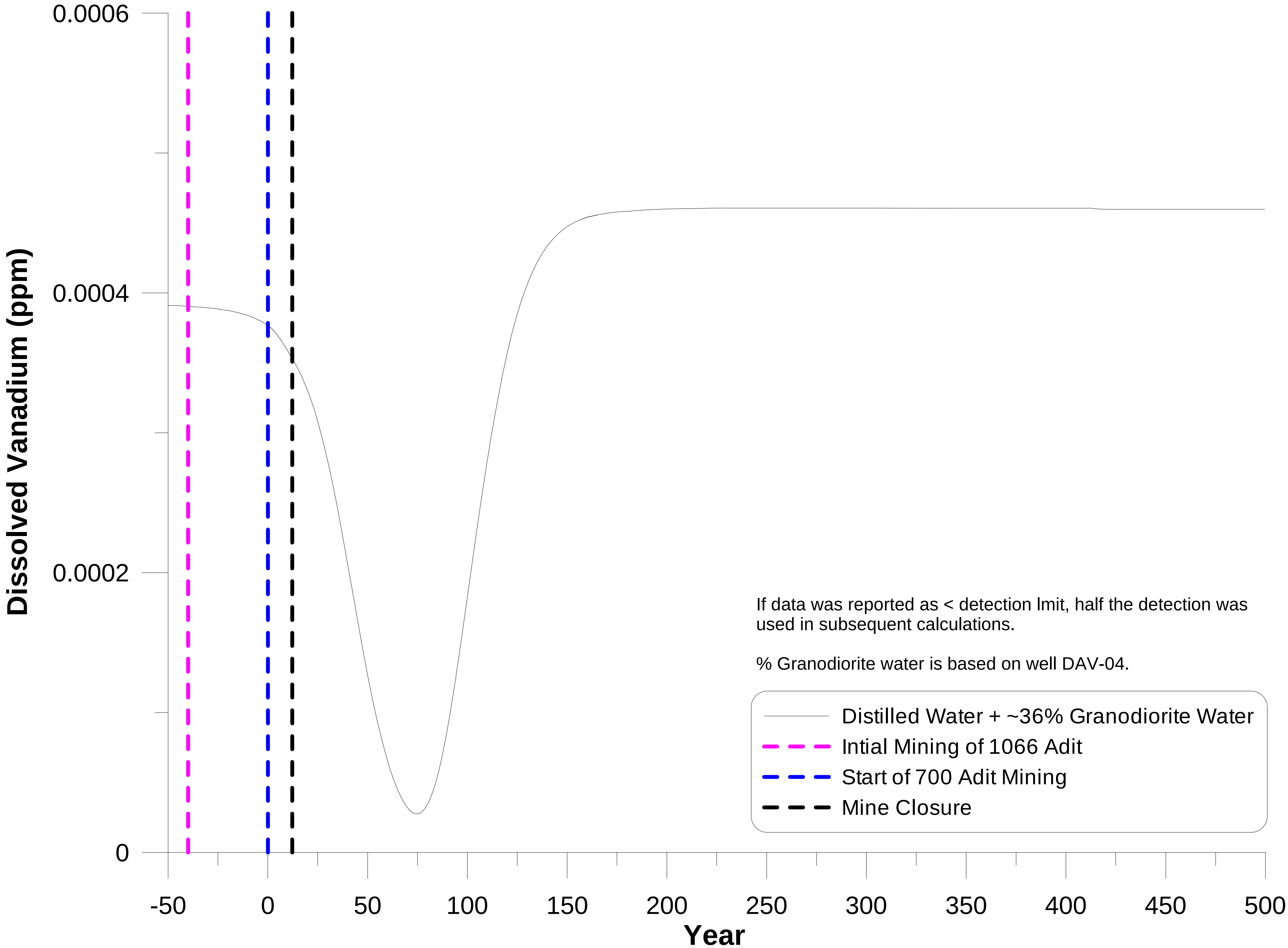


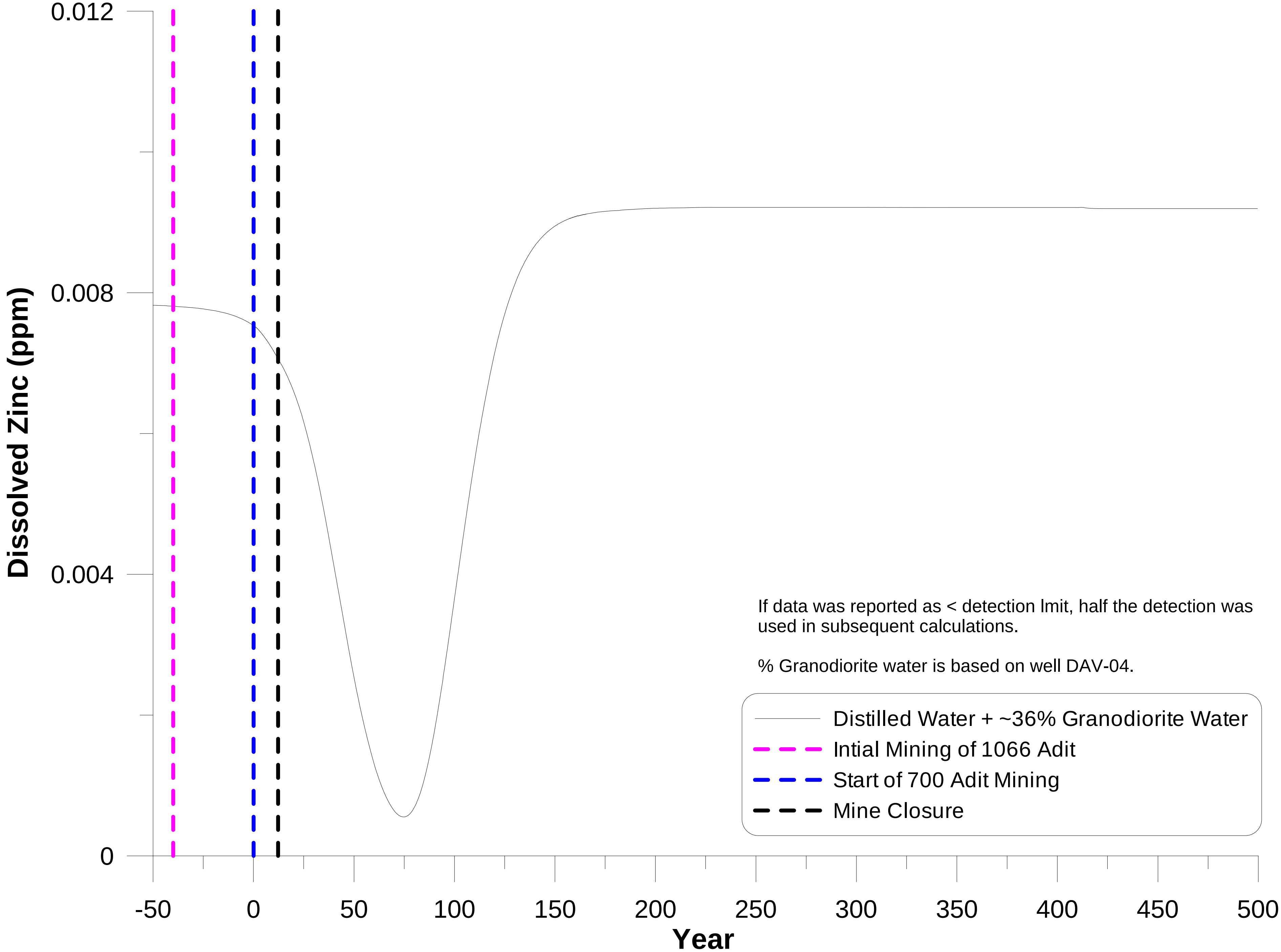
Dissolved Tin (ppm)
2.5E-005
2E-005
1.5E-005
1E-005
5E-006
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure


0.0025
0.002
0.0015
0.001
0.0005
0
Dissolved Titanium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



Dissolved Uranium (ppm)
0.0025
0.002
0.0015
0.001
0.0005
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

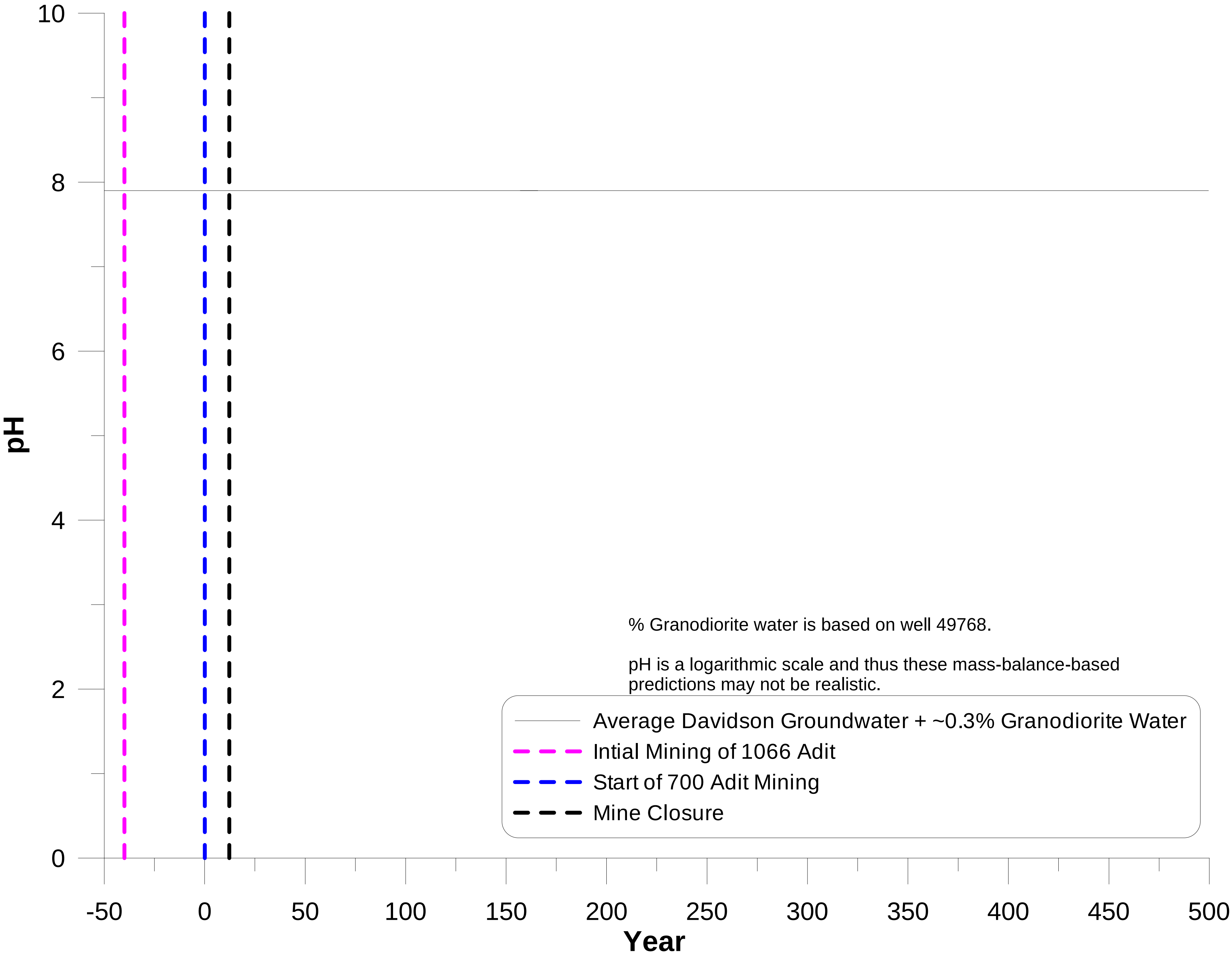

Dissolved Vanadium (ppm)
0.0006
0.0004
0.0002
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure


0.012
0.008
0.004
0
Dissolved Zinc (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well DAV-04.
Distilled Water + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

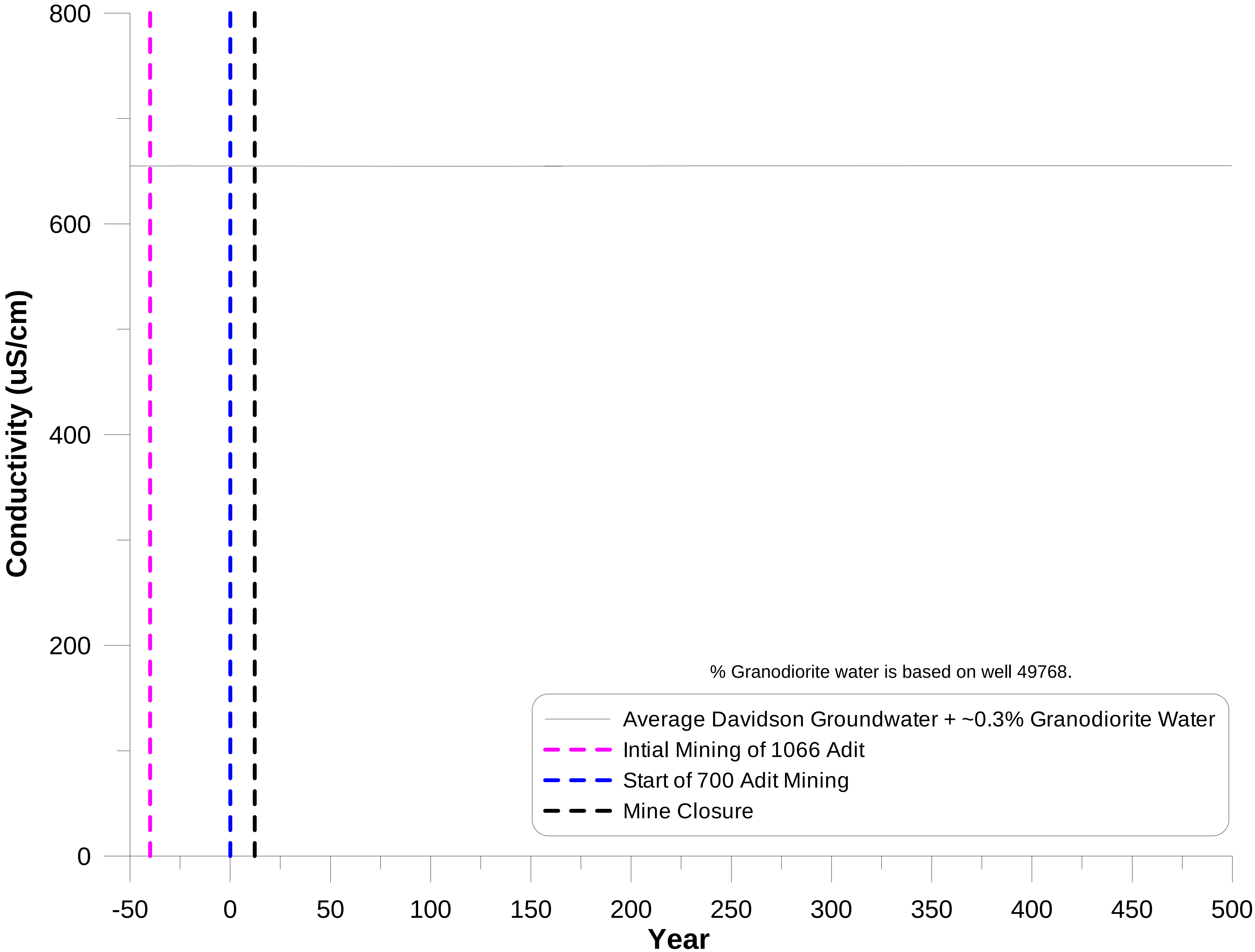
APPENDIX B.

ESTIMATED CONCENTRATIONS FOR A WELL RECEIVING AVERAGE DOWNGRADIENT DAVIDSON GROUNDWATER AND VARYING PERCENTAGES OF GRANODIORITE GROUNDWATER, BEFORE MINING, DURING OPERATION, AND AFTER CLOSURE

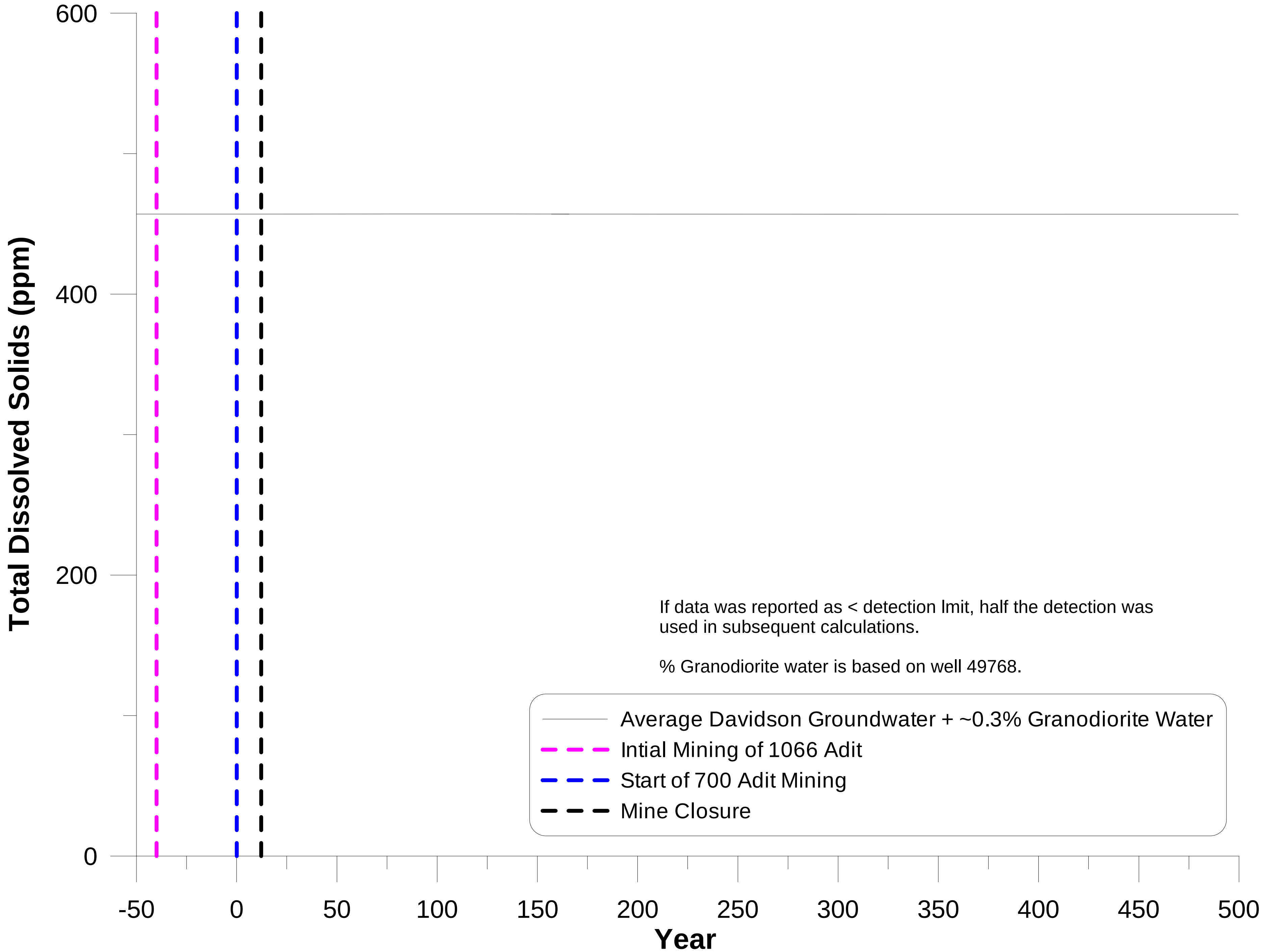
B1. ~0.3% GRANODIORITE GROUNDWATER AND ~99.7% AVERAGE DAVIDSON GROUNDWATER, BASED ON PREDICTED TRENDS FOR WELL 49768



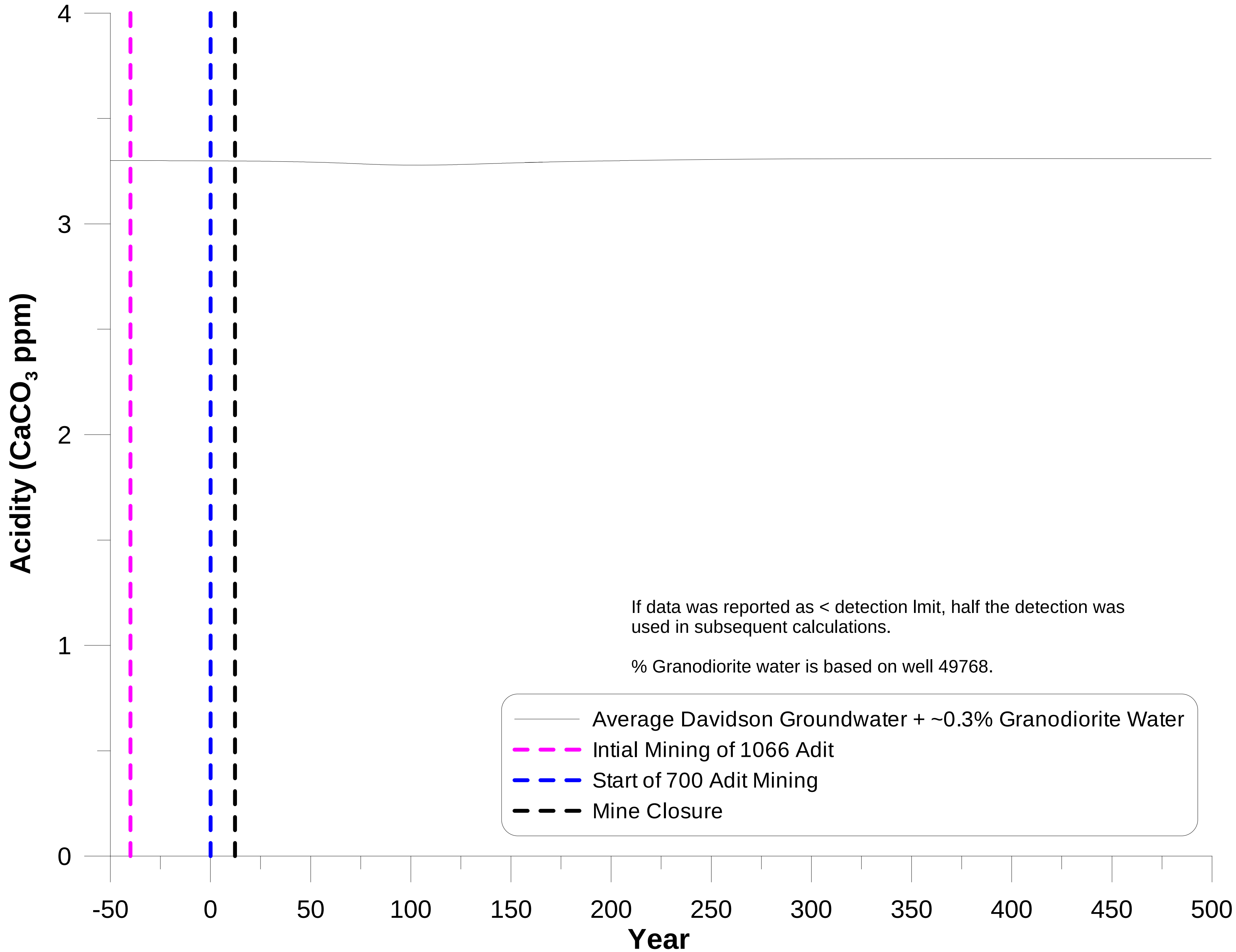
10
8
6
4
2
0
pH
-50
0
50
100
150
200
250
300
350
400
450
500
Year
% Granodiorite water is based on well 49768.
pH is a logarithmic scale and thus these mass-balance-based predictions may not be realistic.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



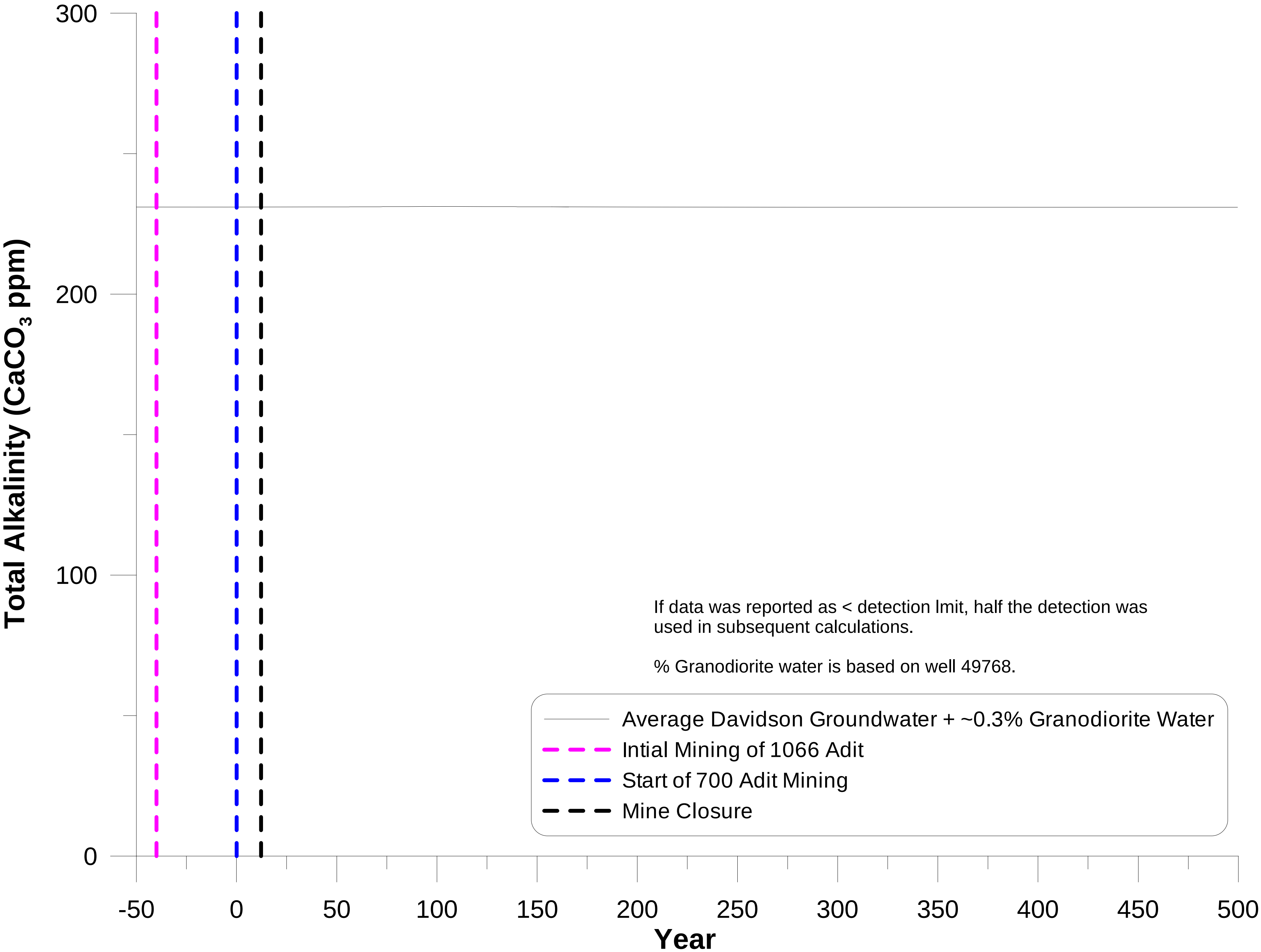
Conductivity (uS/cm)
800
600
400
200
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



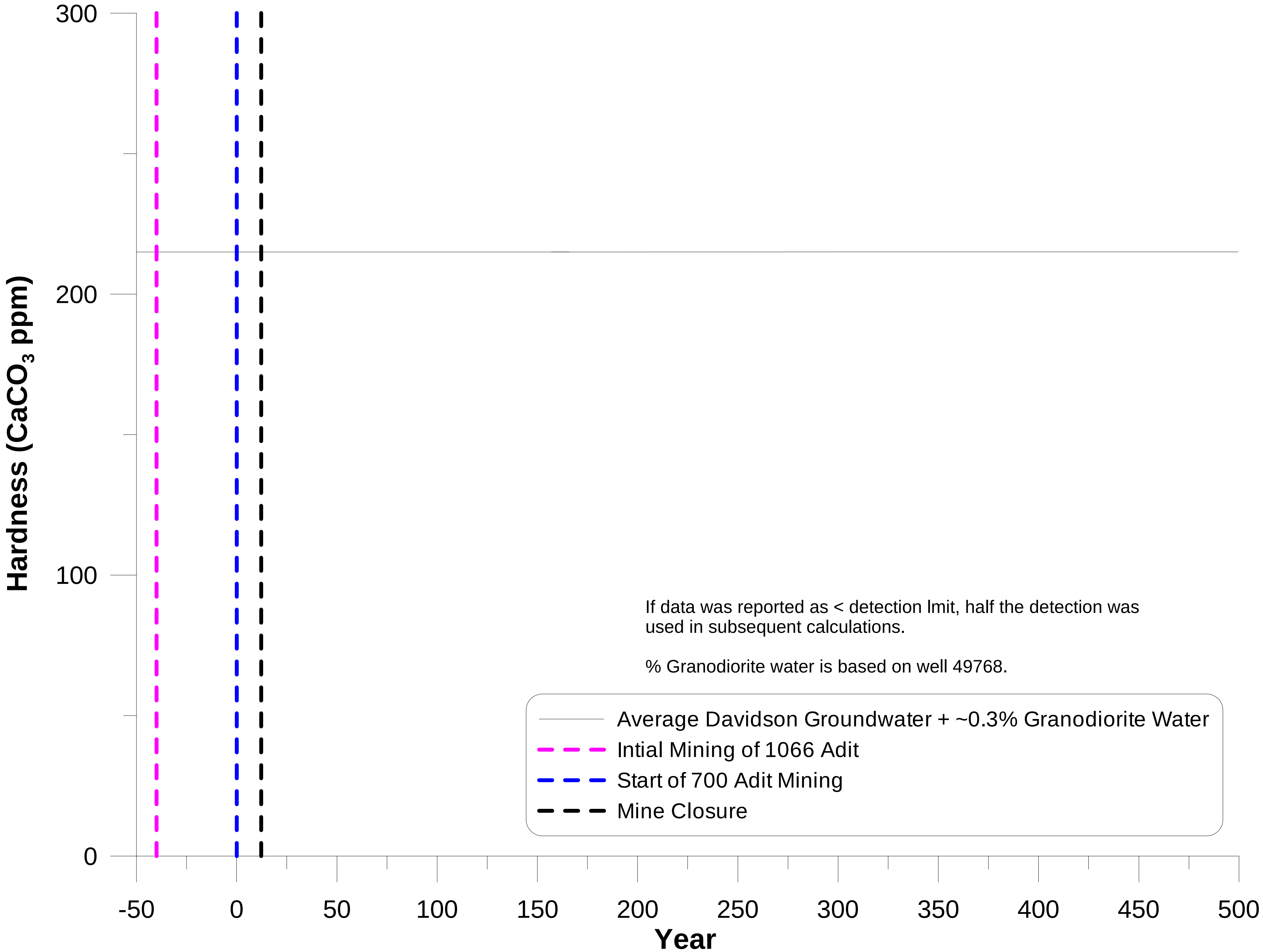
600
400
200
0
Total Dissolved Solids (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



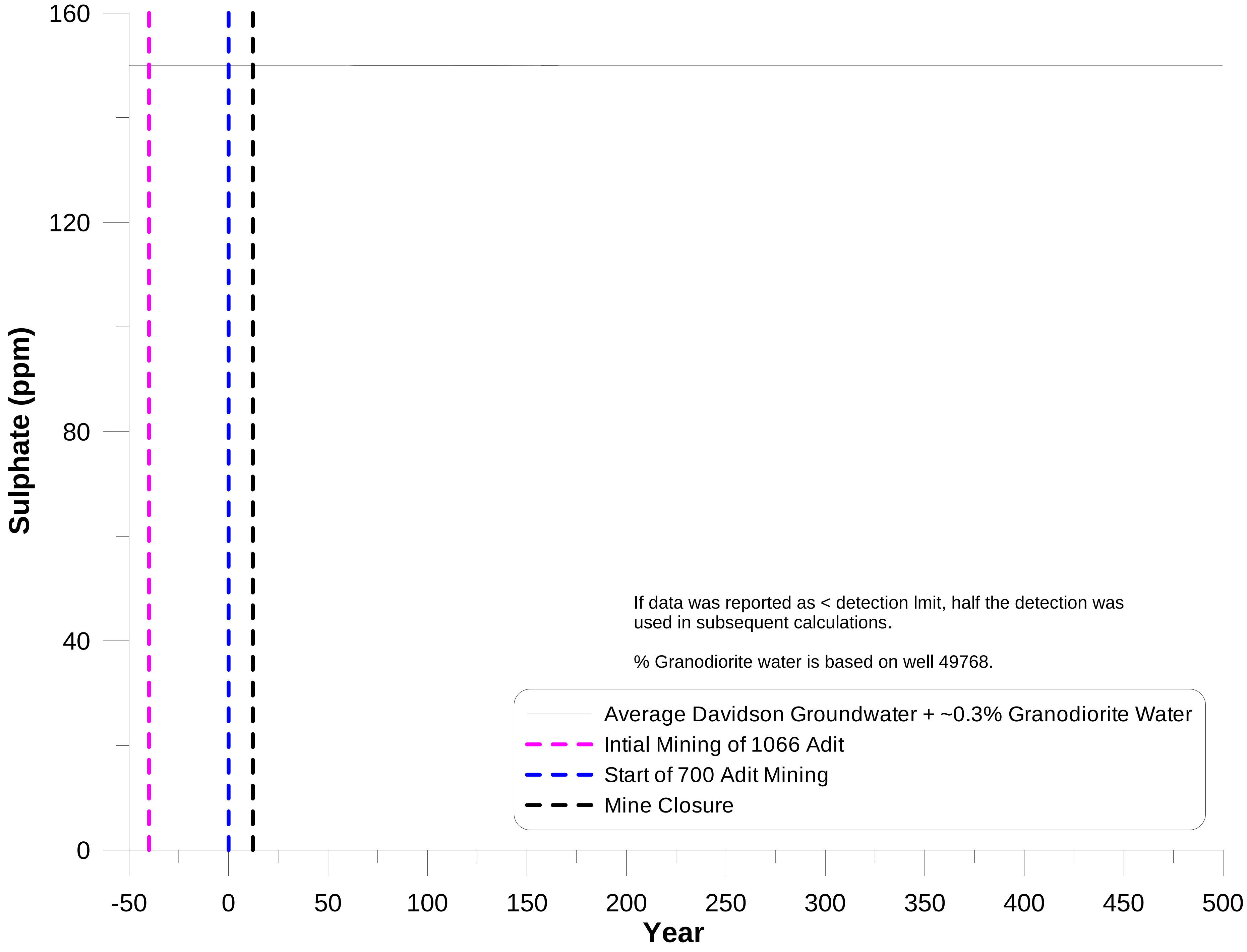
Acidity ($CaCO_3$ ppm)
4
3
2
1
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



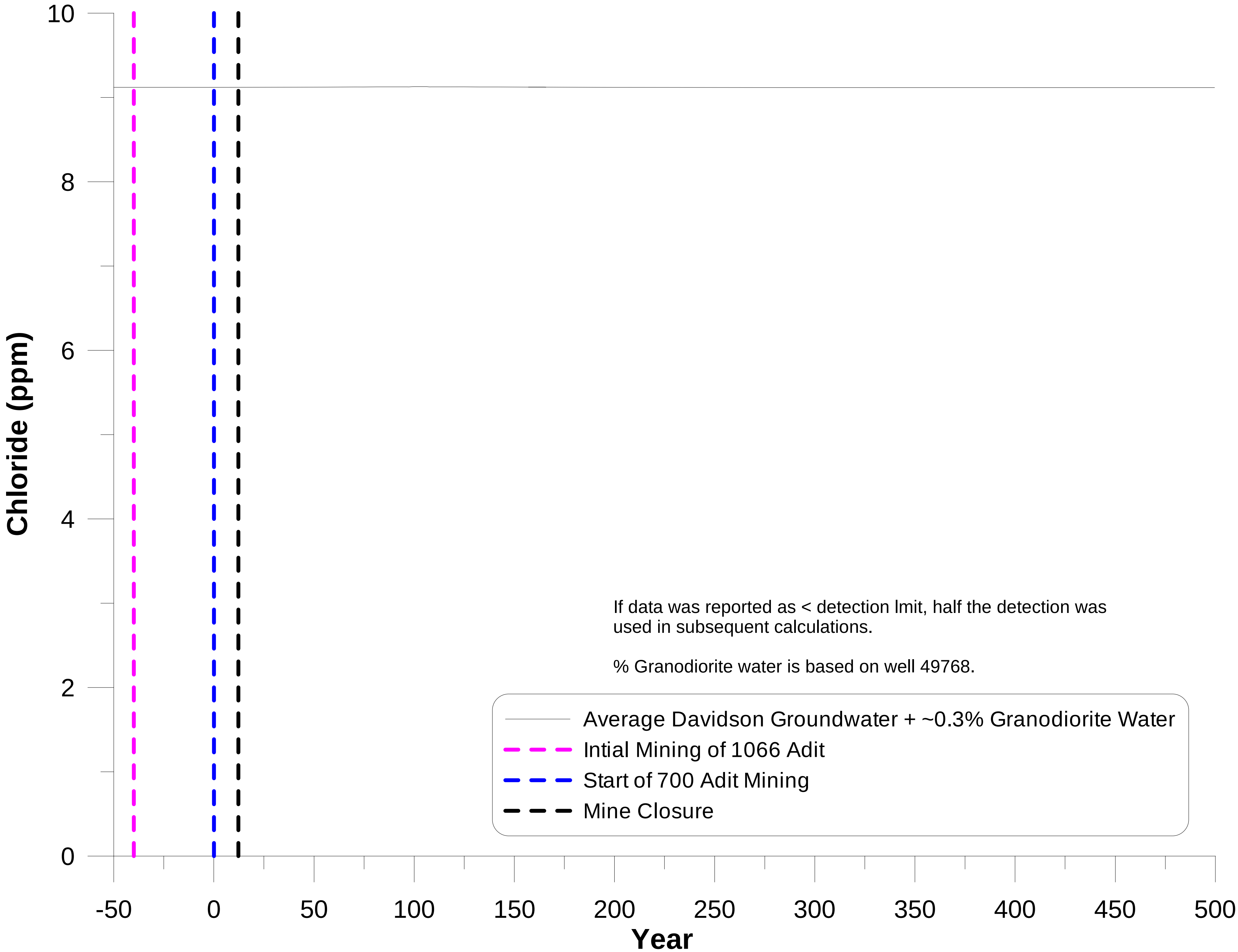
Total Alkalinity (CaCO3 ppm)
300
200
100
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



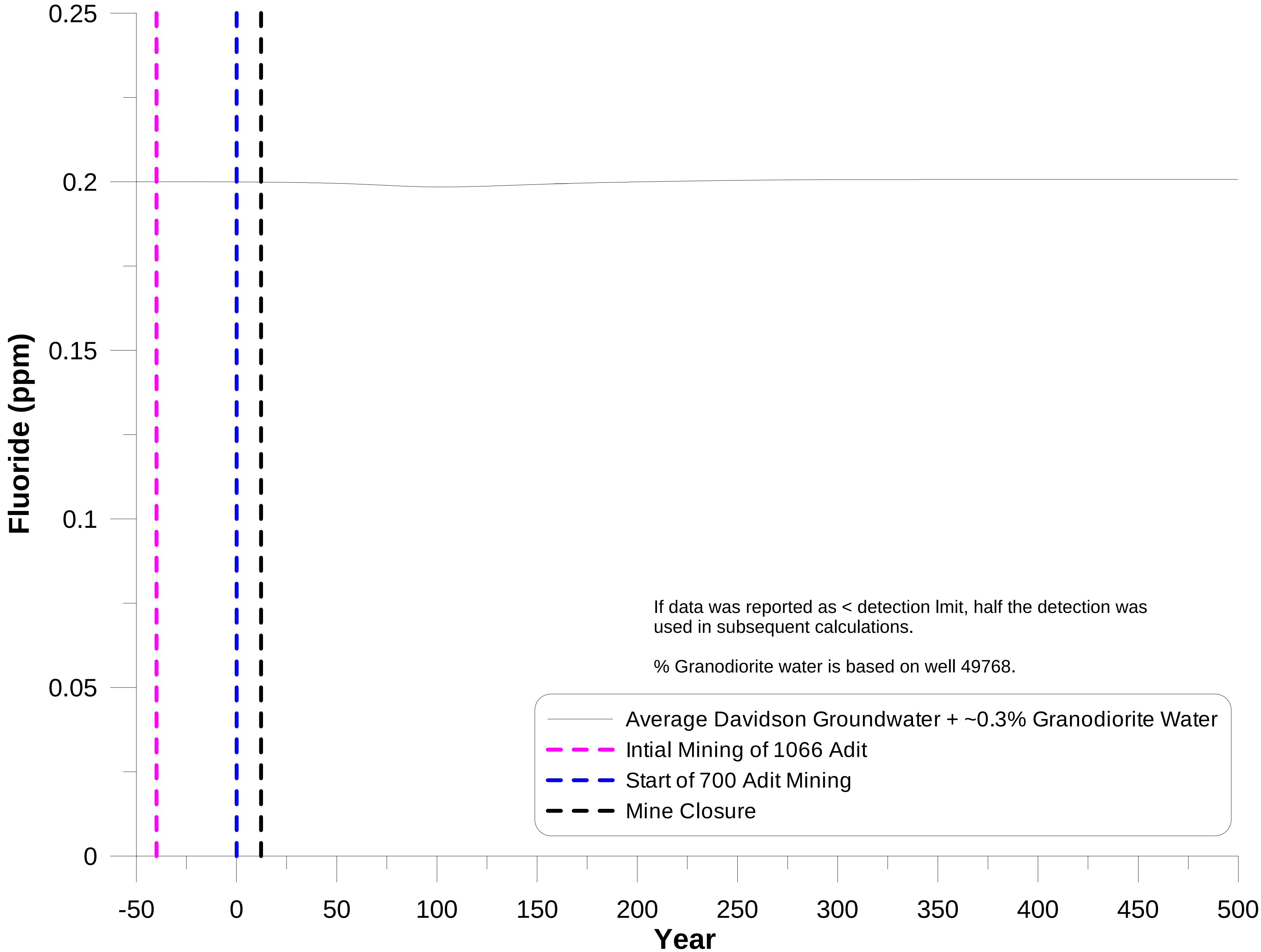
Hardness ($CaCO_3$ ppm)
300
200
100
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



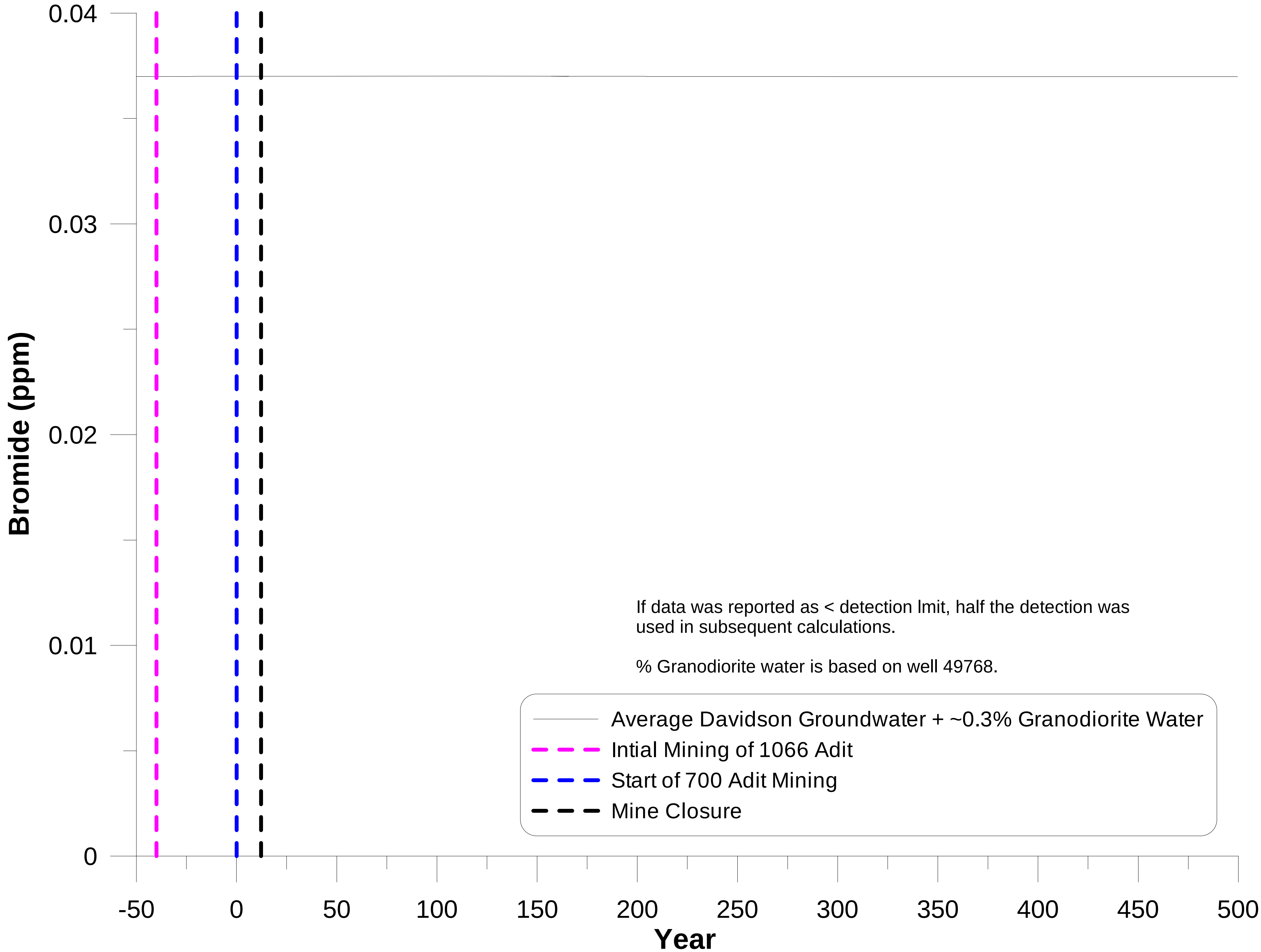
160
120
80
40
0
Sulphate (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



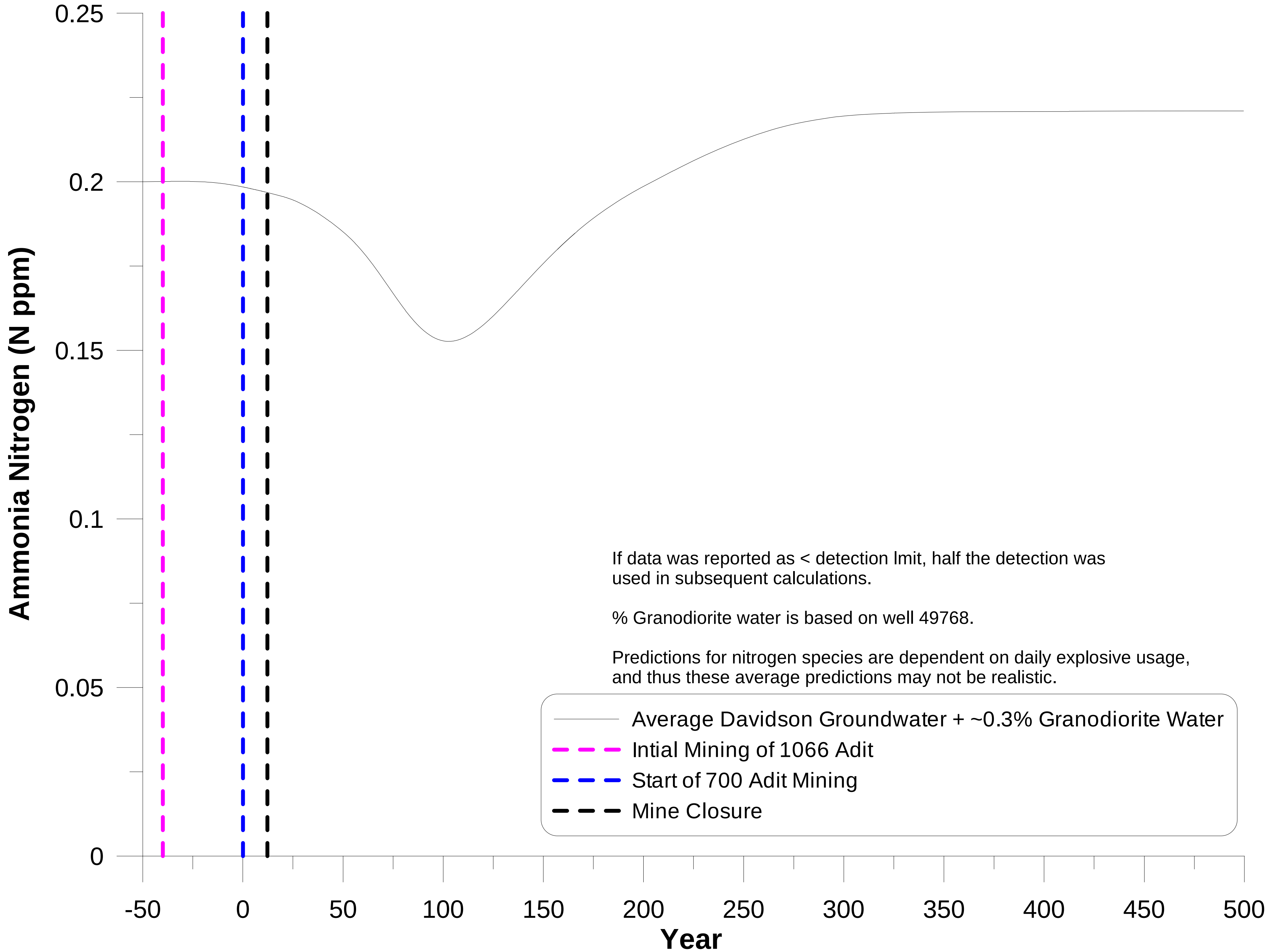
Chloride (ppm)
10
8
6
4
2
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

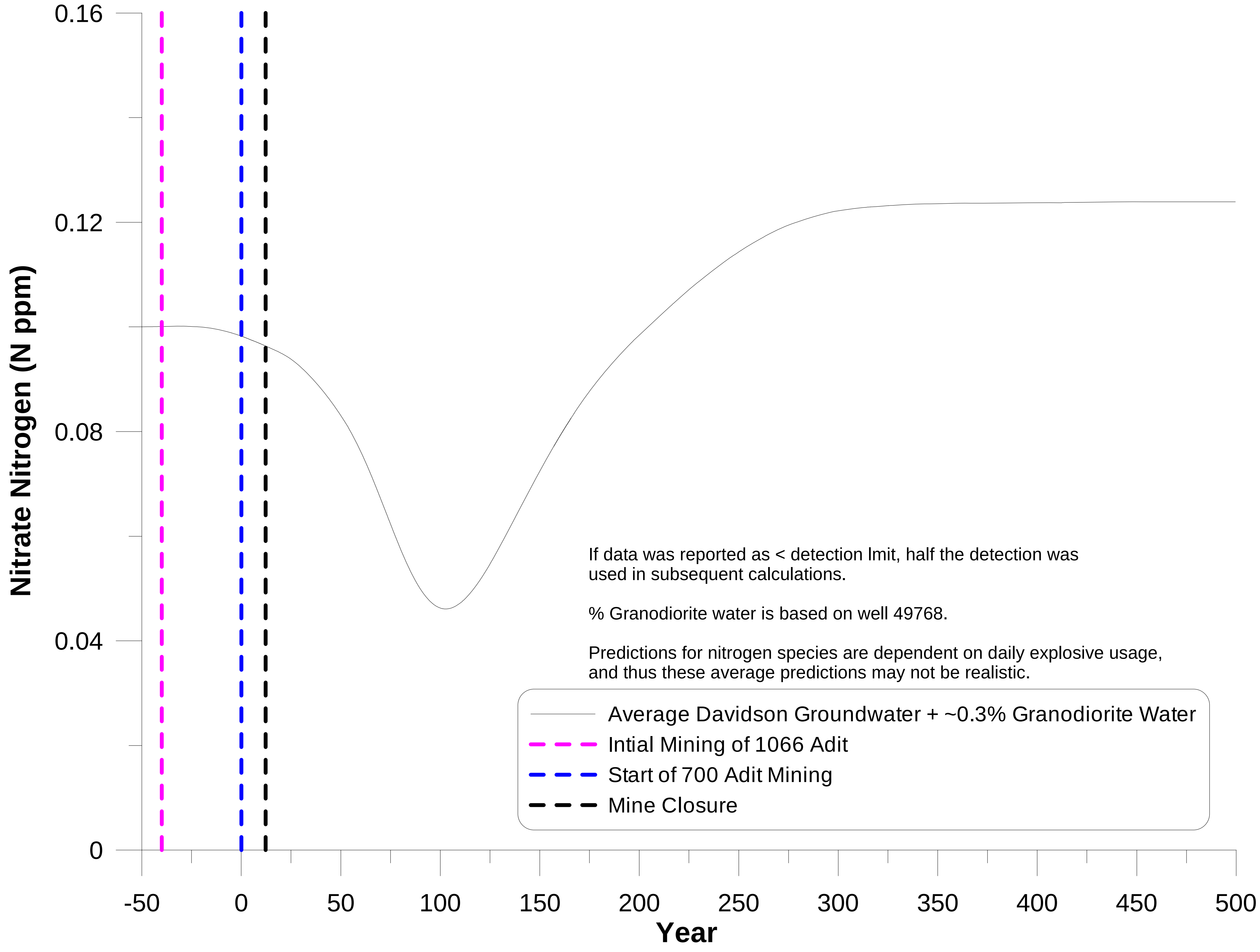


Fluoride (ppm)
0.25
0.2
0.15
0.1
0.05
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

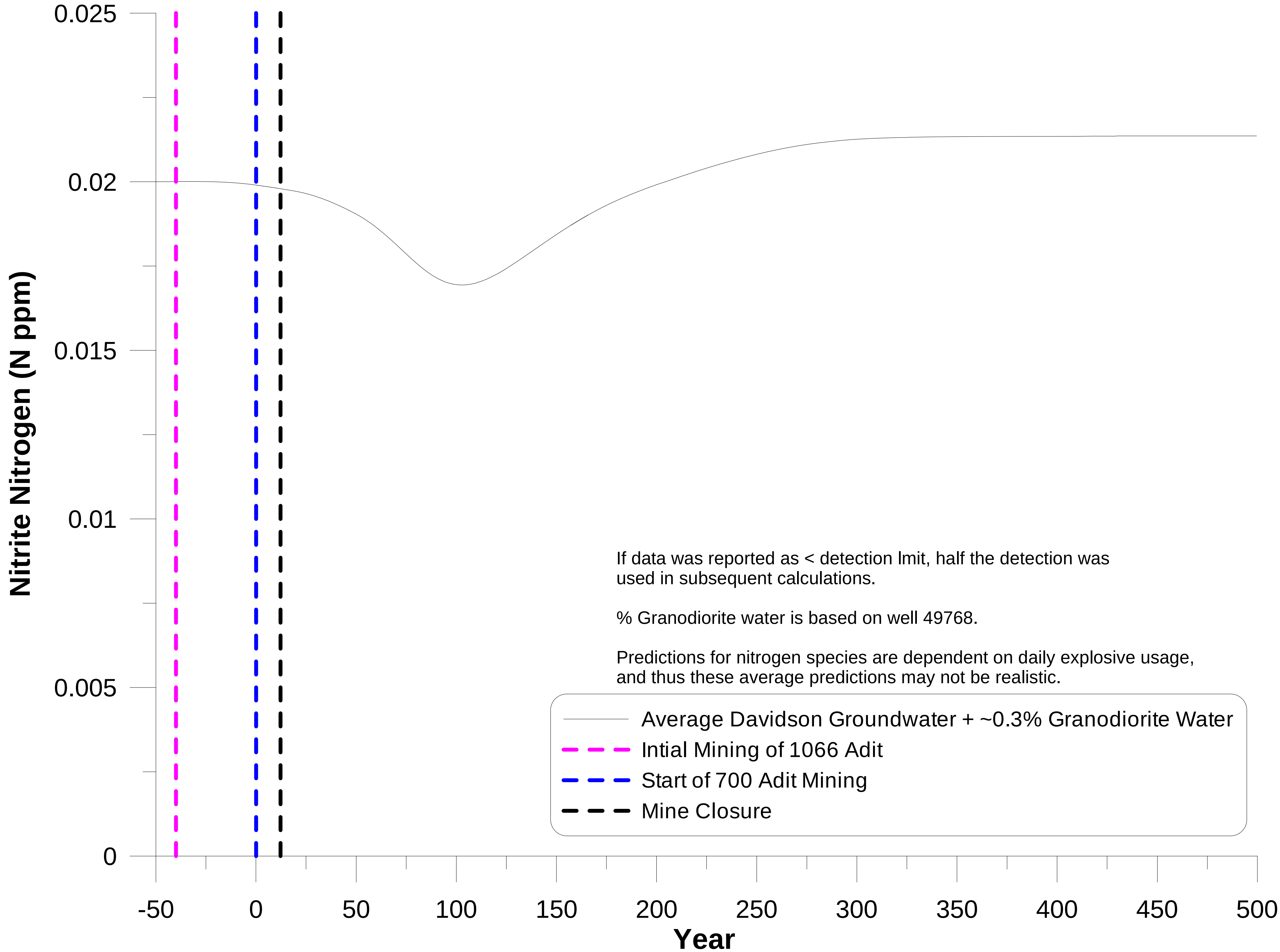


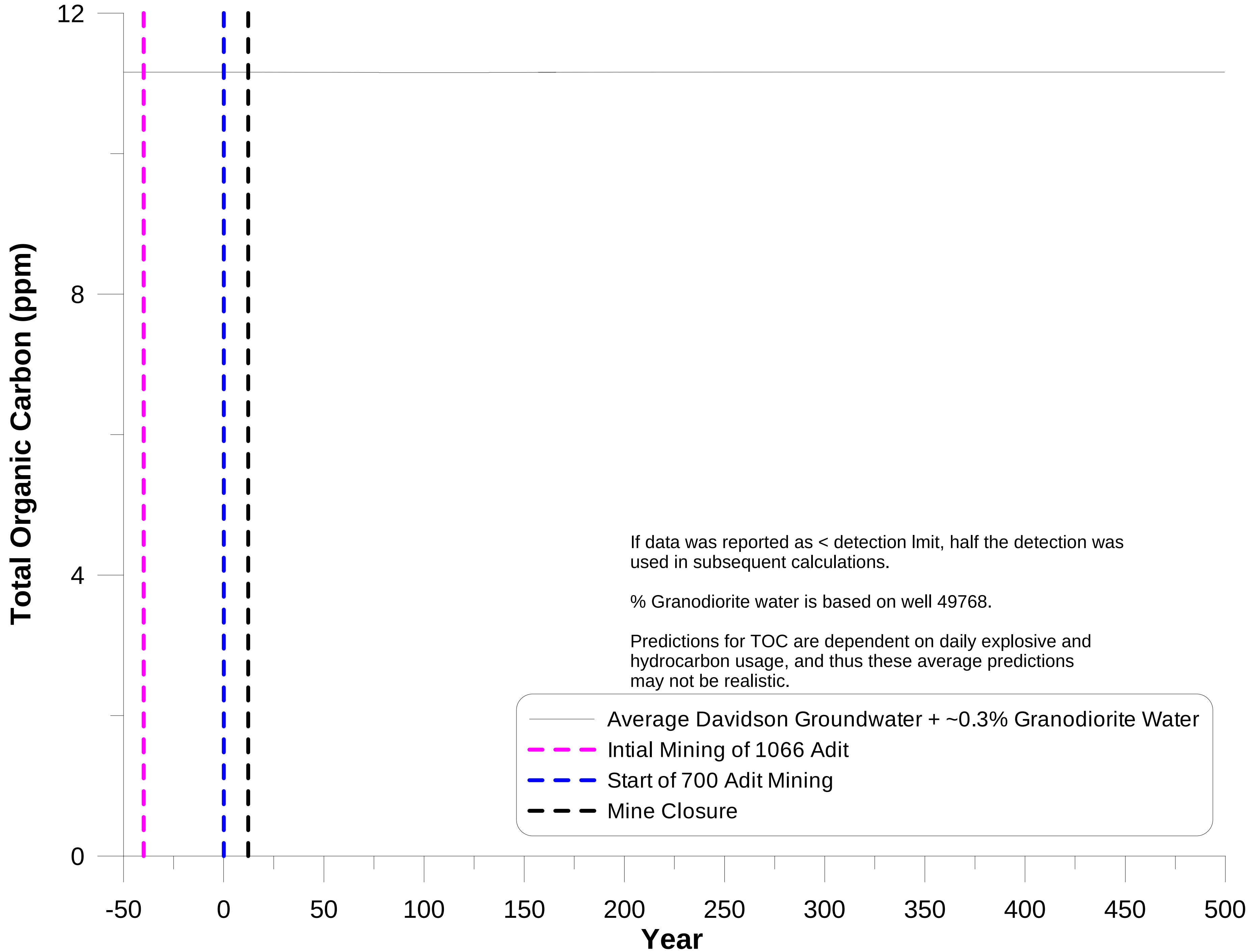
0.04
0.03
0.02
0.01
0
Bromide (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure


0.25
0.2
0.15
0.1
0.05
0
Ammonia Nitrogen (N ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

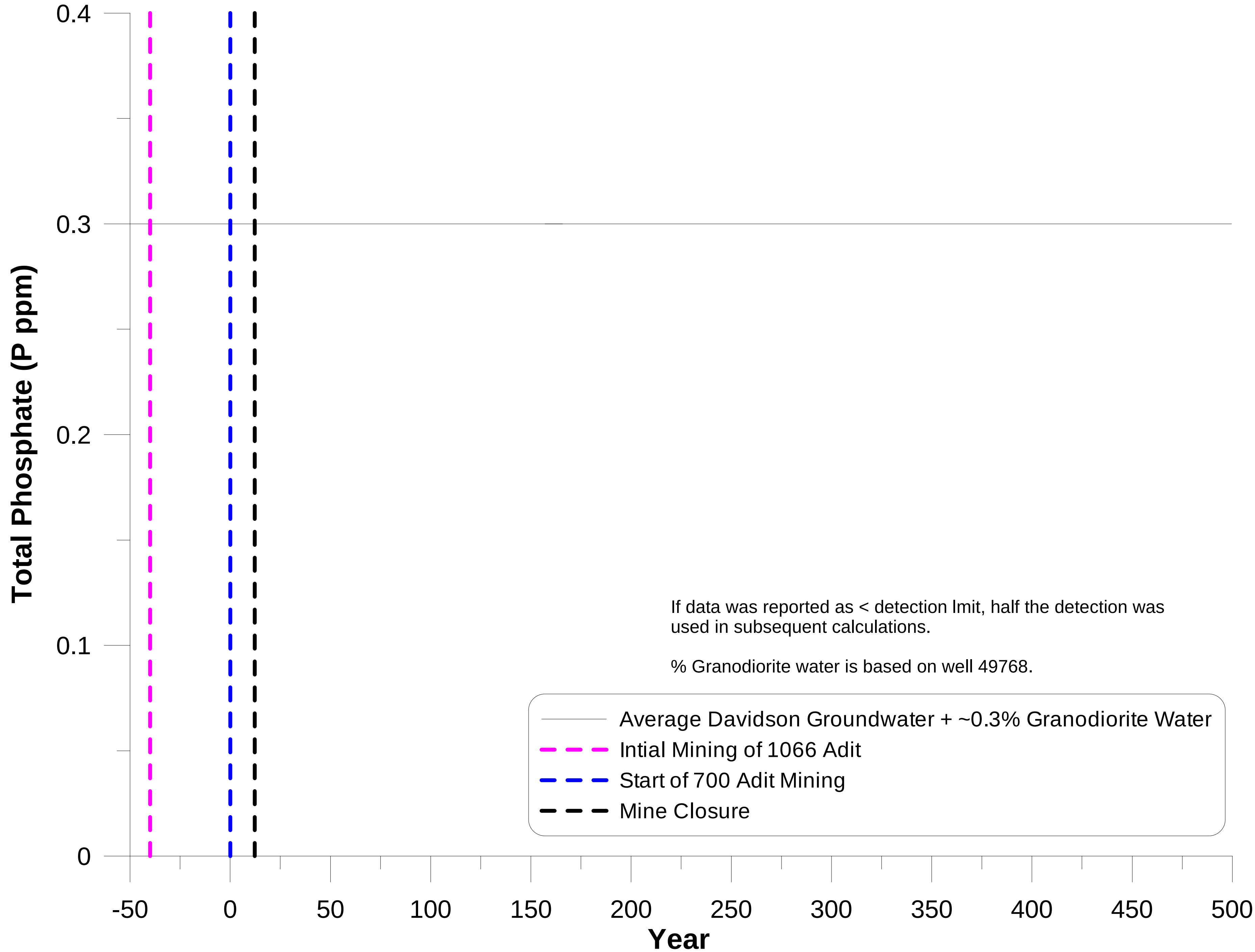


0.16
0.12
0.08
0.04
0
Nitrate Nitrogen (N ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

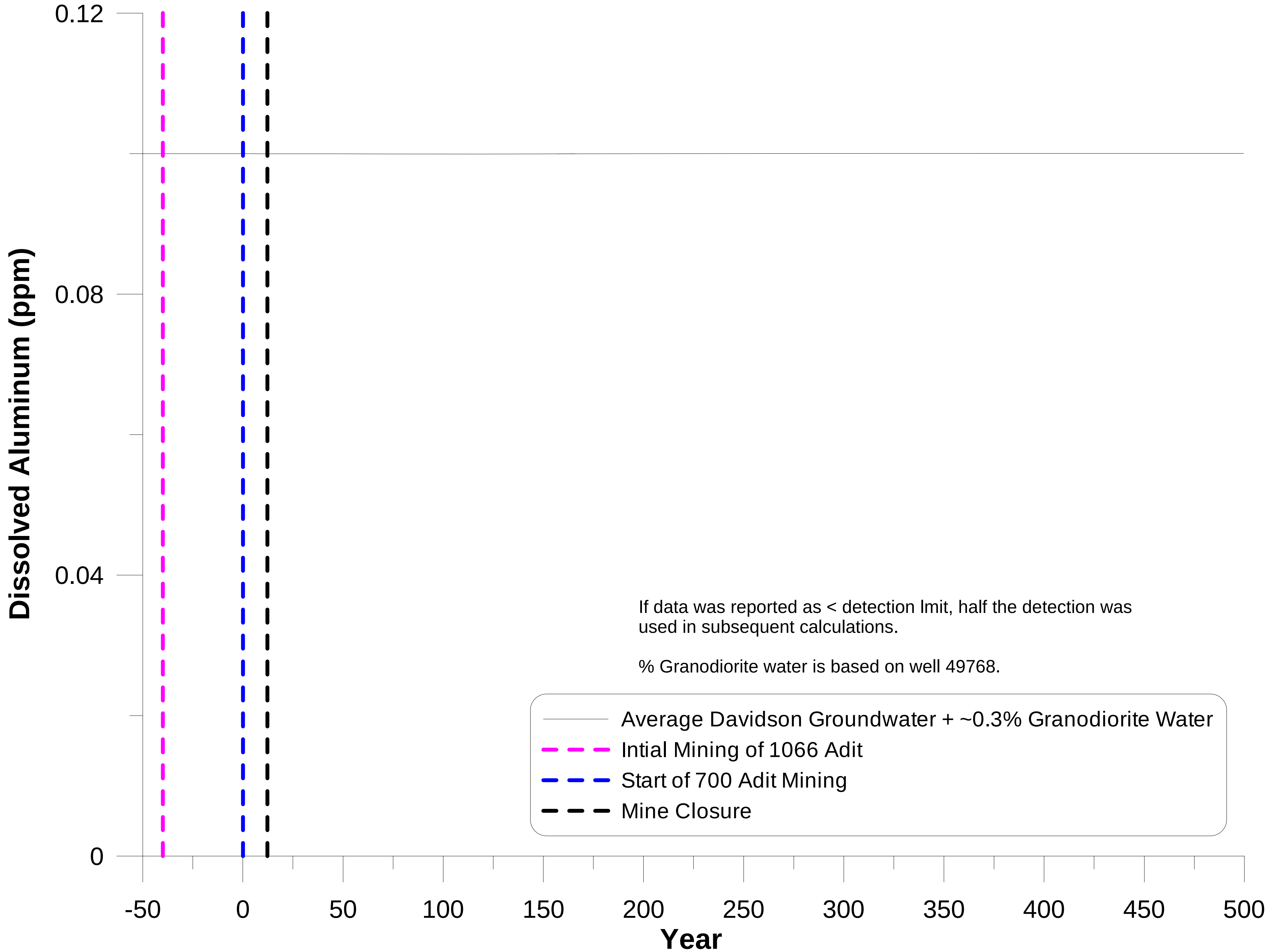

Nitrite Nitrogen (N ppm)
0.025
0.02
0.015
0.01
0.005
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



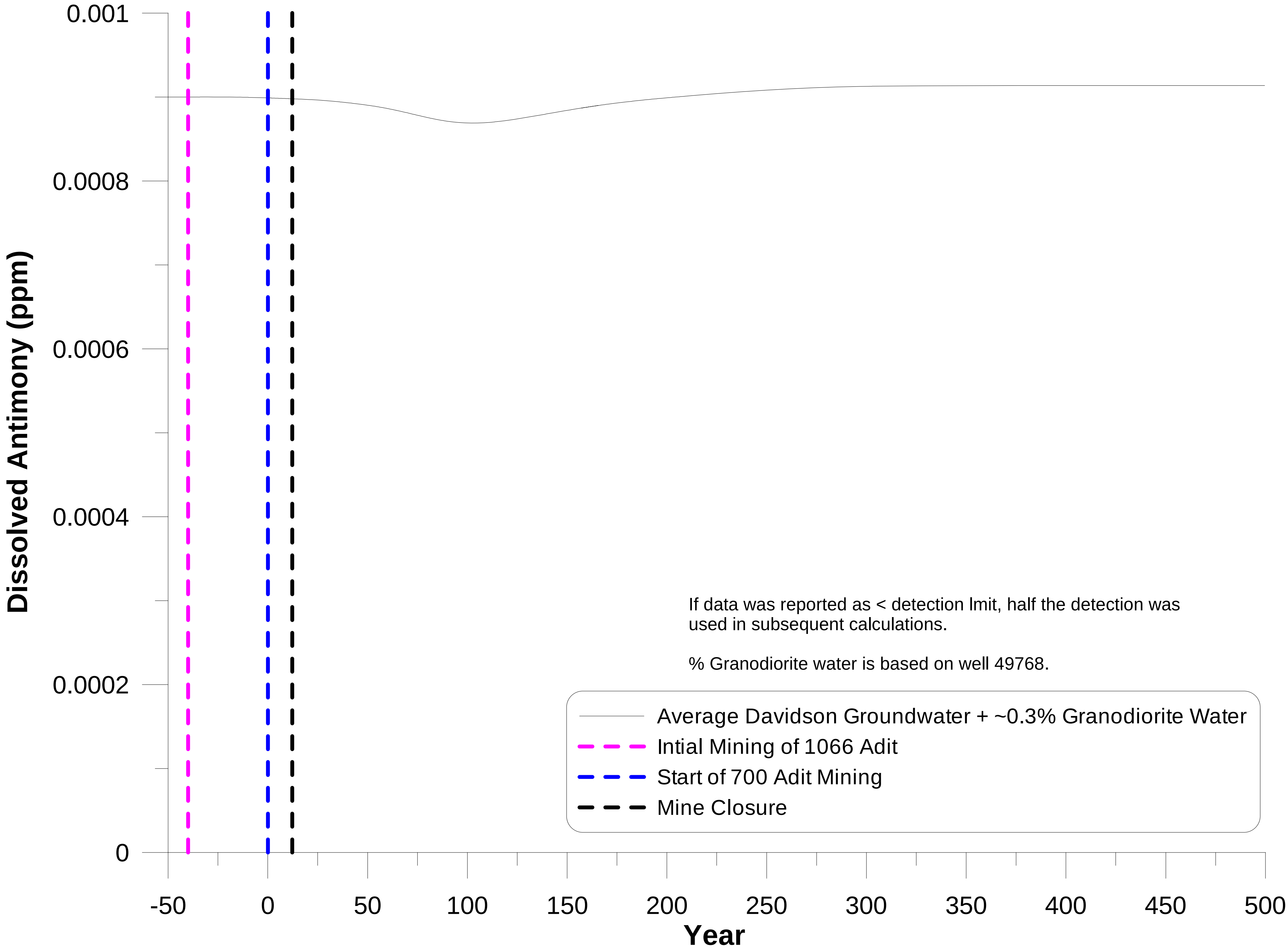
12
8
4
0
Total Organic Carbon (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Predictions for TOC are dependent on daily explosive and hydrocarbon usage, and thus these average predictions may not be realistic.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

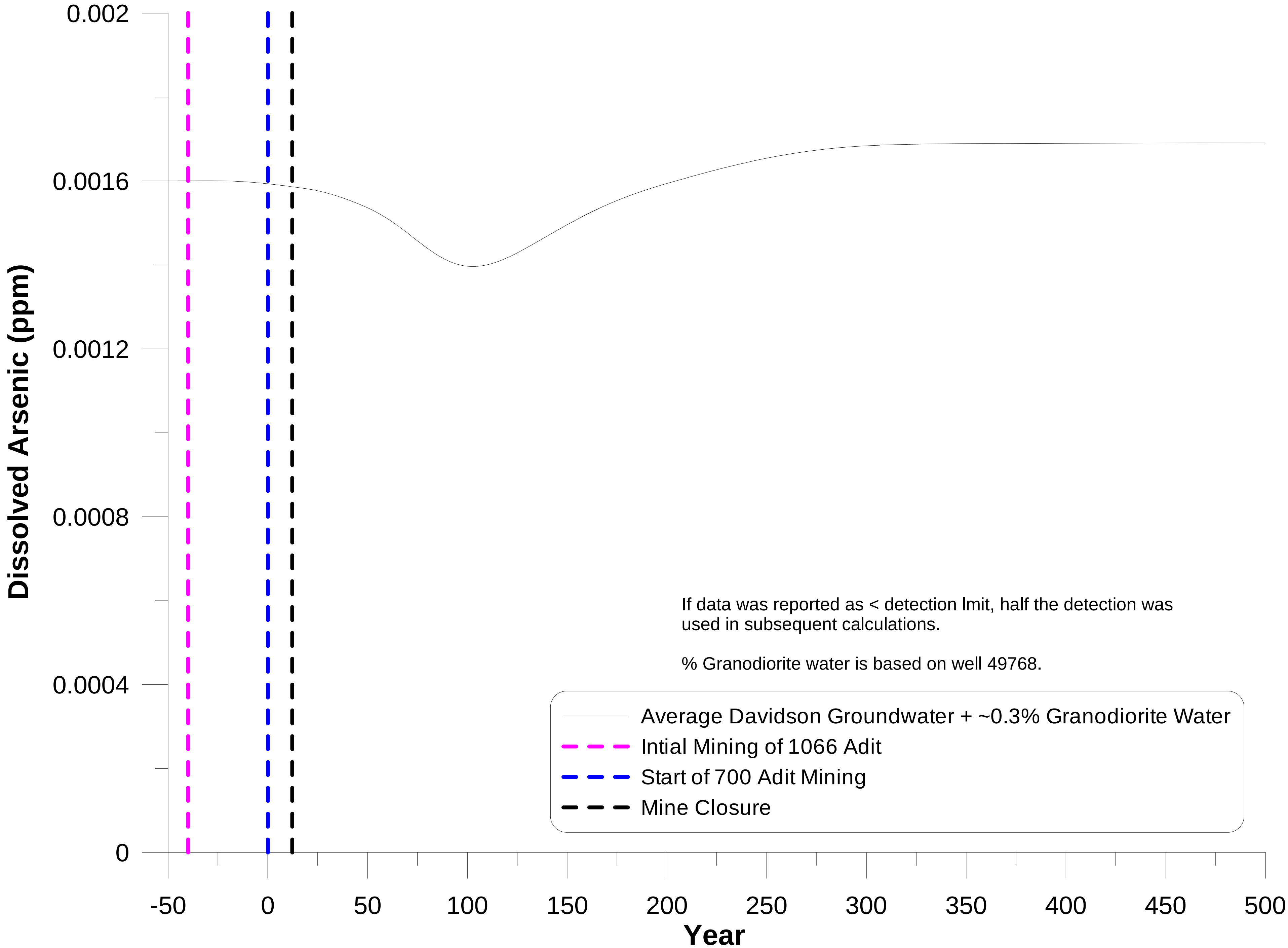


Total Phosphate (P ppm)
0.4
0.3
0.2
0.1
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

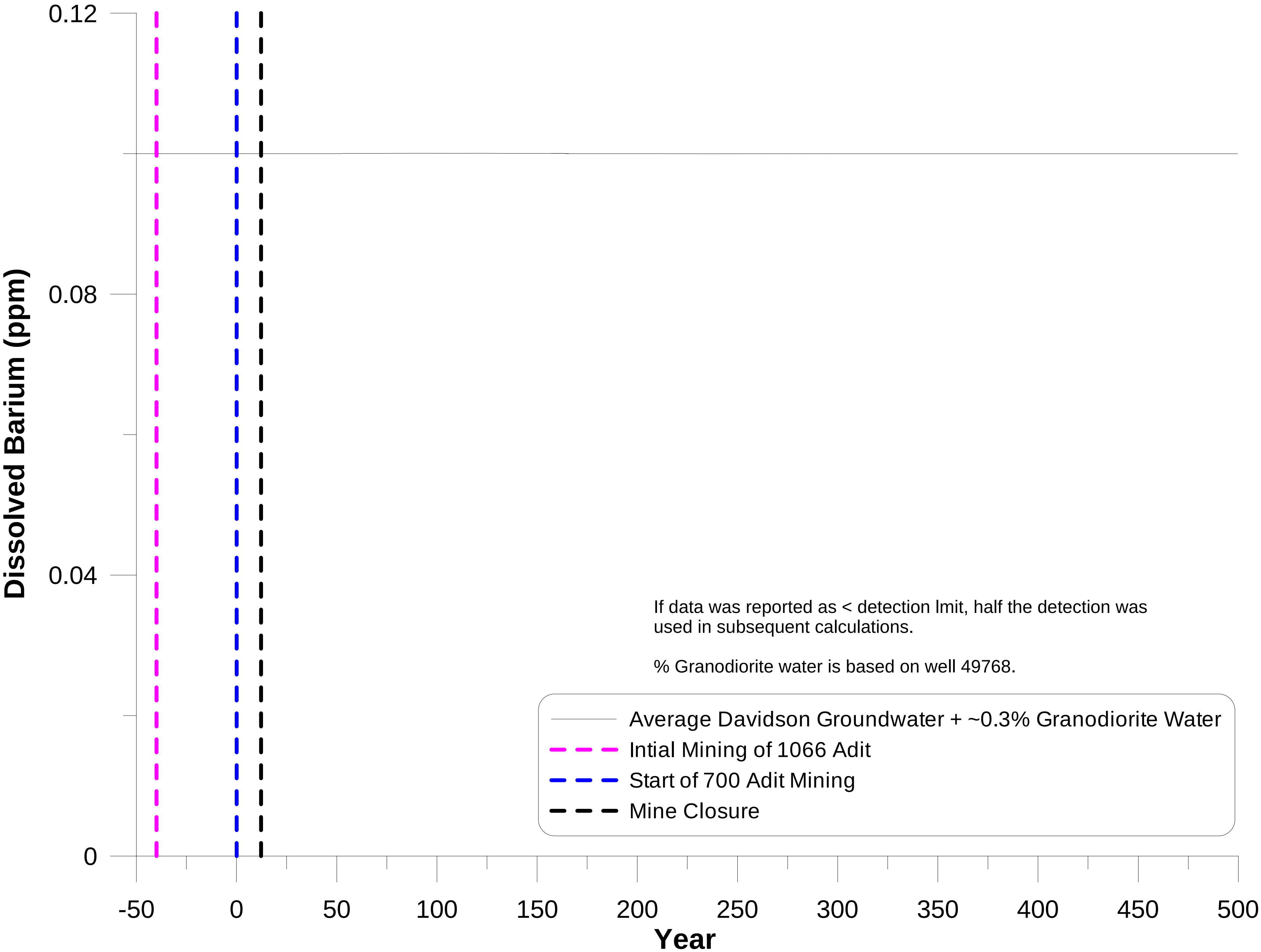


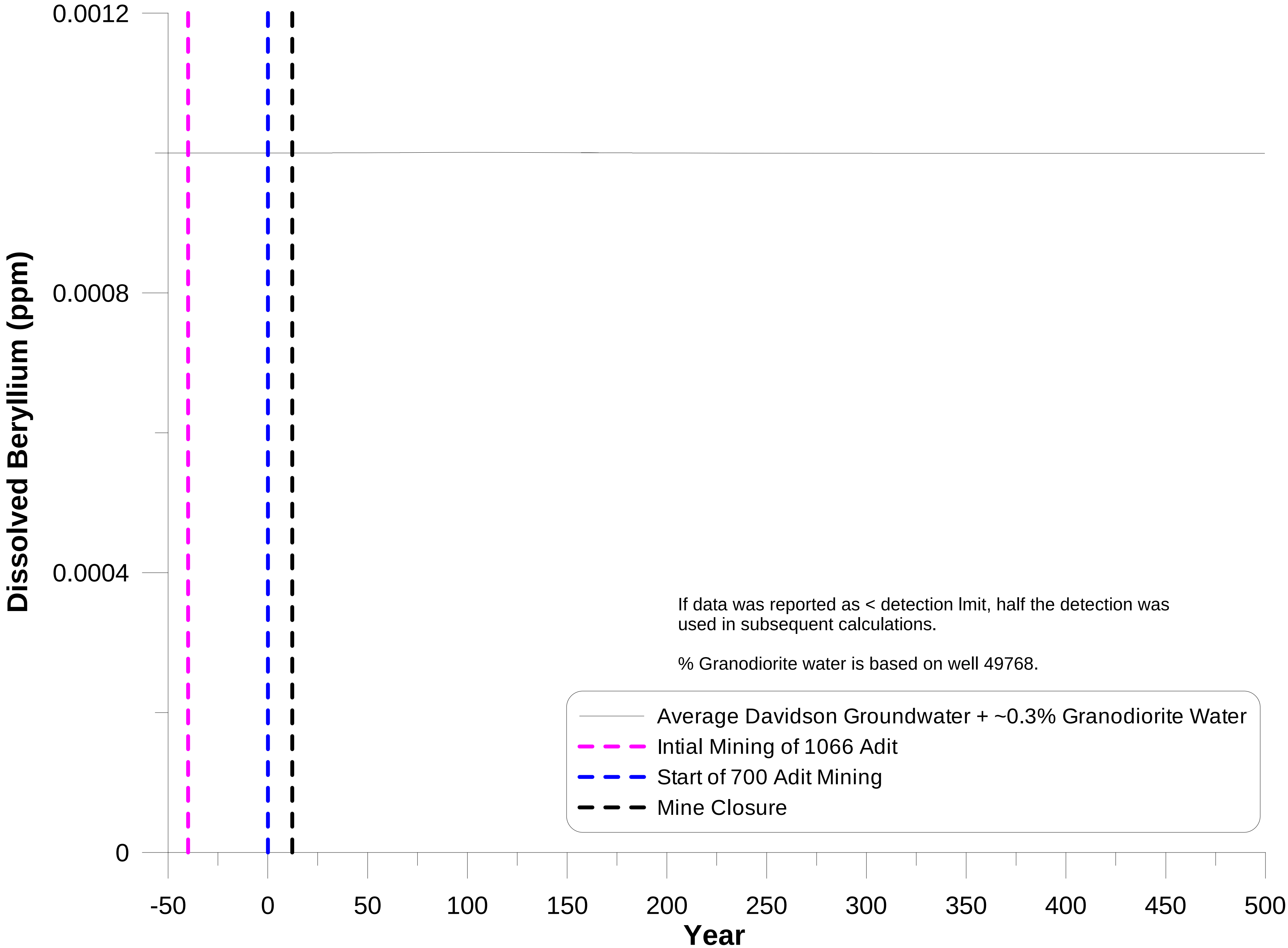
0.12
0.08
0.04
0
Dissolved Aluminum (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

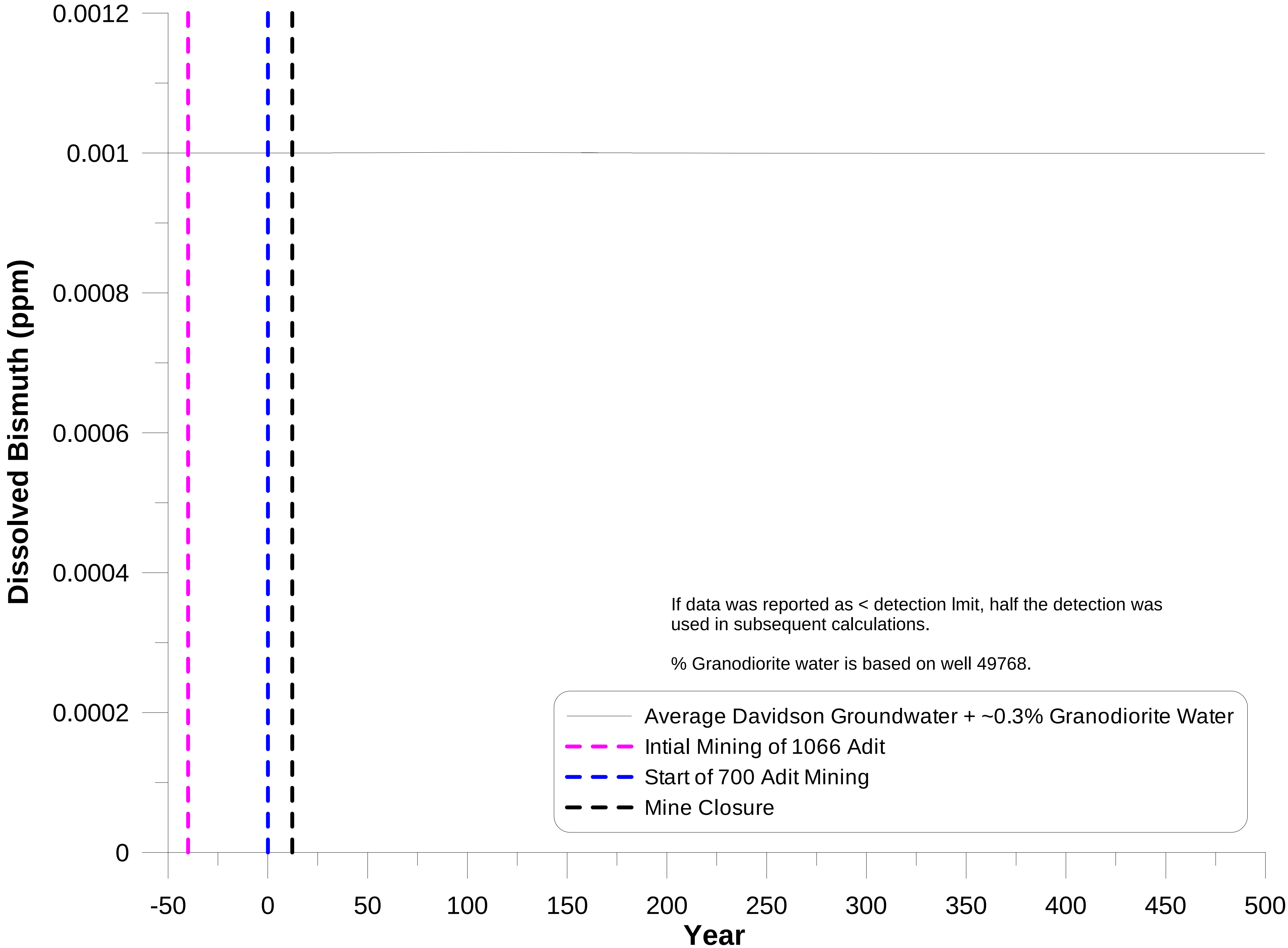

0.001
0.0008
0.0006
0.0004
0.0002
0
Dissolved Antimony (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



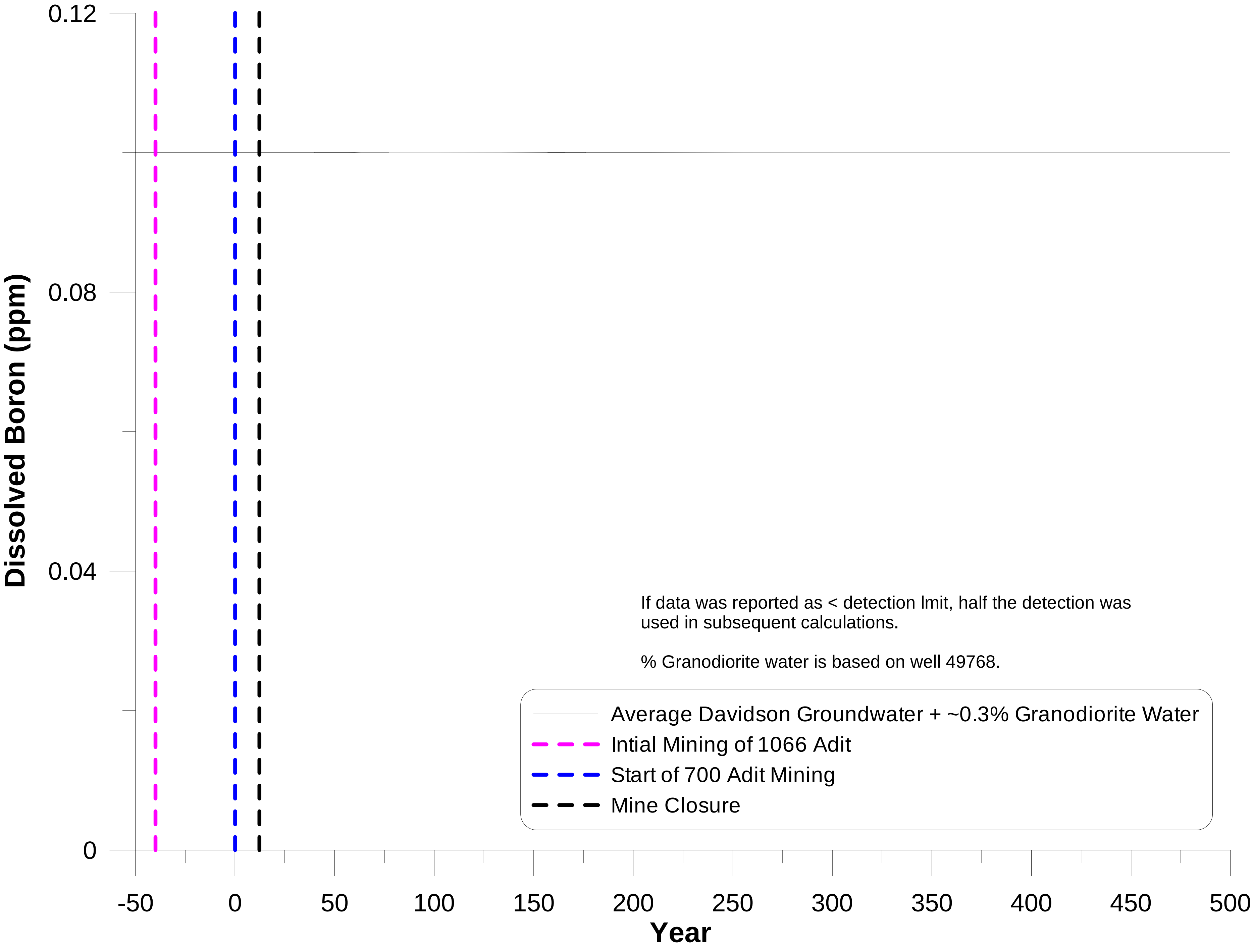
0.002
0.0016
0.0012
0.0008
0.0004
0
Dissolved Arsenic (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure


0.12
0.08
0.04
0
Dissolved Barium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

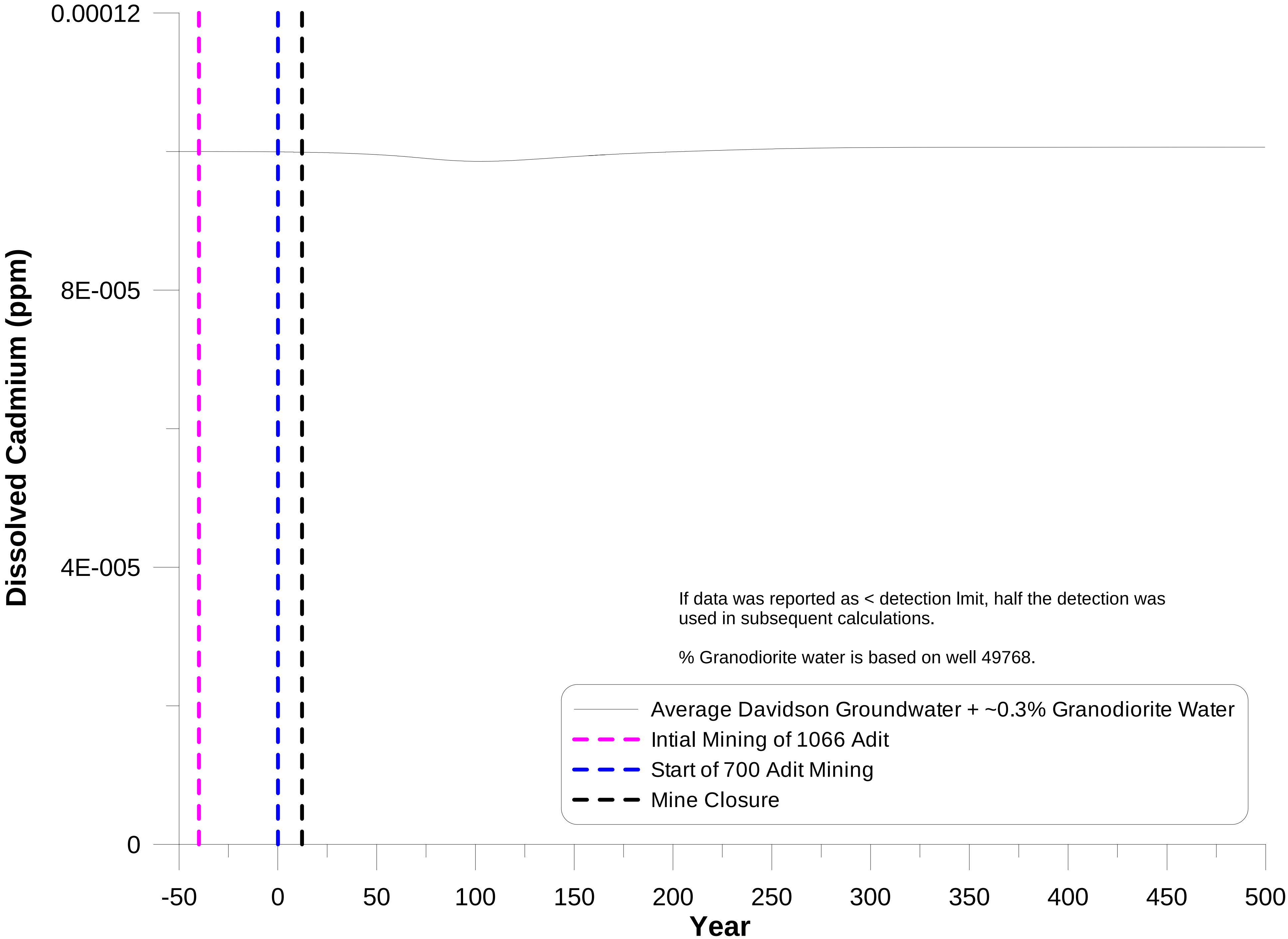

Dissolved Beryllium (ppm)
0.0012
0.0008
0.0004
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



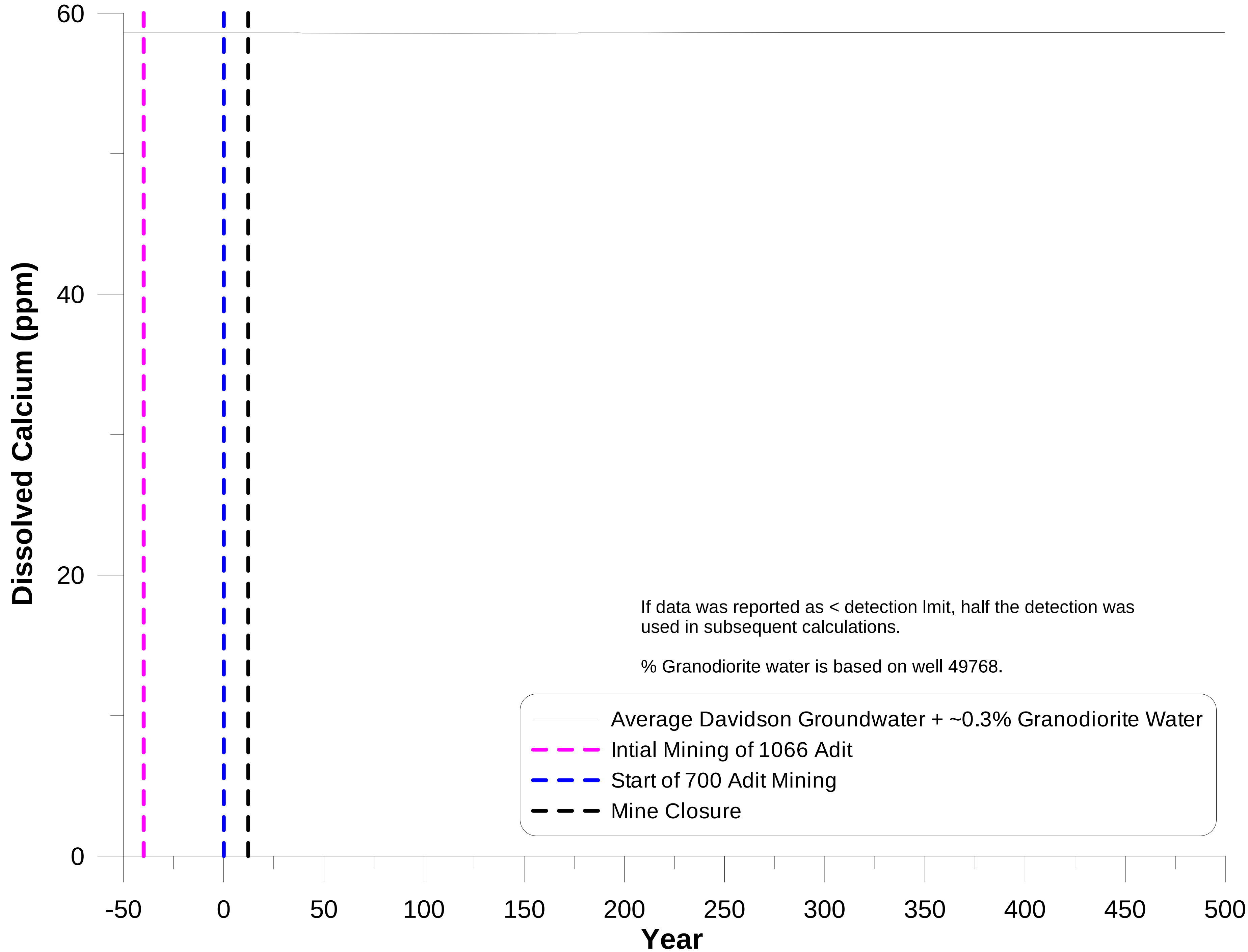
Dissolved Bismuth (ppm)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



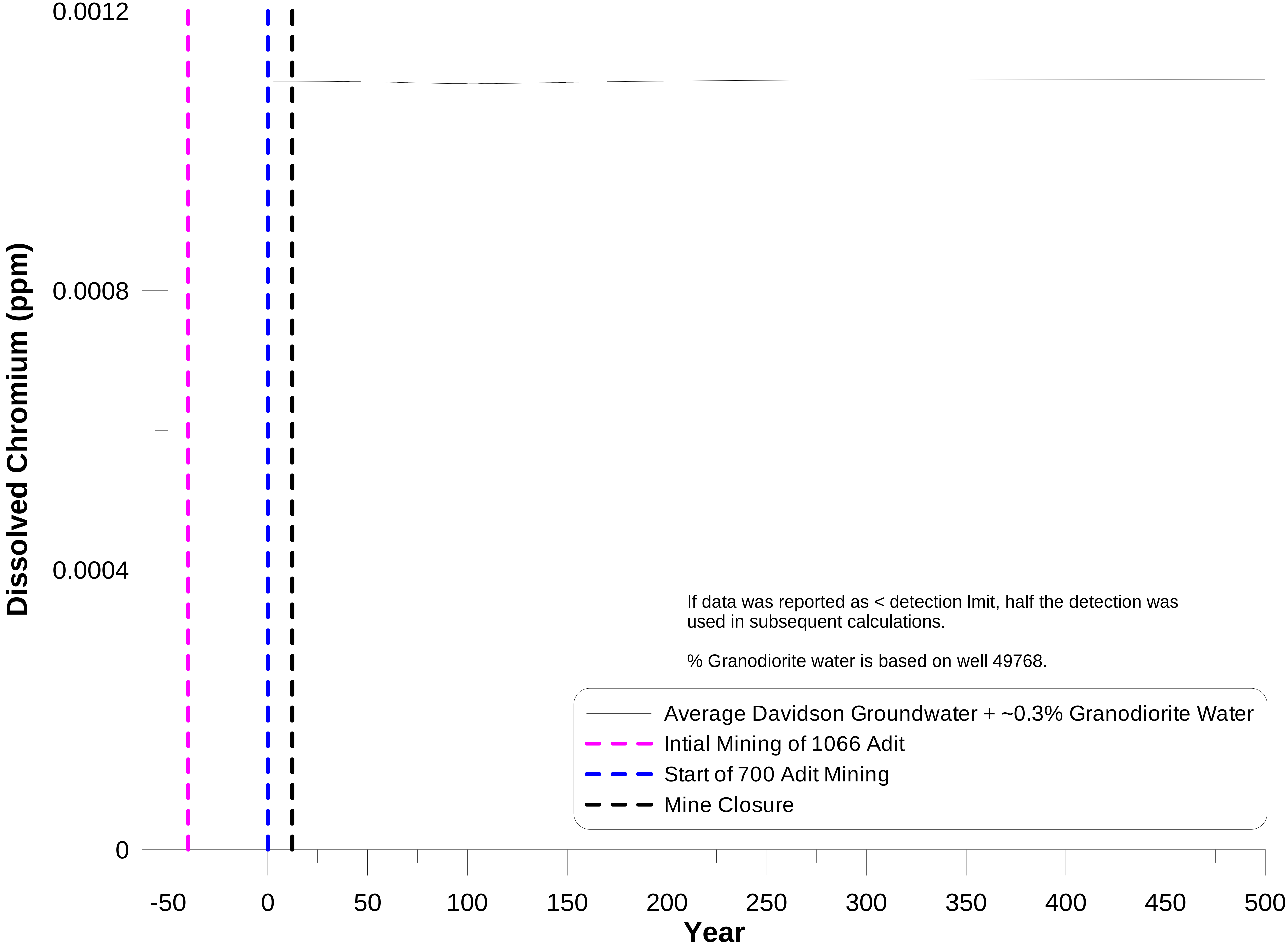
0.12
0.08
0.04
0
Dissolved Boron (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



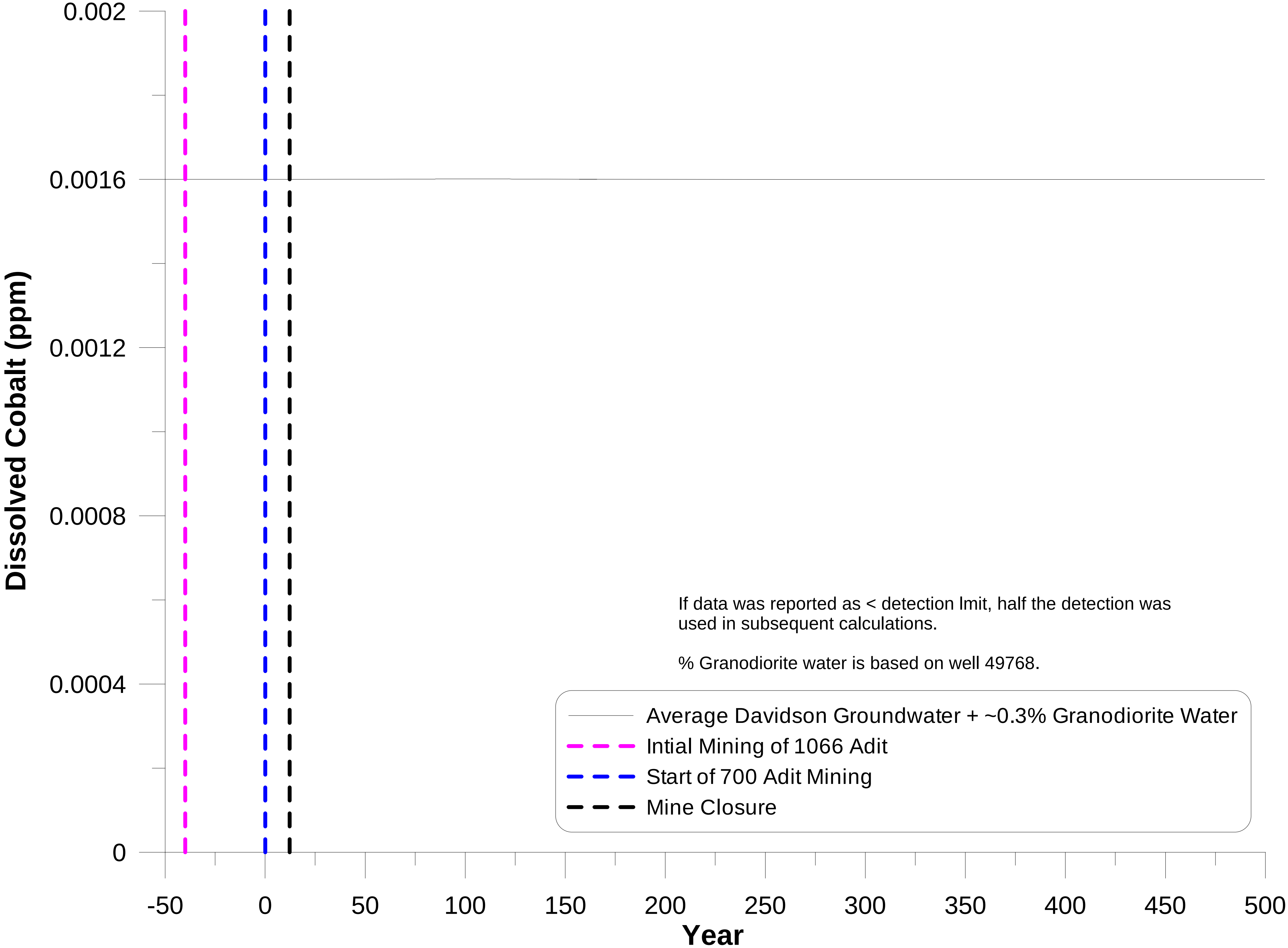
0.00012
8E-005
4E-005
0
Dissolved Cadmium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

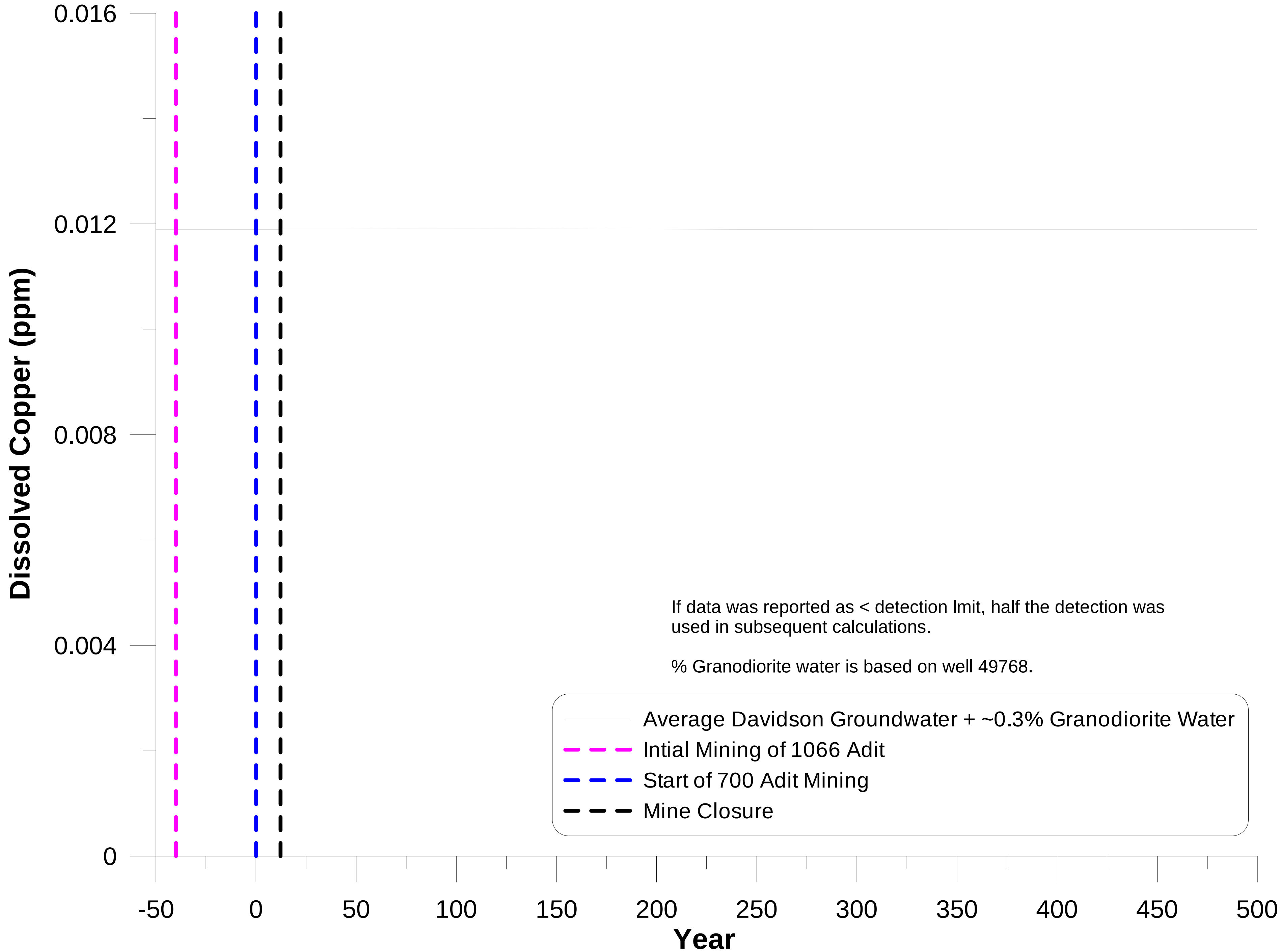


60
40
20
0
Dissolved Calcium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was
used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

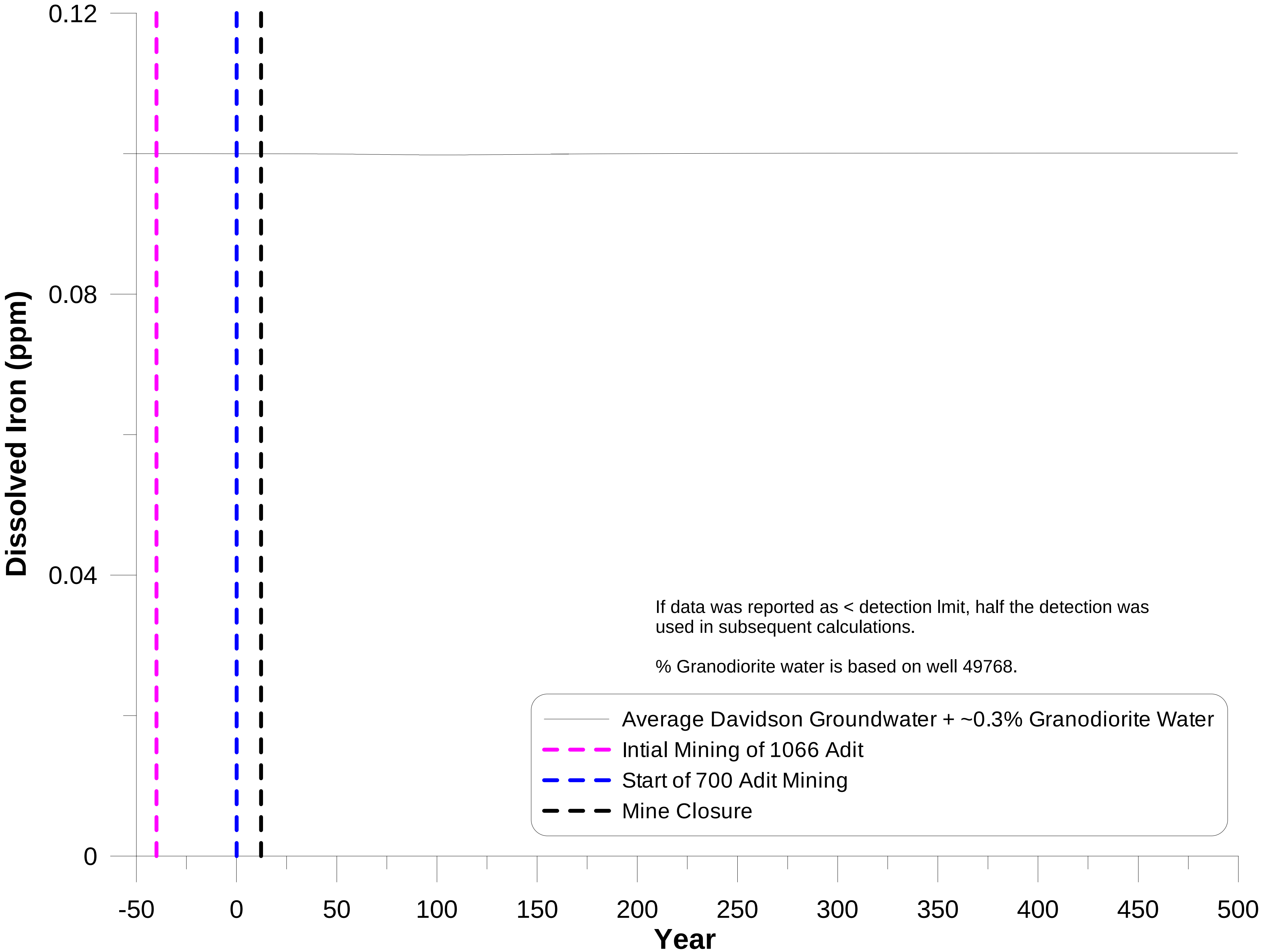


Dissolved Chromium (ppm)
0.0012
0.0008
0.0004
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

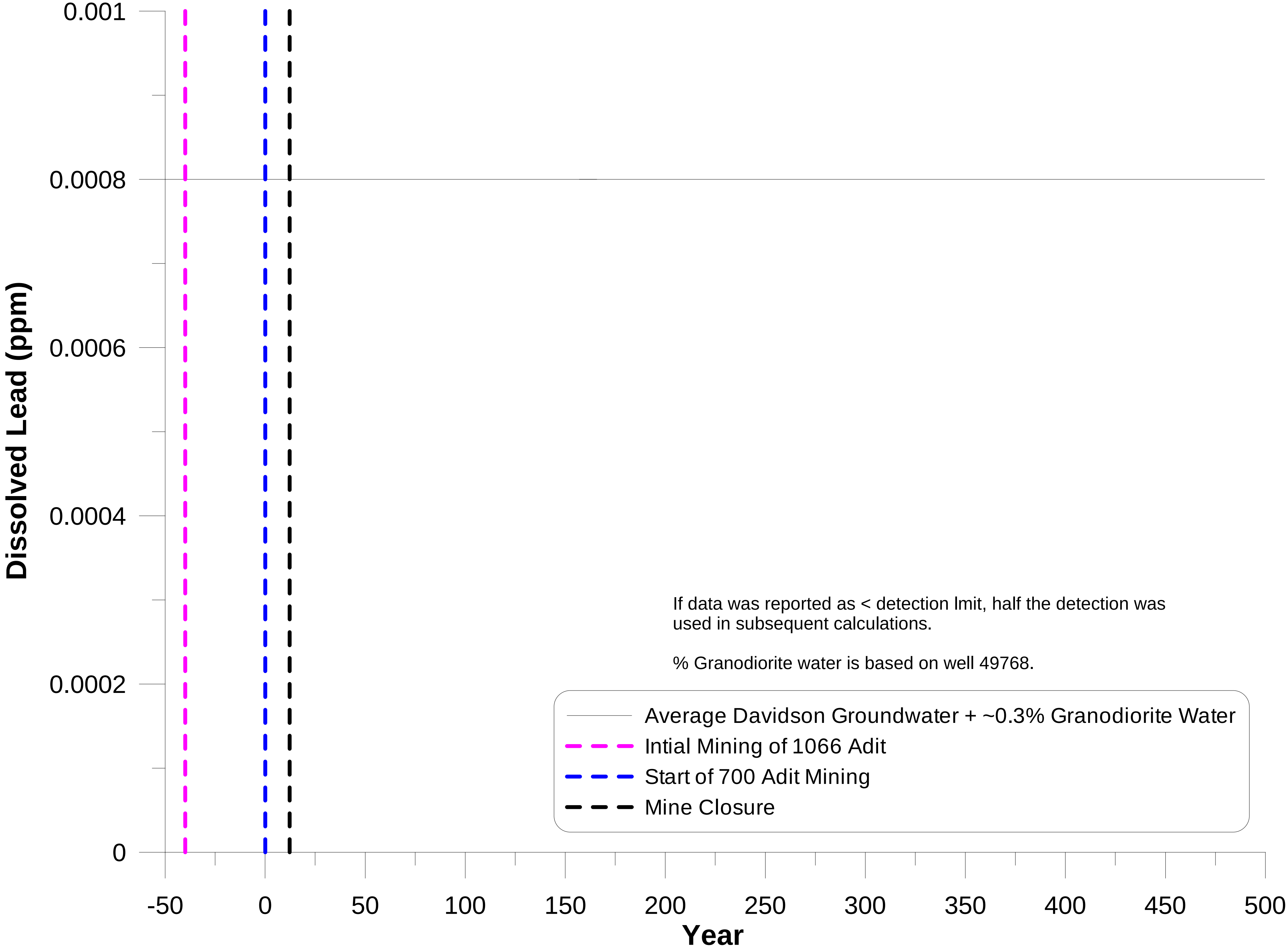

0.002
0.0016
0.0012
0.0008
0.0004
0
Dissolved Cobalt (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



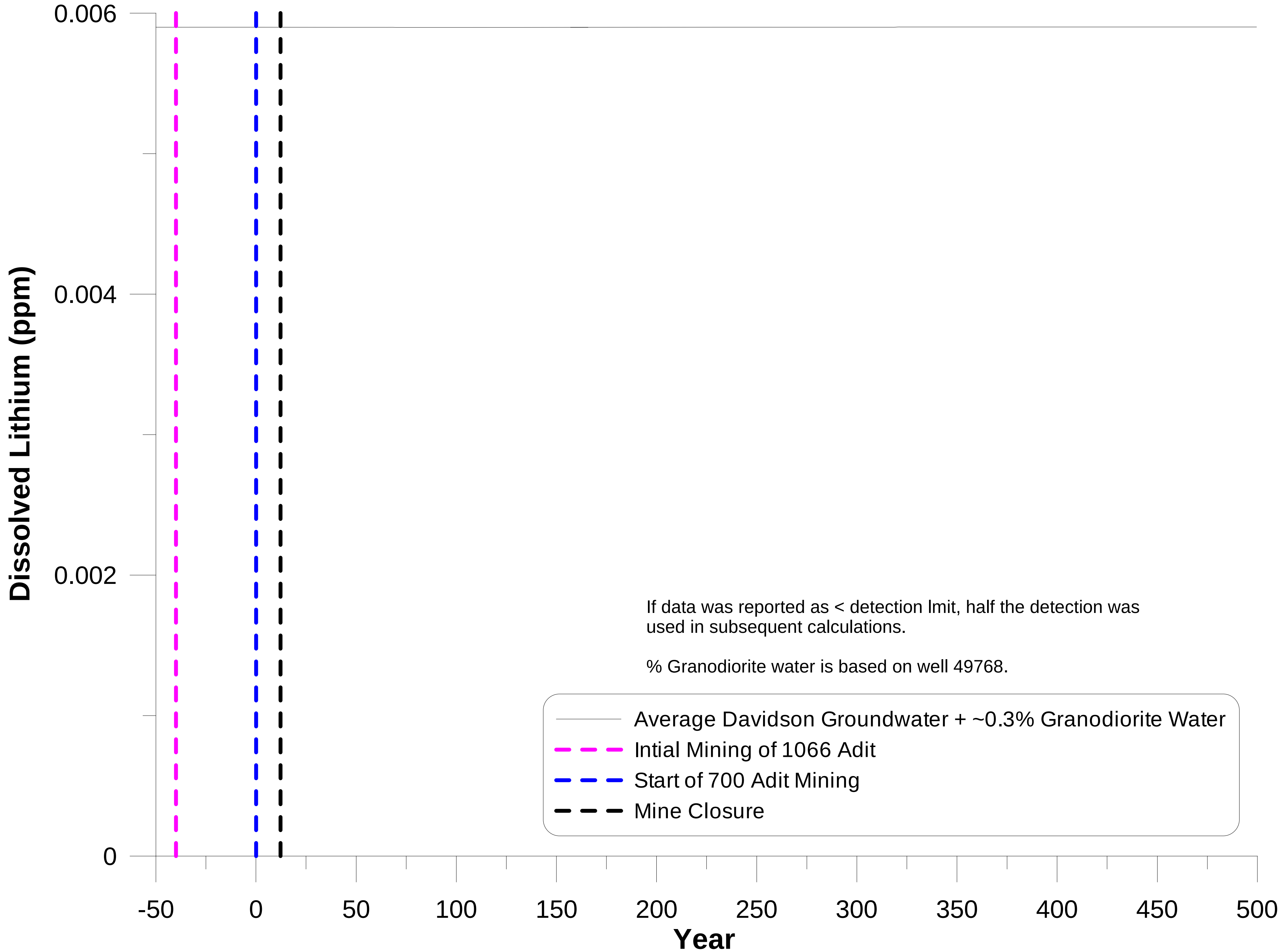
0.016
0.012
0.008
0.004
0
Dissolved Copper (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



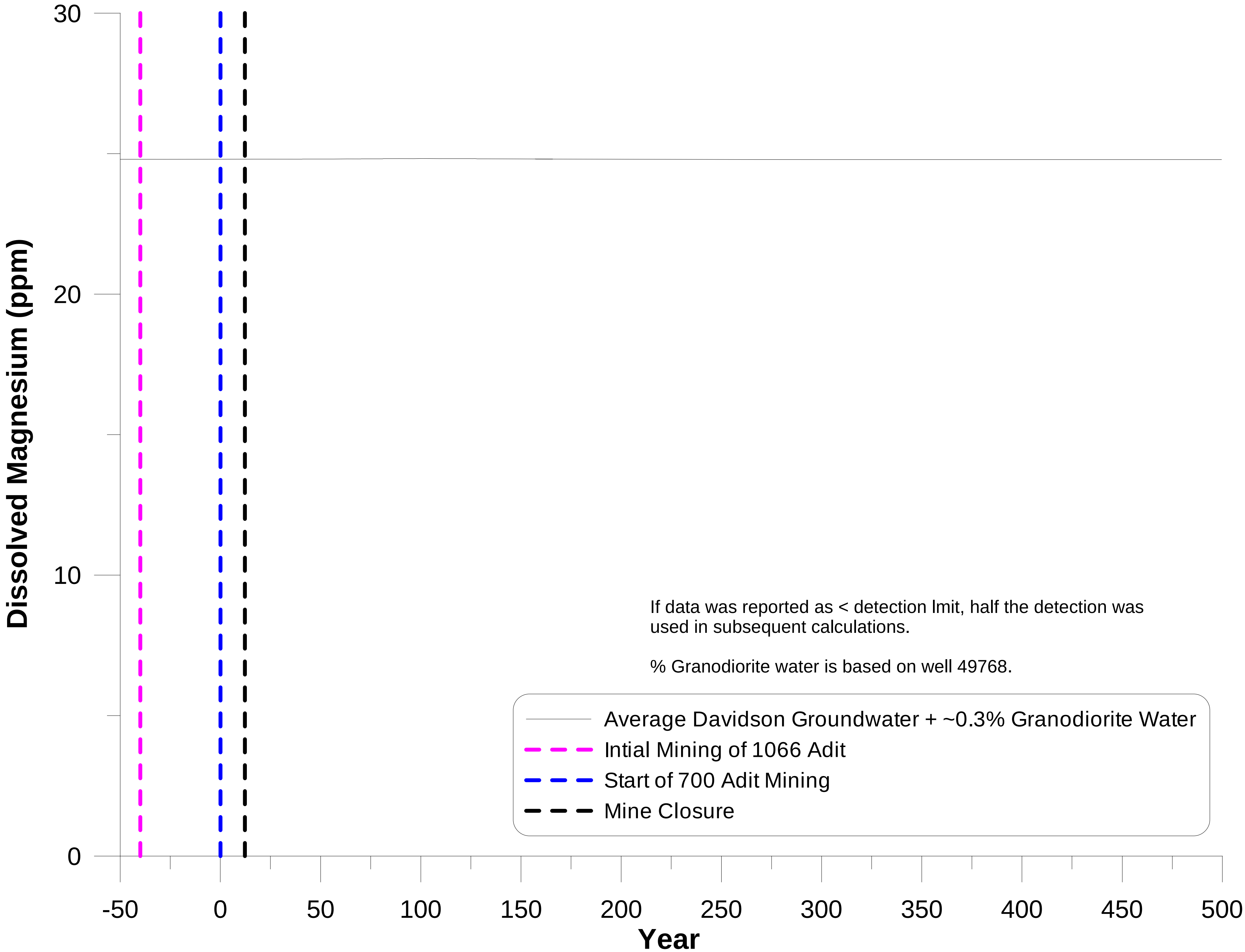
Dissolved Iron (ppm)
0.12
0.08
0.04
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



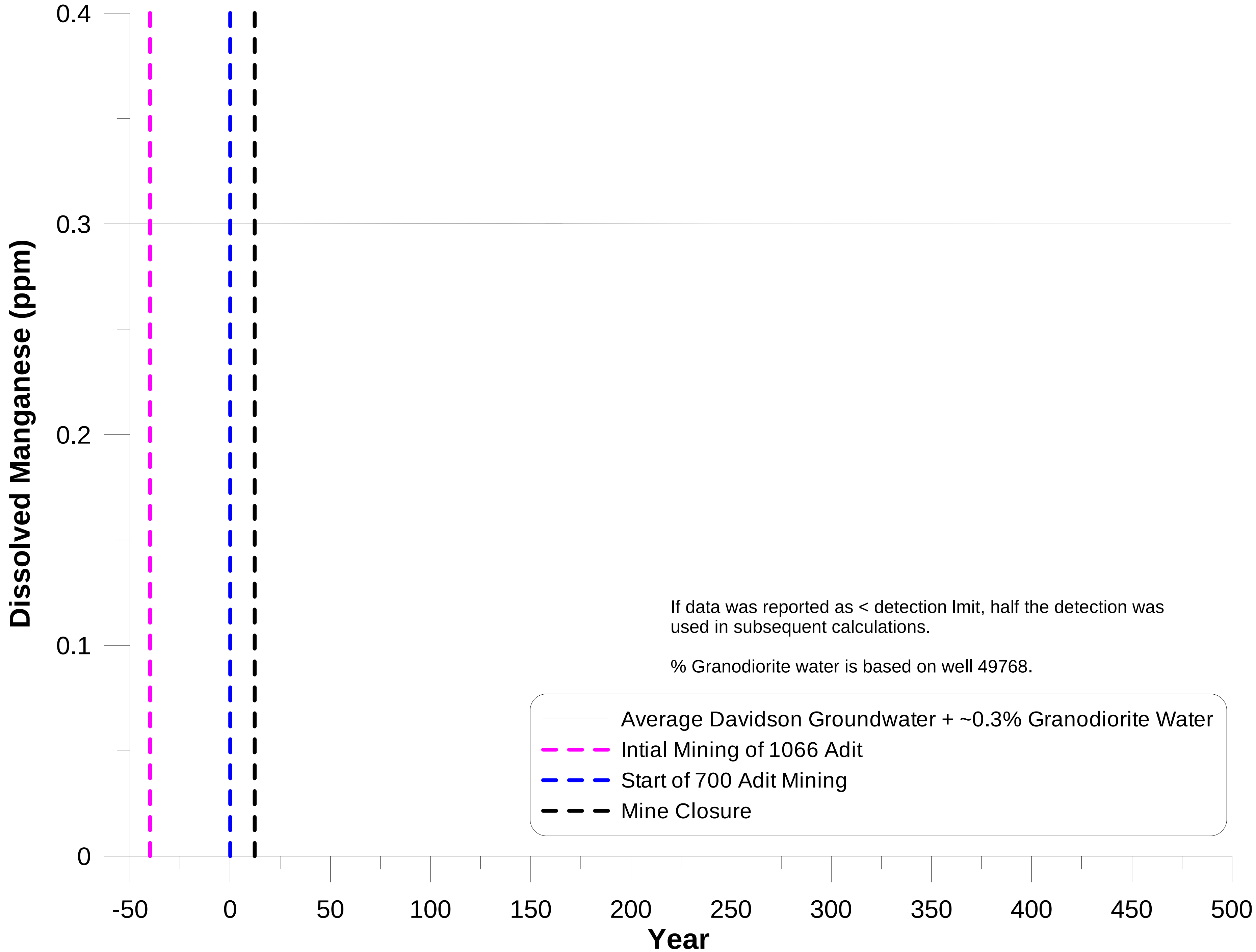
0.001
0.0008
0.0006
0.0004
0.0002
0
Dissolved Lead (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



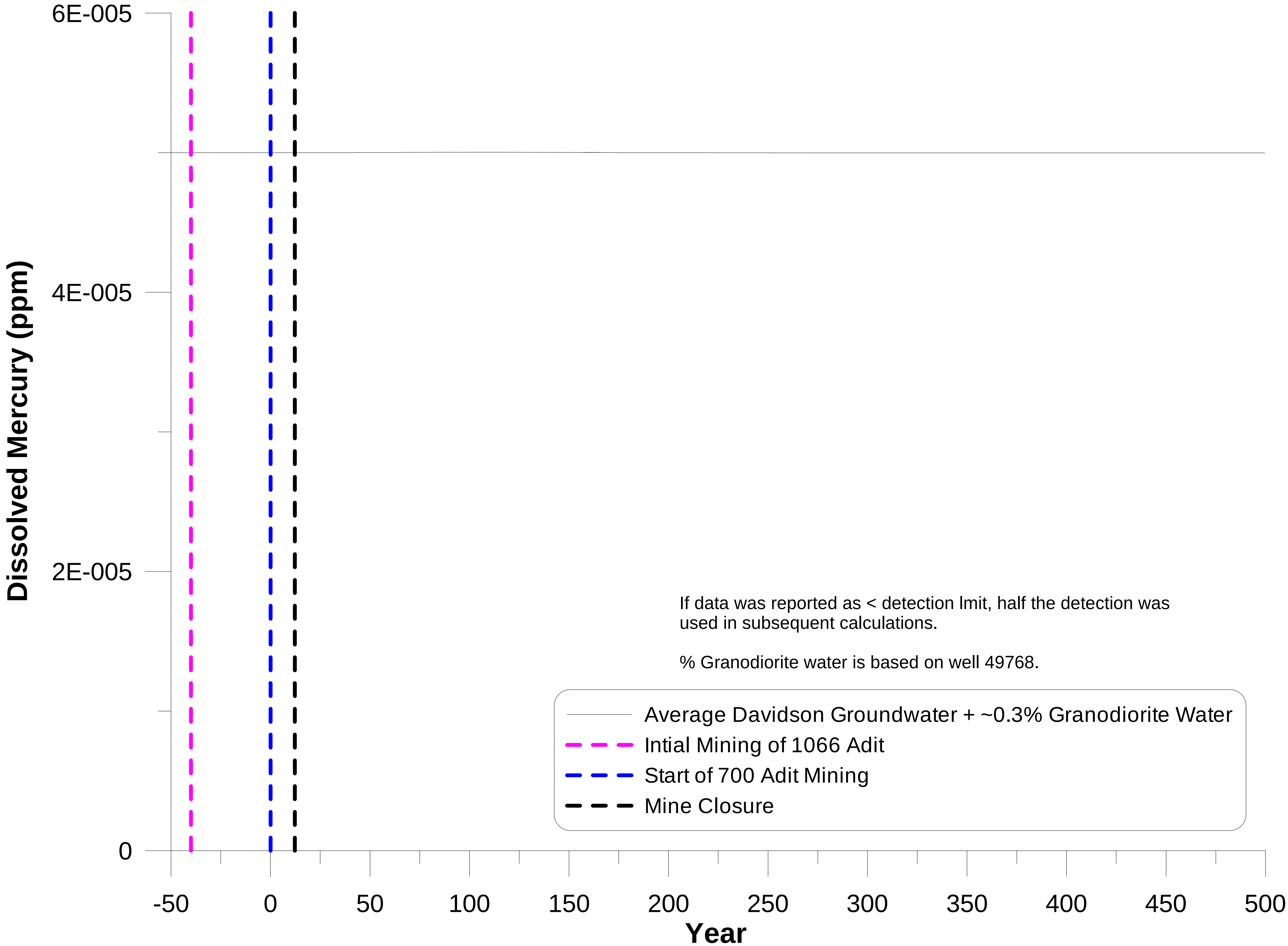
0.006
0.004
0.002
0
Dissolved Lithium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



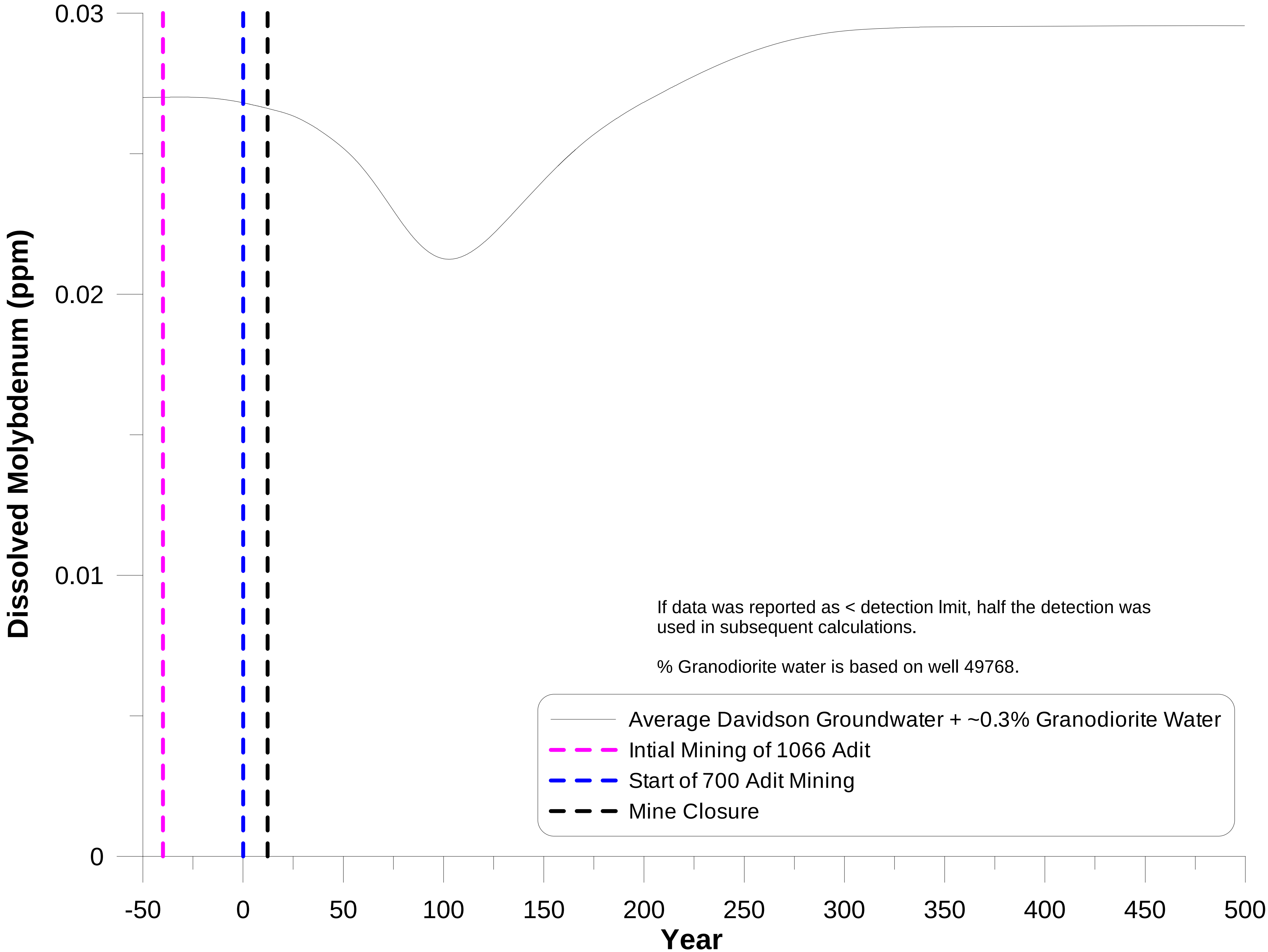
30
20
10
0
Dissolved Magnesium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



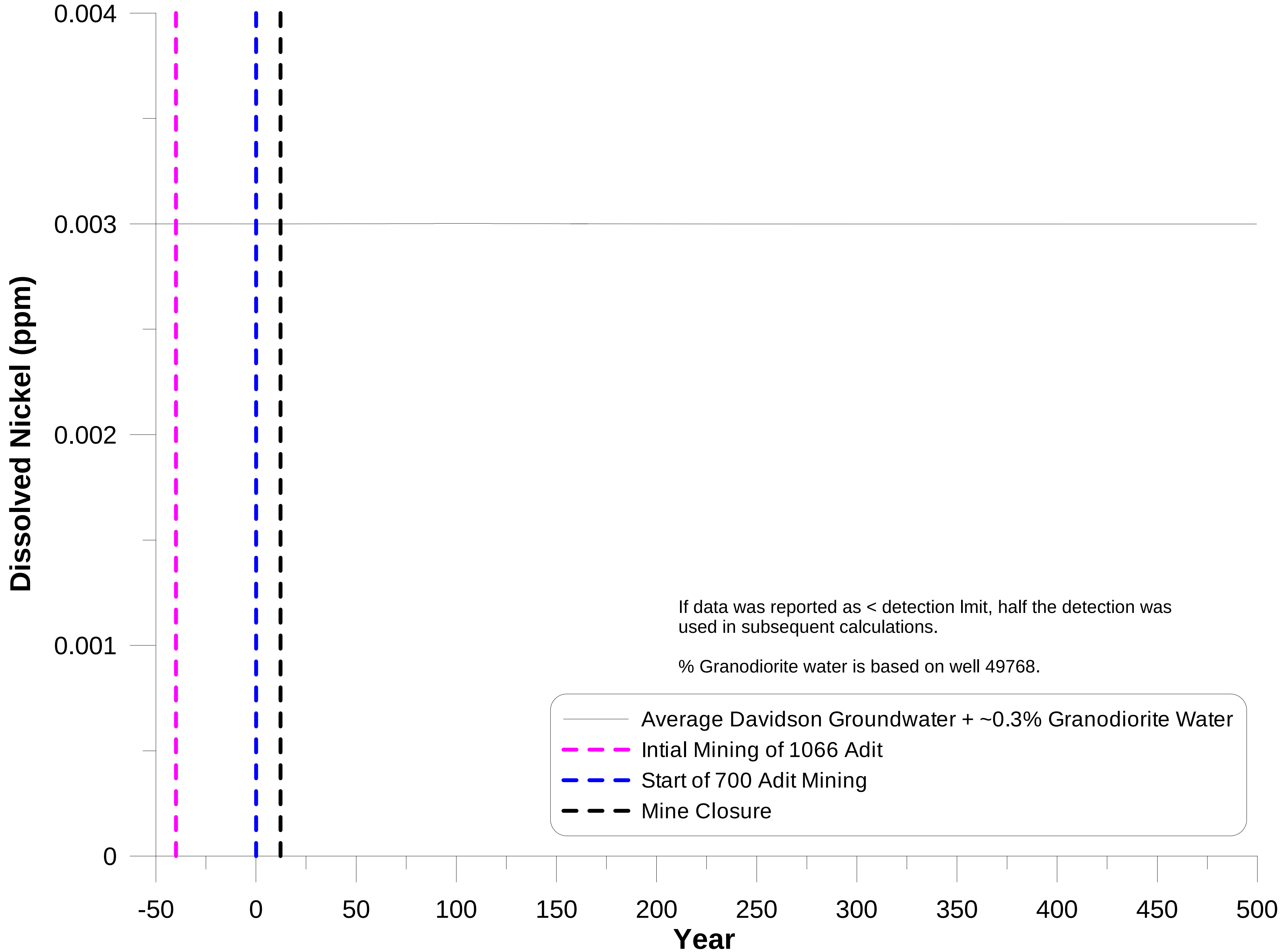
0.4
0.3
0.2
0.1
0
Dissolved Manganese (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



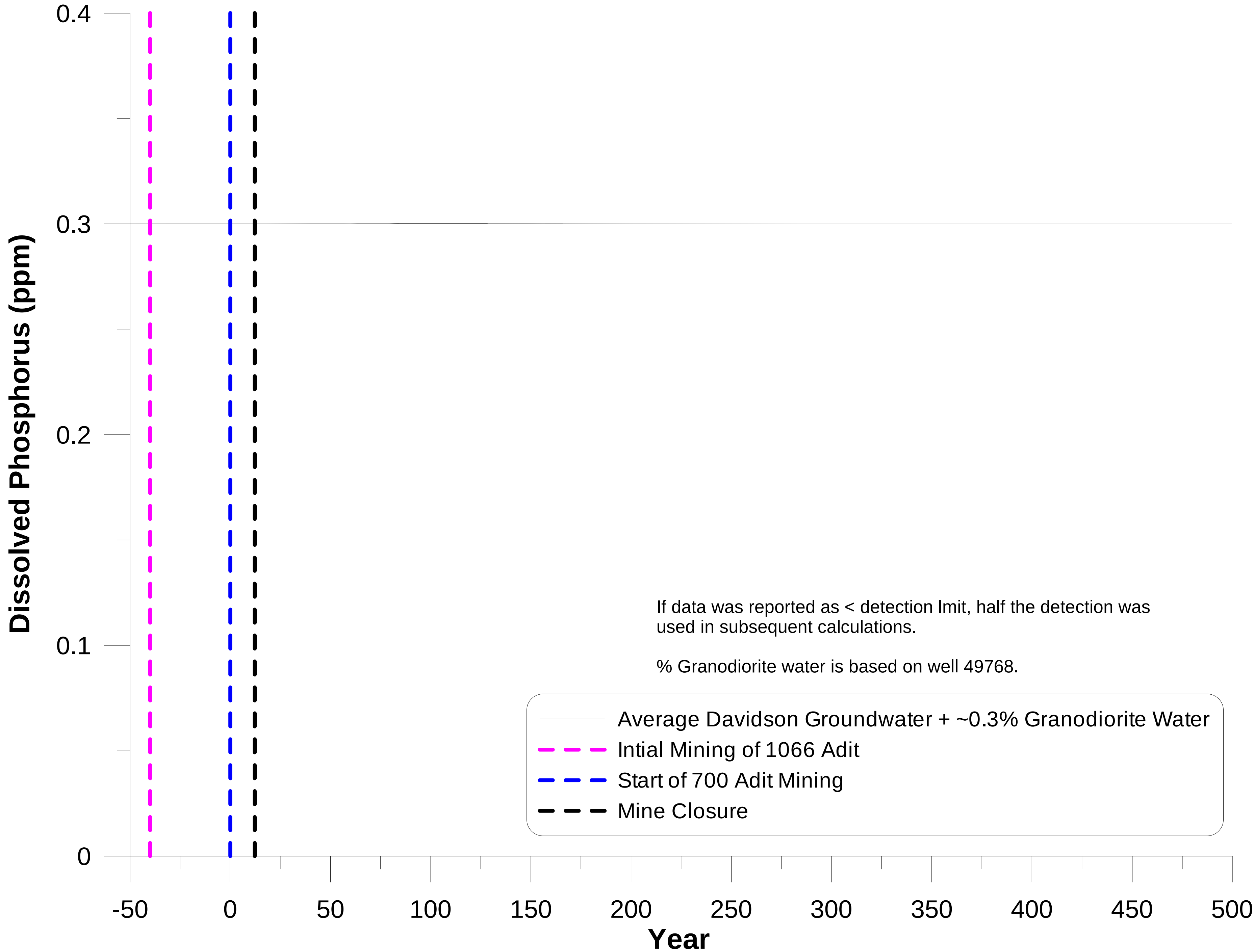
Dissolved Mercury (ppm)
6E-005
4E-005
2E-005
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



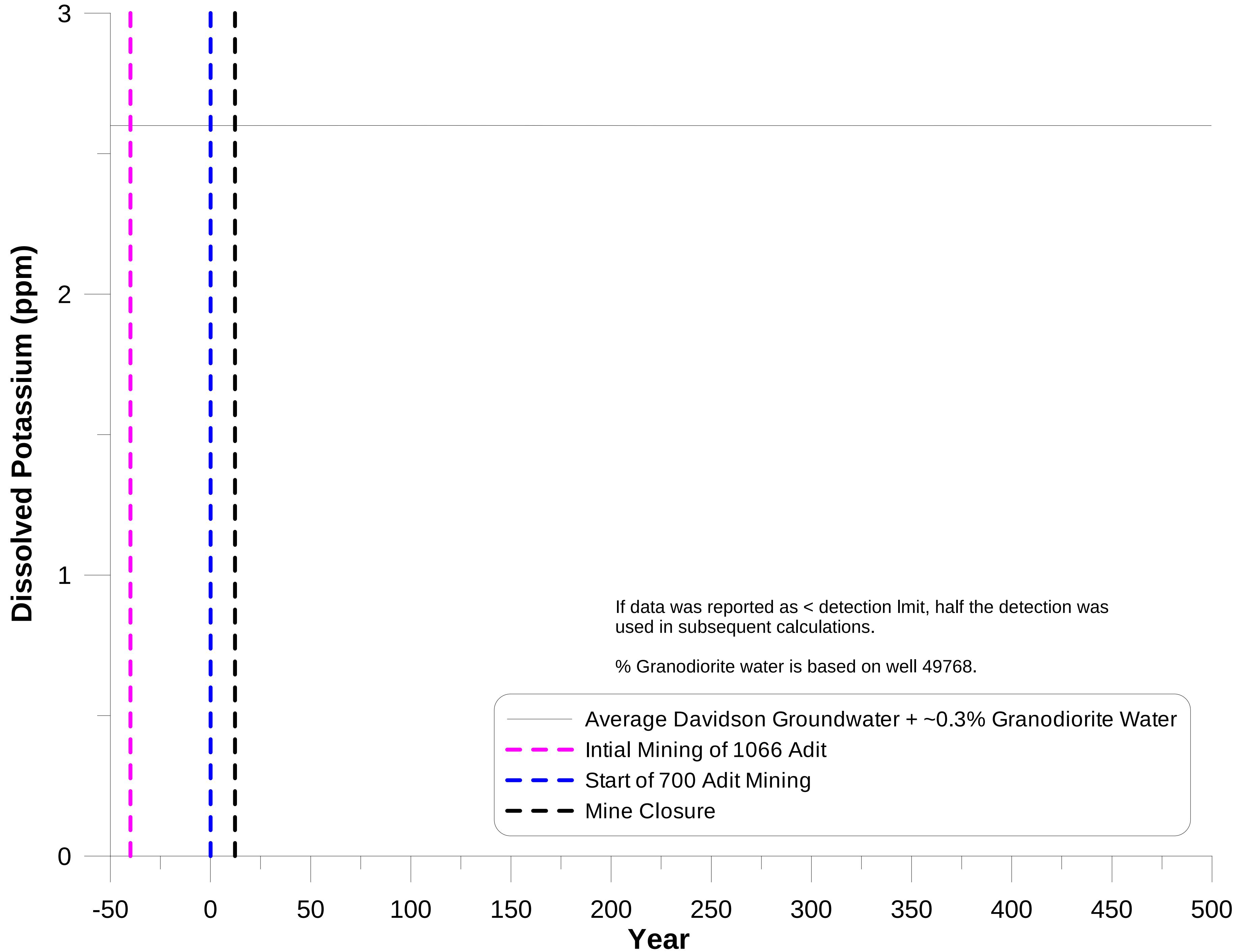
0.03
0.02
0.01
0
Dissolved Molybdenum (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



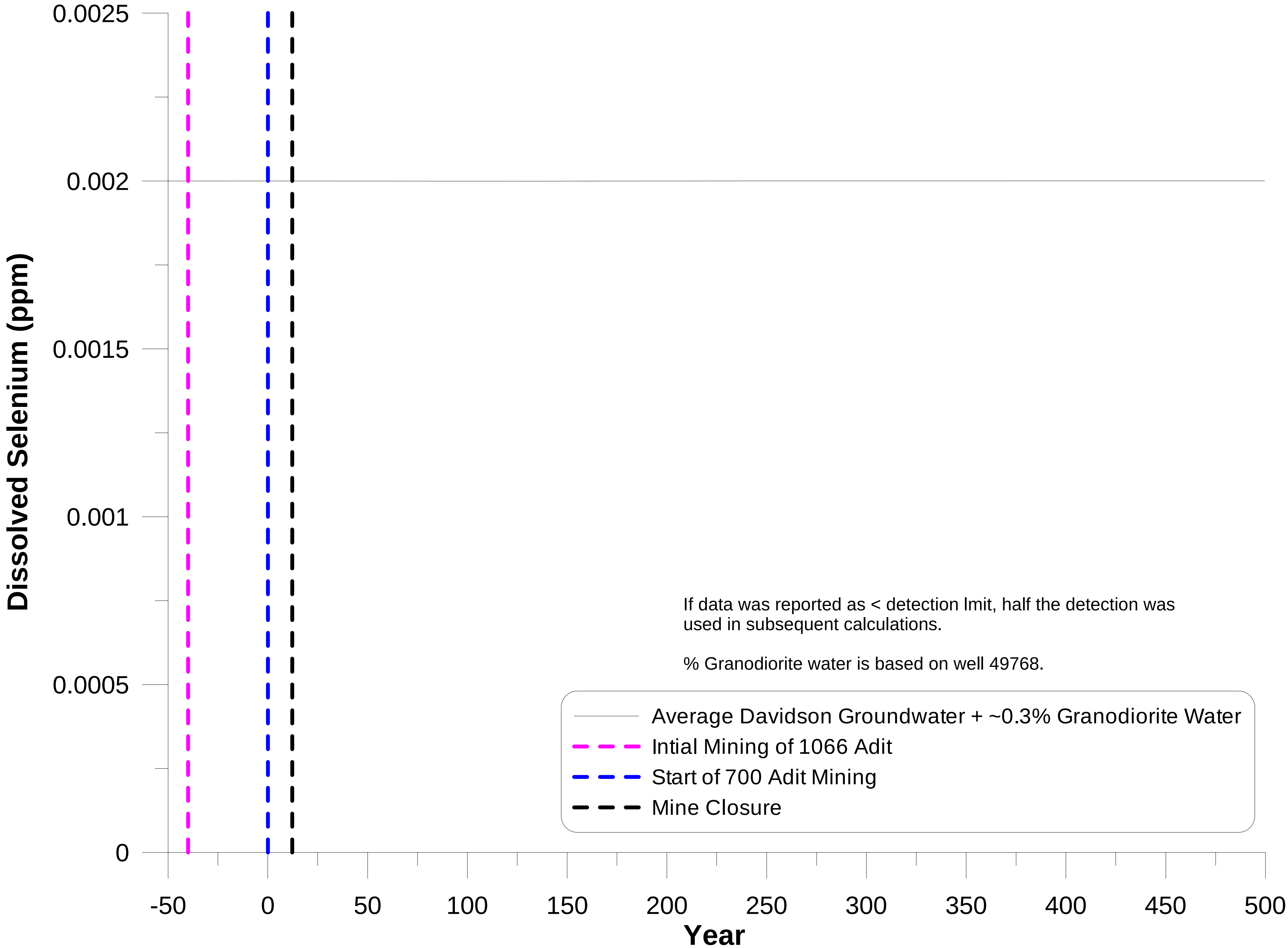
0.004
0.003
0.002
0.001
0
Dissolved Nickel (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

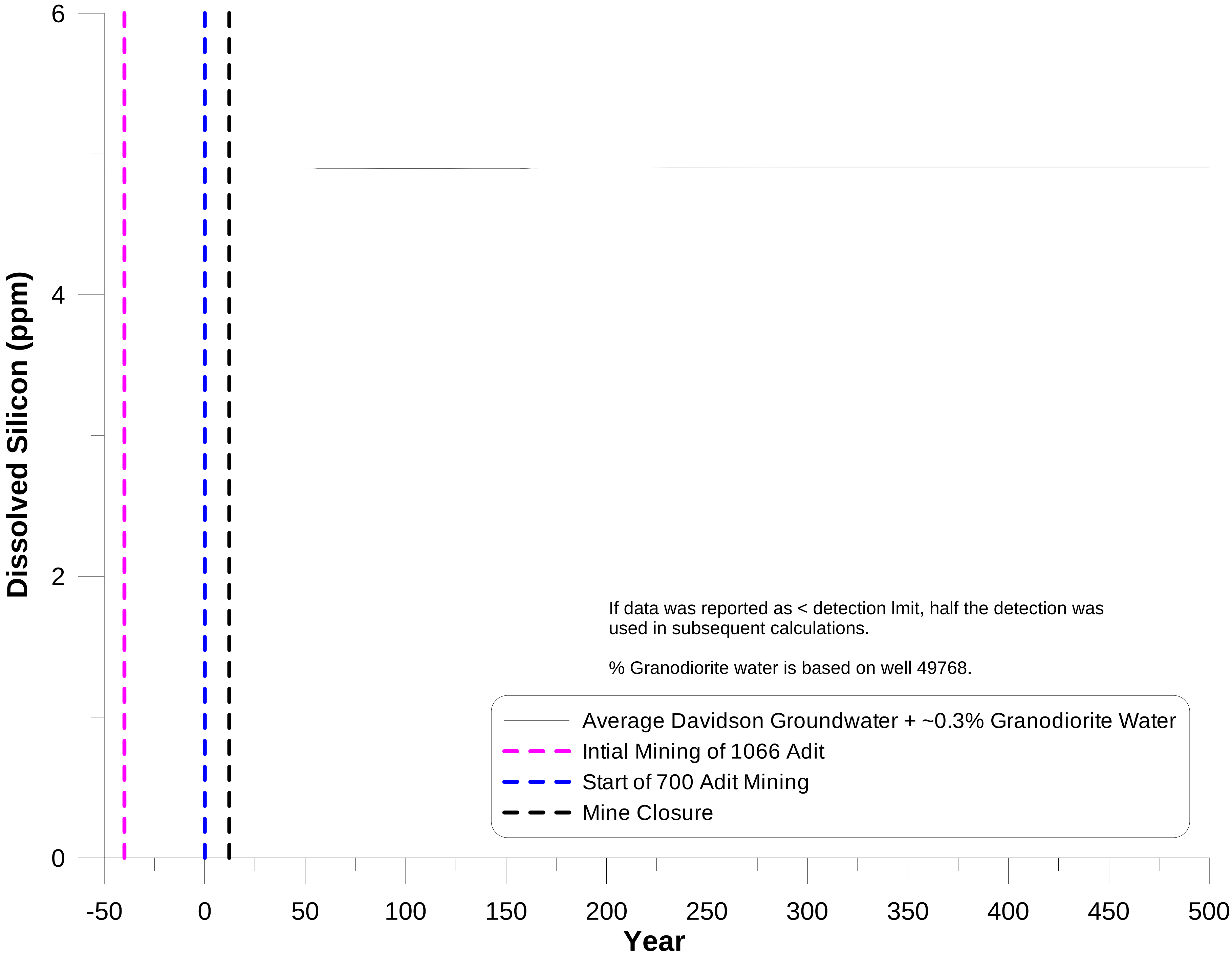


0.4
0.3
0.2
0.1
0
Dissolved Phosphorus (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

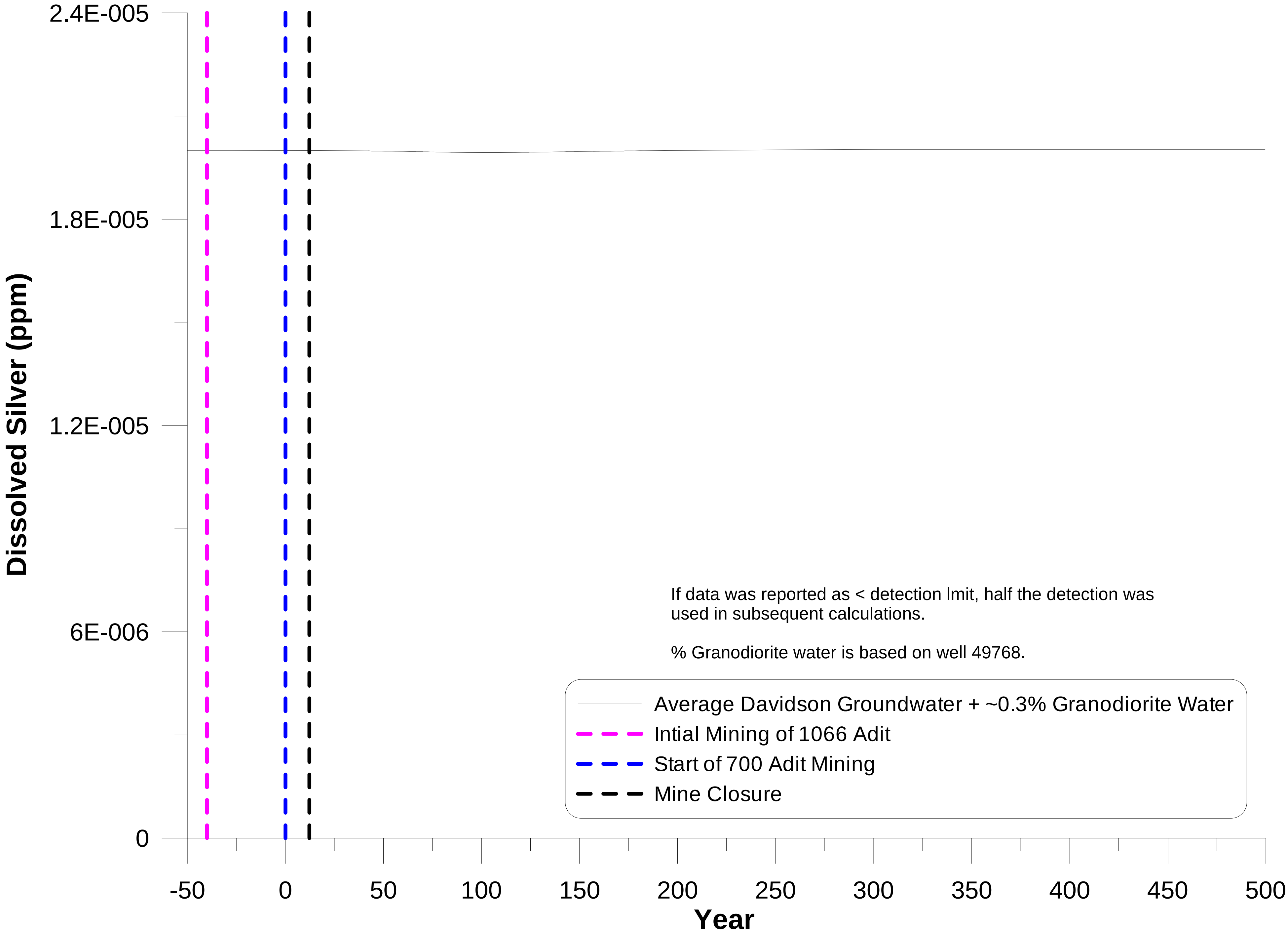


Dissolved Potassium (ppm)
3
2
1
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

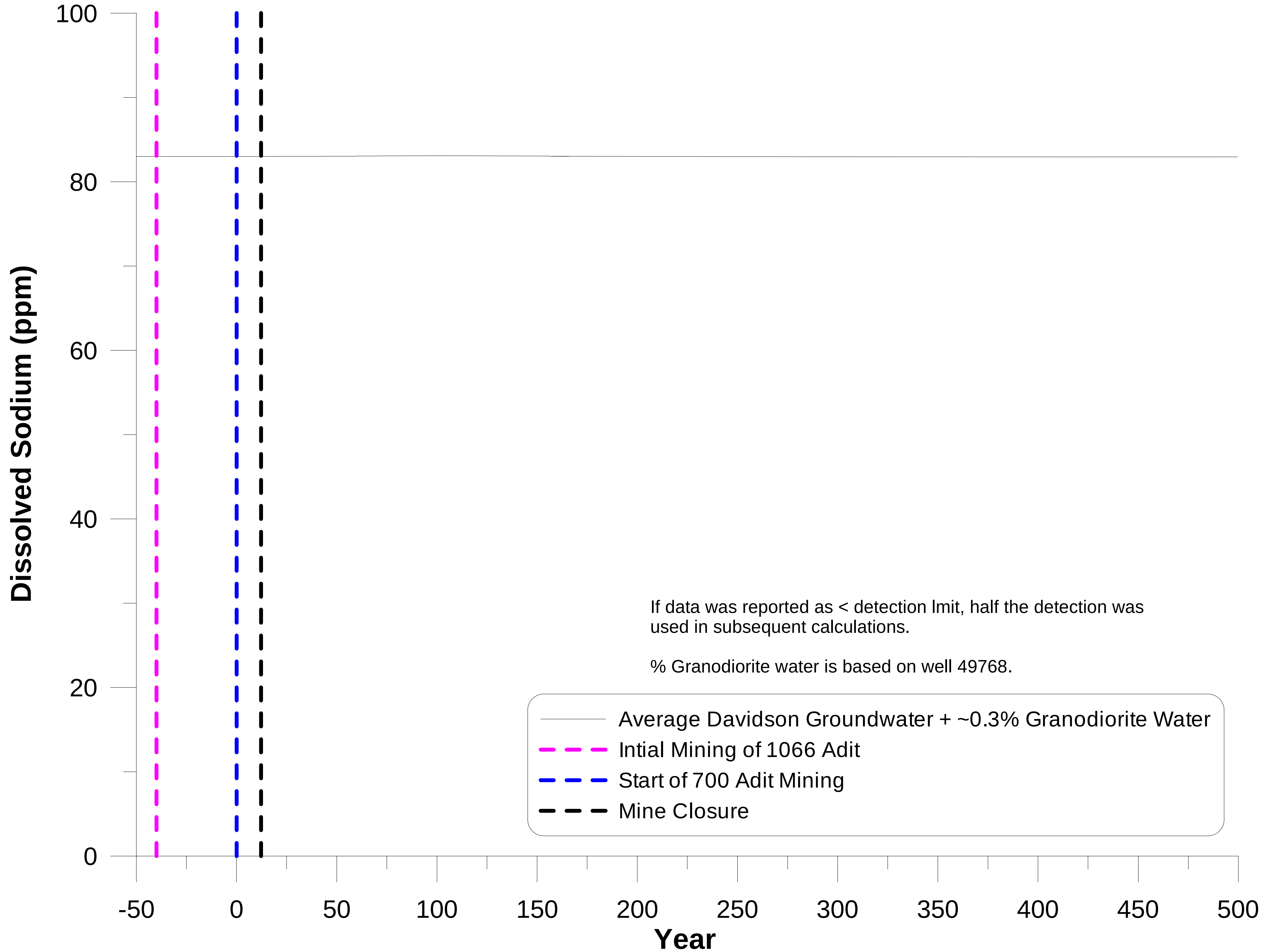

0.0025
0.002
0.0015
0.001
0.0005
0
Dissolved Selenium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



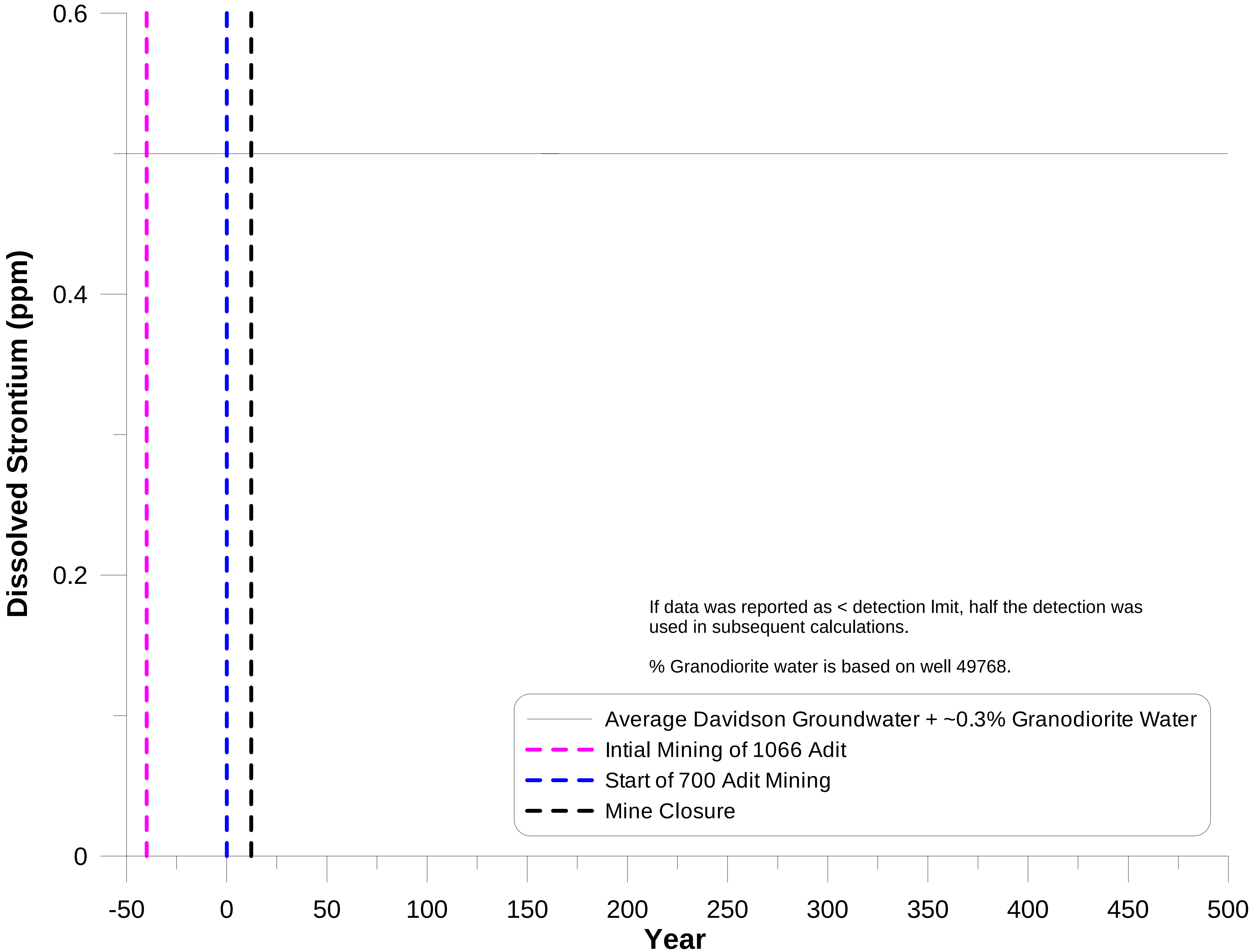
6
4
2
0
Dissolved Silicon (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



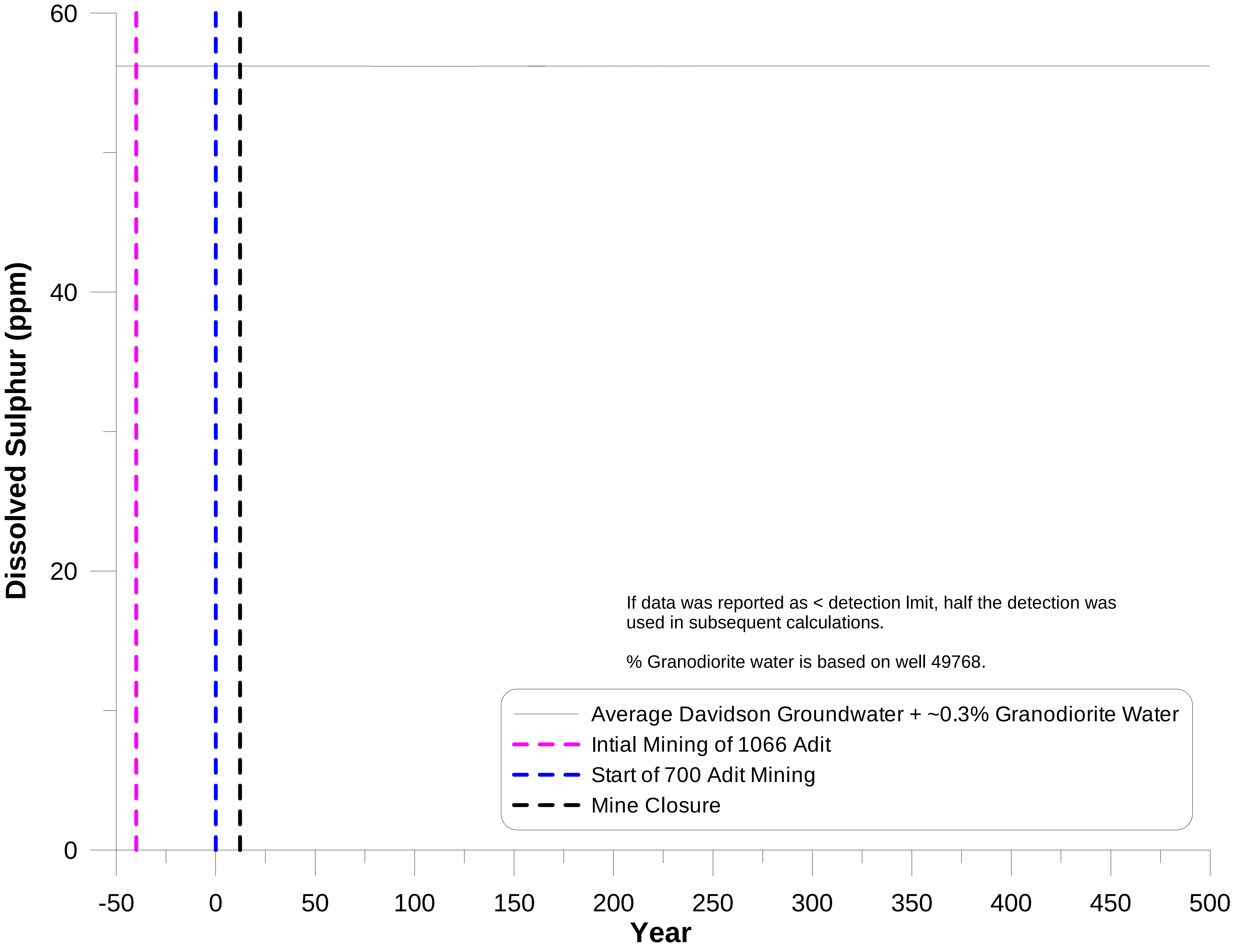
2.4E-005
1.8E-005
1.2E-005
6E-006
0
Dissolved Silver (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

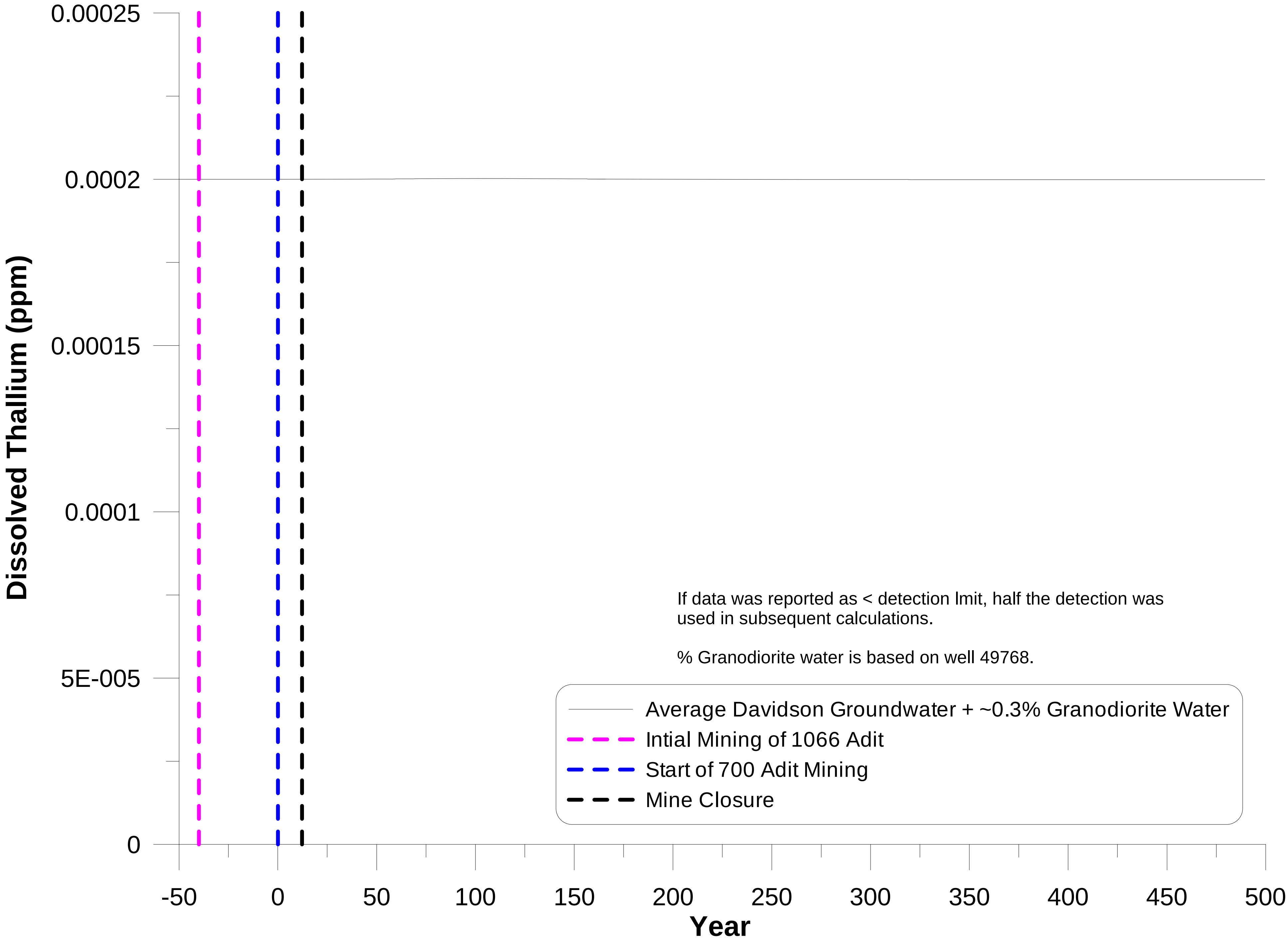


Dissolved Sodium (ppm)
100
80
60
40
20
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

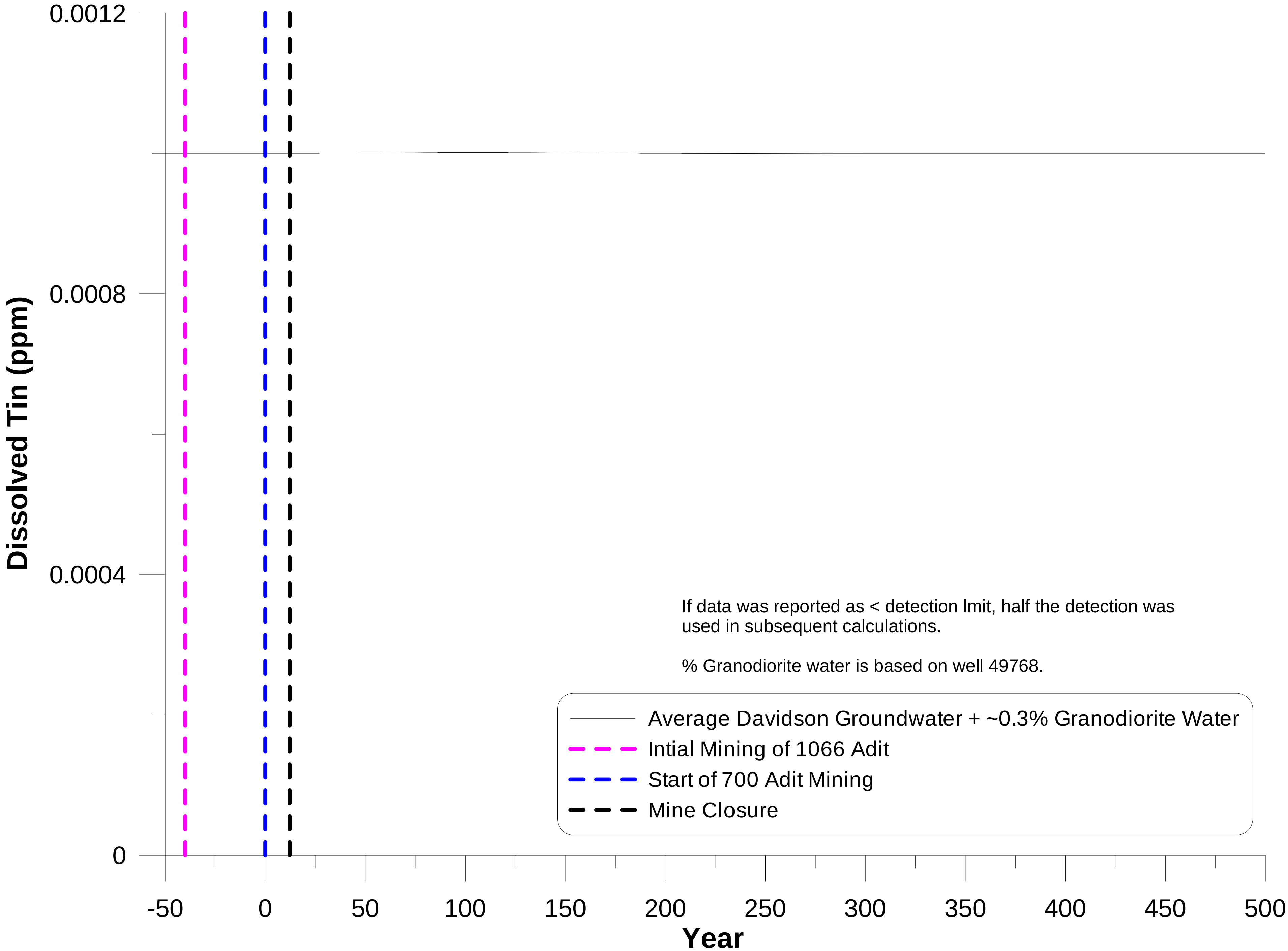


Dissolved Strontium (ppm)
0.6
0.4
0.2
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

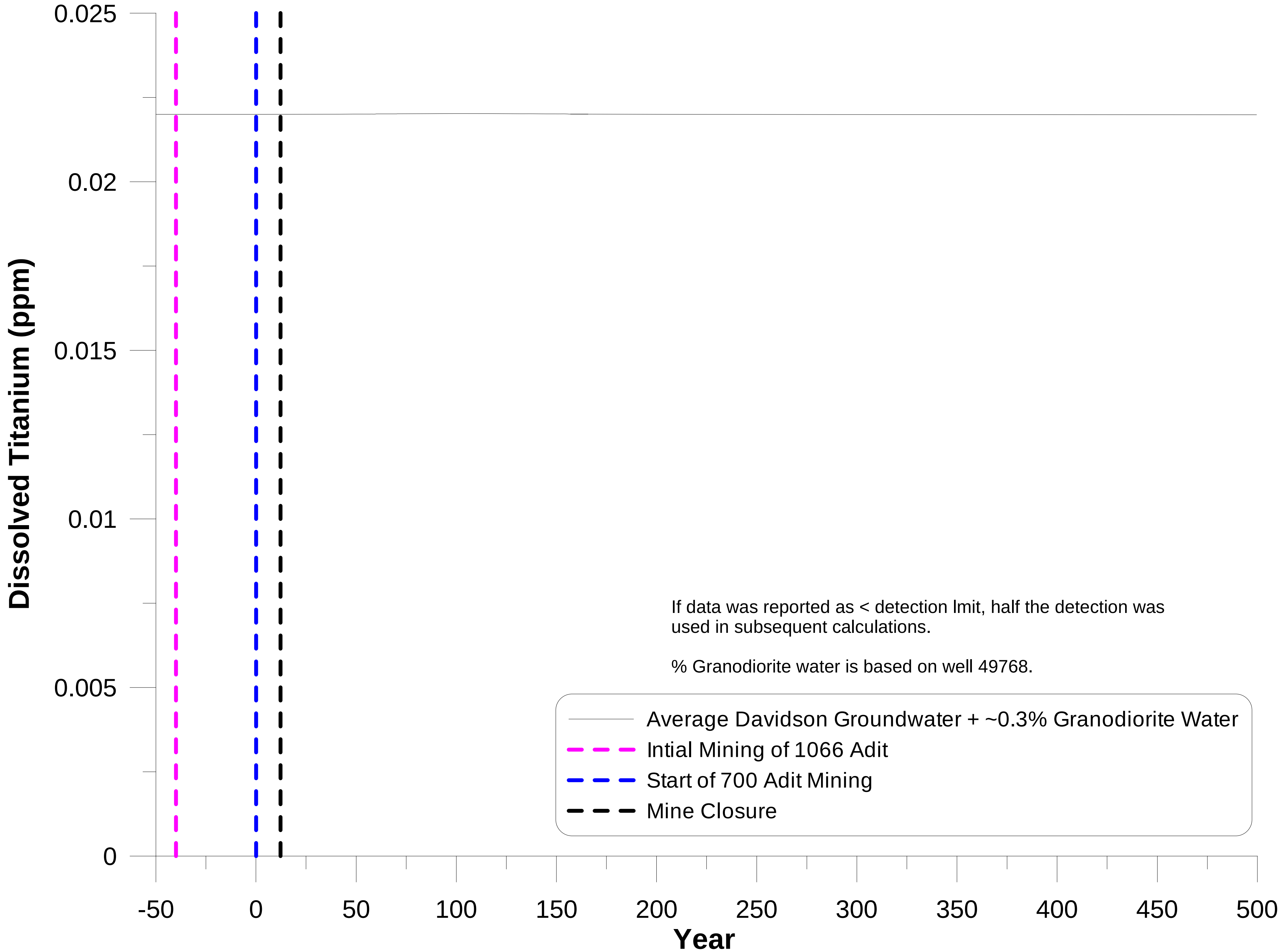

Dissolved Sulphur (ppm)
60
40
20
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



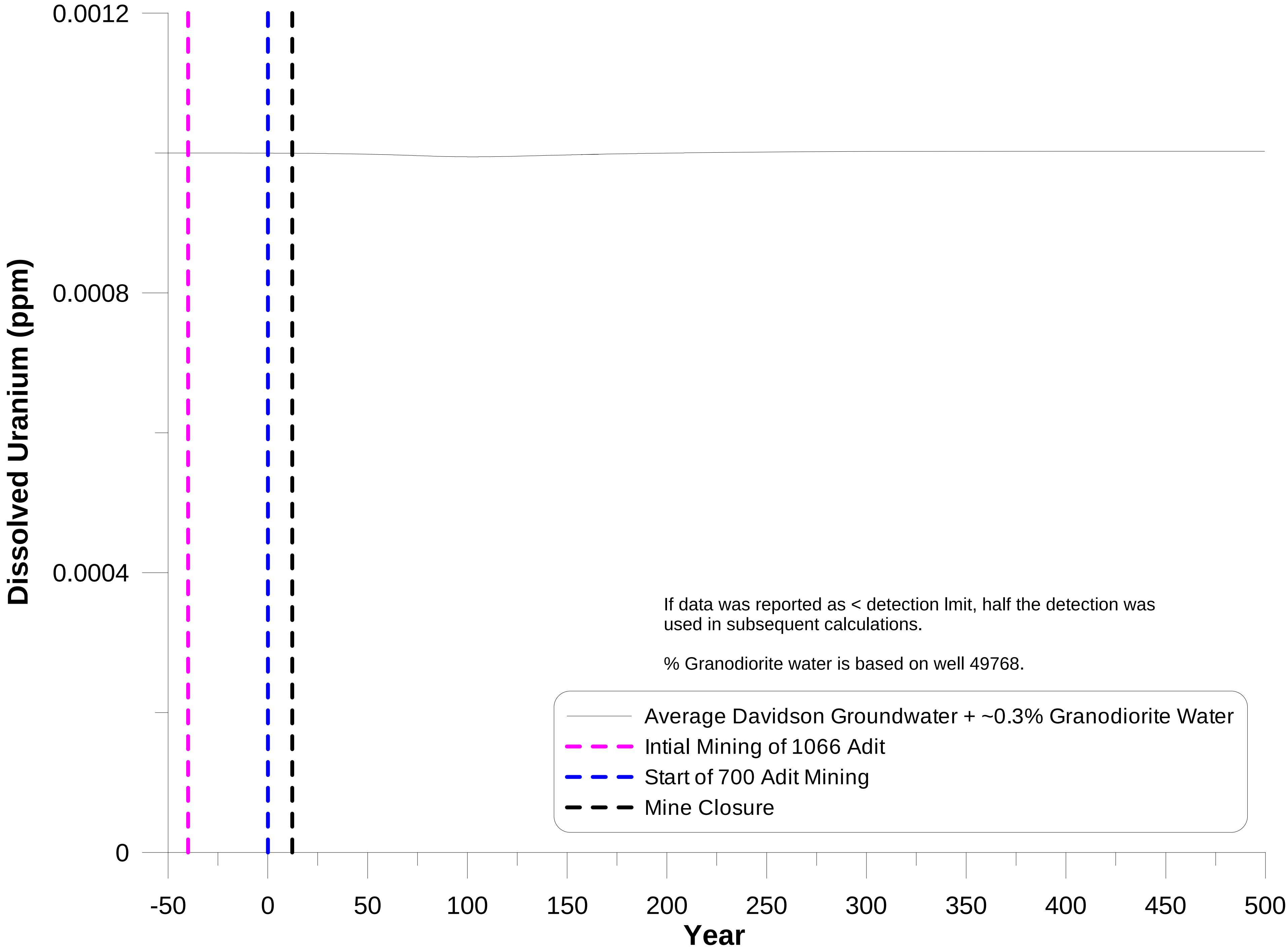
Dissolved Thallium (ppm)
0.00025
0.0002
0.00015
0.0001
5E-005
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



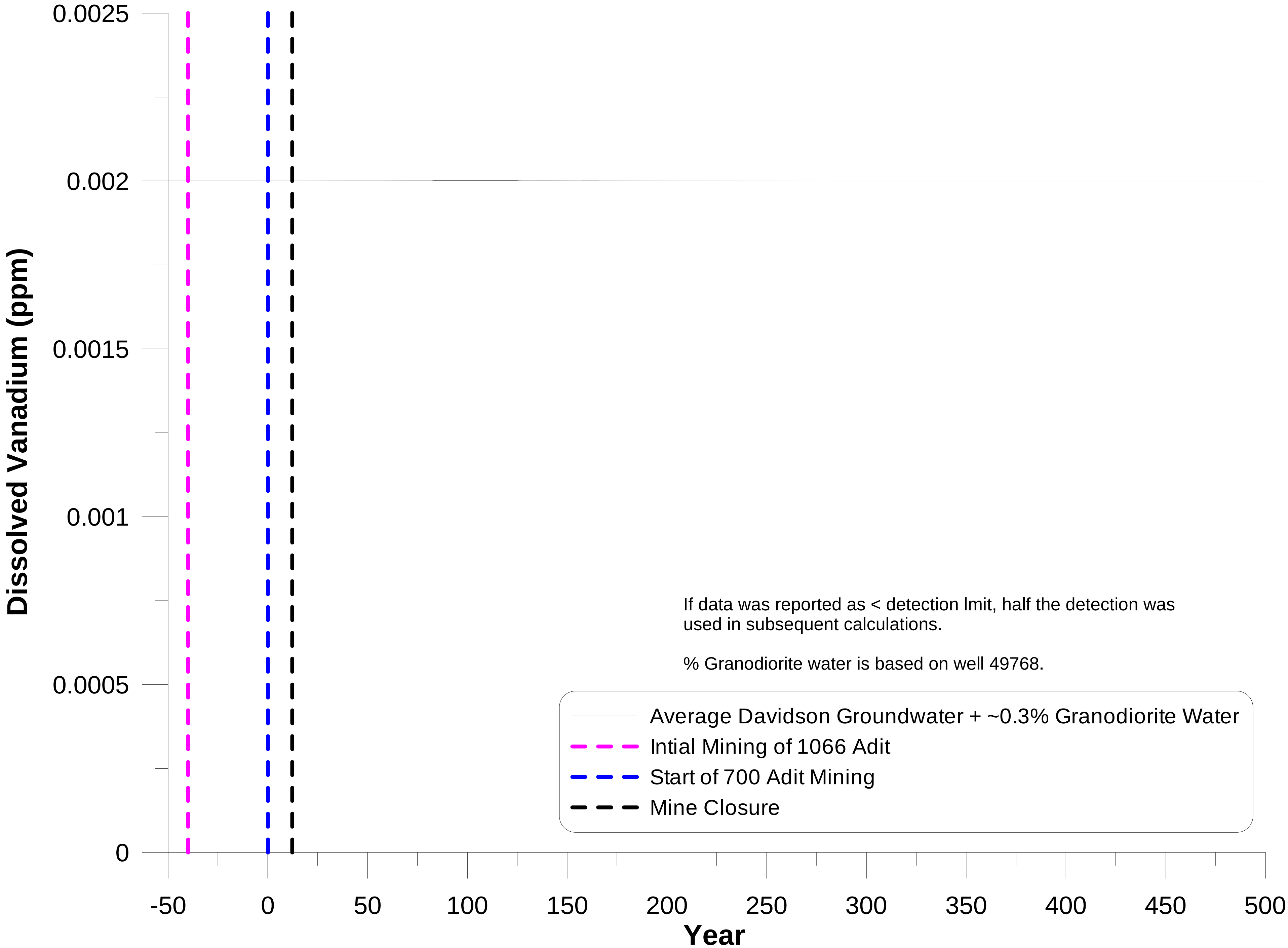
0.0012
0.0008
0.0004
0
Dissolved Tin (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



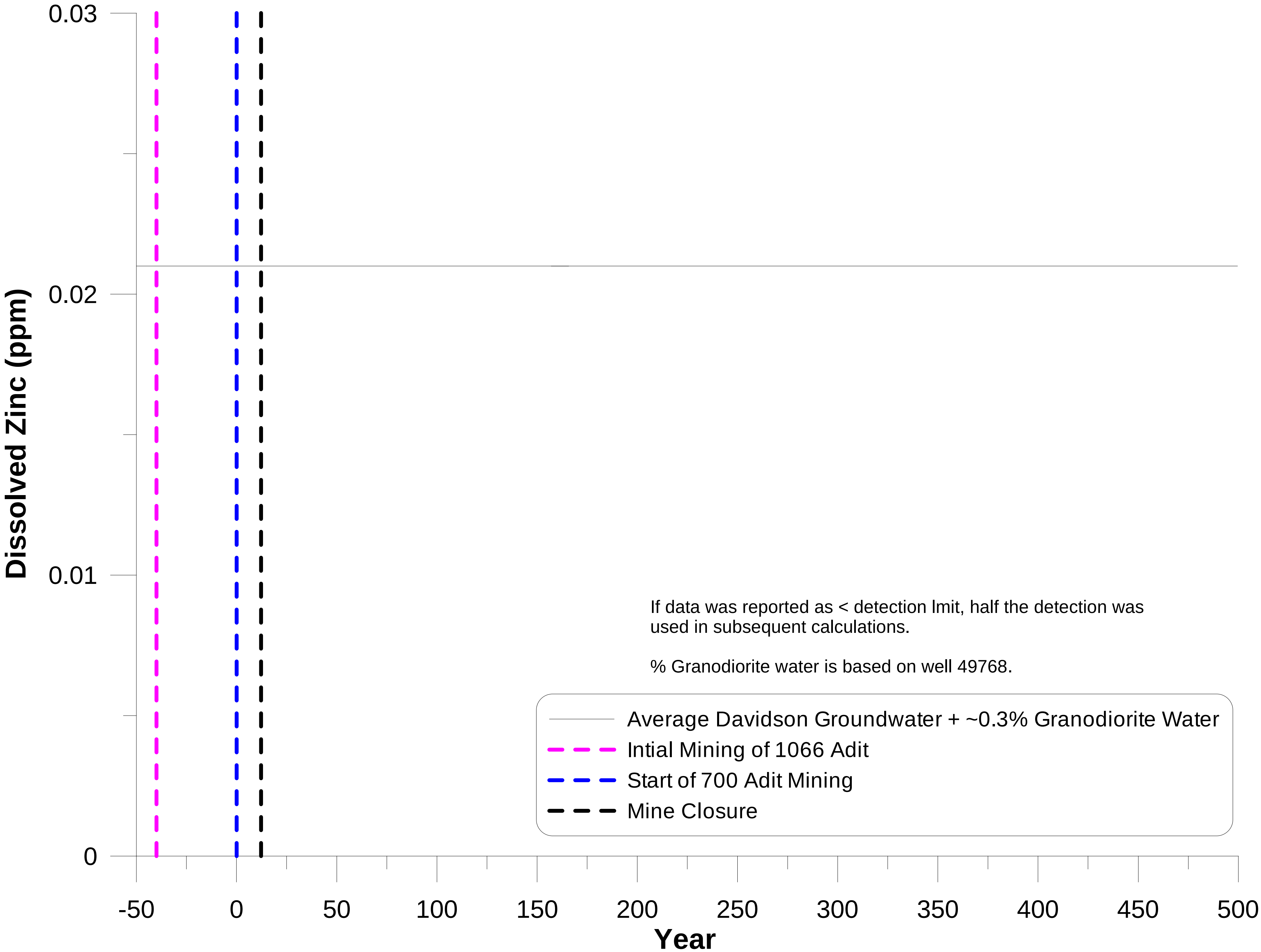
0.025
0.02
0.015
0.01
0.005
0
Dissolved Titanium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



Dissolved Uranium (ppm)
0.0012
0.0008
0.0004
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

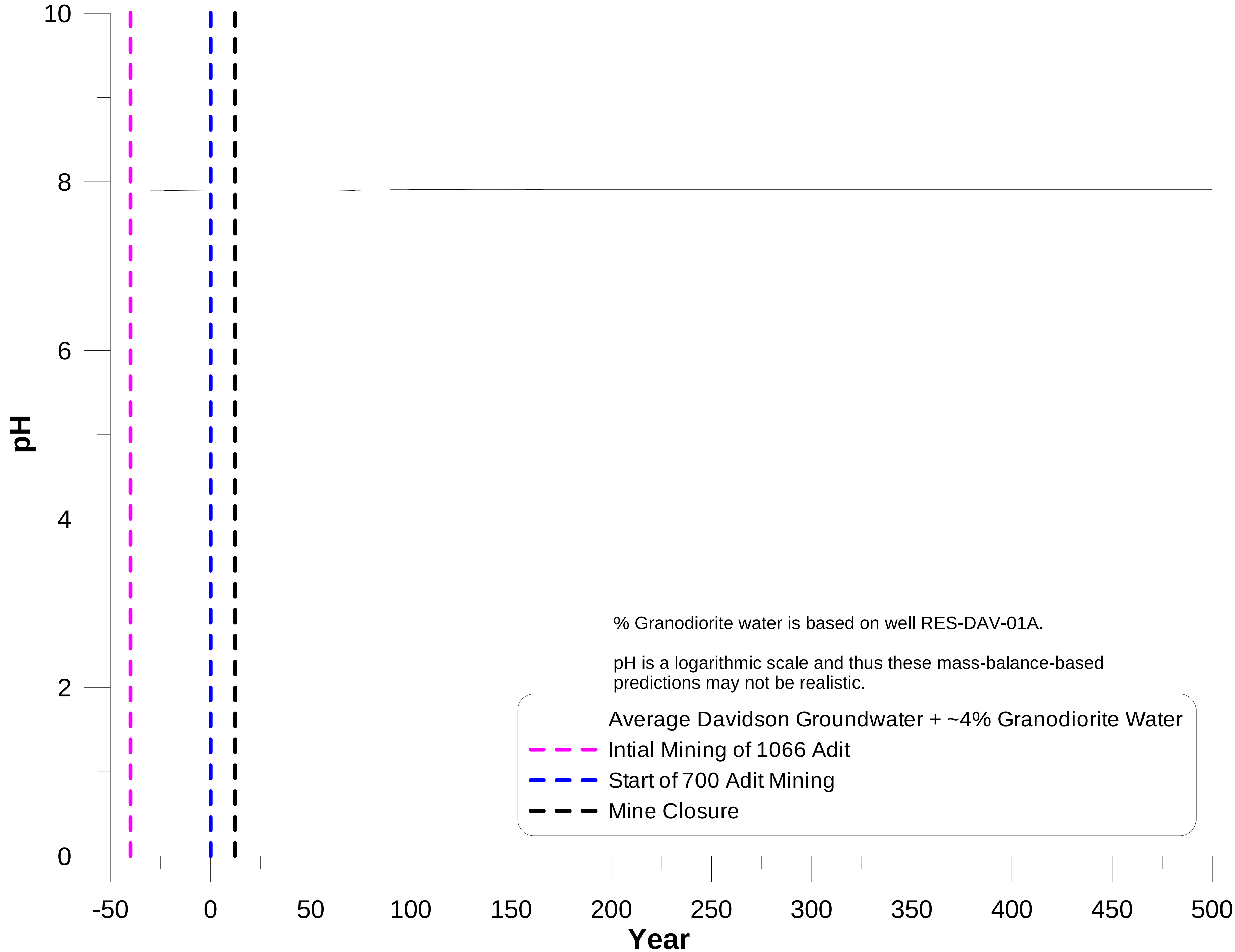


Dissolved Vanadium (ppm)
0.0025
0.002
0.0015
0.001
0.0005
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

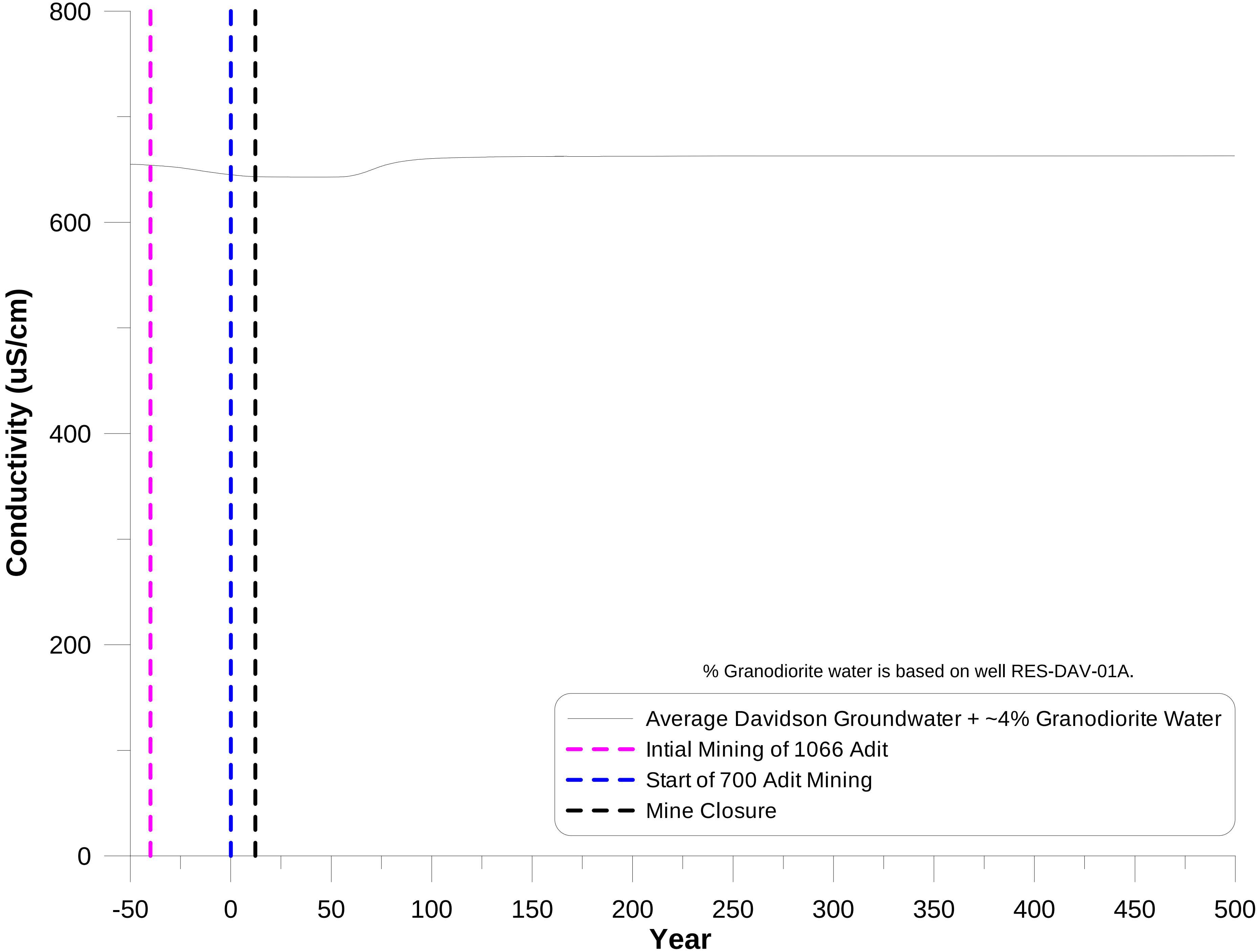


Dissolved Zinc (ppm)
0.03
0.02
0.01
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well 49768.
Average Davidson Groundwater + ~0.3% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

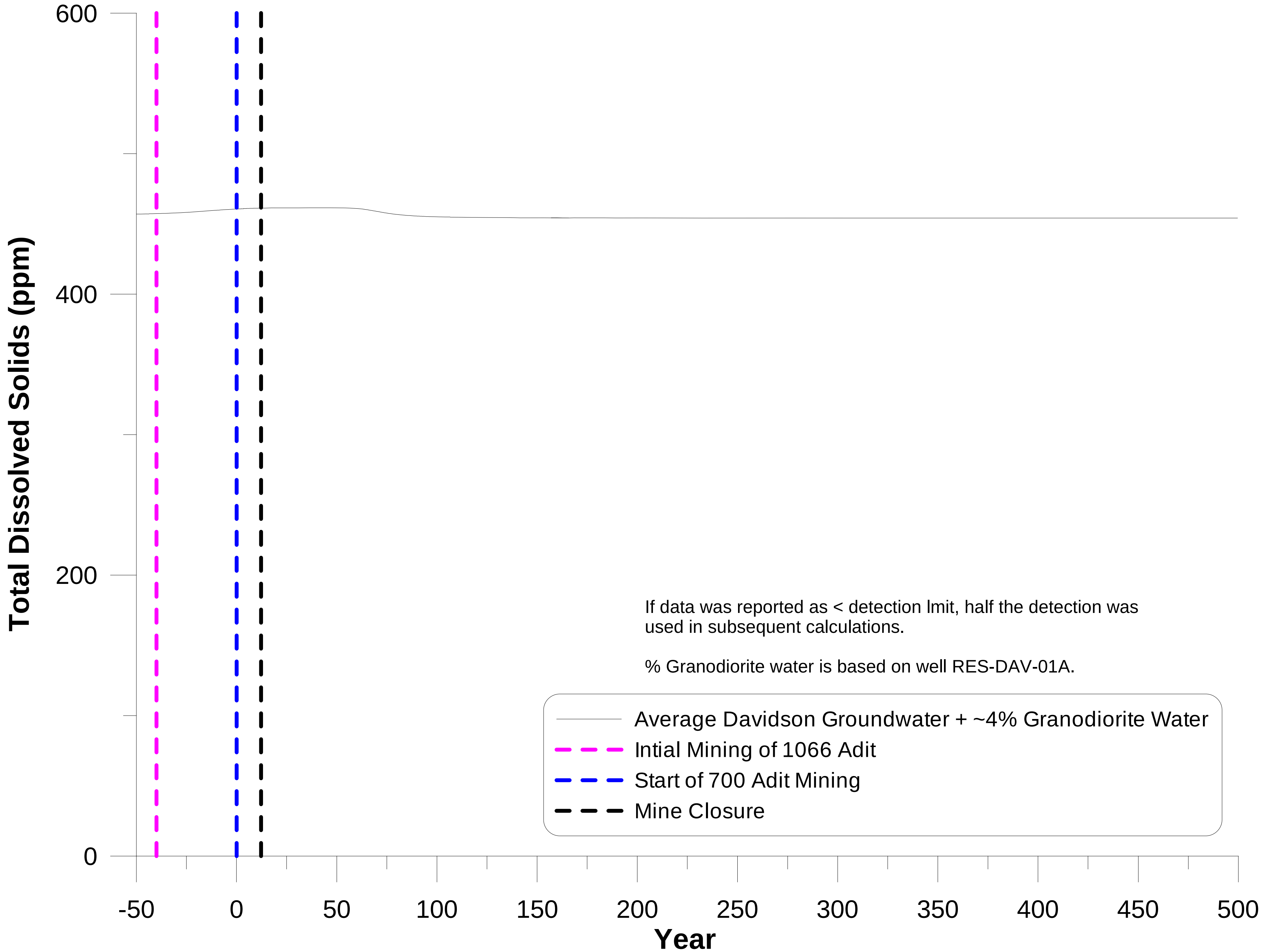
B2. ~4% GRANODIORITE GROUNDWATER AND ~96% AVERAGE DAVIDSON GROUNDWATER BEFORE MINING, BASED ON PREDICTED TRENDS FOR WELL RES-DAV-01A



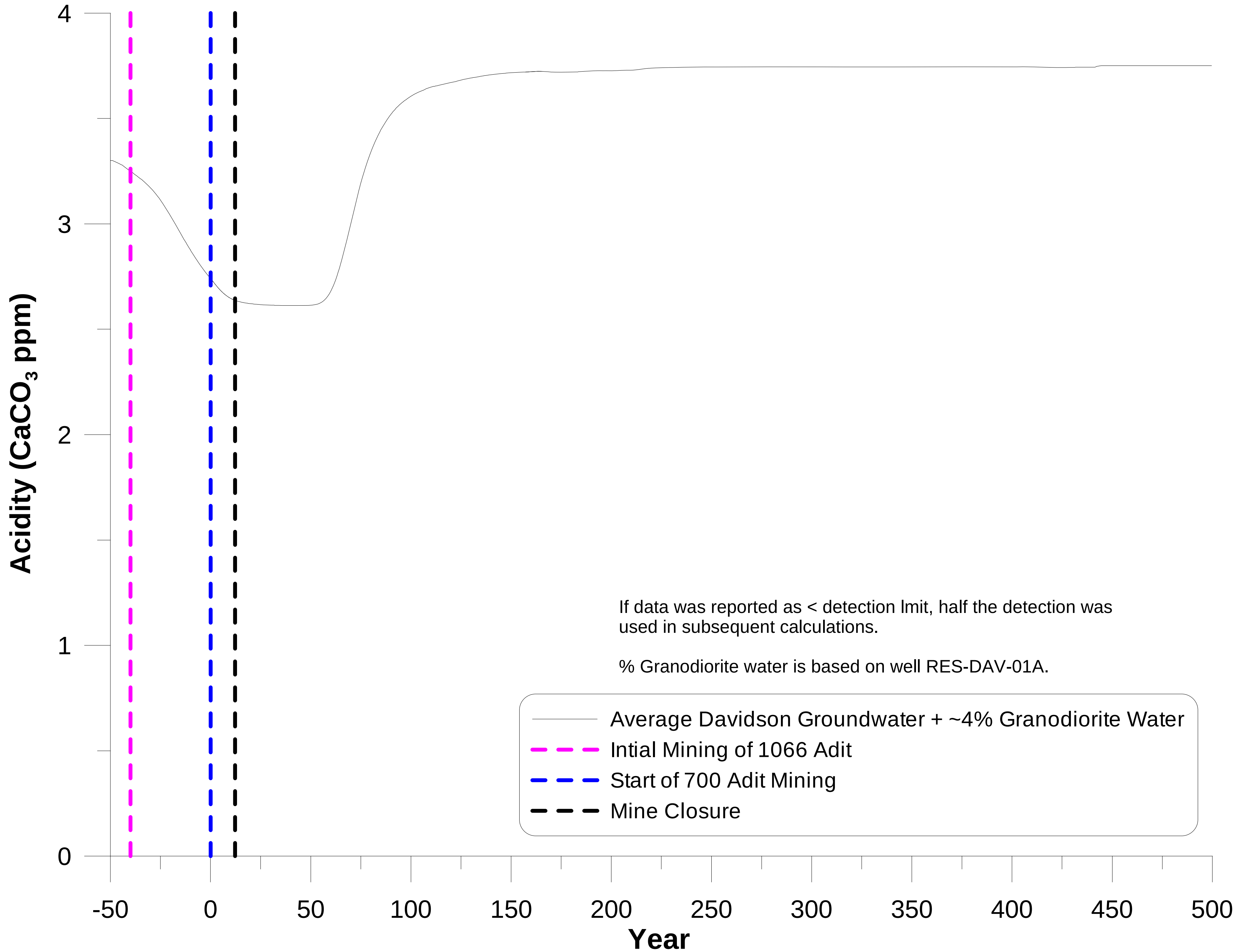
10
8
6
4
2
0
pH
-50
0
50
100
150
200
250
300
350
400
450
500
Year
% Granodiorite water is based on well RES-DAV-01A.
pH is a logarithmic scale and thus these mass-balance-based predictions may not be realistic.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



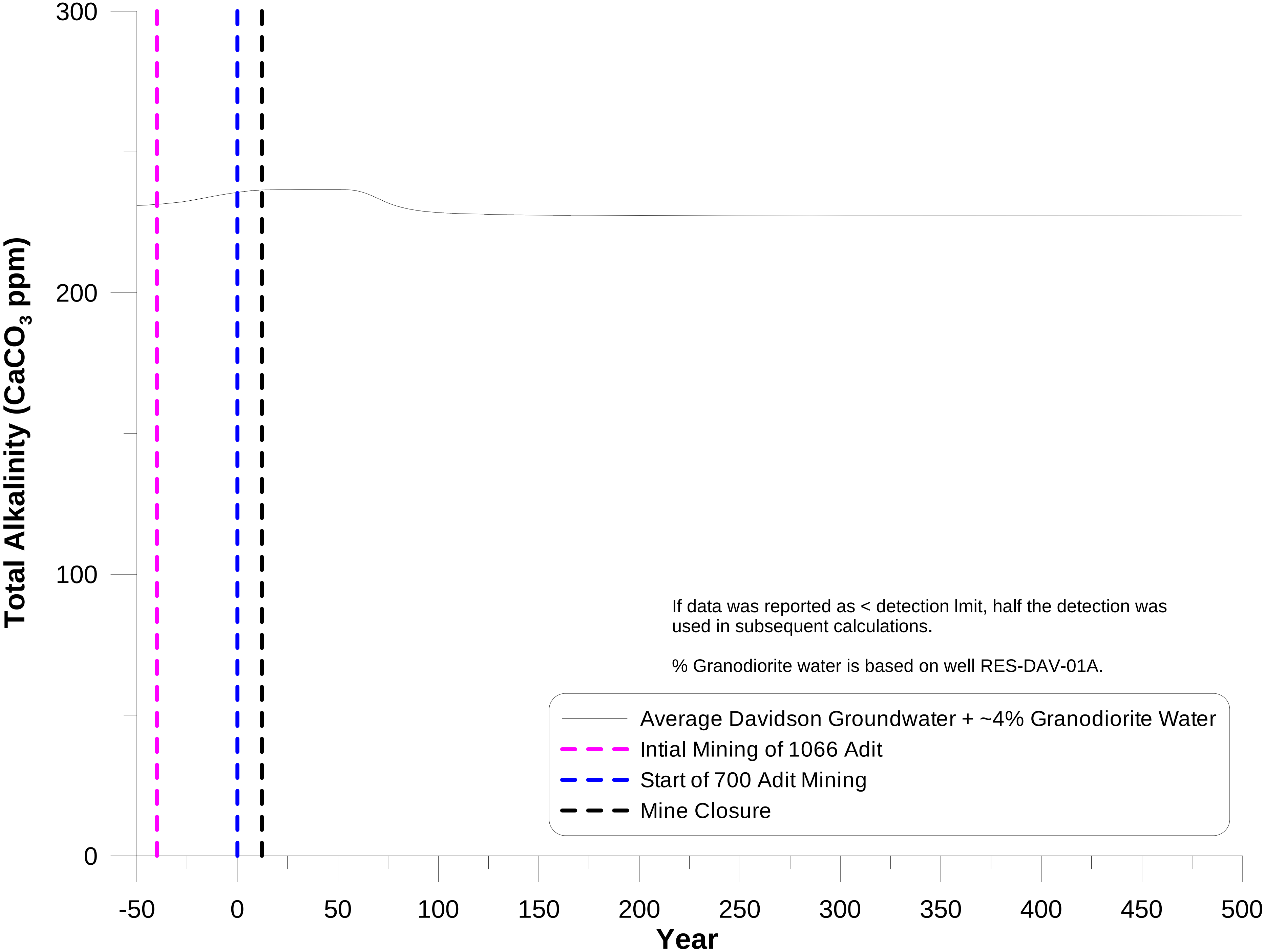
800
600
400
200
0
Conductivity (uS/cm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



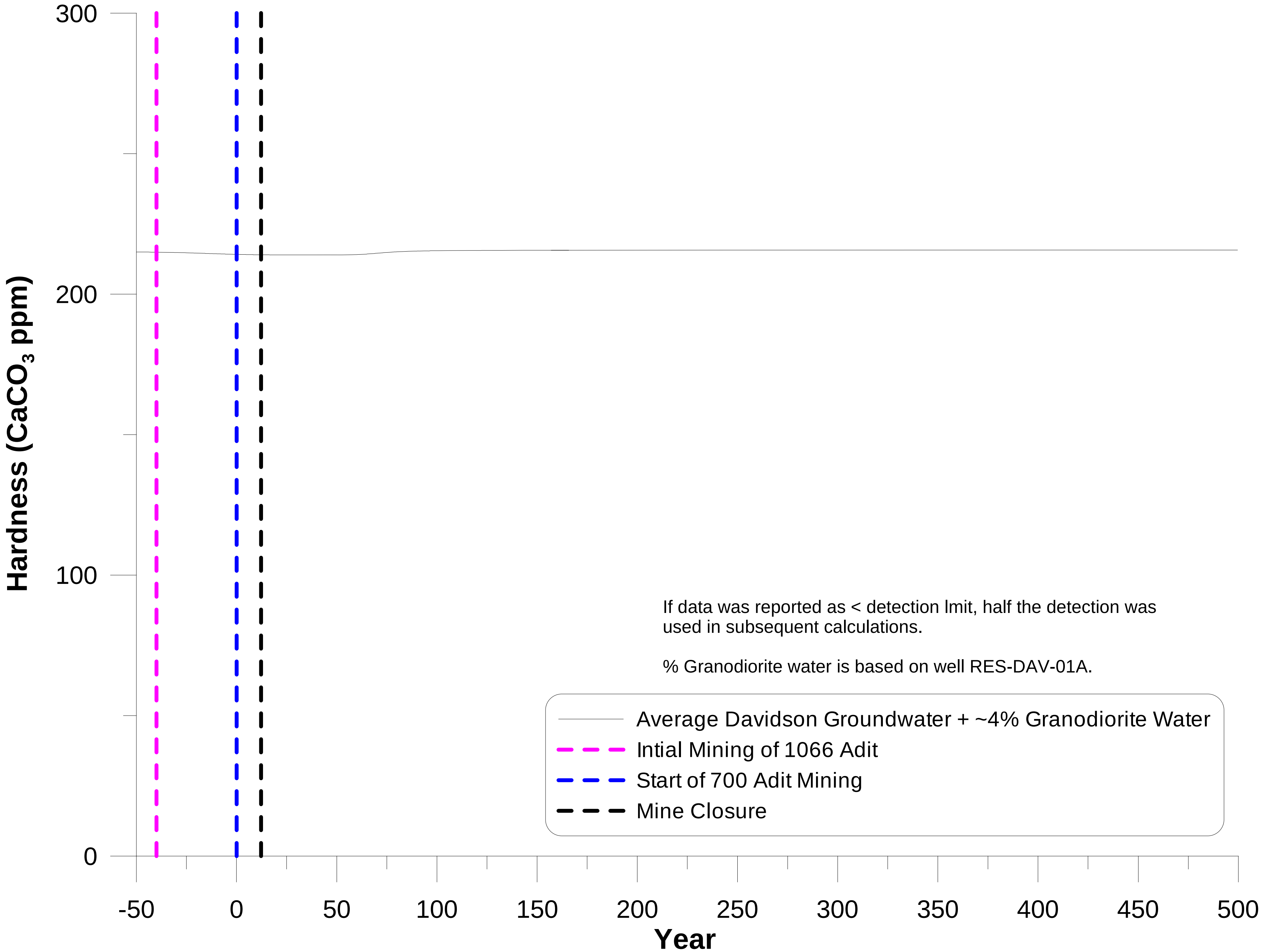
600
400
200
0
Total Dissolved Solids (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



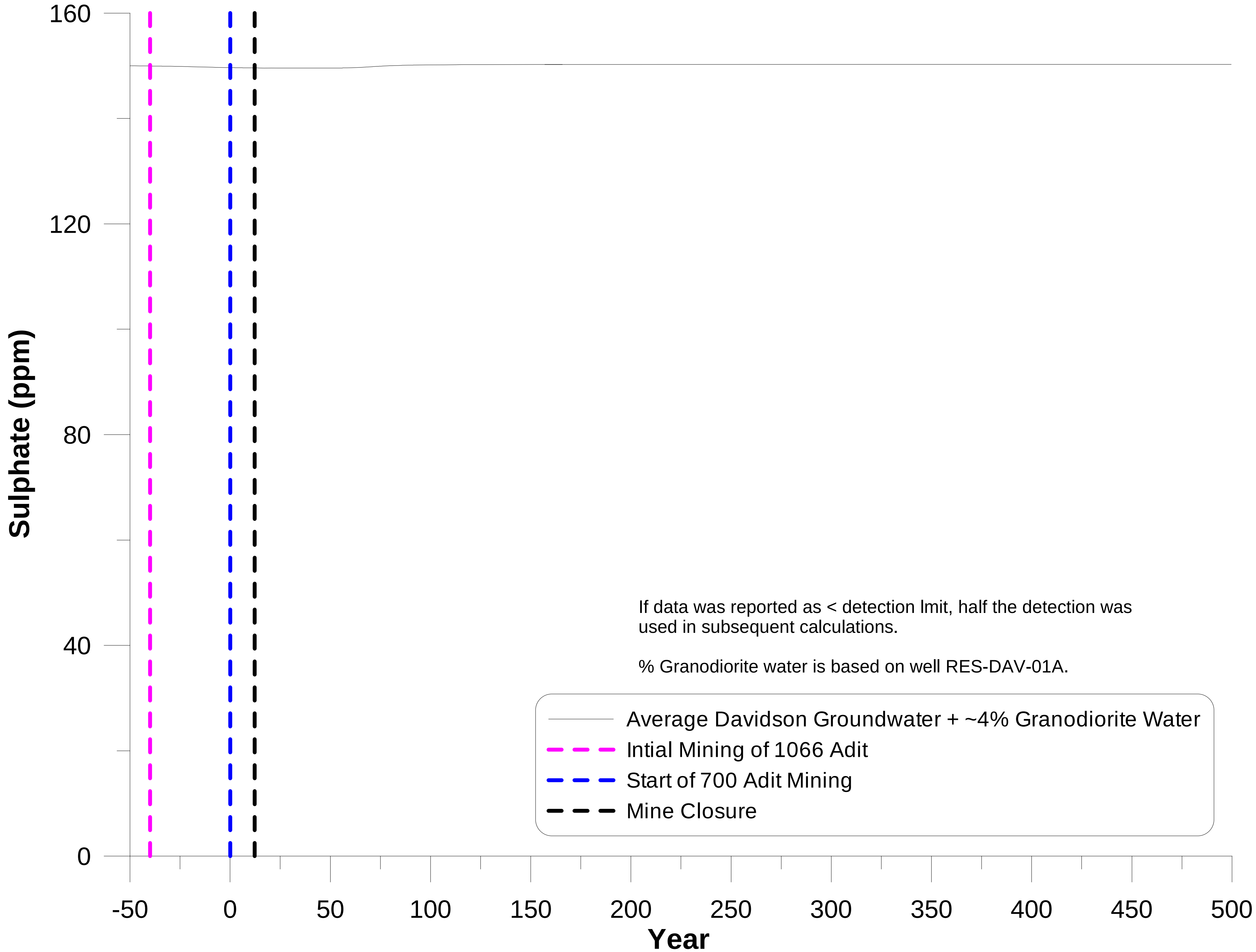
Acidity ($CaCO_3$ ppm)
4
3
2
1
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



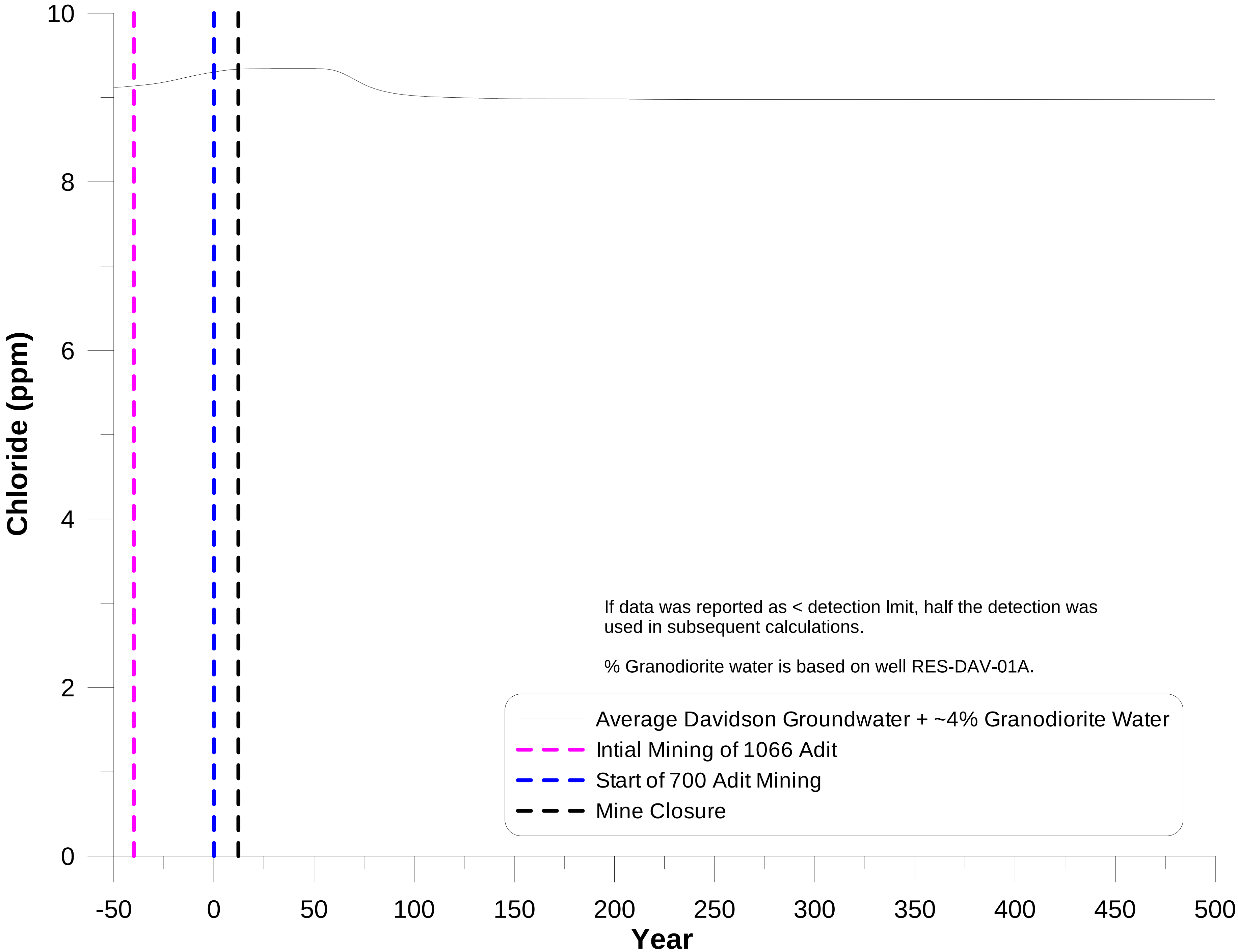
300
200
100
0
Total Alkalinity (CaCO3 ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



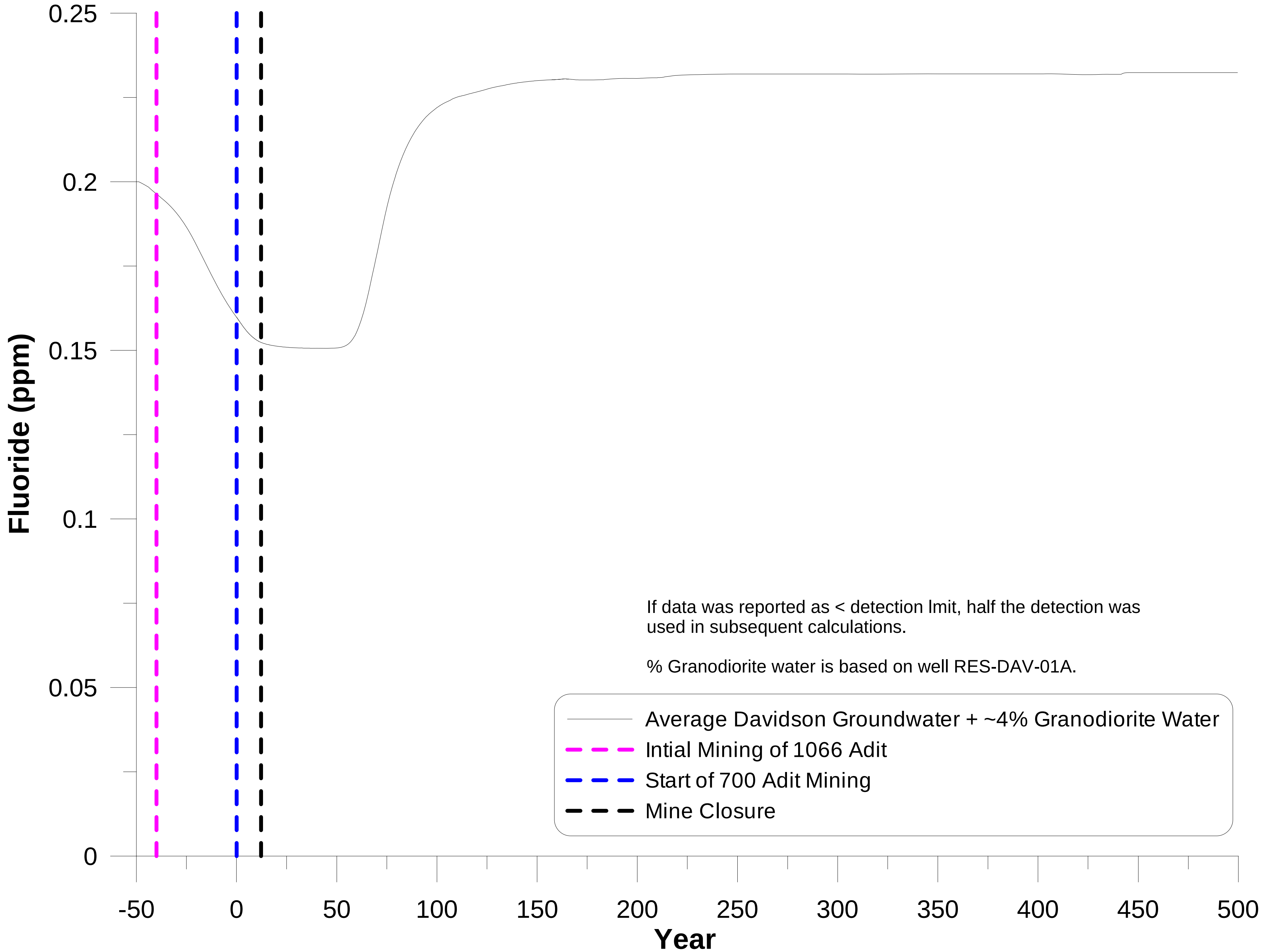
Hardness ($CaCO_3$ ppm)
300
200
100
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



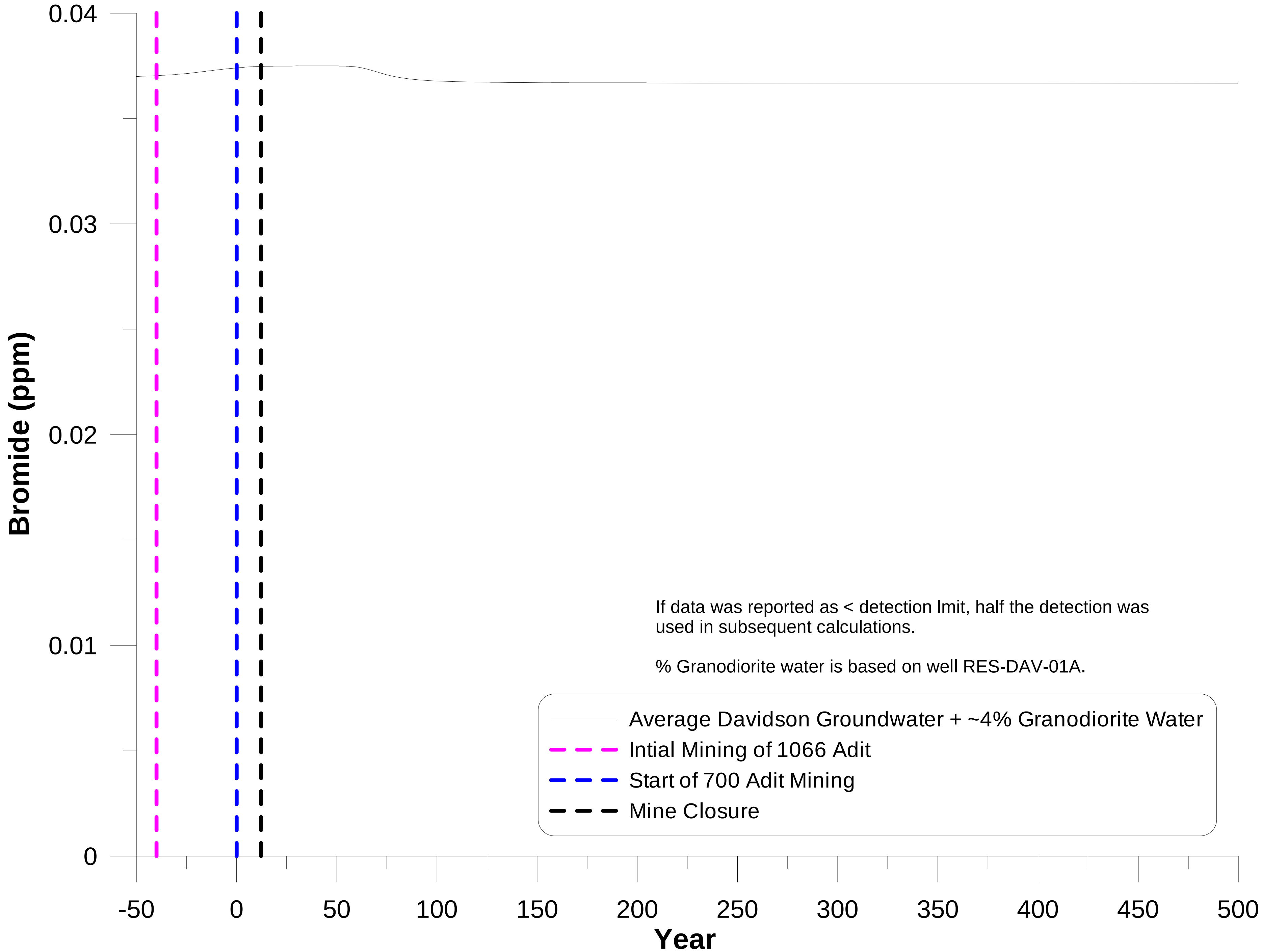
Sulphate (ppm)
160
120
80
40
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



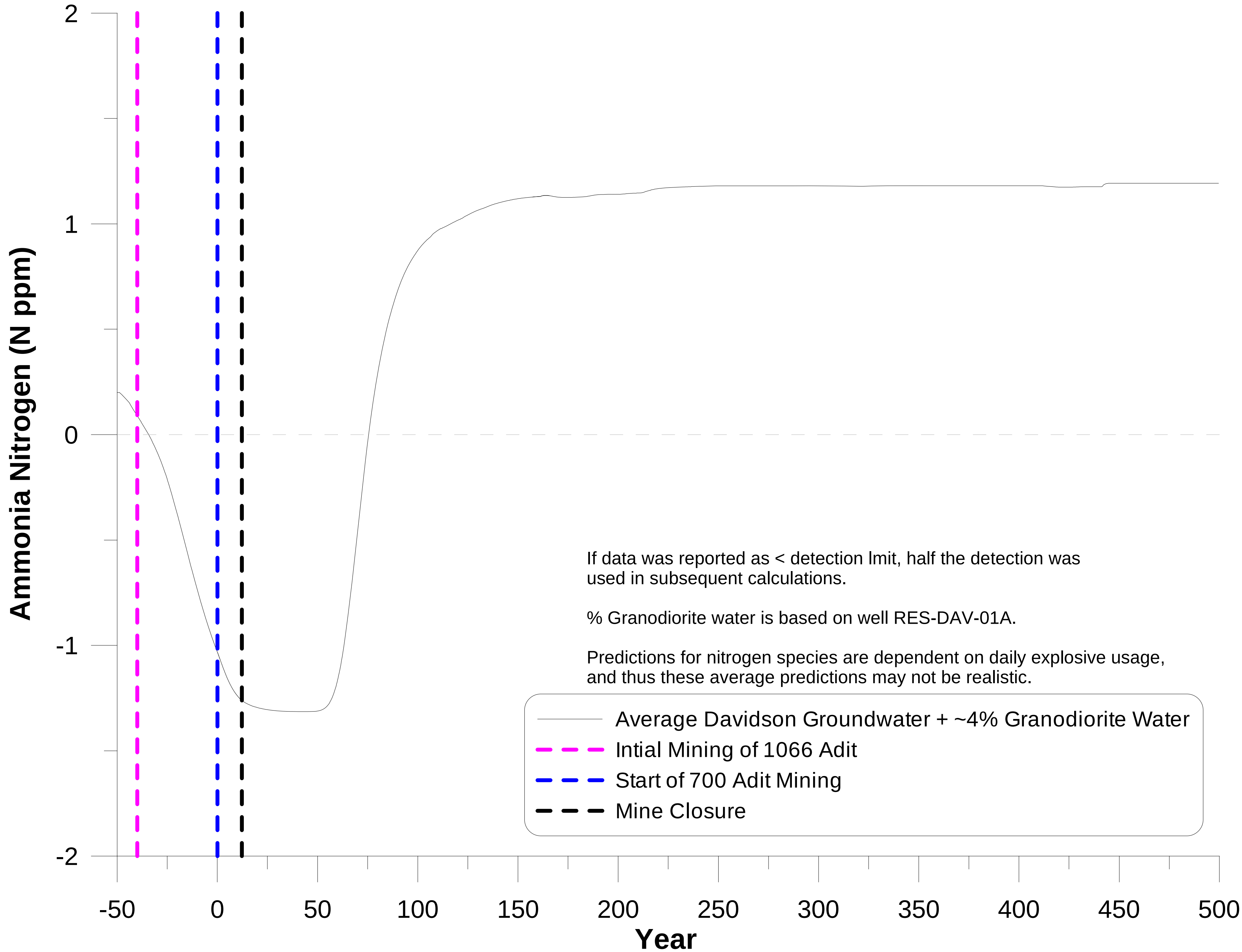
10
8
6
4
2
0
Chloride (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



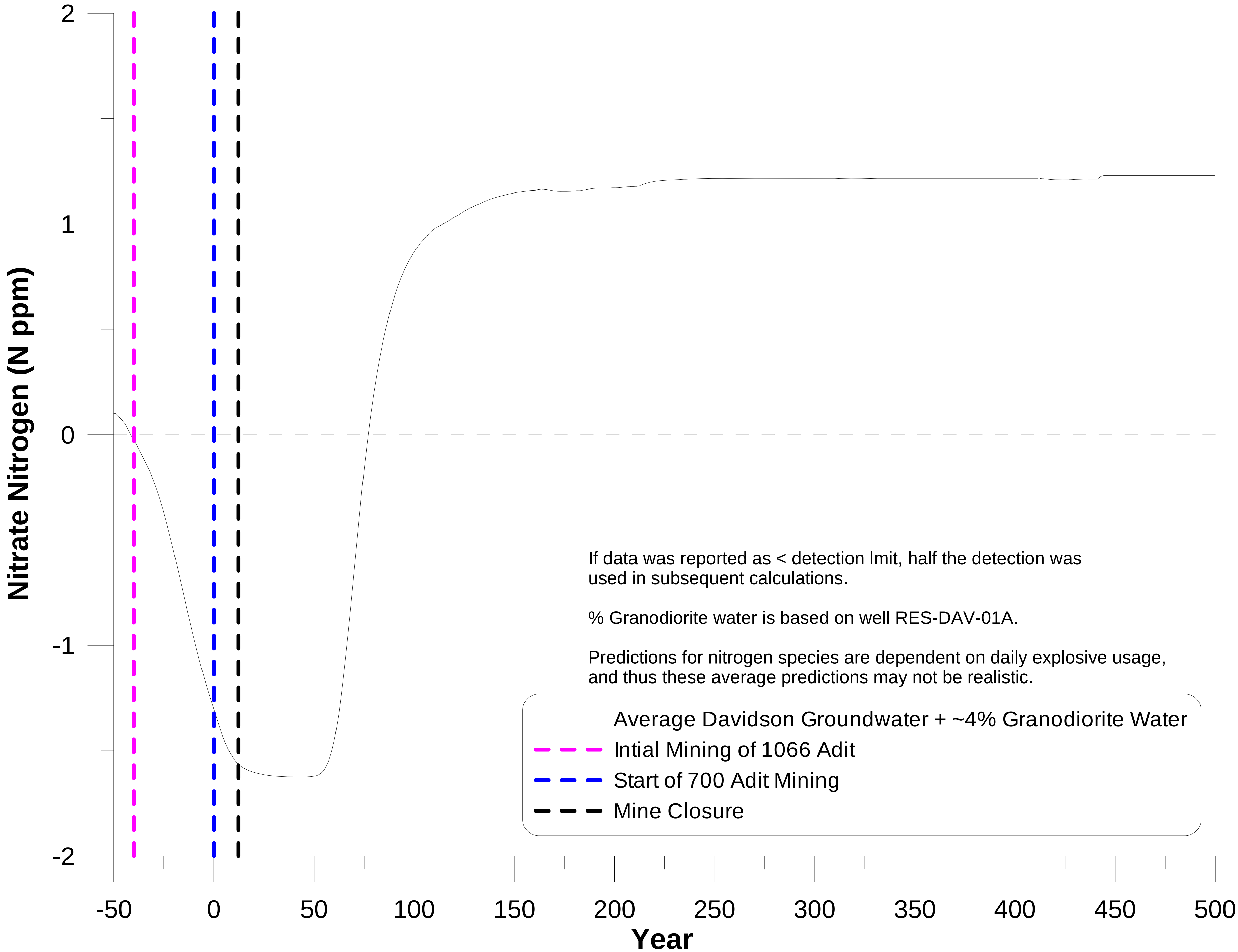
Fluoride (ppm)
0.25
0.2
0.15
0.1
0.05
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



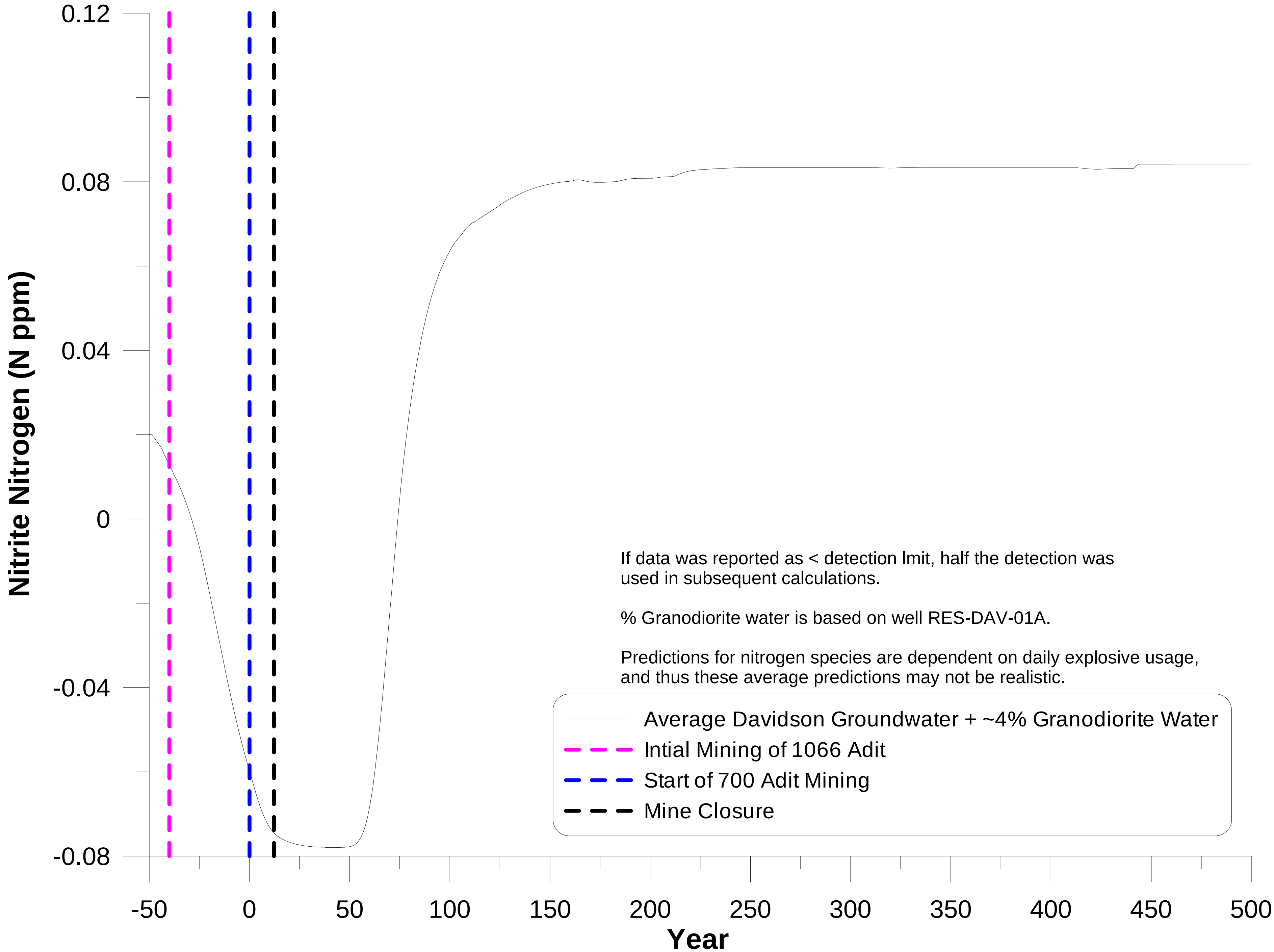
0.04
0.03
0.02
0.01
0
Bromide (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



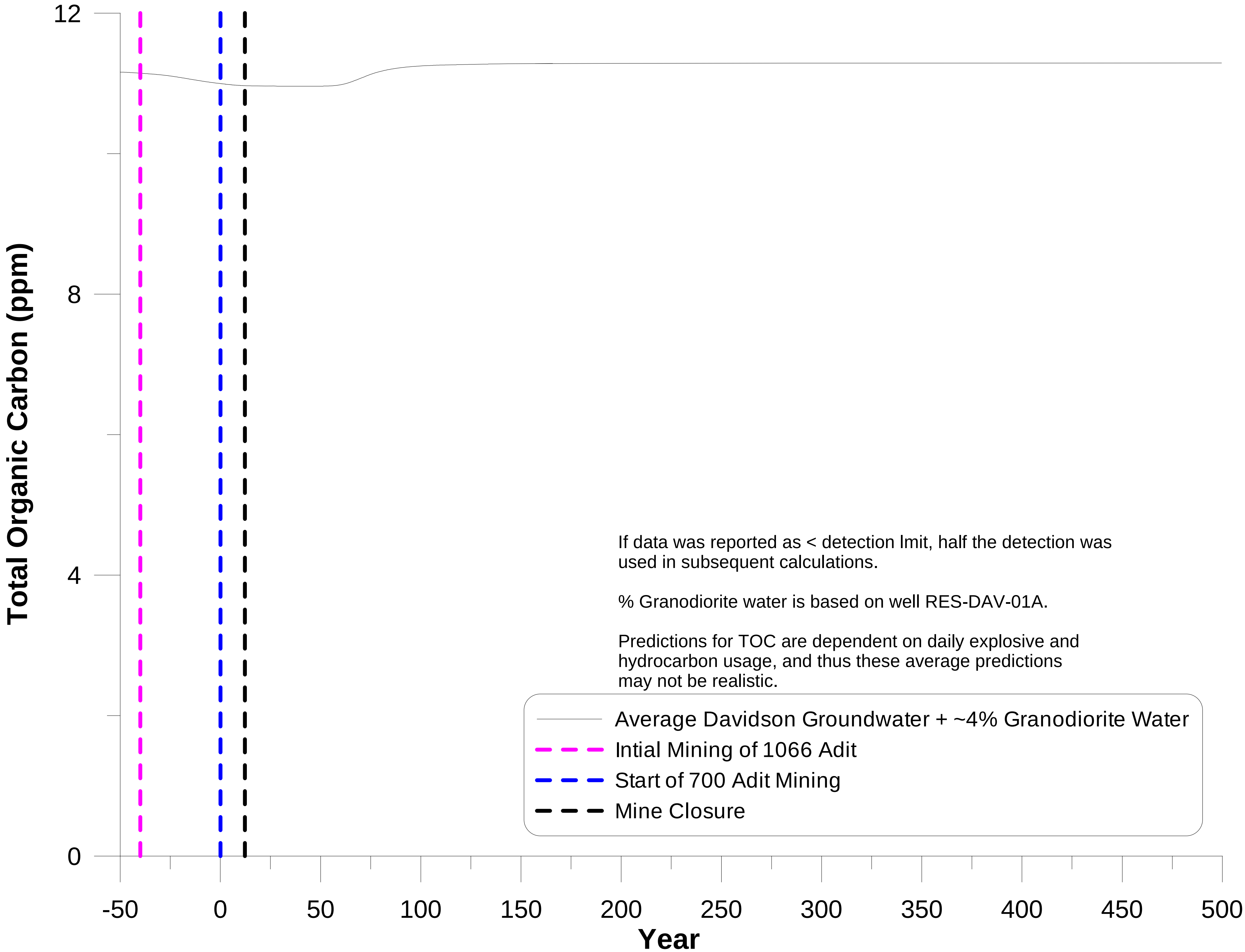
2
1
0
-1
-2
Ammonia Nitrogen (N ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



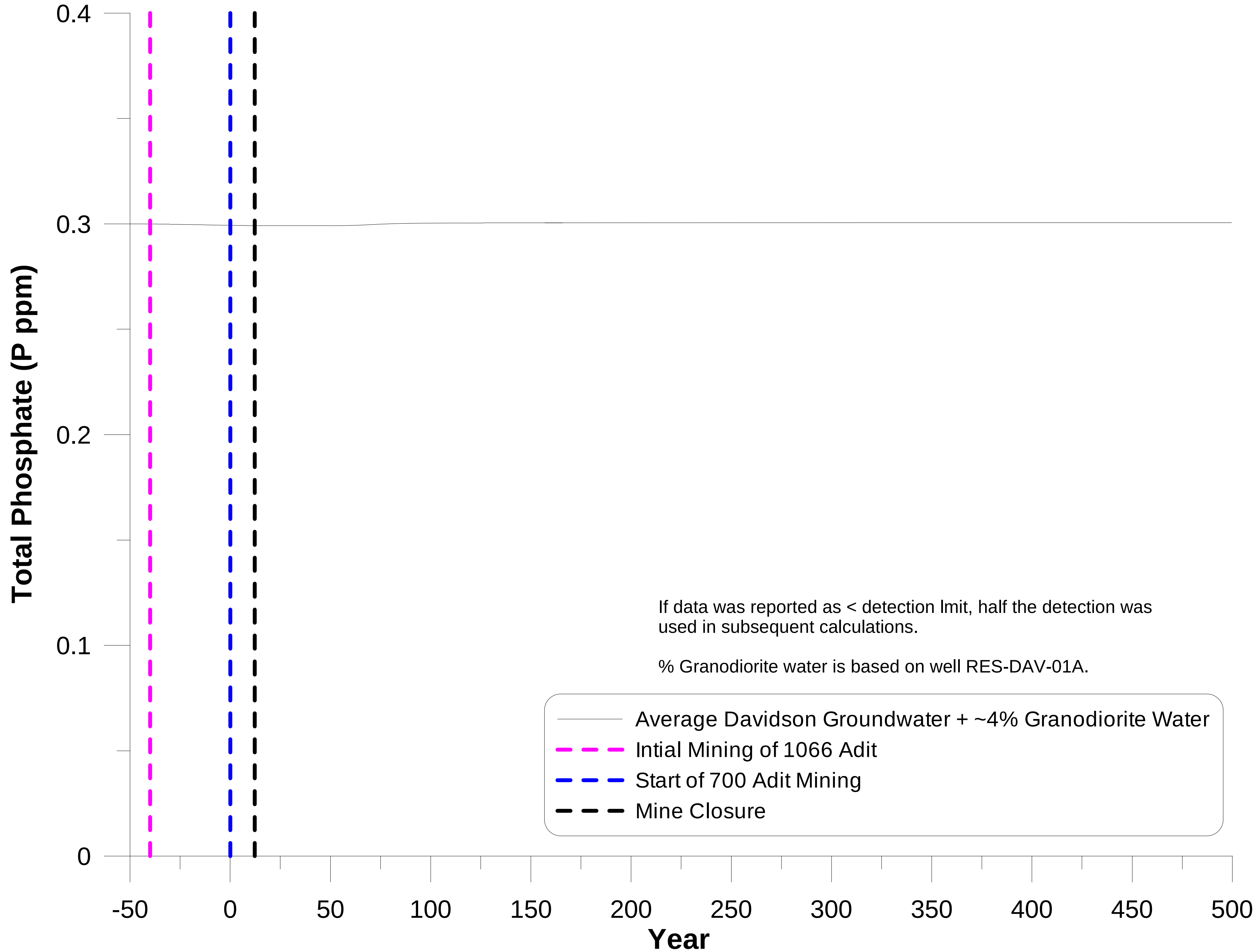
Nitrate Nitrogen (N ppm)
2
1
0
-1
-2
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



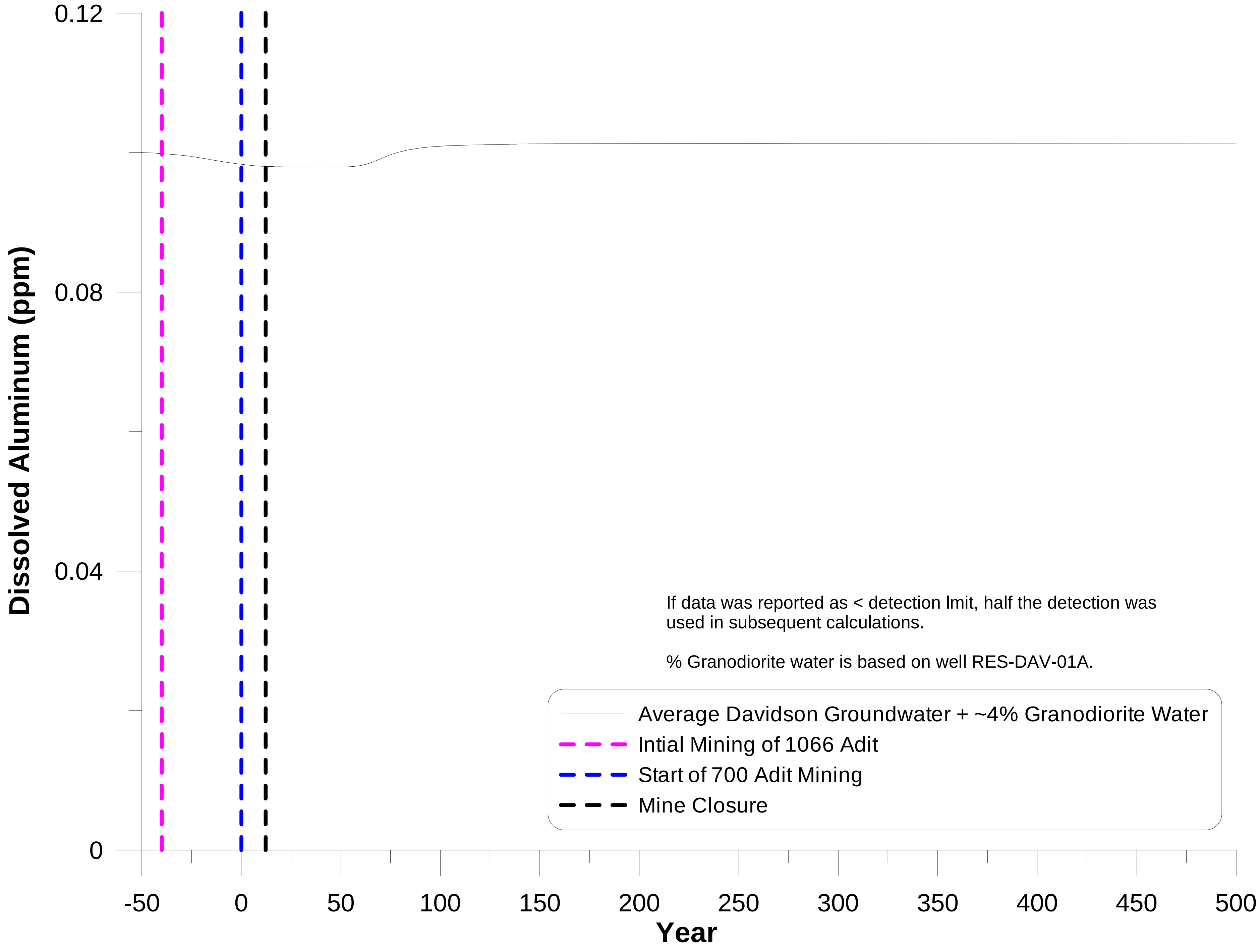
0.12
0.08
0.04
0
-0.04
-0.08
Nitrite Nitrogen (N ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

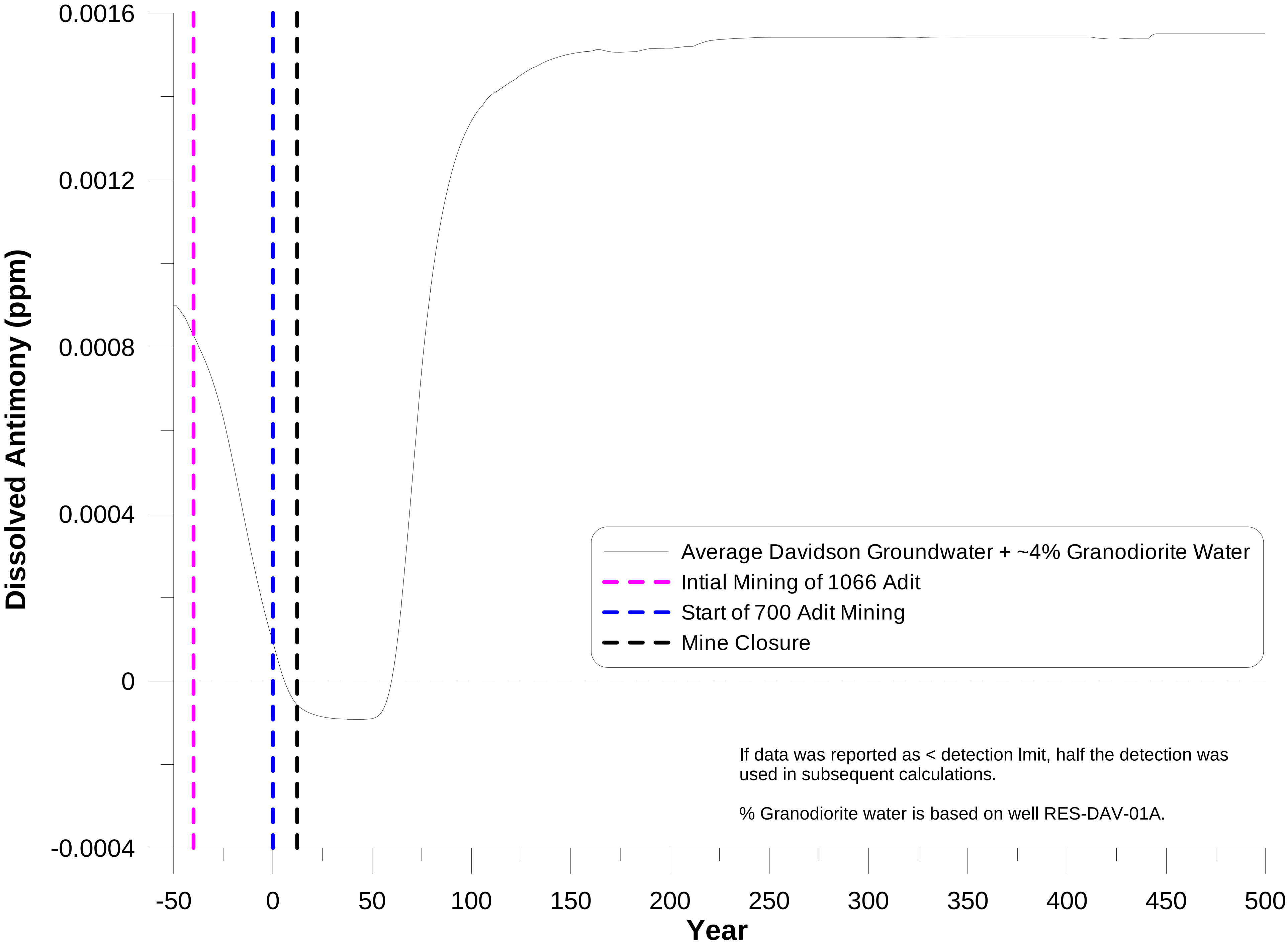


Total Organic Carbon (ppm)
12
8
4
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Predictions for TOC are dependent on daily explosive and hydrocarbon usage, and thus these average predictions may not be realistic.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

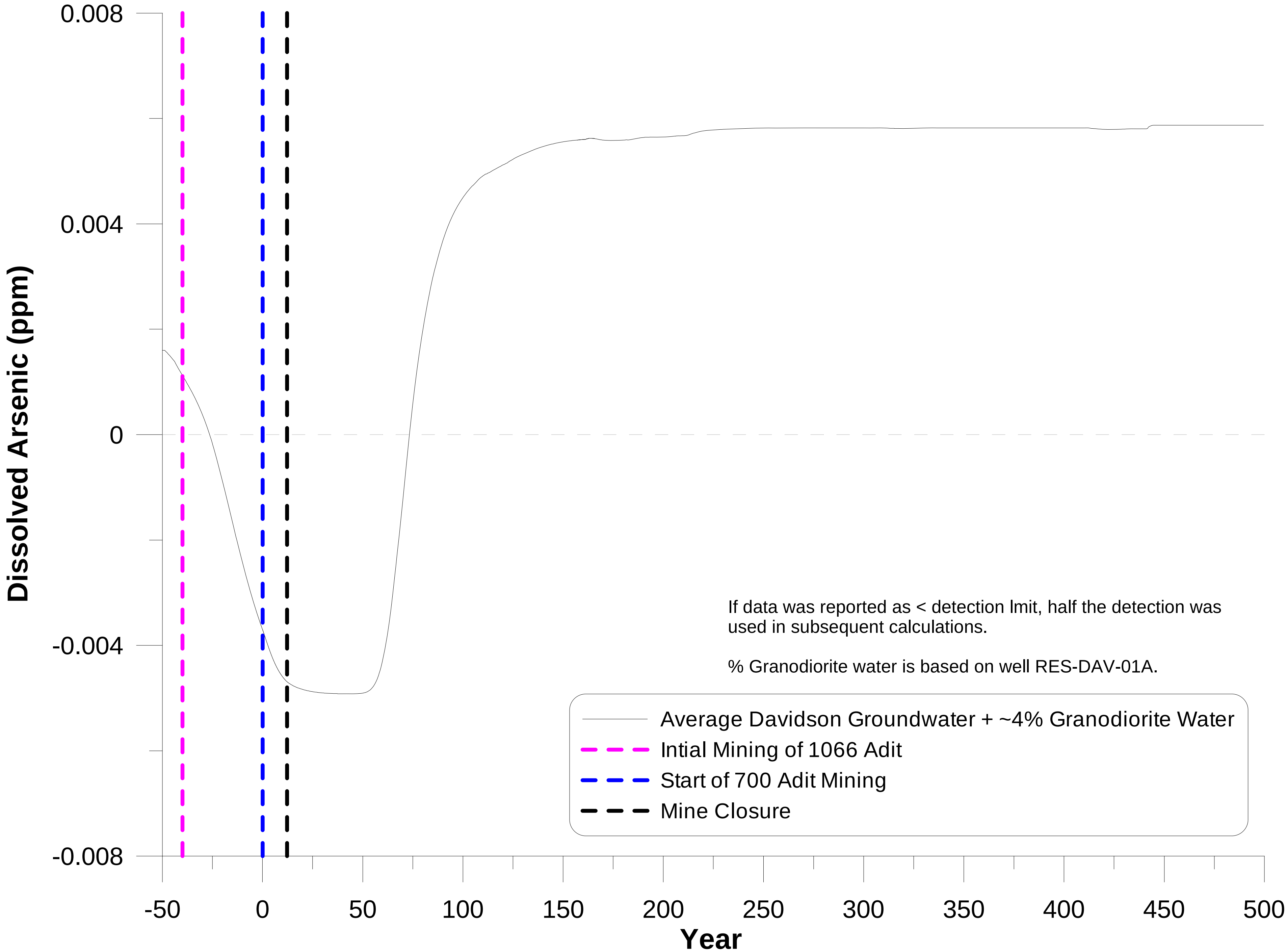


0.4
0.3
0.2
0.1
0
Total Phosphate (P ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

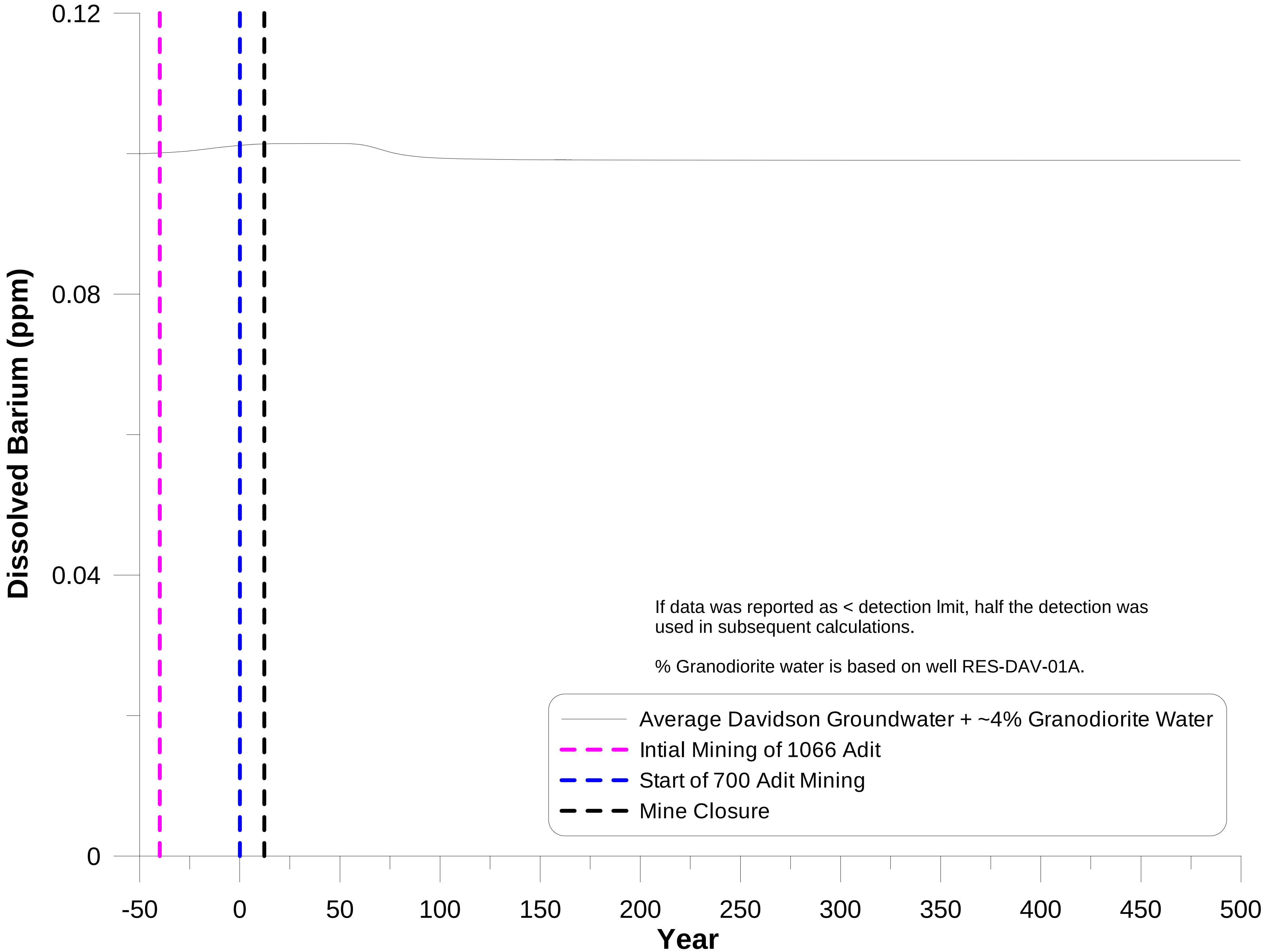

0.12
0.08
0.04
0
Dissolved Aluminum (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



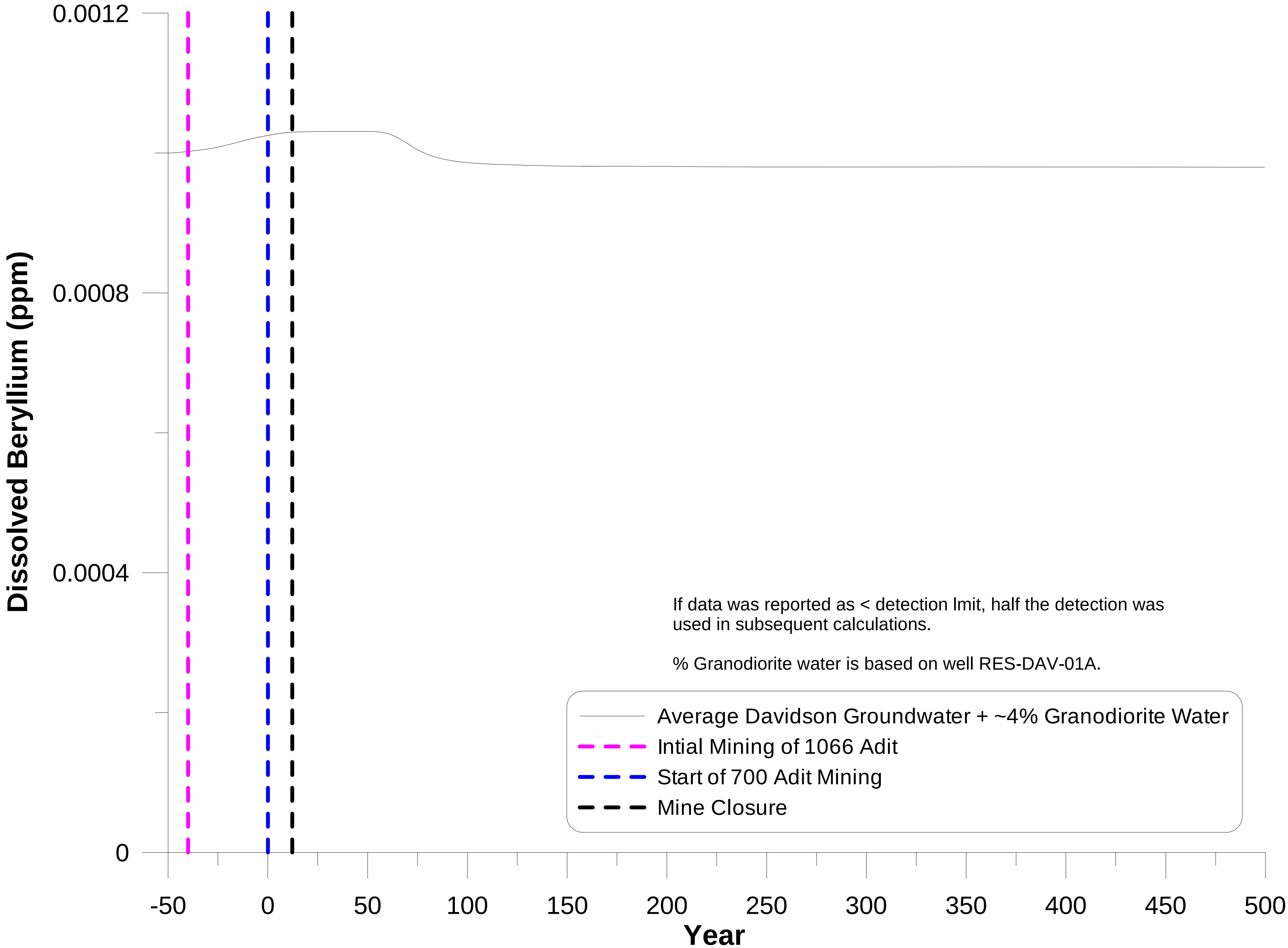
Dissolved Antimony (ppm)
0.0016
0.0012
0.0008
0.0004
0
-0.0004
-50
0
50
100
150
200
250
300
350
400
450
500
Year
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.

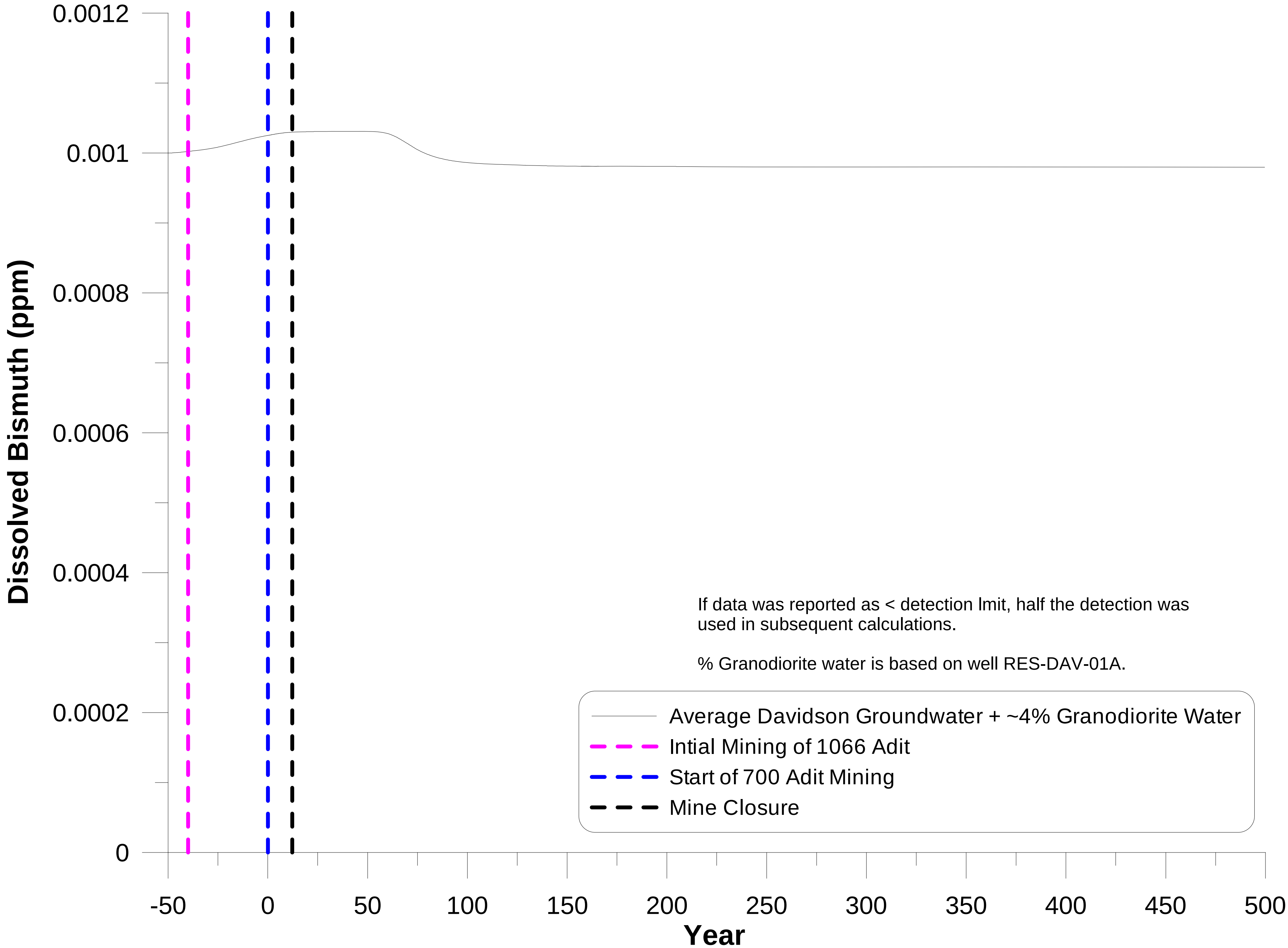


0.008
0.004
0
-0.004
-0.008
Dissolved Arsenic (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

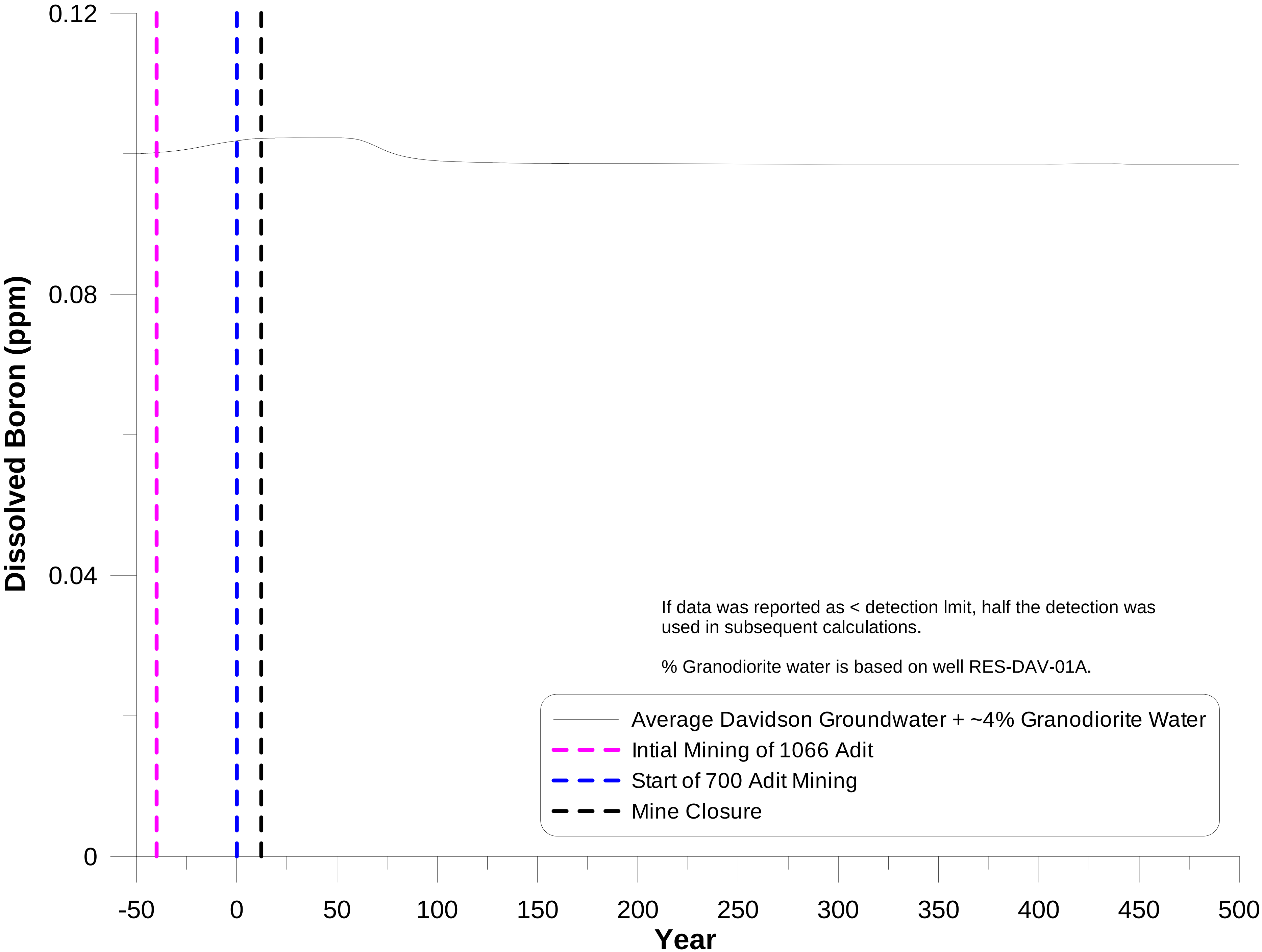


Dissolved Barium (ppm)
0.12
0.08
0.04
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

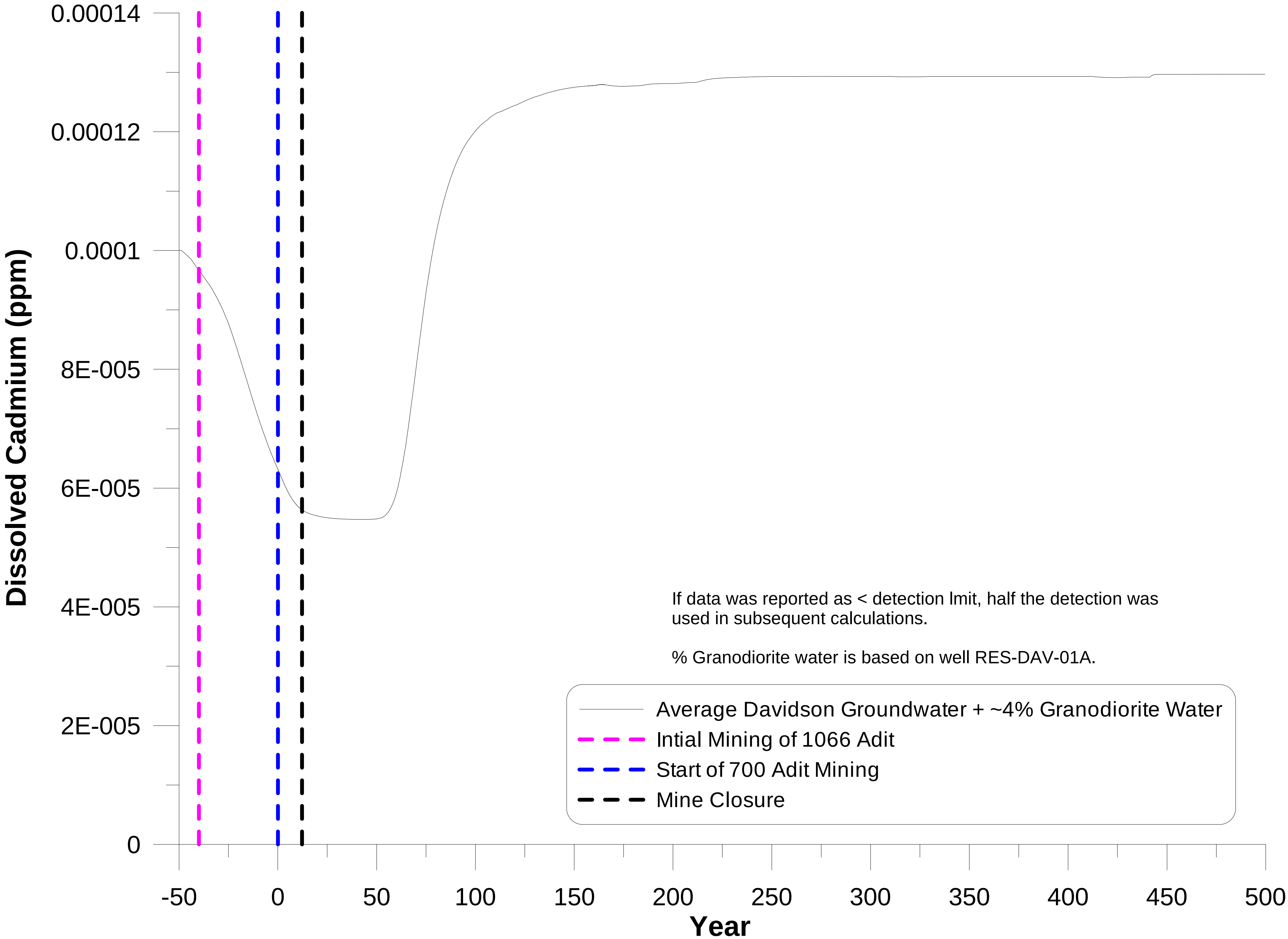

0.0012
0.0008
0.0004
0
Dissolved Beryllium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



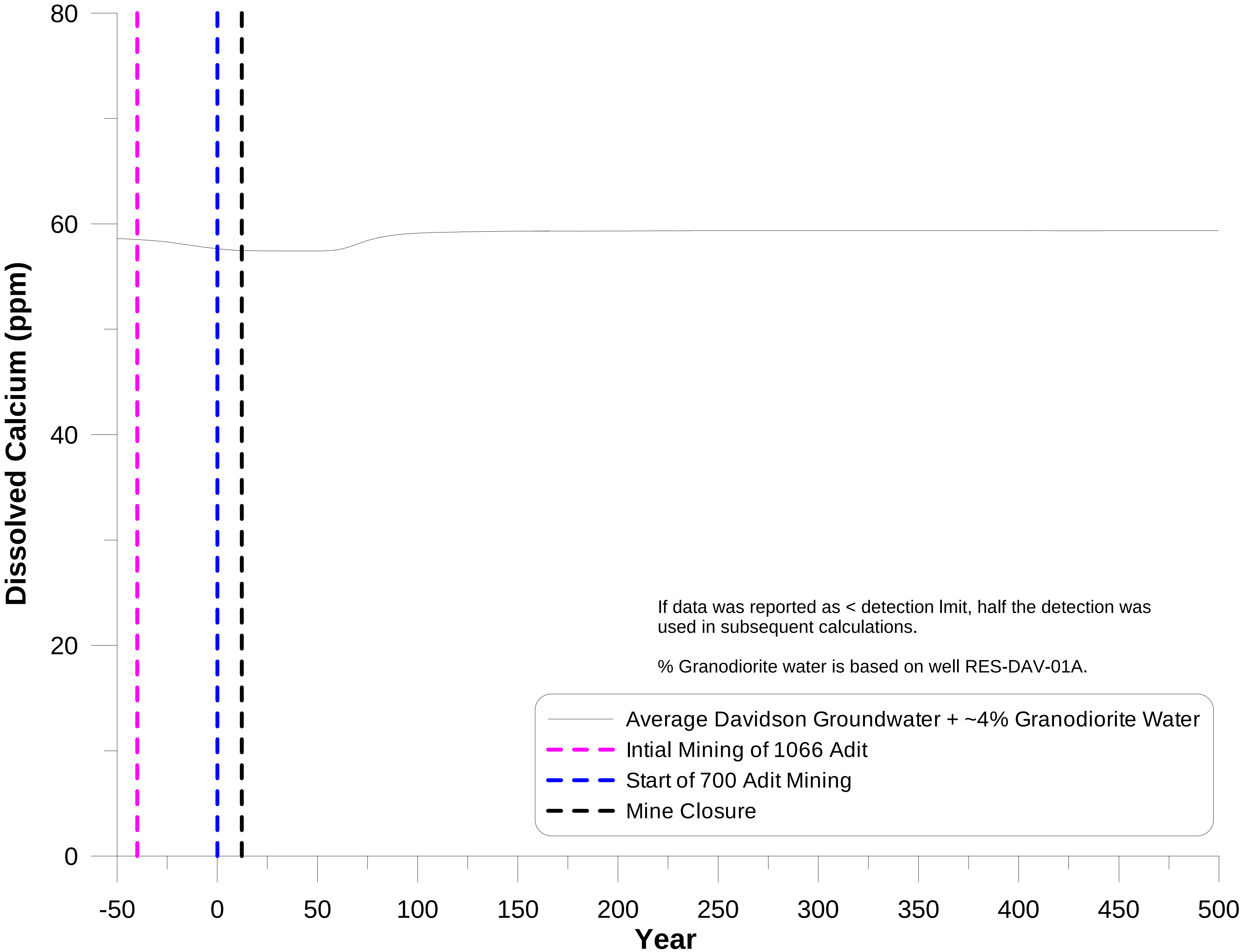
Dissolved Bismuth (ppm)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



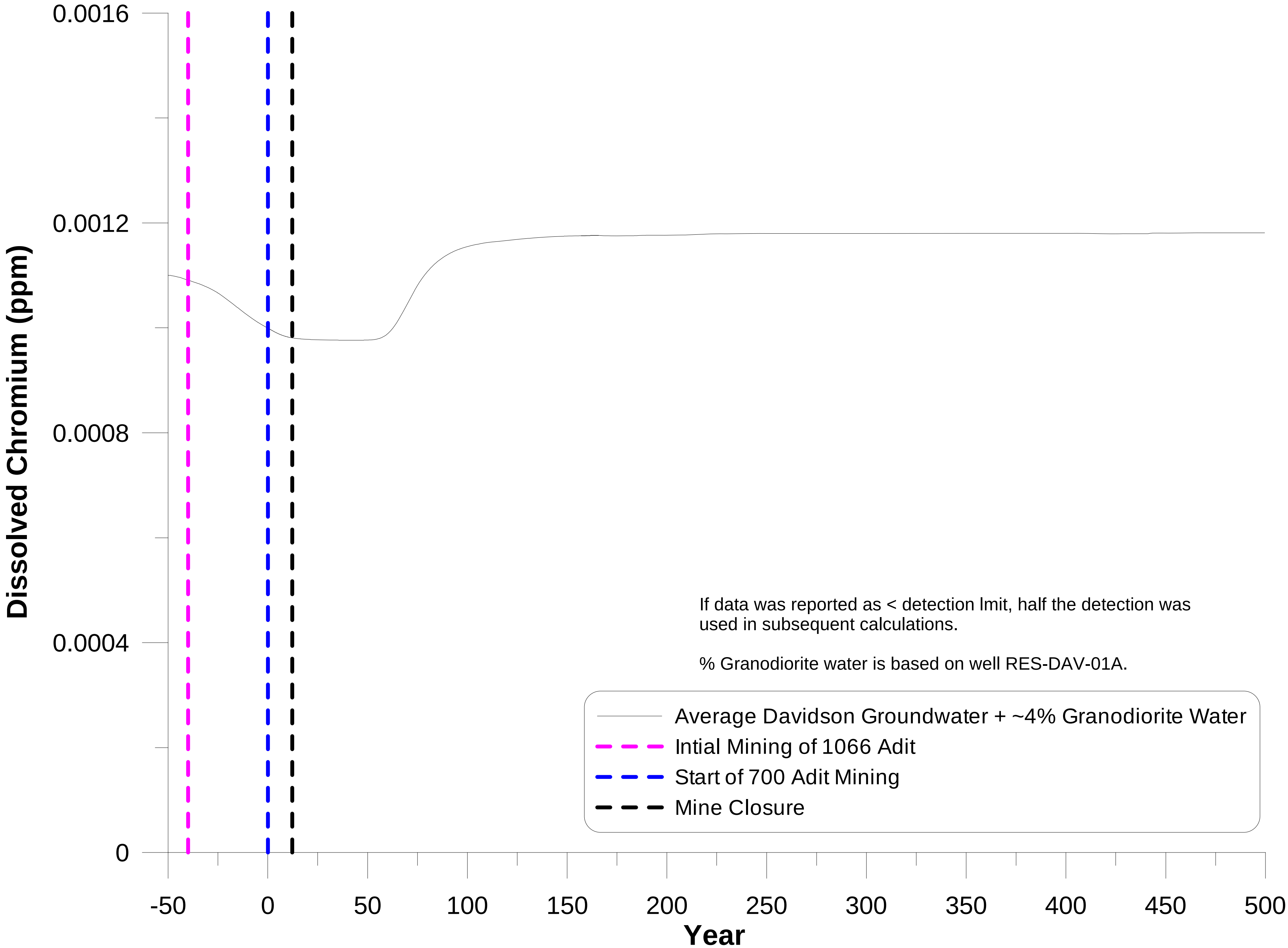
Dissolved Boron (ppm)
0.12
0.08
0.04
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



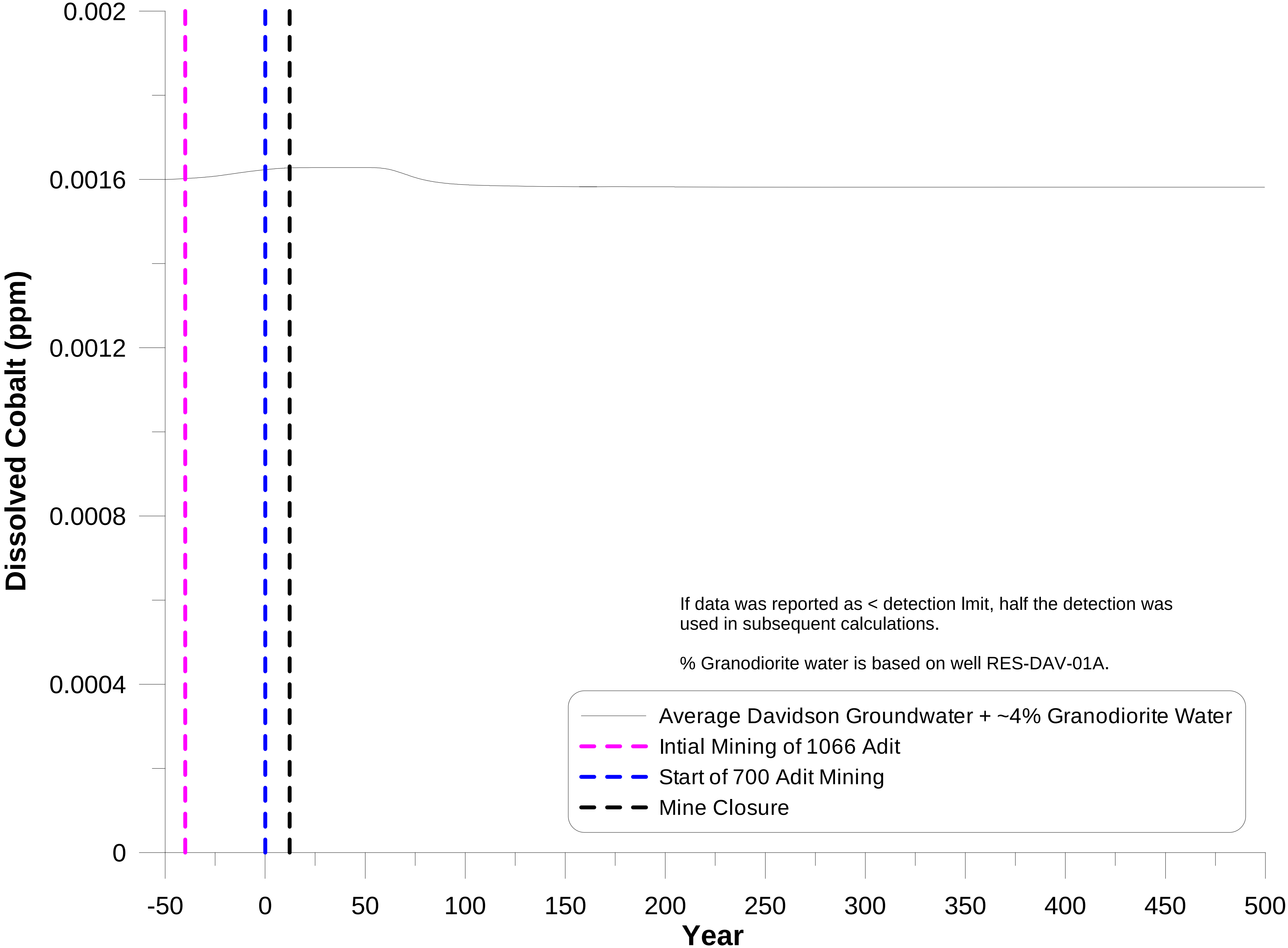
Dissolved Cadmium (ppm)
0.00014
0.00012
0.0001
8E-005
6E-005
4E-005
2E-005
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



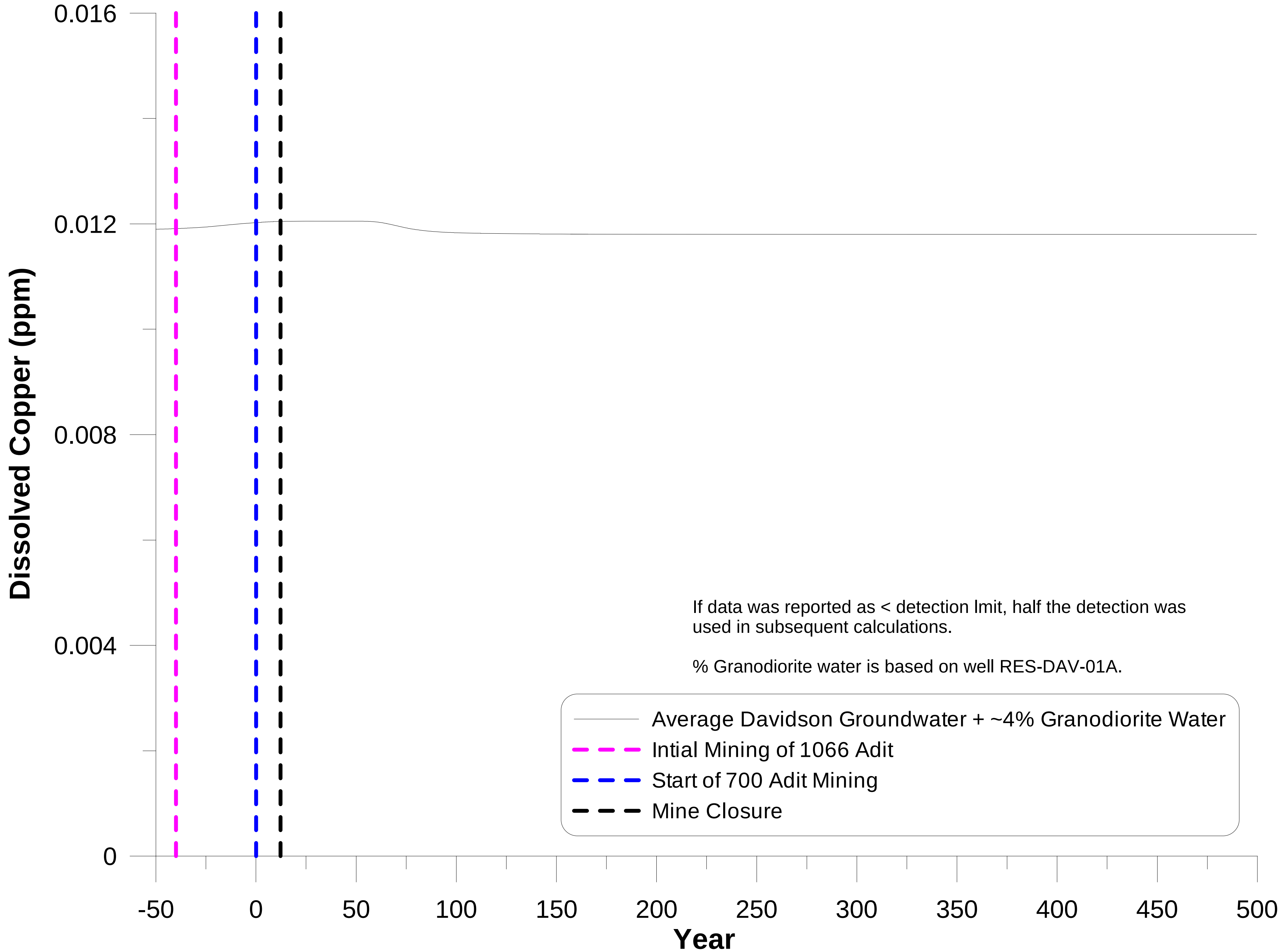
80
60
40
20
0
Dissolved Calcium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



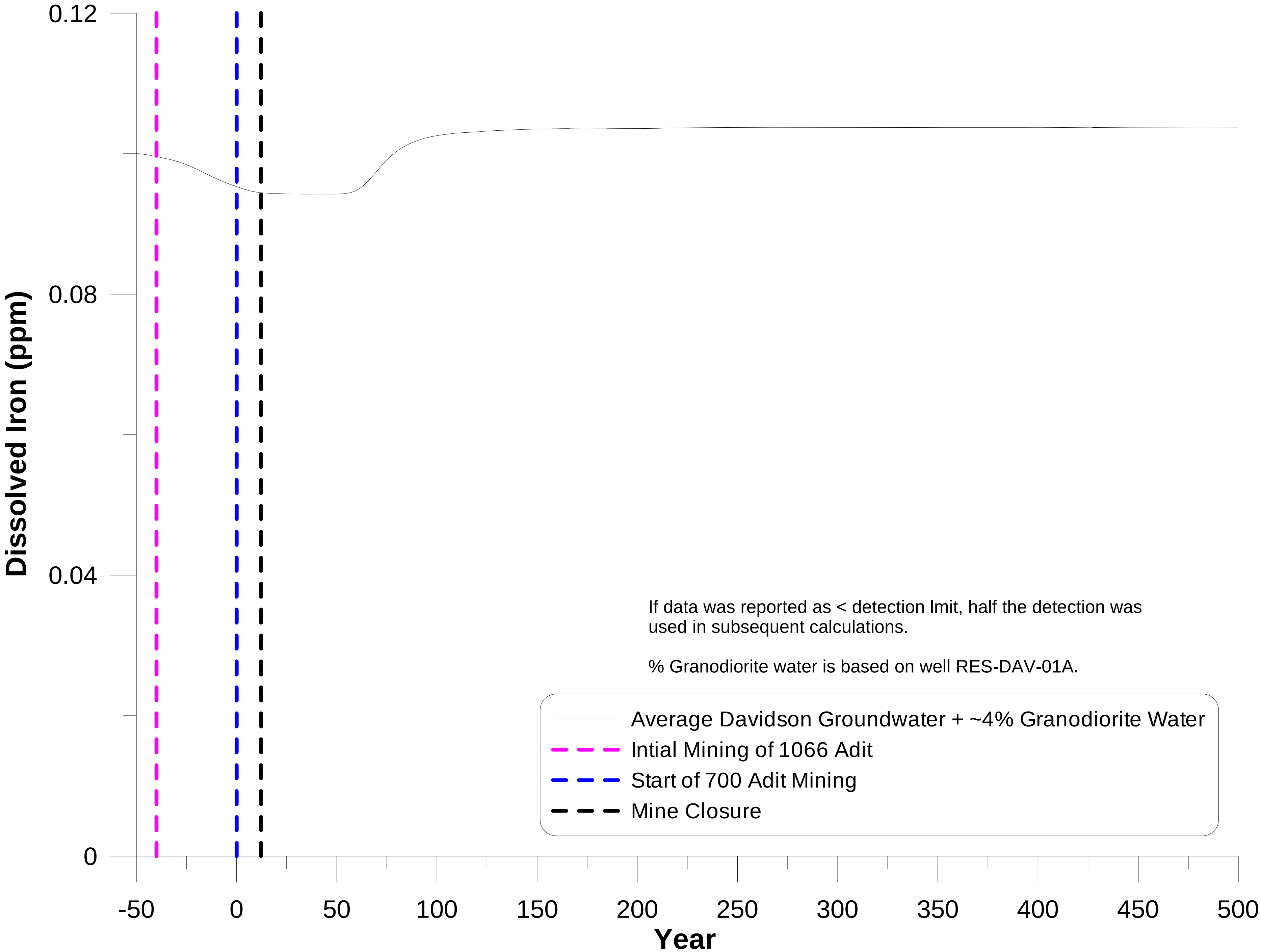
Dissolved Chromium (ppm)
0.0016
0.0012
0.0008
0.0004
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

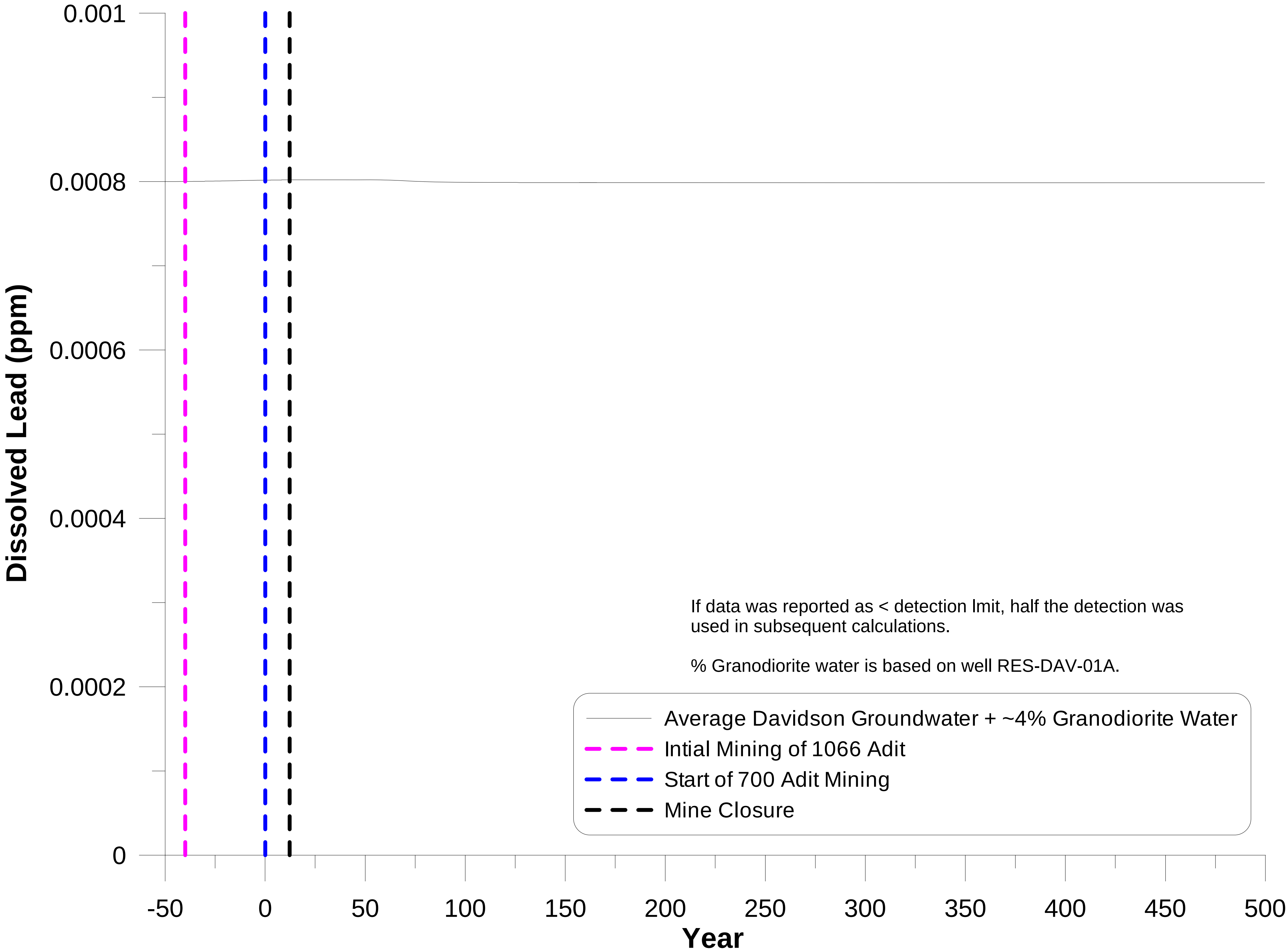


Dissolved Cobalt (ppm)
0.002
0.0016
0.0012
0.0008
0.0004
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

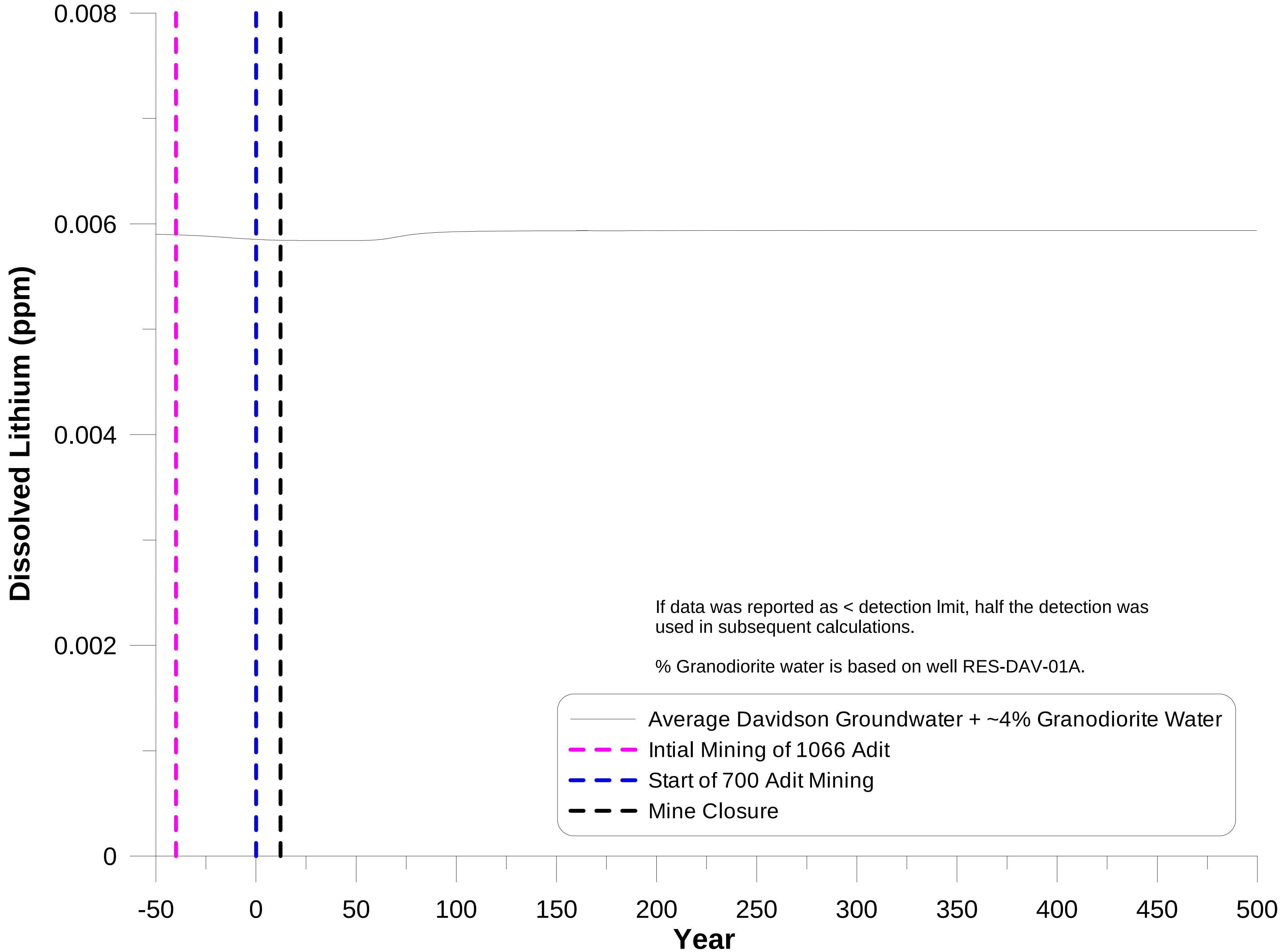


0.016
0.012
0.008
0.004
0
Dissolved Copper (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

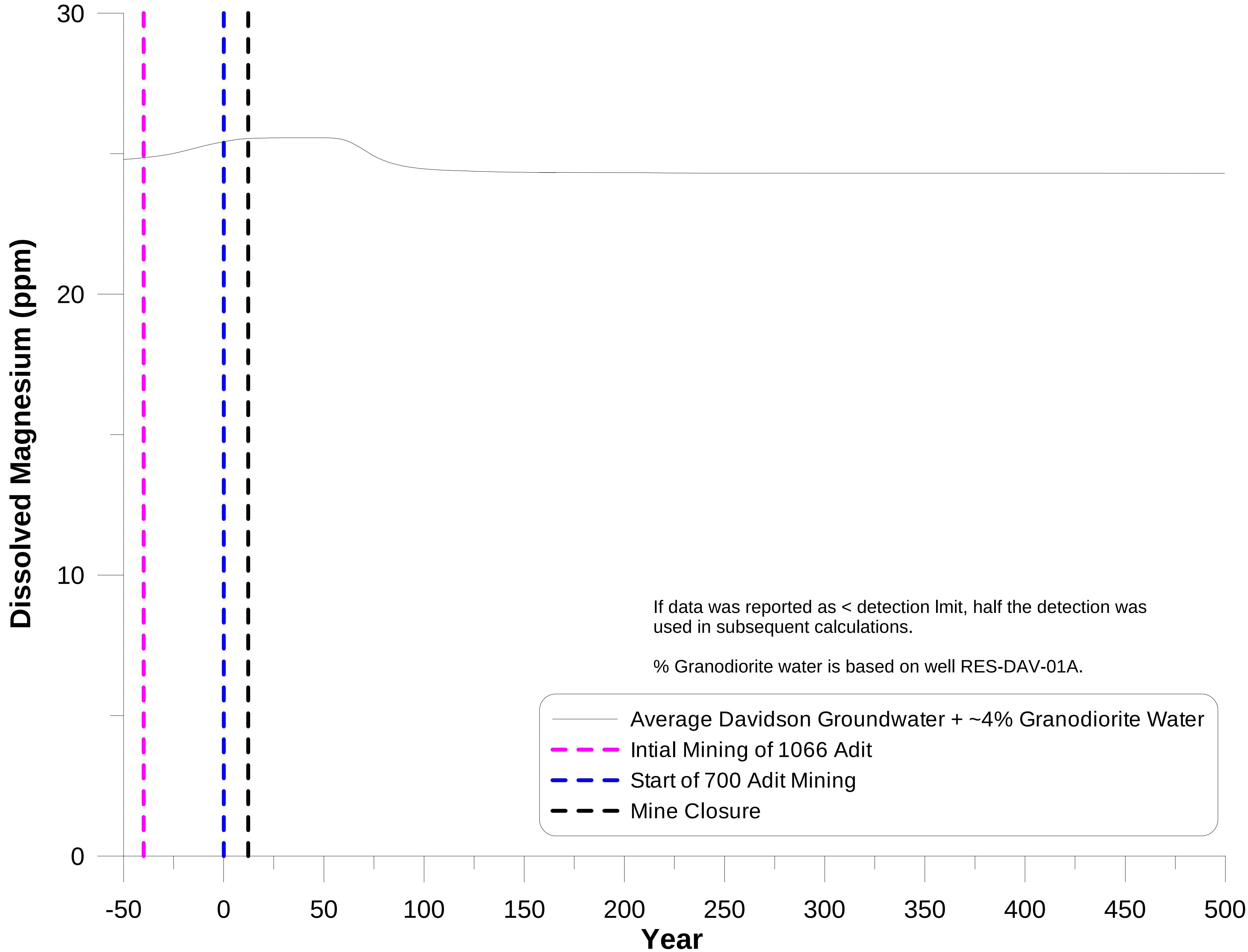

0.12
0.08
0.04
0
Dissolved Iron (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was
used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



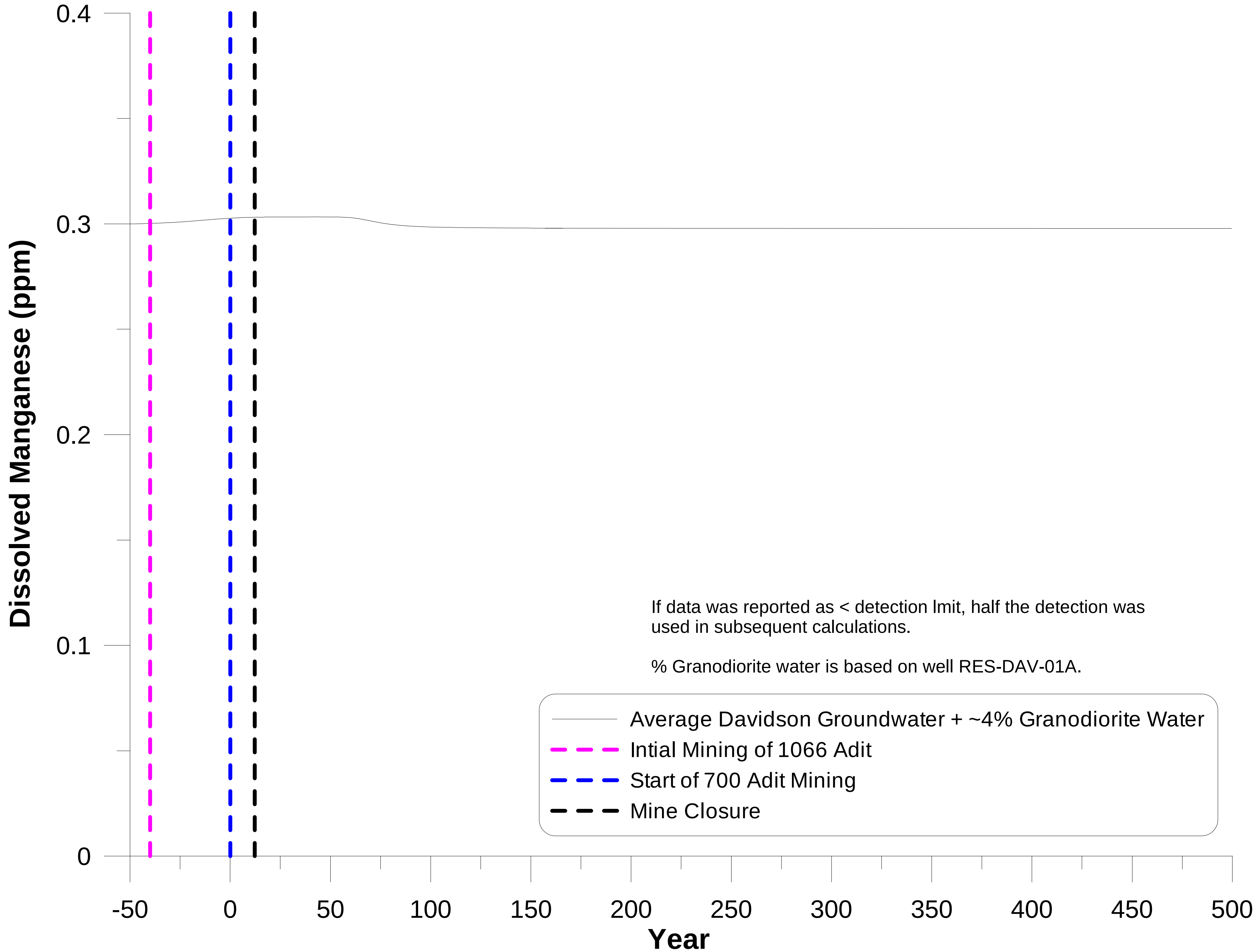
Dissolved Lead (ppm)
0.001
0.0008
0.0006
0.0004
0.0002
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

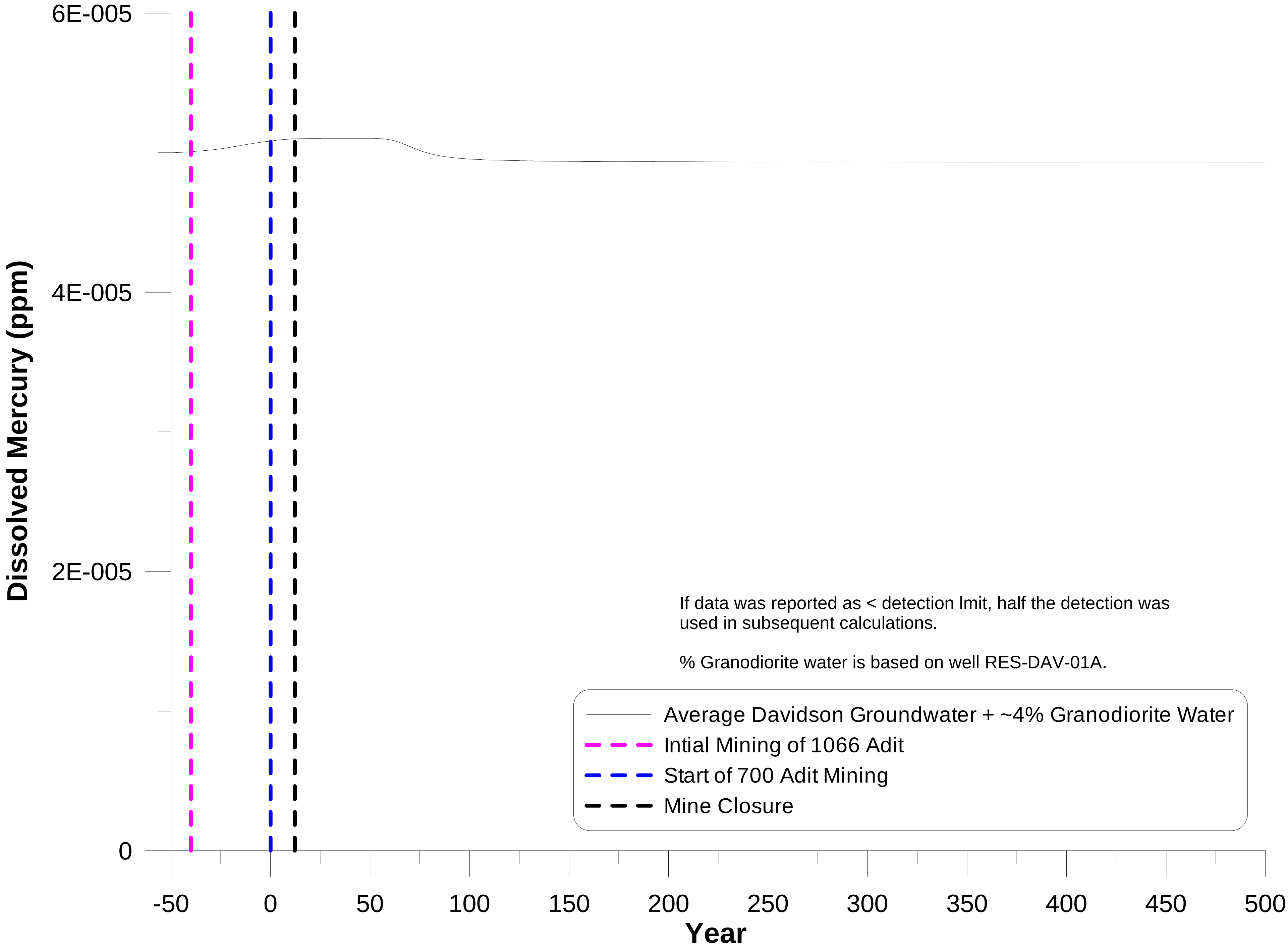


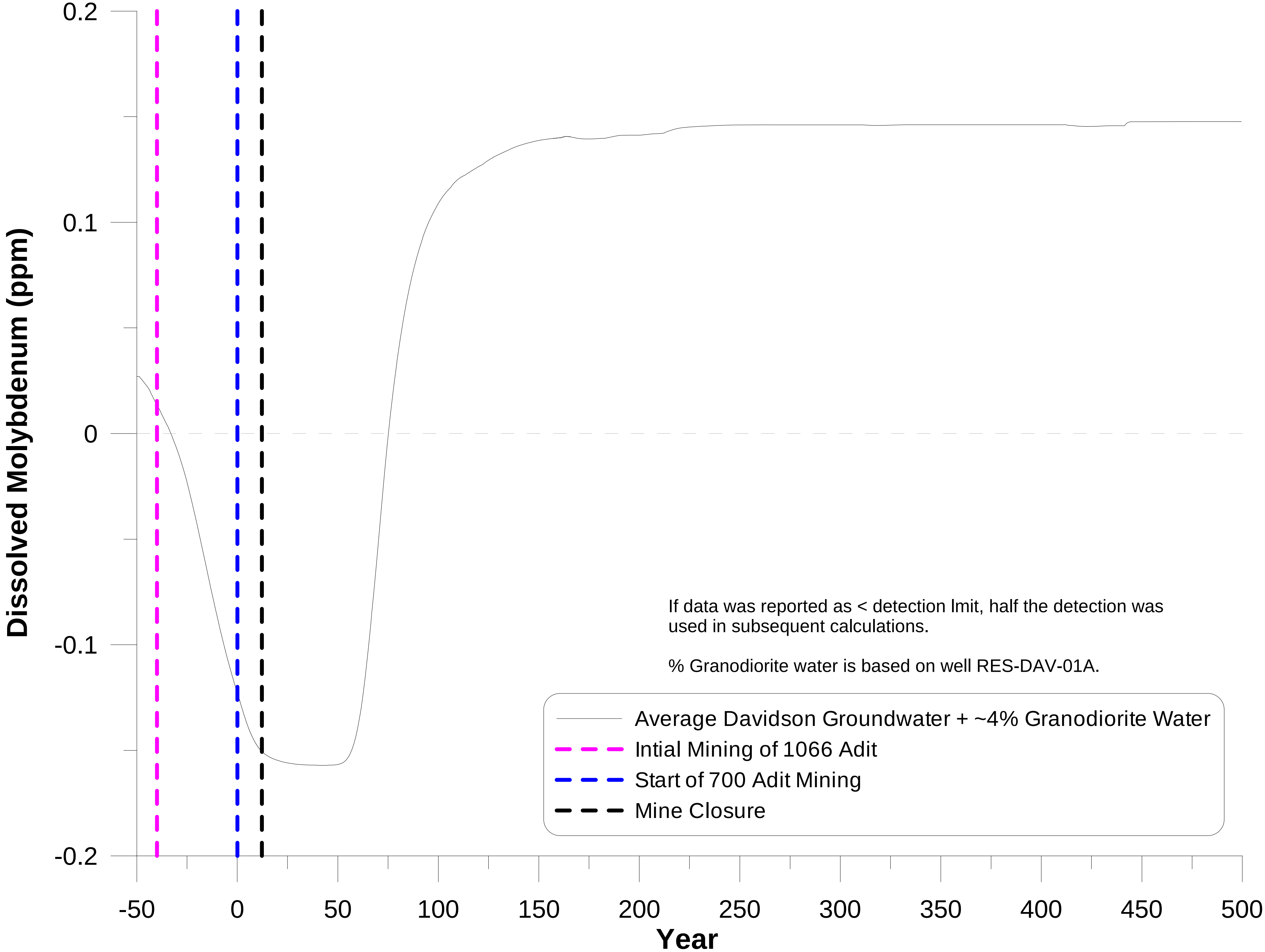
Dissolved Lithium (ppm)
0.008
0.006
0.004
0.002
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



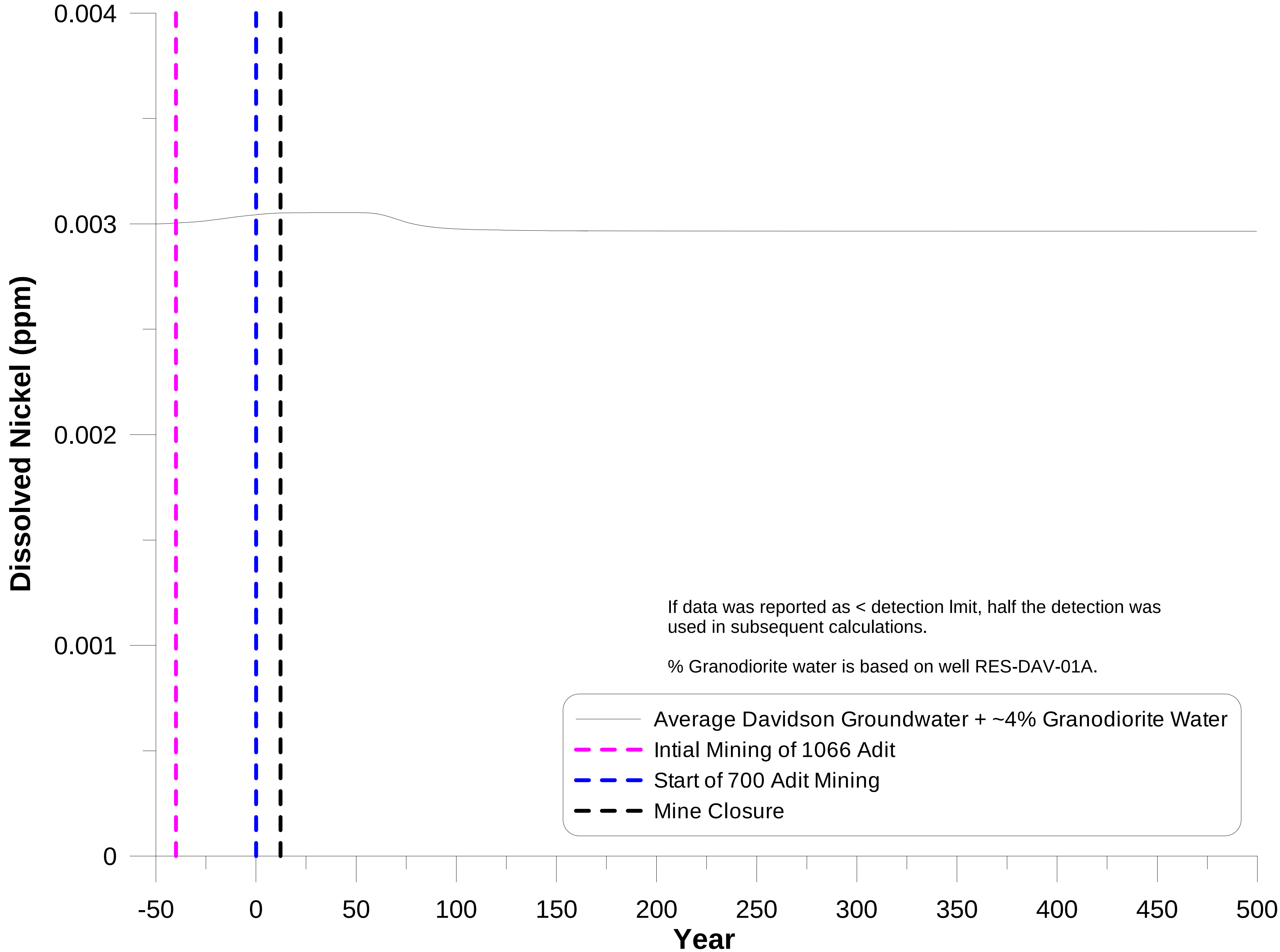
30
20
10
0
Dissolved Magnesium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure


0.4
0.3
0.2
0.1
0
Dissolved Manganese (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

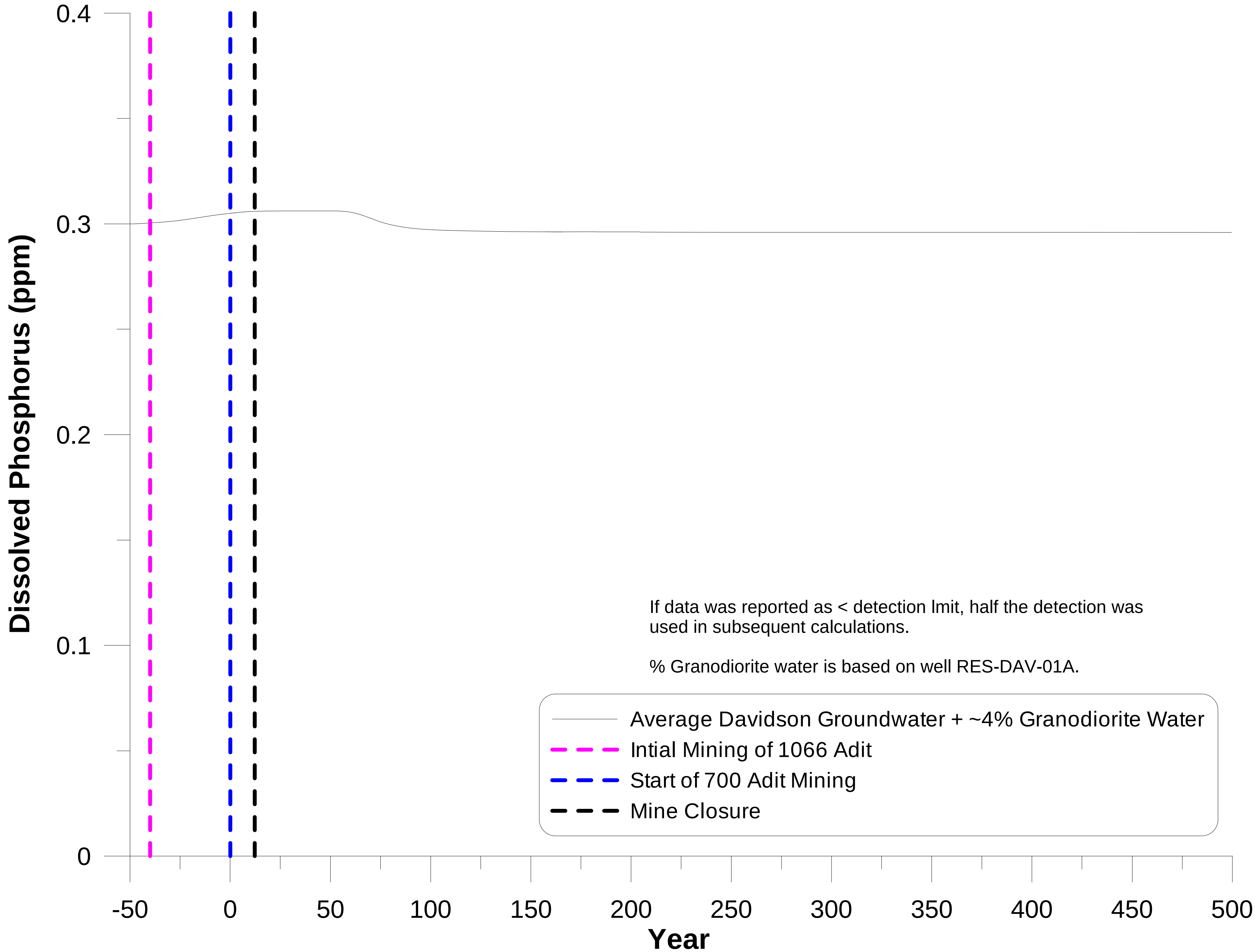

6E-005
4E-005
2E-005
0
Dissolved Mercury (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

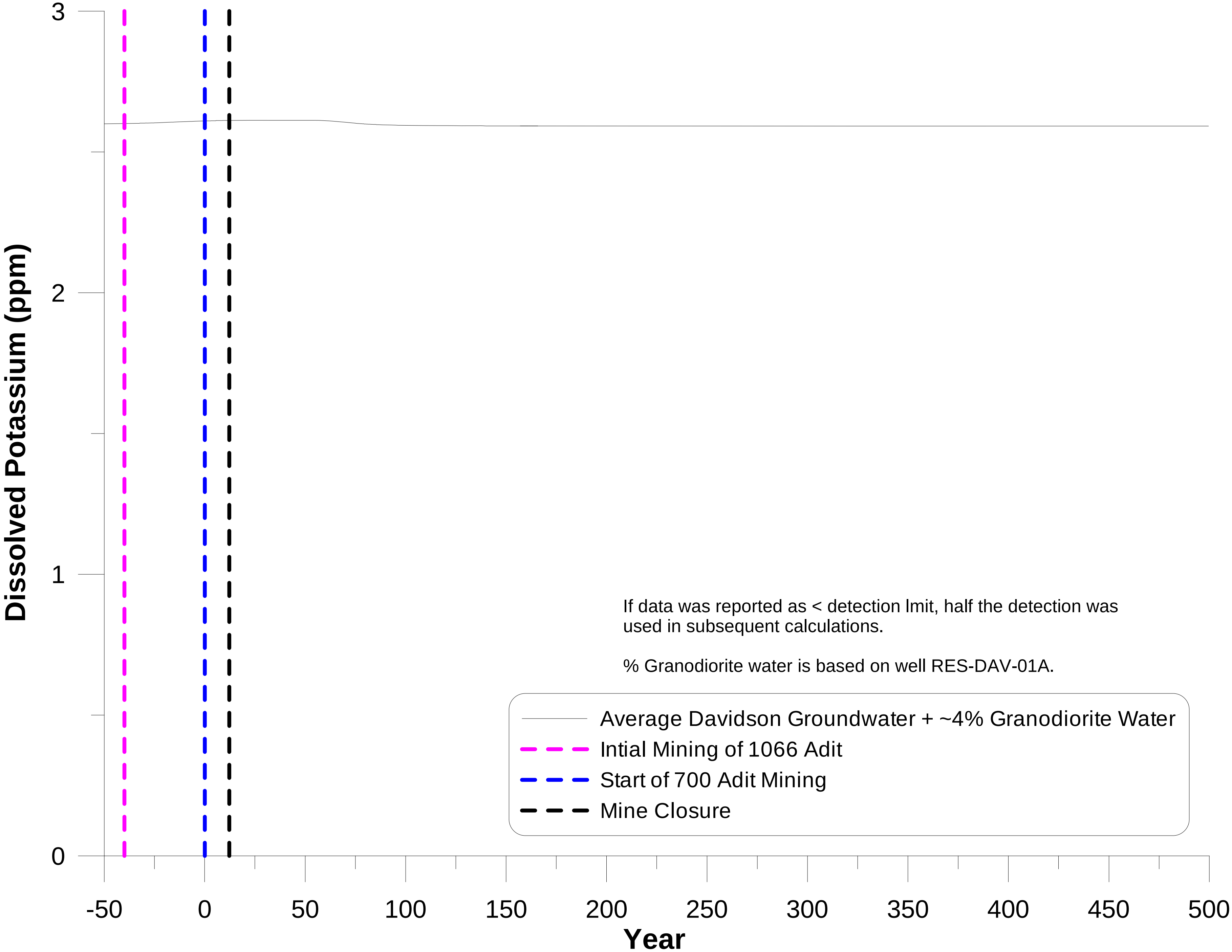


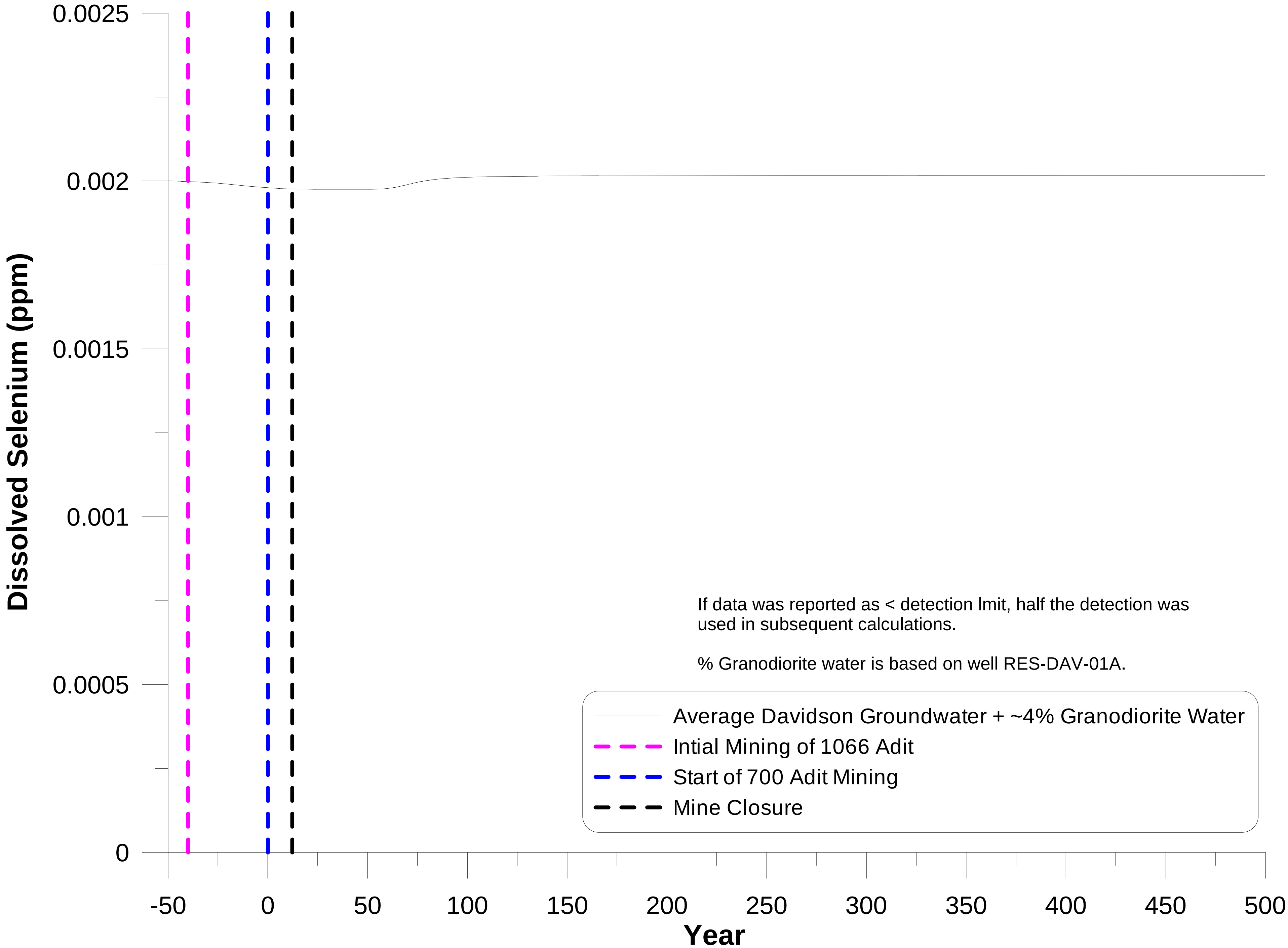
0.2
0.1
0
-0.1
-0.2
Dissolved Molybdenum (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



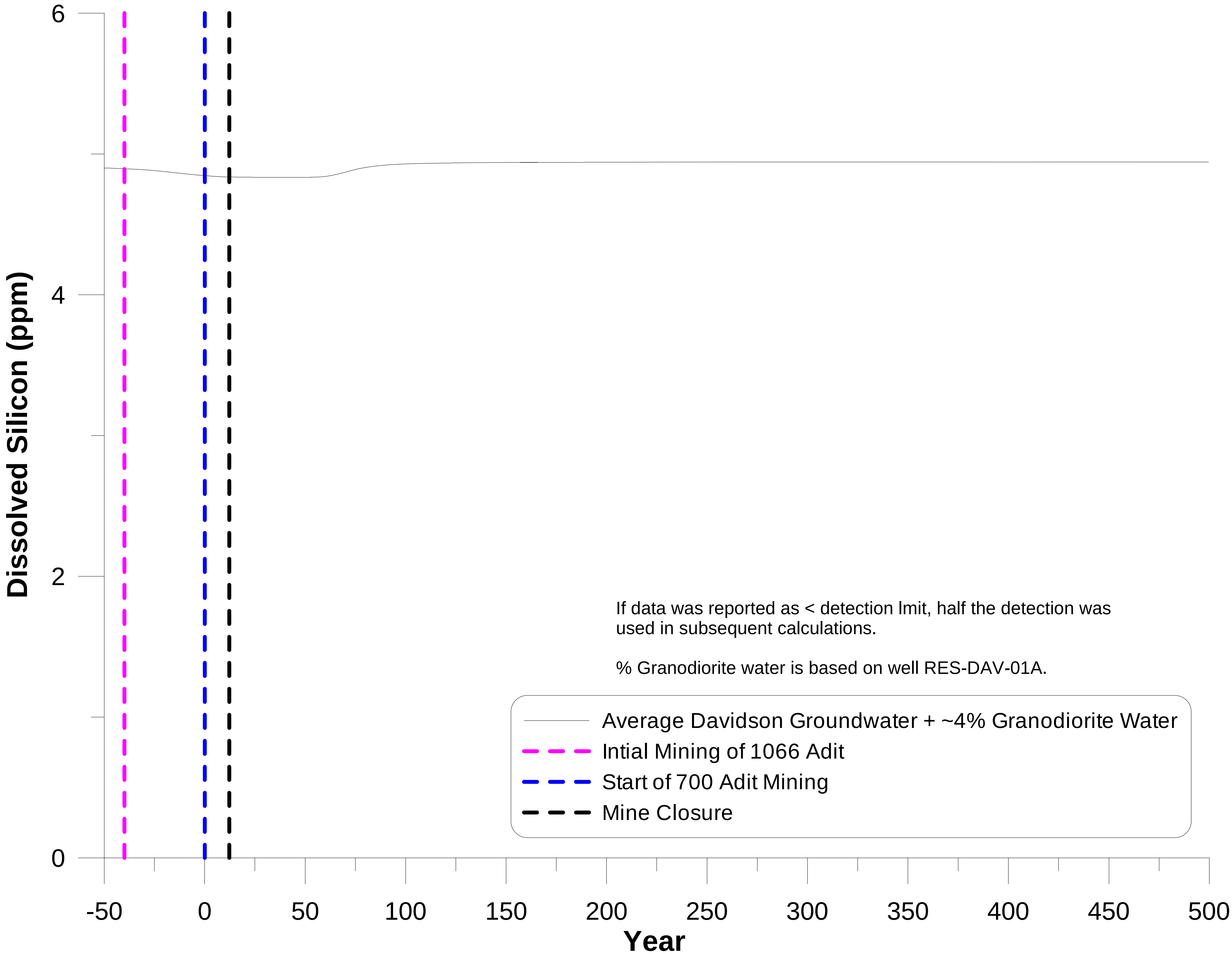
0.004
0.003
0.002
0.001
0
Dissolved Nickel (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure


0.4
0.3
0.2
0.1
0
Dissolved Phosphorus (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

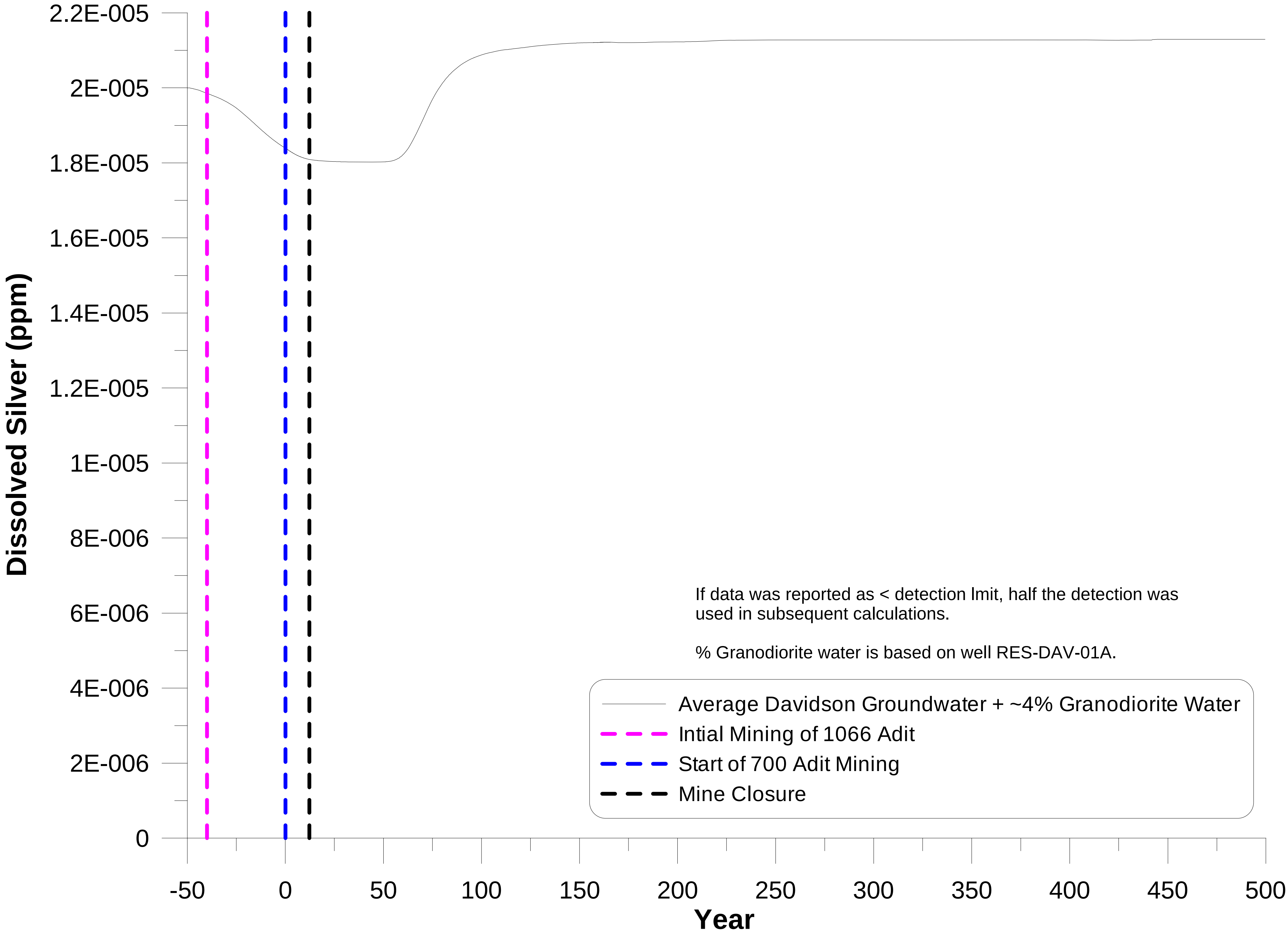

Dissolved Potassium (ppm)
3
2
1
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



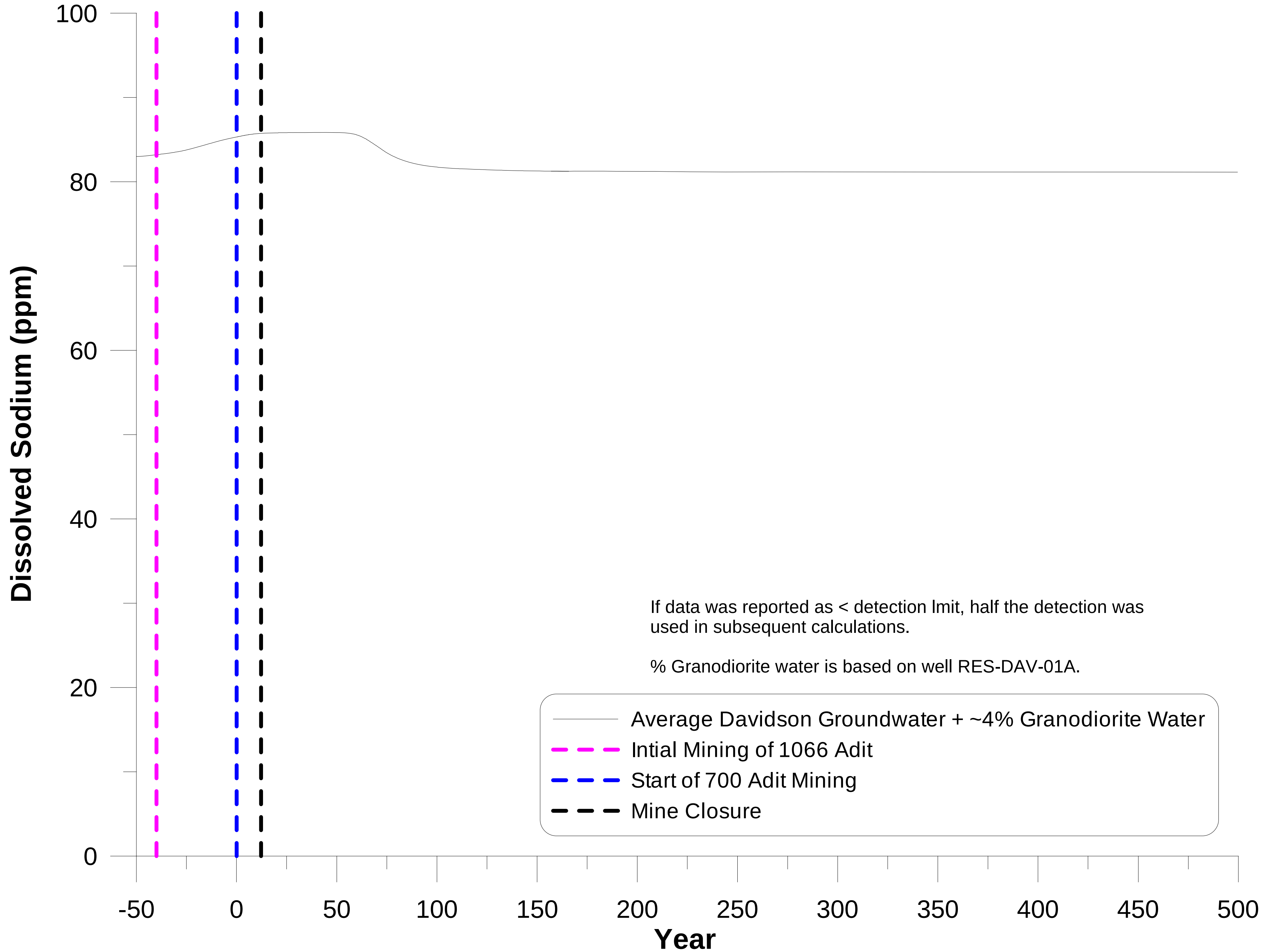
Dissolved Selenium (ppm)
0.0025
0.002
0.0015
0.001
0.0005
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



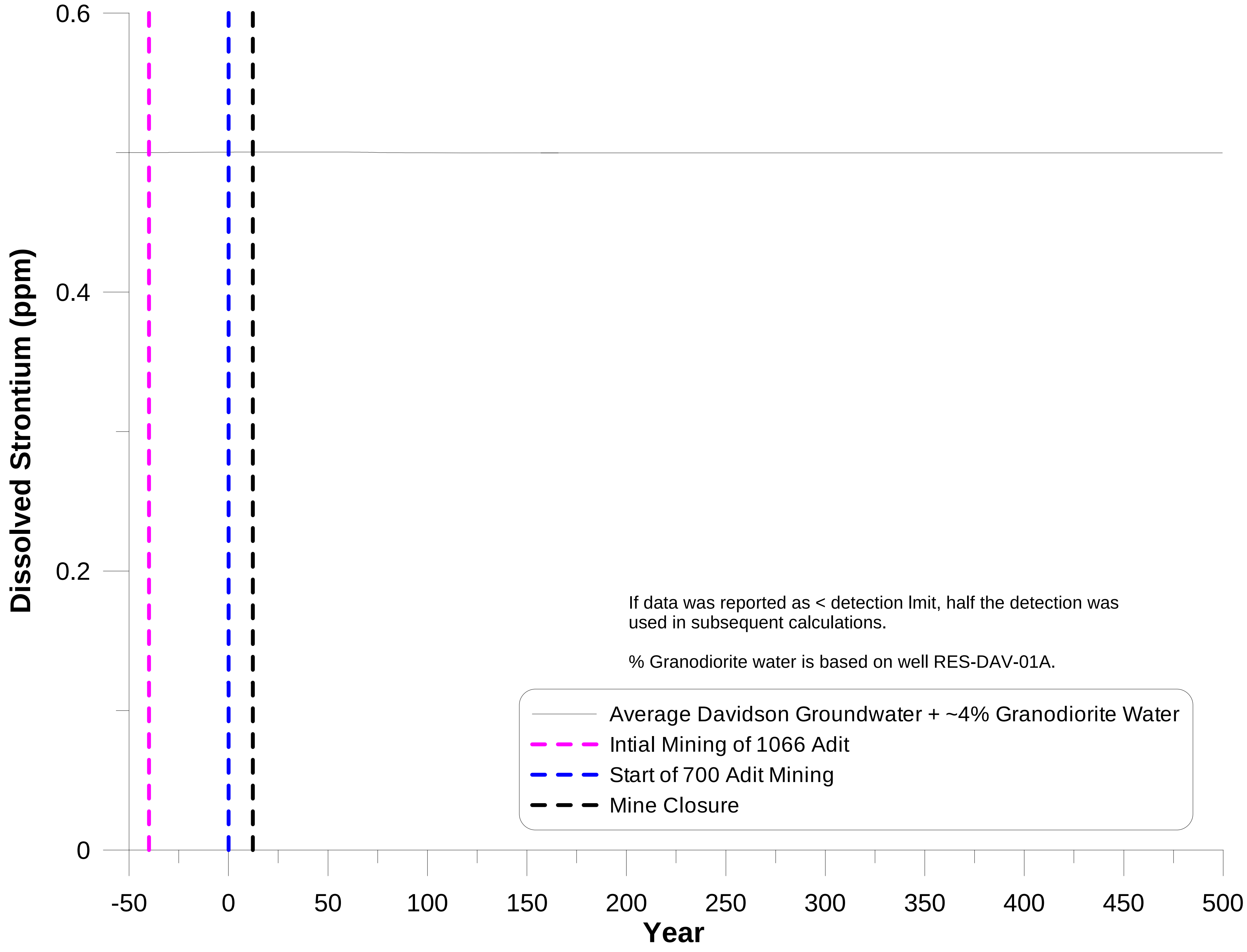
Dissolved Silicon (ppm)
6
4
2
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

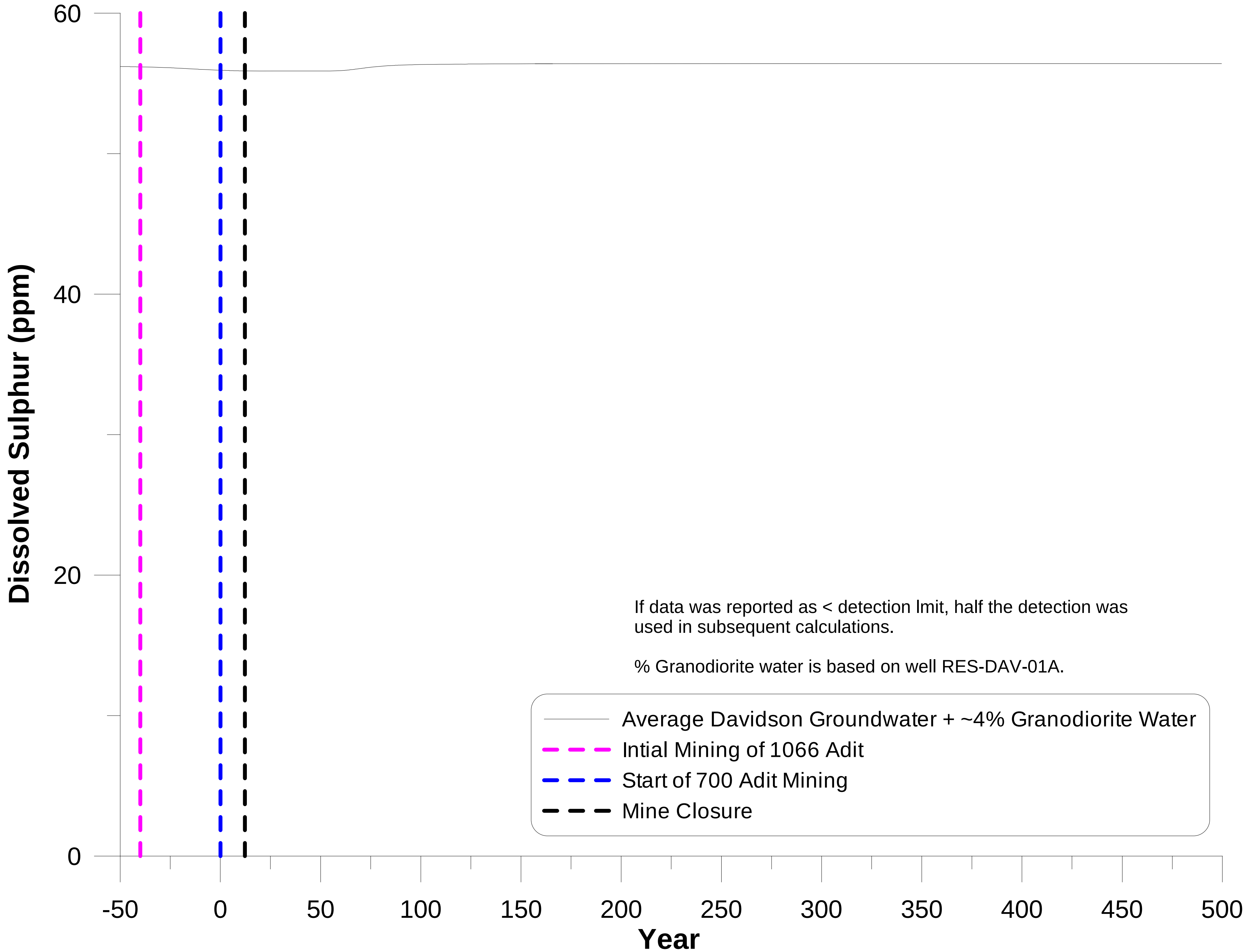


Dissolved Silver (ppm)
2.2E-005
2E-005
1.8E-005
1.6E-005
1.4E-005
1.2E-005
1E-005
8E-006
6E-006
4E-006
2E-006
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

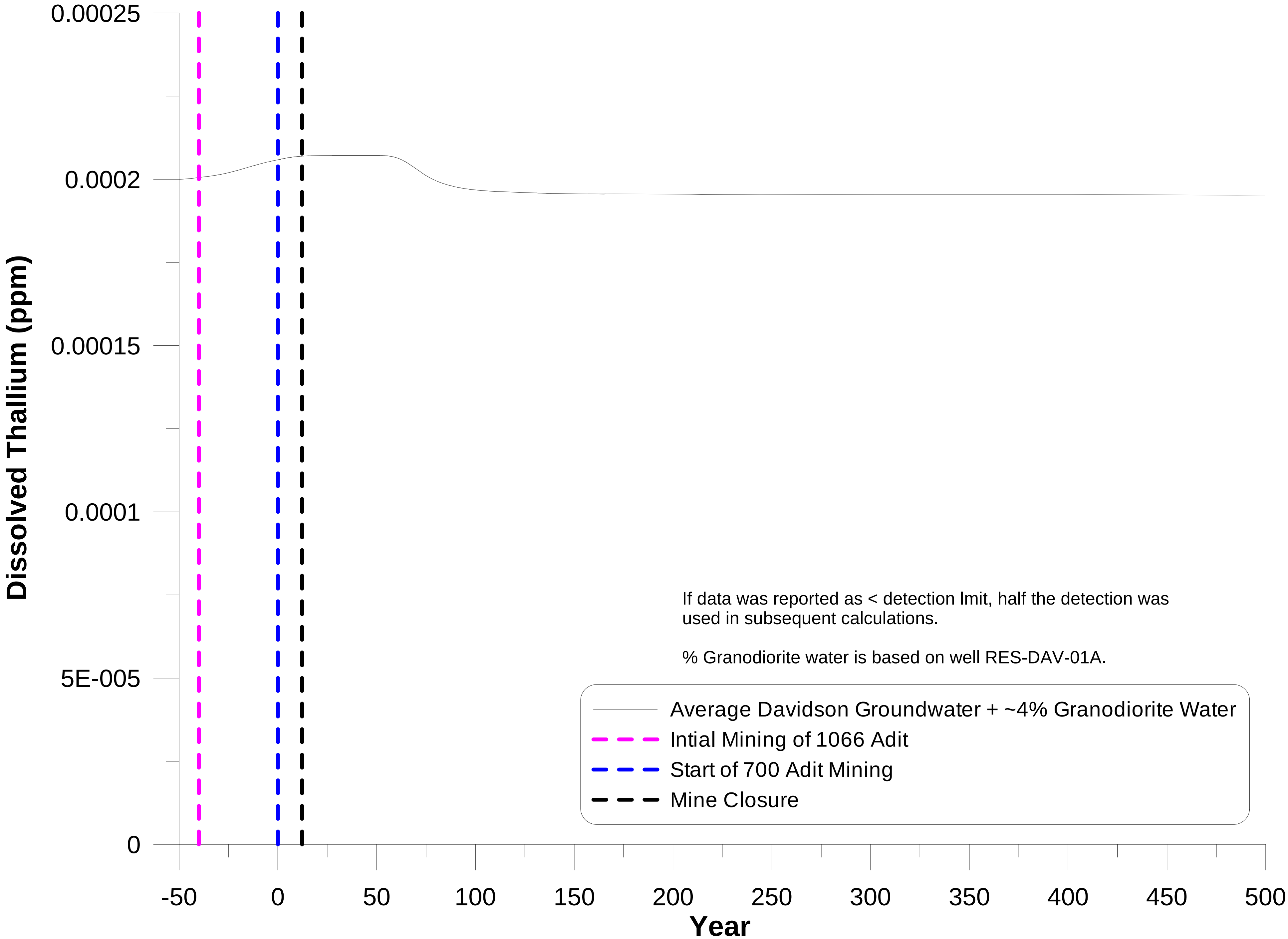


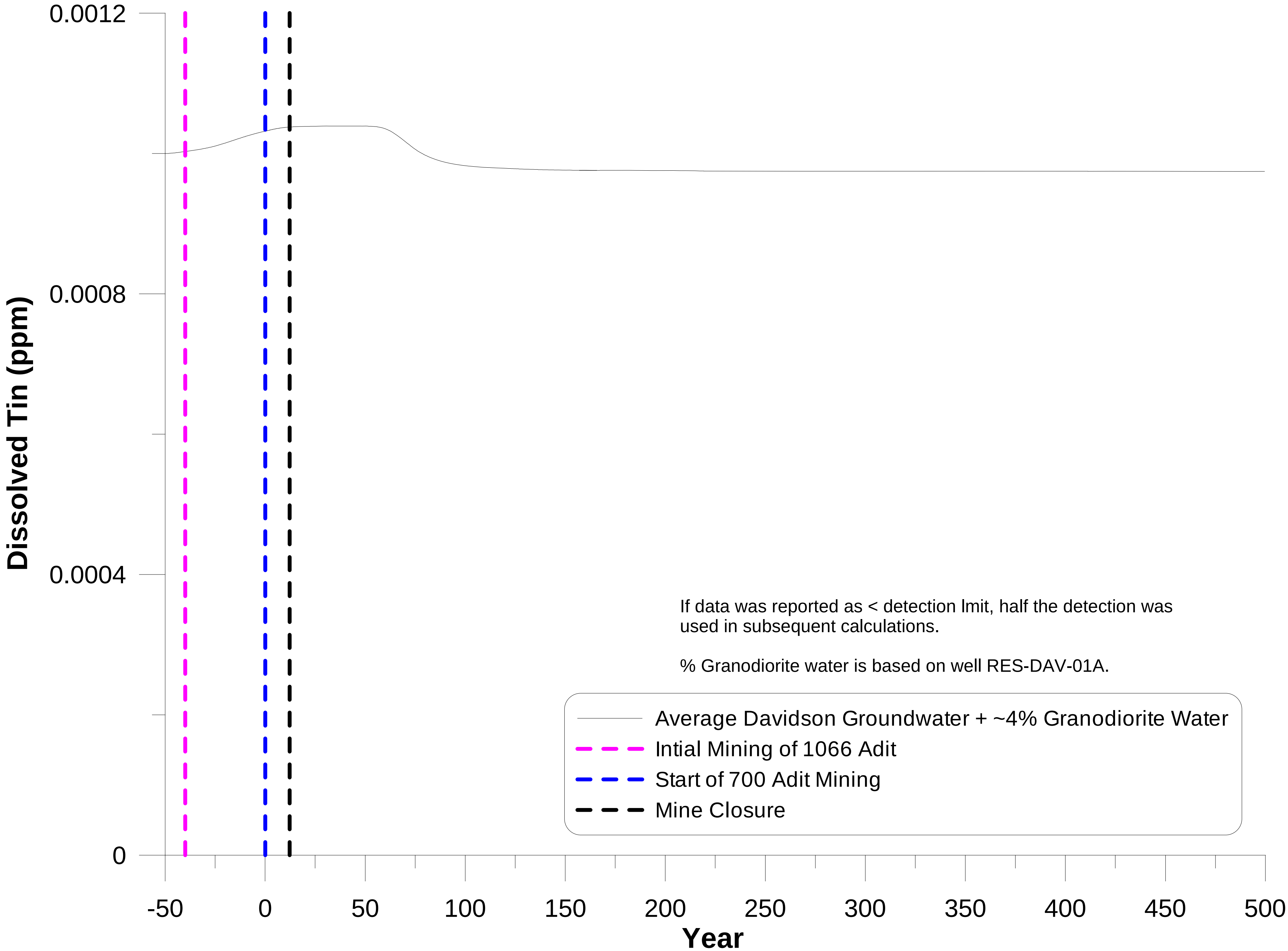
Dissolved Sodium (ppm)
100
80
60
40
20
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure


Dissolved Strontium (ppm)
0.6
0.4
0.2
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

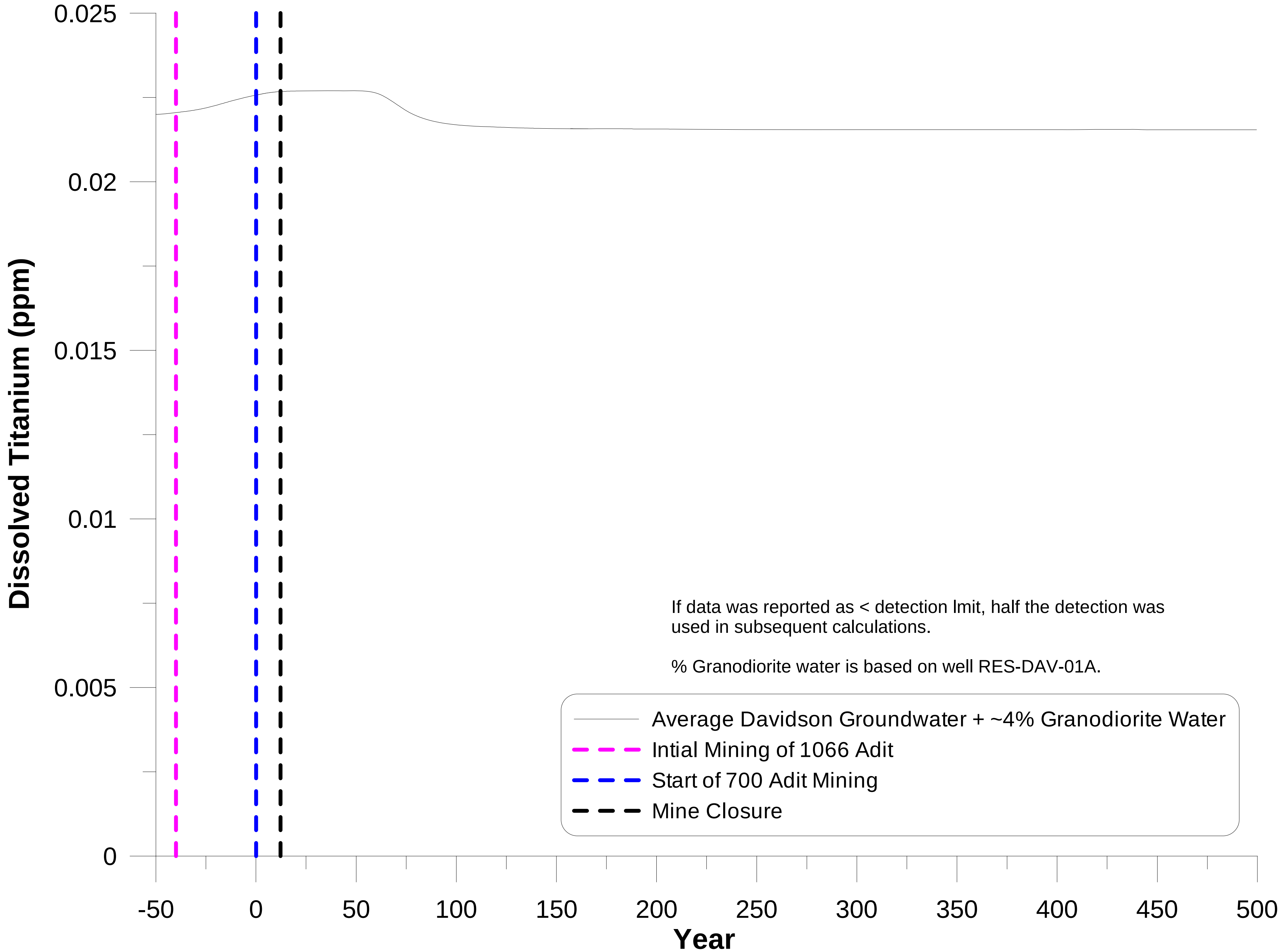


60
40
20
0
Dissolved Sulphur (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

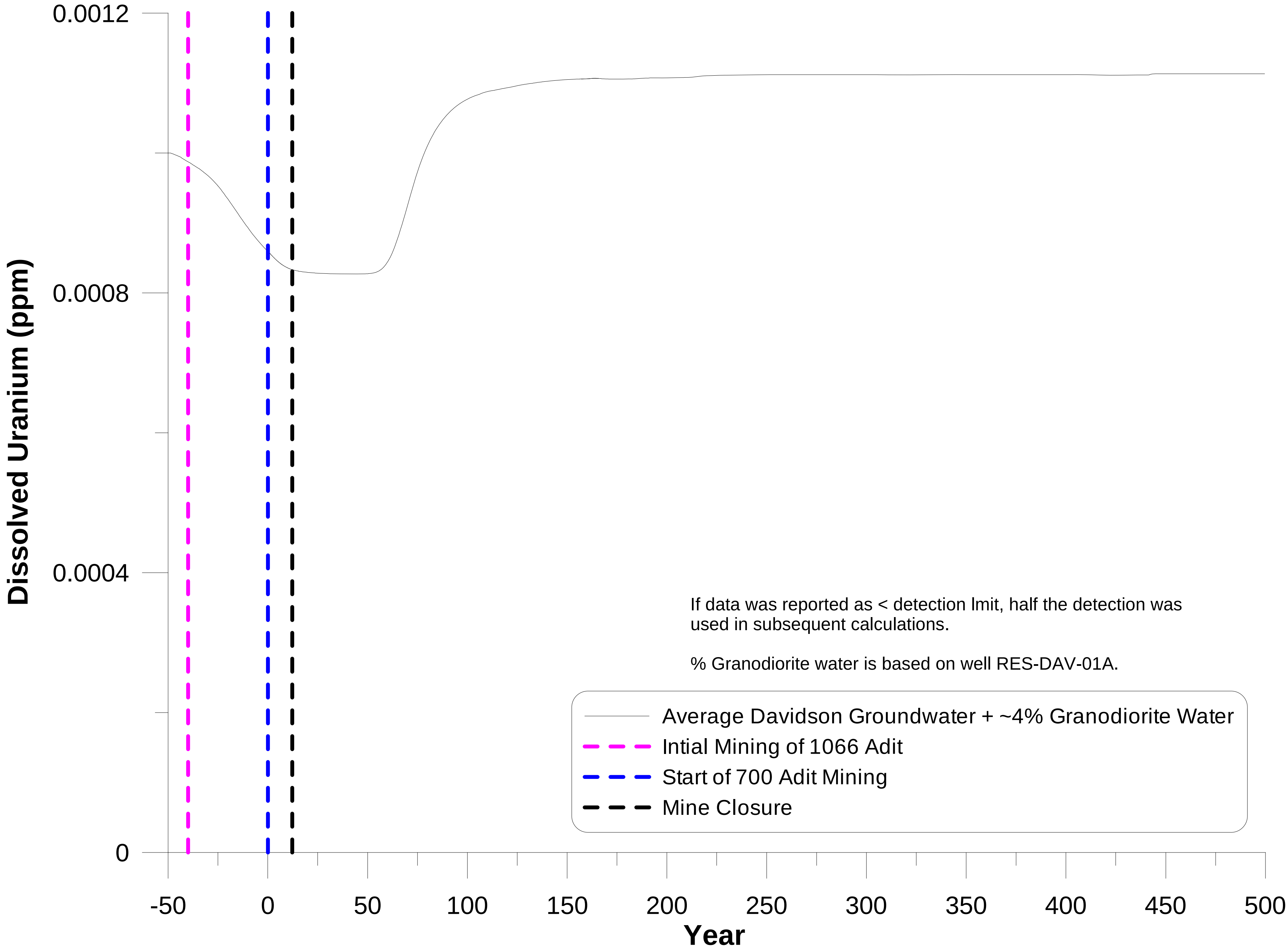

Dissolved Thallium (ppm)
0.00025
0.0002
0.00015
0.0001
5E-005
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

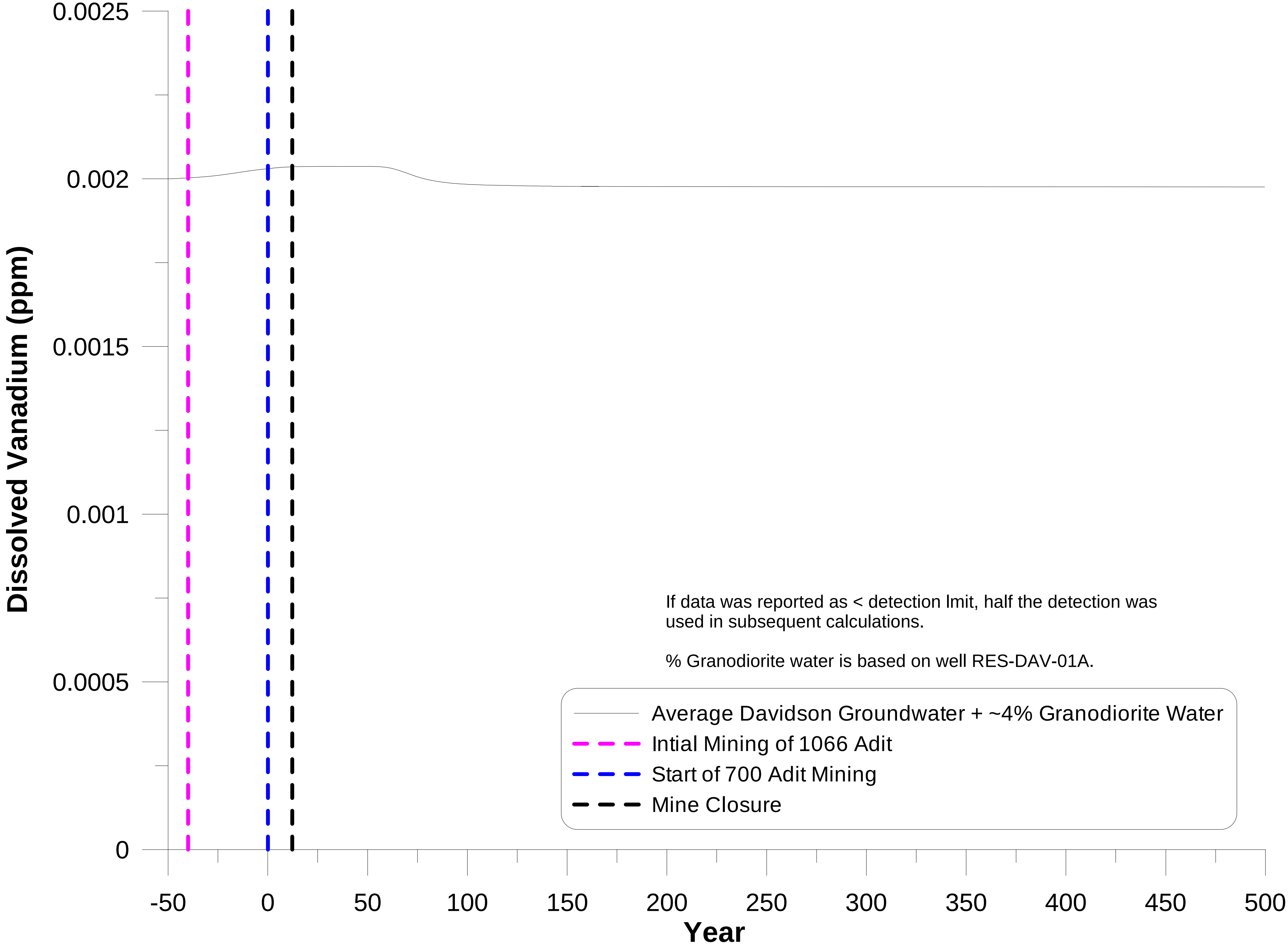


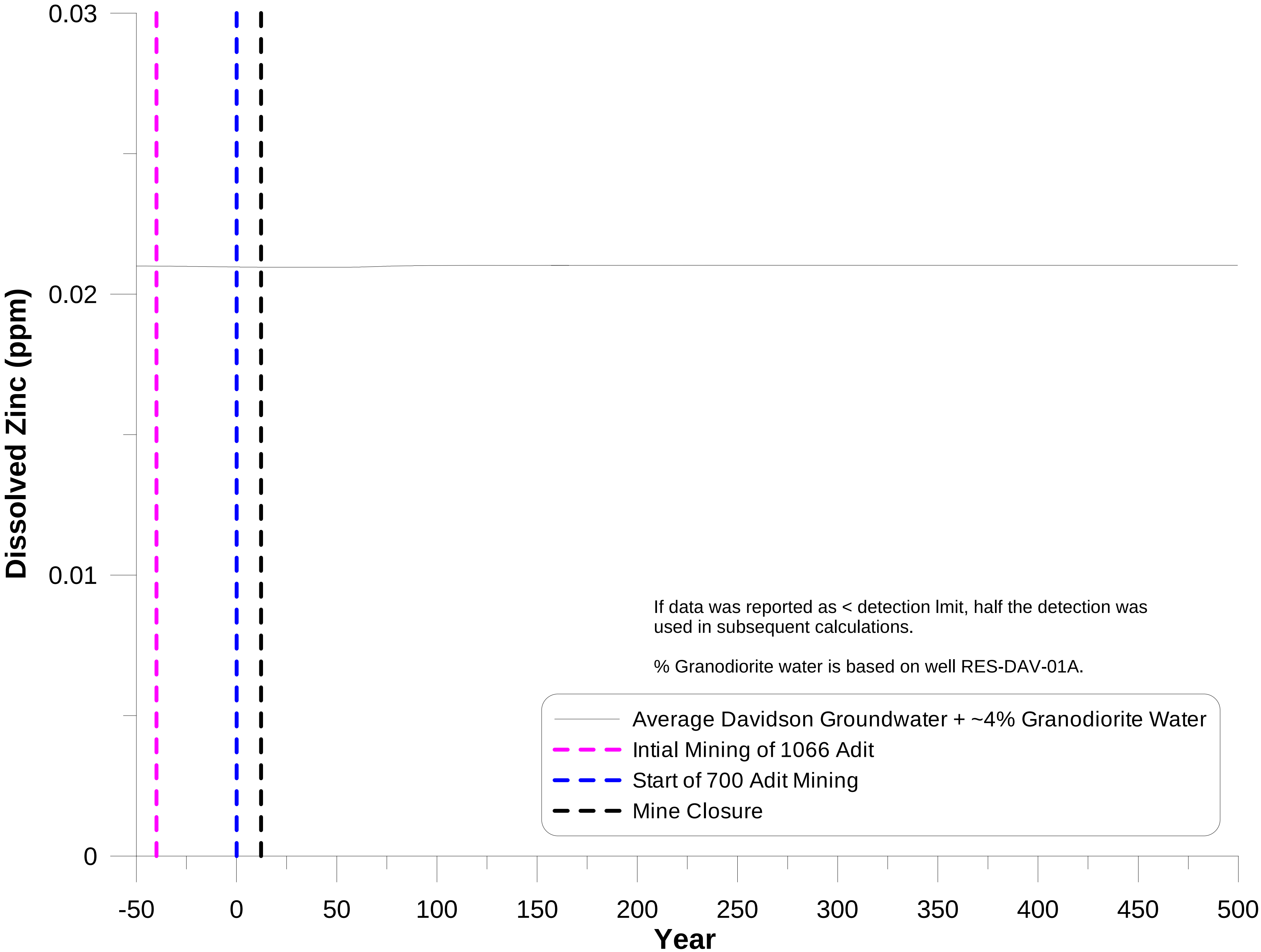
0.0012
0.0008
0.0004
0
Dissolved Tin (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



Dissolved Titanium (ppm)
0.025
0.02
0.015
0.01
0.005
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

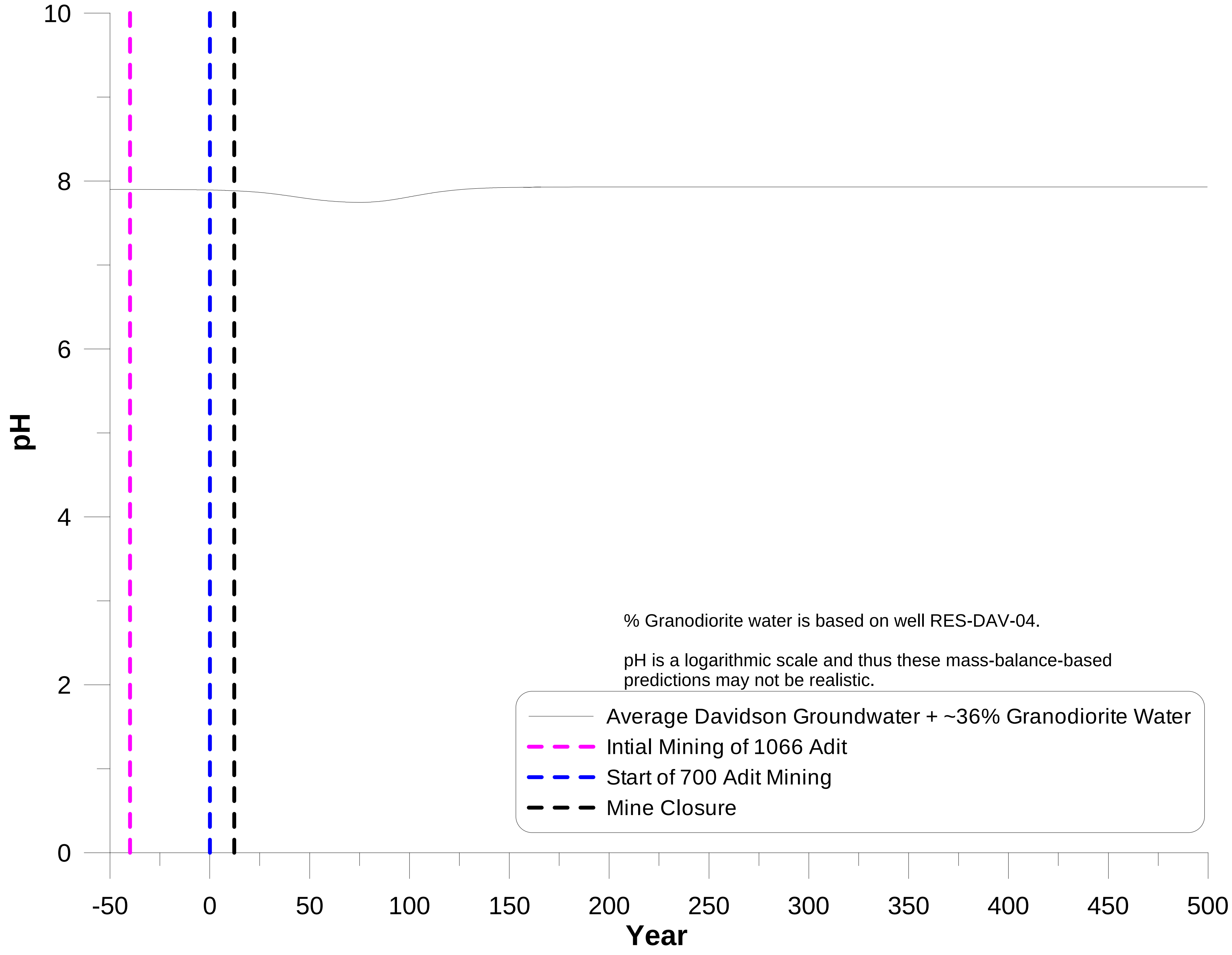

0.0012
0.0008
0.0004
0
Dissolved Uranium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure


Dissolved Vanadium (ppm)
0.0025
0.002
0.0015
0.001
0.0005
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

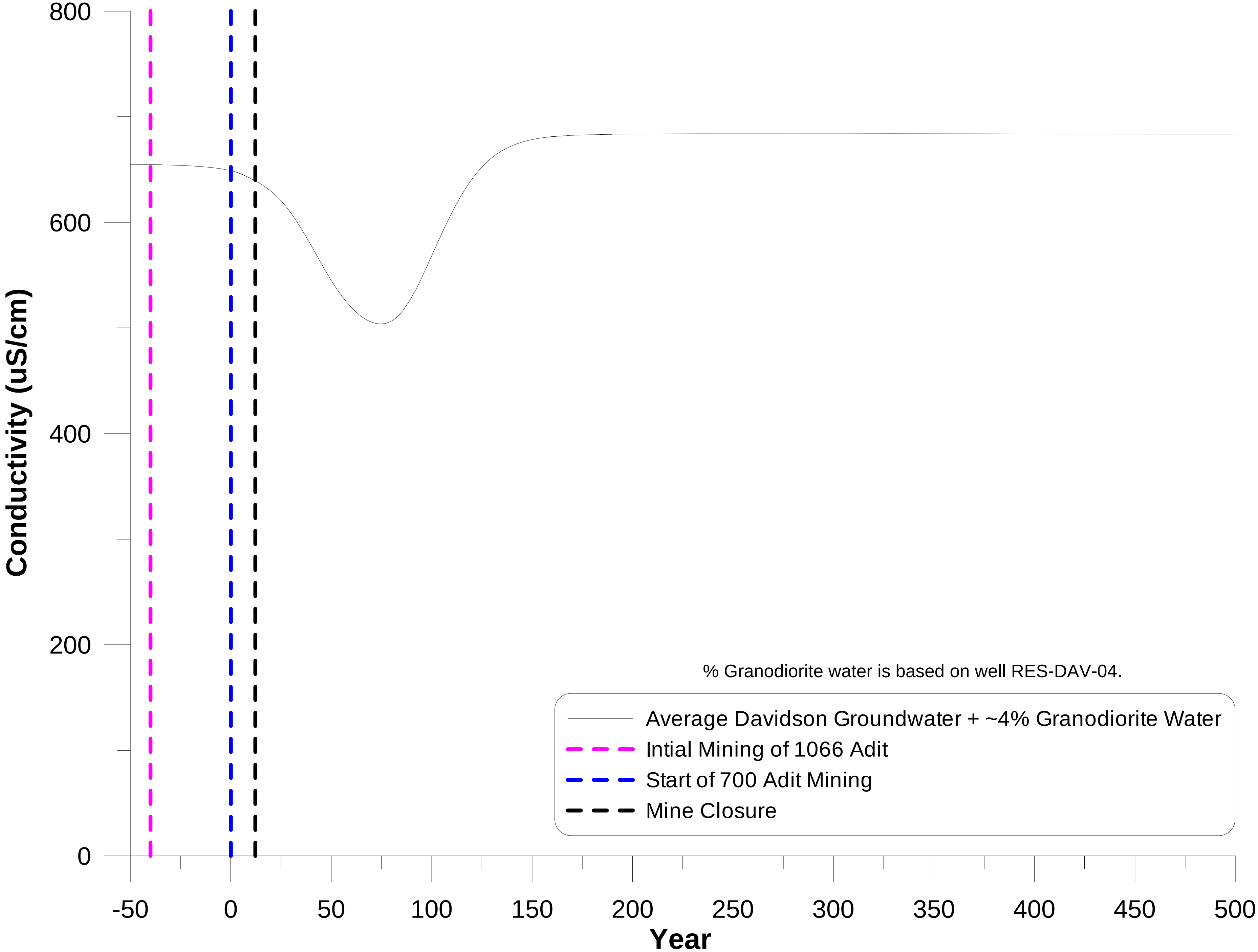


0.03
0.02
0.01
0
Dissolved Zinc (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

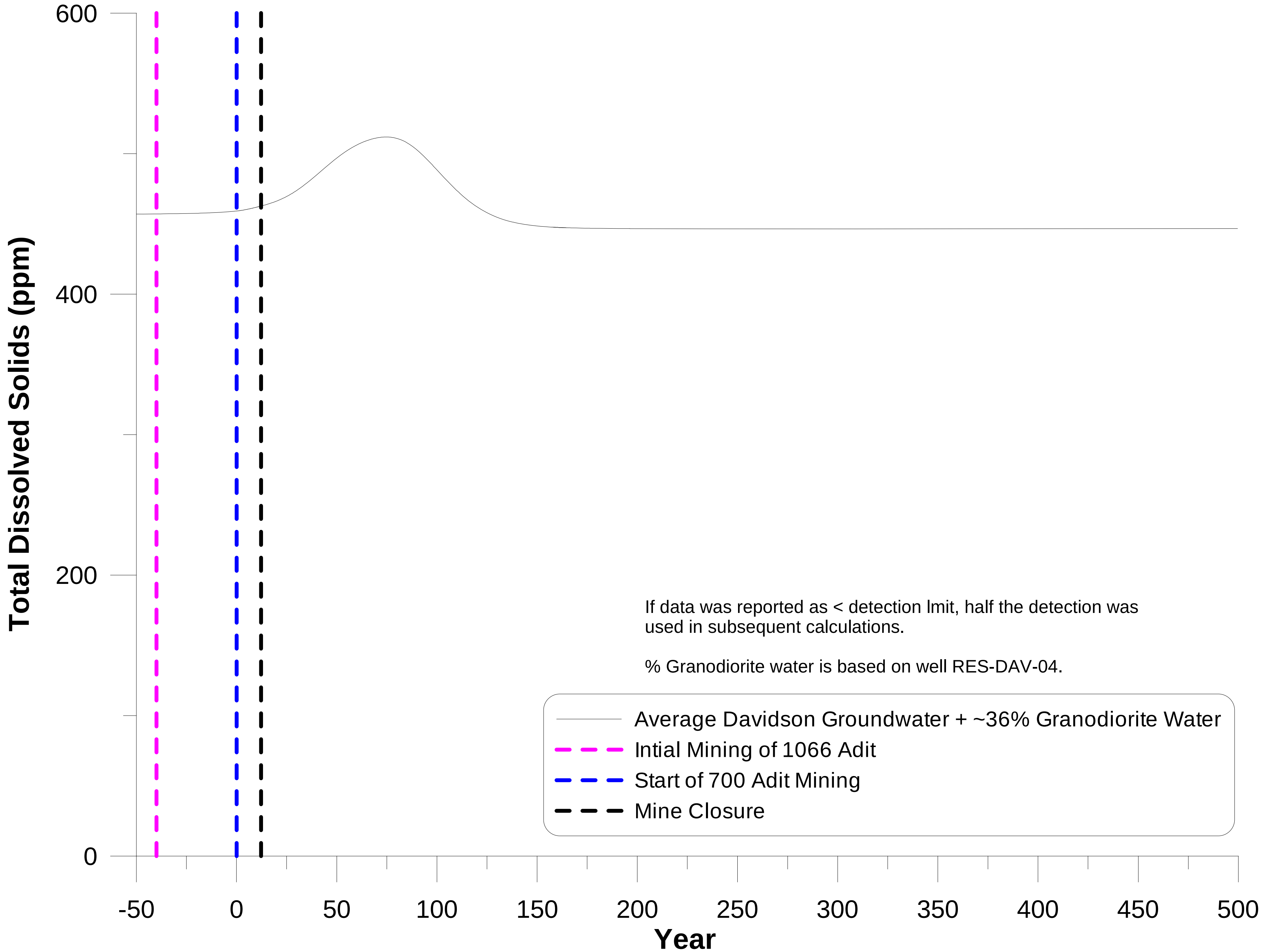
B3. ~36% GRANODIORITE GROUNDWATER AND ~64% AVERAGE DAVIDSON GROUNDWATER BEFORE MINING, BASED ON PREDICTED TRENDS FOR WELL RES-DAV-04



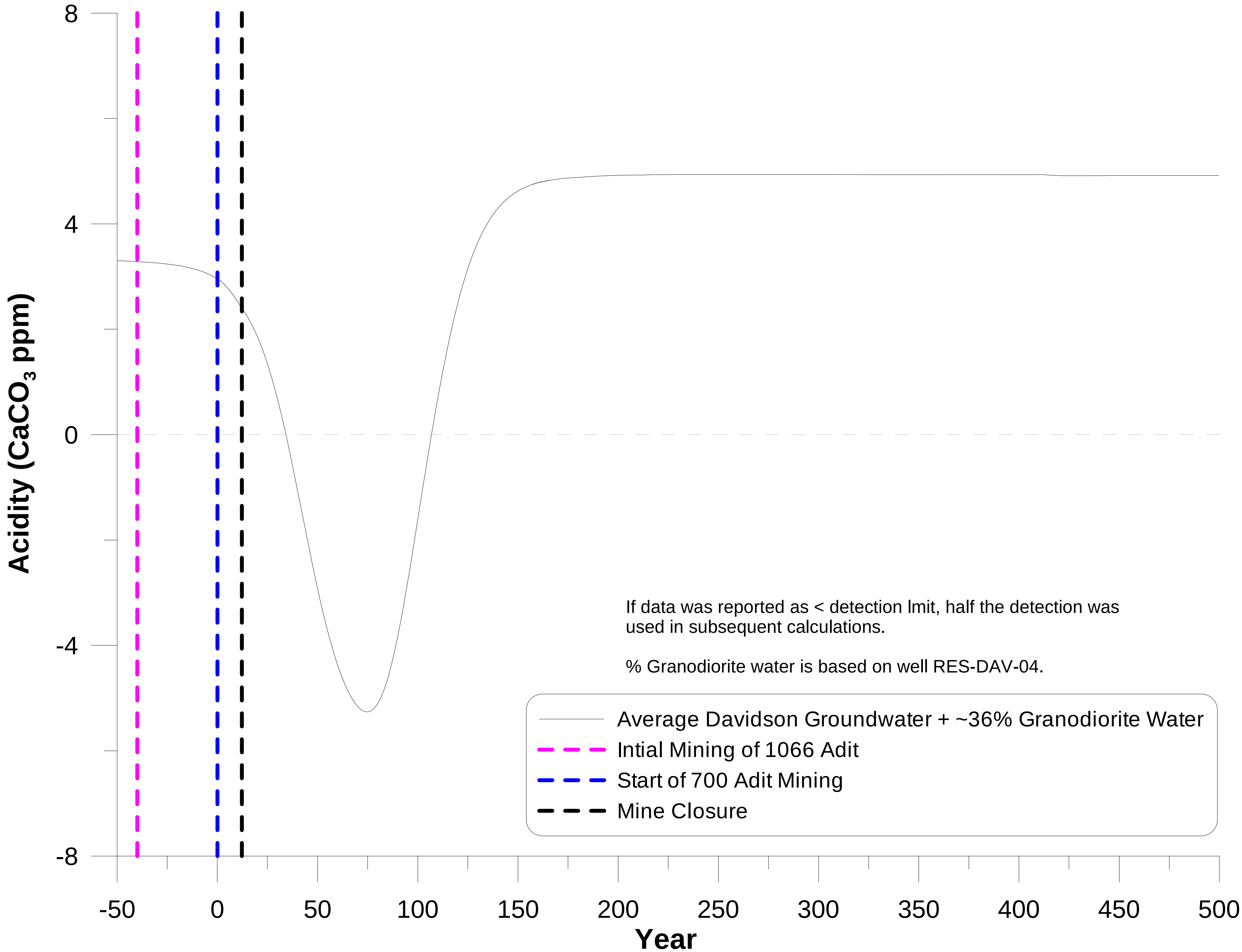
10
8
6
4
2
0
pH
-50
0
50
100
150
200
250
300
350
400
450
500
Year
% Granodiorite water is based on well RES-DAV-04.
pH is a logarithmic scale and thus these mass-balance-based predictions may not be realistic.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



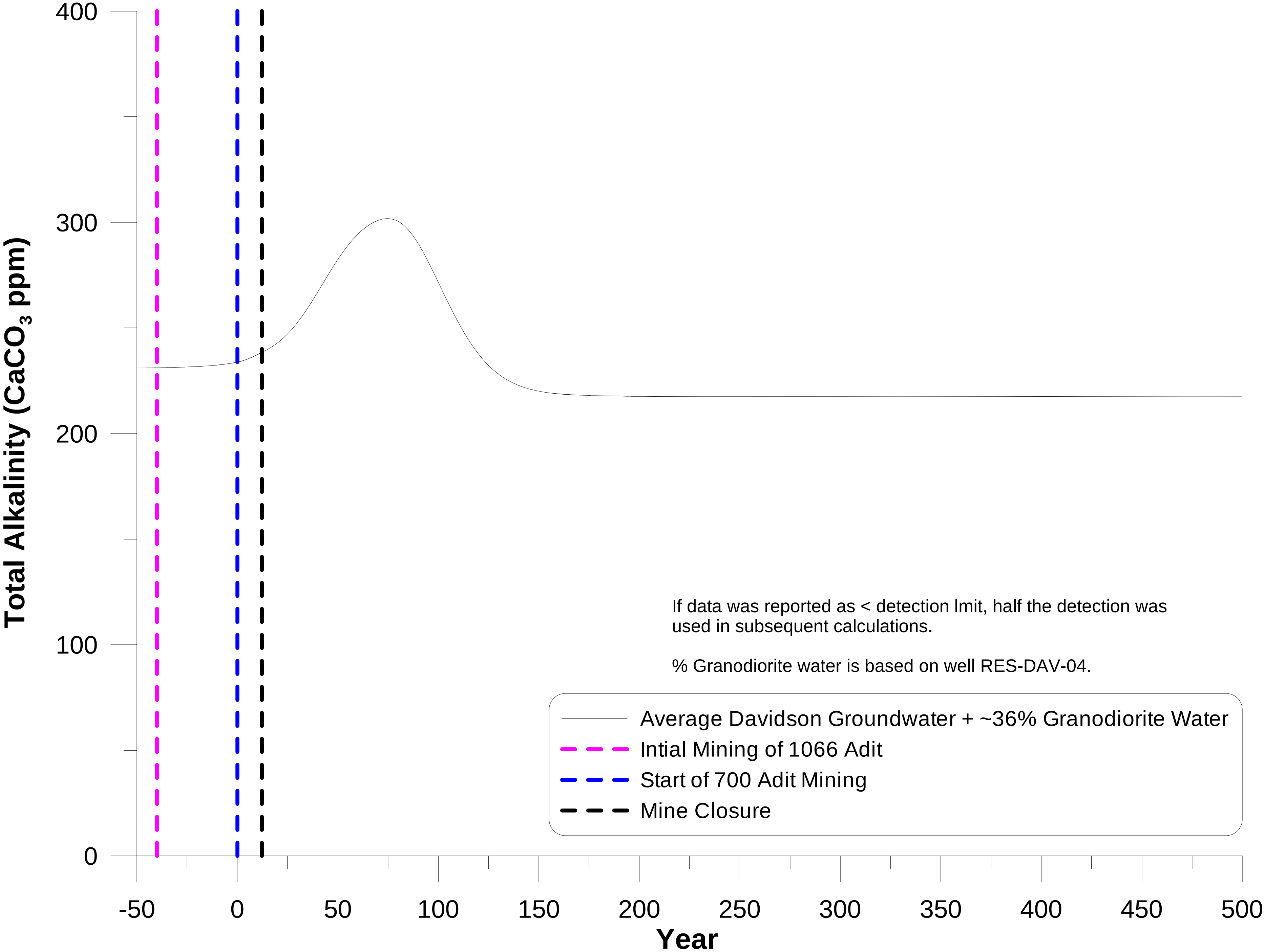
800
600
400
200
0
Conductivity (uS/cm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



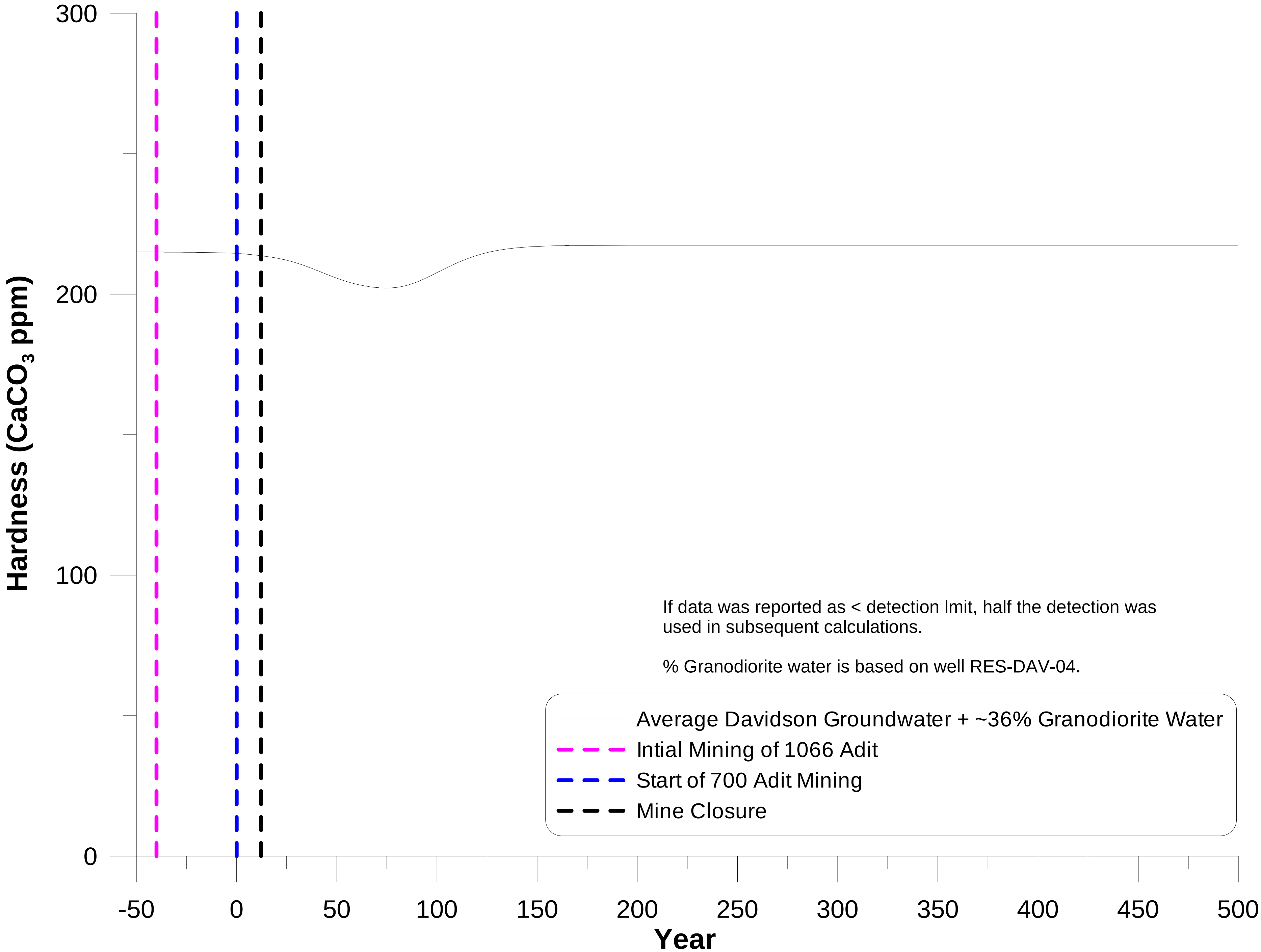
600
400
200
0
Total Dissolved Solids (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



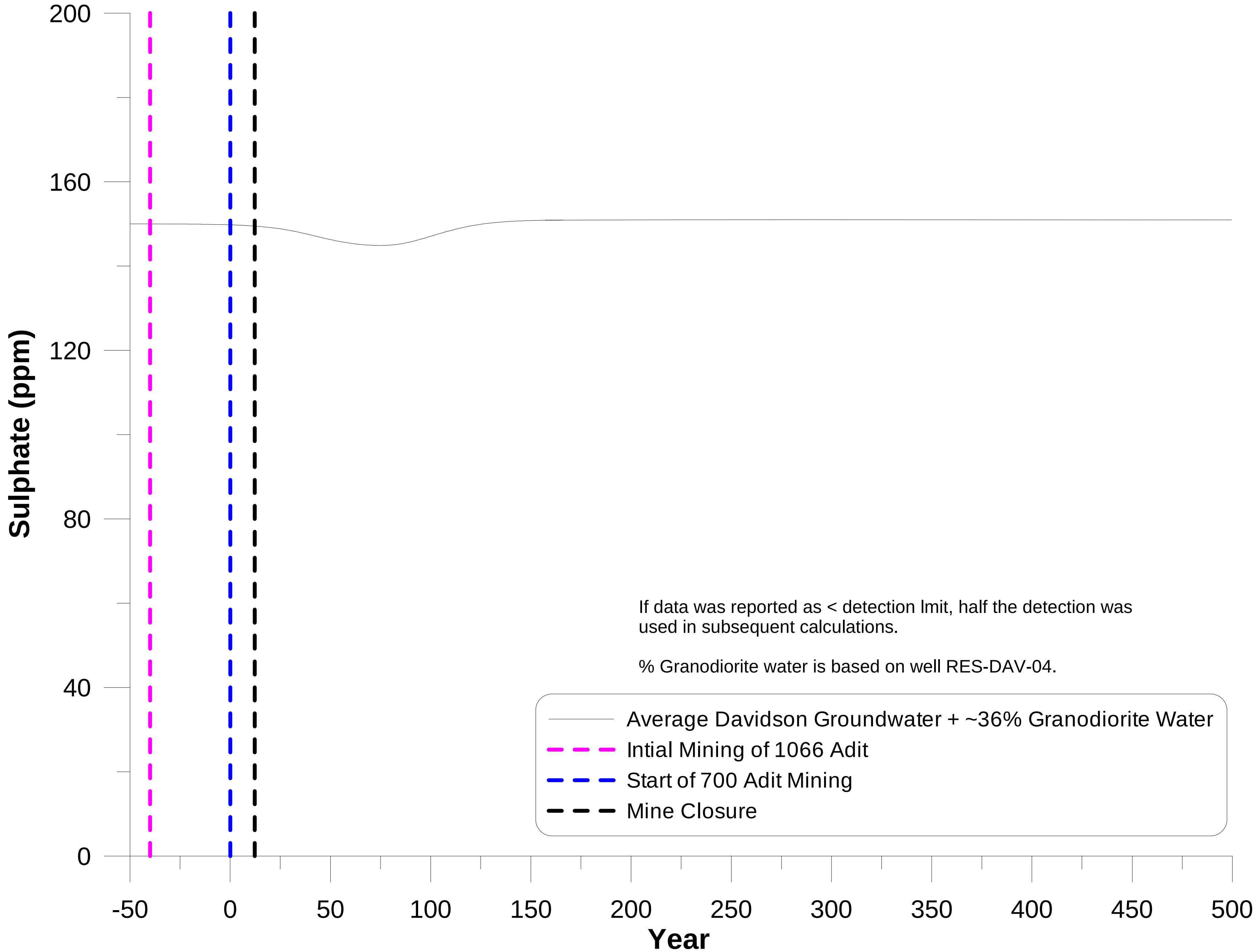
8
4
0
-4
-8
Acidity (CaCO3 ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

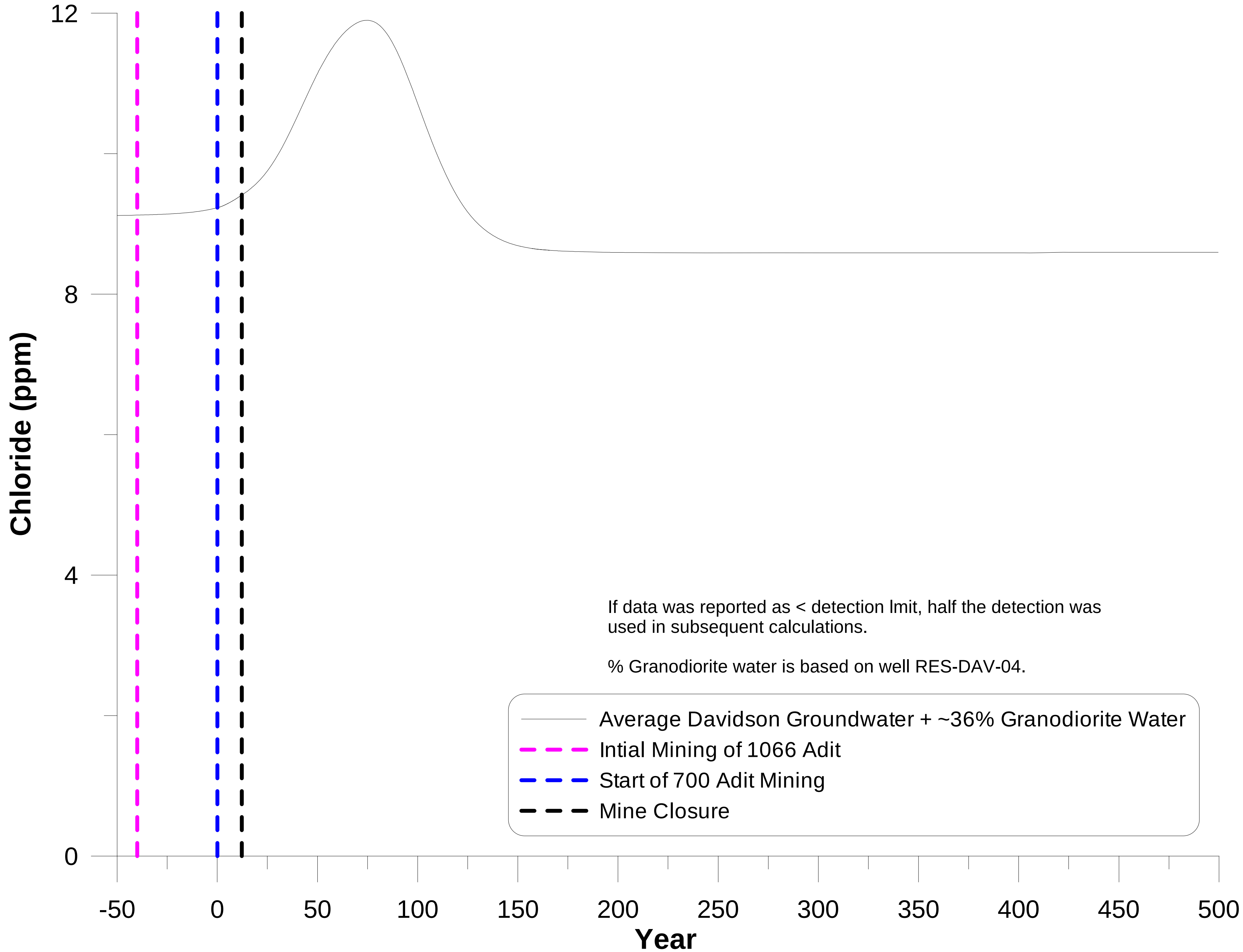


Total Alkalinity (CaCO3 ppm)
400
300
200
100
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

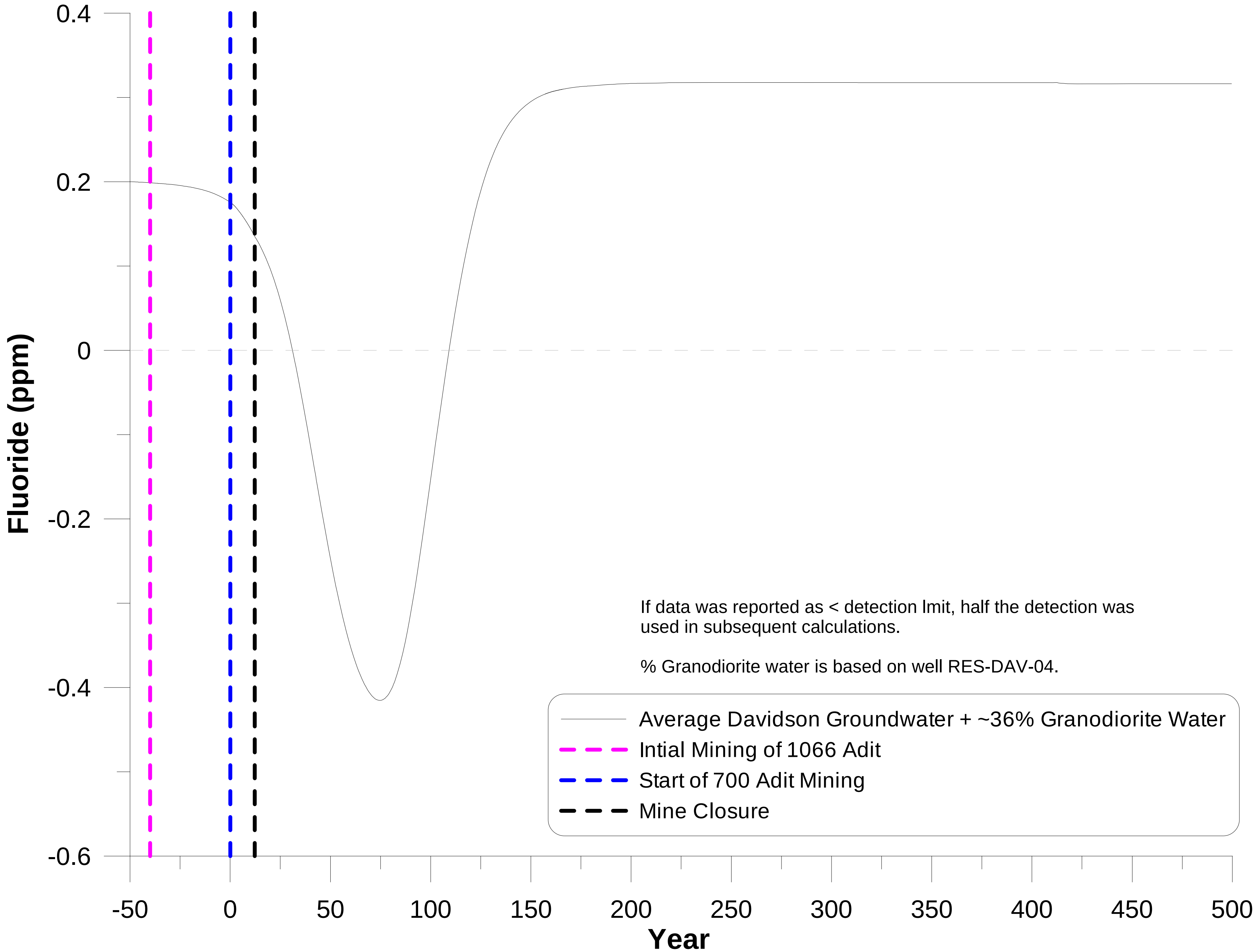


300
200
100
0
Hardness ($CaCO_3$ ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

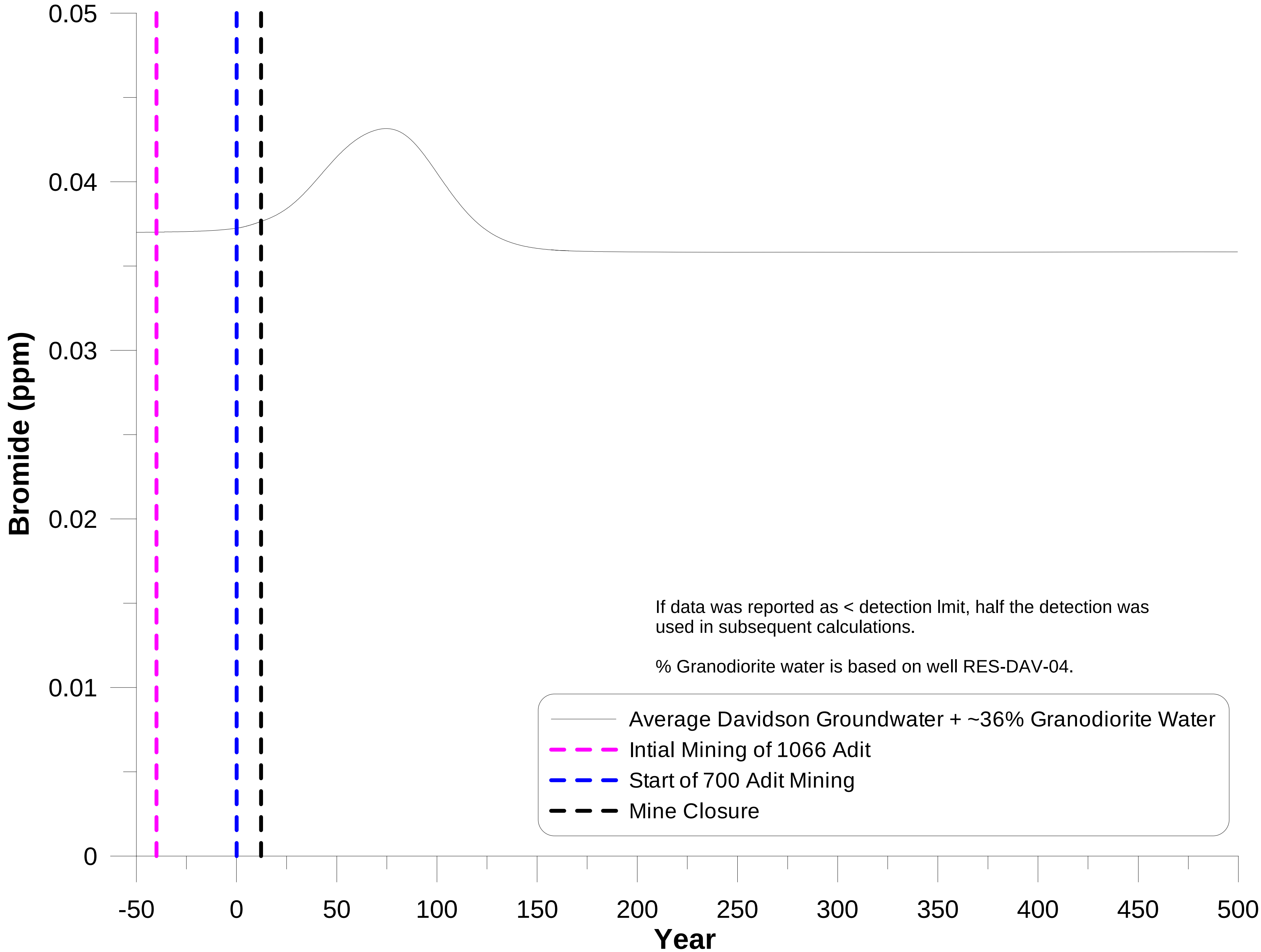

200
160
120
80
40
0
Sulphate (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



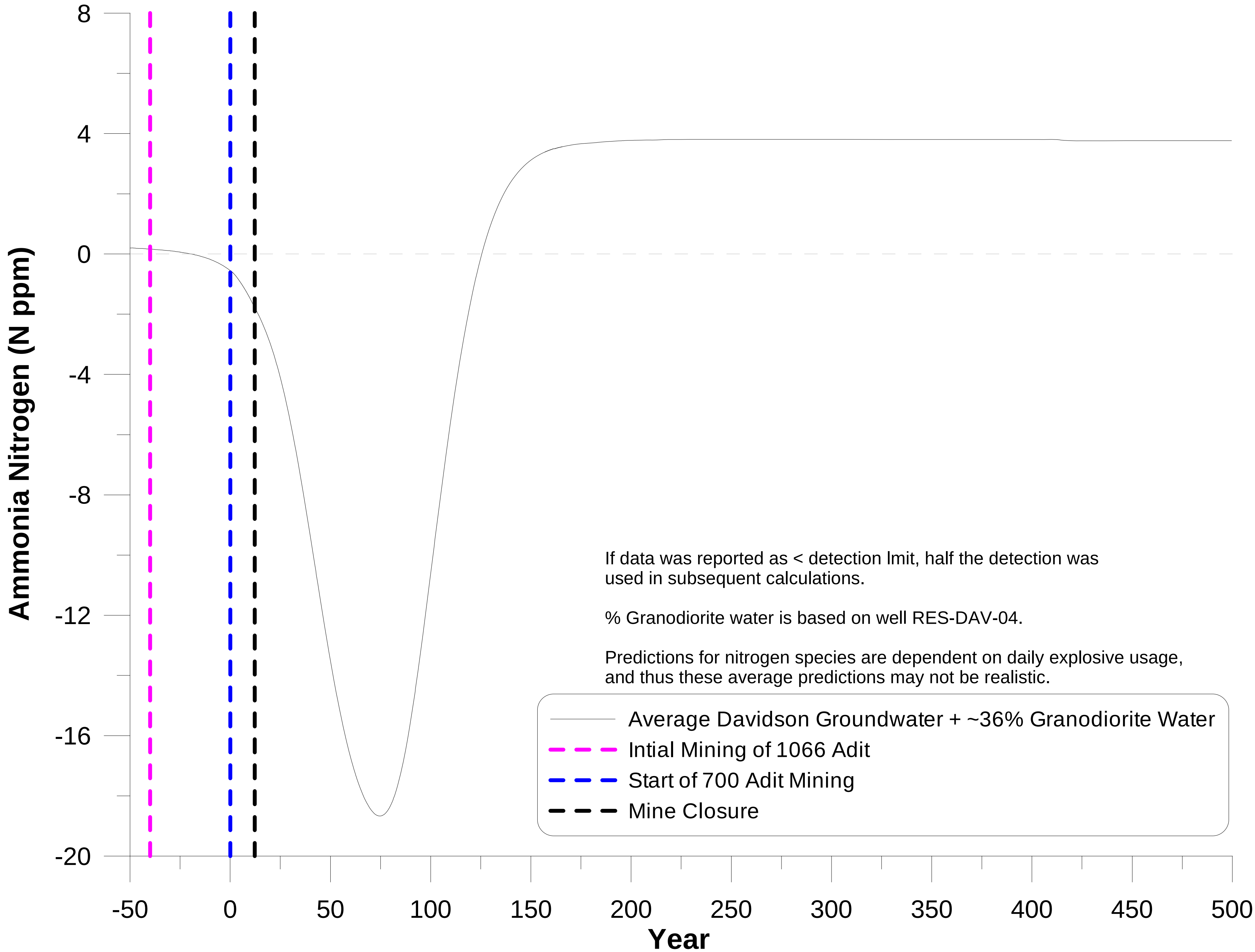
12
8
4
0
Chloride (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



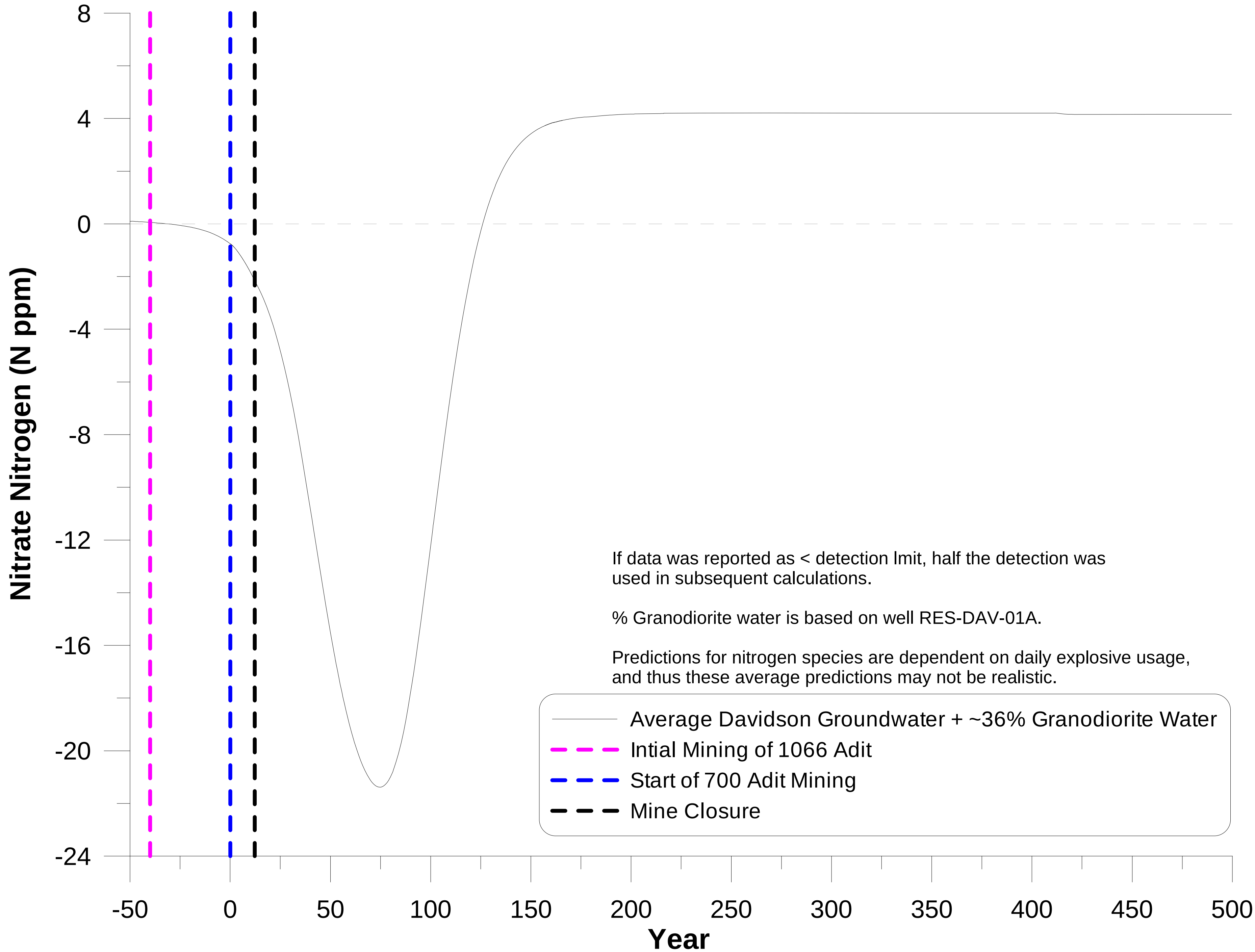
0.4
0.2
0
-0.2
-0.4
-0.6
Fluoride (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



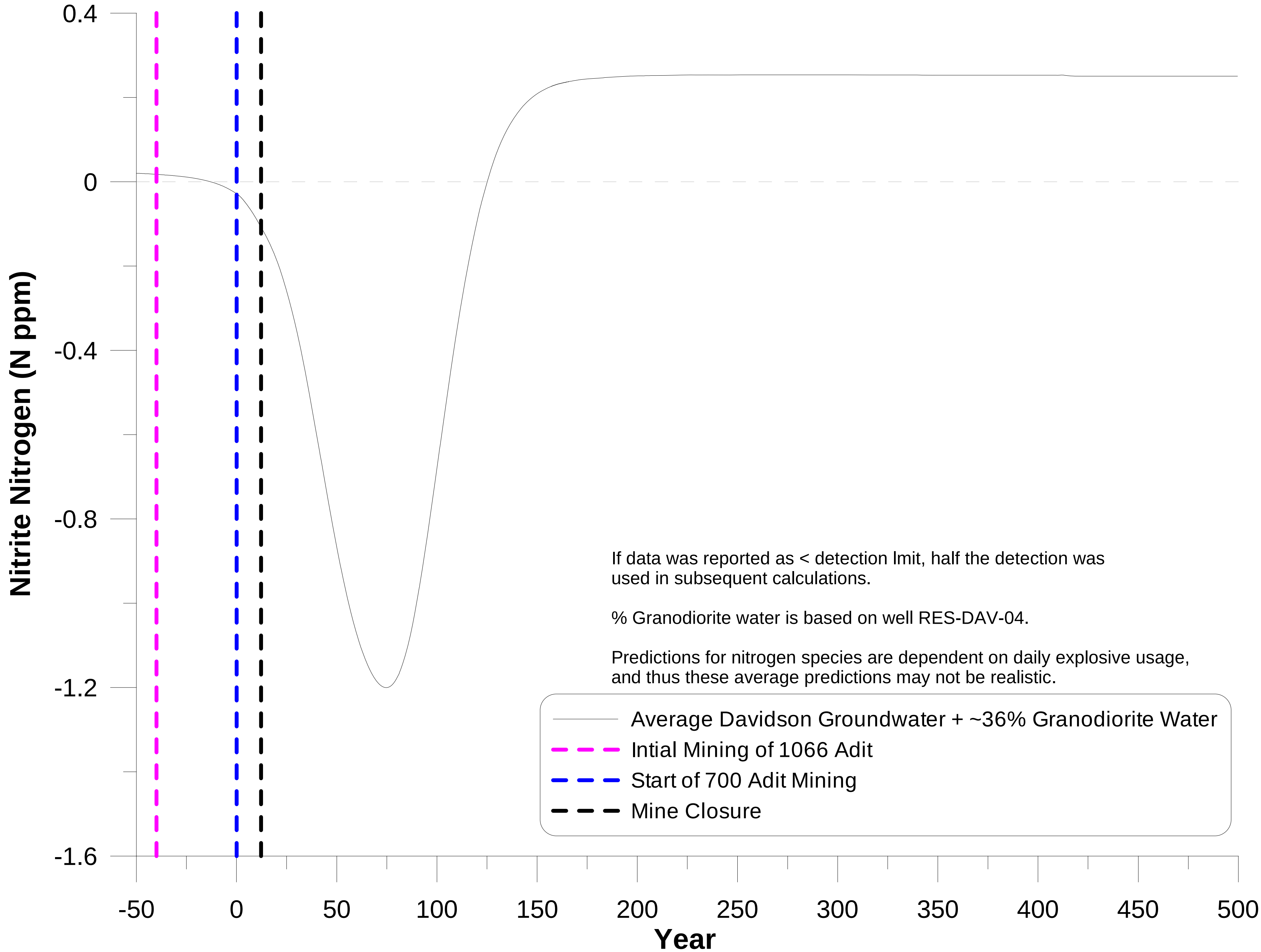
0.05
0.04
0.03
0.02
0.01
0
Bromide (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



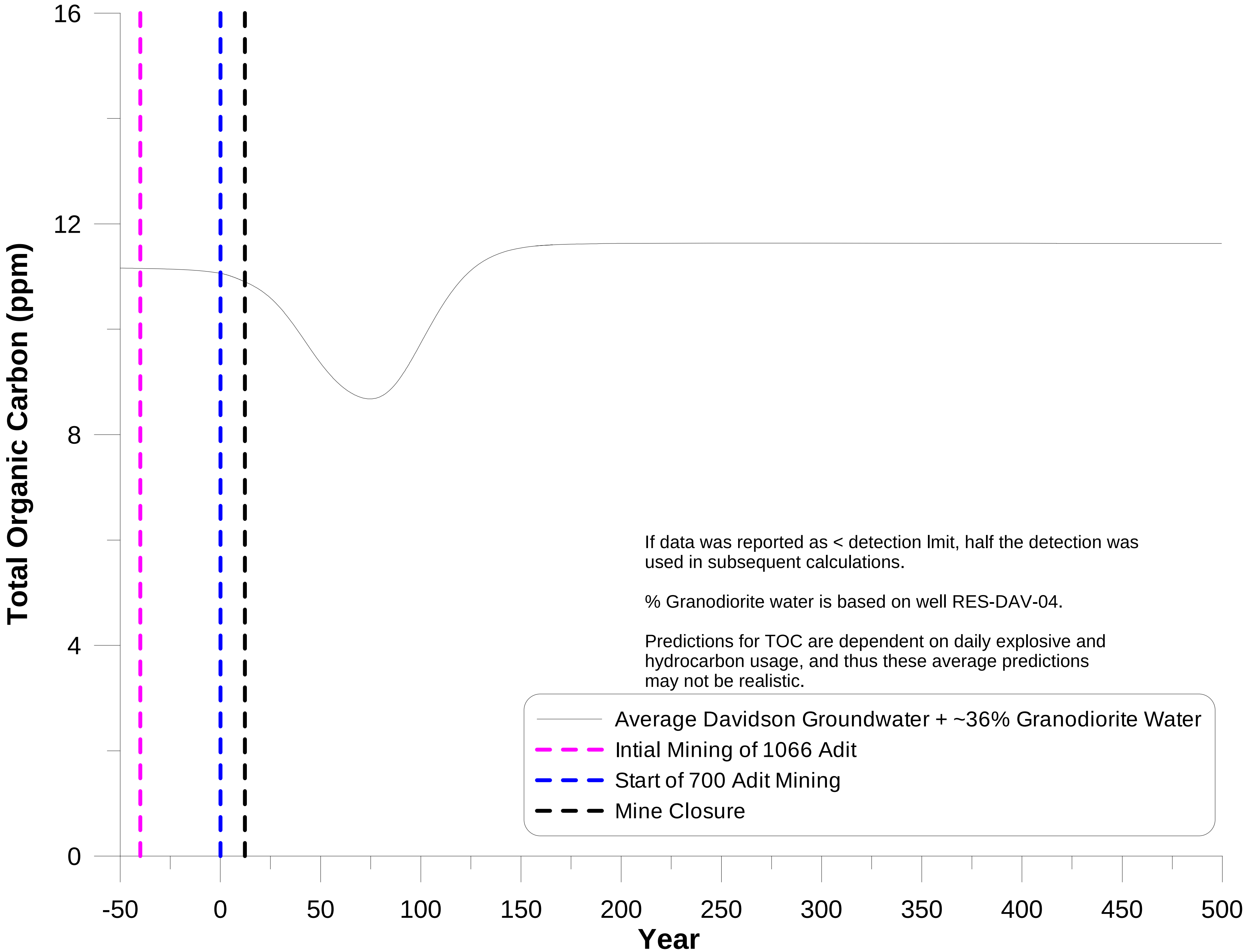
Ammonia Nitrogen (N ppm)
8
4
0
-4
-8
-12
-16
-20
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was
used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Predictions for nitrogen species are dependent on daily explosive usage,
and thus these average predictions may not be realistic.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



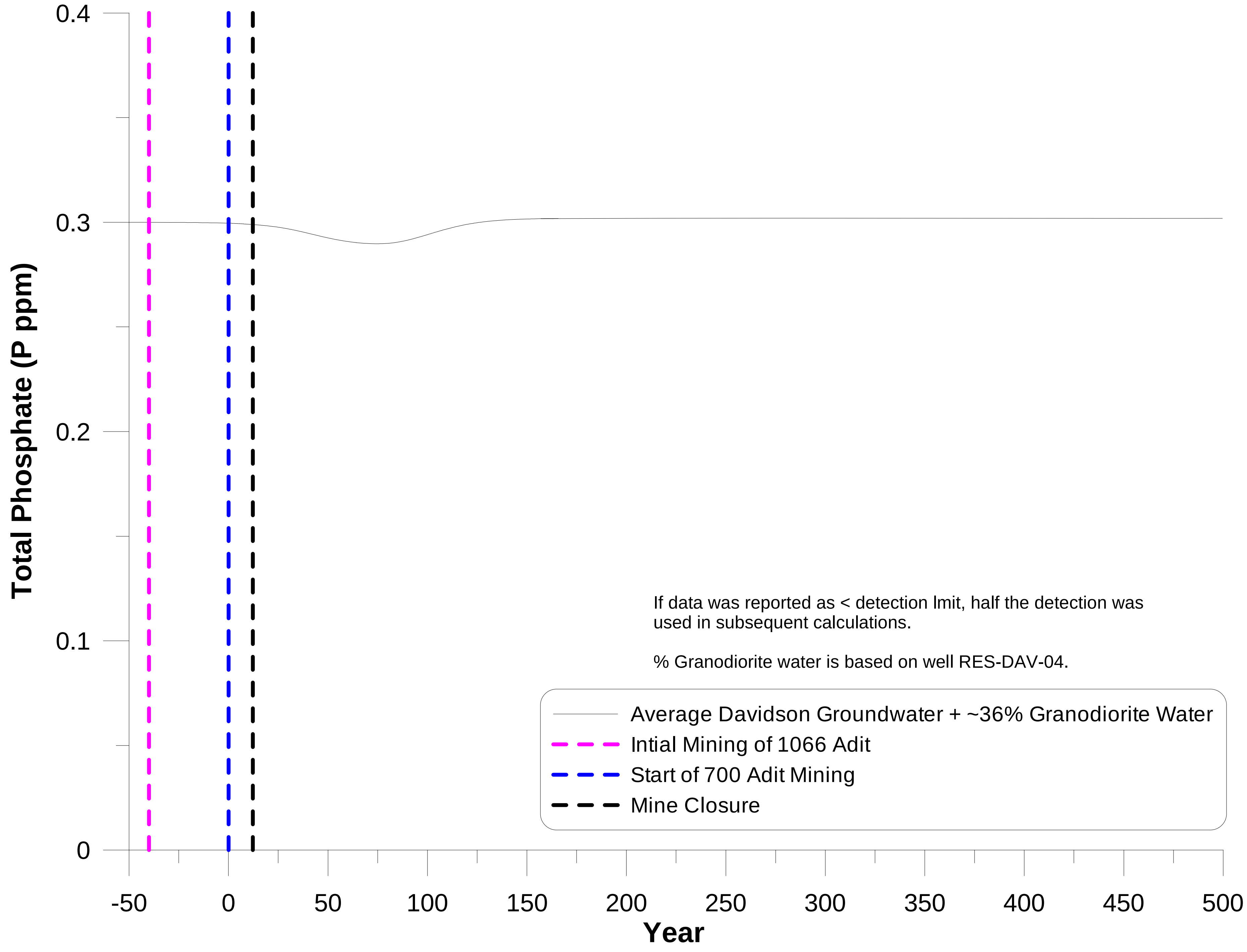
8
4
0
-4
-8
-12
-16
-20
-24
Nitrate Nitrogen (N ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-01A.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



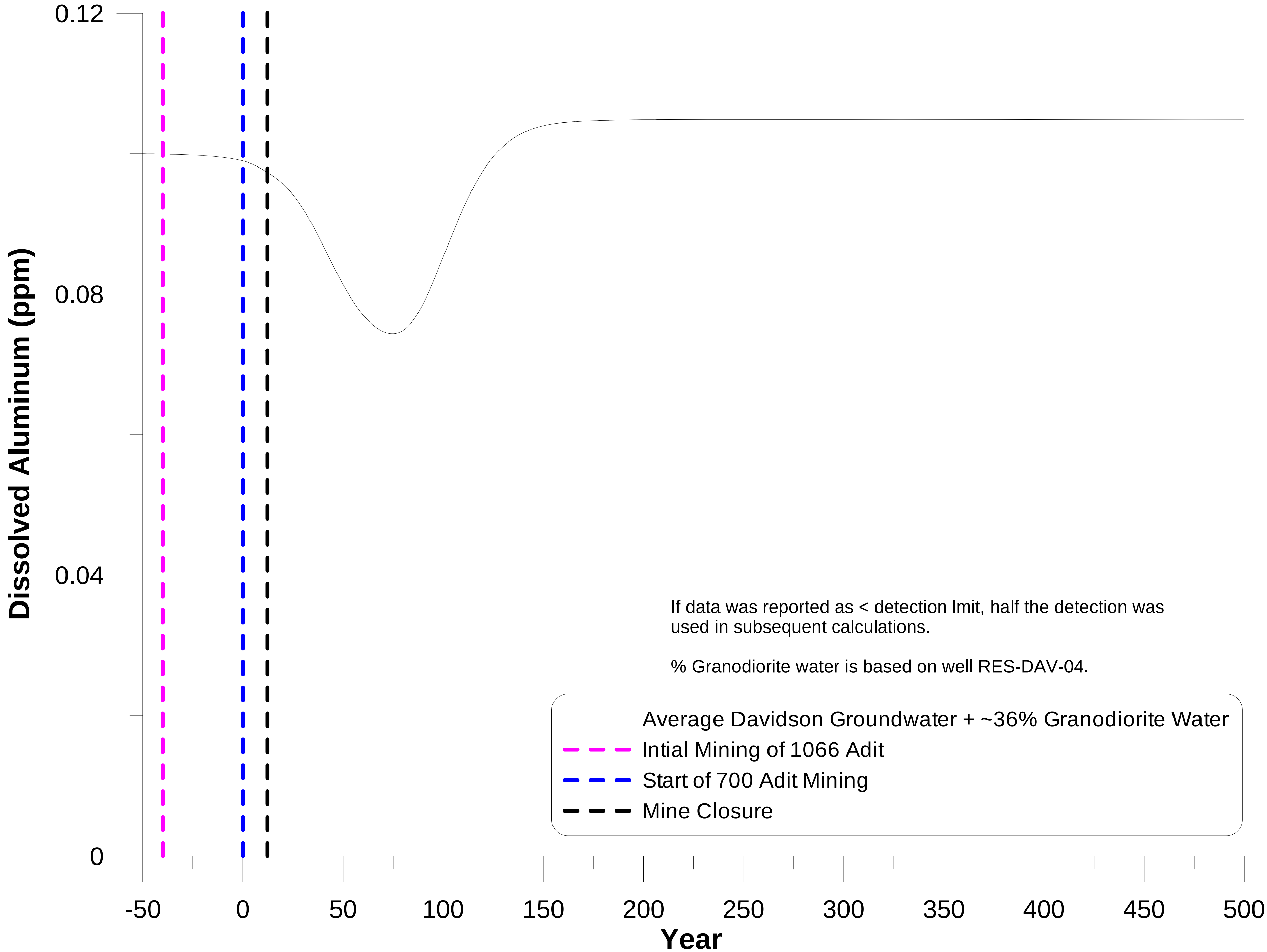
0.4
0
-0.4
-0.8
-1.2
-1.6
Nitrite Nitrogen (N ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



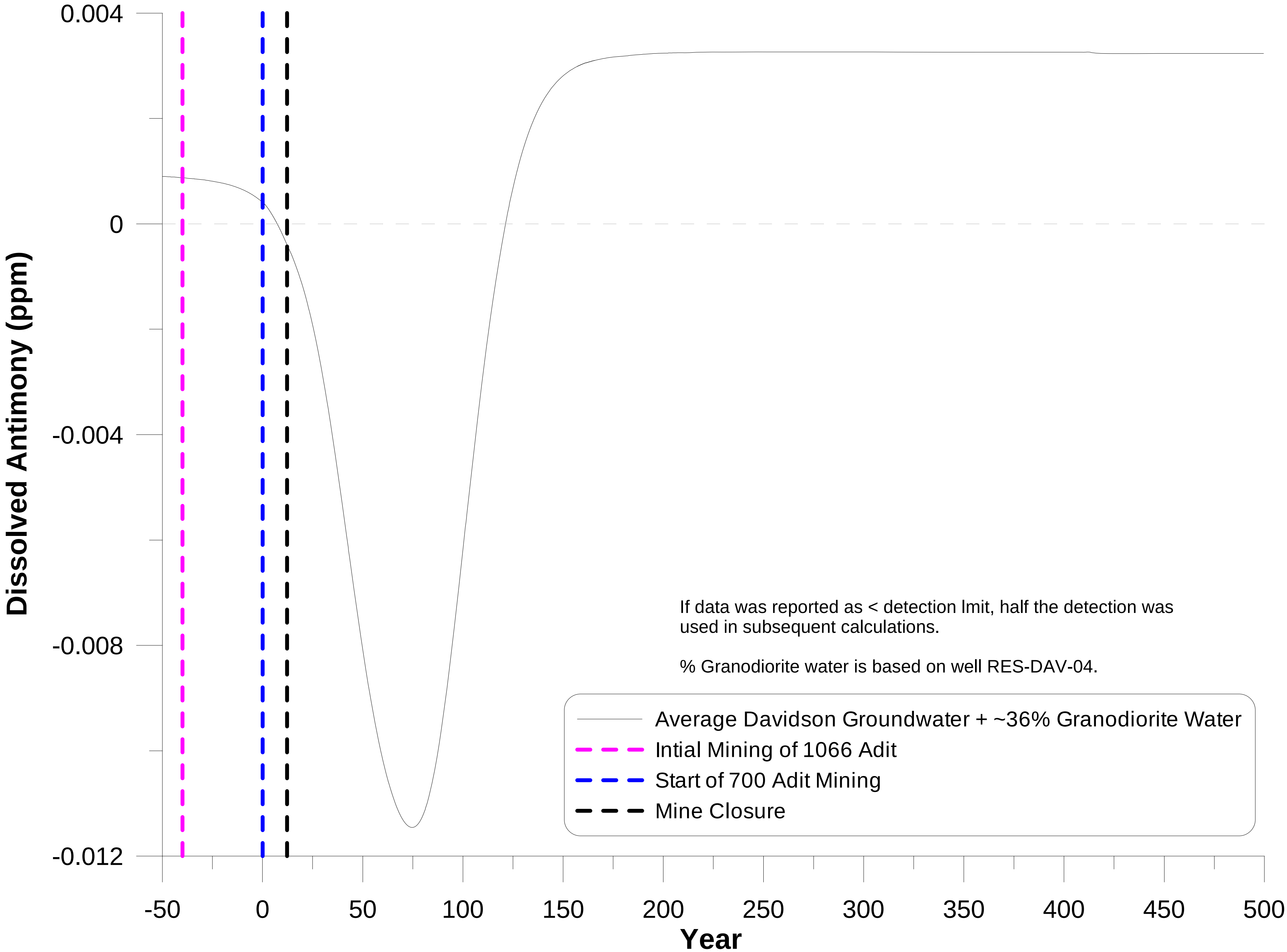
Total Organic Carbon (ppm)
16
12
8
4
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Predictions for TOC are dependent on daily explosive and hydrocarbon usage, and thus these average predictions may not be realistic.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



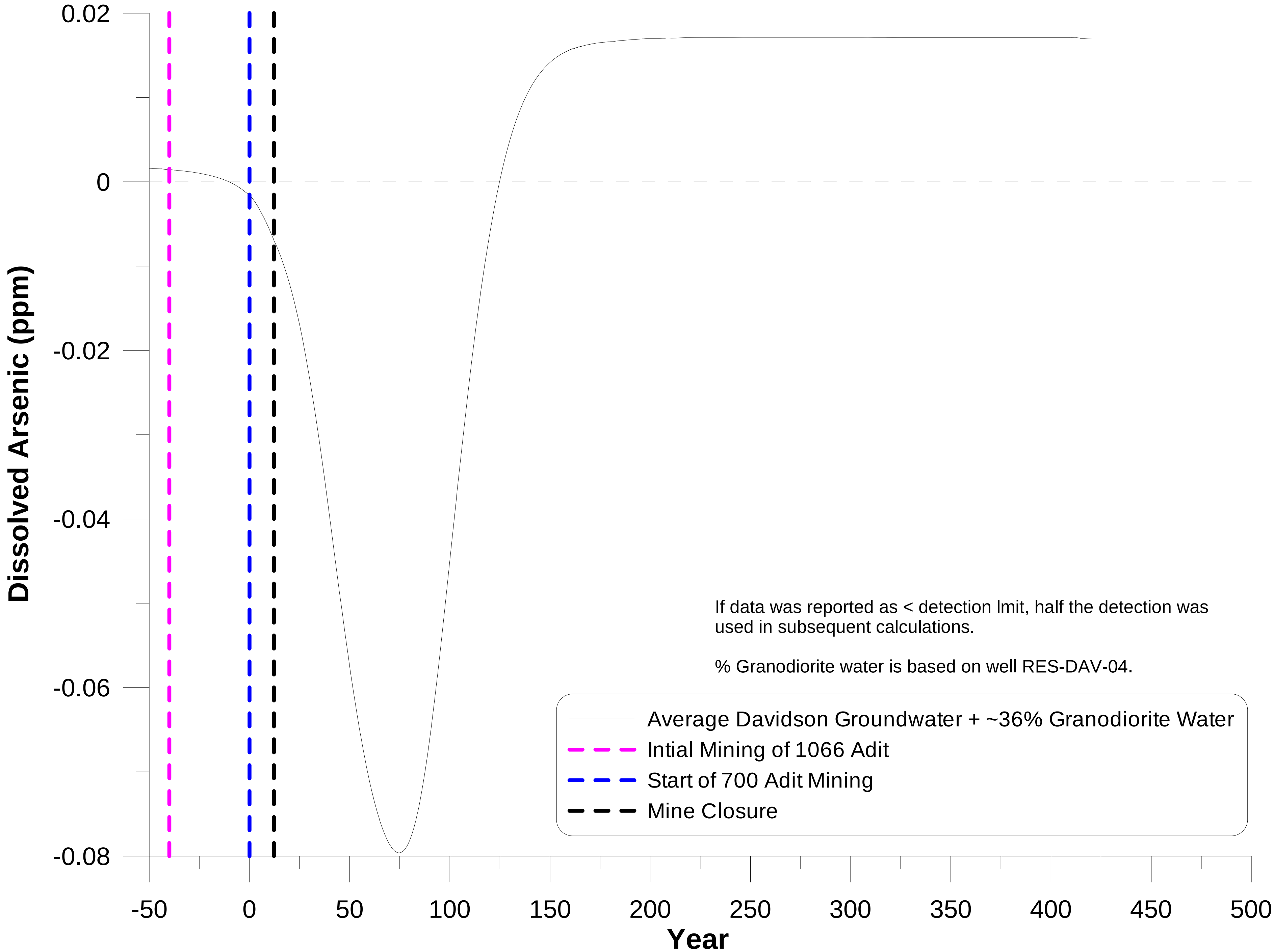
Total Phosphate (P ppm)
0.4
0.3
0.2
0.1
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



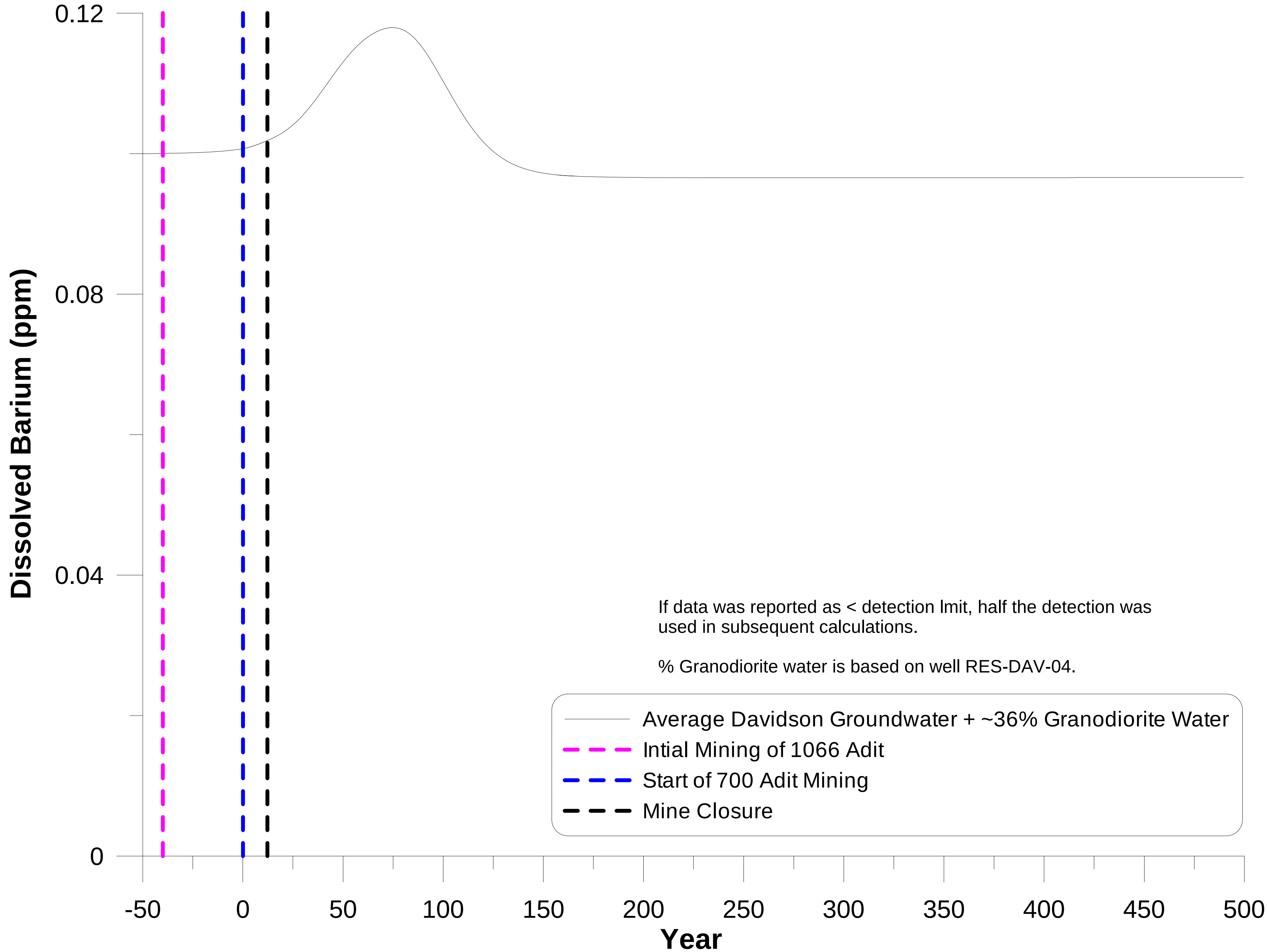
Dissolved Aluminum (ppm)
0.12
0.08
0.04
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

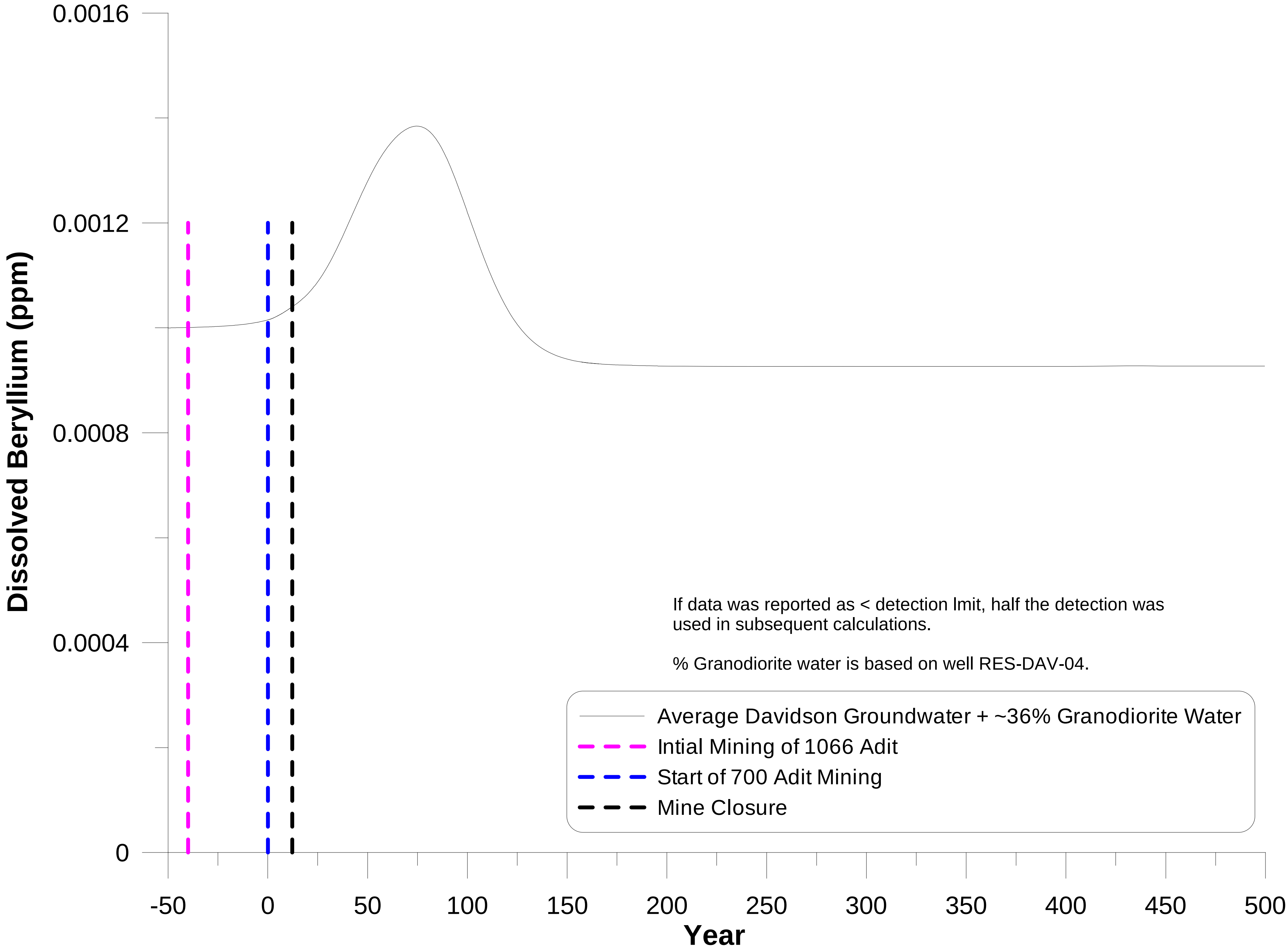


0.004
0
-0.004
-0.008
-0.012
Dissolved Antimony (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

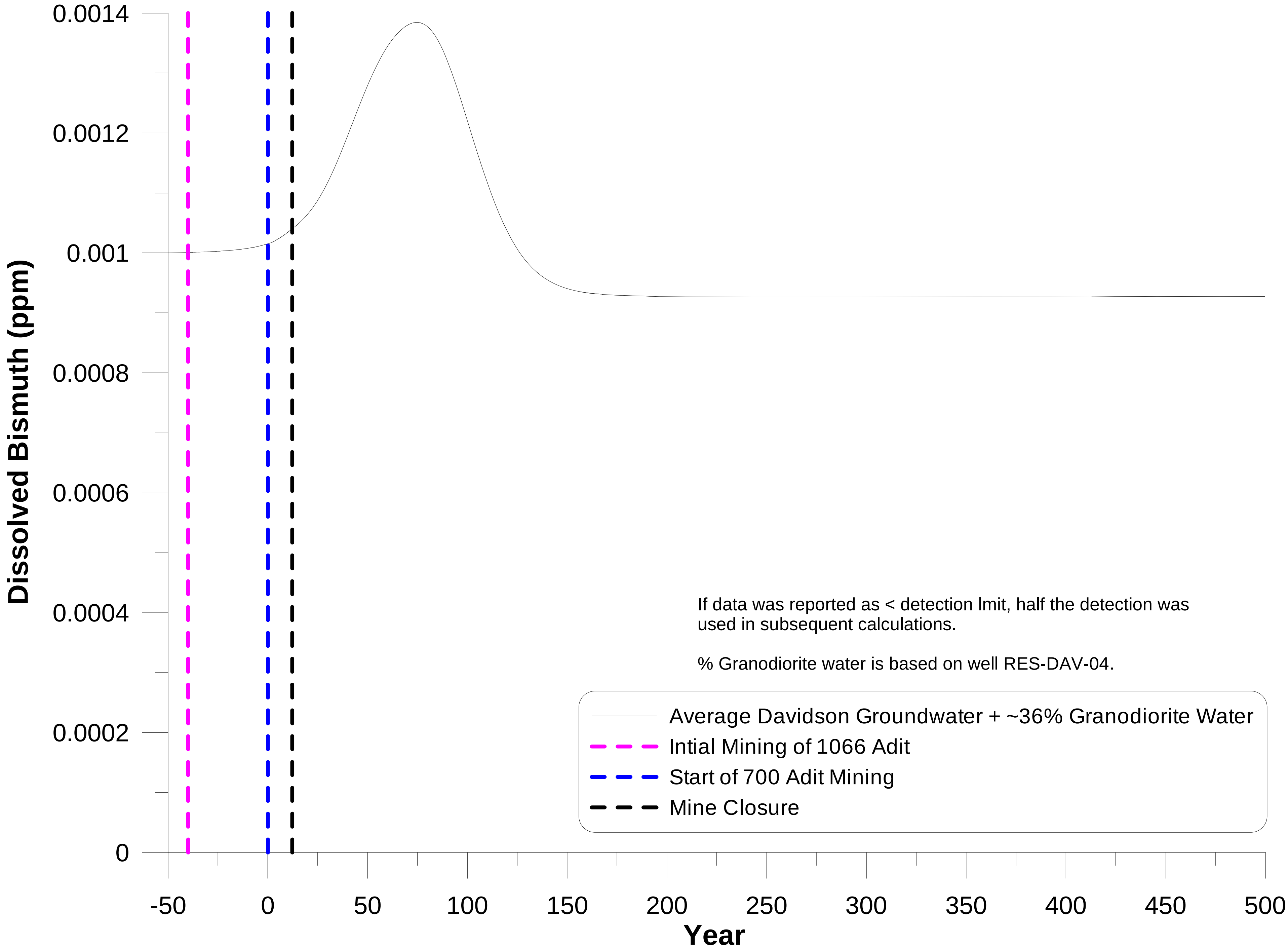


0.02
0
-0.02
-0.04
-0.06
-0.08
Dissolved Arsenic (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

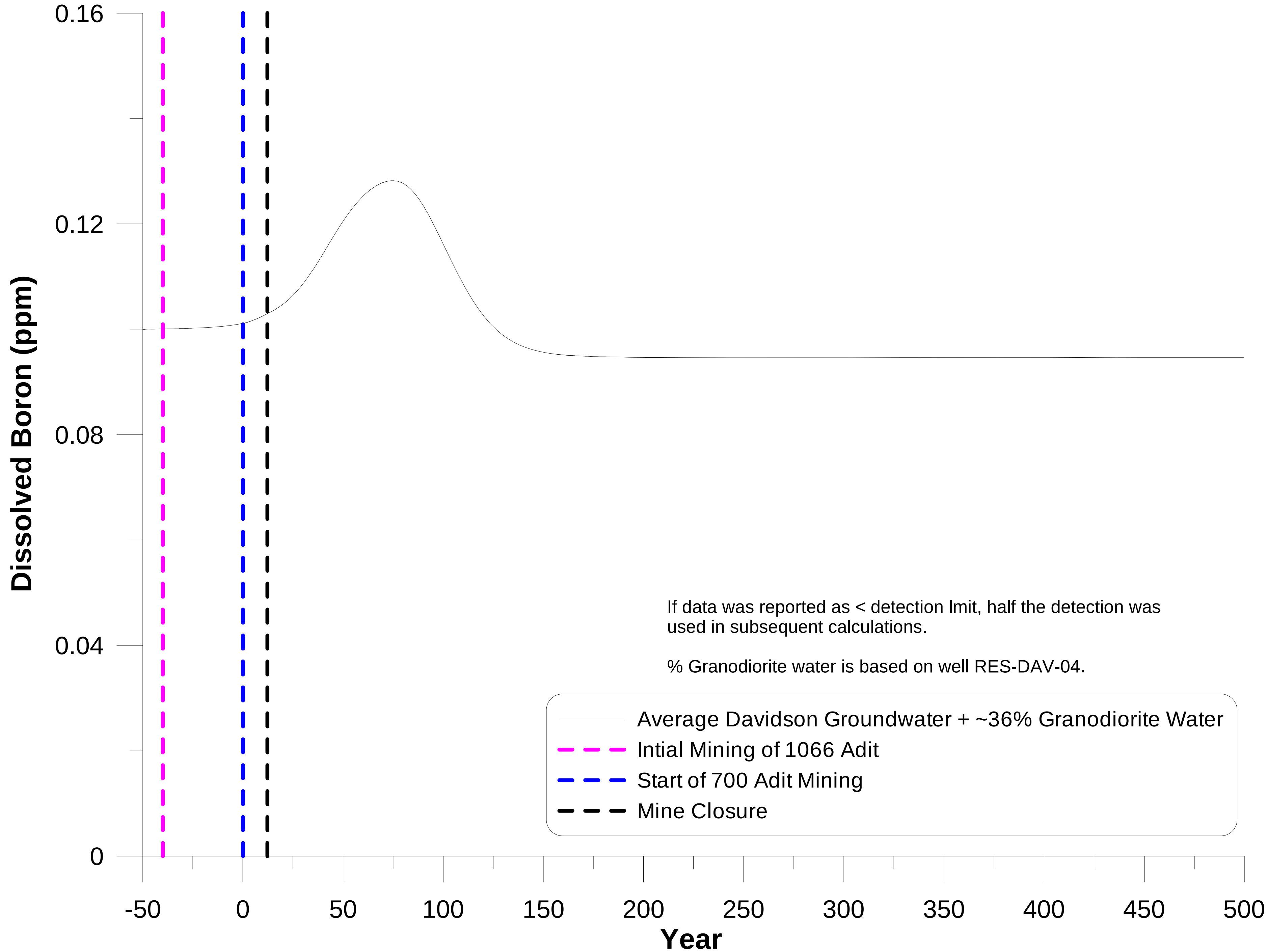

0.12
0.08
0.04
0
Dissolved Barium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



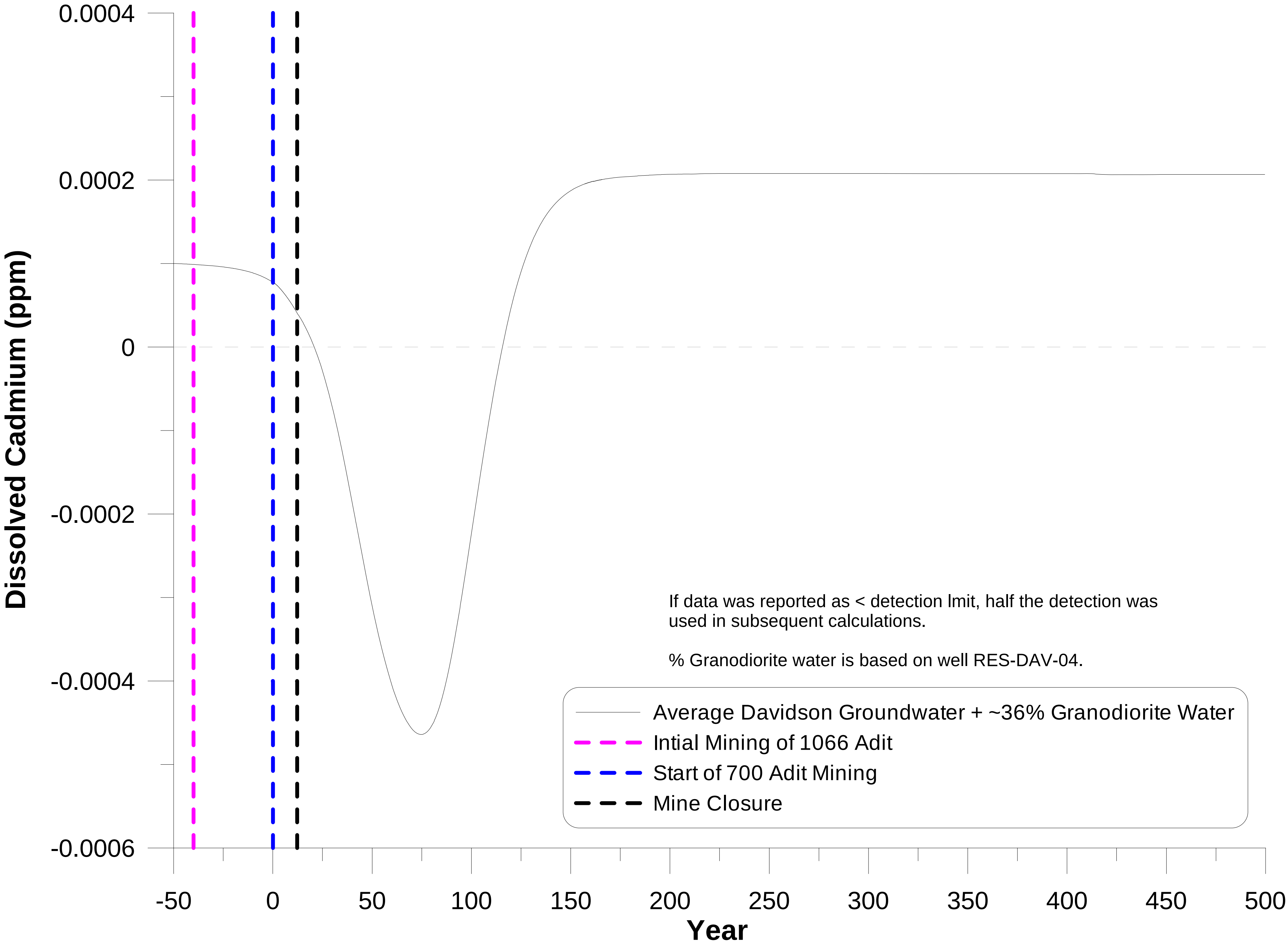
0.0016
0.0012
0.0008
0.0004
0
Dissolved Beryllium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



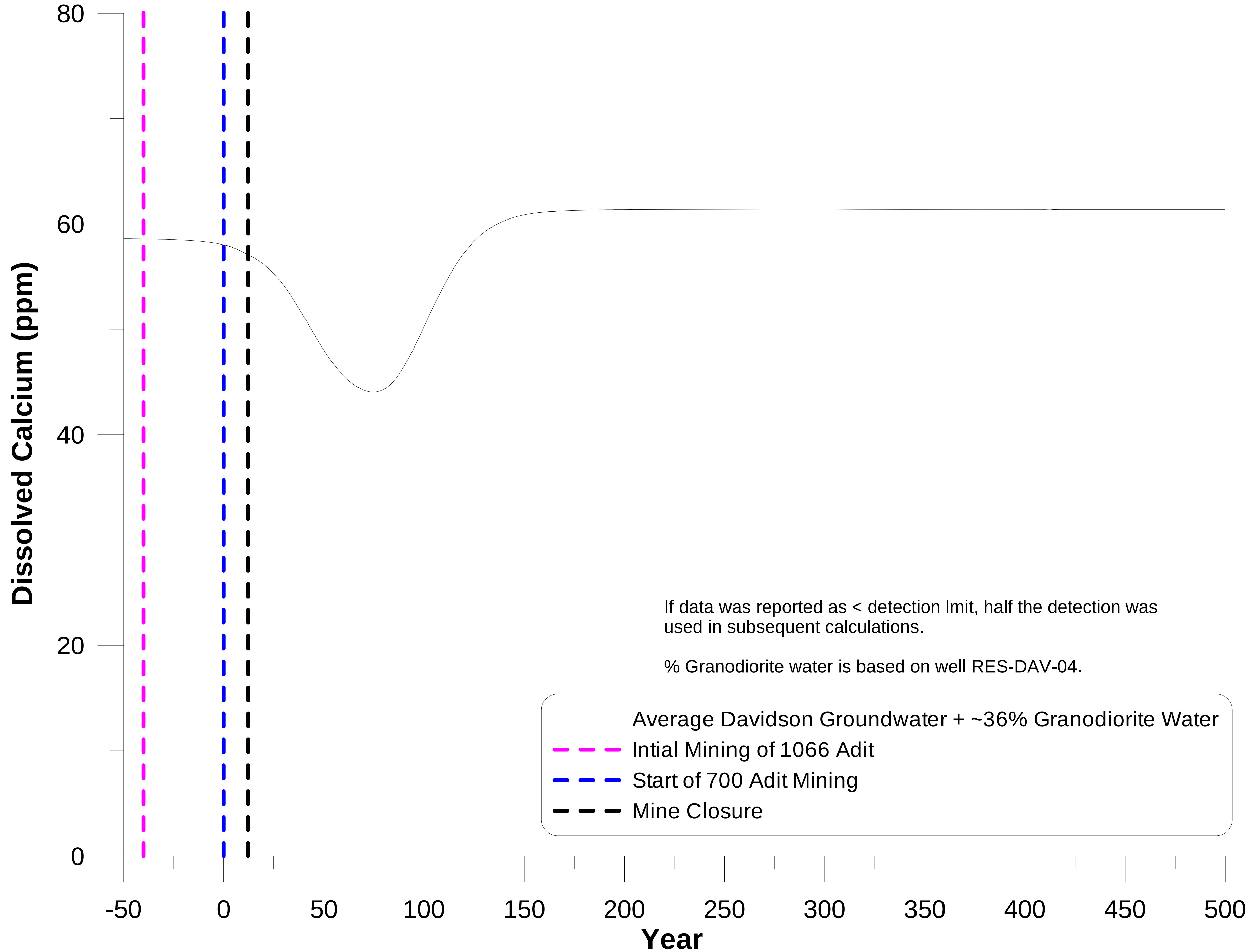
Dissolved Bismuth (ppm)
0.0014
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



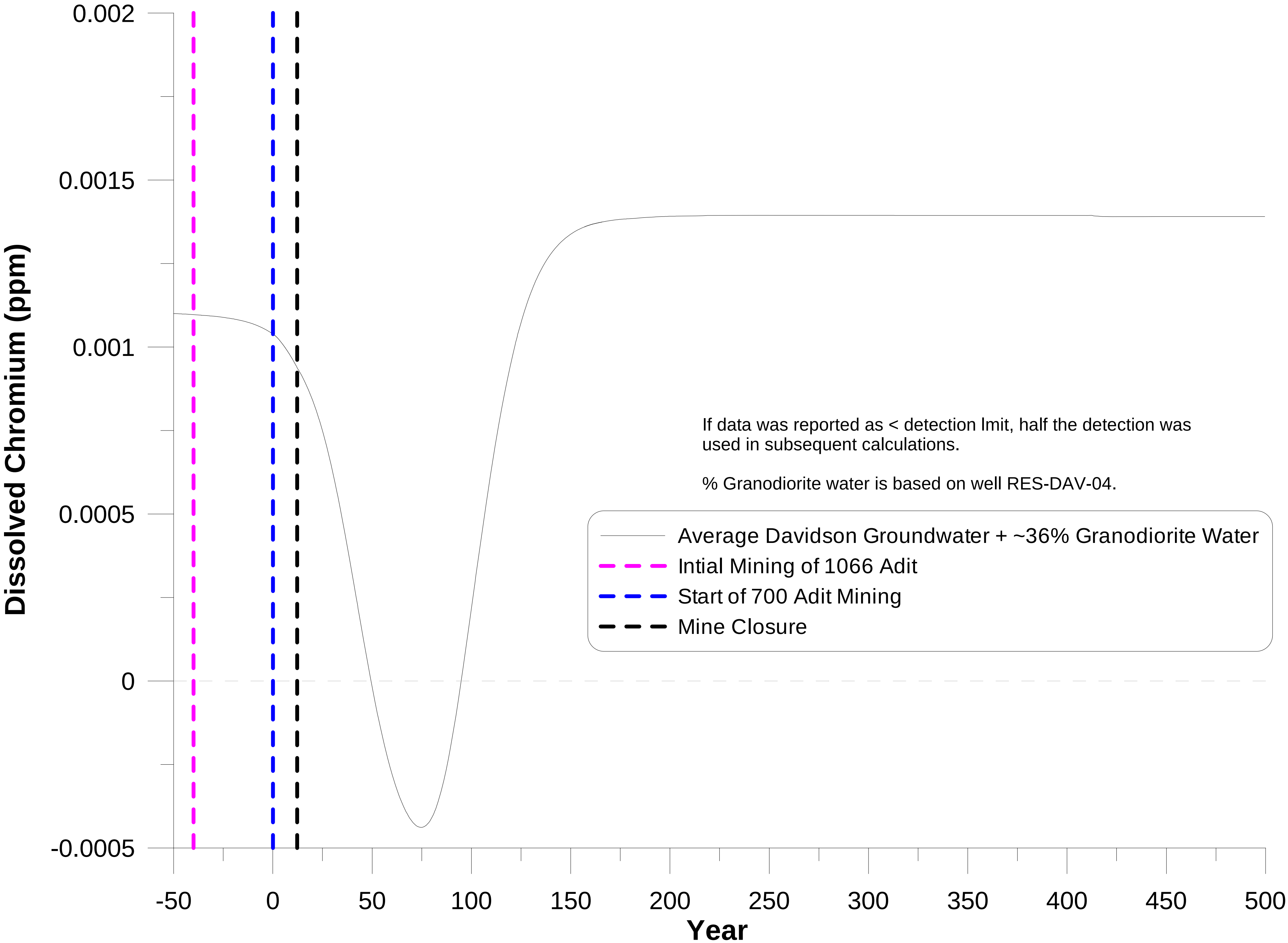
0.16
0.12
0.08
0.04
0
Dissolved Boron (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



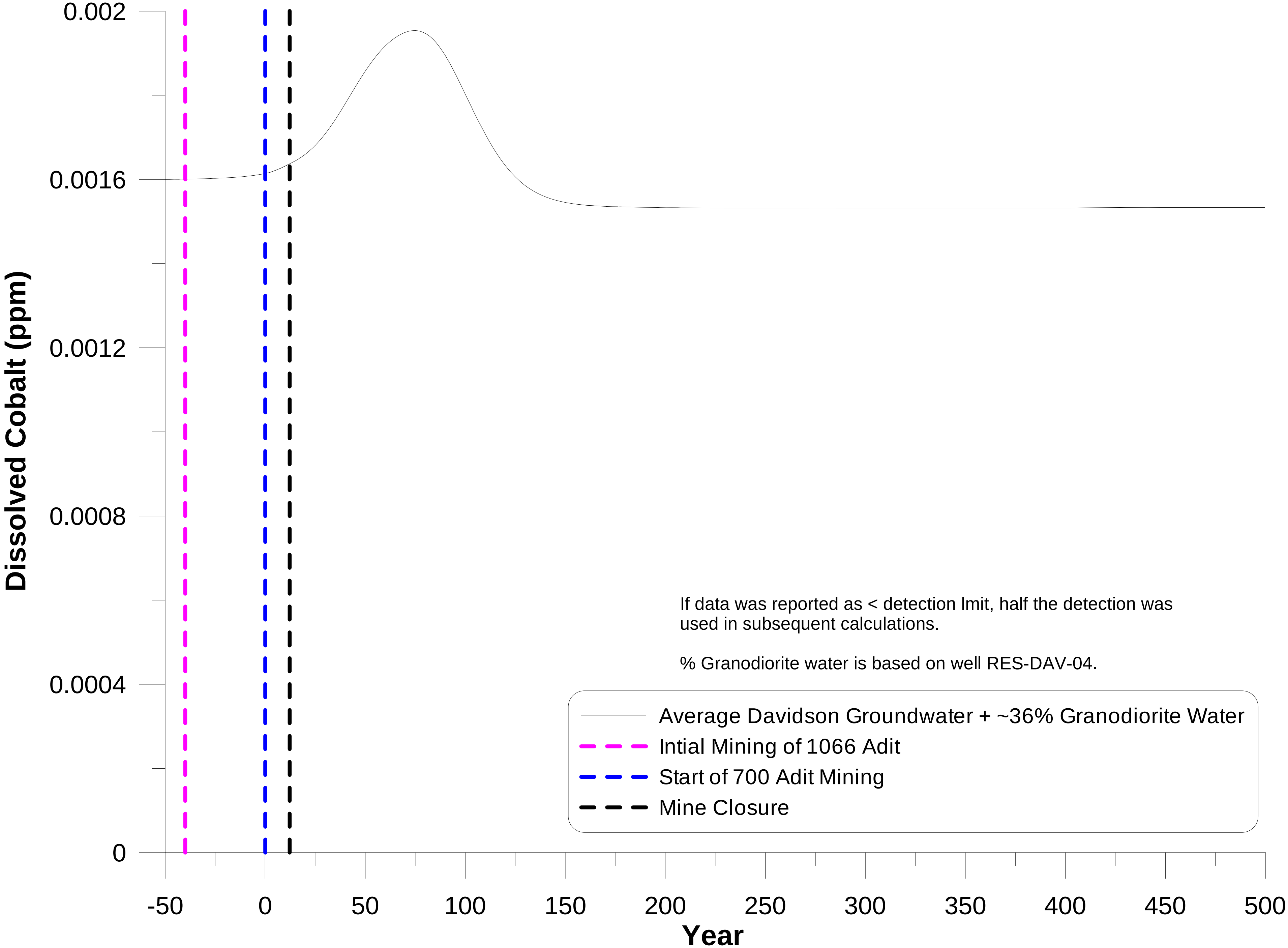
0.0004
0.0002
0
-0.0002
-0.0004
-0.0006
Dissolved Cadmium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

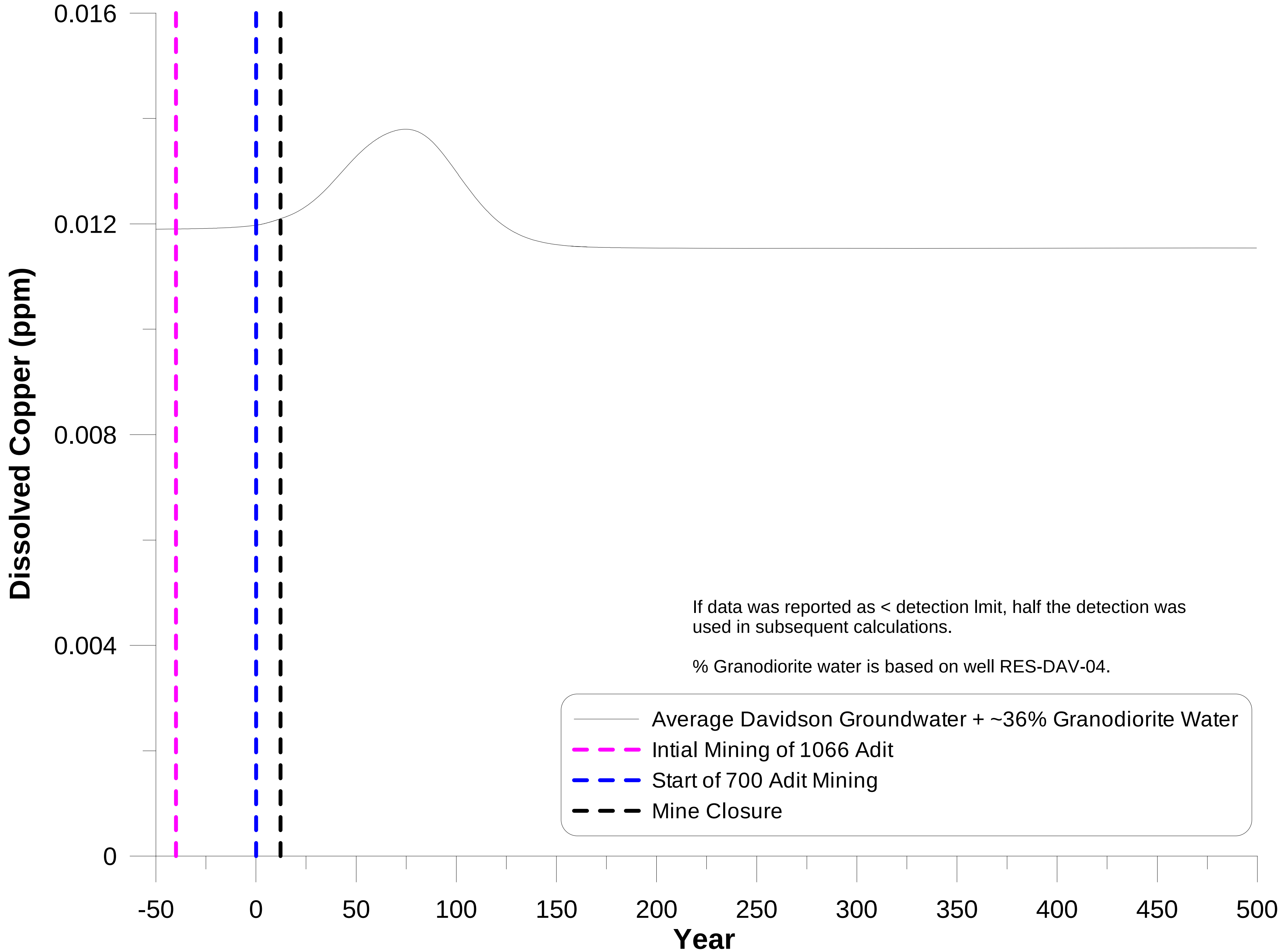


80
60
40
20
0
Dissolved Calcium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

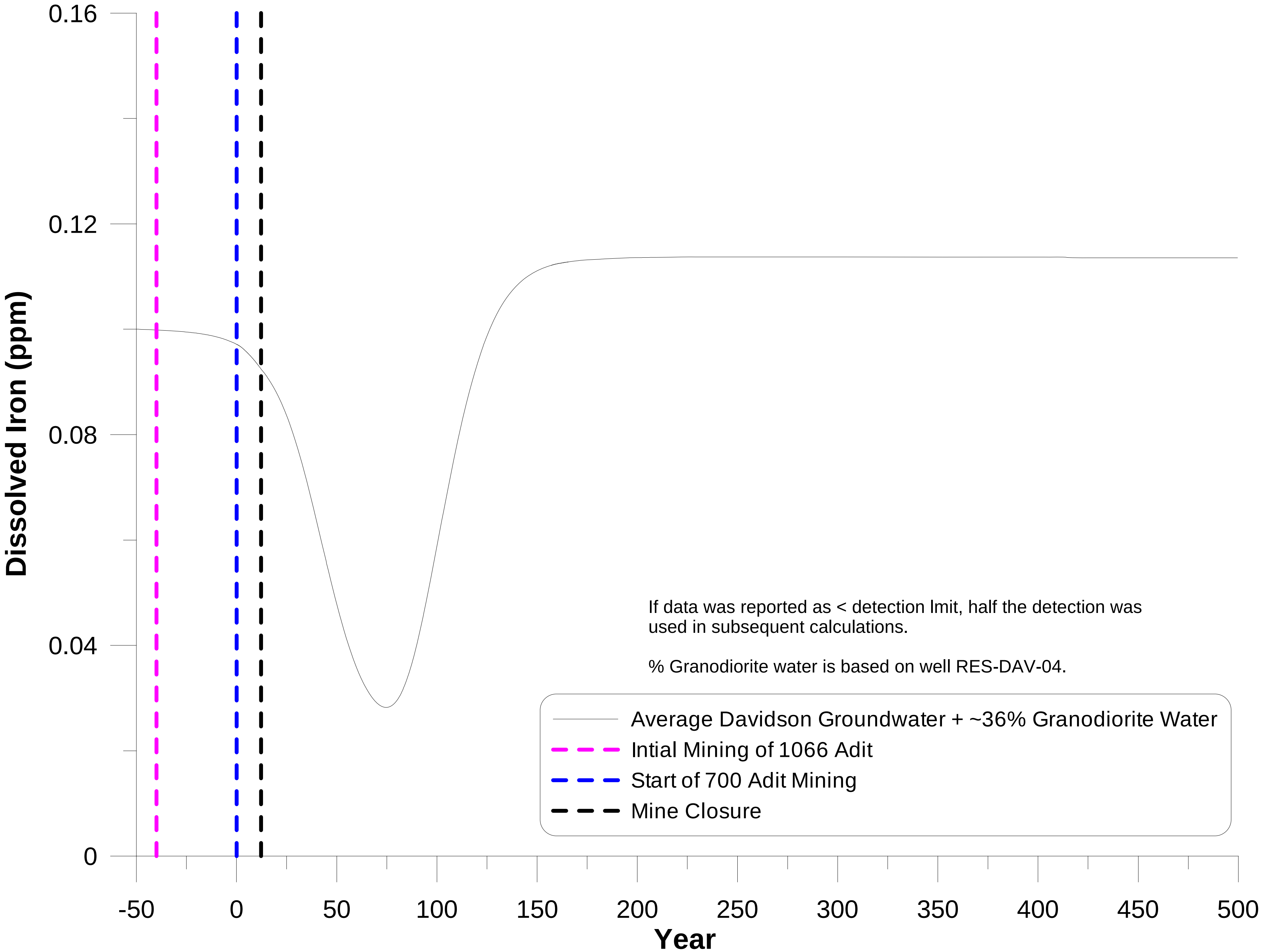


Dissolved Chromium (ppm)
0.002
0.0015
0.001
0.0005
0
-0.0005
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

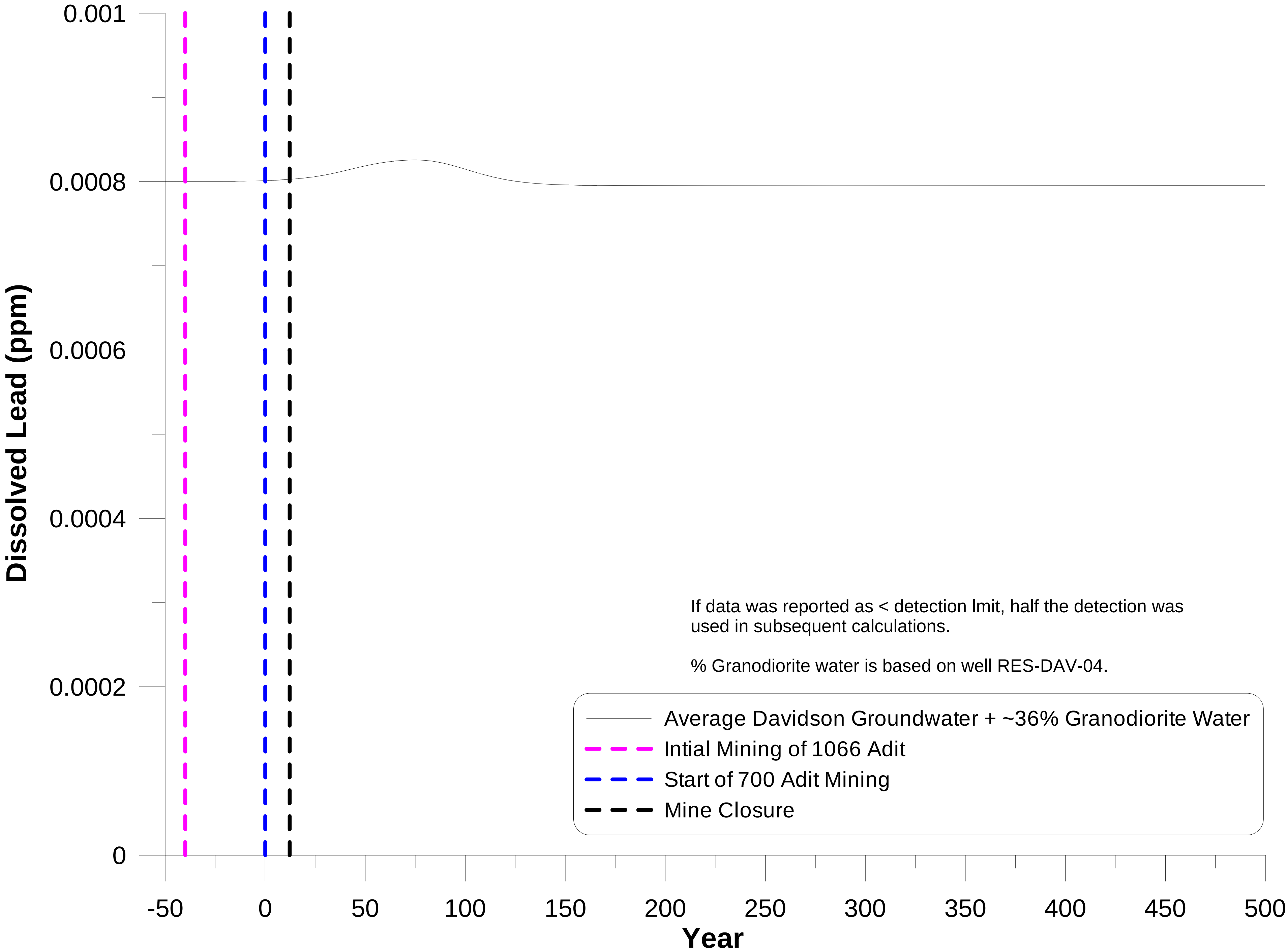

Dissolved Cobalt (ppm)
0.002
0.0016
0.0012
0.0008
0.0004
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



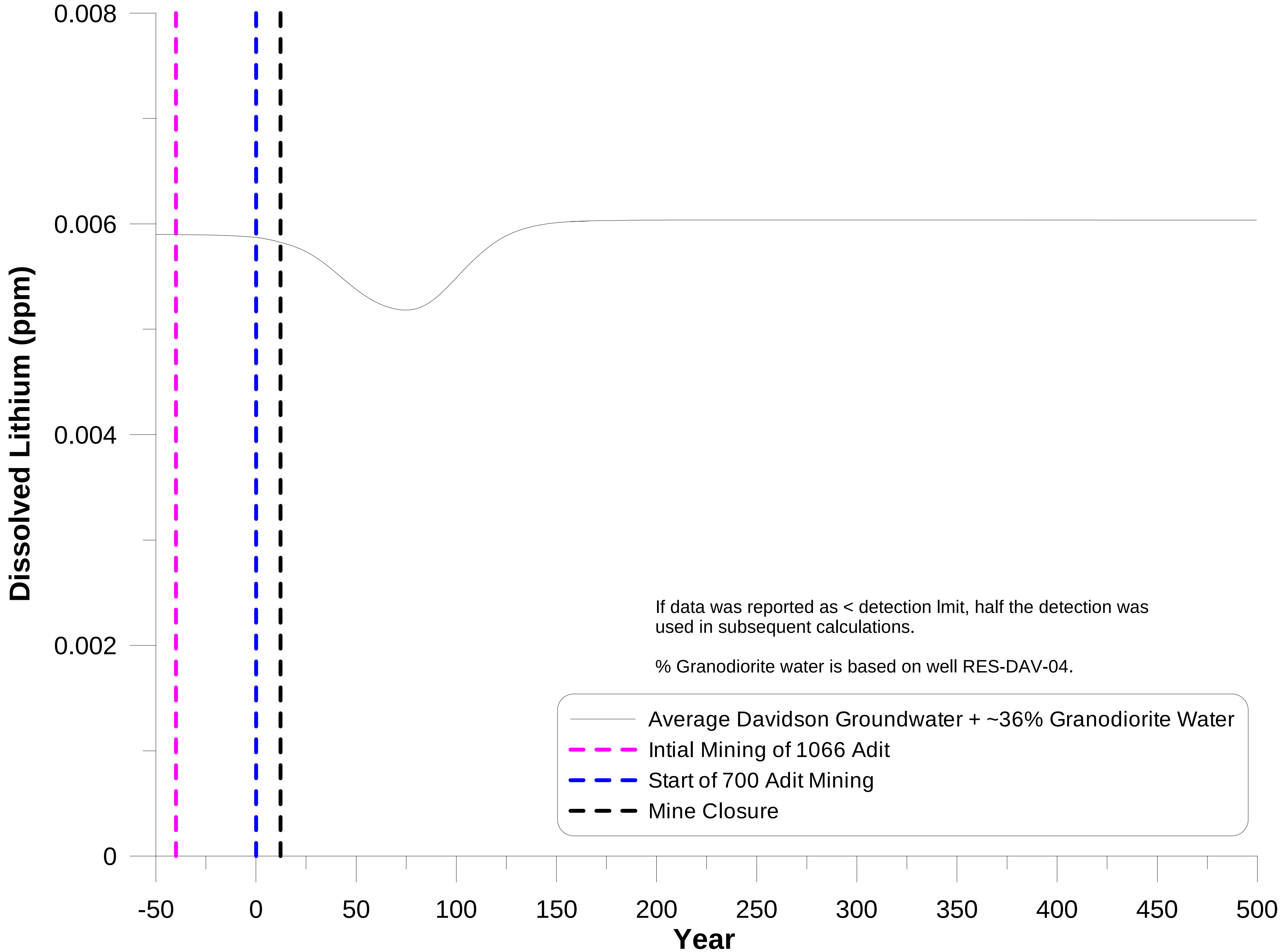
0.016
0.012
0.008
0.004
0
Dissolved Copper (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



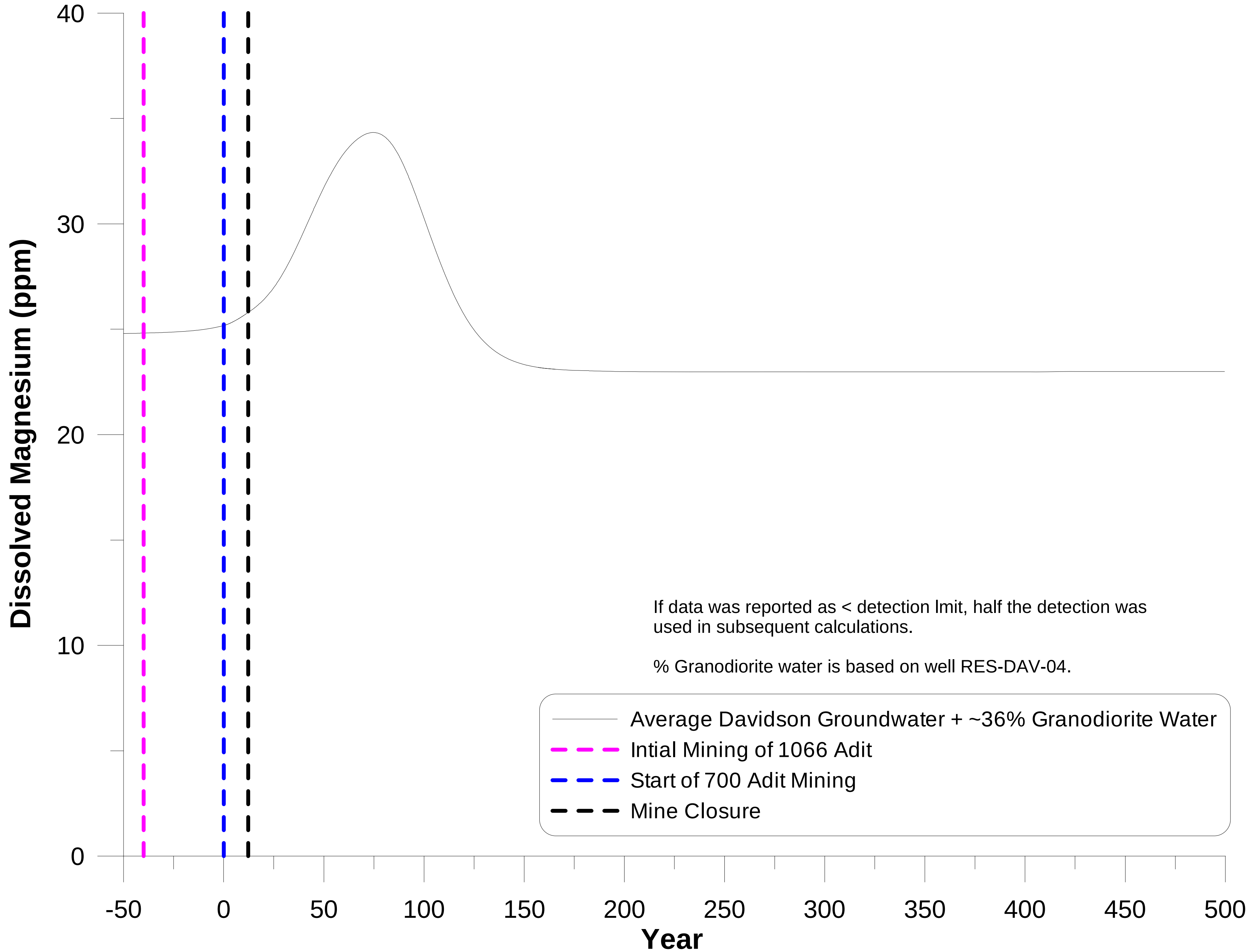
Dissolved Iron (ppm)
0.16
0.12
0.08
0.04
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



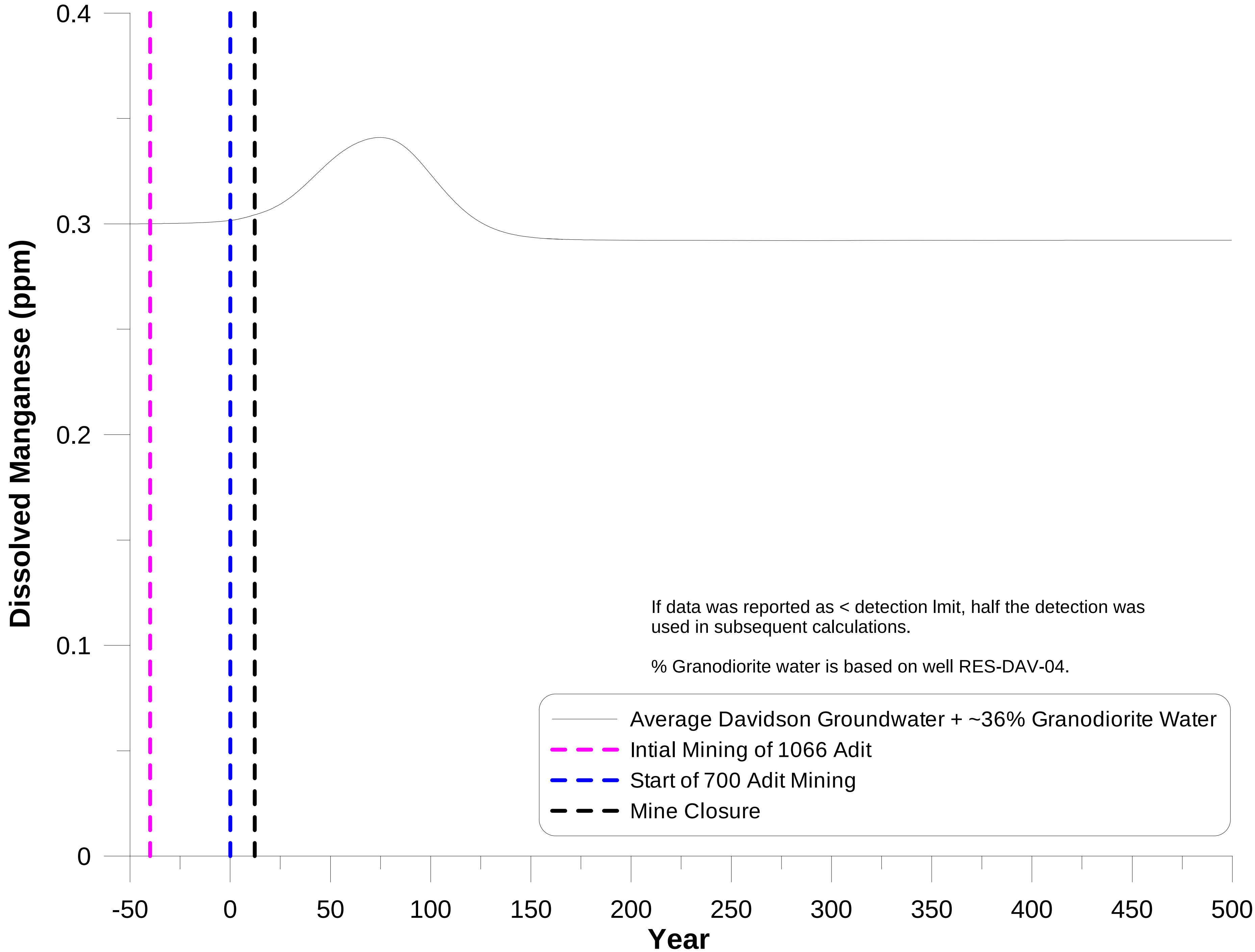
0.001
0.0008
0.0006
0.0004
0.0002
0
Dissolved Lead (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



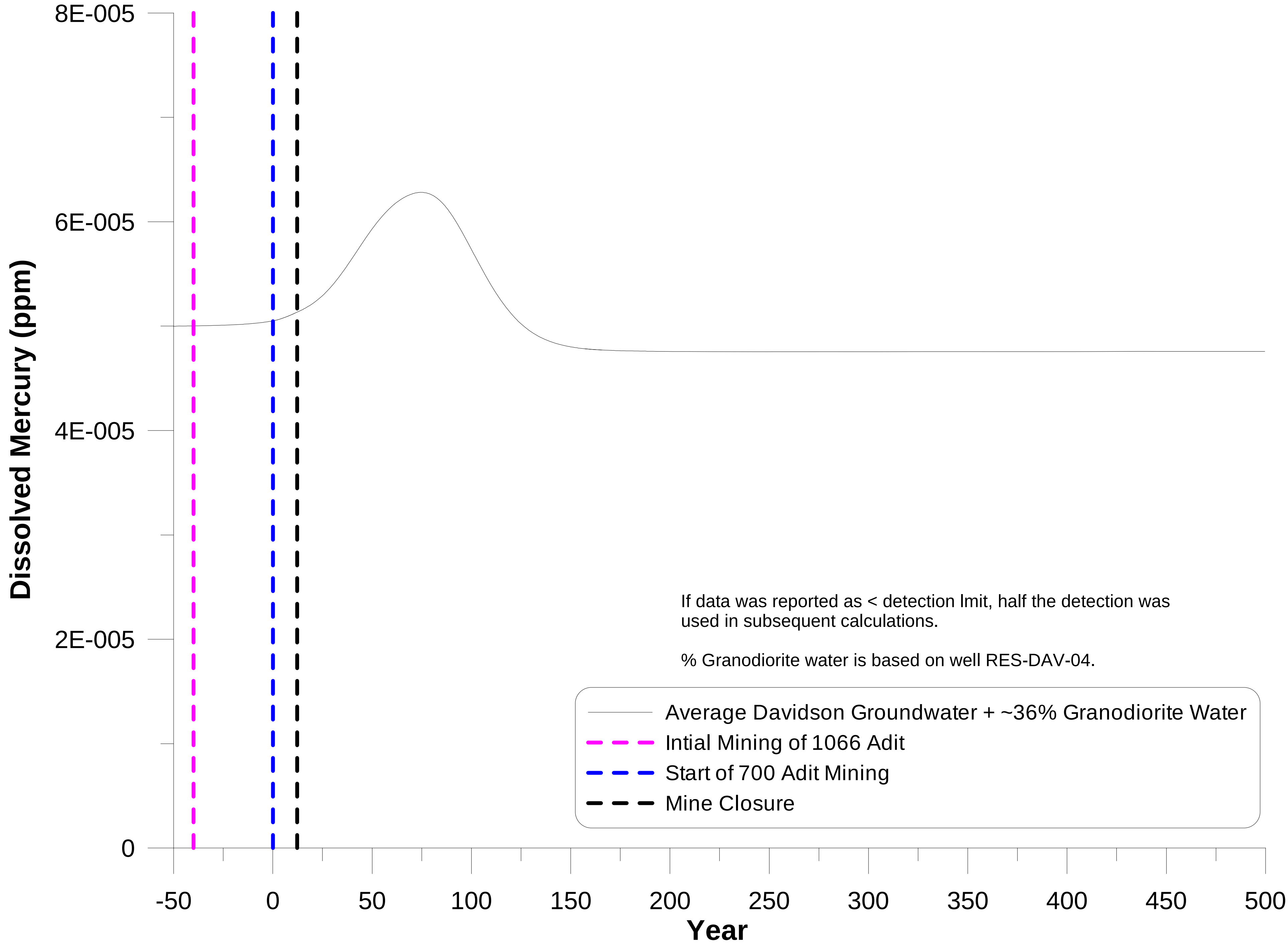
0.008
0.006
0.004
0.002
0
Dissolved Lithium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

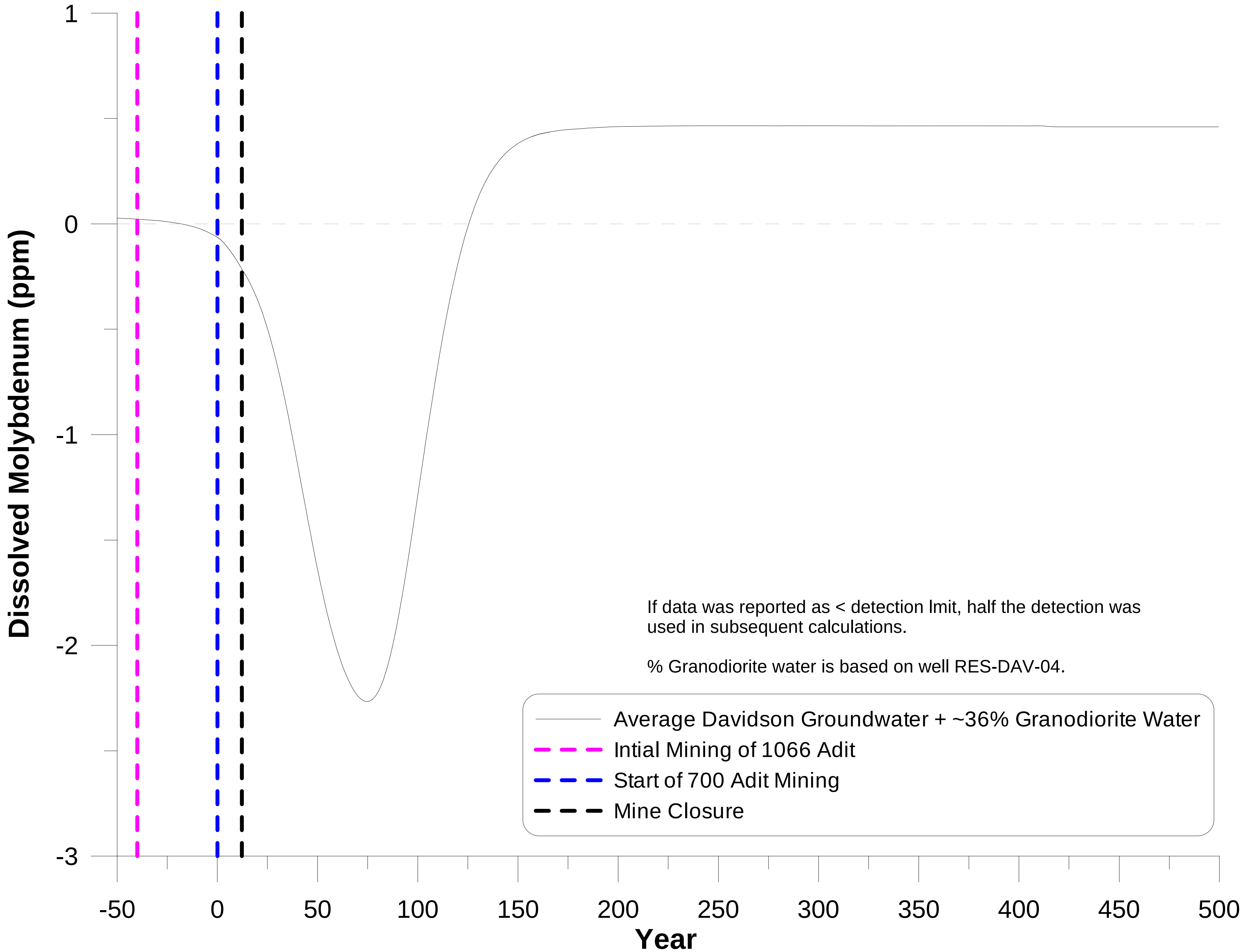


40
30
20
10
0
Dissolved Magnesium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

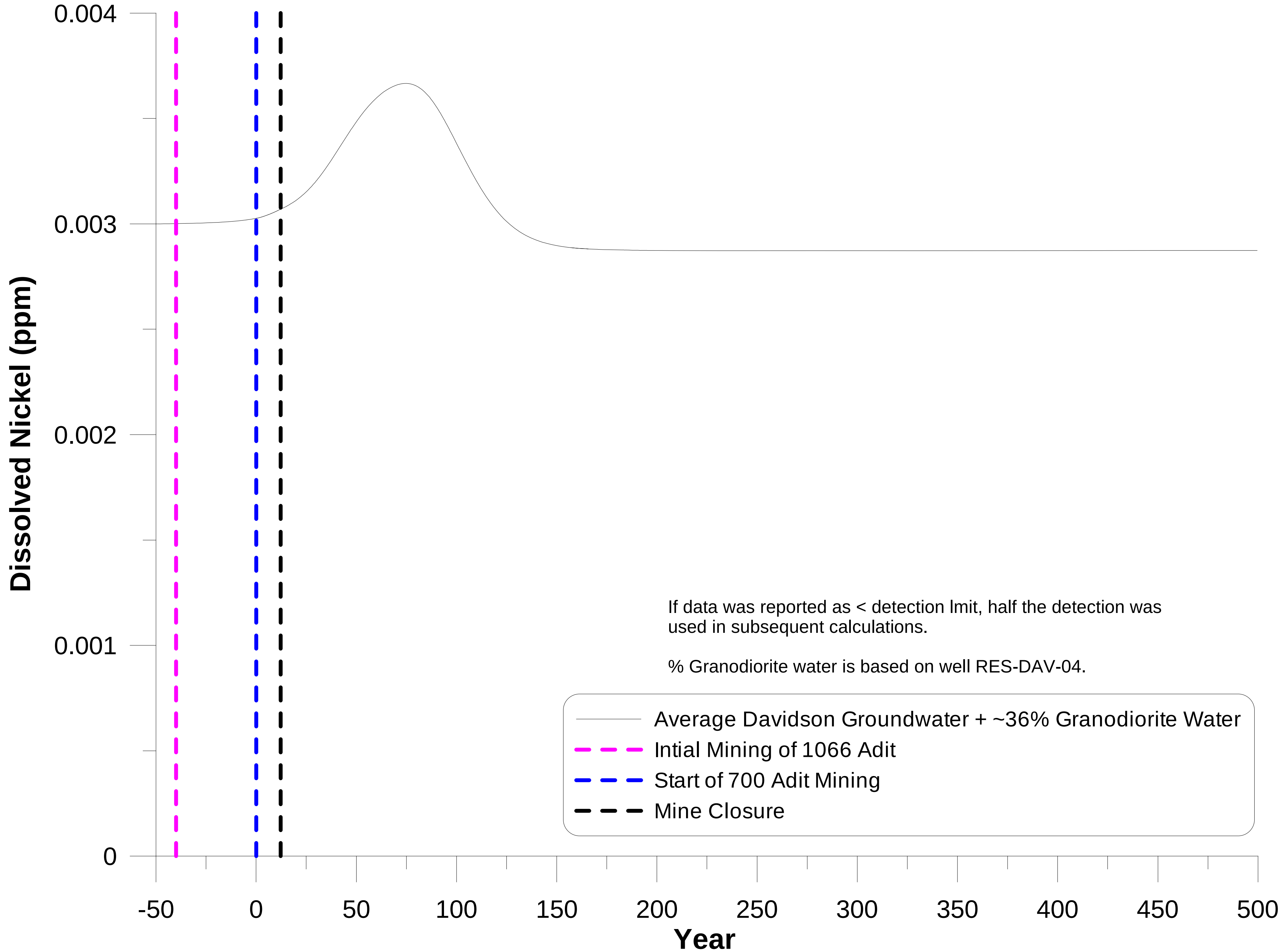


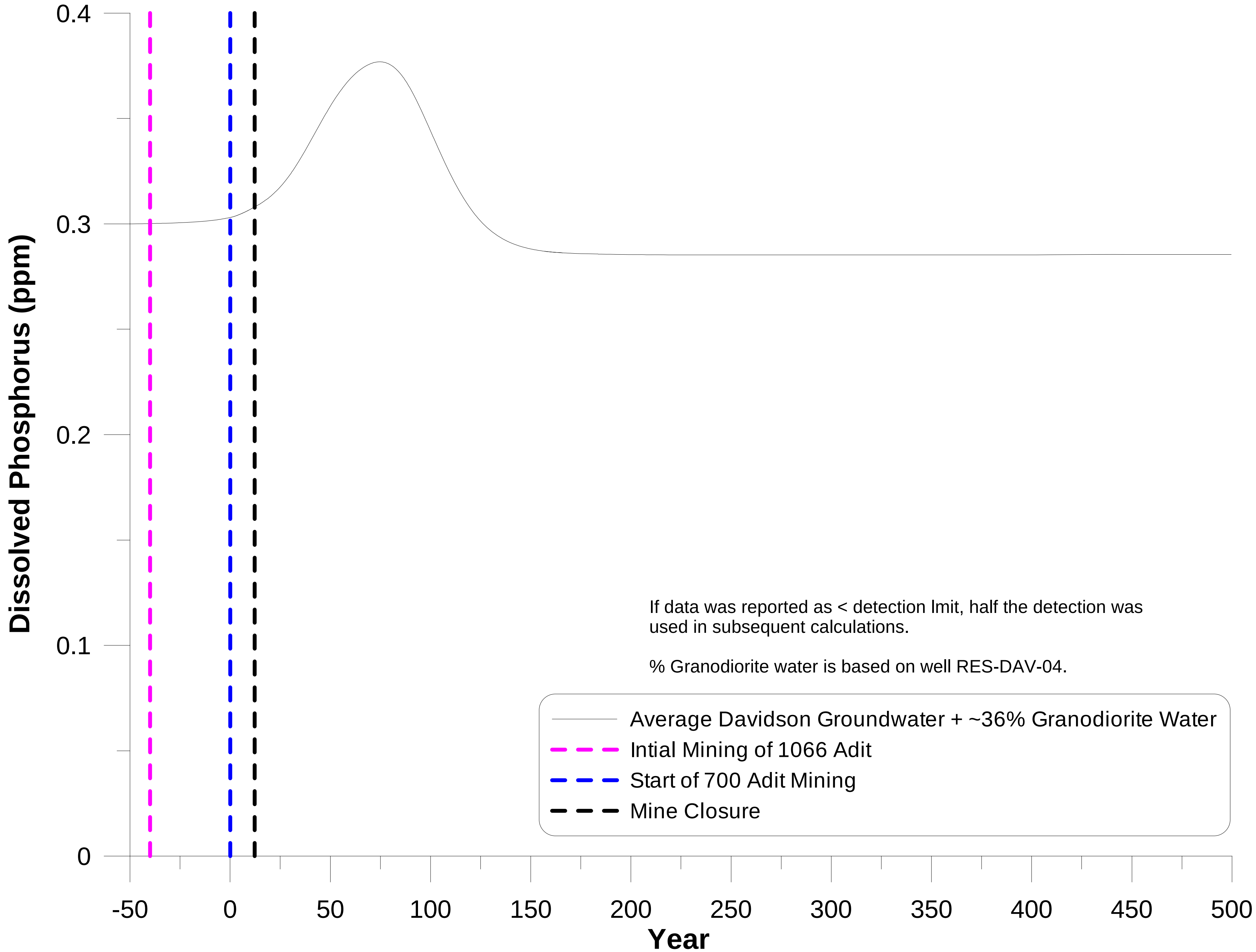
0.4
0.3
0.2
0.1
0
Dissolved Manganese (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure


8E-005
6E-005
4E-005
2E-005
0
Dissolved Mercury (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

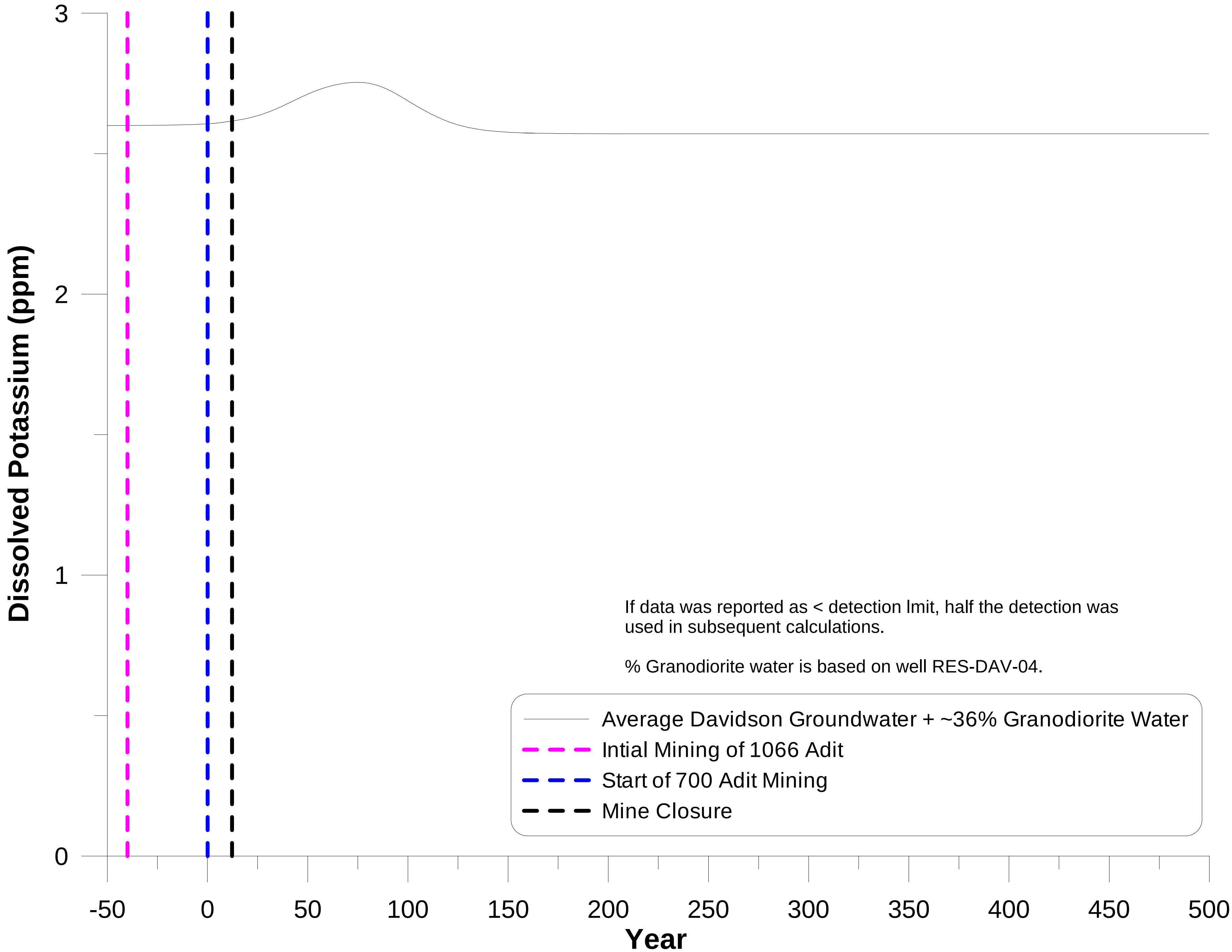


Dissolved Molybdenum (ppm)
1
0
-1
-2
-3
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

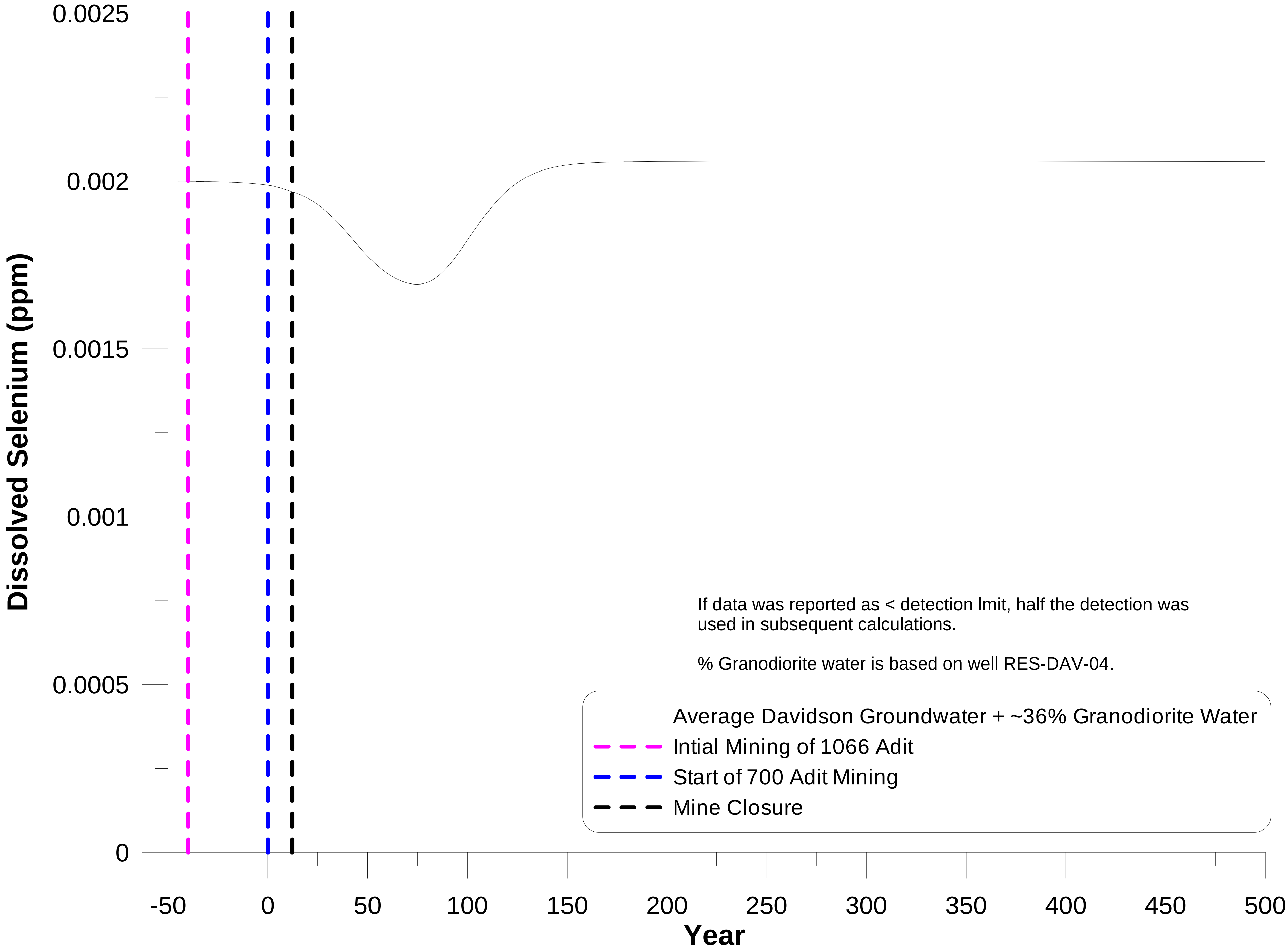

0.004
0.003
0.002
0.001
0
Dissolved Nickel (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



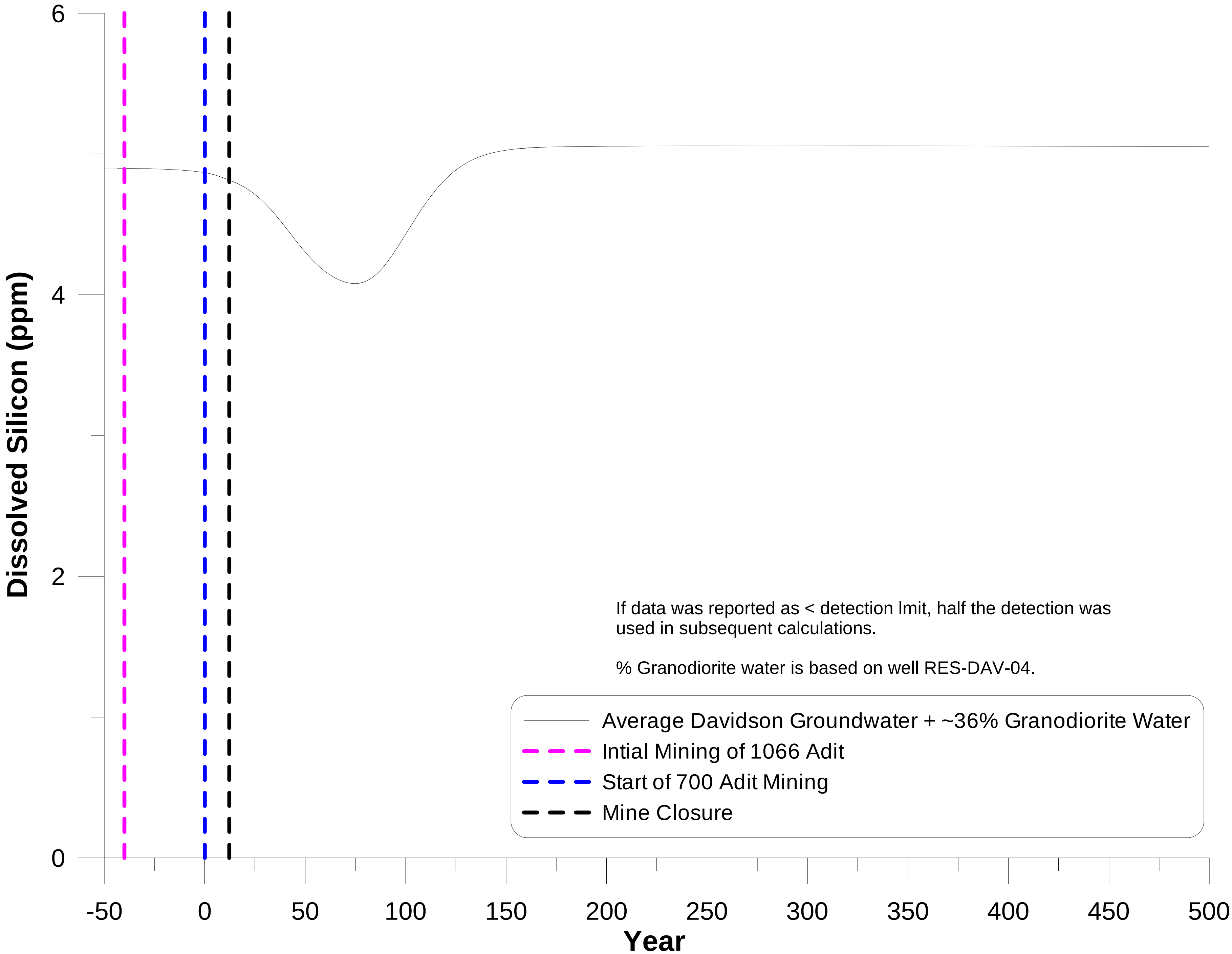
0.4
0.3
0.2
0.1
0
Dissolved Phosphorus (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



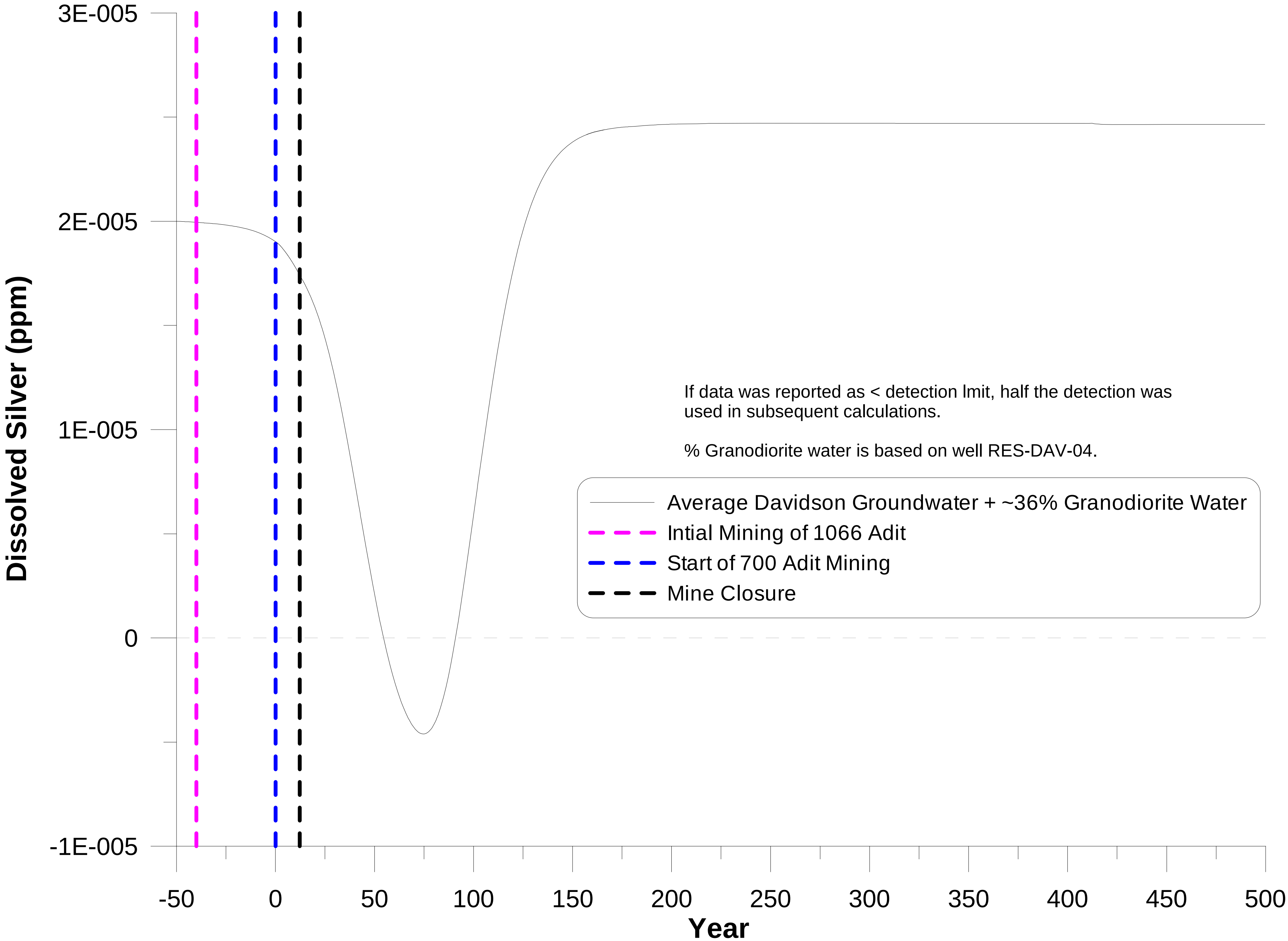
3
2
1
0
Dissolved Potassium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



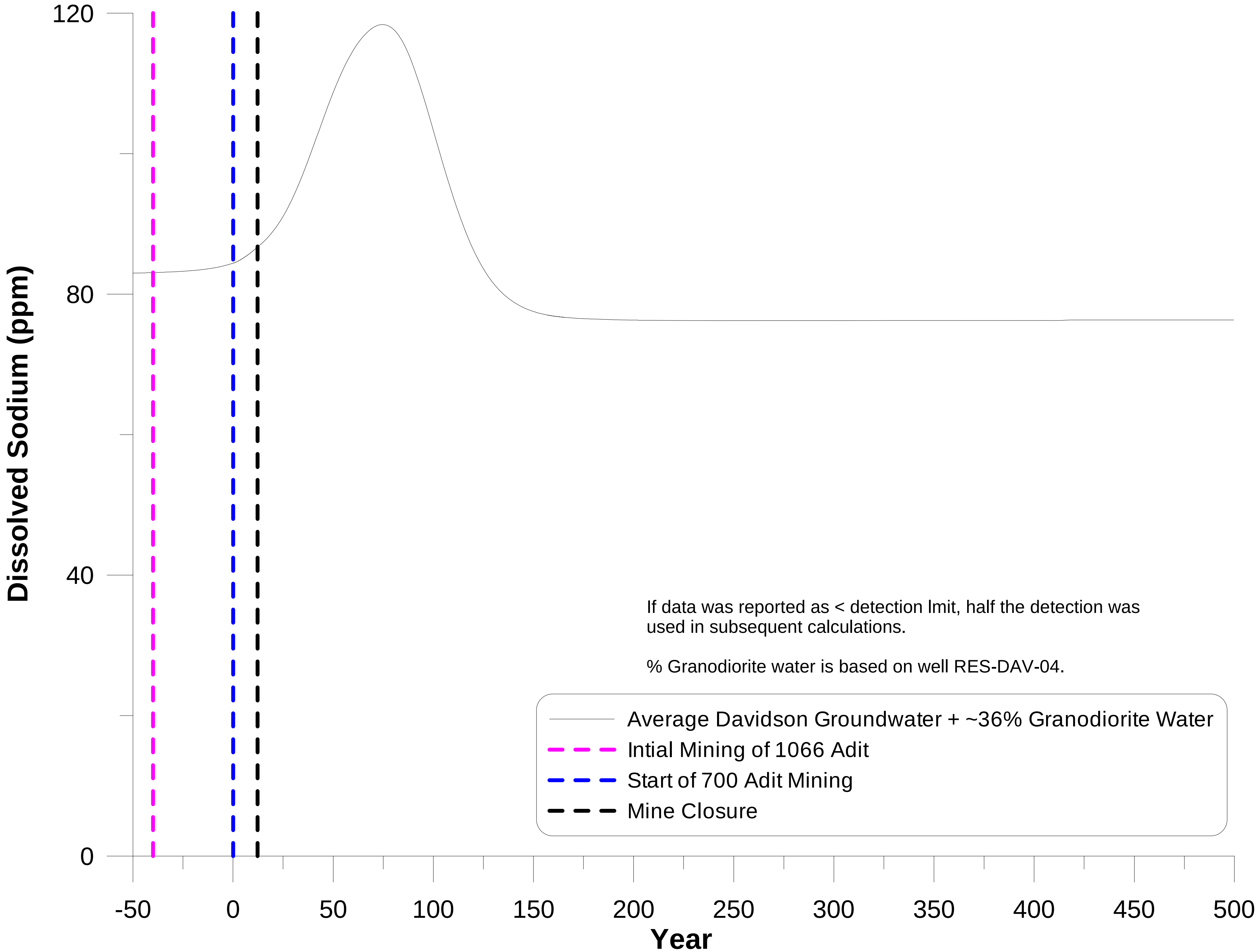
0.0025
0.002
0.0015
0.001
0.0005
0
Dissolved Selenium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

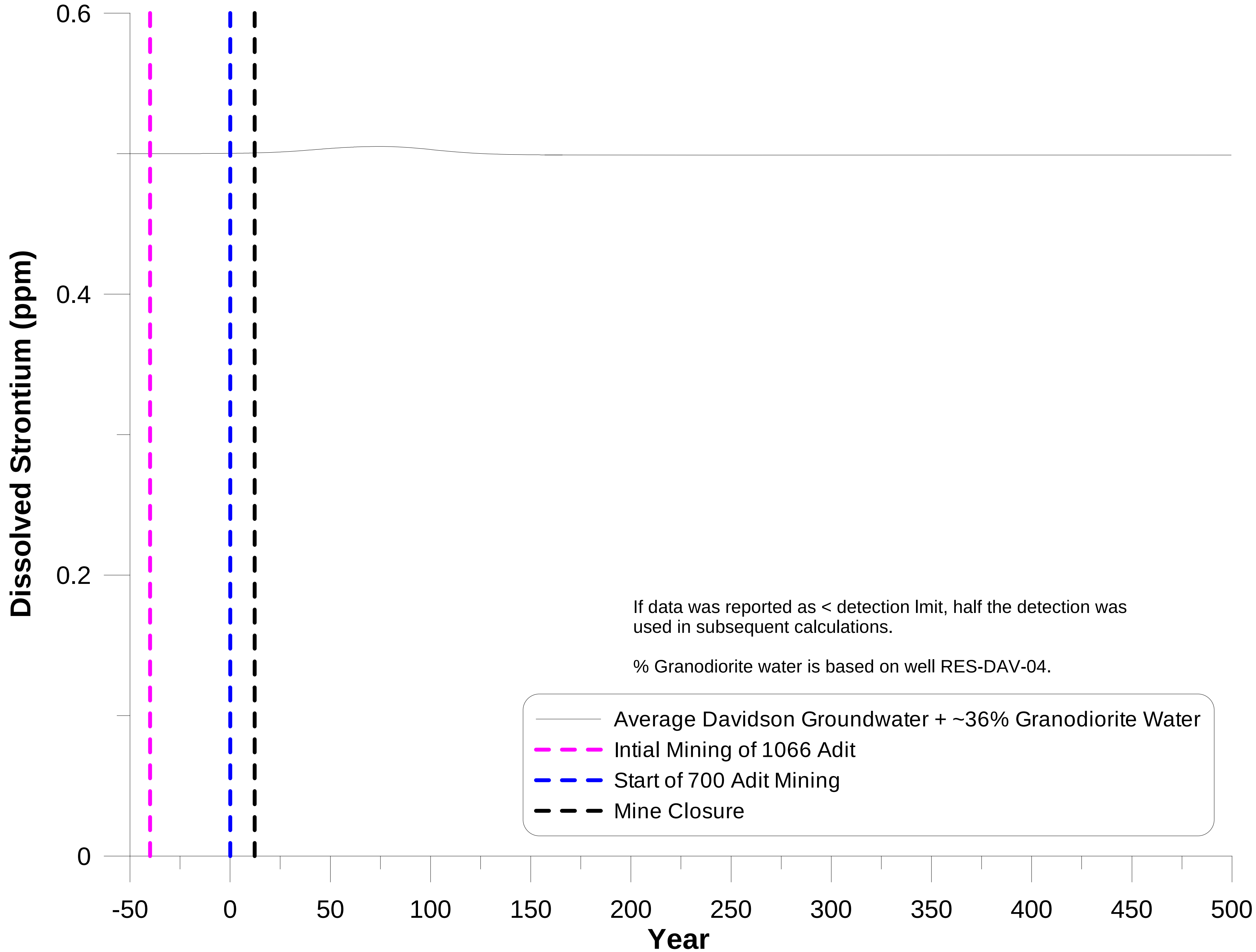


6
4
2
0
Dissolved Silicon (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

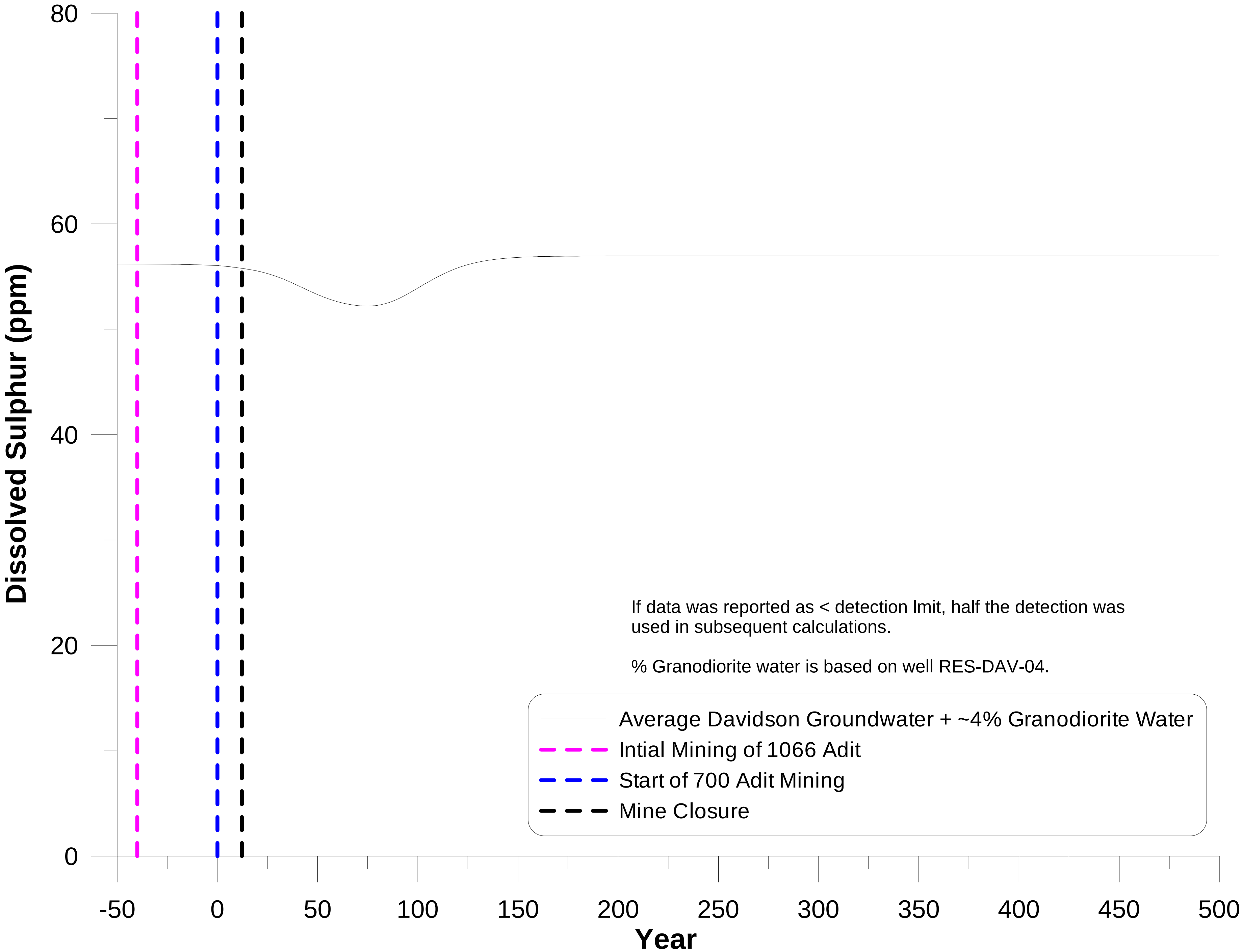


3E-005
2E-005
1E-005
0
-1E-005
Dissolved Silver (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

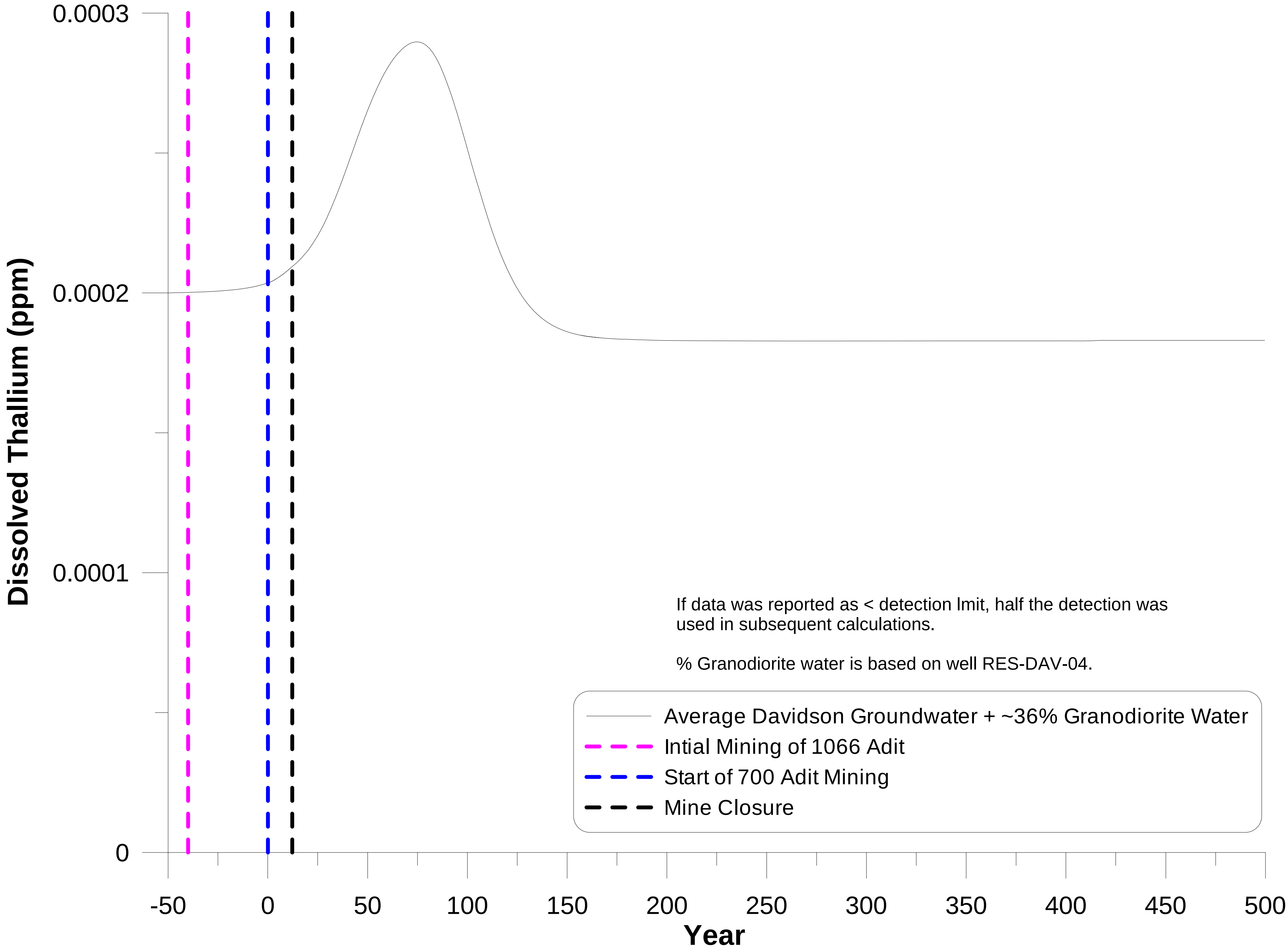

120
80
40
0
Dissolved Sodium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

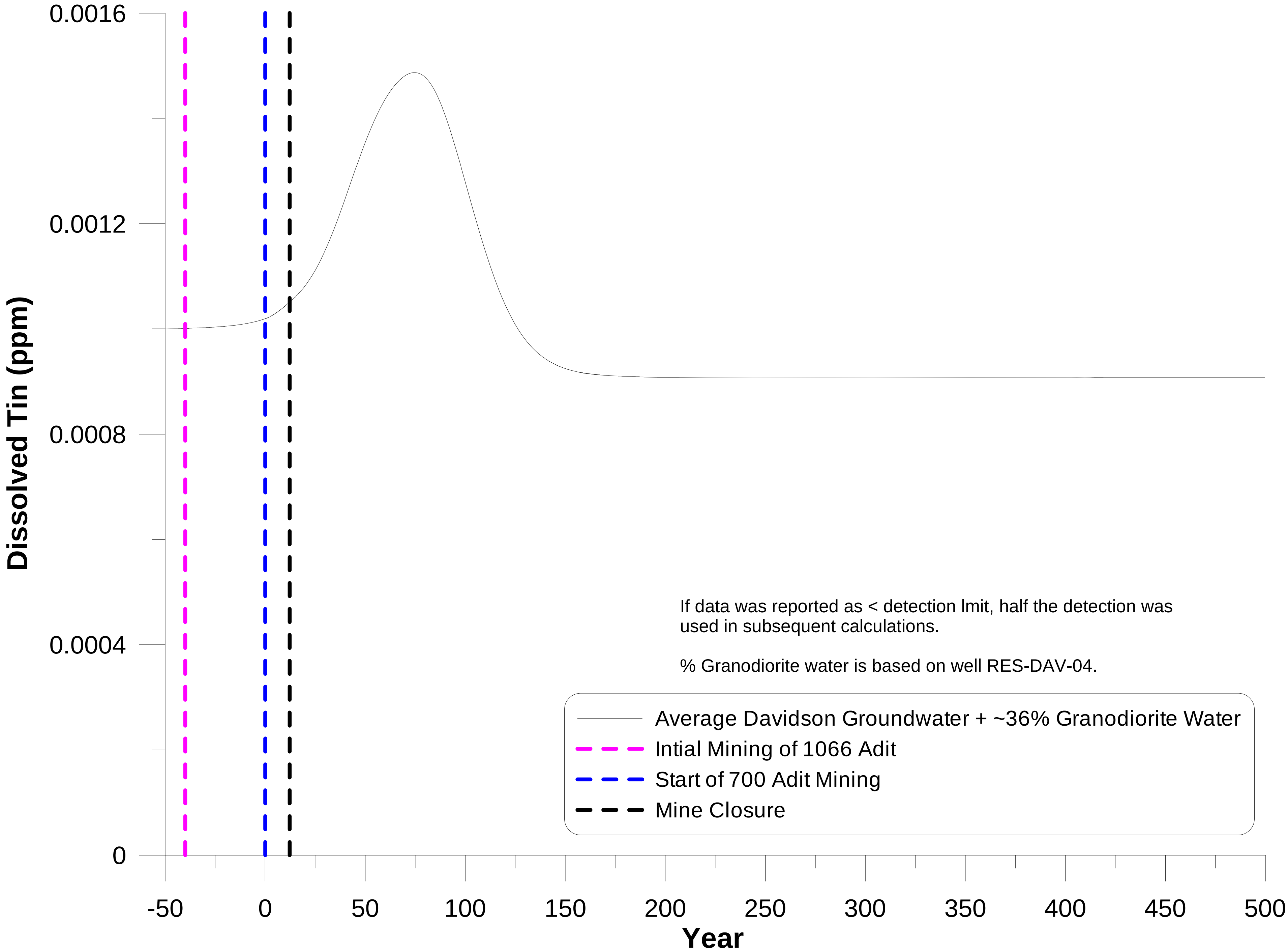


0.6
0.4
0.2
0
Dissolved Strontium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

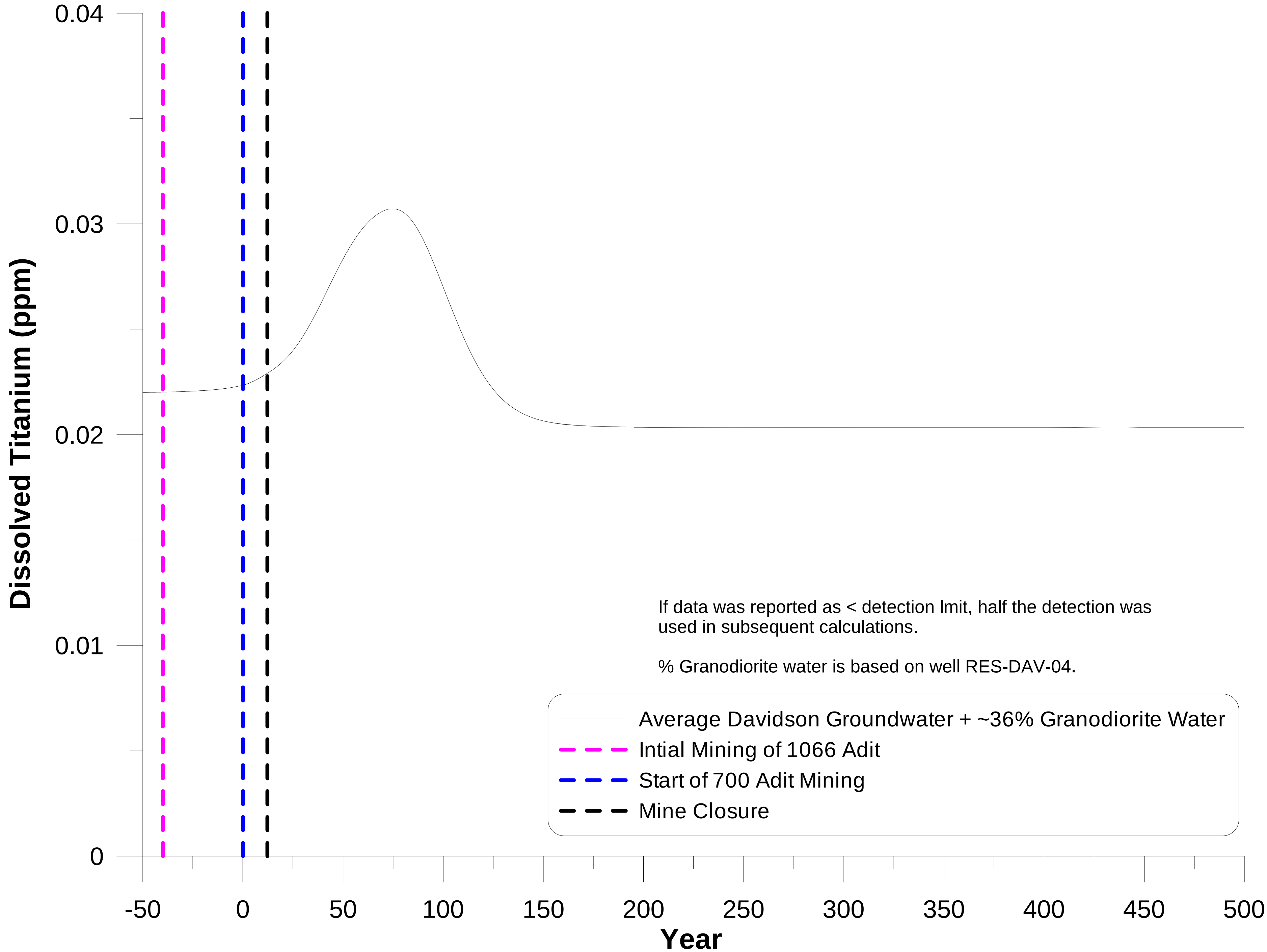


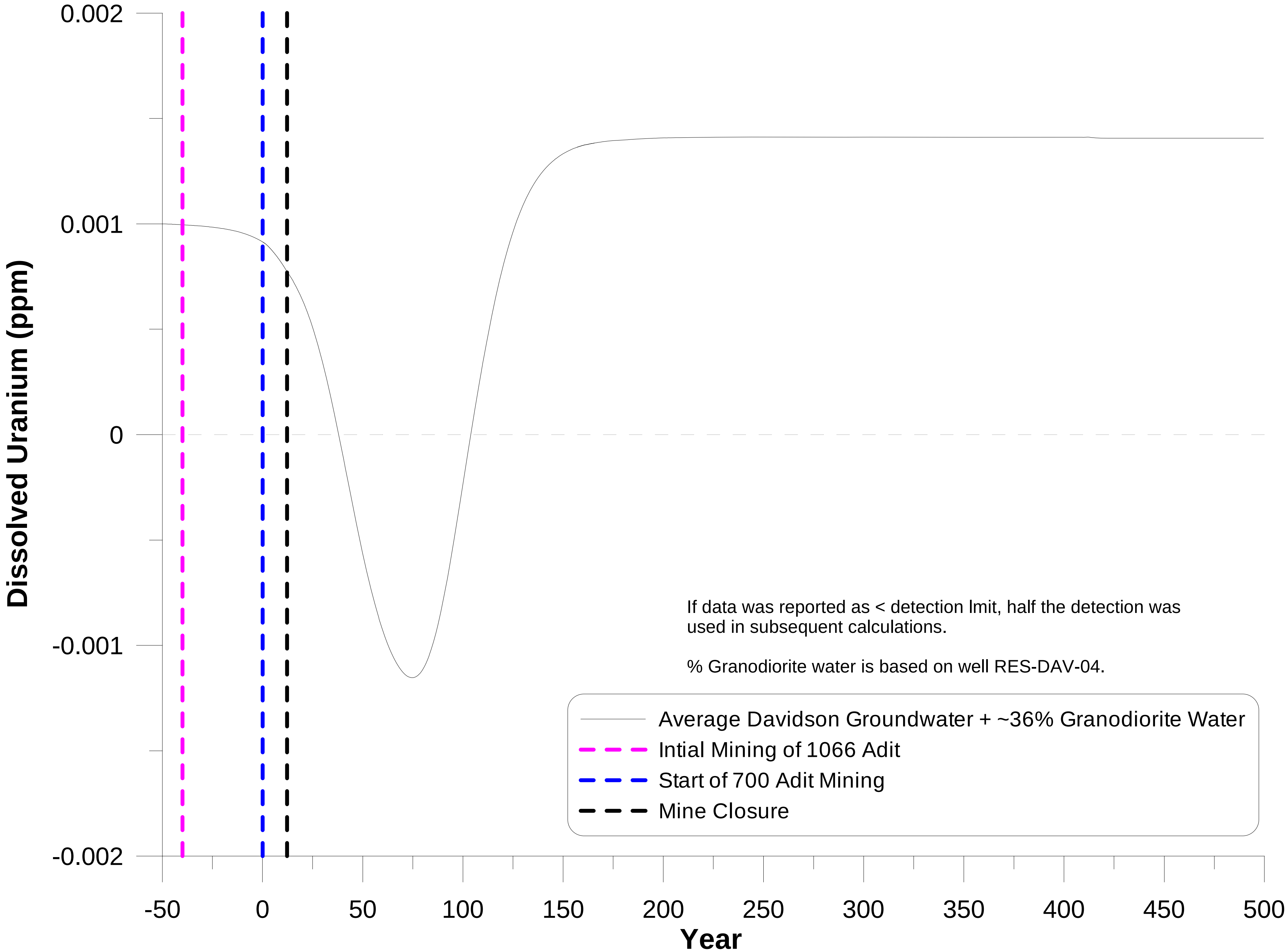
80
60
40
20
0
Dissolved Sulphur (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~4% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure


0.0003
0.0002
0.0001
0
Dissolved Thallium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

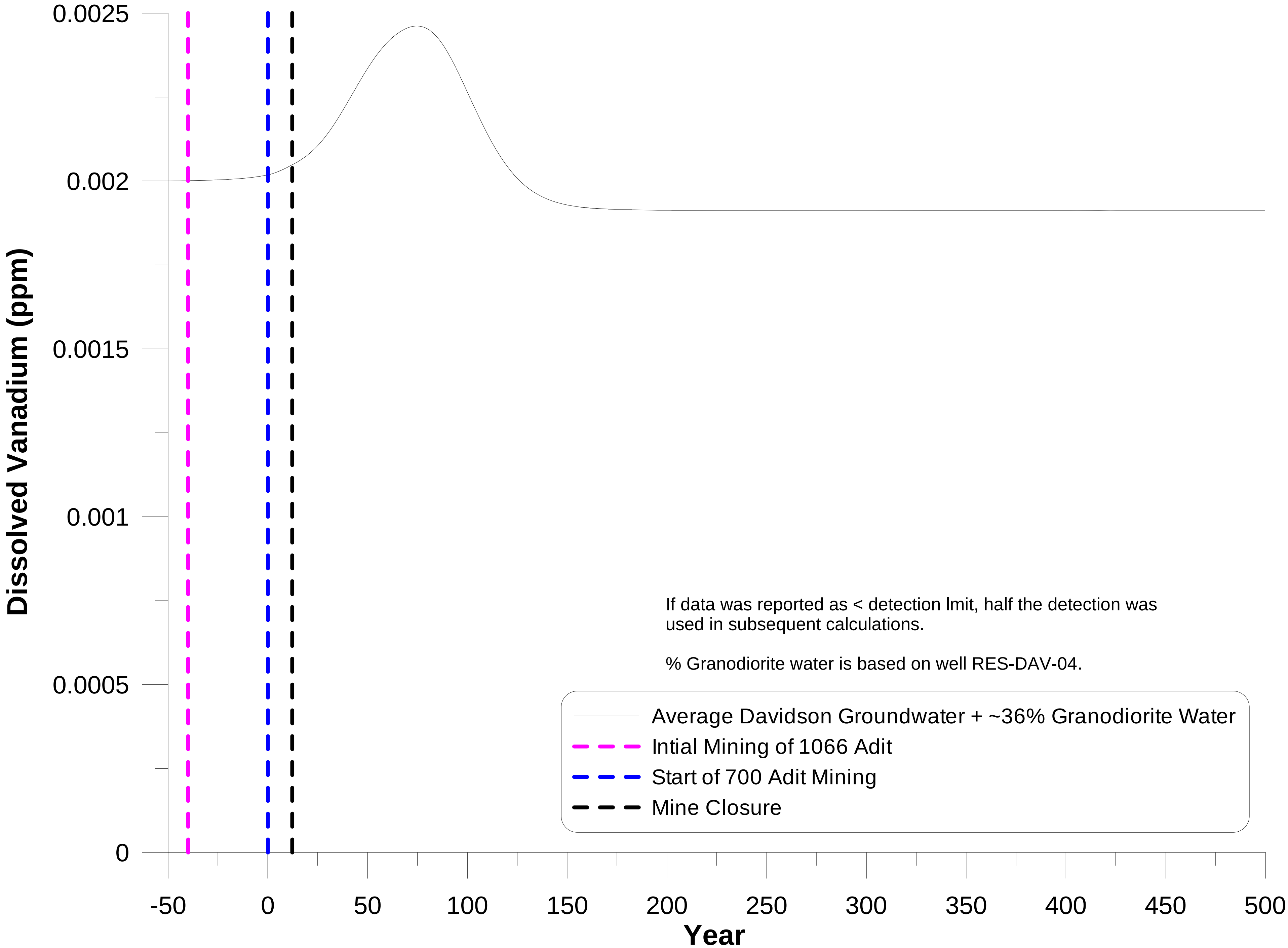


0.0016
0.0012
0.0008
0.0004
0
Dissolved Tin (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

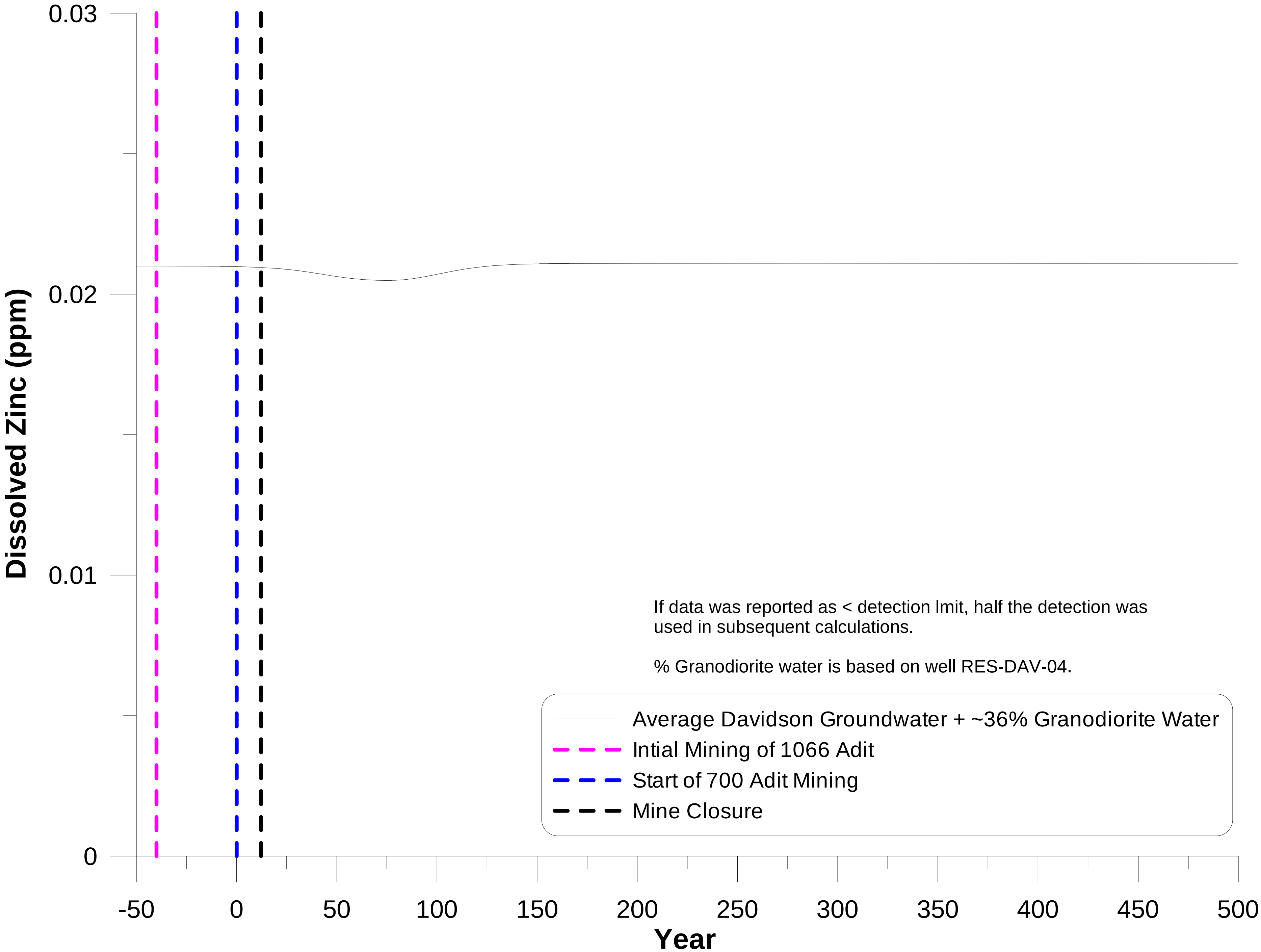

0.04
0.03
0.02
0.01
0
Dissolved Titanium (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



Dissolved Uranium (ppm)
0.002
0.001
0
-0.001
-0.002
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



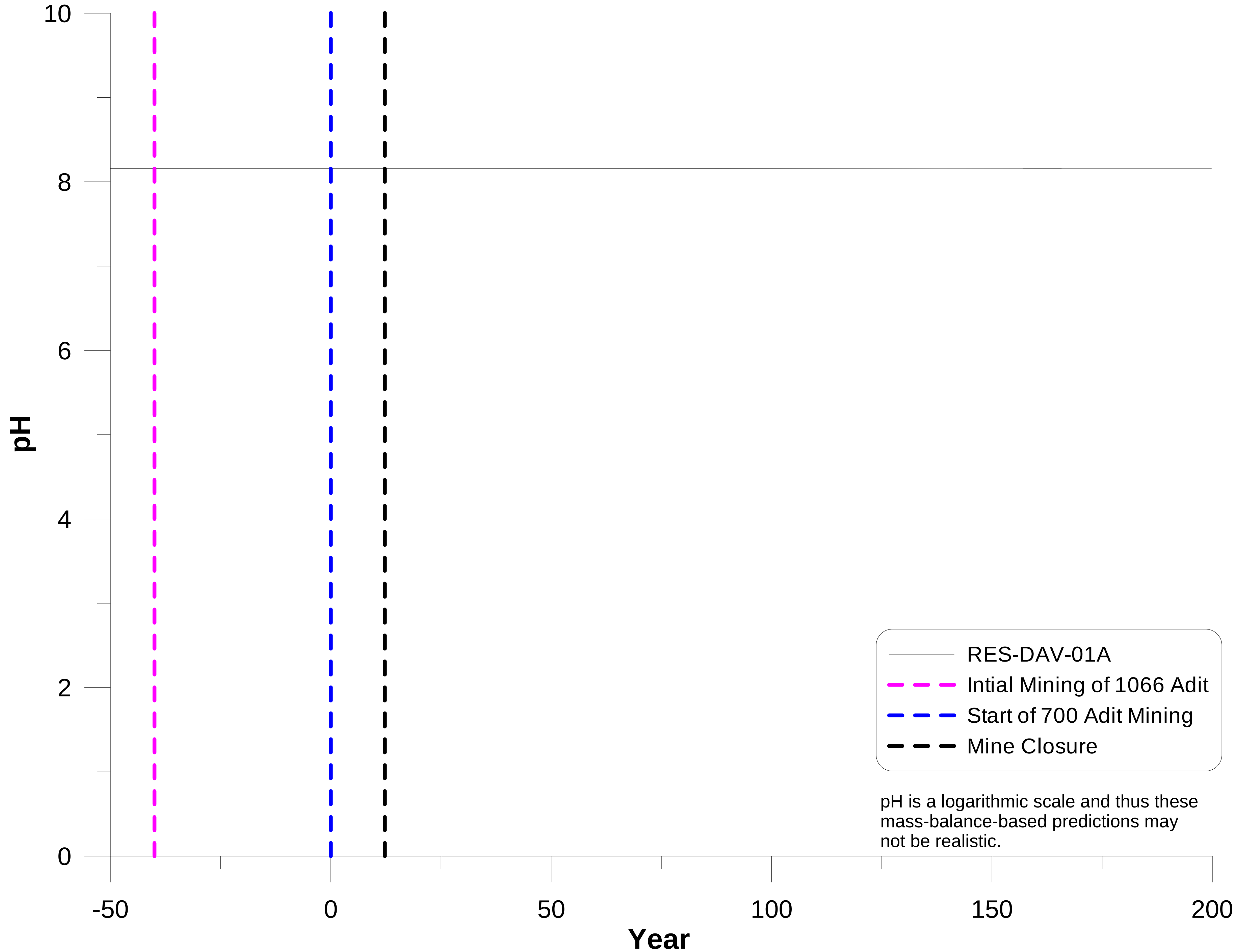
Dissolved Vanadium (ppm)
0.0025
0.002
0.0015
0.001
0.0005
0
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



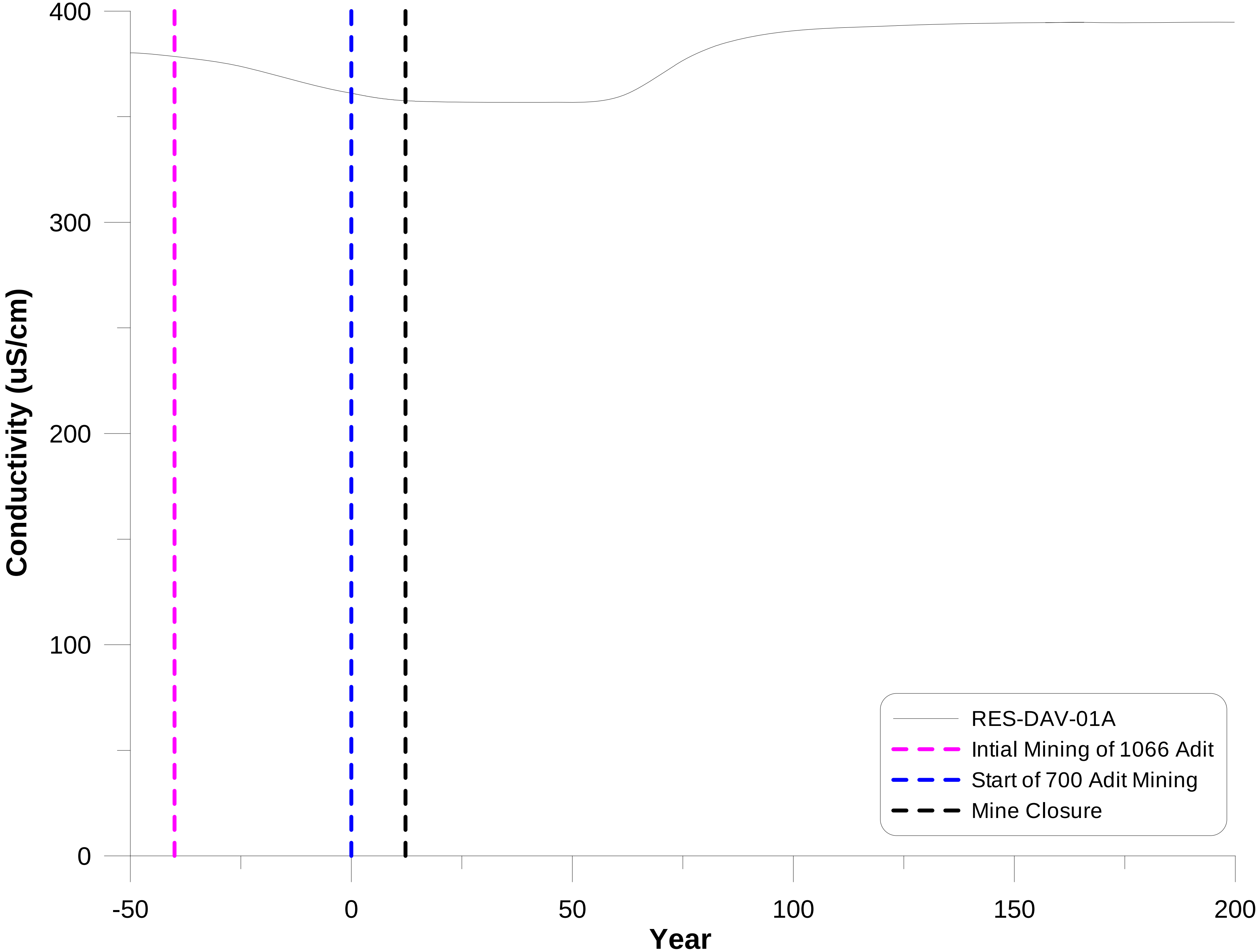
0.03
0.02
0.01
0
Dissolved Zinc (ppm)
-50
0
50
100
150
200
250
300
350
400
450
500
Year
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
% Granodiorite water is based on well RES-DAV-04.
Average Davidson Groundwater + ~36% Granodiorite Water
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

APPENDIX C.

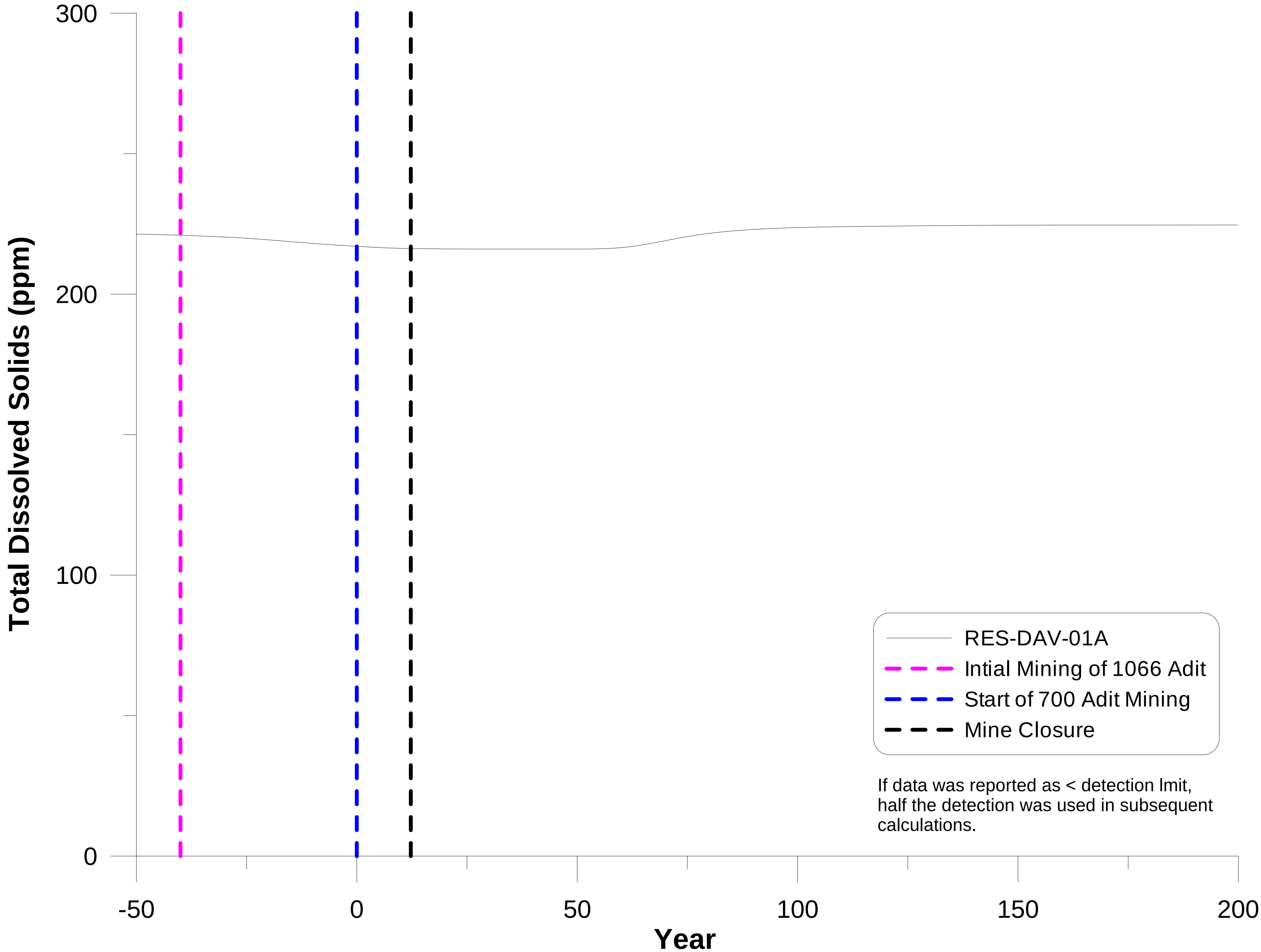
ESTIMATED CONCENTRATIONS FOR WELL RES-DAV-01A BASED ON MODFLOW MODELLING AND CURRENT AVERAGE WELL-WATER CHEMISTRY, BEFORE MINING, DURING OPERATION, AND AFTER CLOSURE



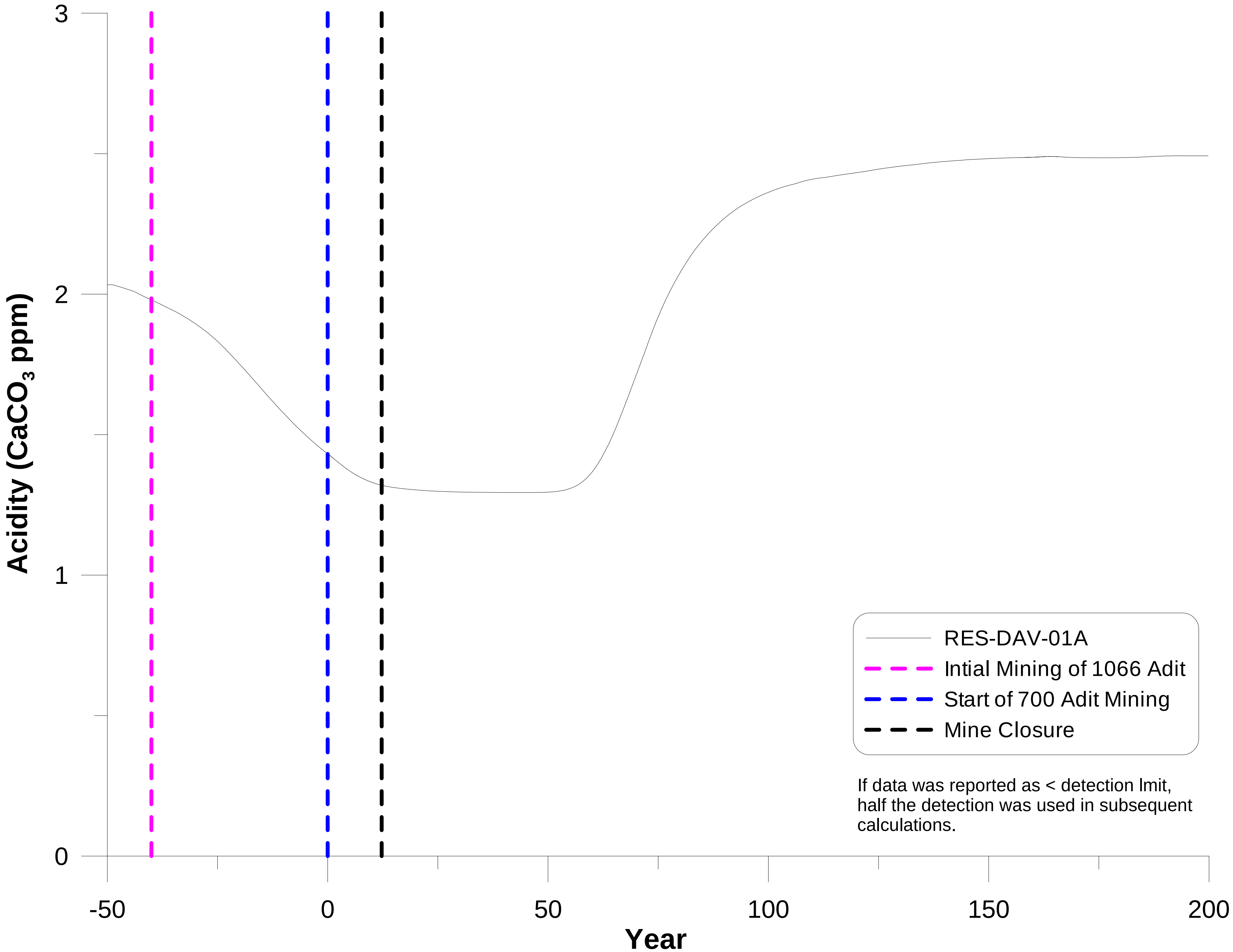
10
8
6
4
2
0
pH
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
pH is a logarithmic scale and thus these
mass-balance-based predictions may
not be realistic.



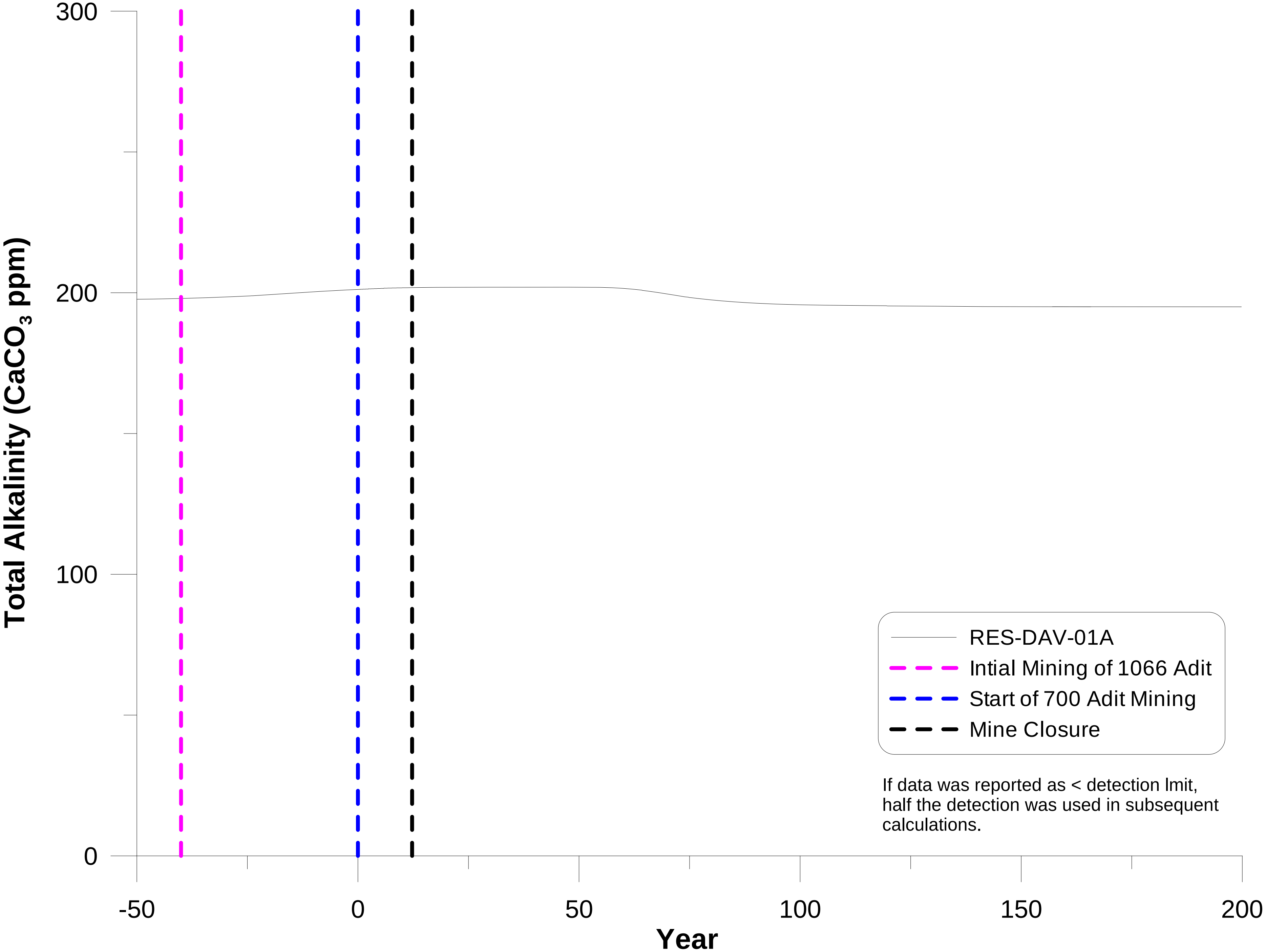
Conductivity (uS/cm)
400
300
200
100
0
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



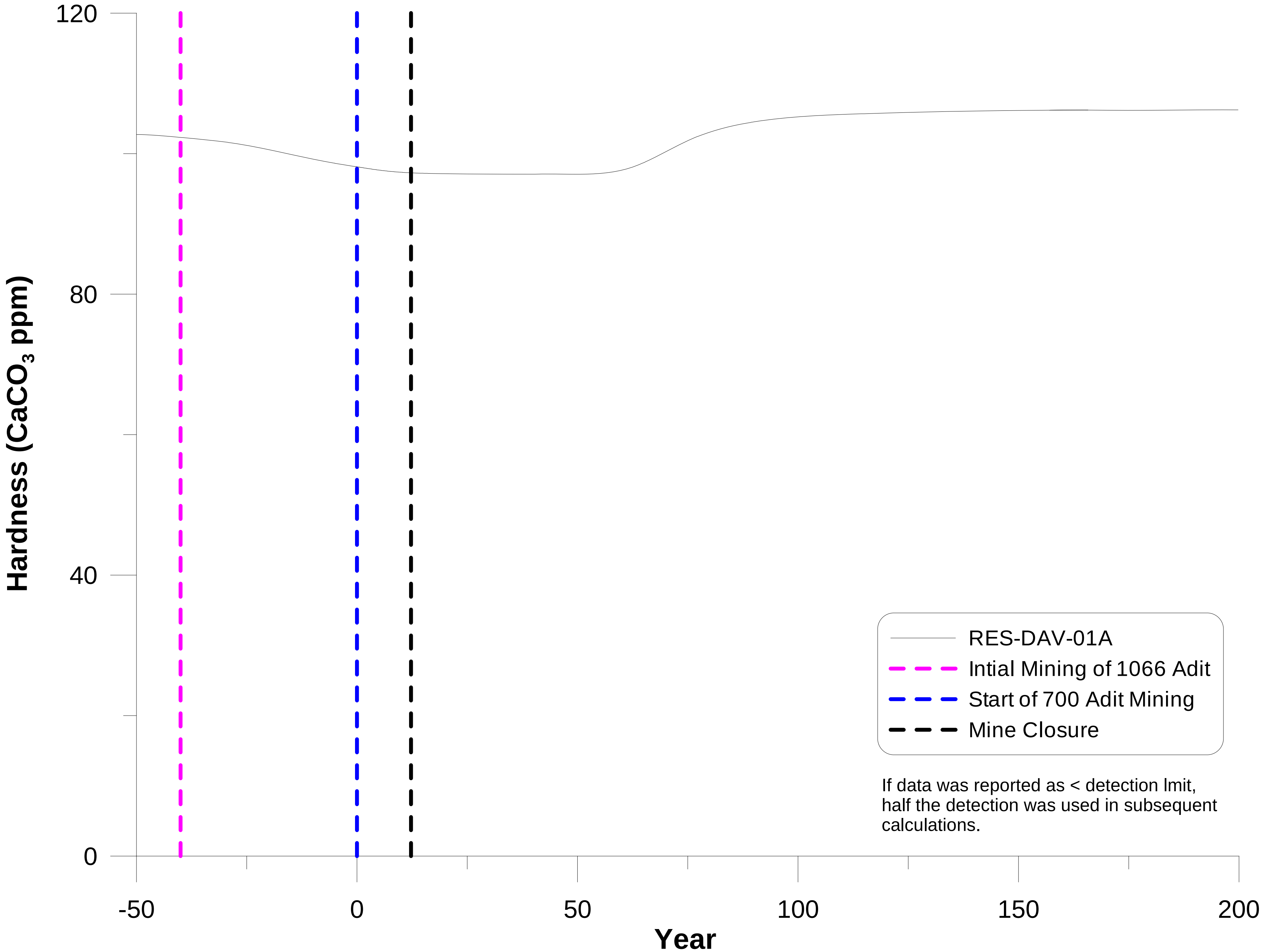
300
200
100
0
Total Dissolved Solids (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



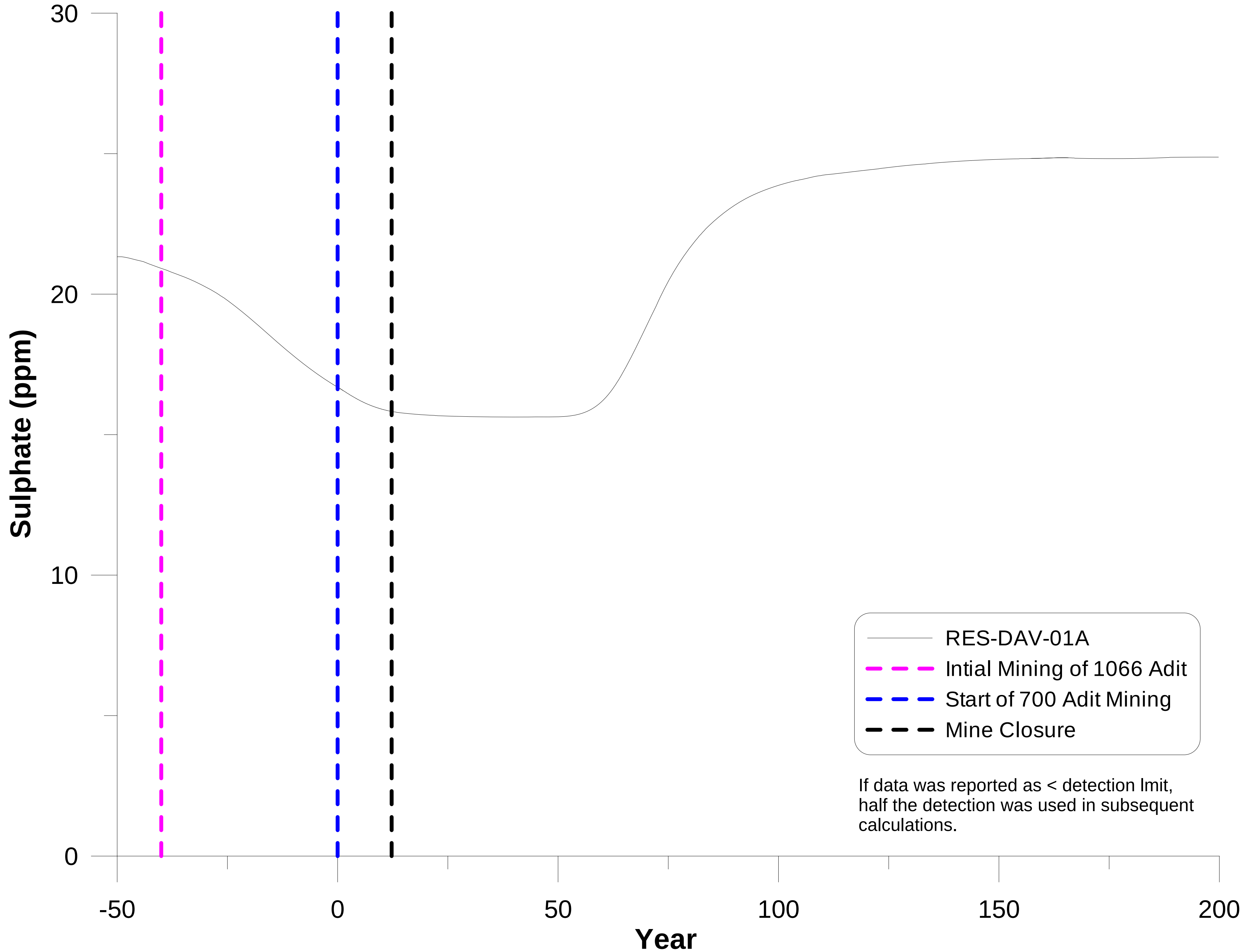
Acidity ($CaCO_3$ ppm)
3
2
1
0
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



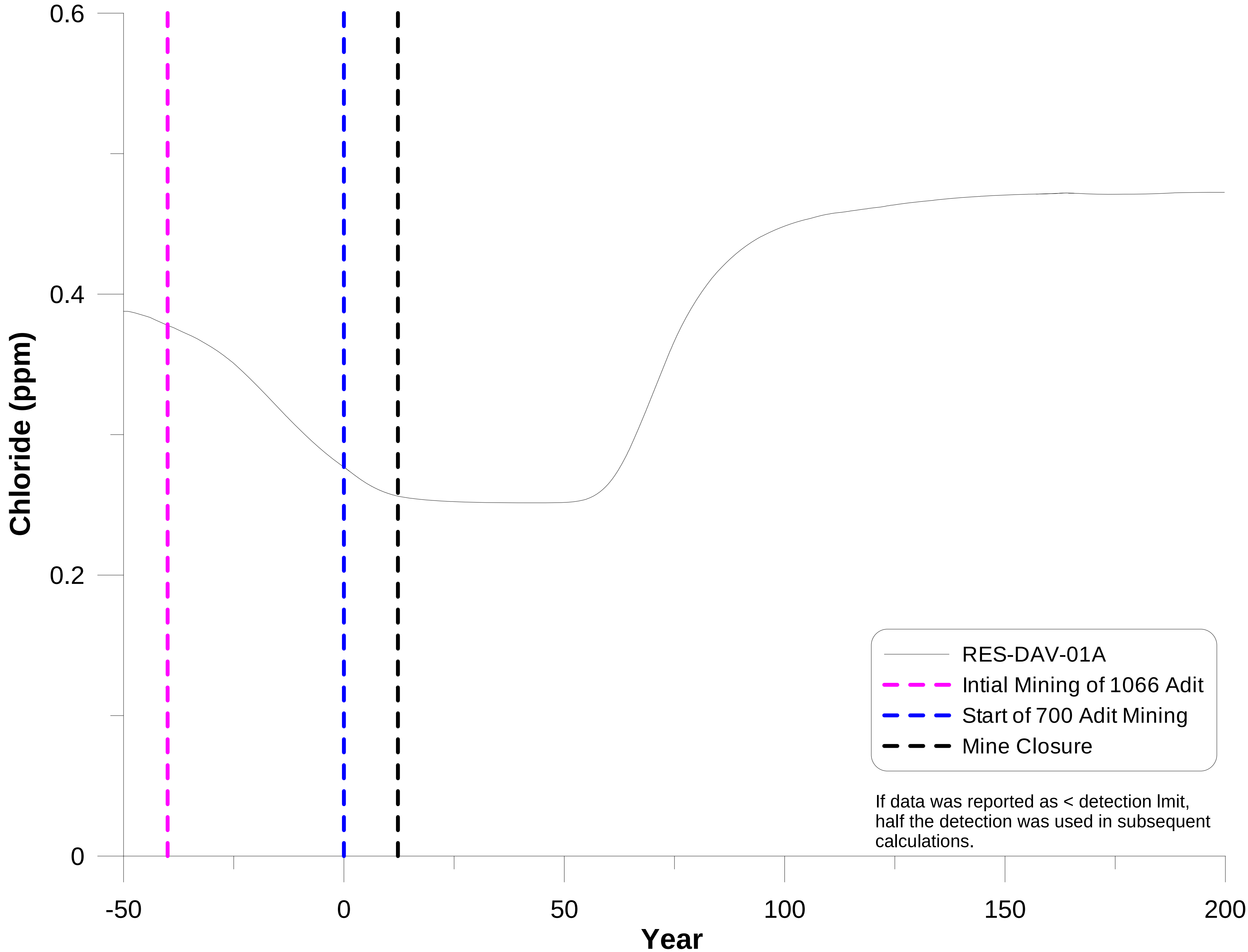
300
200
100
0
Total Alkalinity ($CaCO_3$ ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

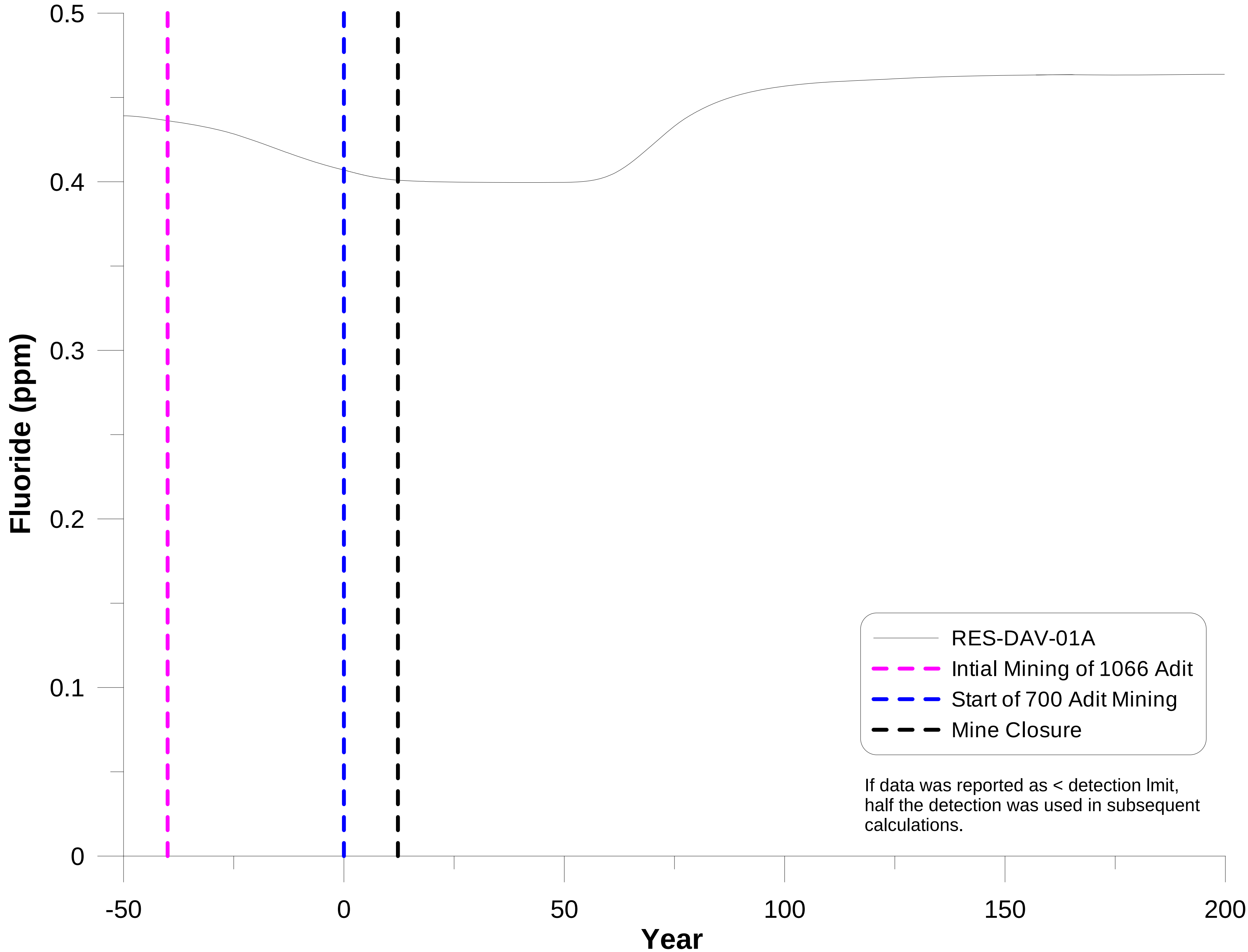


120
80
40
0
Hardness ($CaCO_3$ ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

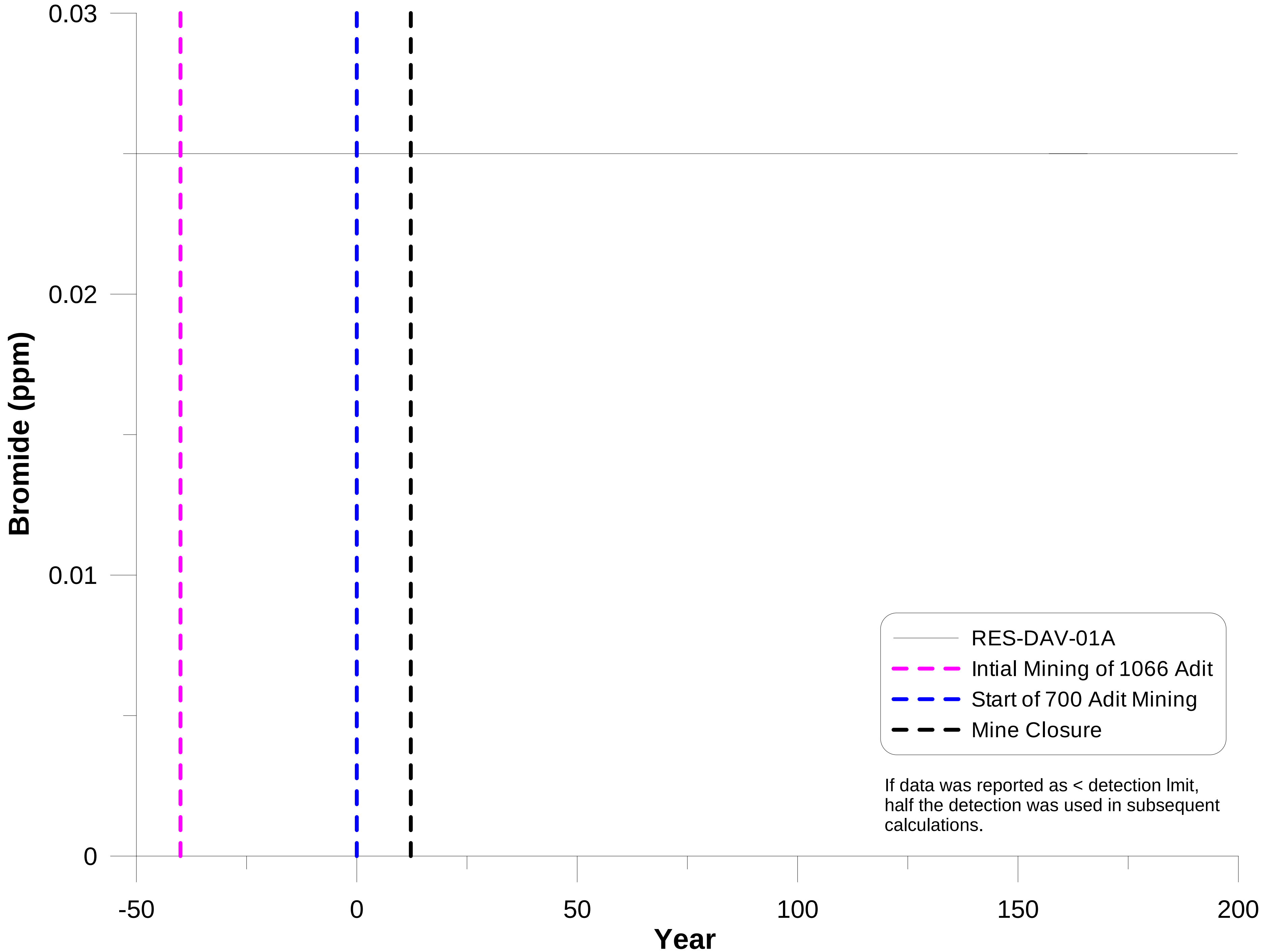


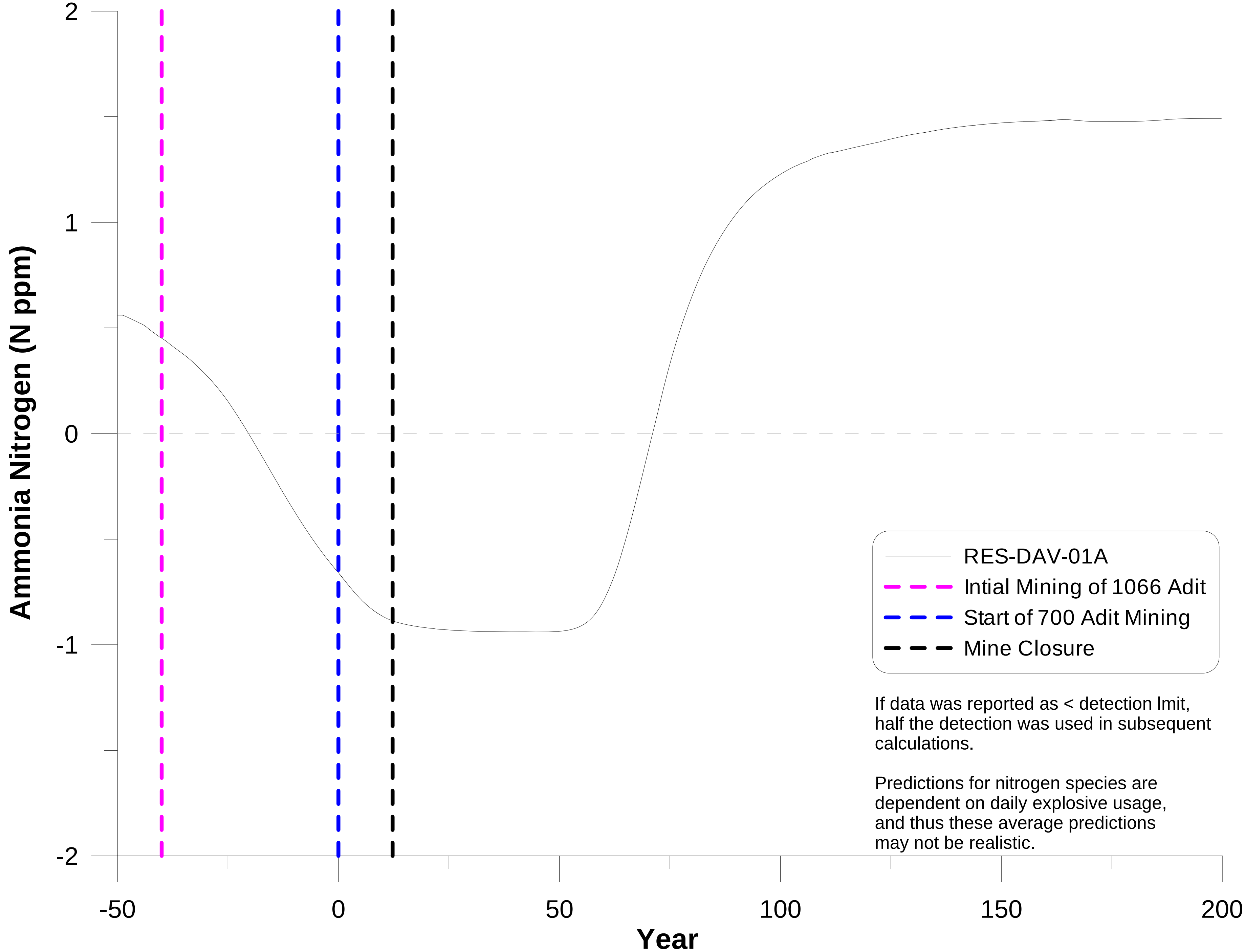
30
20
10
0
-50
0
50
100
150
200
Year
Sulphate (ppm)
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.


0.6
0.4
0.2
0
Chloride (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

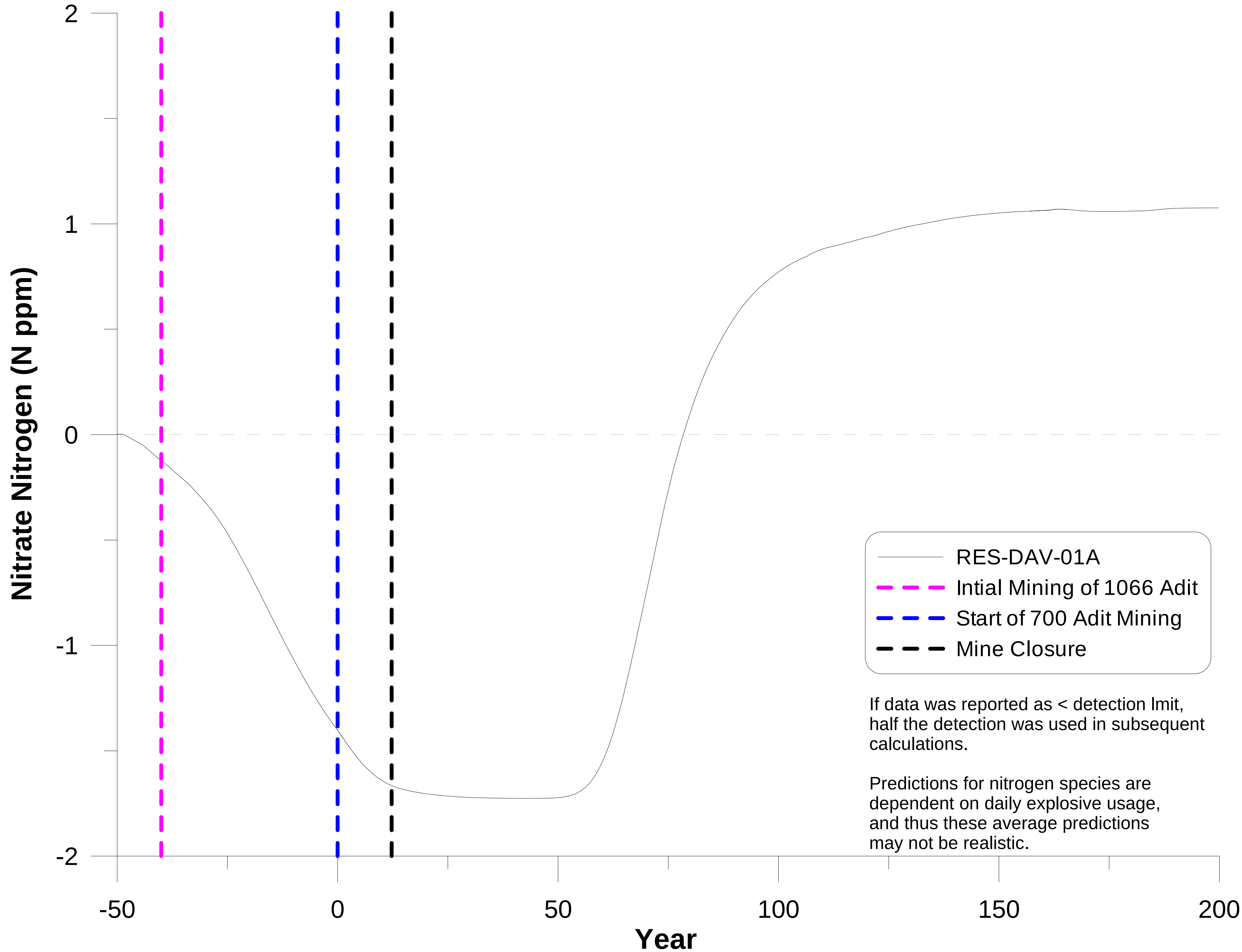


Fluoride (ppm)
0.5
0.4
0.3
0.2
0.1
0
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.


0.03
0.02
0.01
0
Bromide (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

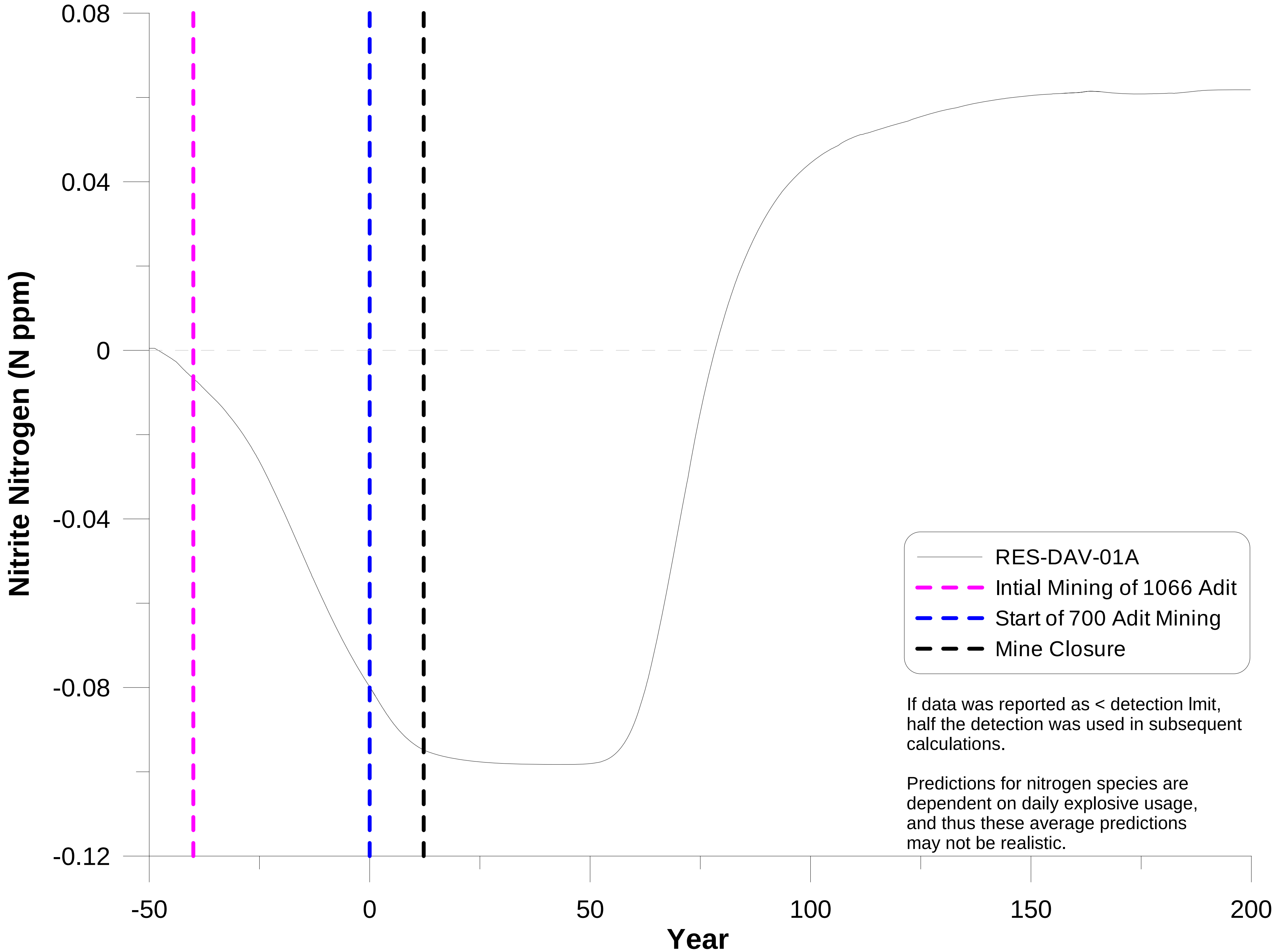


Ammonia Nitrogen (N ppm)
2
1
0
-1
-2
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.
Predictions for nitrogen species are
dependent on daily explosive usage,
and thus these average predictions
may not be realistic.

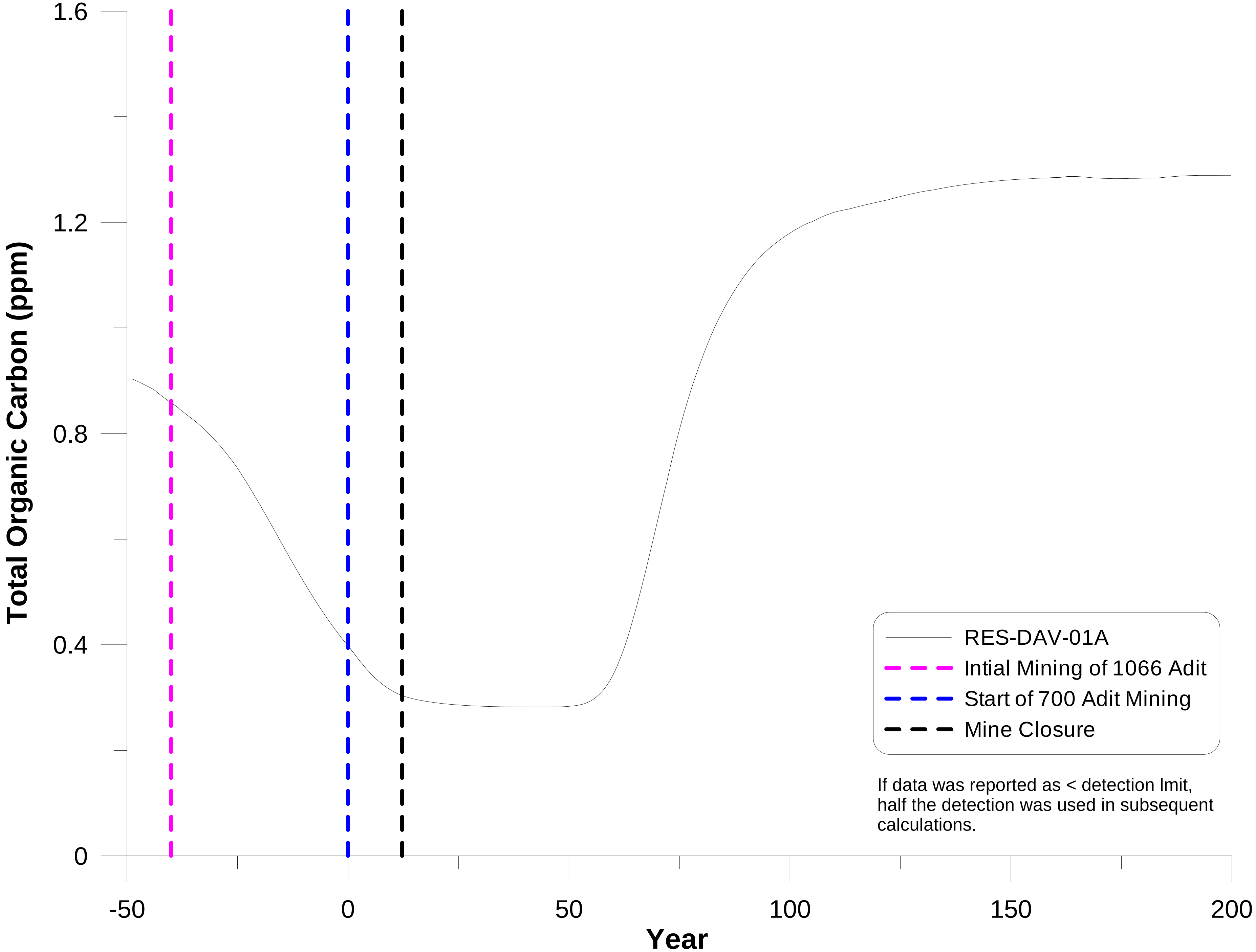


If data was reported as < detection lmit, half the detection was used in subsequent calculations.

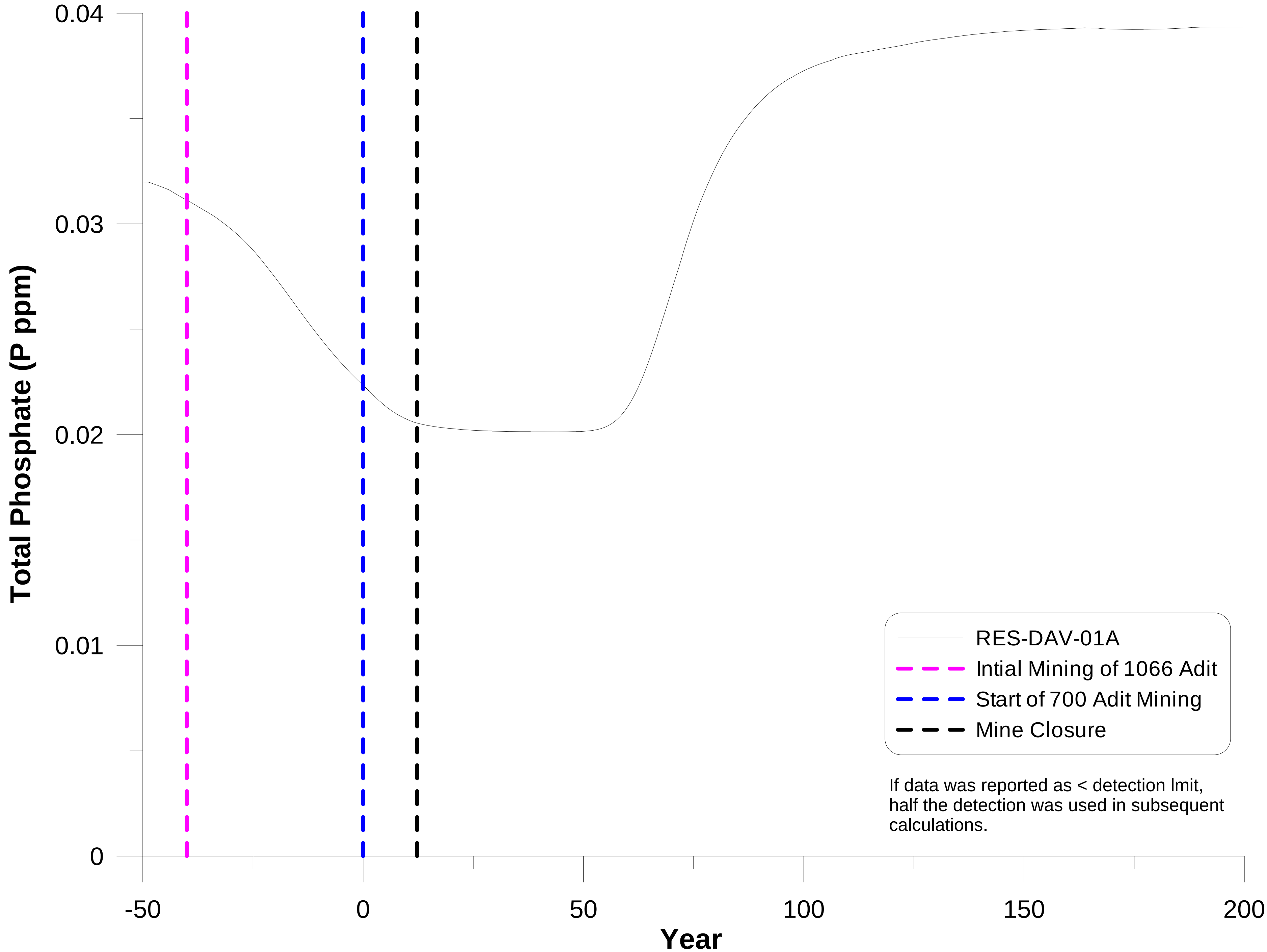
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.



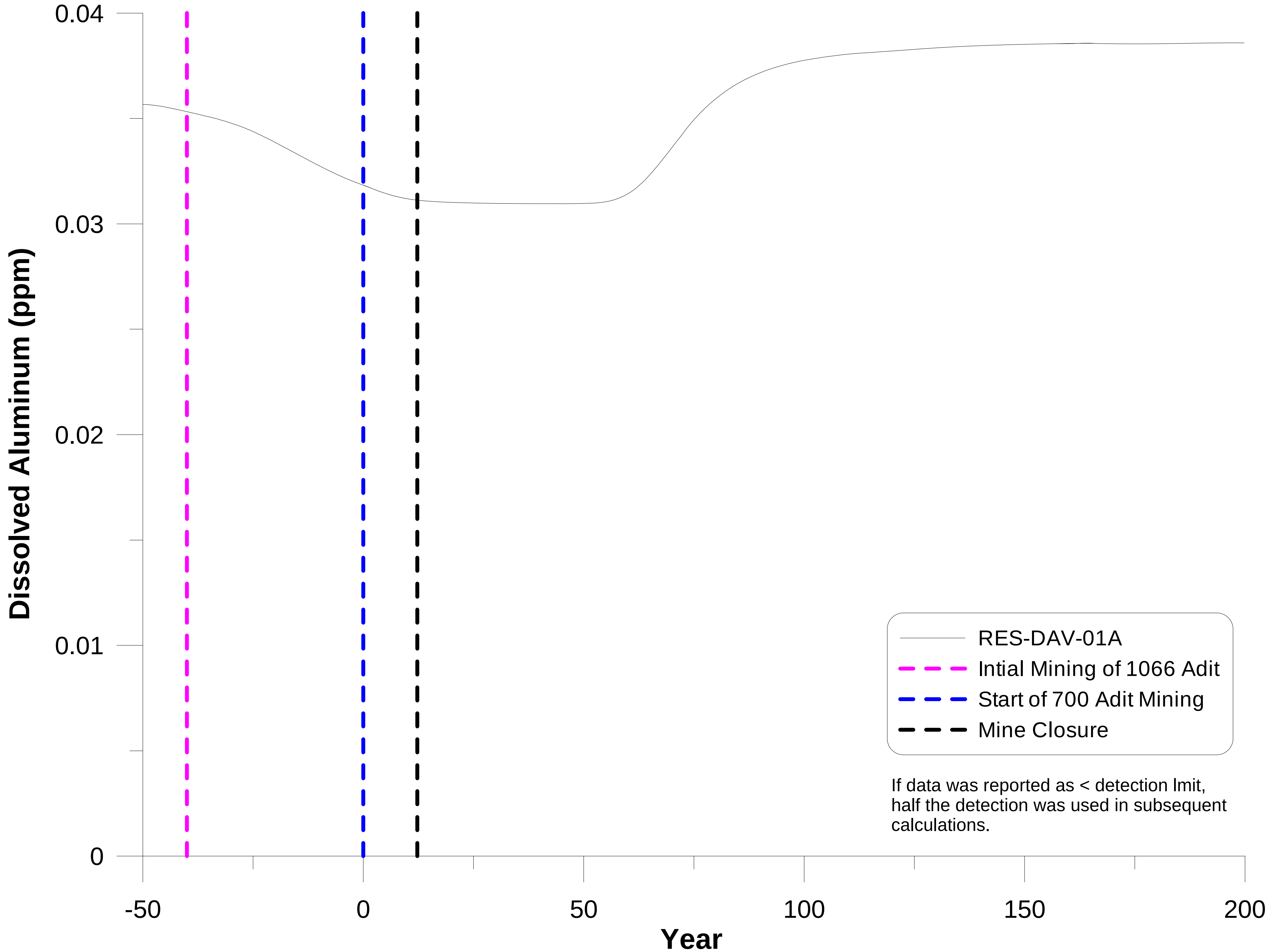
Nitrite Nitrogen (N ppm)
0.08
0.04
0
-0.04
-0.08
-0.12
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.
Predictions for nitrogen species are
dependent on daily explosive usage,
and thus these average predictions
may not be realistic.

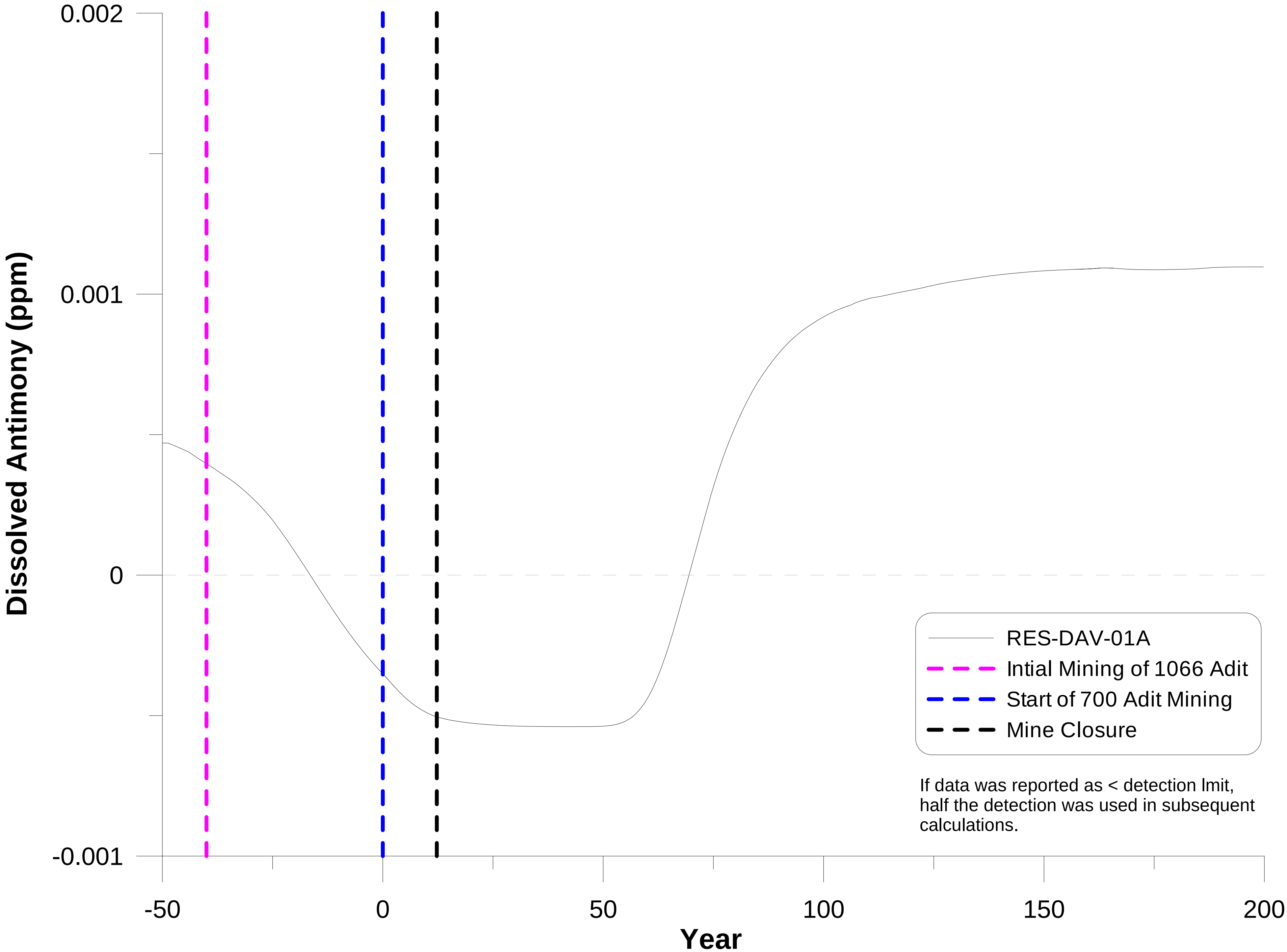


Total Organic Carbon (ppm)
1.6
1.2
0.8
0.4
0
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

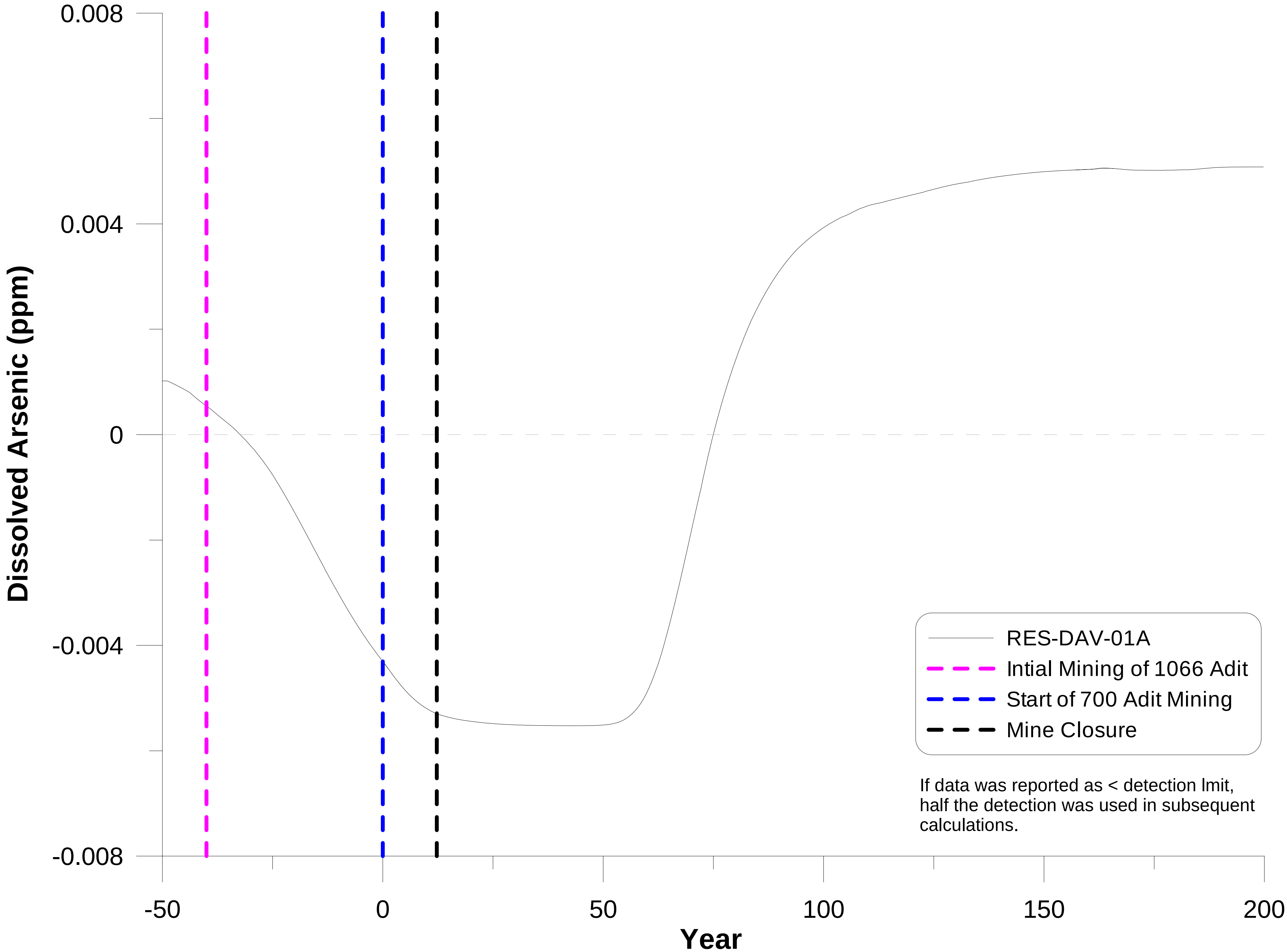


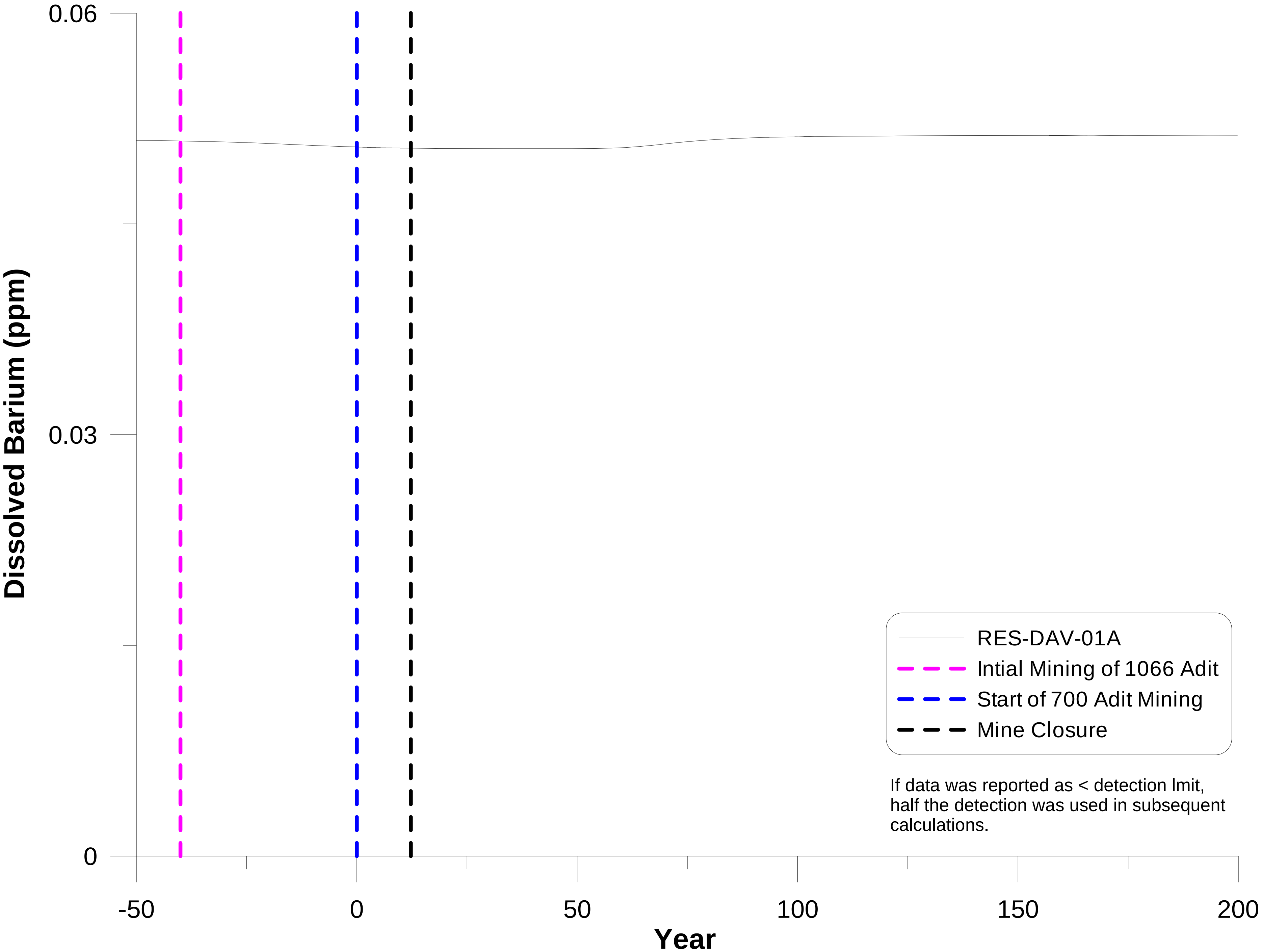
0.04
0.03
0.02
0.01
0
Total Phosphate (P ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.


Dissolved Aluminum (ppm)
0.04
0.03
0.02
0.01
0
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

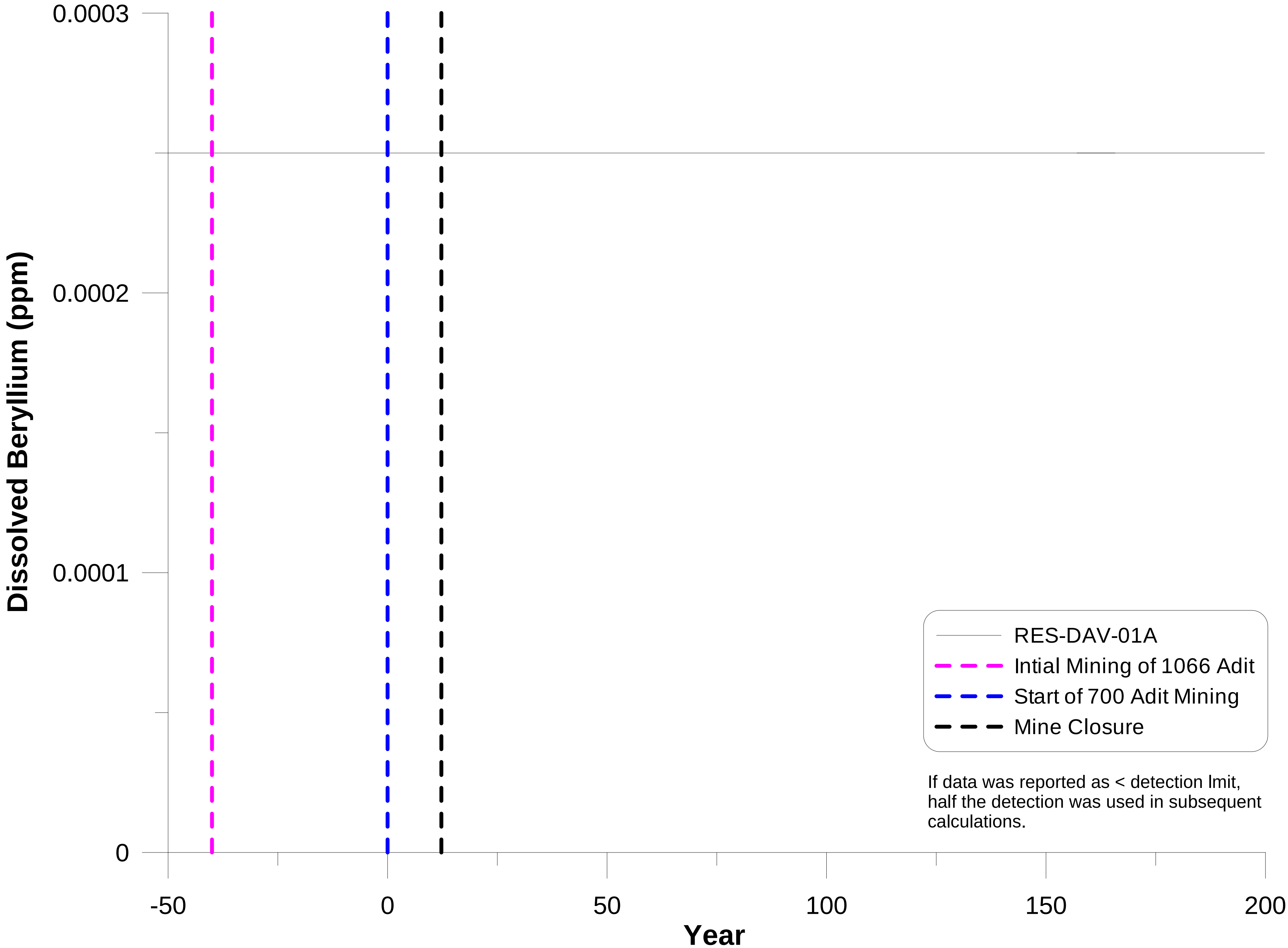


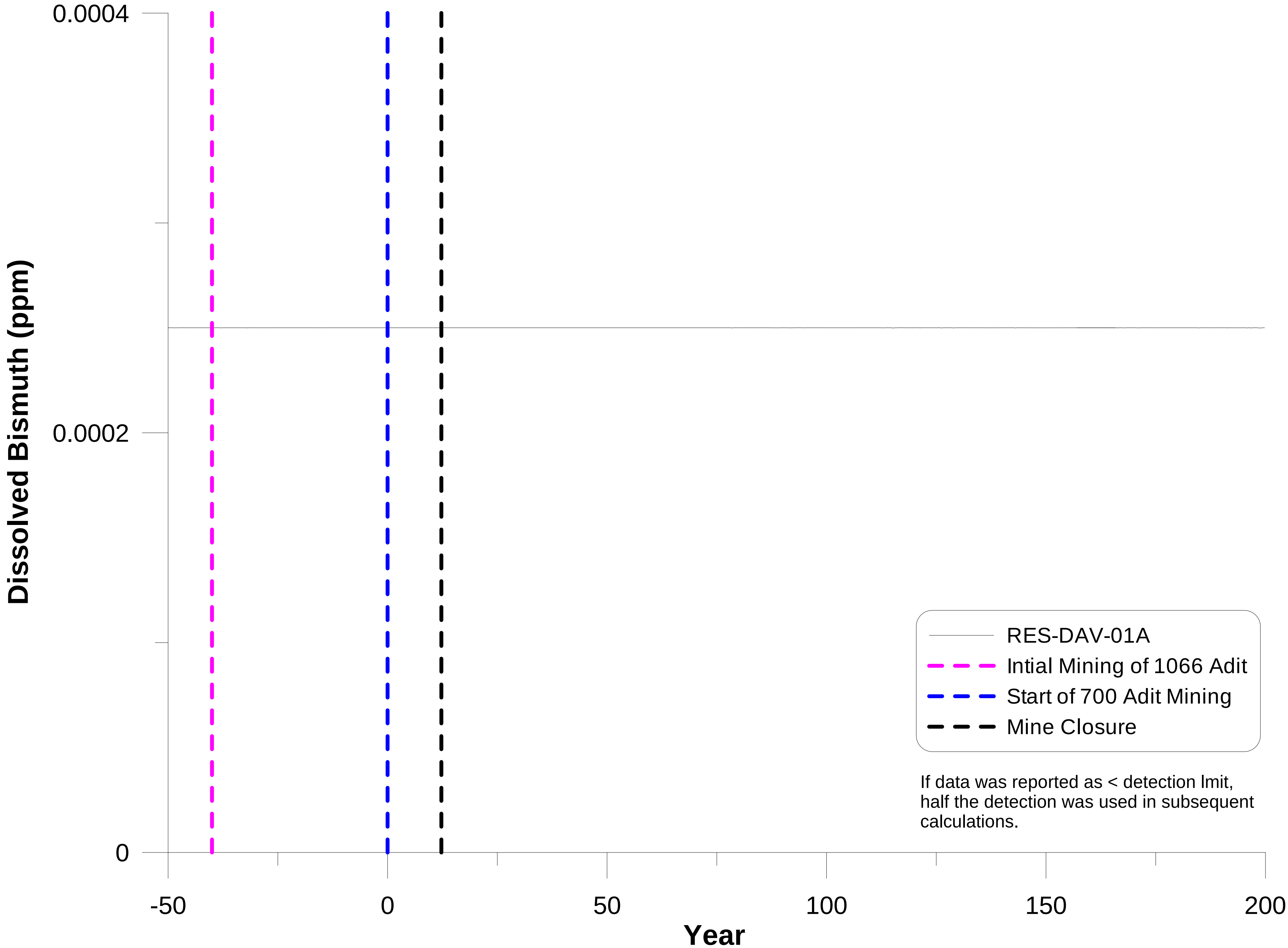
Dissolved Antimony (ppm)
0.002
0.001
0
-0.001
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.


0.008
0.004
0
-0.004
-0.008
Dissolved Arsenic (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

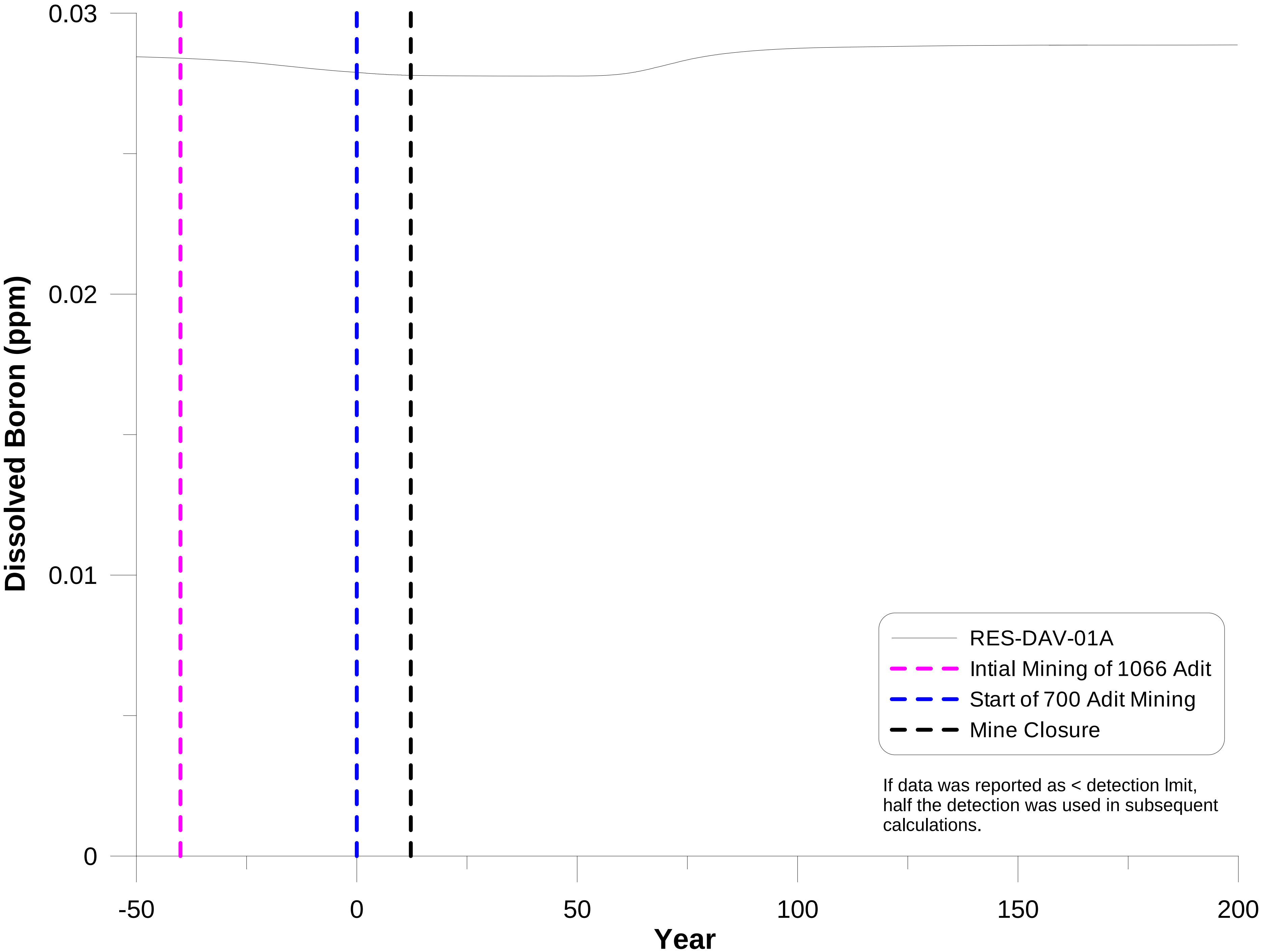


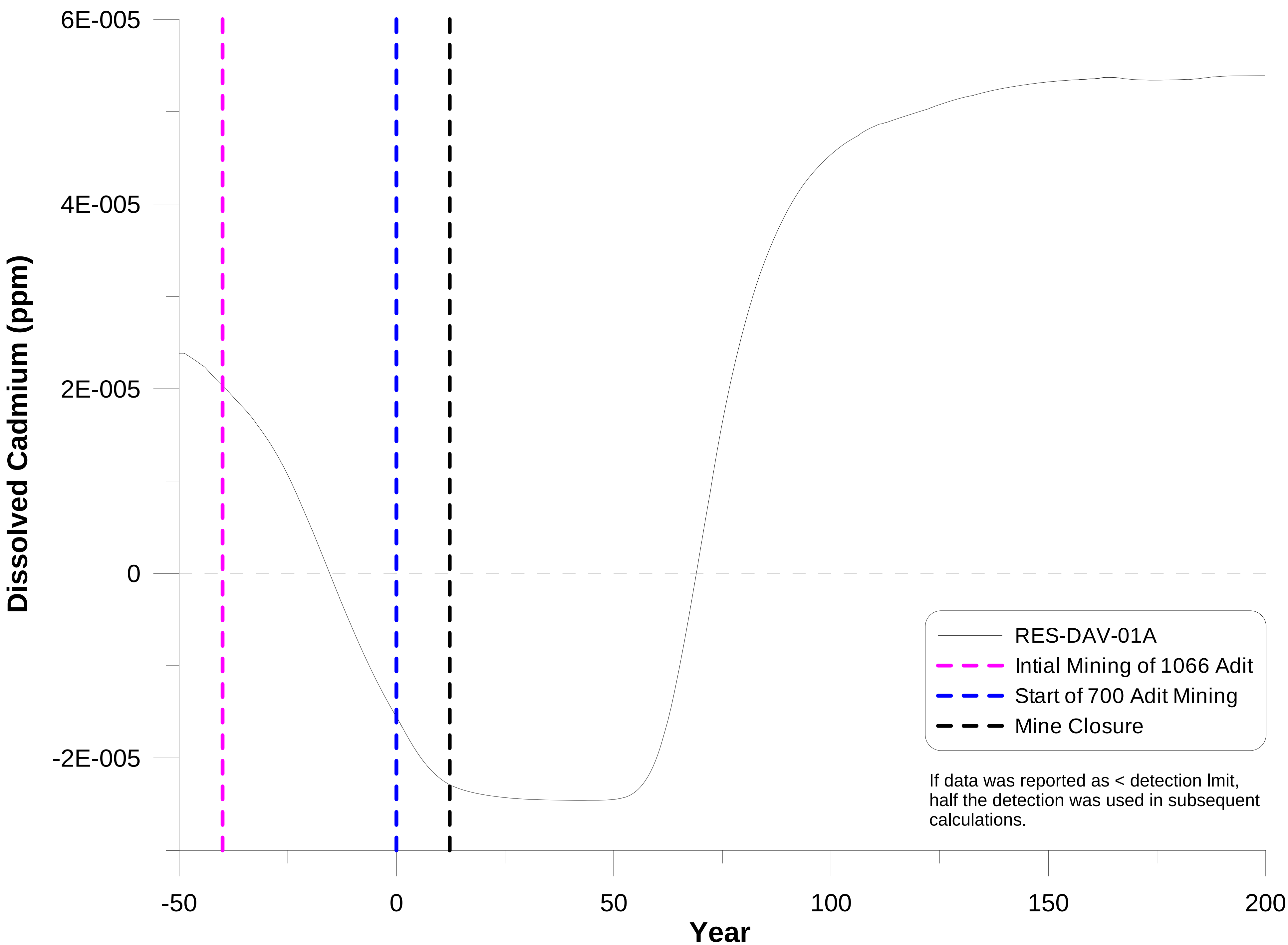
0.06
0.03
0
Dissolved Barium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

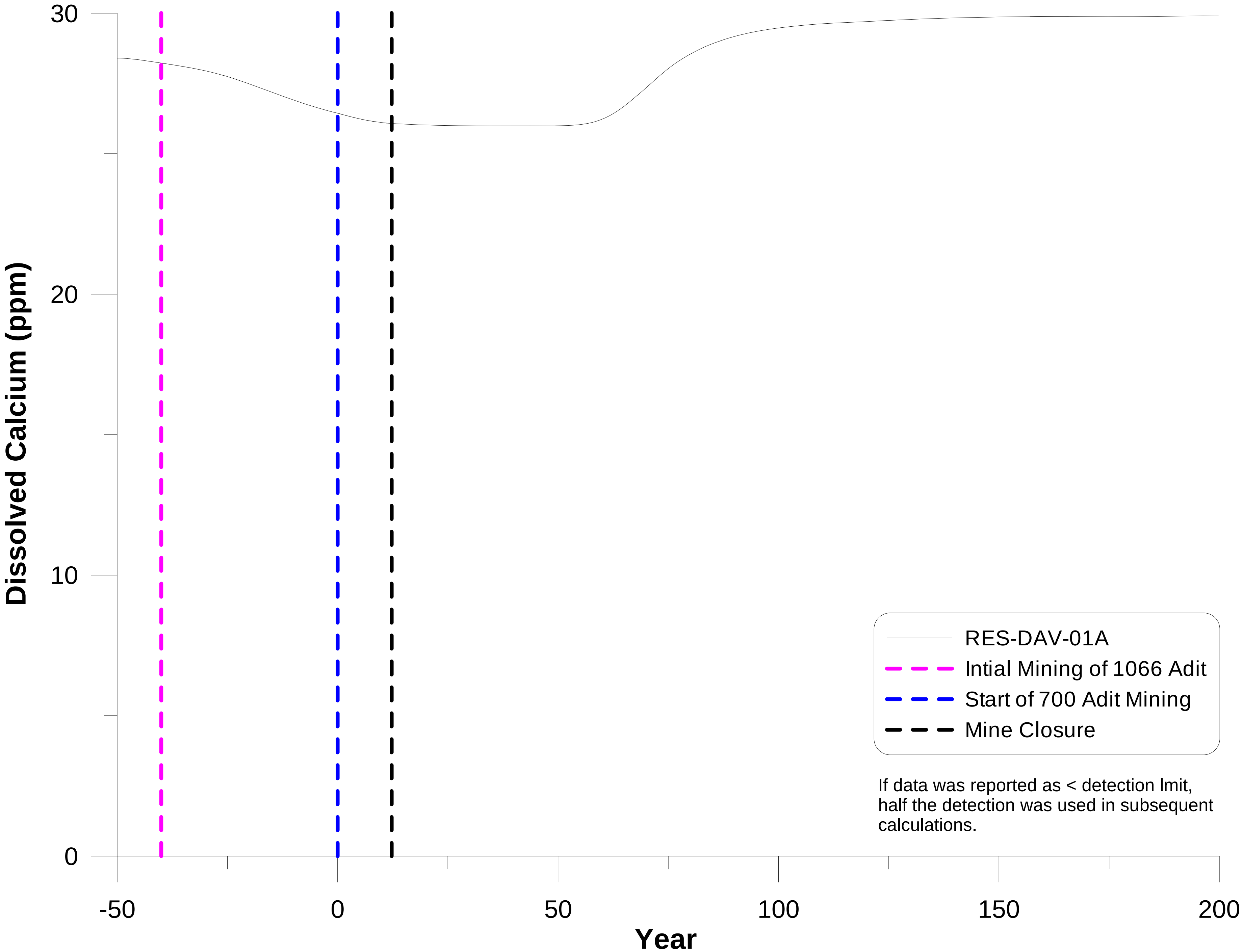

0.0003
0.0002
0.0001
0
Dissolved Beryllium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



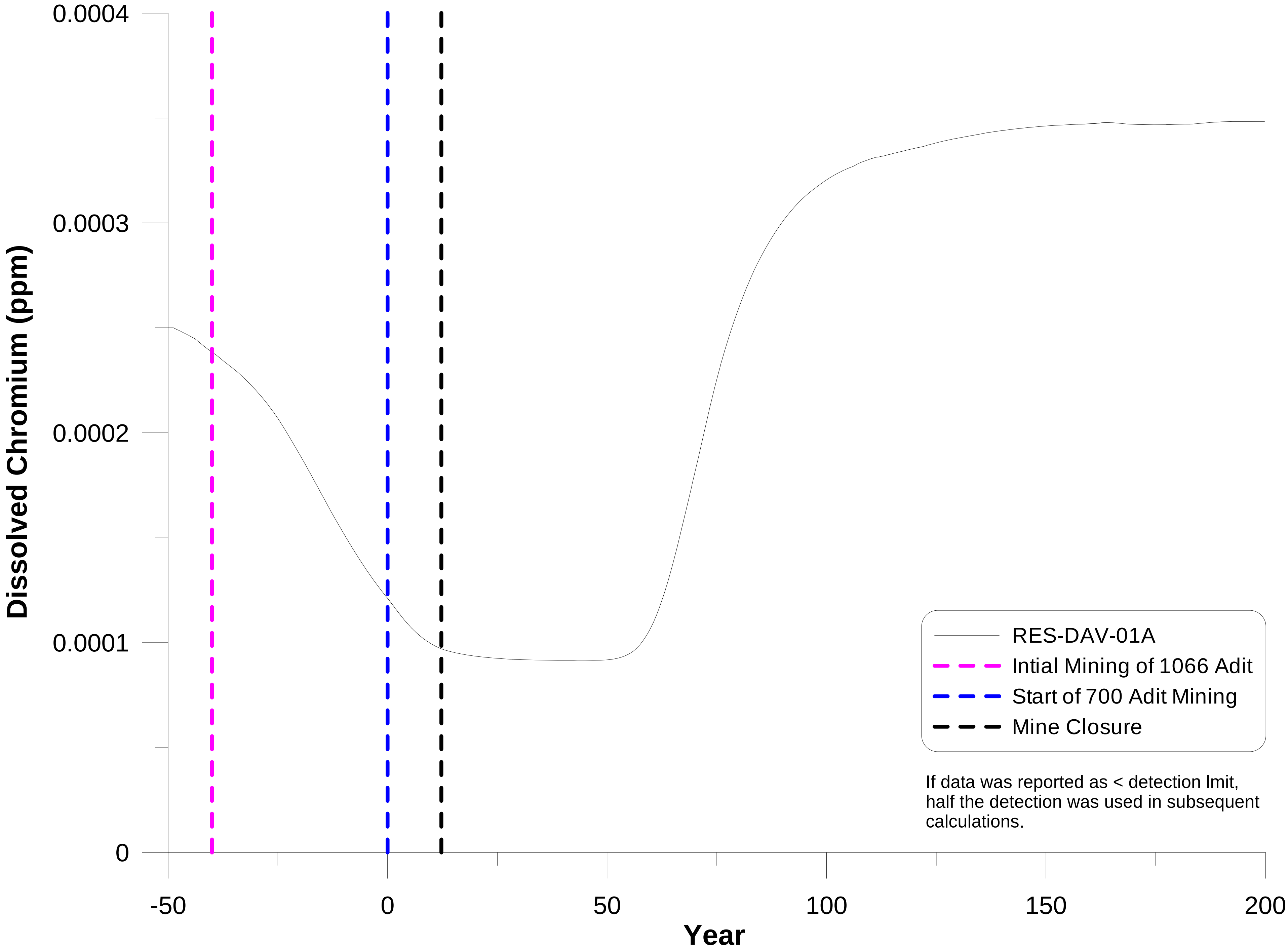
0.0004
0.0002
0
Dissolved Bismuth (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

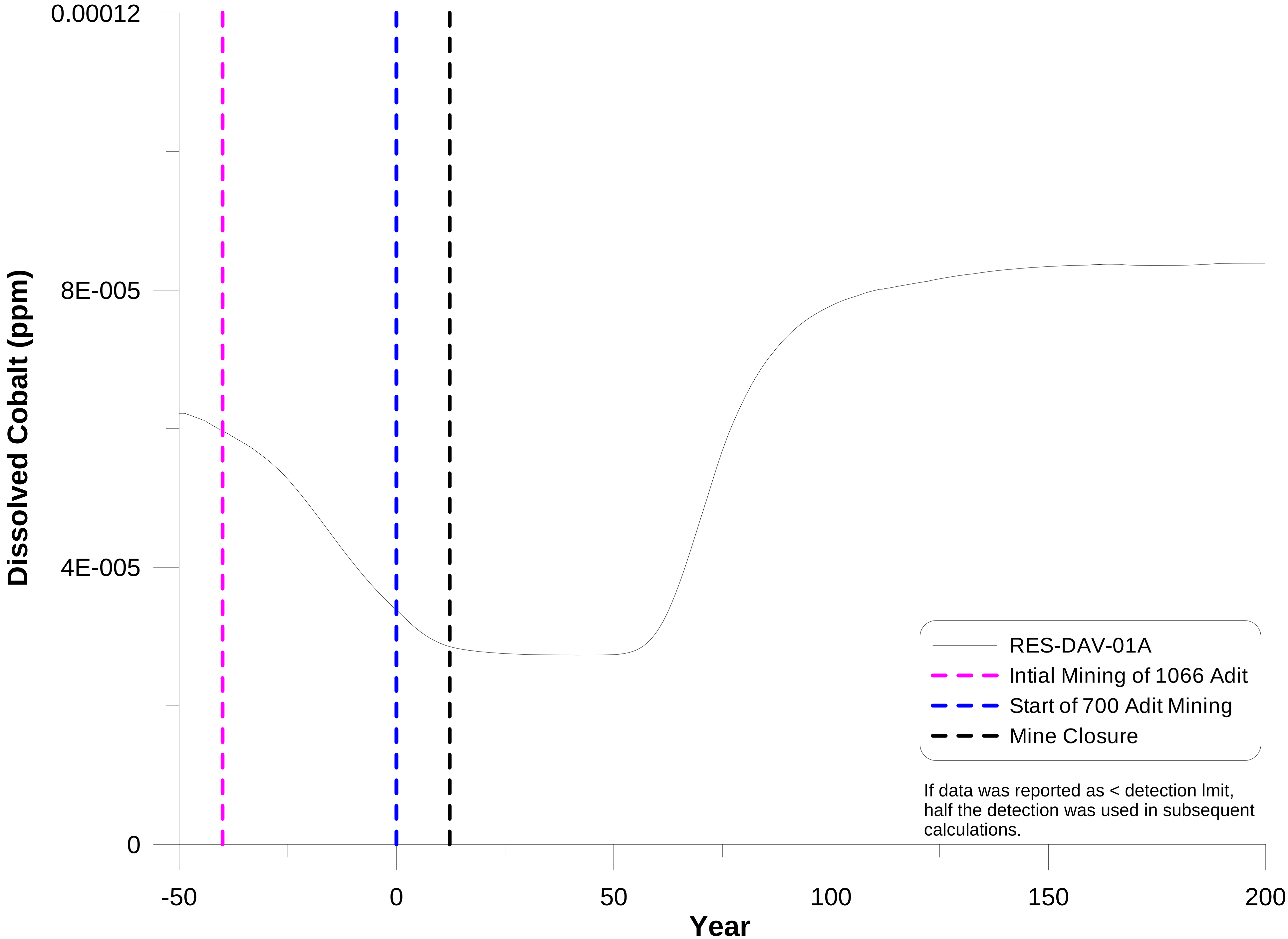

0.03
0.02
0.01
0
Dissolved Boron (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

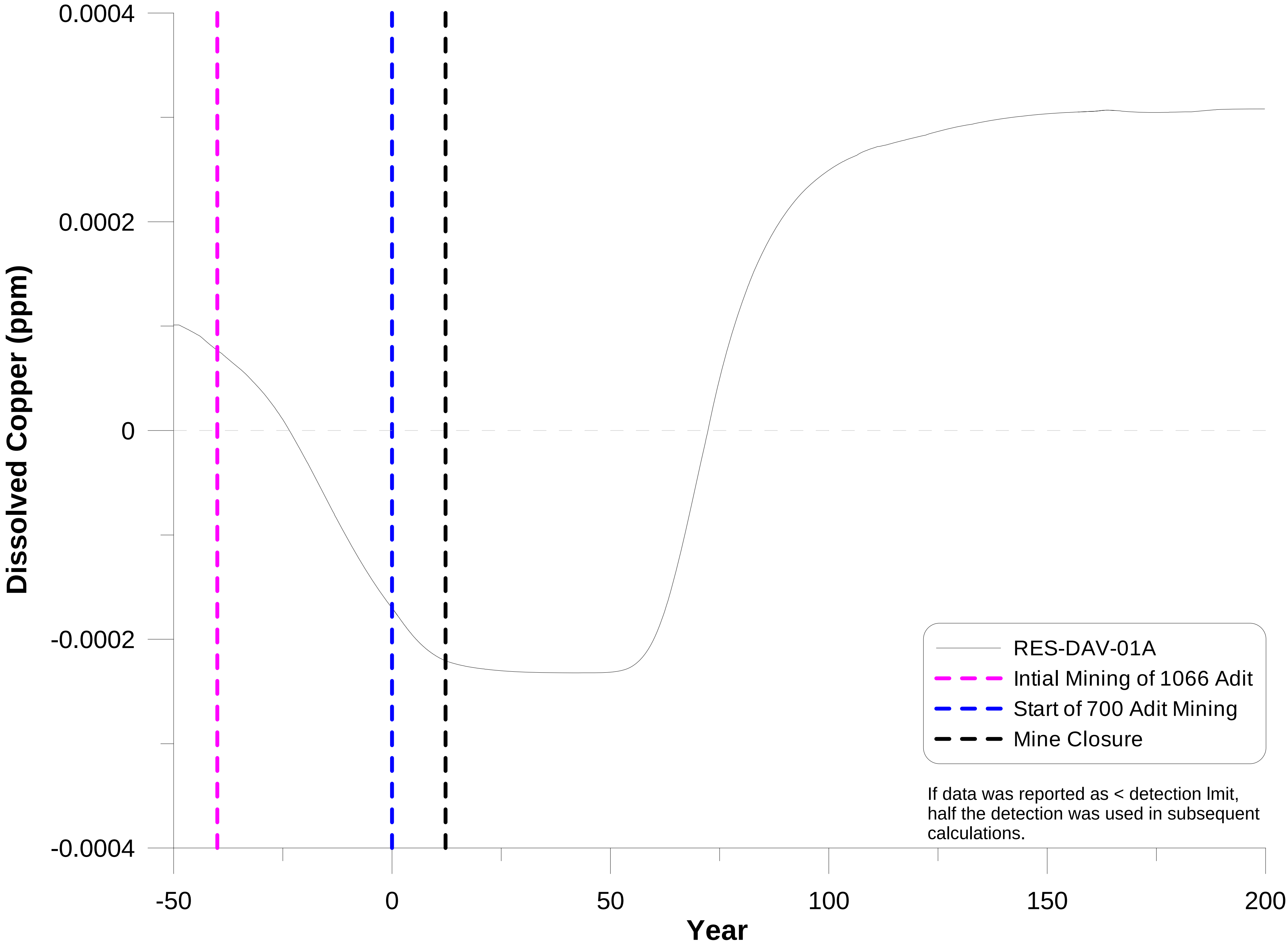

6E-005
4E-005
2E-005
0
-2E-005
Dissolved Cadmium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



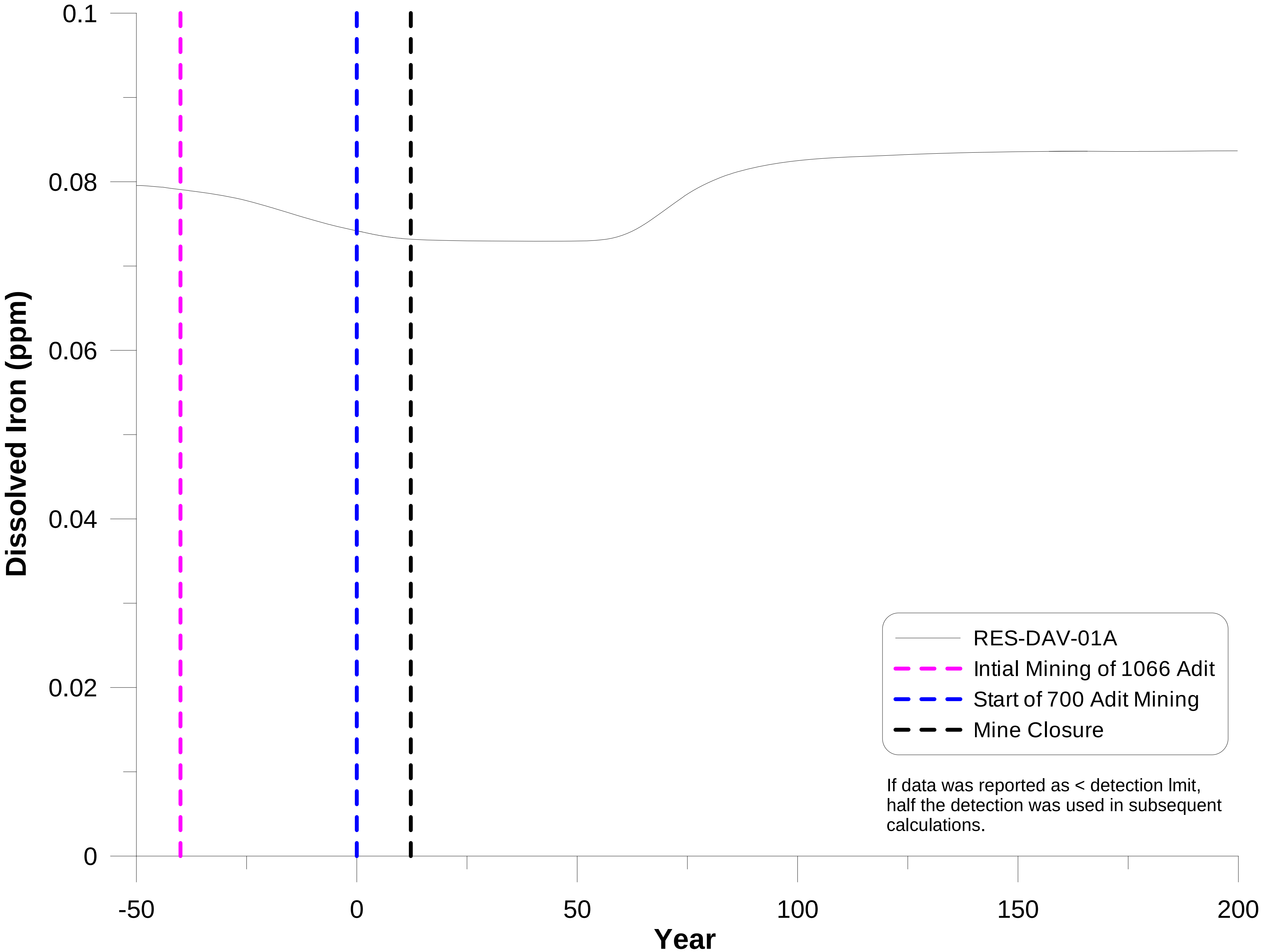
Dissolved Calcium (ppm)
30
20
10
0
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.


0.0004
0.0003
0.0002
0.0001
0
Dissolved Chromium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

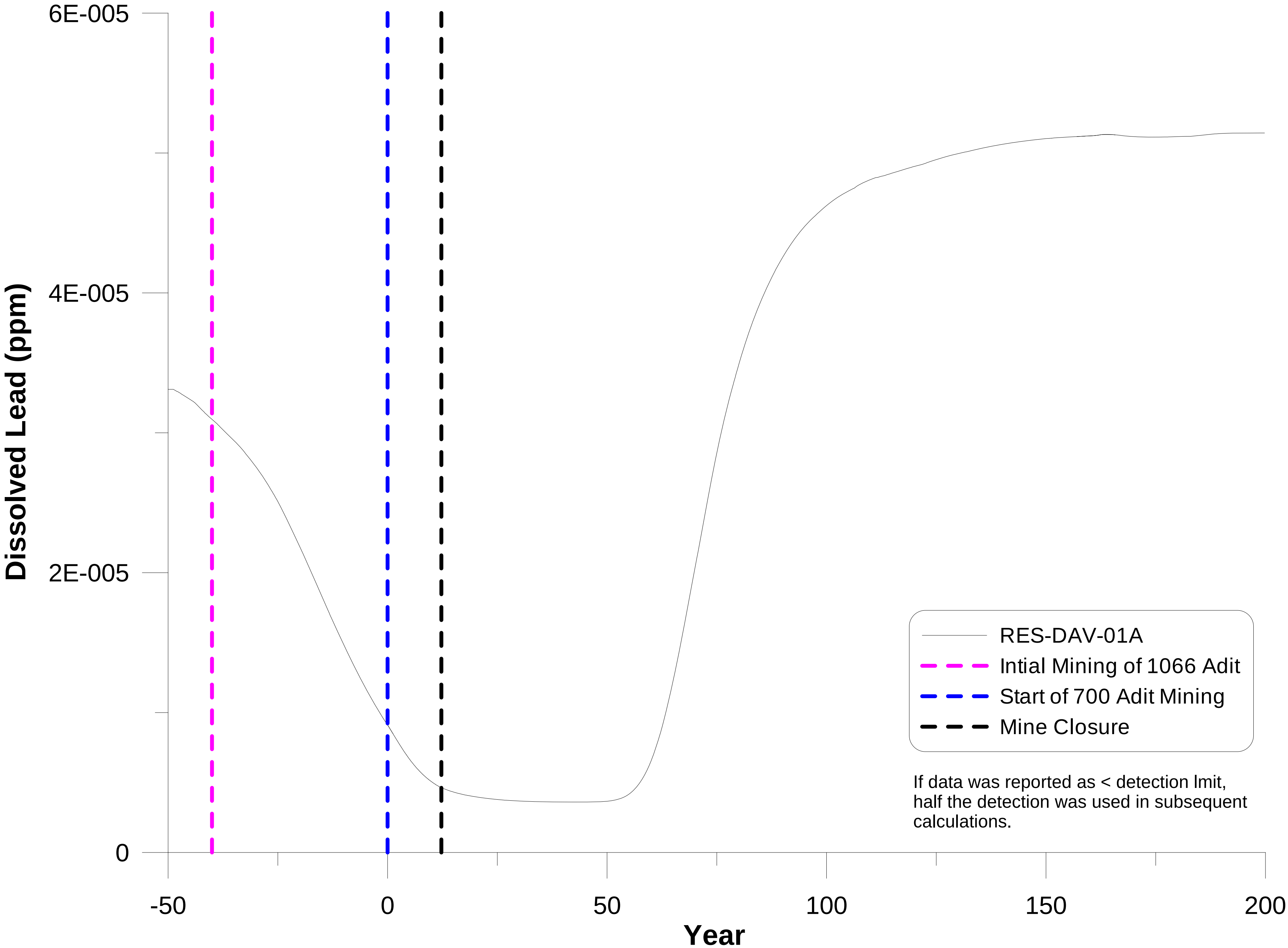

0.00012
8E-005
4E-005
0
Dissolved Cobalt (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



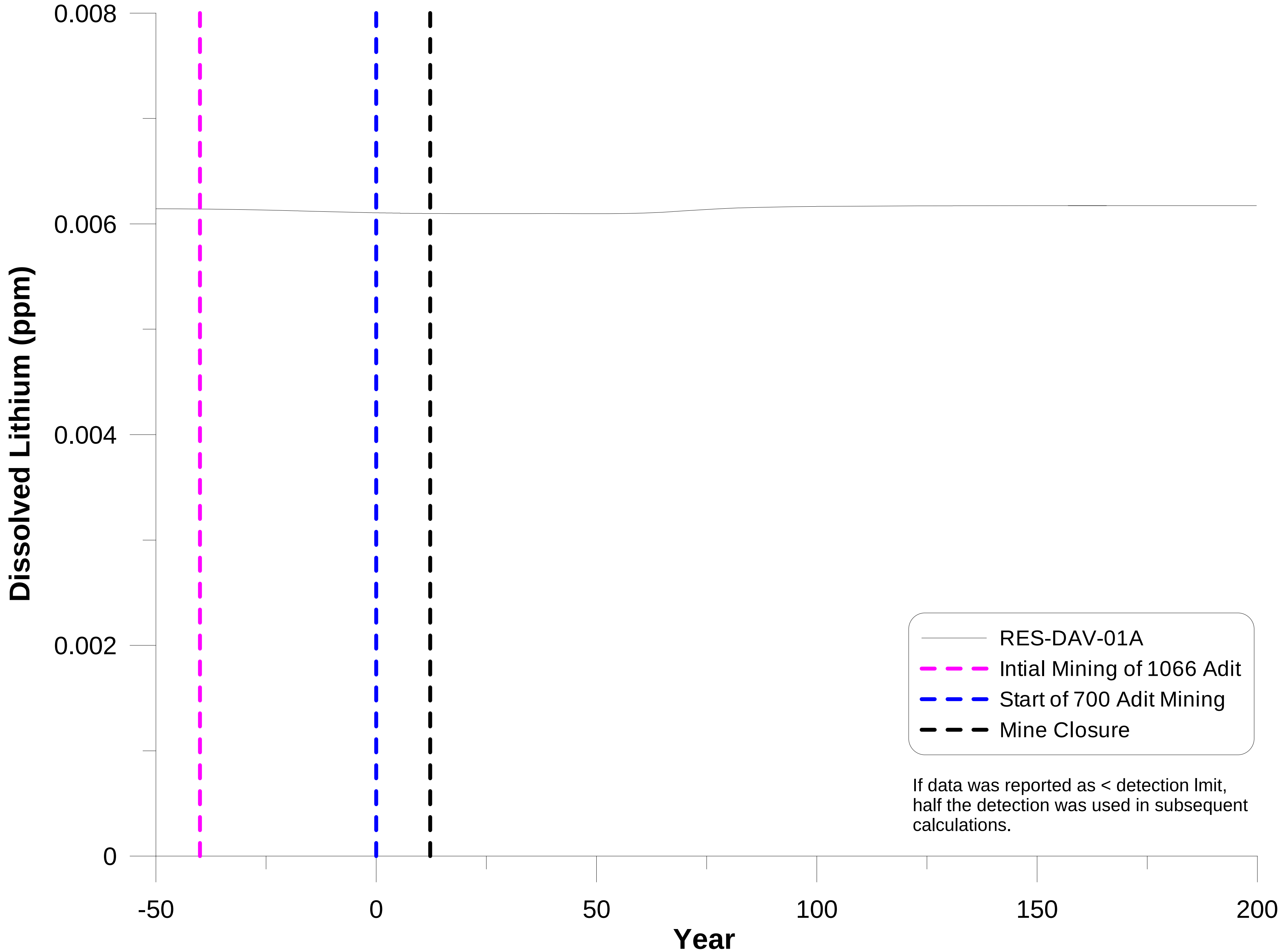
0.0004
0.0002
0
-0.0002
-0.0004
Dissolved Copper (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

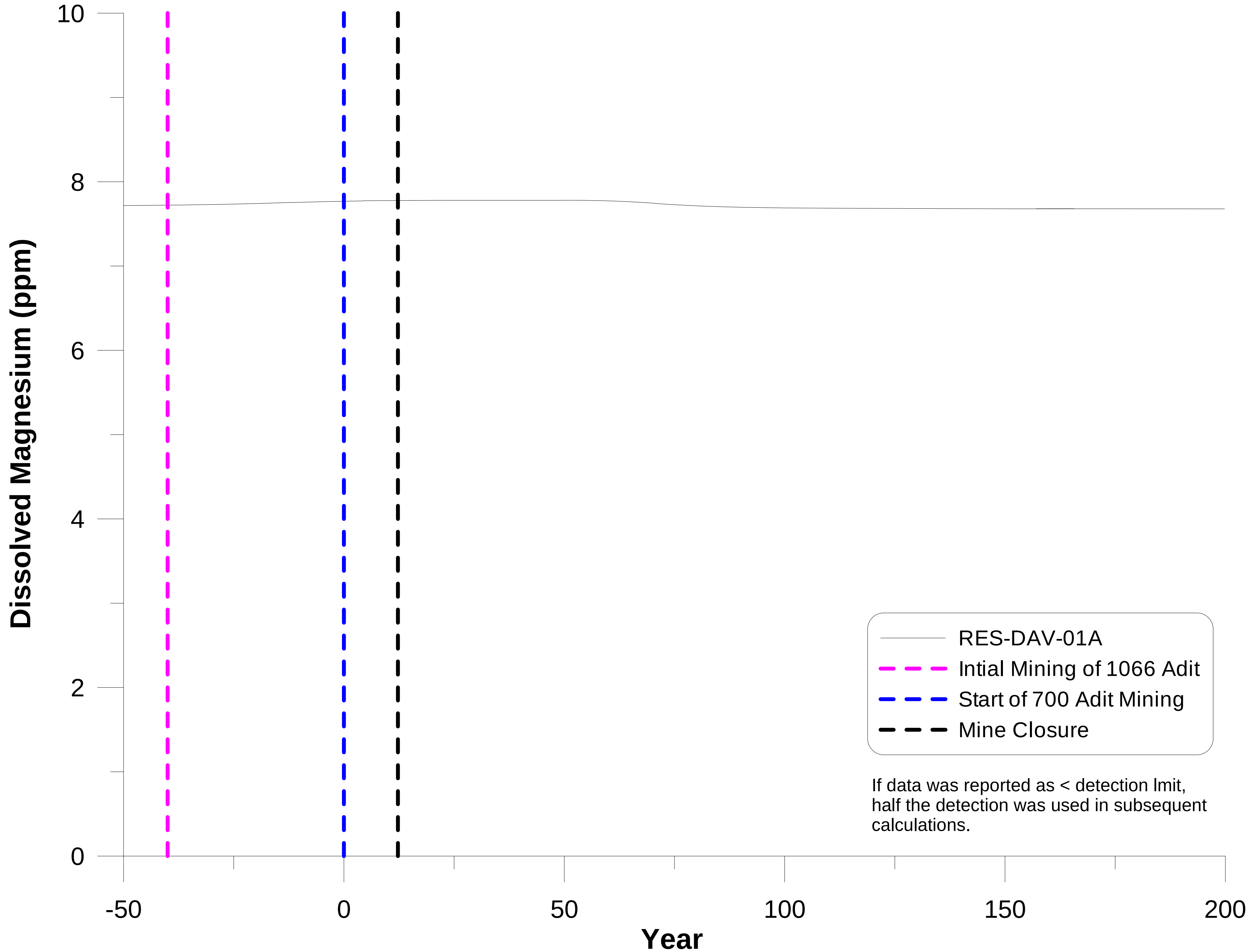


0.1
0.08
0.06
0.04
0.02
0
Dissolved Iron (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

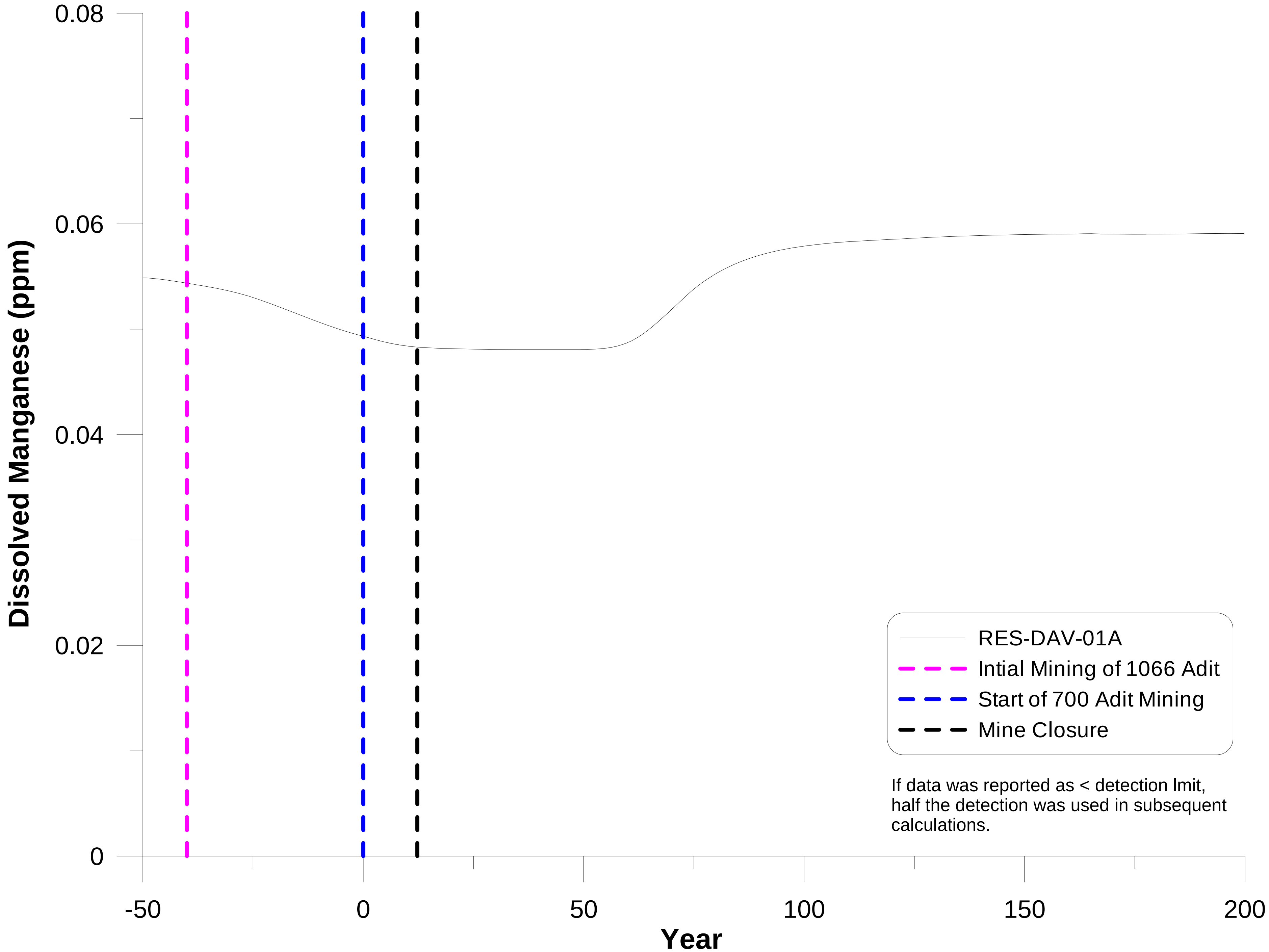


6E-005
4E-005
2E-005
0
Dissolved Lead (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

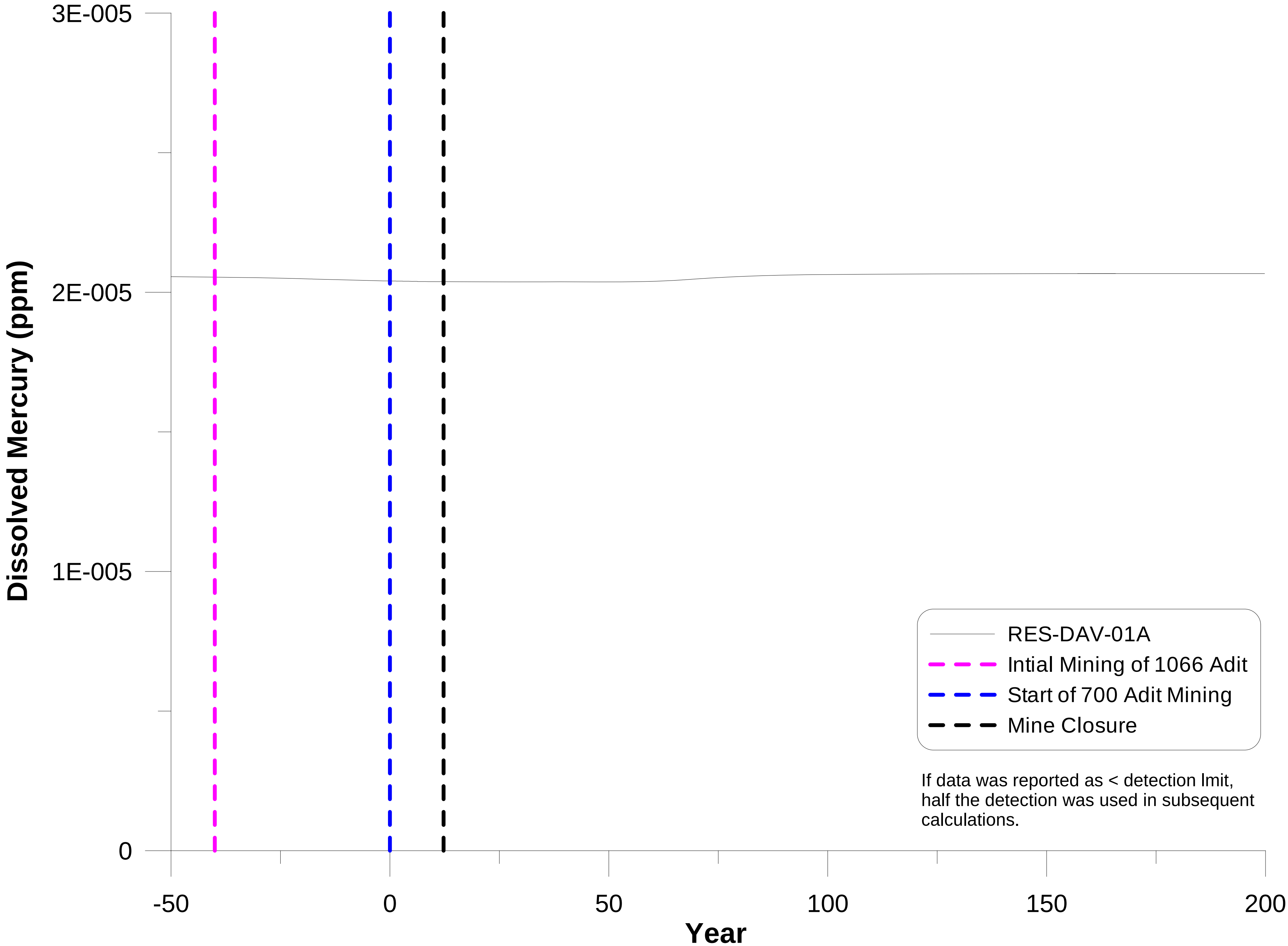

0.008
0.006
0.004
0.002
0
Dissolved Lithium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



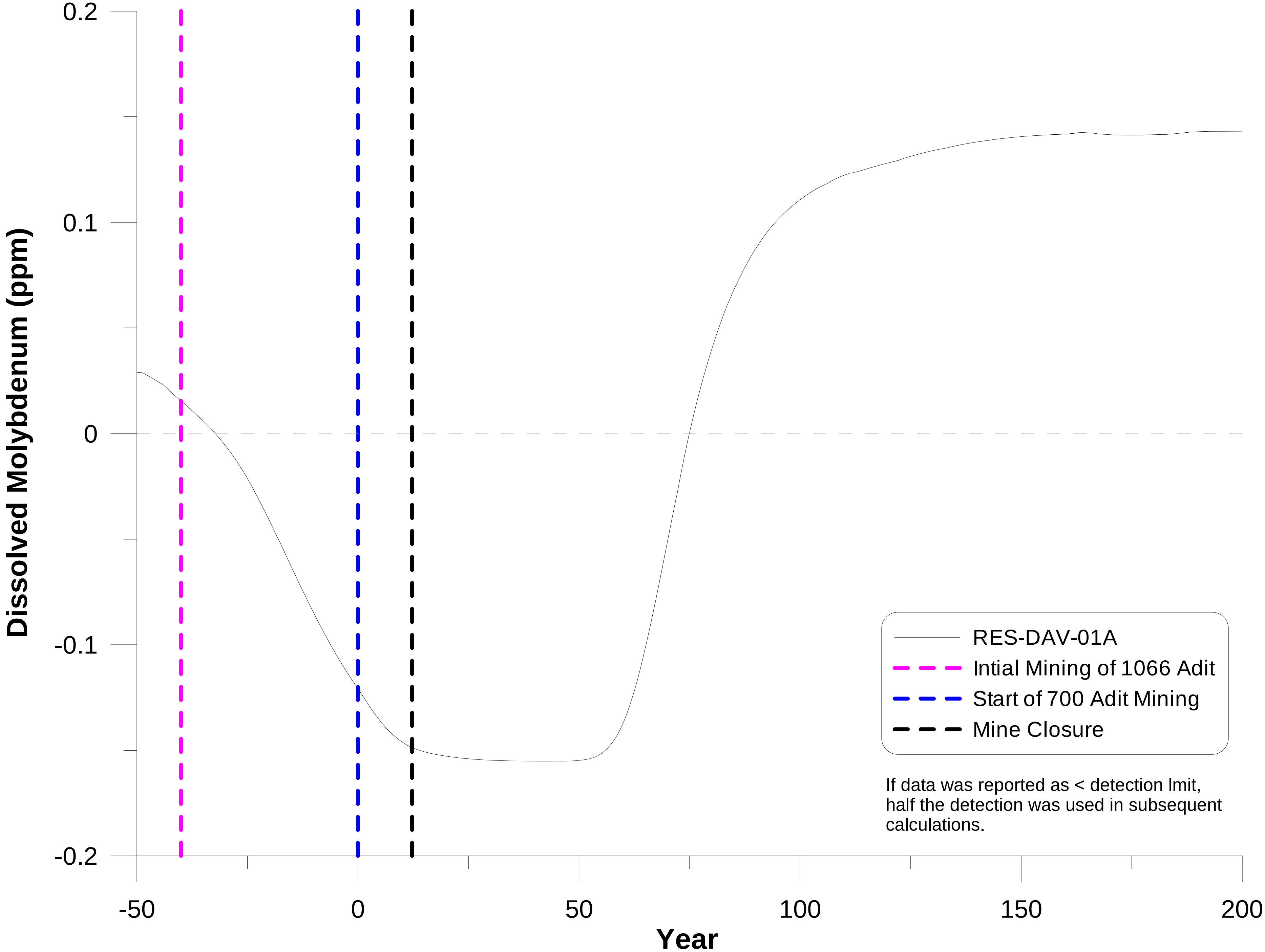
Dissolved Magnesium (ppm)
10
8
6
4
2
0
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



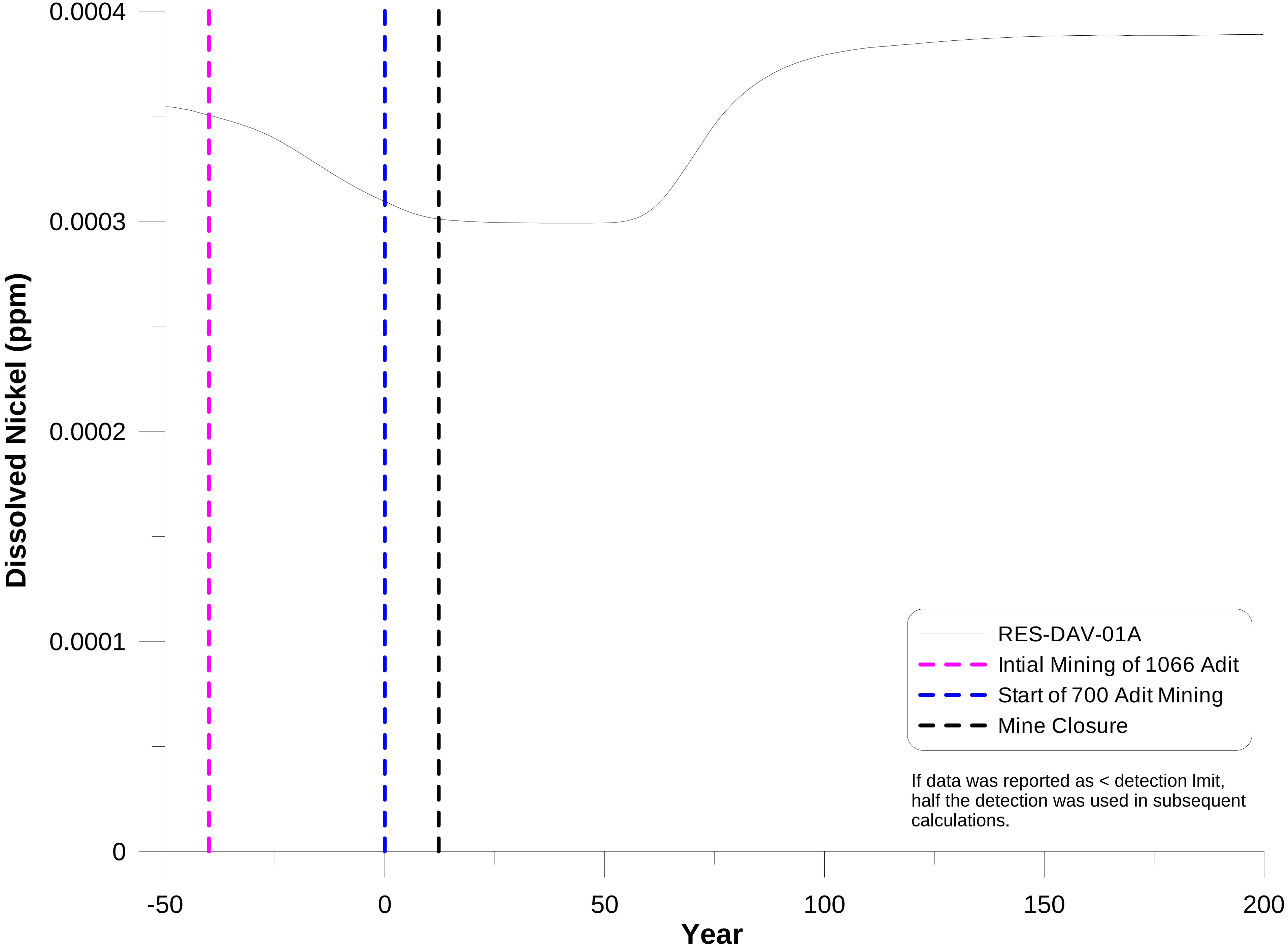
0.08
0.06
0.04
0.02
0
Dissolved Manganese (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

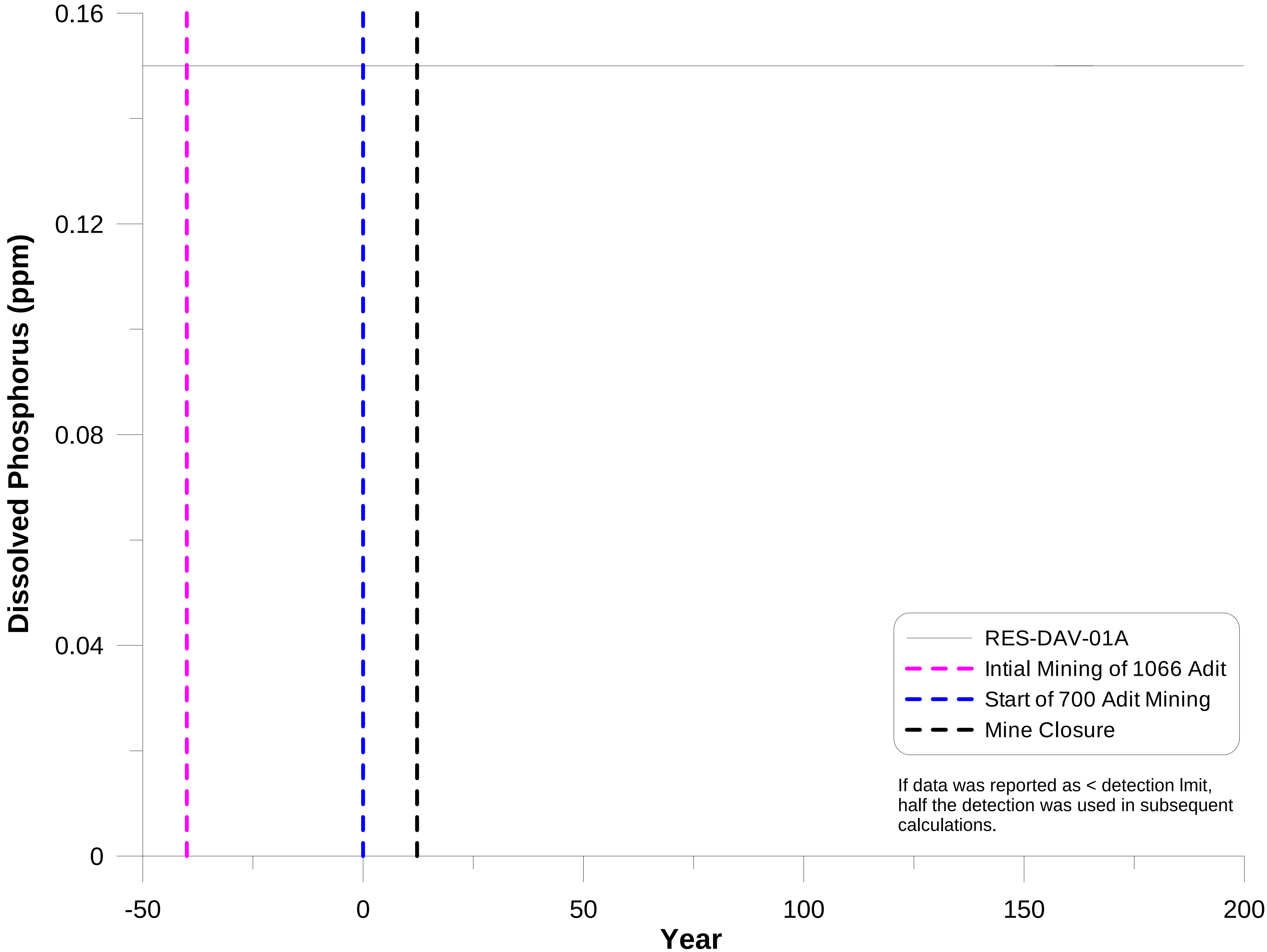


3E-005
2E-005
1E-005
0
Dissolved Mercury (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

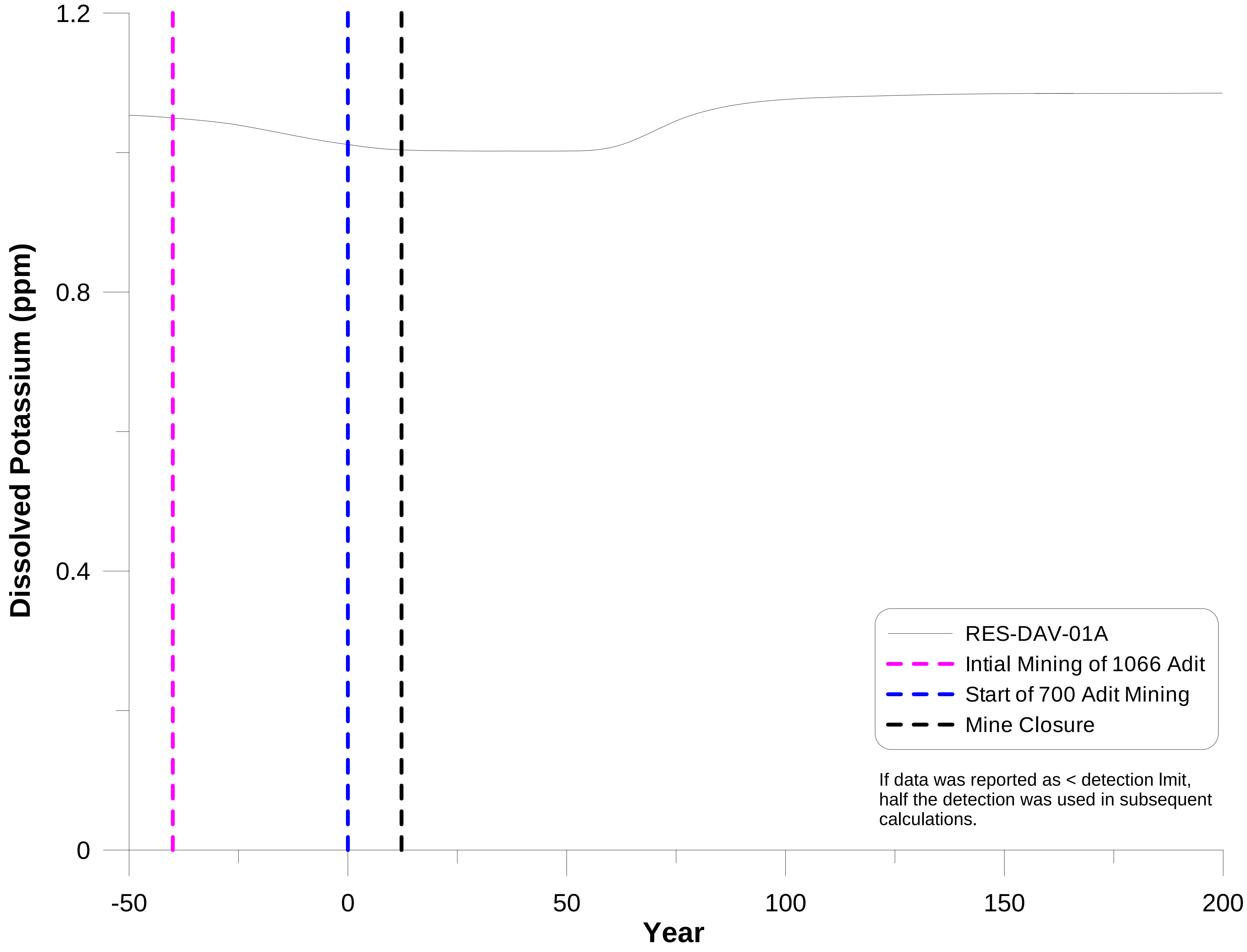


Dissolved Molybdenum (ppm)
0.2
0.1
0
-0.1
-0.2
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

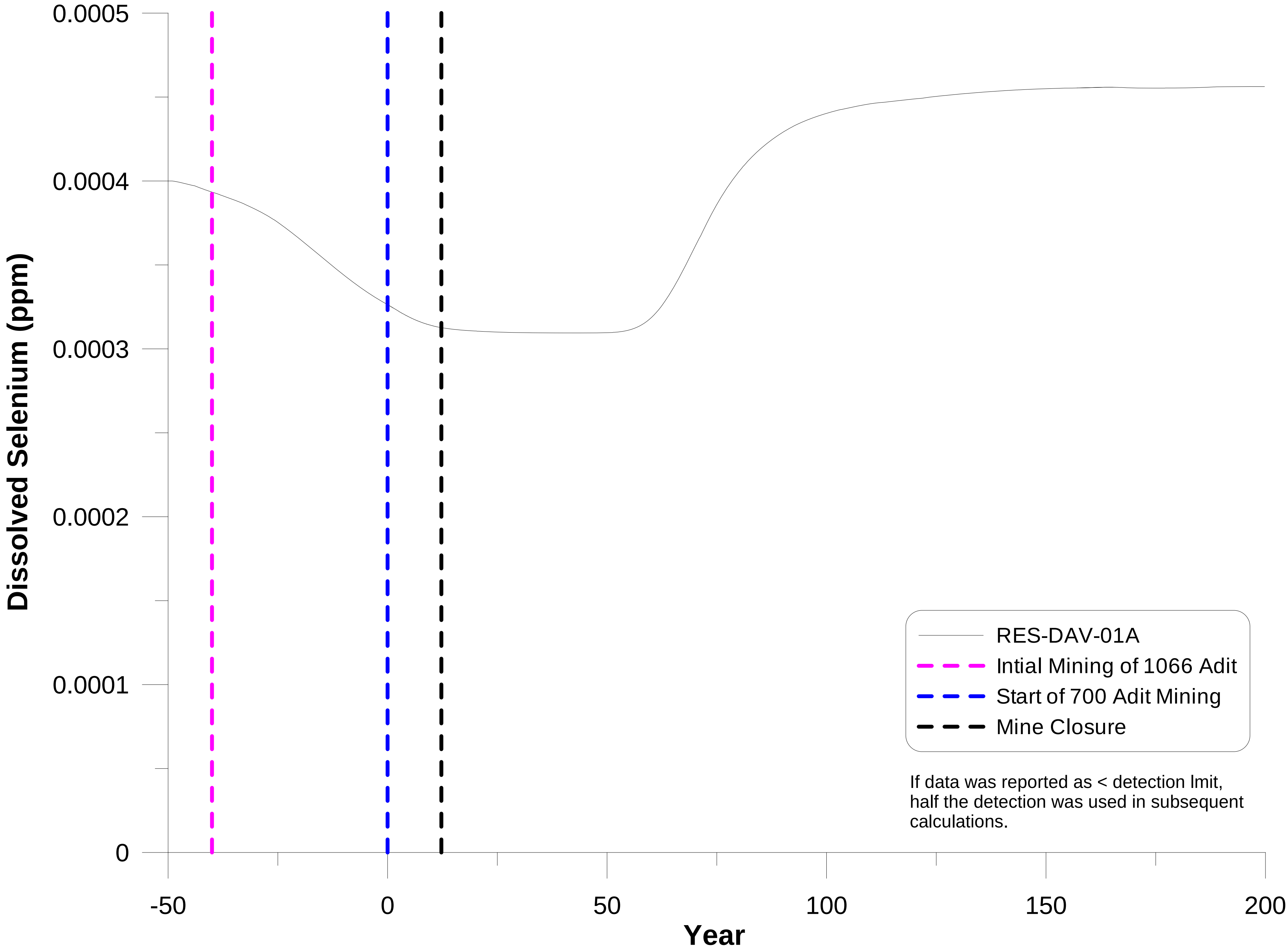

0.0004
0.0003
0.0002
0.0001
0
Dissolved Nickel (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



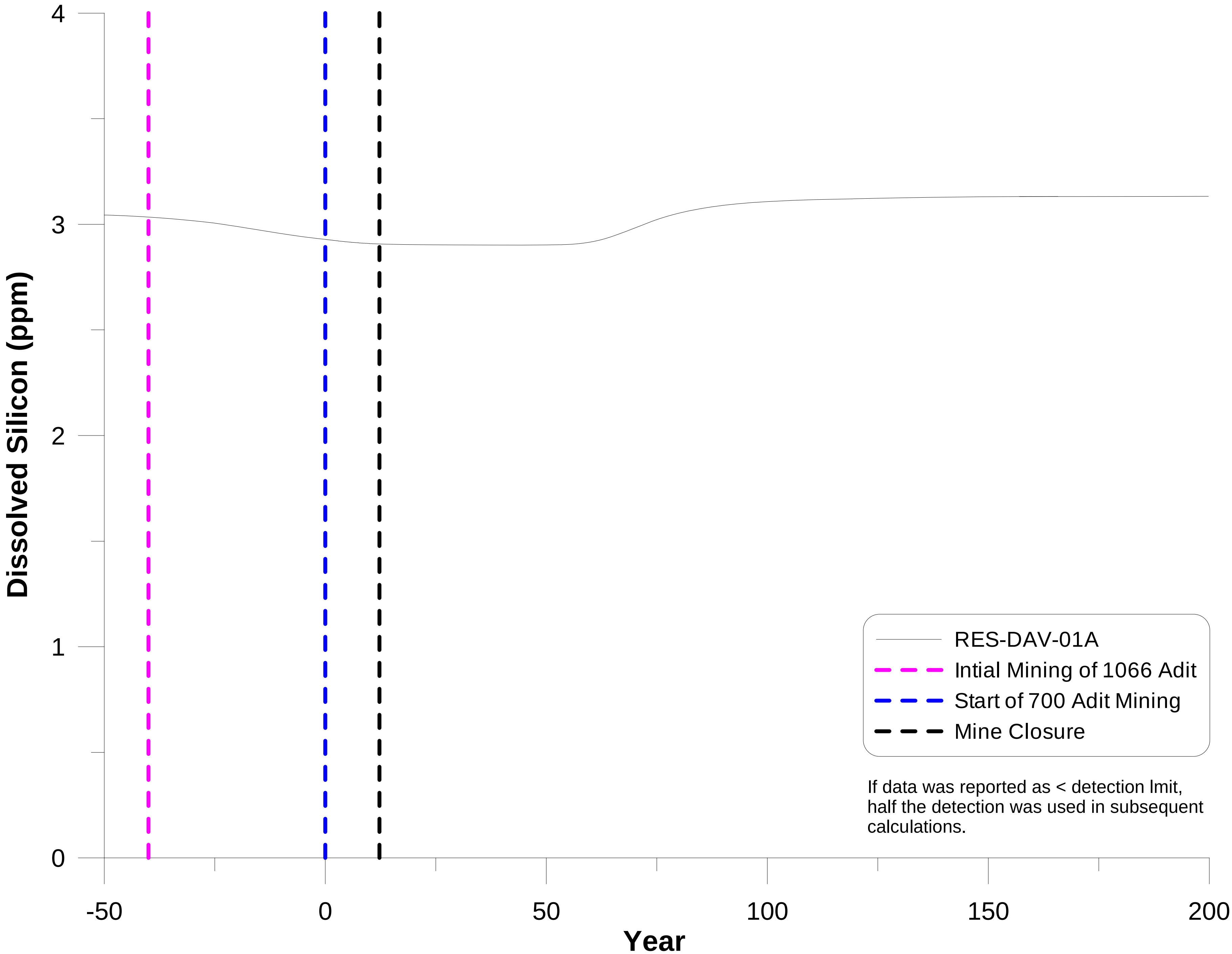
Dissolved Phosphorus (ppm)
0.16
0.12
0.08
0.04
0
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



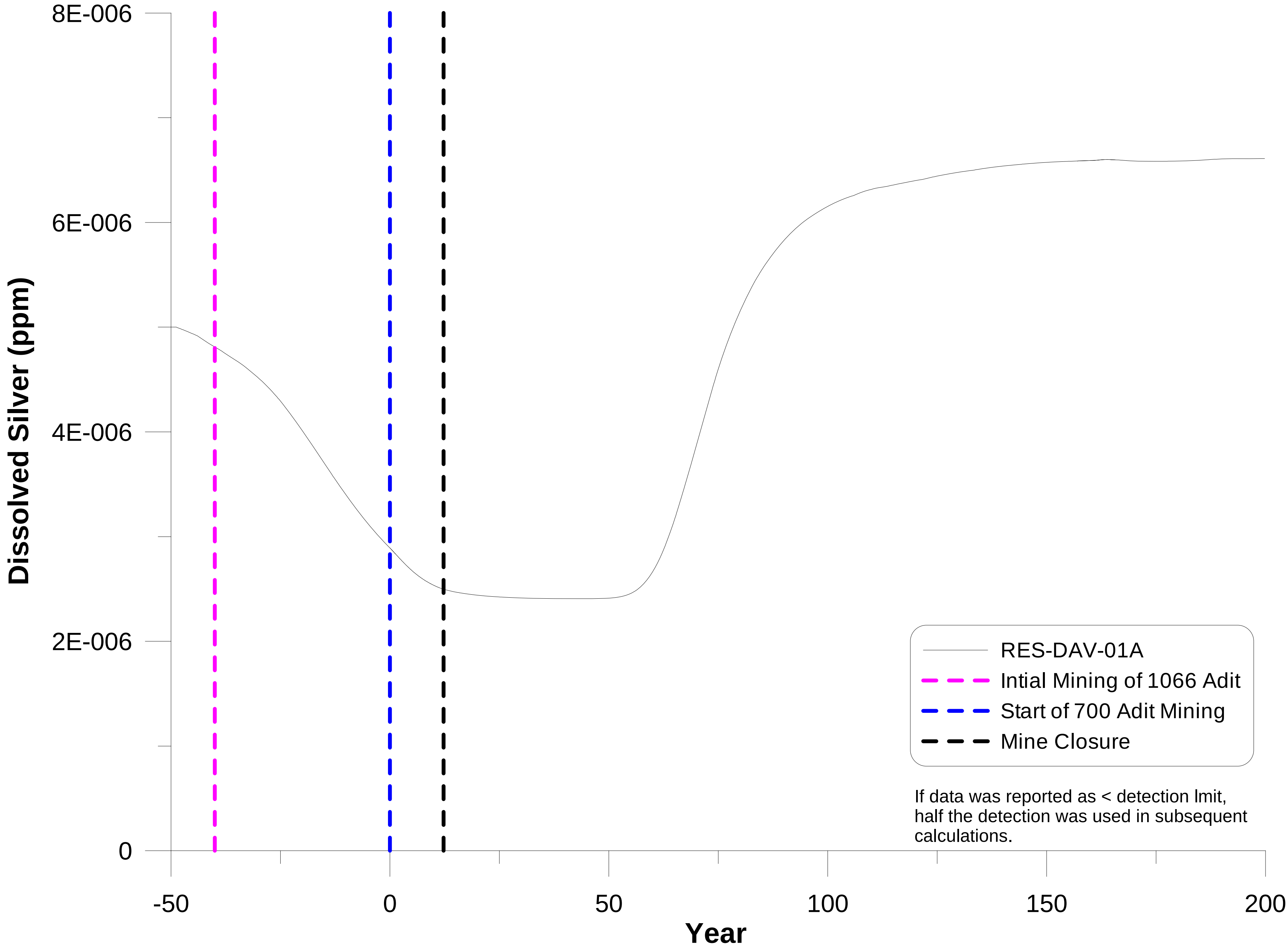
Dissolved Potassium (ppm)
1.2
0.8
0.4
0
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



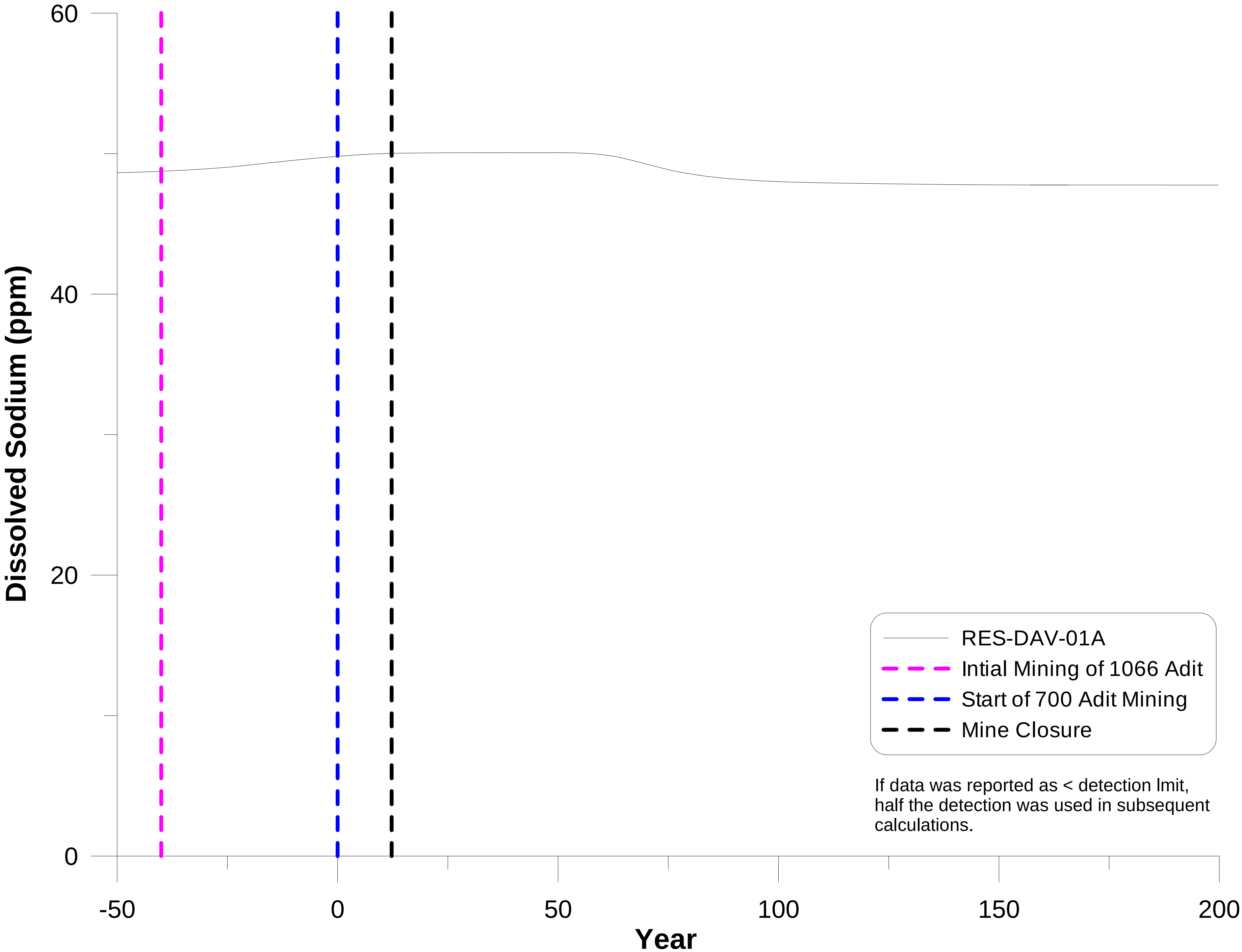
0.0005
0.0004
0.0003
0.0002
0.0001
0
Dissolved Selenium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



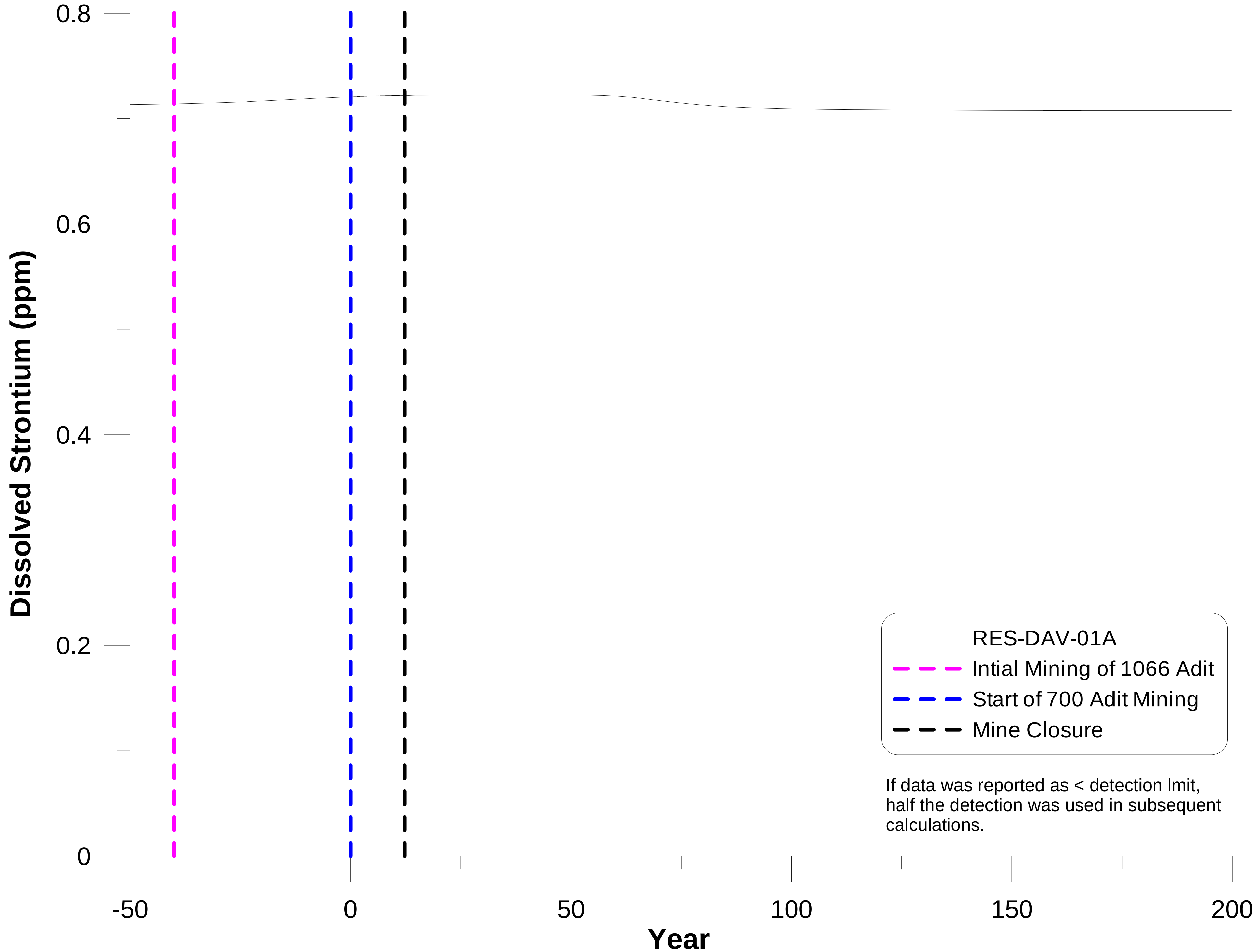
Dissolved Silicon (ppm)
4
3
2
1
0
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



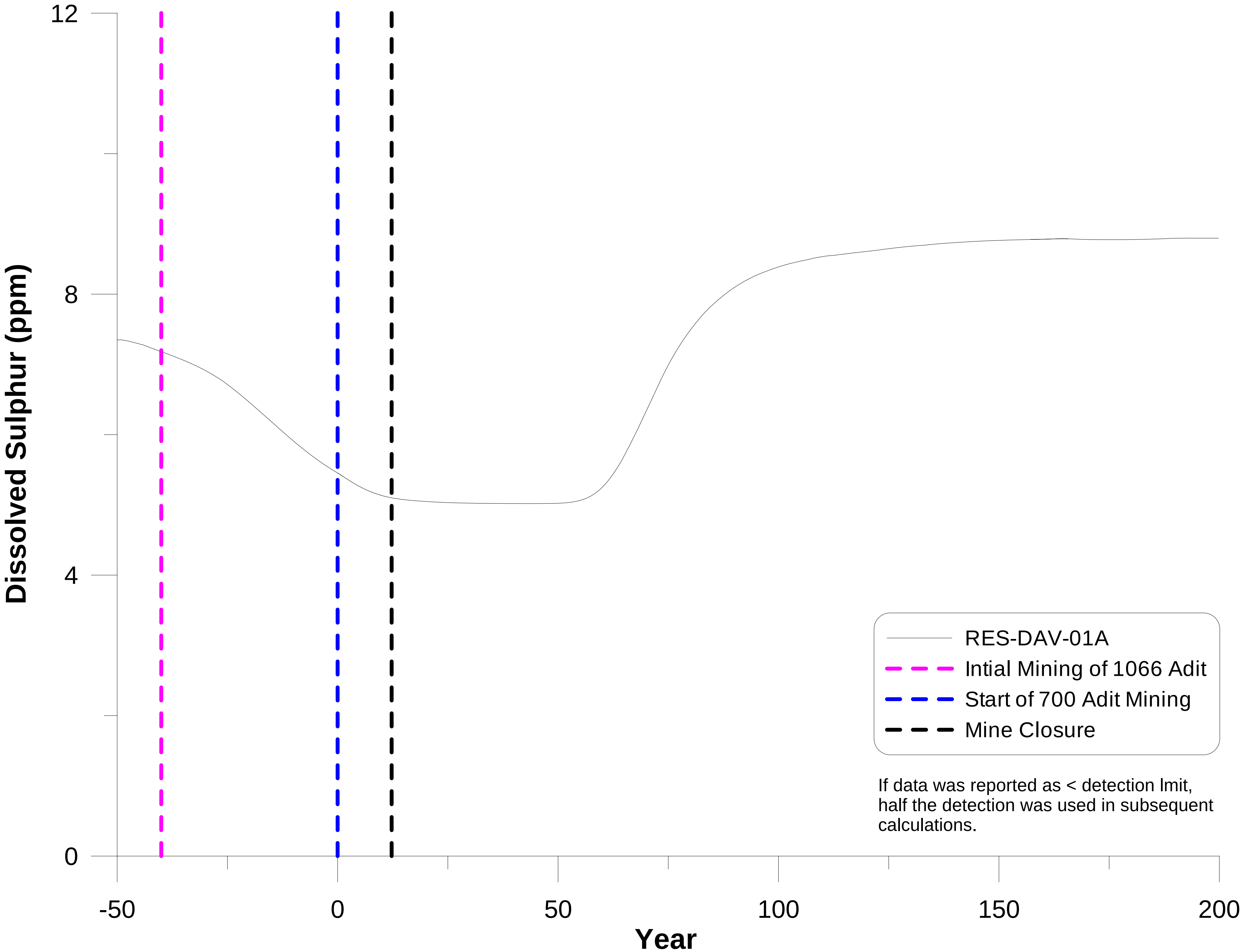
Dissolved Silver (ppm)
8E-006
6E-006
4E-006
2E-006
0
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



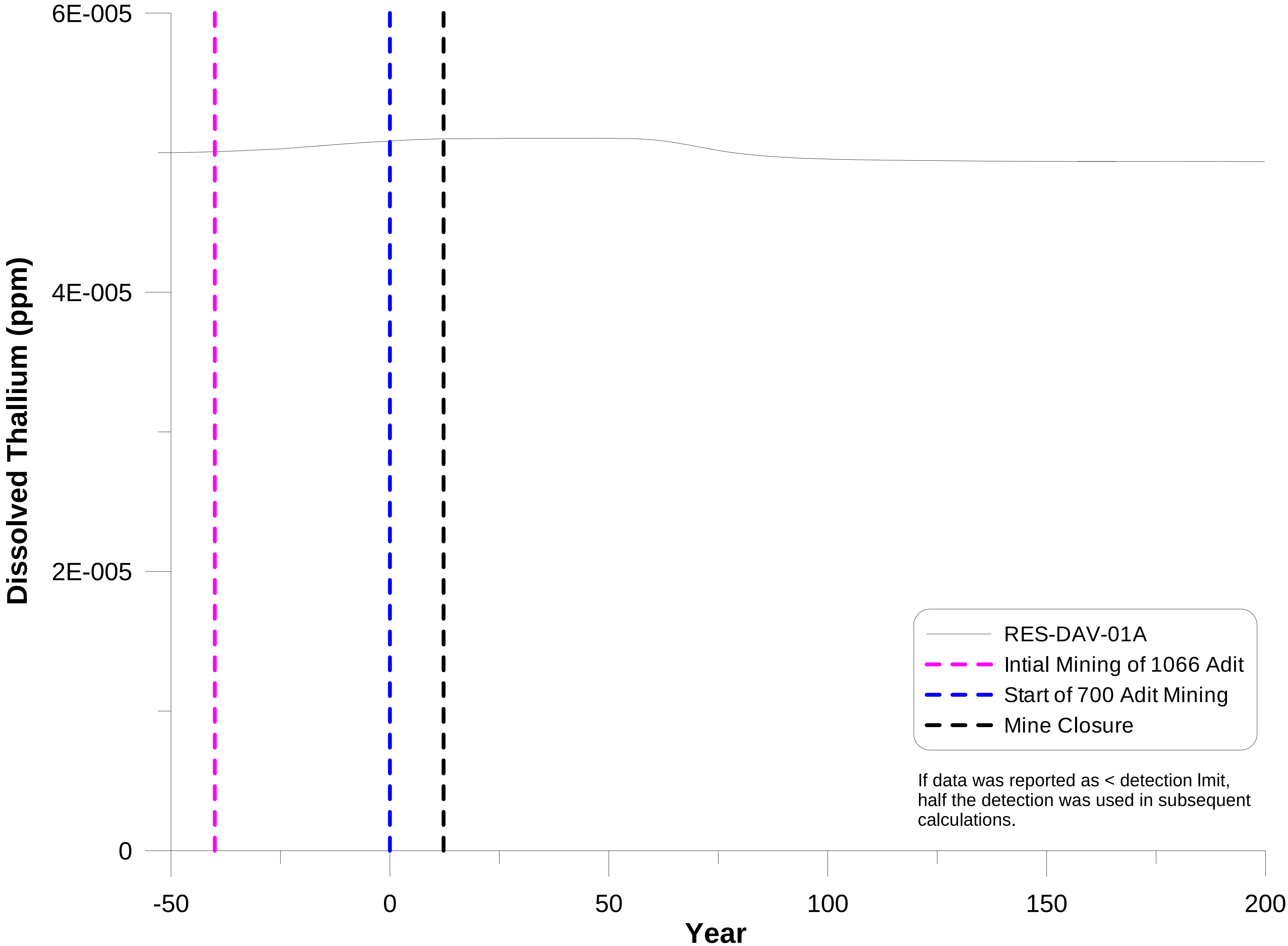
Dissolved Sodium (ppm)
60
40
20
0
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



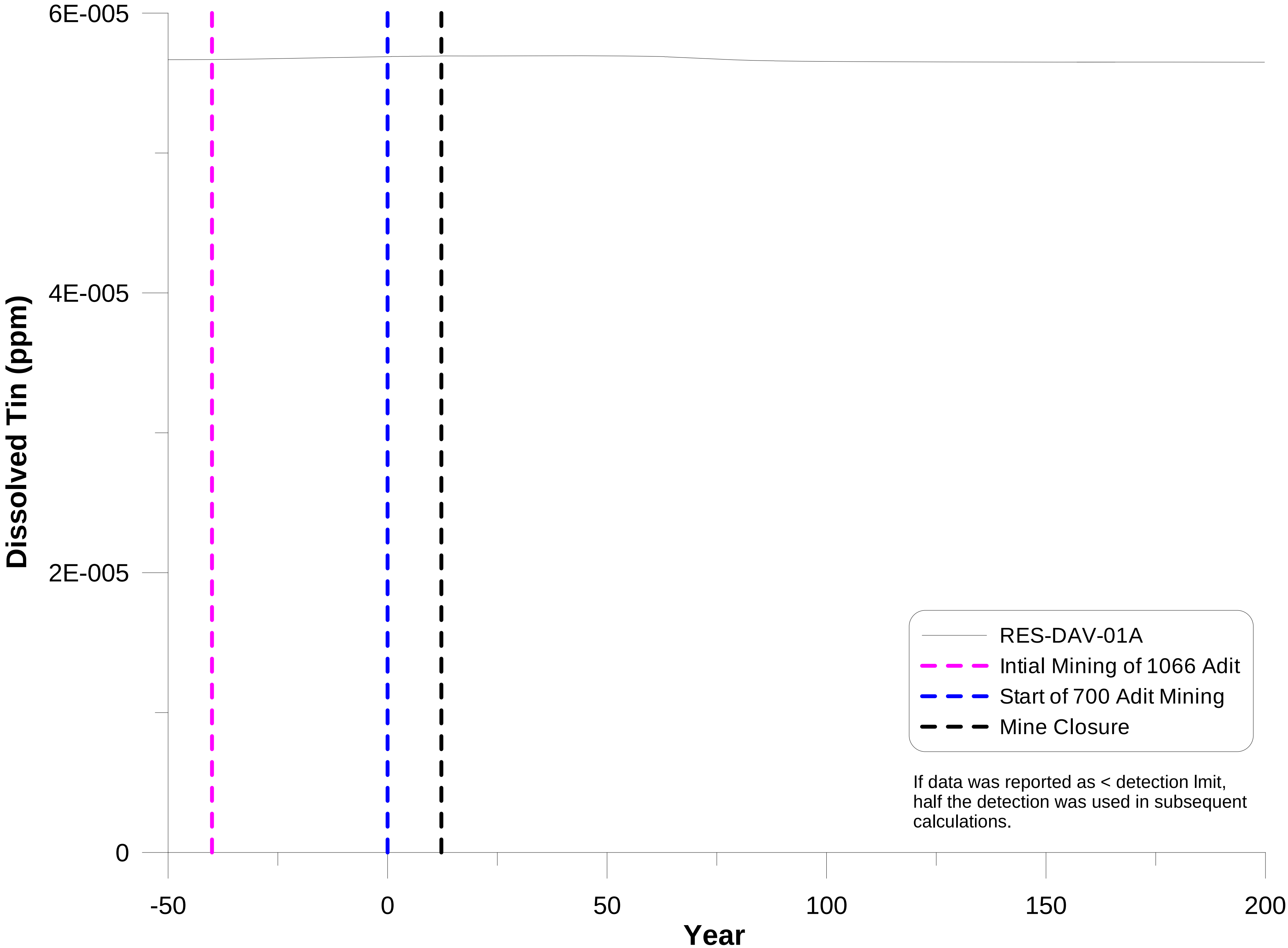
0.8
0.6
0.4
0.2
0
Dissolved Strontium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



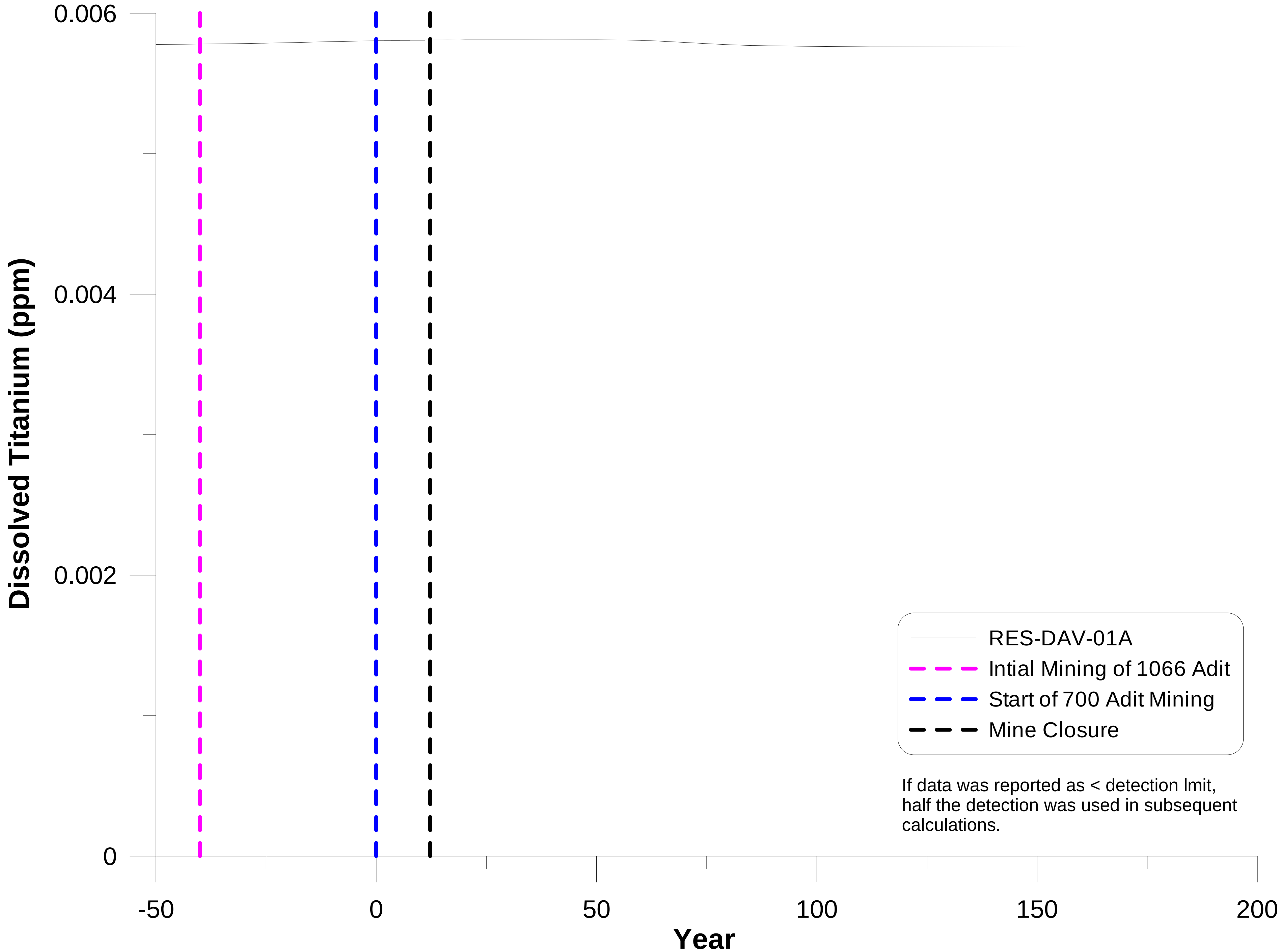
12
8
4
0
Dissolved Sulphur (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

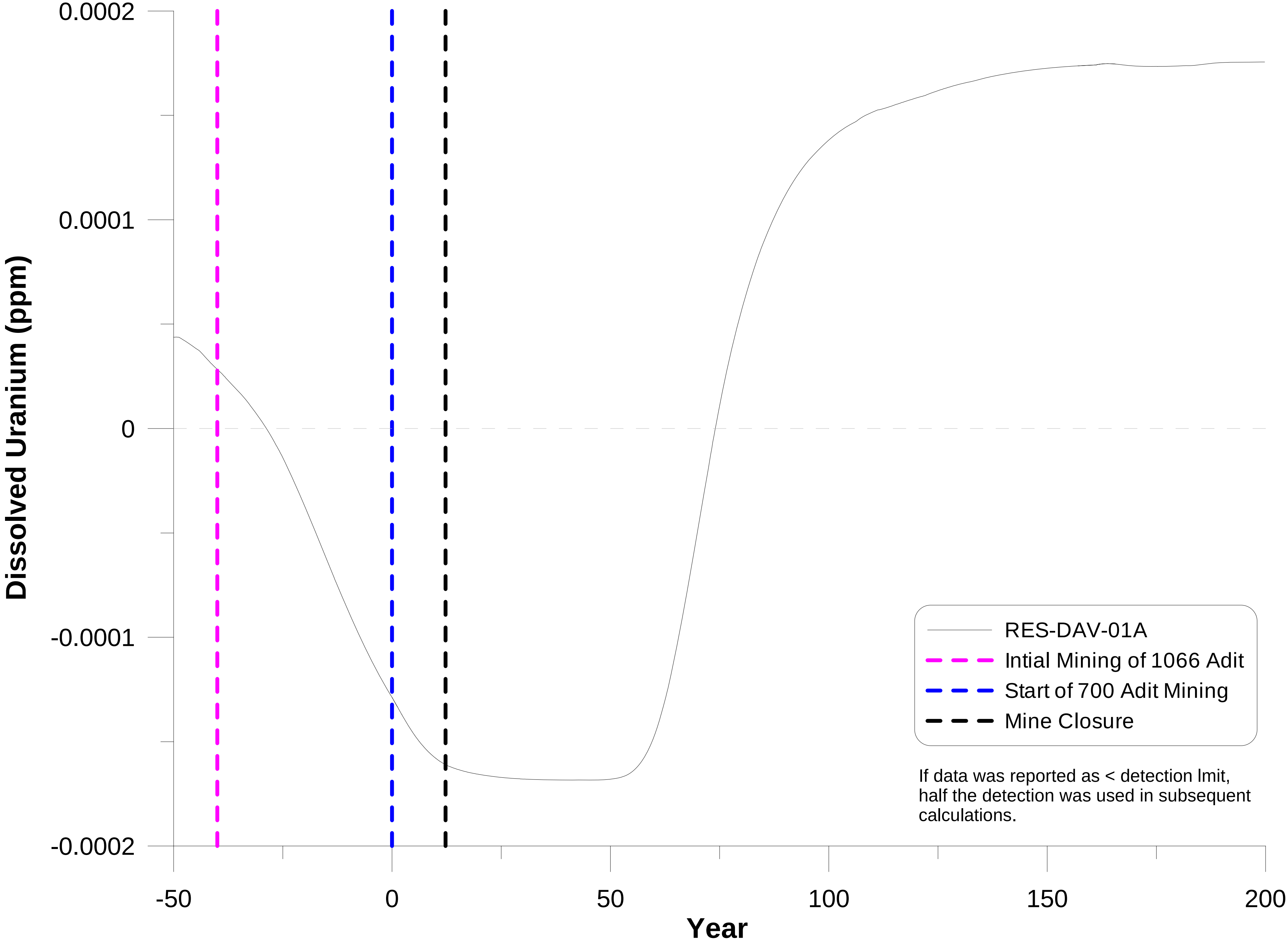


Dissolved Thallium (ppm)
6E-005
4E-005
2E-005
0
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

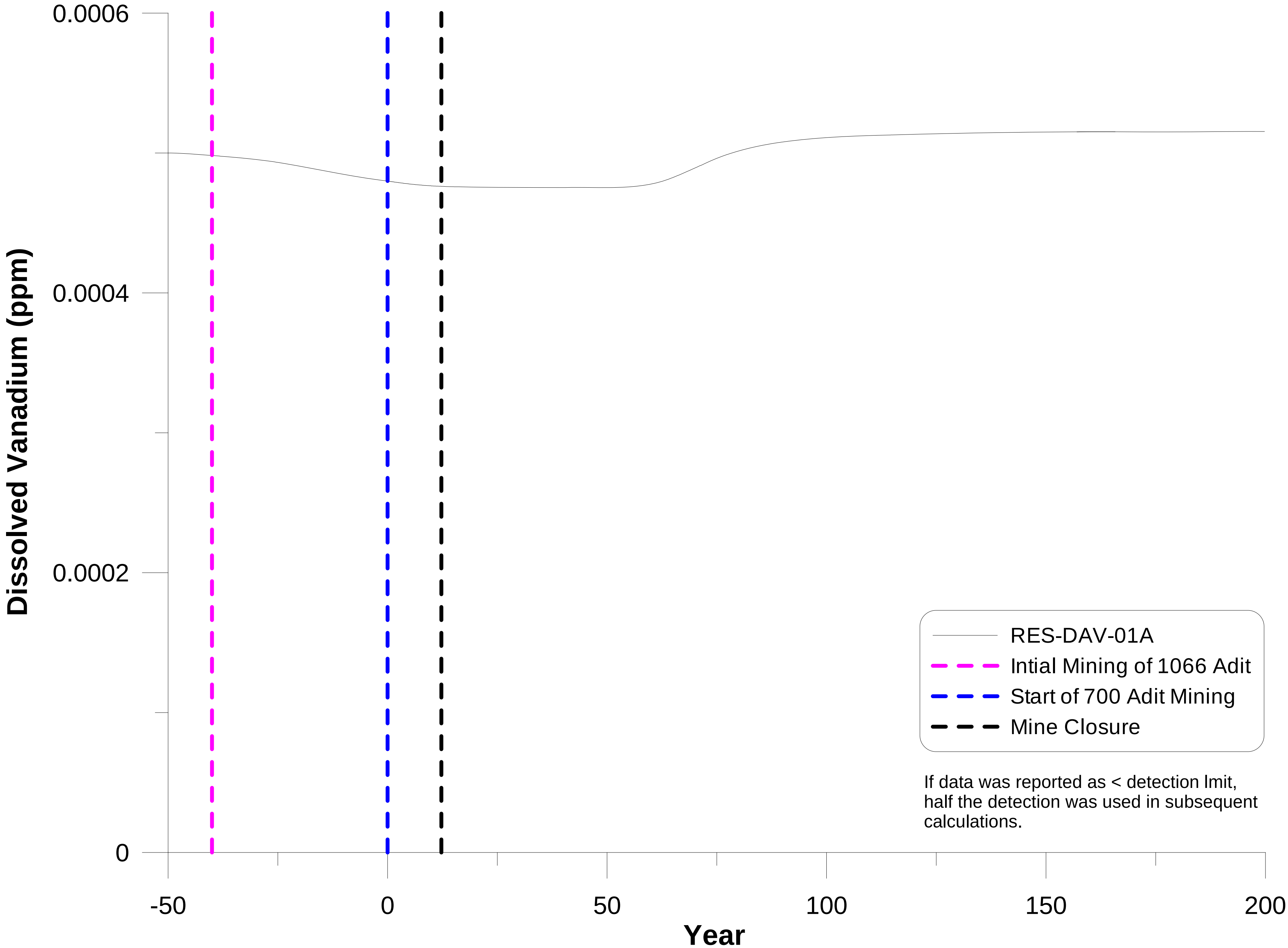


Dissolved Tin (ppm)
6E-005
4E-005
2E-005
0
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

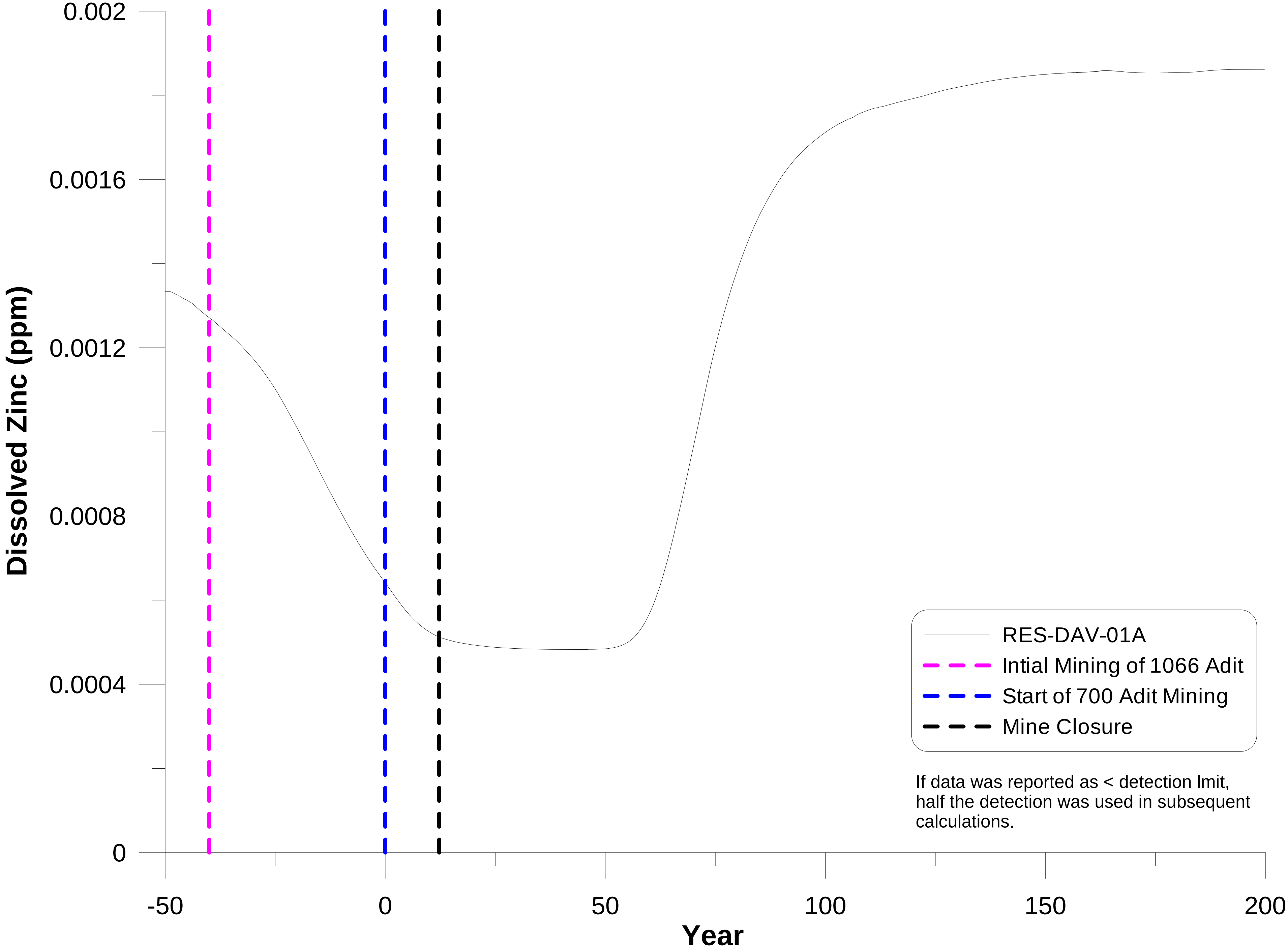

0.006
0.004
0.002
0
Dissolved Titanium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



Dissolved Uranium (ppm)
0.0002
0.0001
0
-0.0001
-0.0002
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



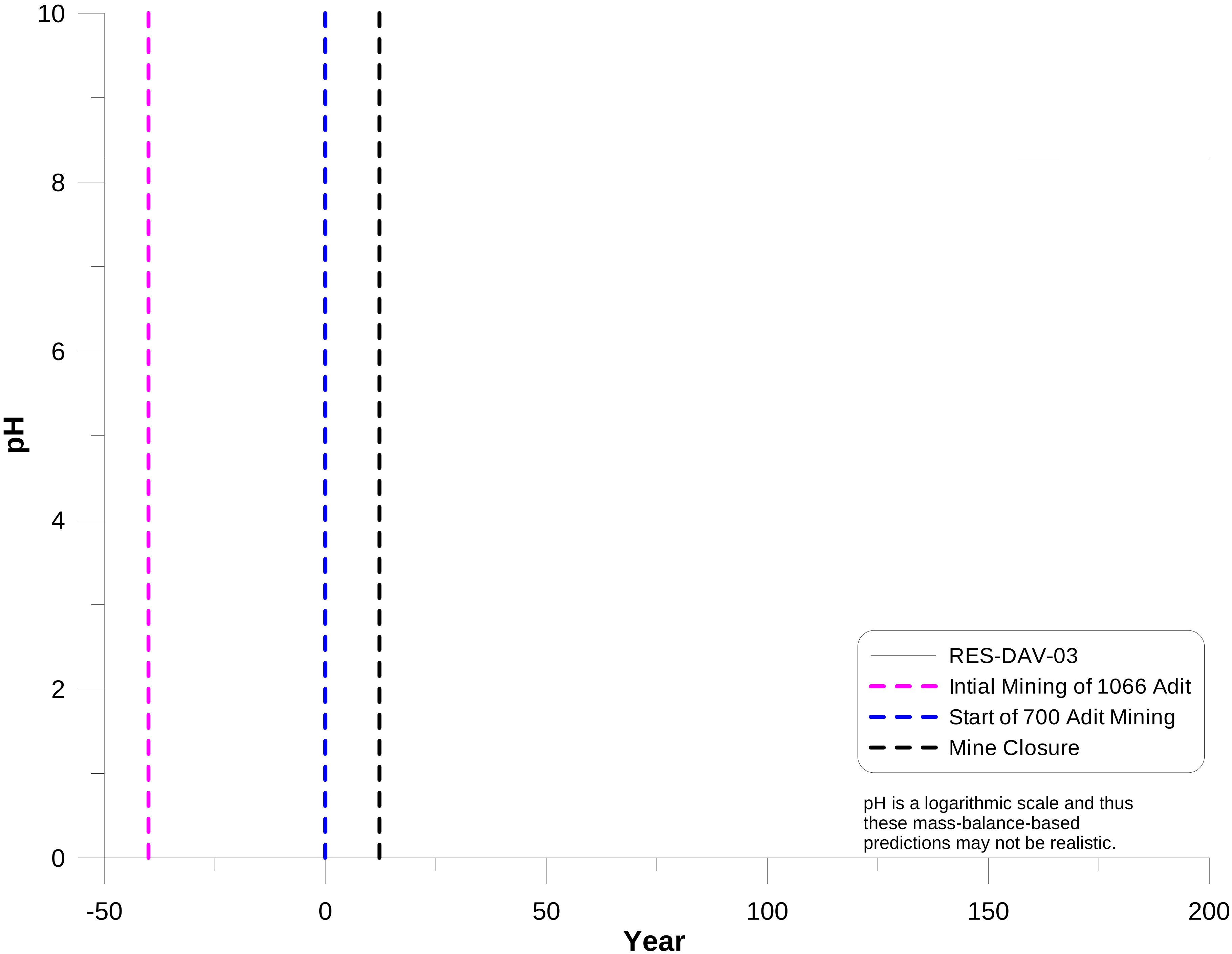
0.0006
0.0004
0.0002
0
Dissolved Vanadium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



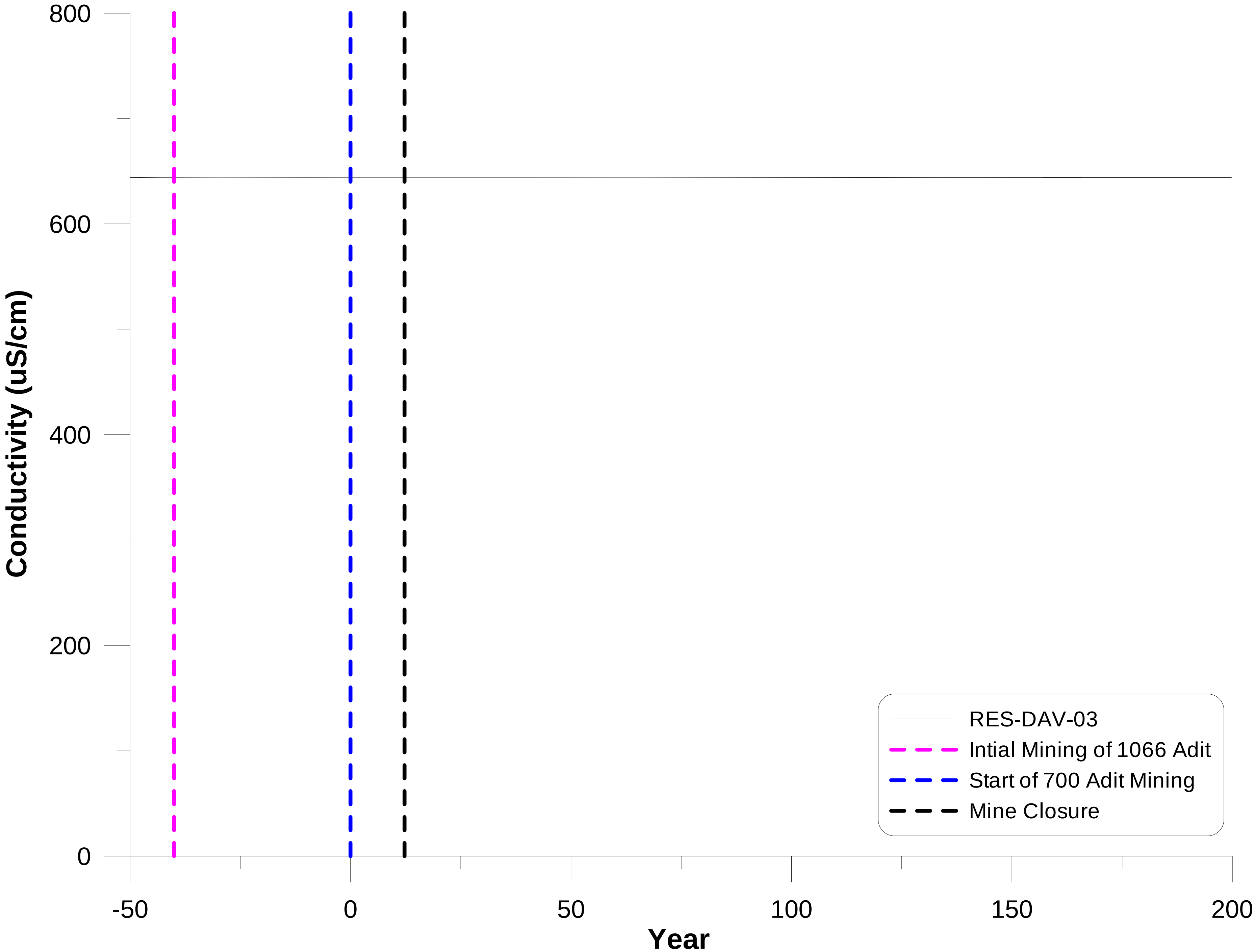
Dissolved Zinc (ppm)
0.002
0.0016
0.0012
0.0008
0.0004
0
-50
0
50
100
150
200
Year
RES-DAV-01A
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

APPENDIX D.

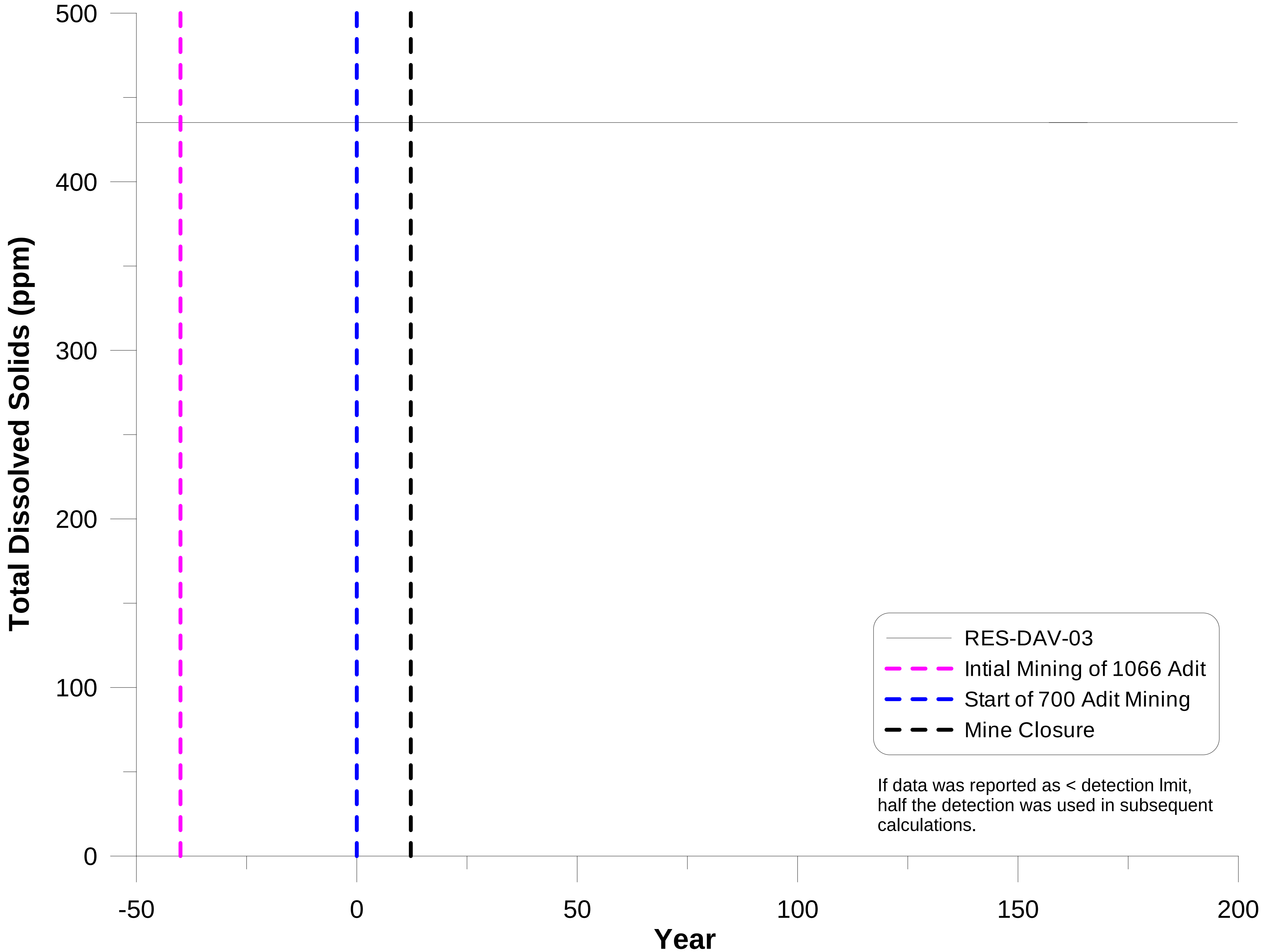
ESTIMATED CONCENTRATIONS FOR WELL RES-DAV-03 BASED ON MODFLOW MODELLING AND CURRENT AVERAGE WELL-WATER CHEMISTRY, BEFORE MINING, DURING OPERATION, AND AFTER CLOSURE



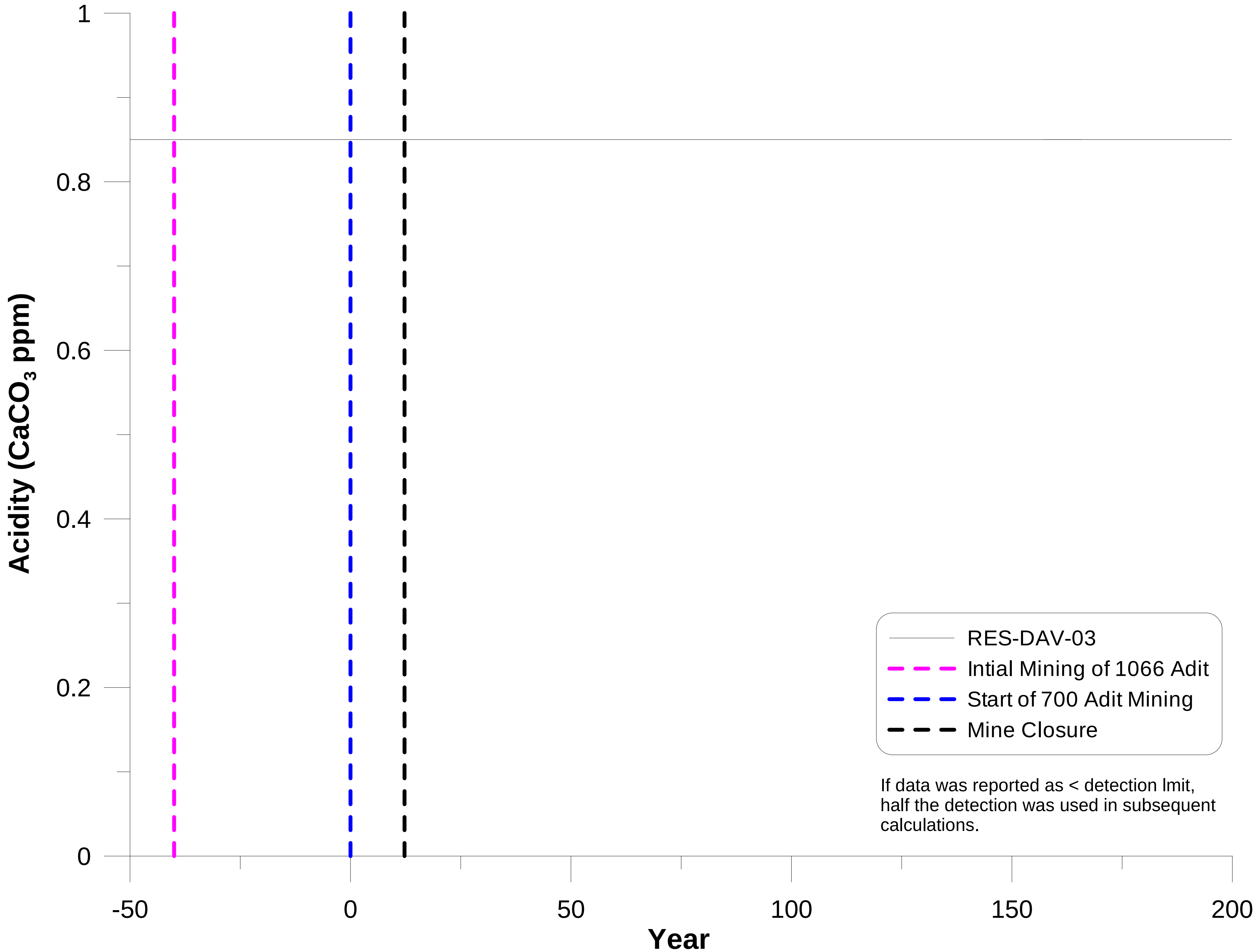
10
8
6
4
2
0
pH
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
pH is a logarithmic scale and thus
these mass-balance-based
predictions may not be realistic.



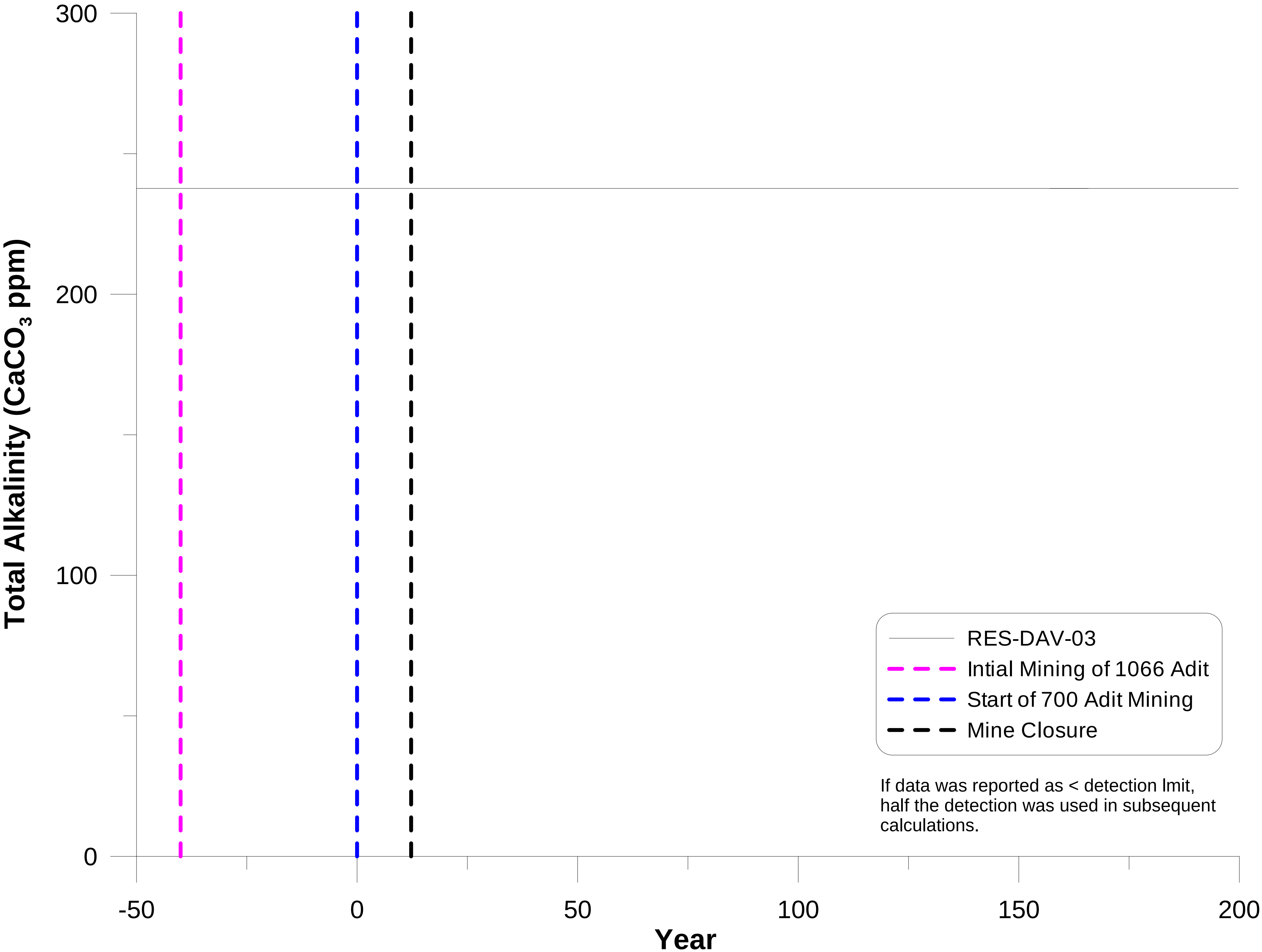
800
600
400
200
0
Conductivity (uS/cm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure



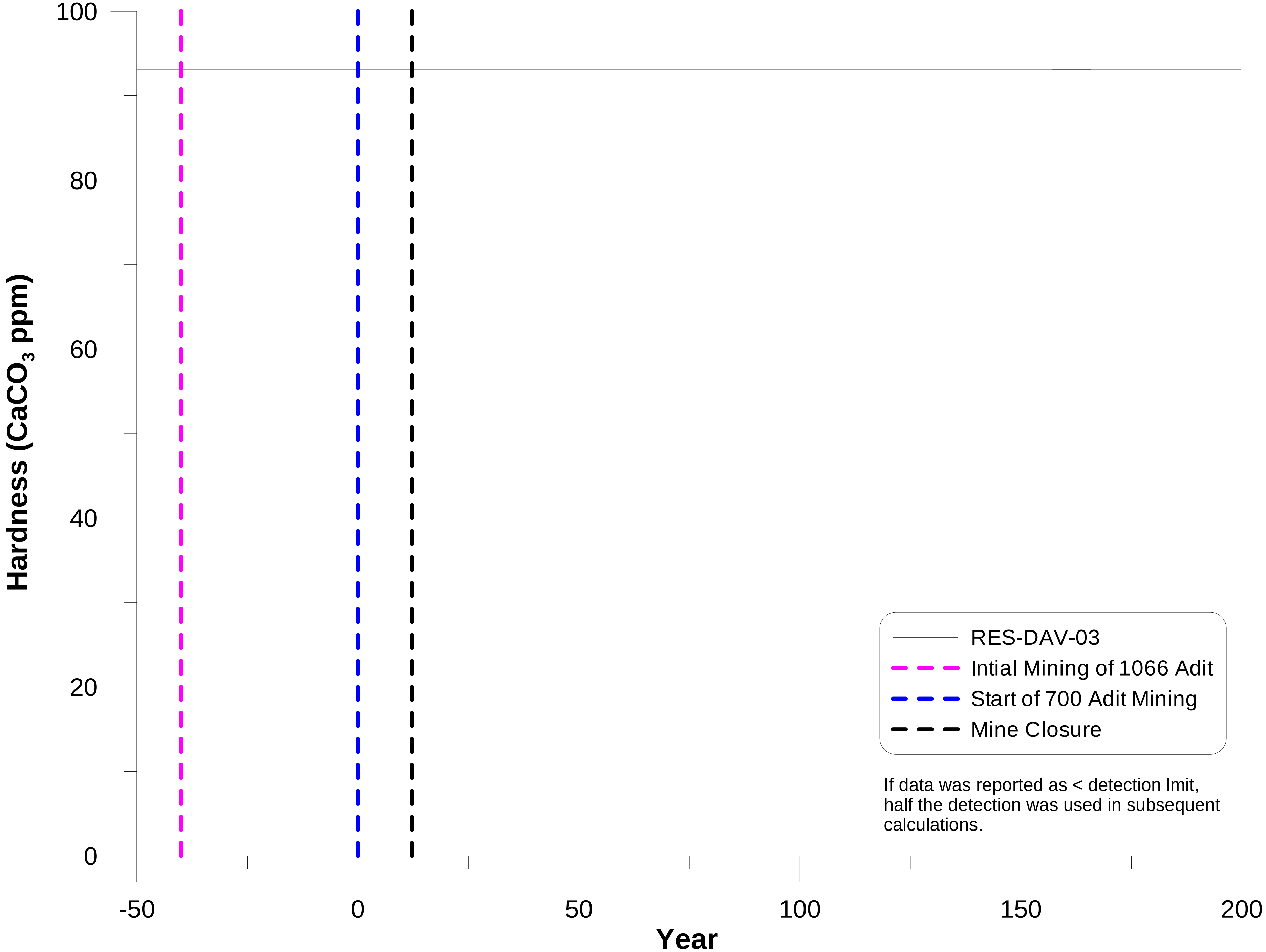
Total Dissolved Solids (ppm)
500
400
300
200
100
0
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



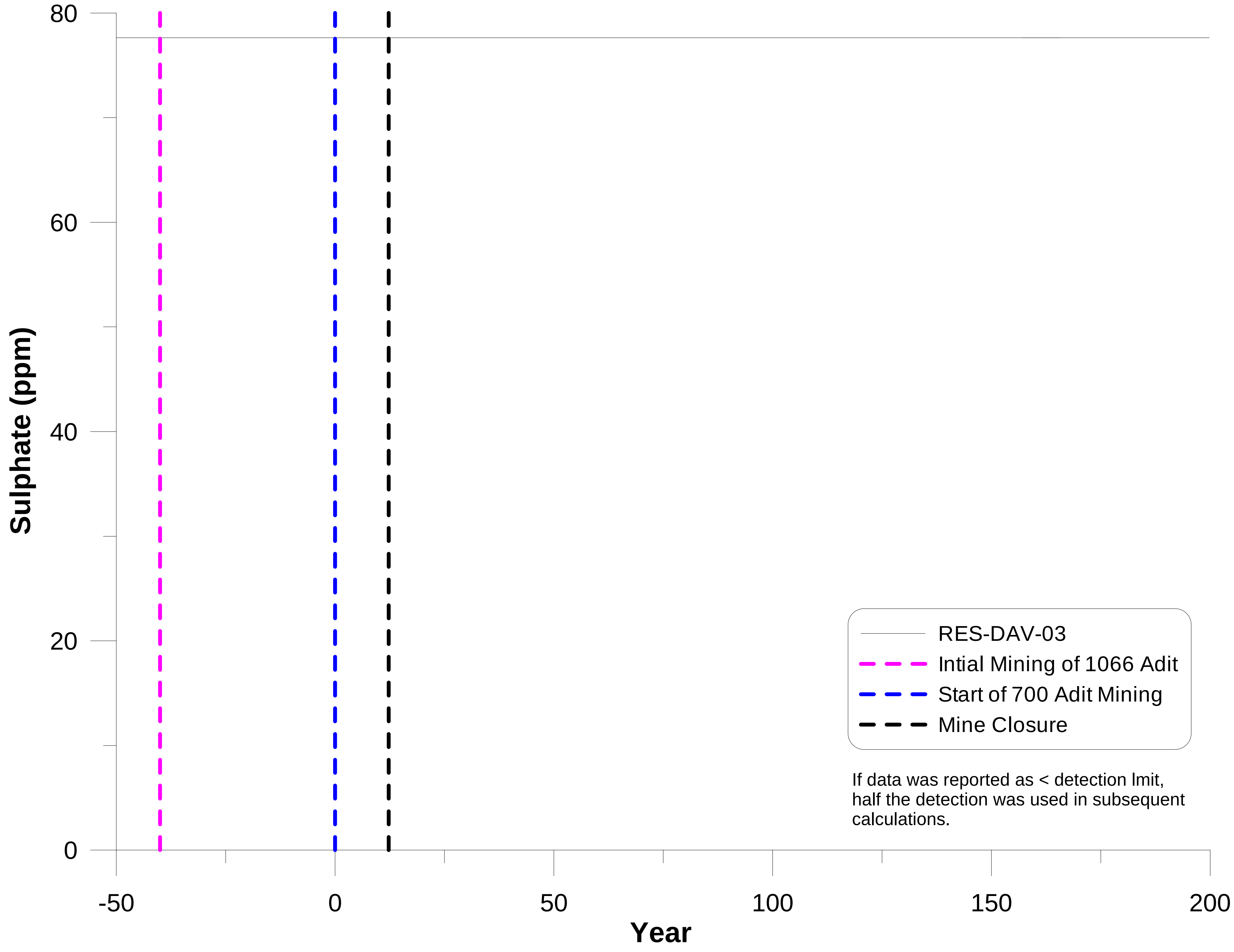
Acidity ($CaCO_3$ ppm)
1
0.8
0.6
0.4
0.2
0
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



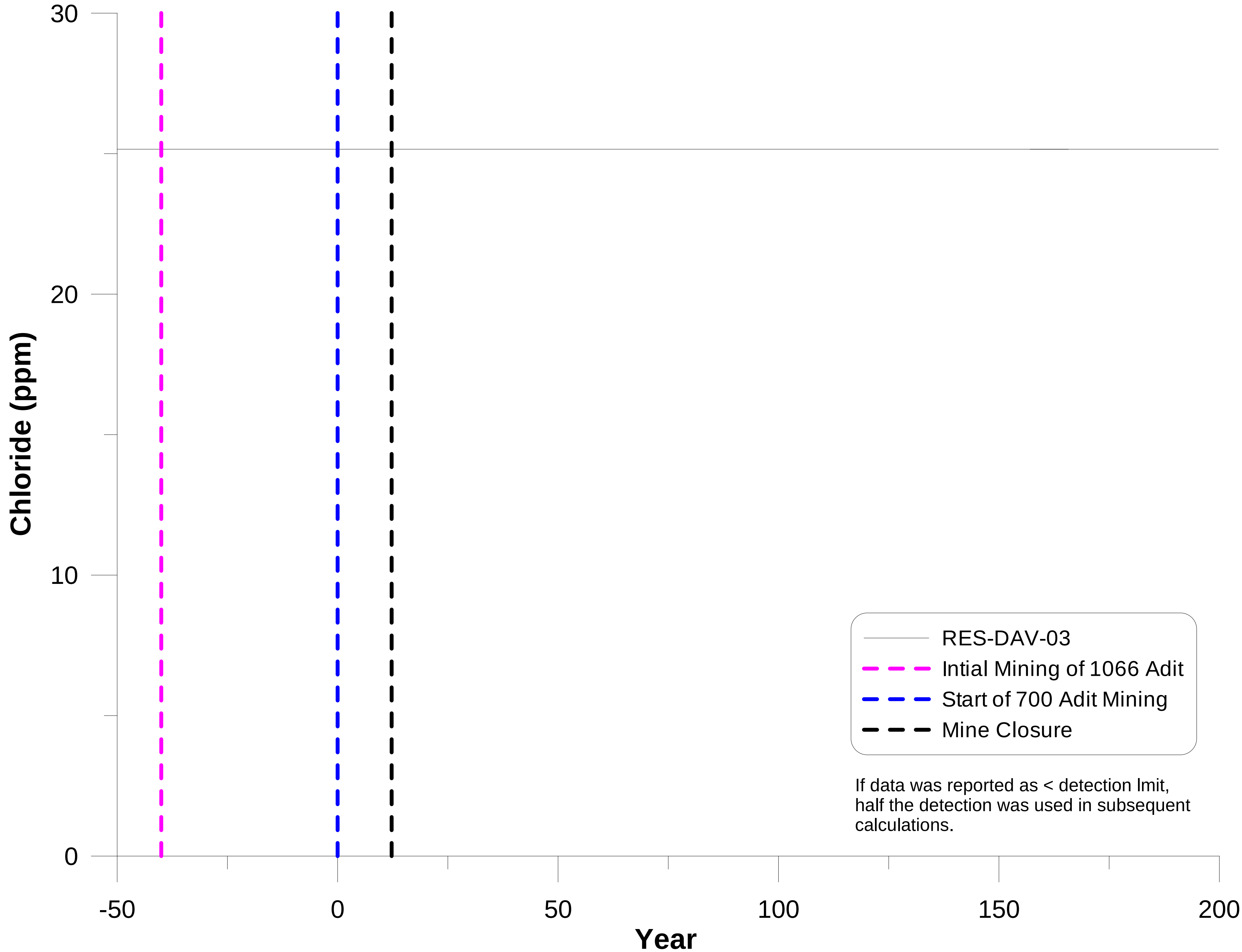
Total Alkalinity ($CaCO_3$ ppm)
300
200
100
0
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



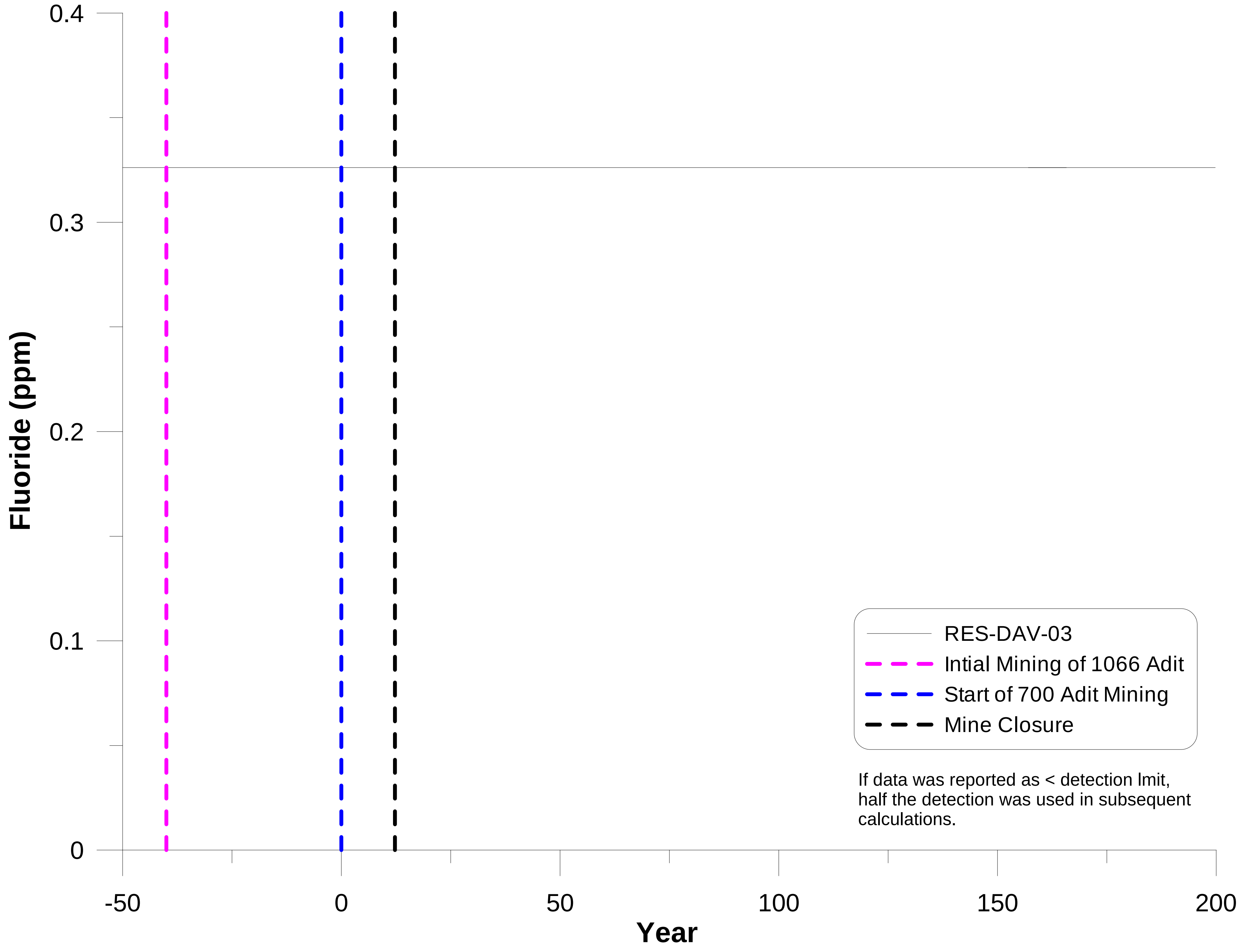
Hardness (CaCO3 ppm)
100
80
60
40
20
0
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



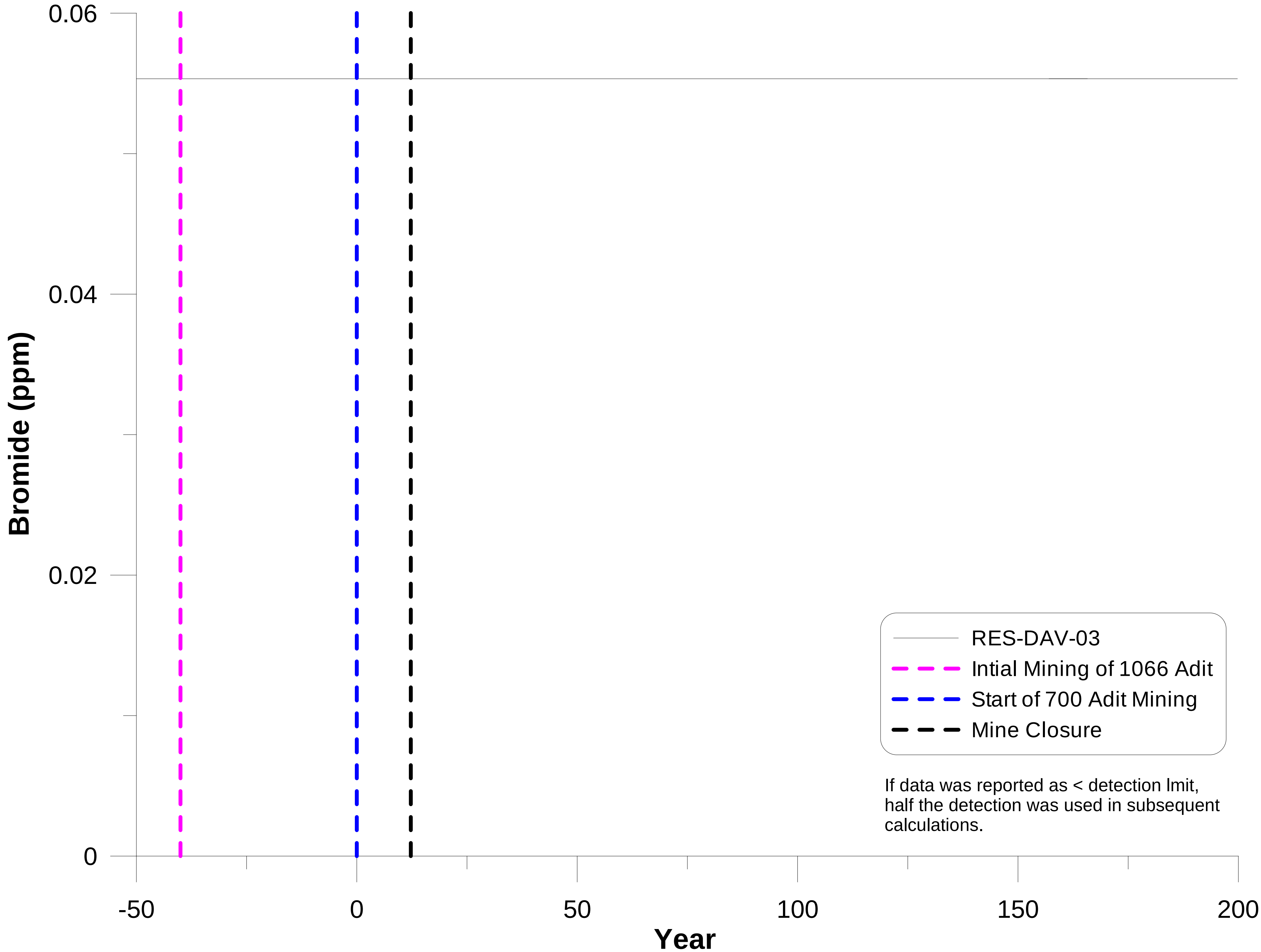
80
60
40
20
0
Sulphate (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



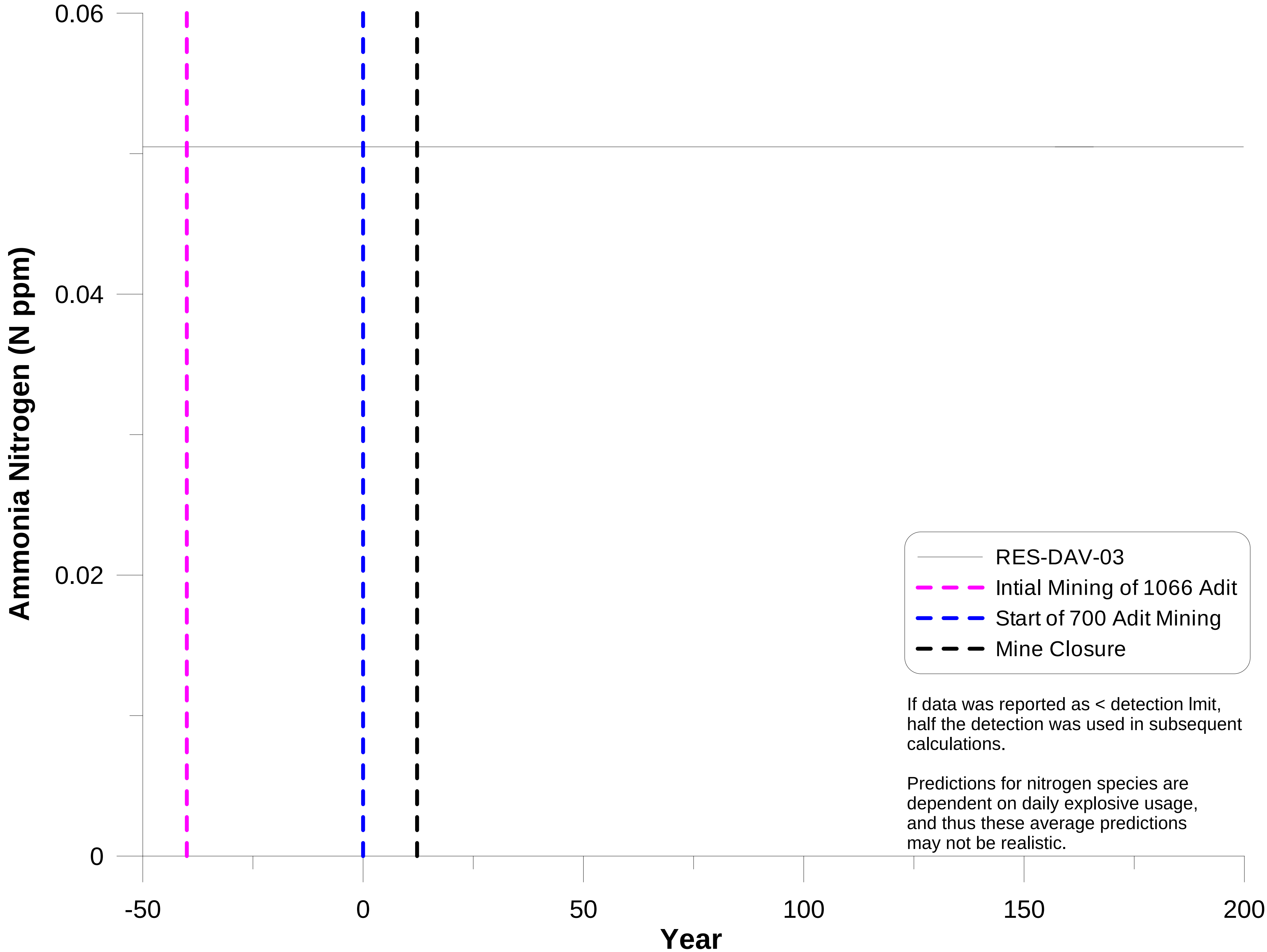
30
20
10
0
Chloride (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



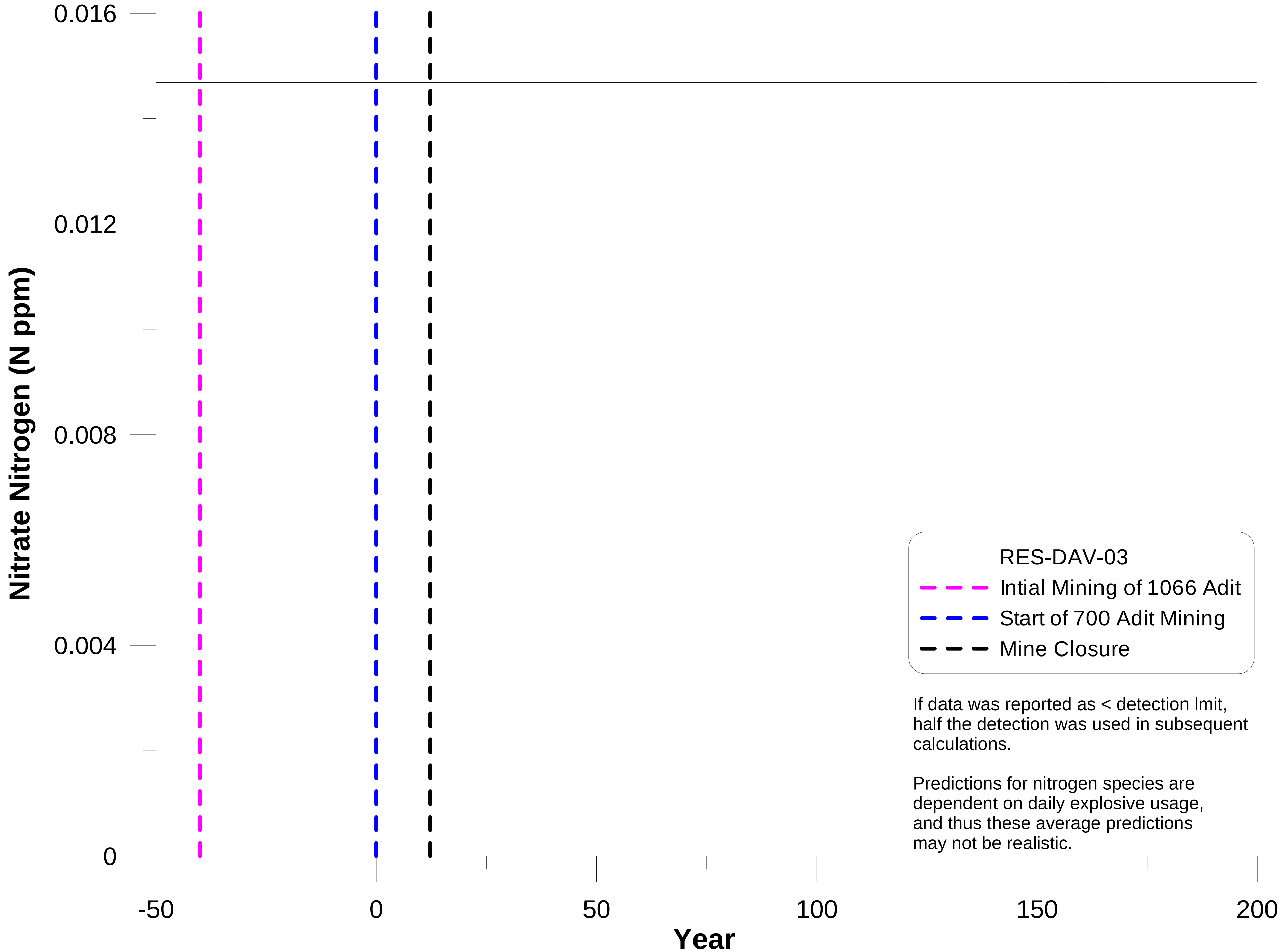
0.4
0.3
0.2
0.1
0
Fluoride (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



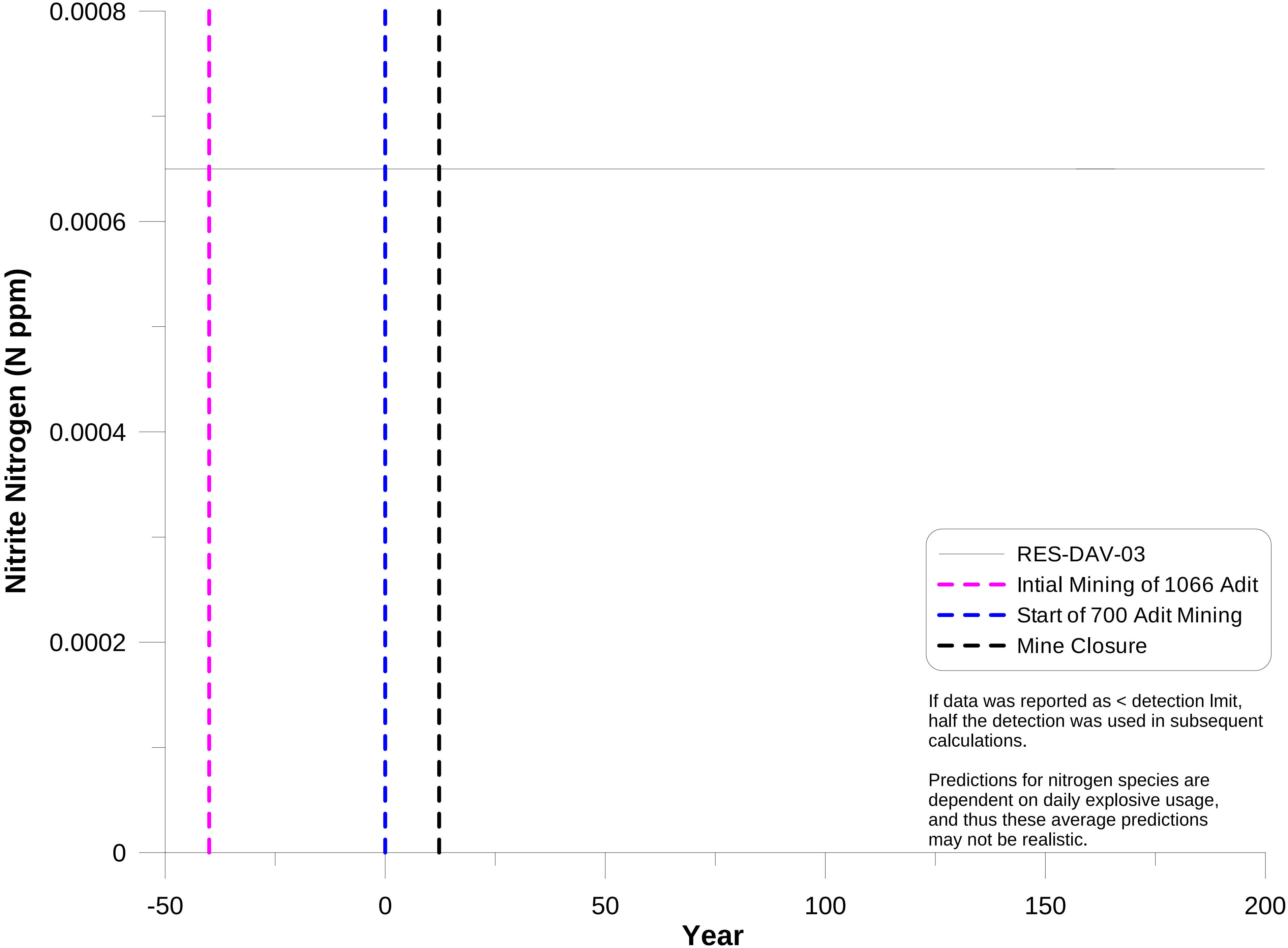
0.06
0.04
0.02
0
Bromide (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit, half the detection was used in subsequent calculations.



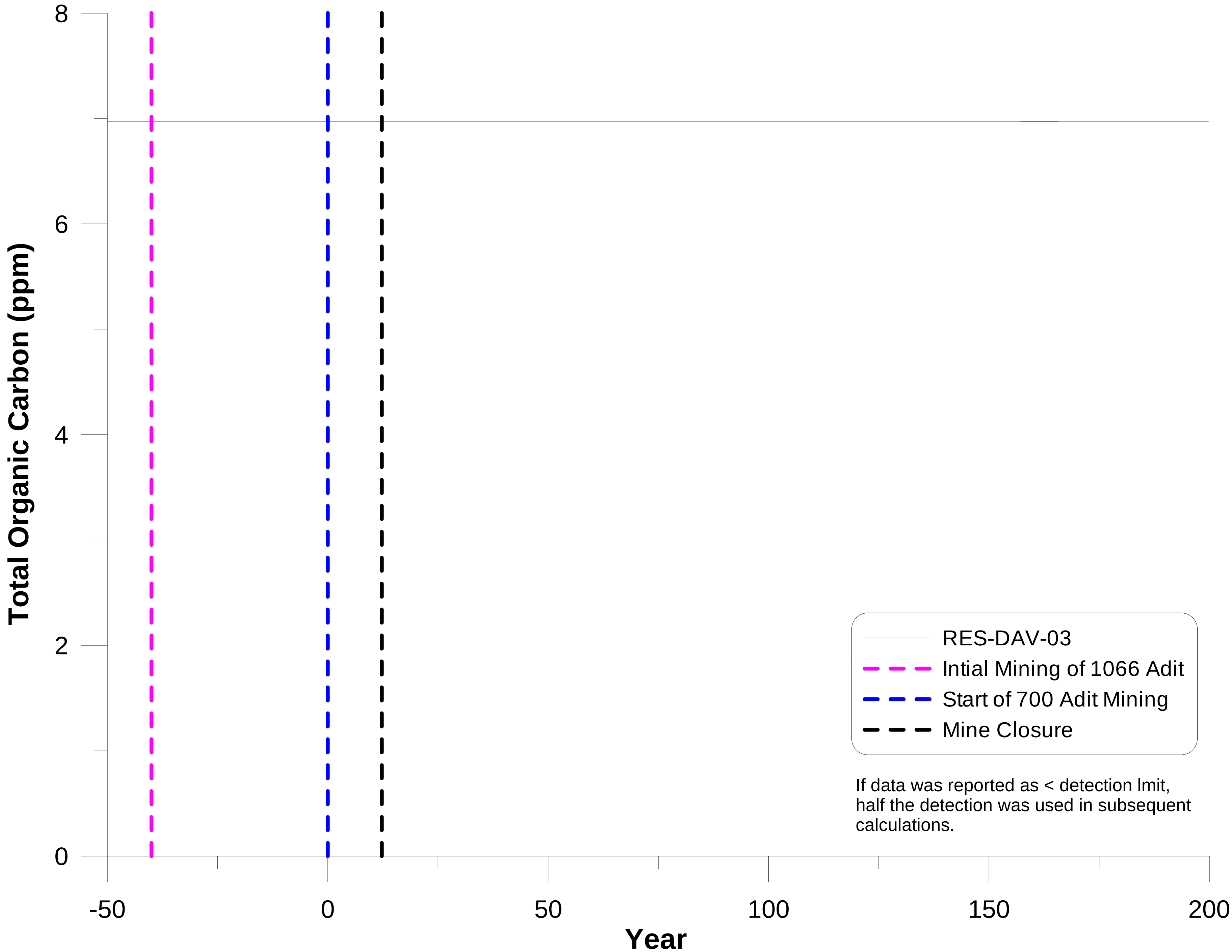
0.06
0.04
0.02
0
Ammonia Nitrogen (N ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.
Predictions for nitrogen species are
dependent on daily explosive usage,
and thus these average predictions
may not be realistic.



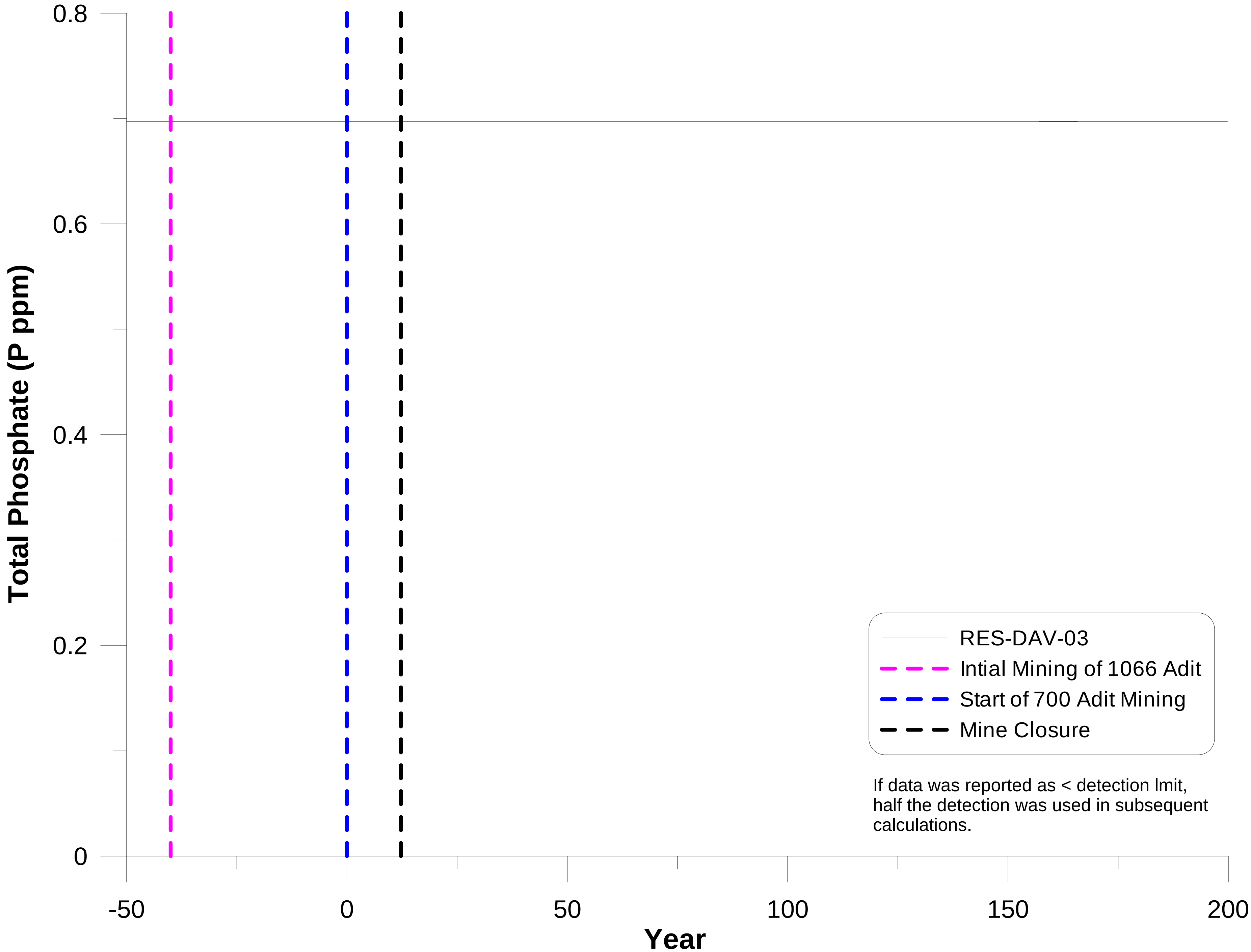
0.016
0.012
0.008
0.004
0
Nitrate Nitrogen (N ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.

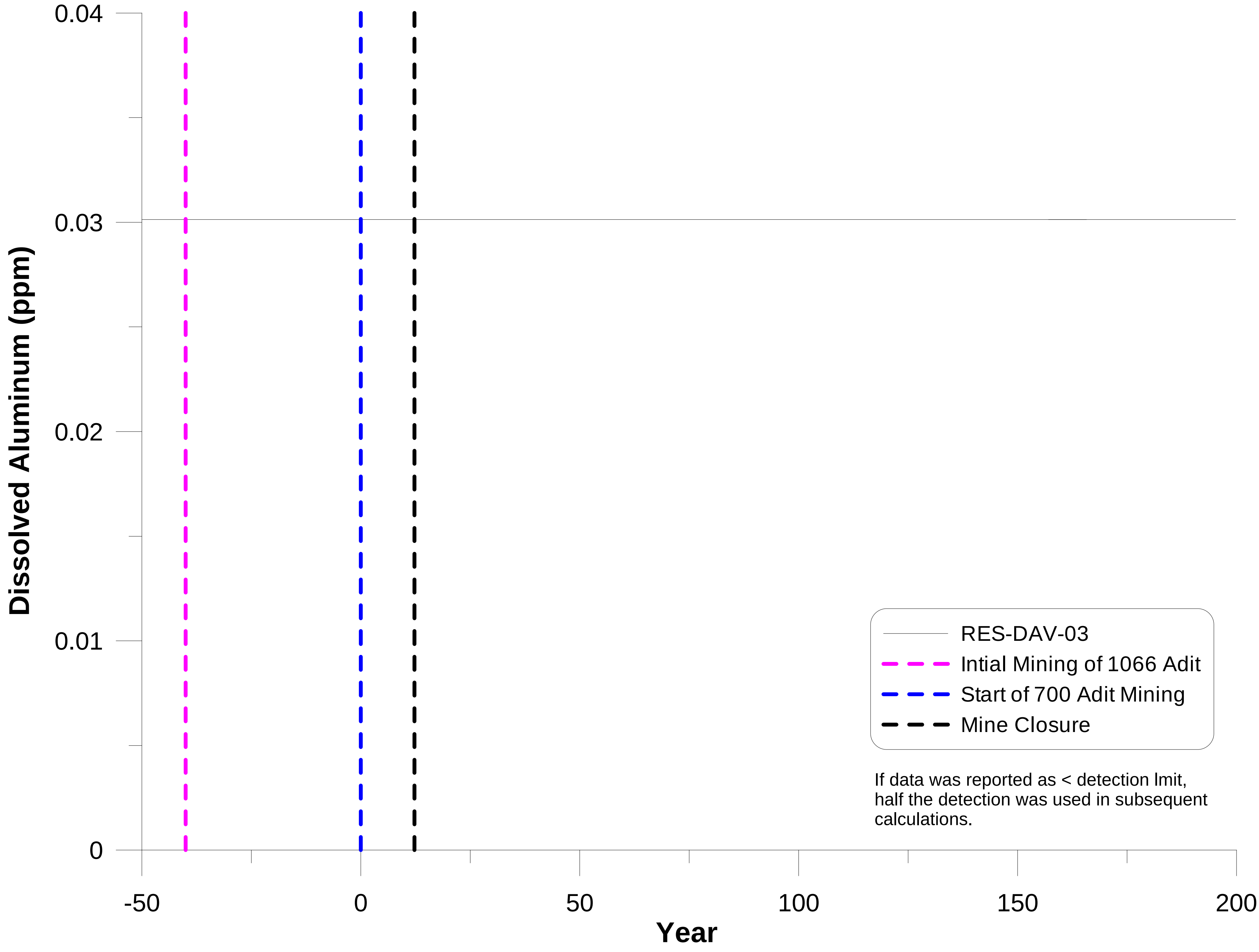


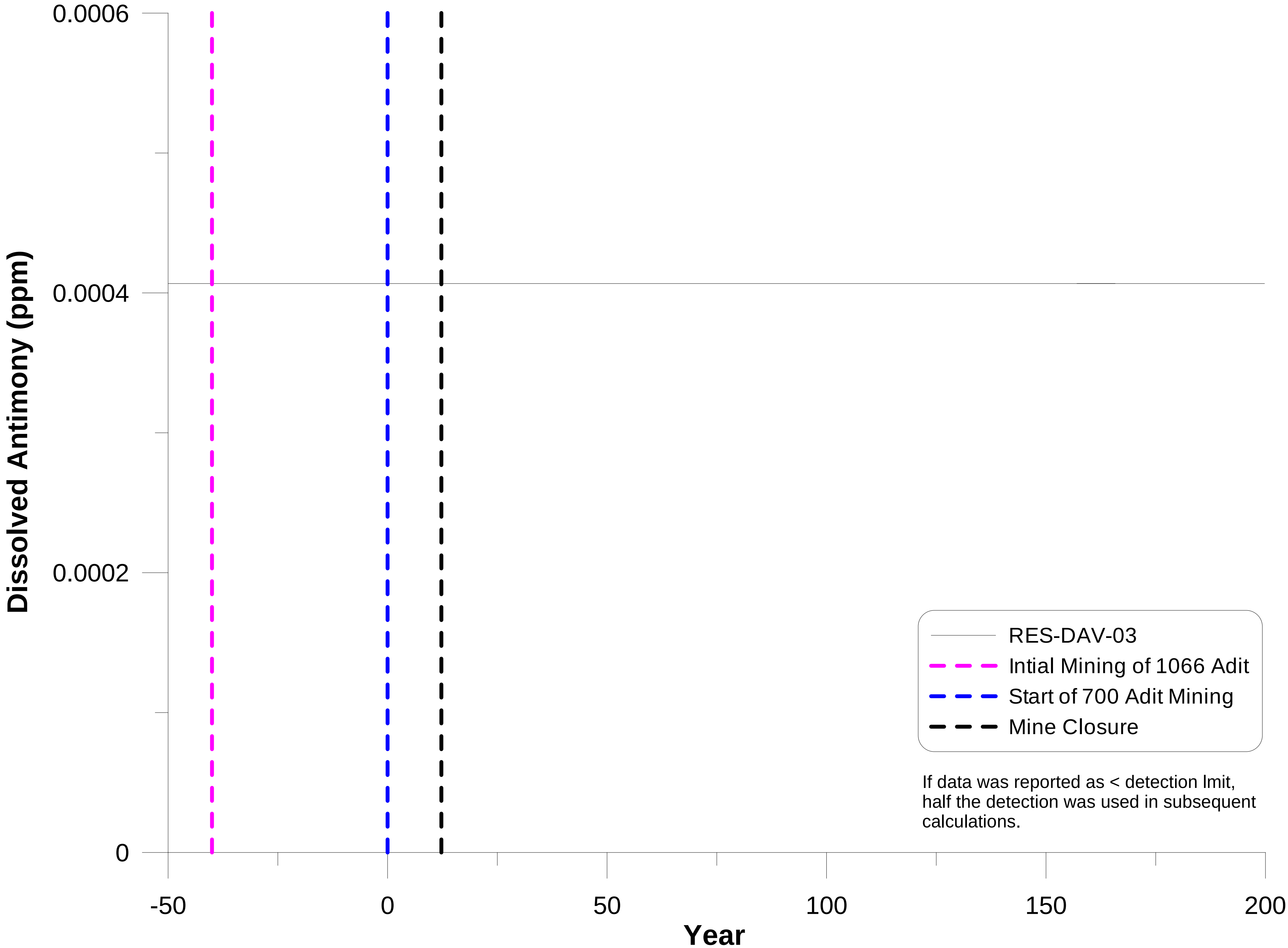
0.0008
0.0006
0.0004
0.0002
0
Nitrite Nitrogen (N ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.
Predictions for nitrogen species are
dependent on daily explosive usage,
and thus these average predictions
may not be realistic.



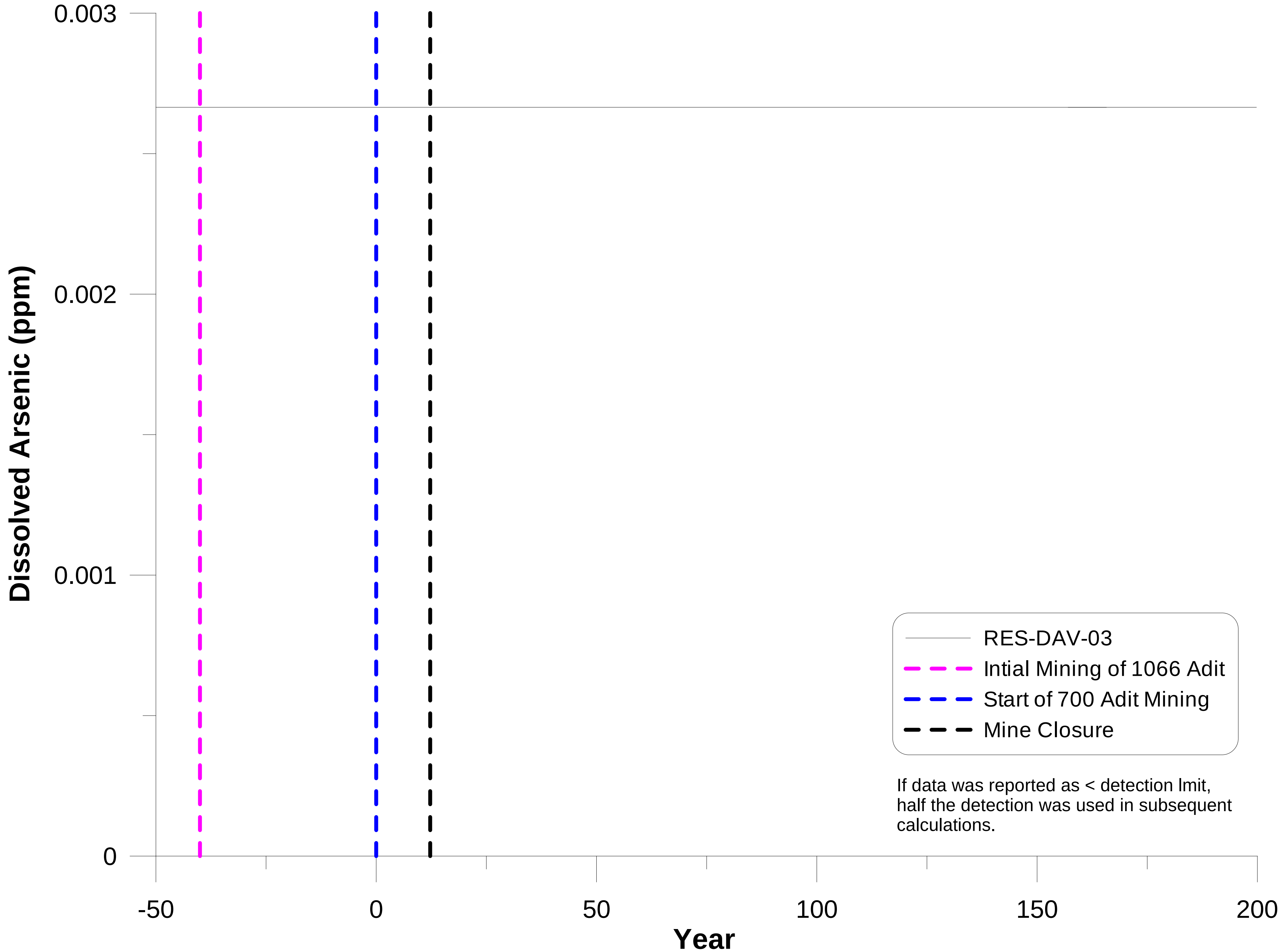
Total Organic Carbon (ppm)
8
6
4
2
0
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

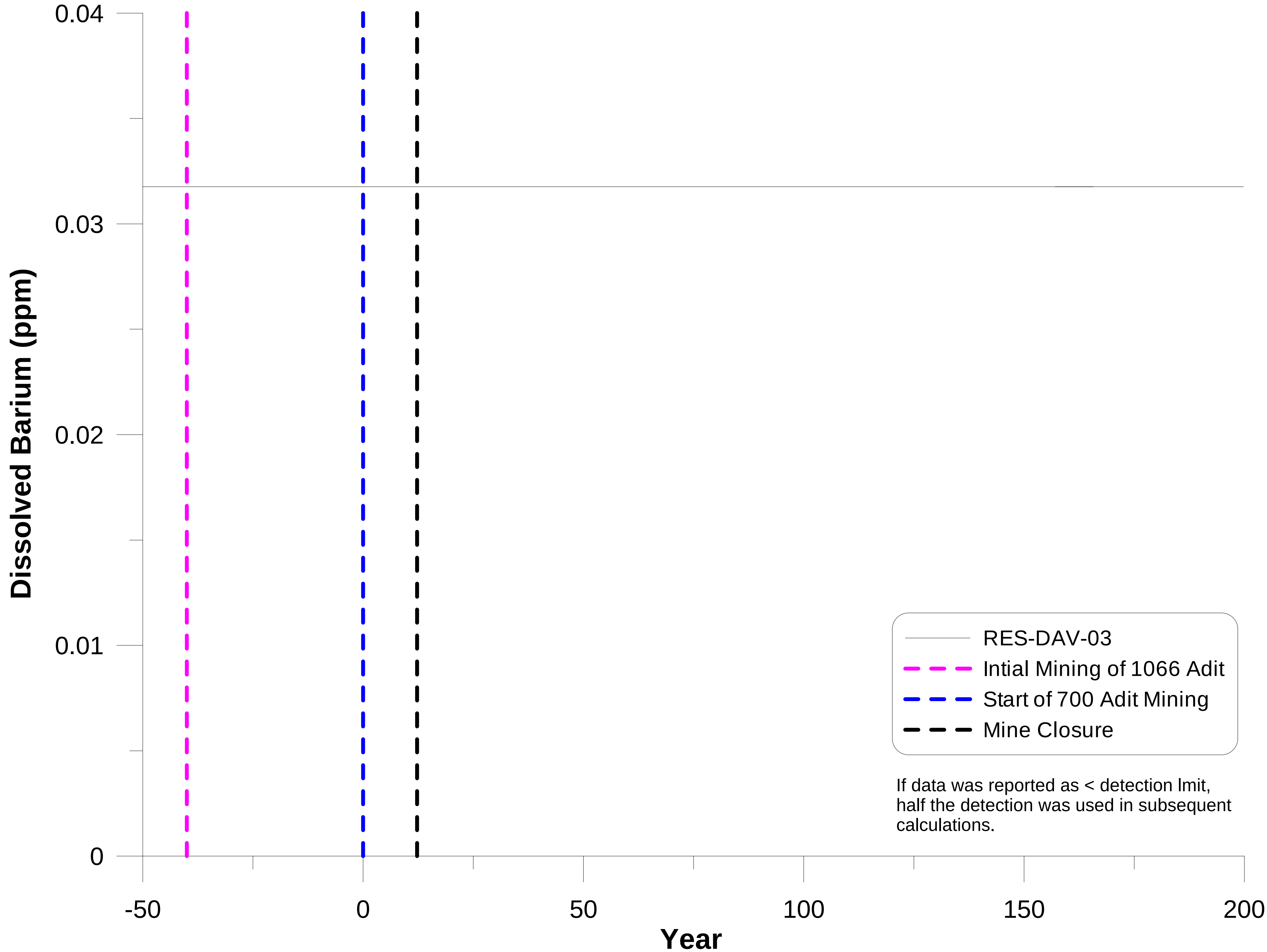

0.8
0.6
0.4
0.2
0
Total Phosphate (P ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.


0.04
0.03
0.02
0.01
0
Dissolved Aluminum (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

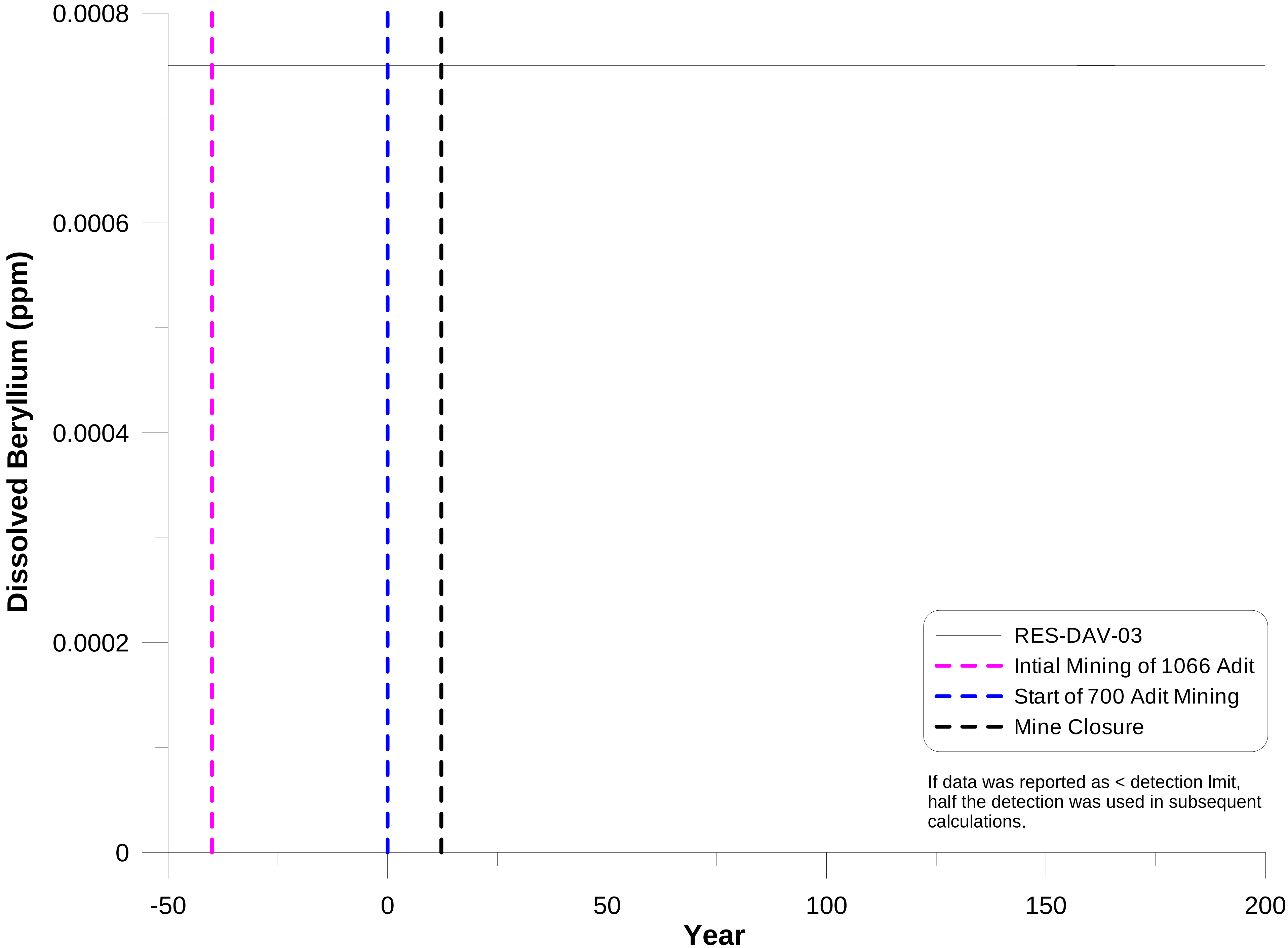


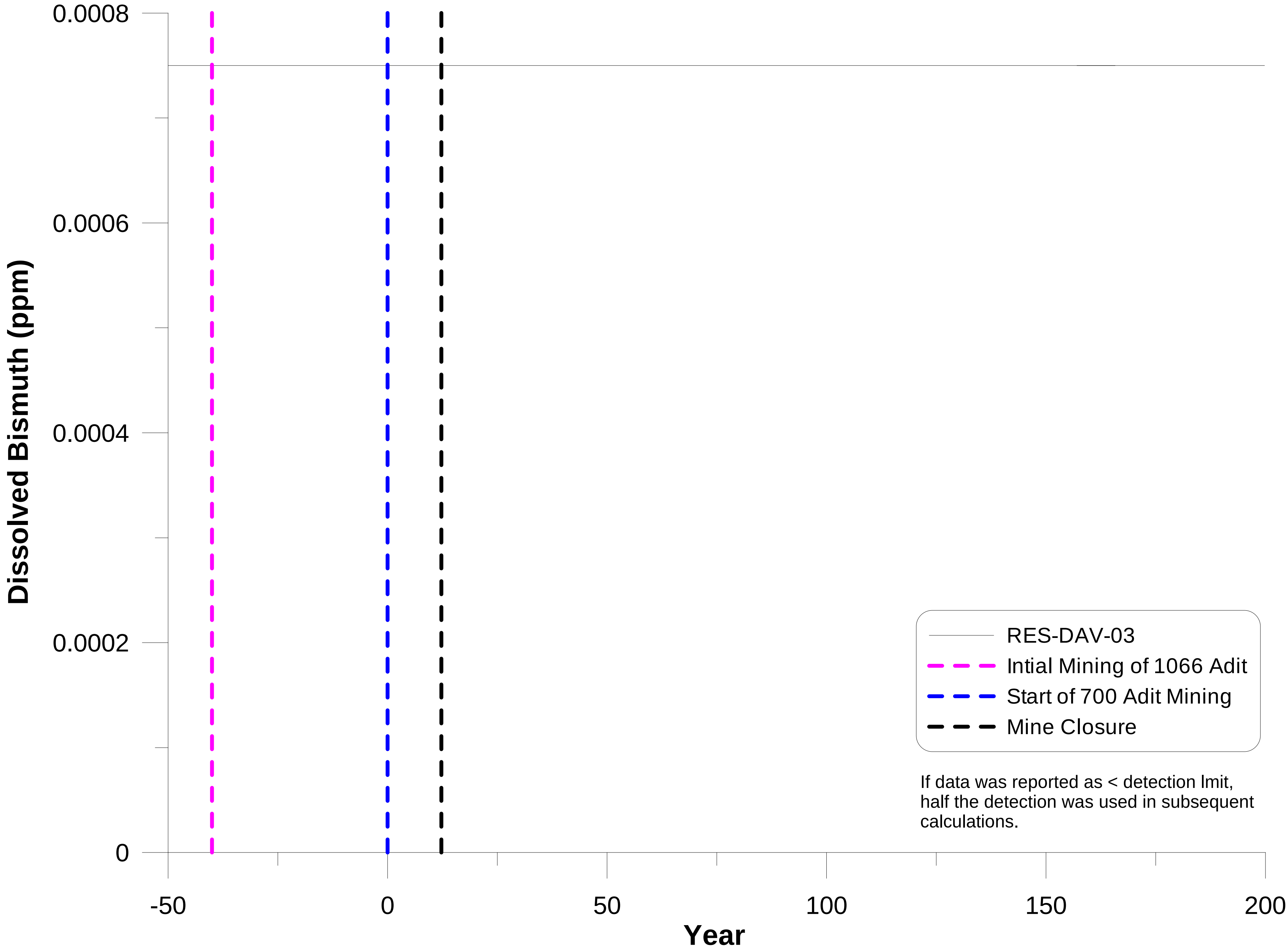
0.0006
0.0004
0.0002
0
Dissolved Antimony (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

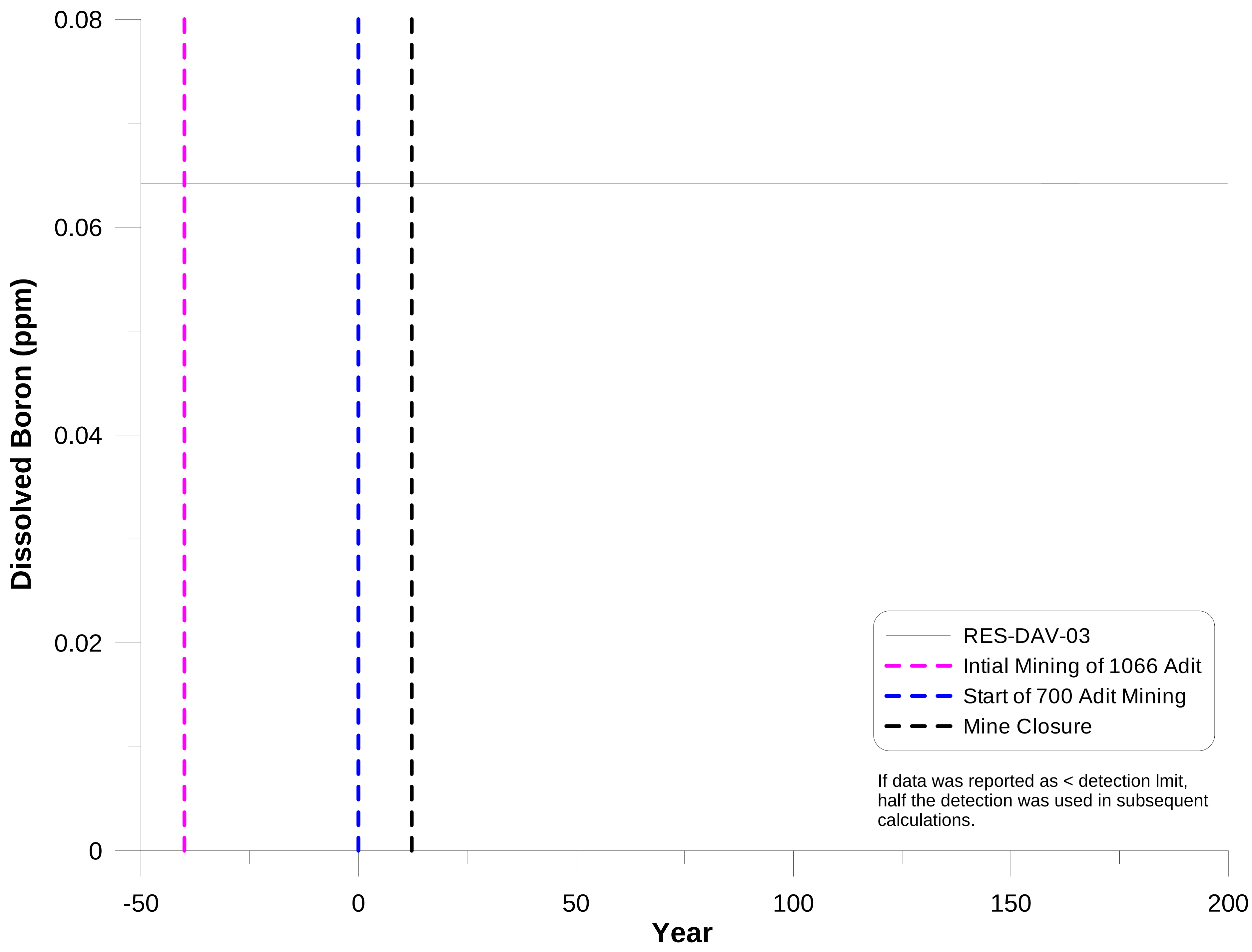

0.003
0.002
0.001
0
Dissolved Arsenic (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

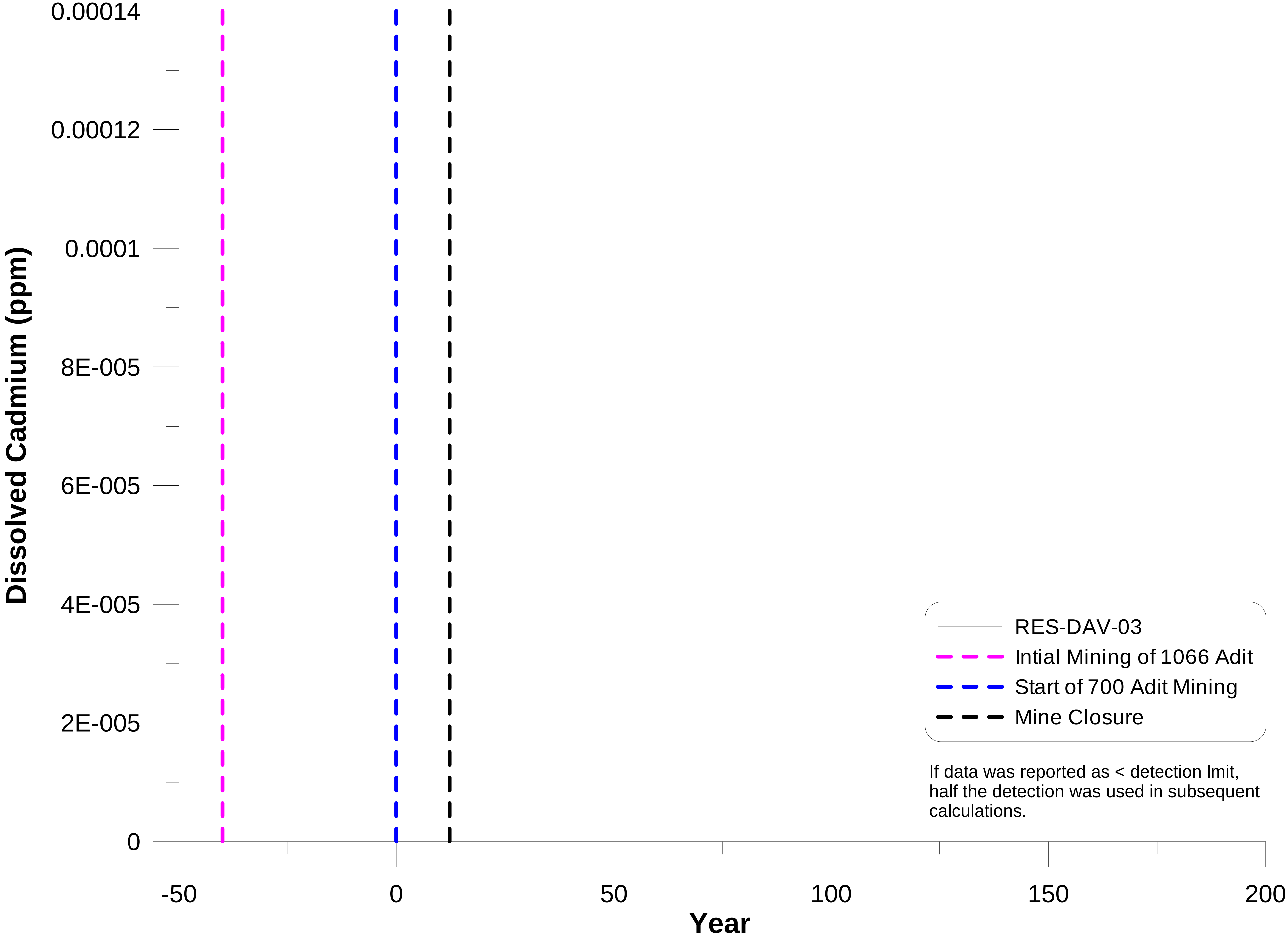


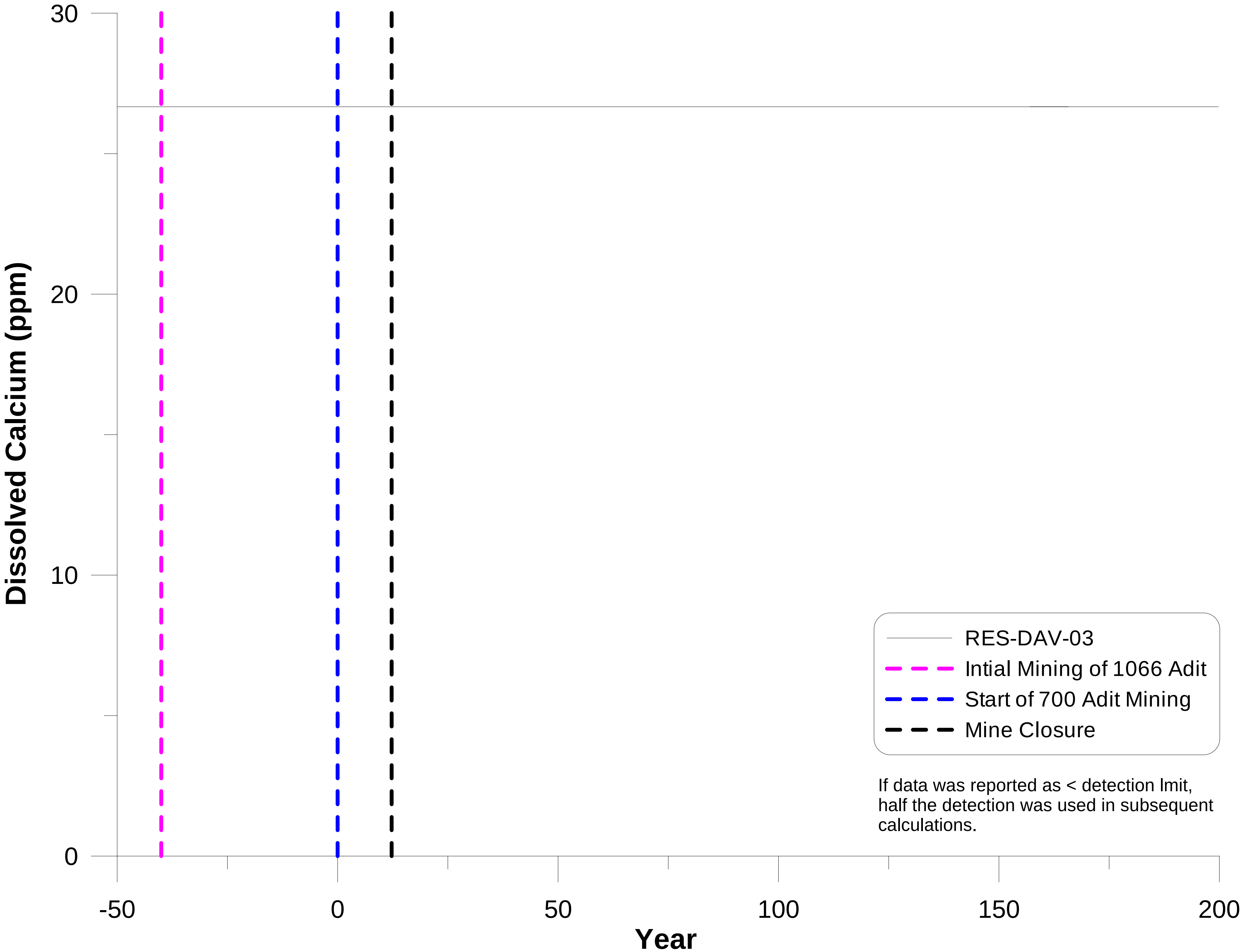
0.04
0.03
0.02
0.01
0
Dissolved Barium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.


0.0008
0.0006
0.0004
0.0002
0
Dissolved Beryllium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

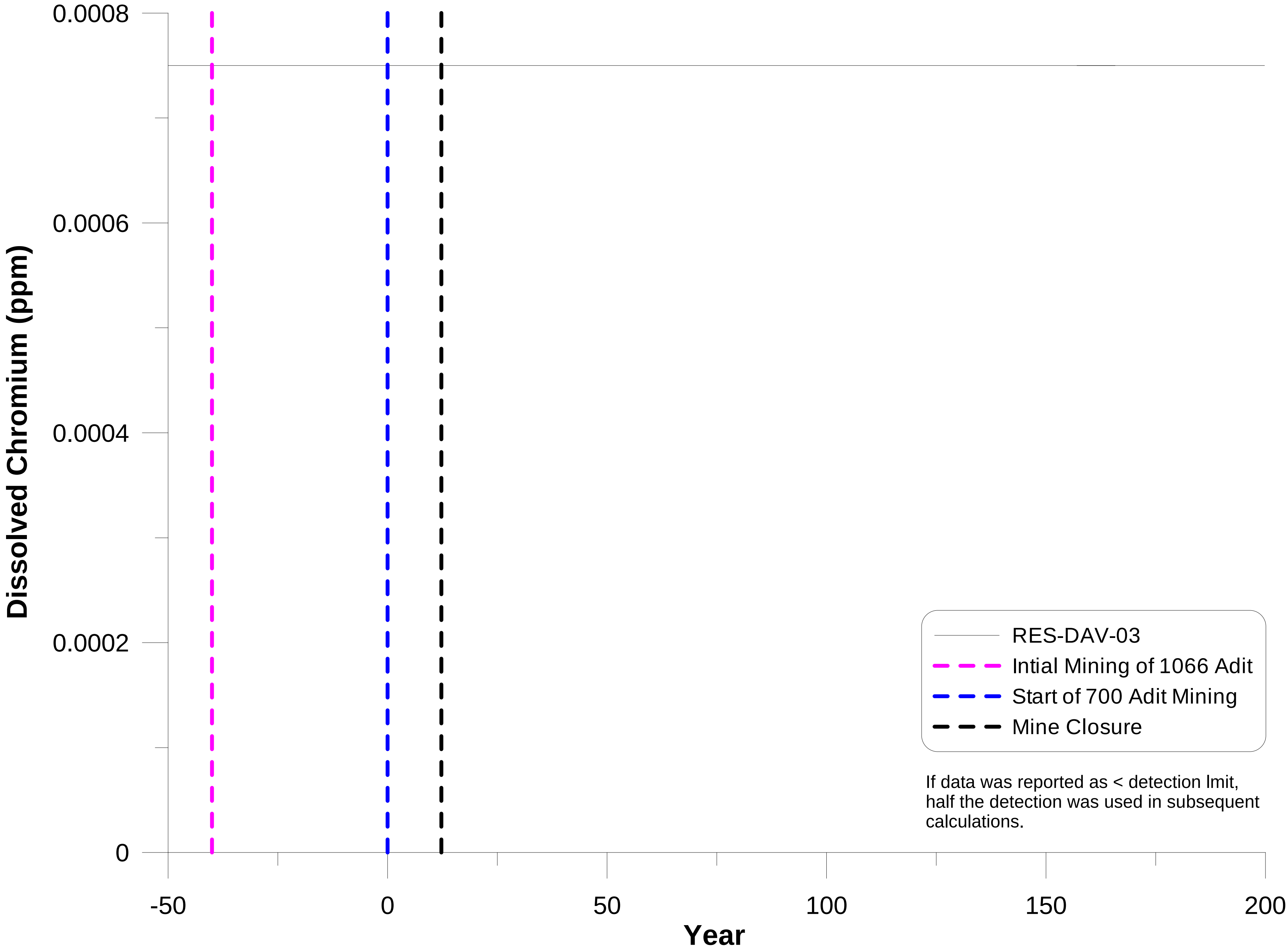

0.0008
0.0006
0.0004
0.0002
0
Dissolved Bismuth (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.


0.08
0.06
0.04
0.02
0
Dissolved Boron (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

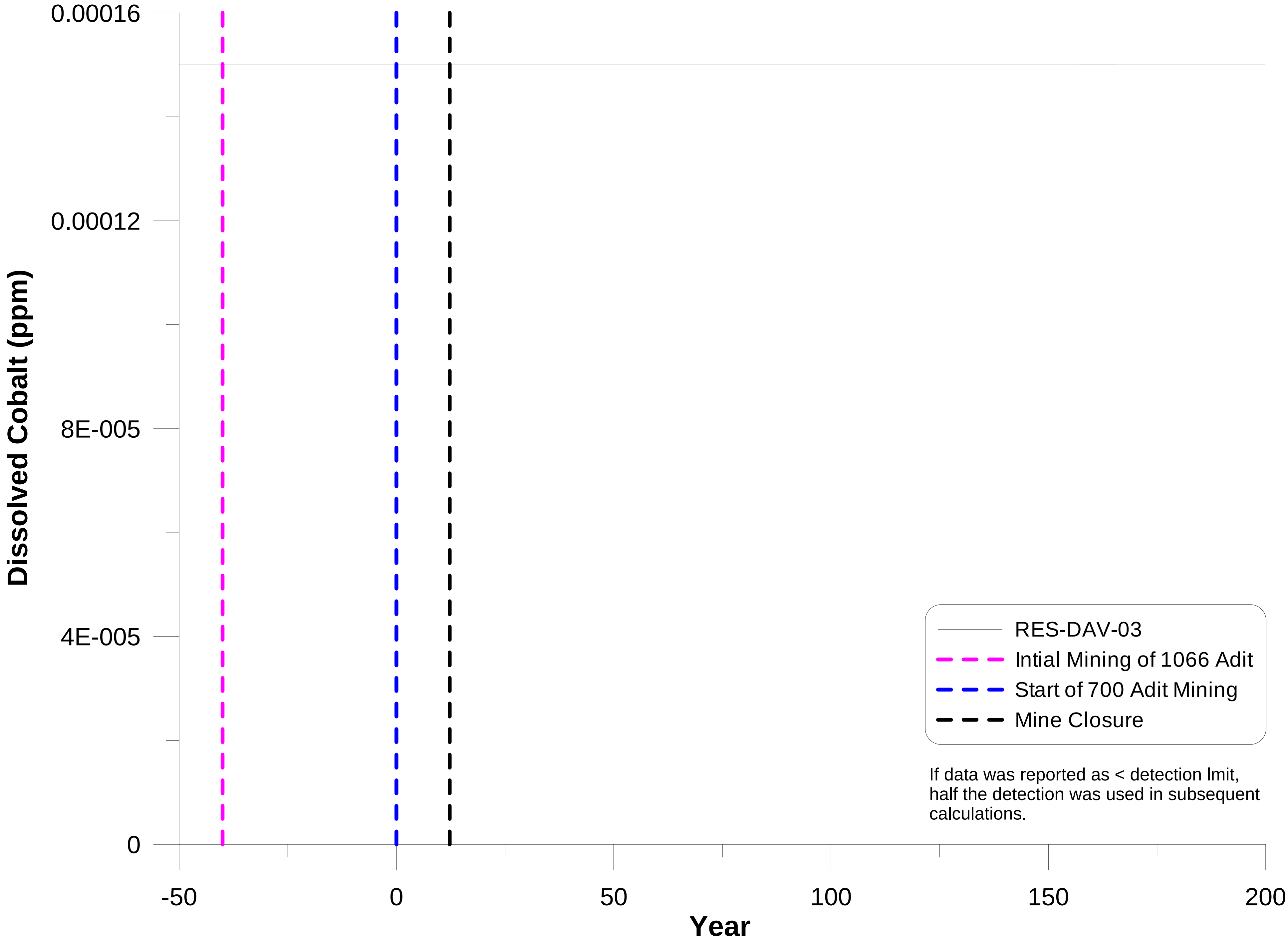

0.00014
0.00012
0.0001
8E-005
6E-005
4E-005
2E-005
0
Dissolved Cadmium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

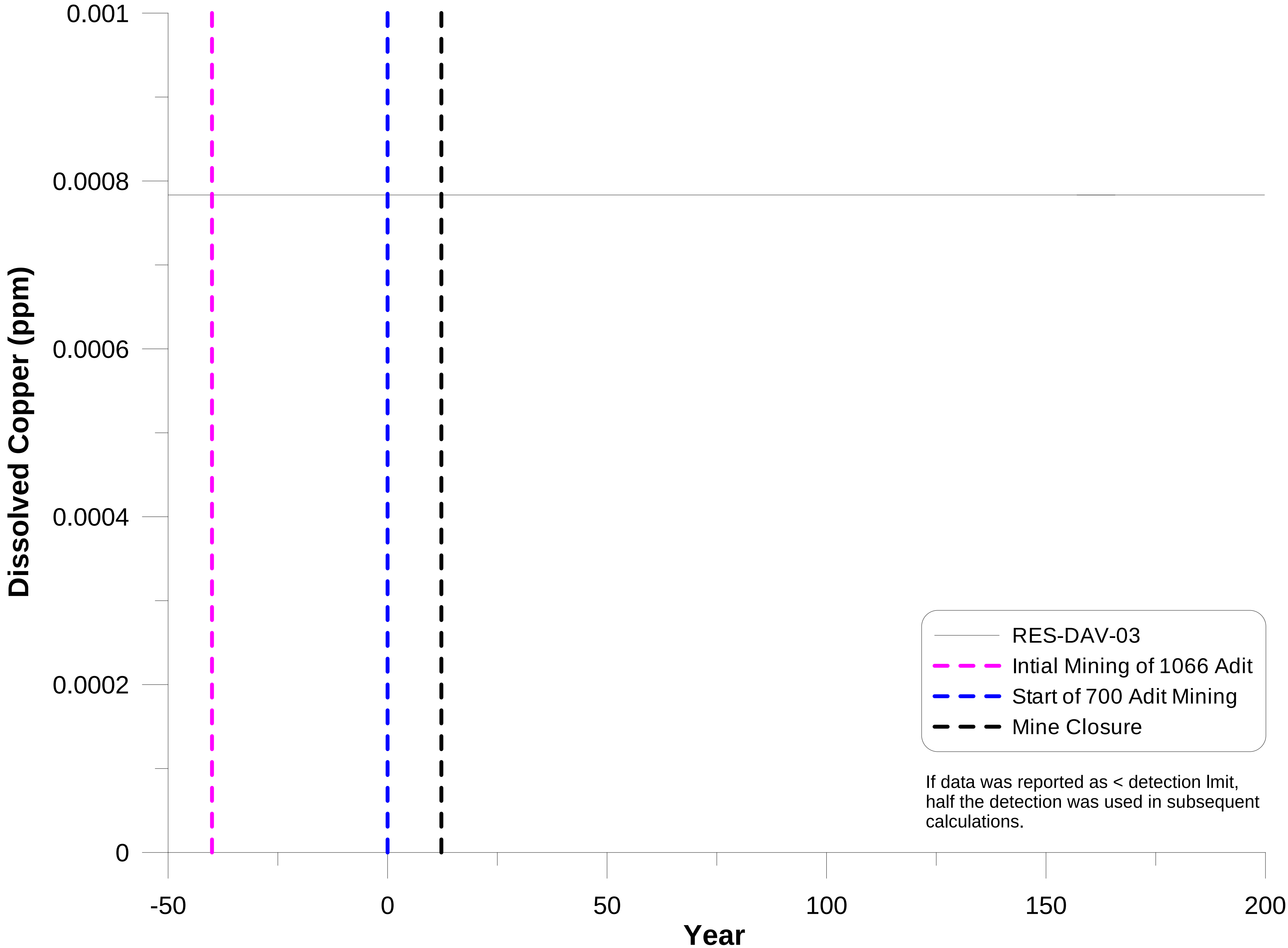


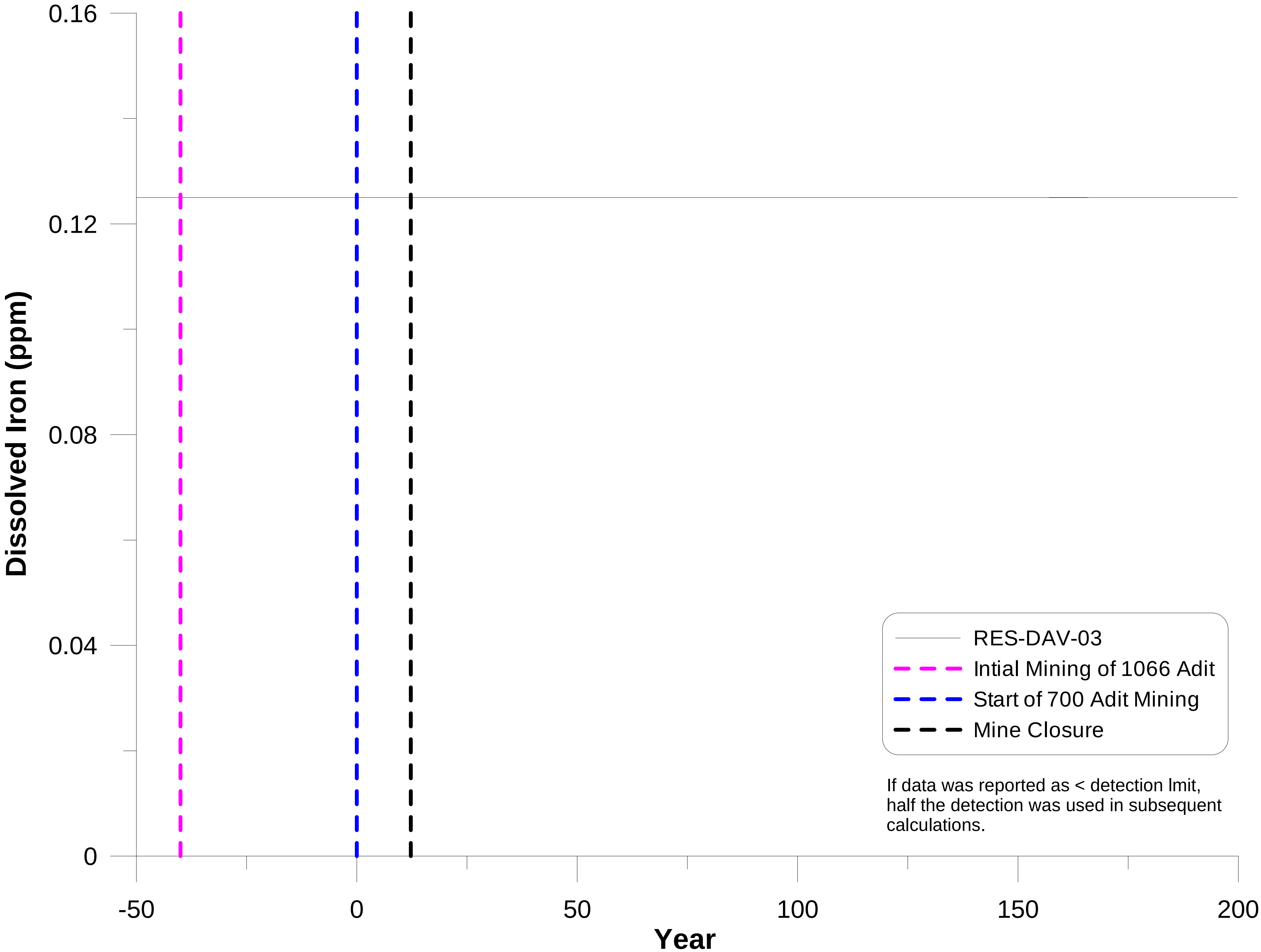
Dissolved Calcium (ppm)
30
20
10
0
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



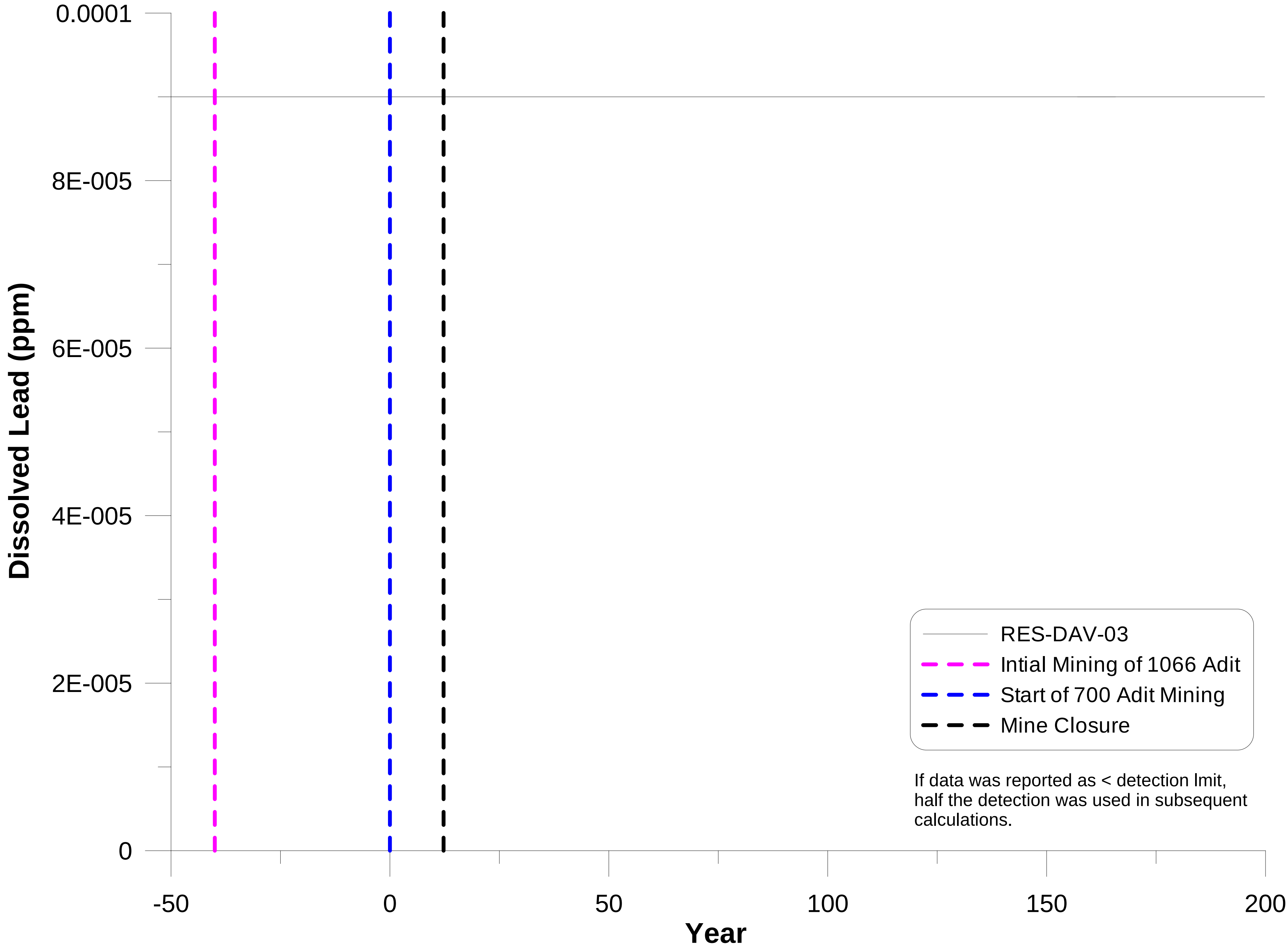
0.0008
0.0006
0.0004
0.0002
0
Dissolved Chromium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.


0.00016
0.00012
8E-005
4E-005
0
Dissolved Cobalt (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

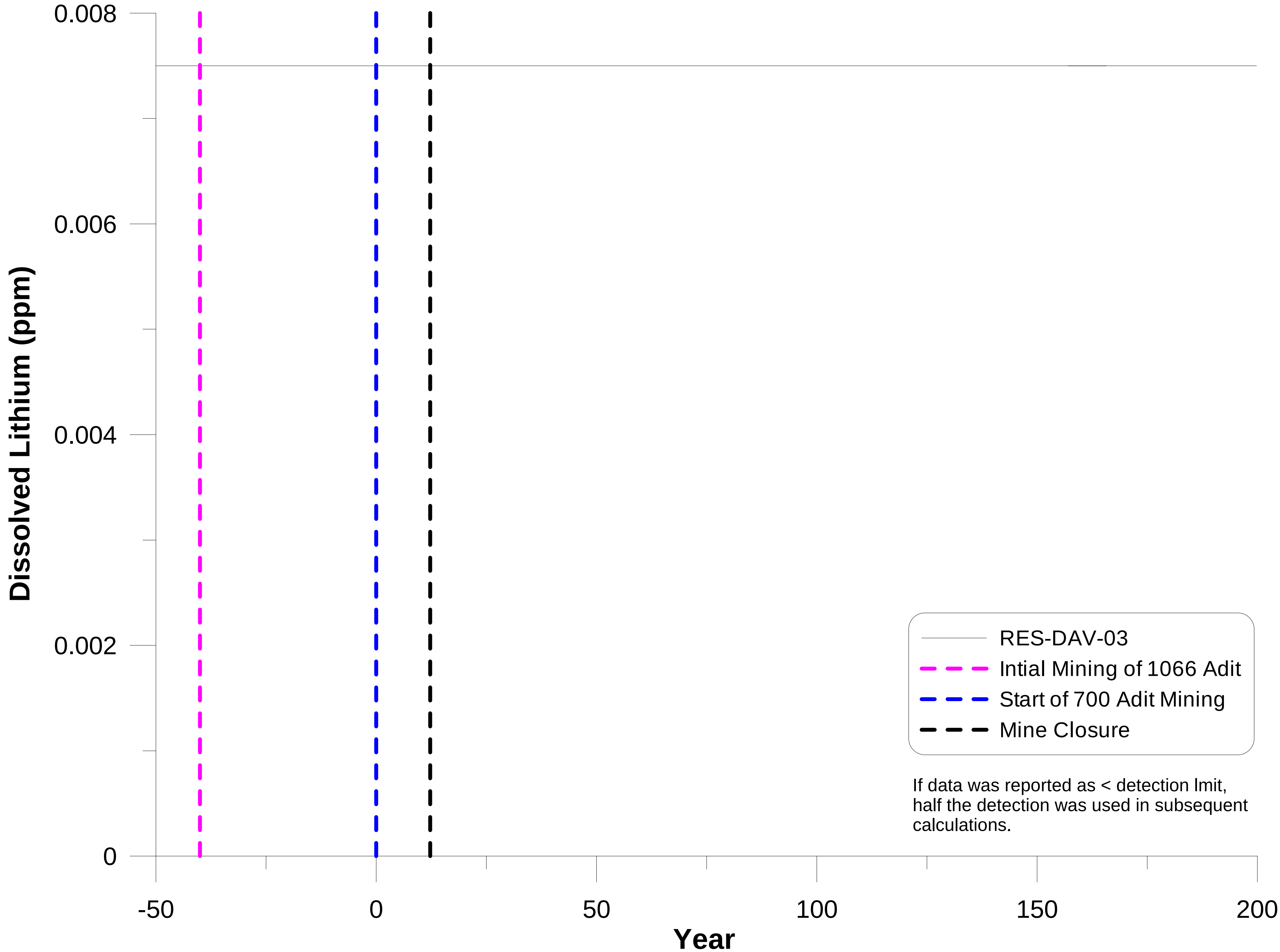

0.001
0.0008
0.0006
0.0004
0.0002
0
Dissolved Copper (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

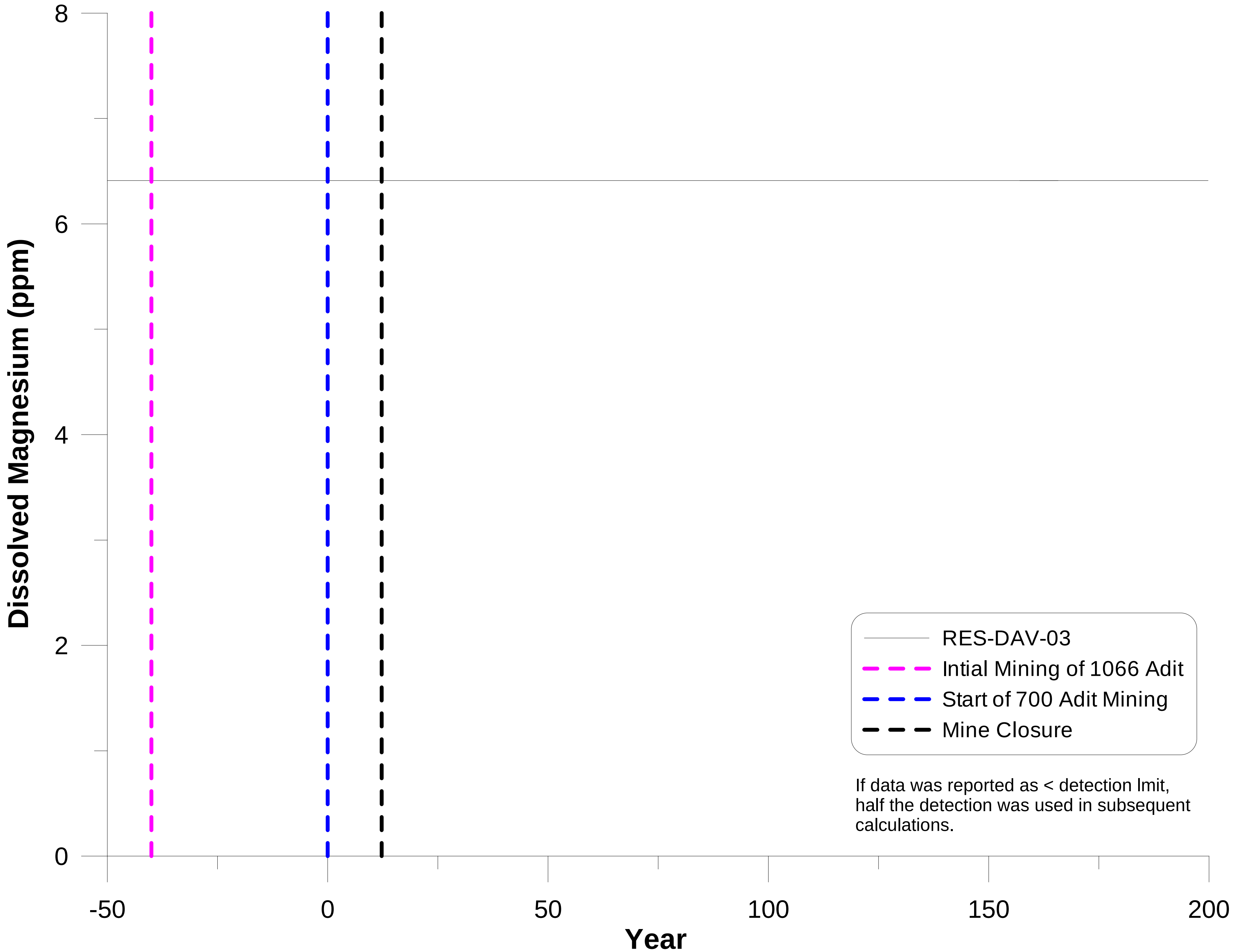


0.16
0.12
0.08
0.04
0
Dissolved Iron (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

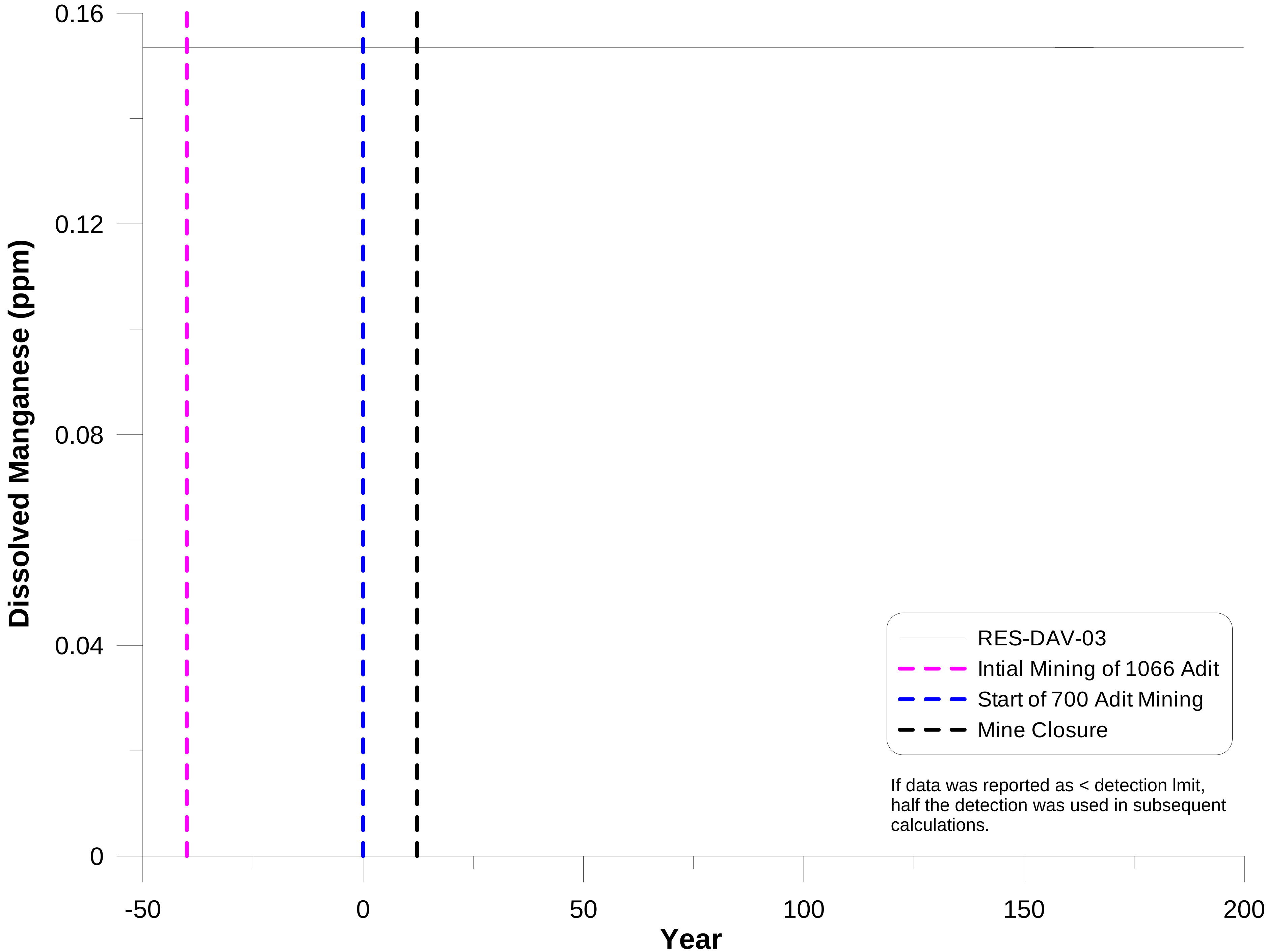


Dissolved Lead (ppm)
0.0001
8E-005
6E-005
4E-005
2E-005
0
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

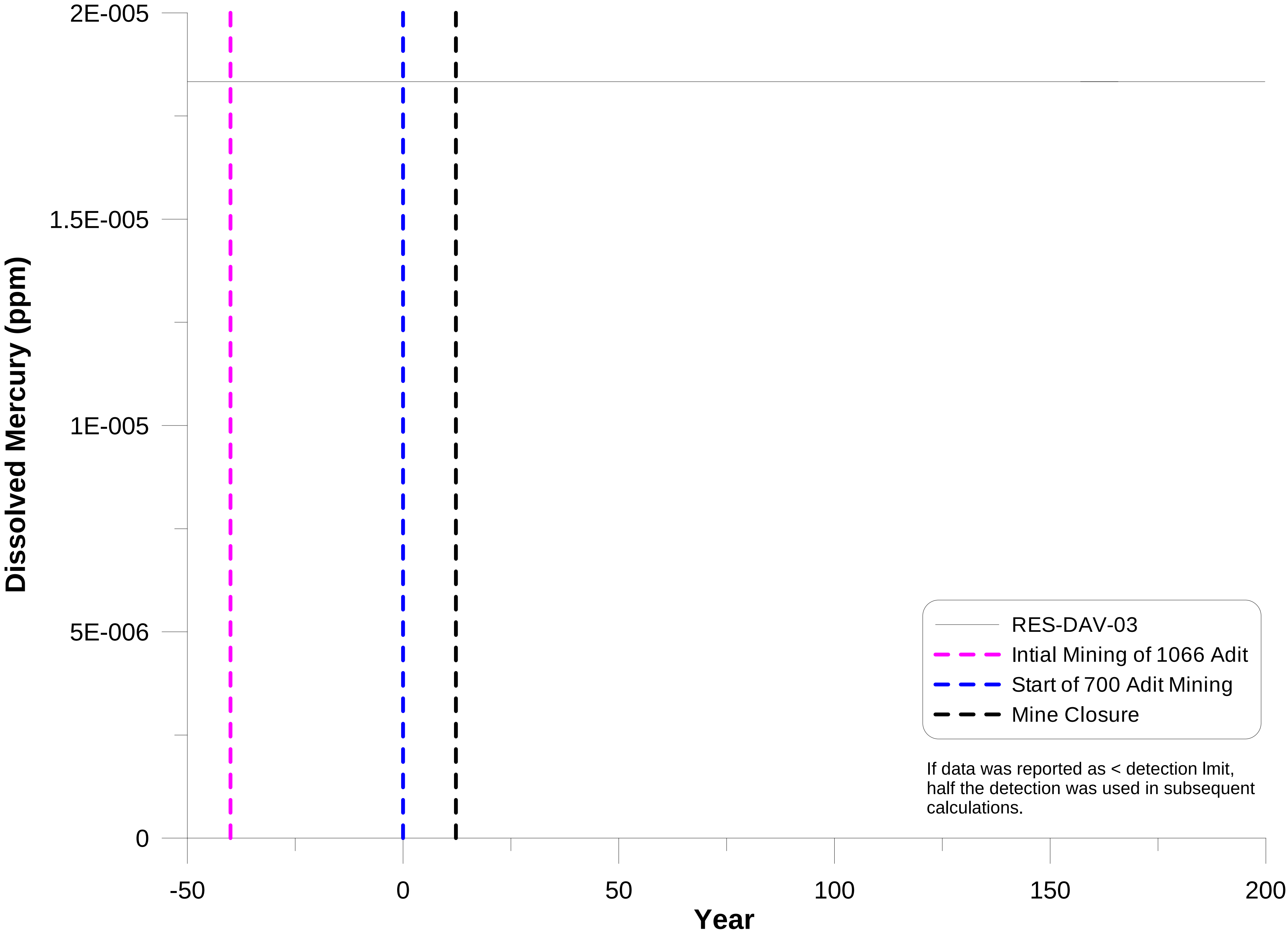

Dissolved Lithium (ppm)
0.008
0.006
0.004
0.002
0
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



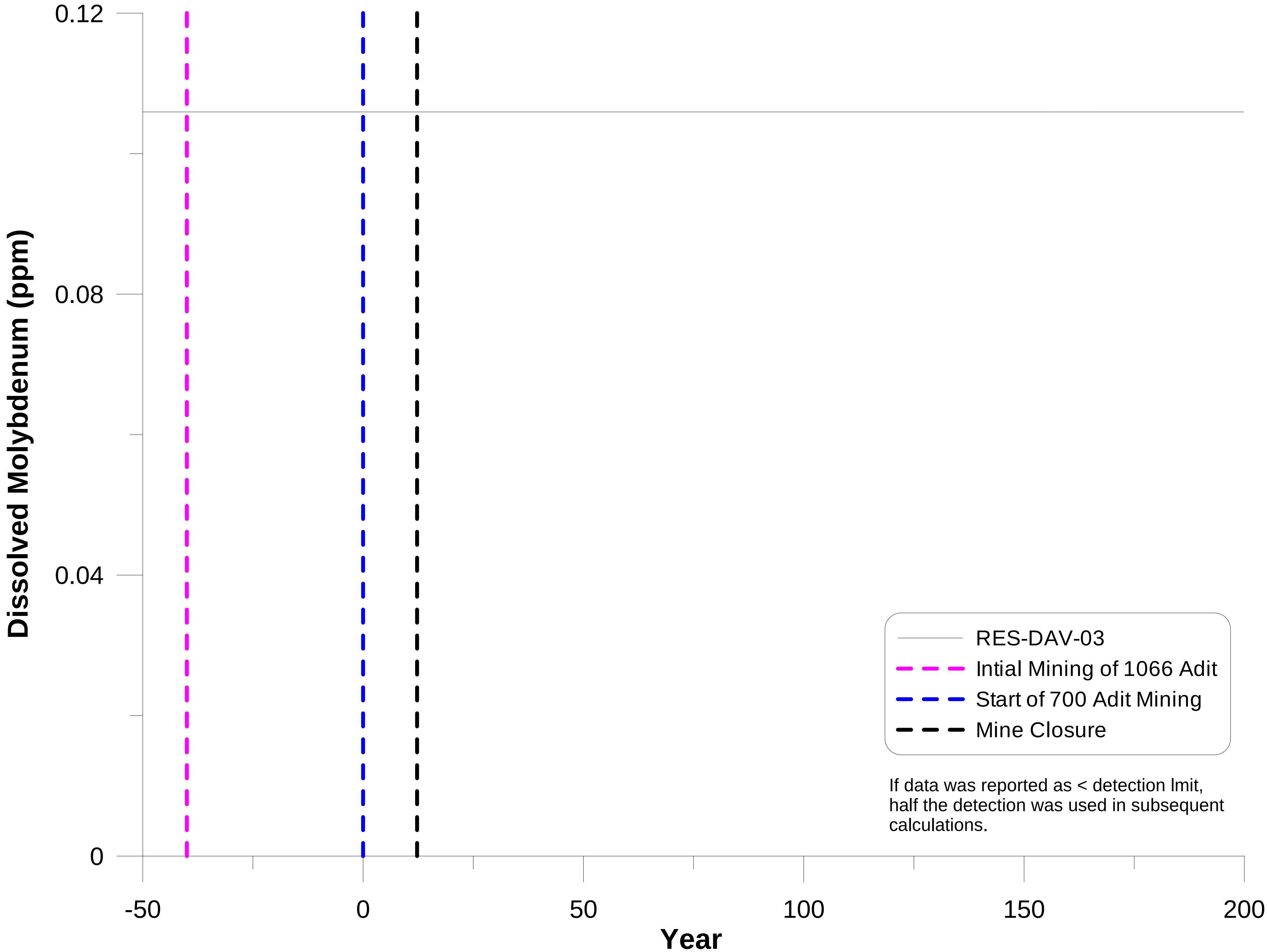
Dissolved Magnesium (ppm)
8
6
4
2
0
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



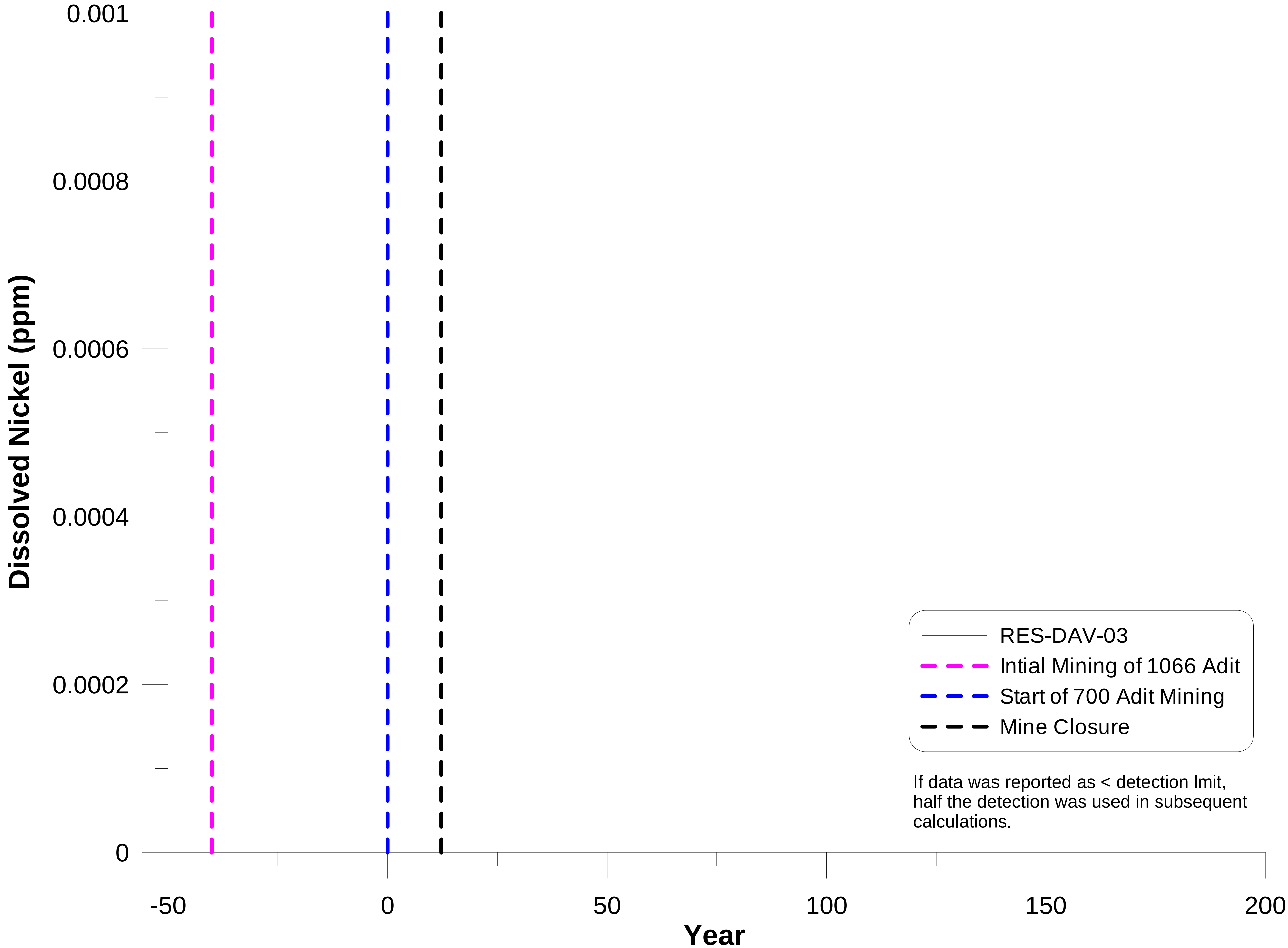
0.16
0.12
0.08
0.04
0
Dissolved Manganese (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



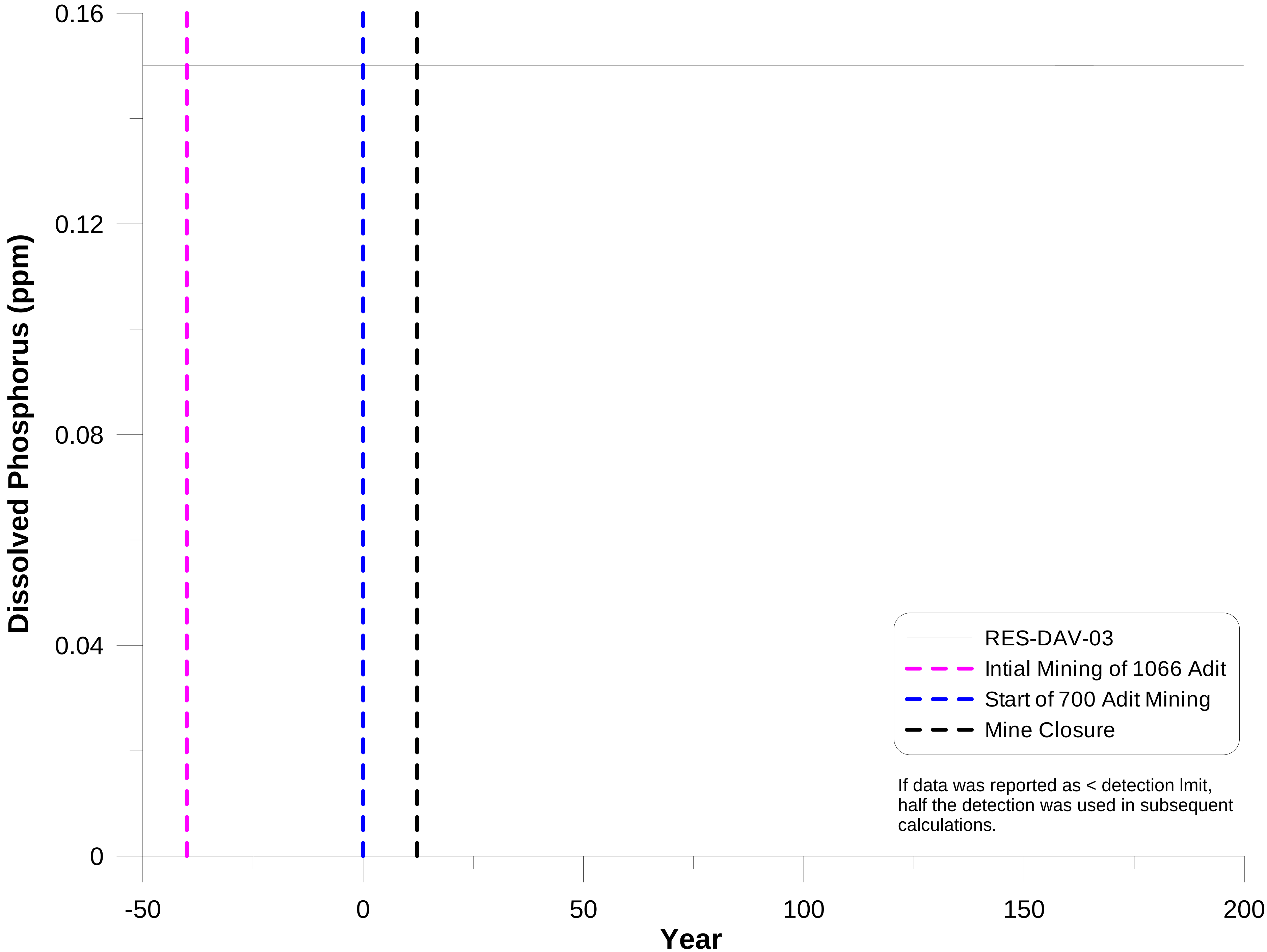
2E-005
1.5E-005
1E-005
5E-006
0
Dissolved Mercury (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

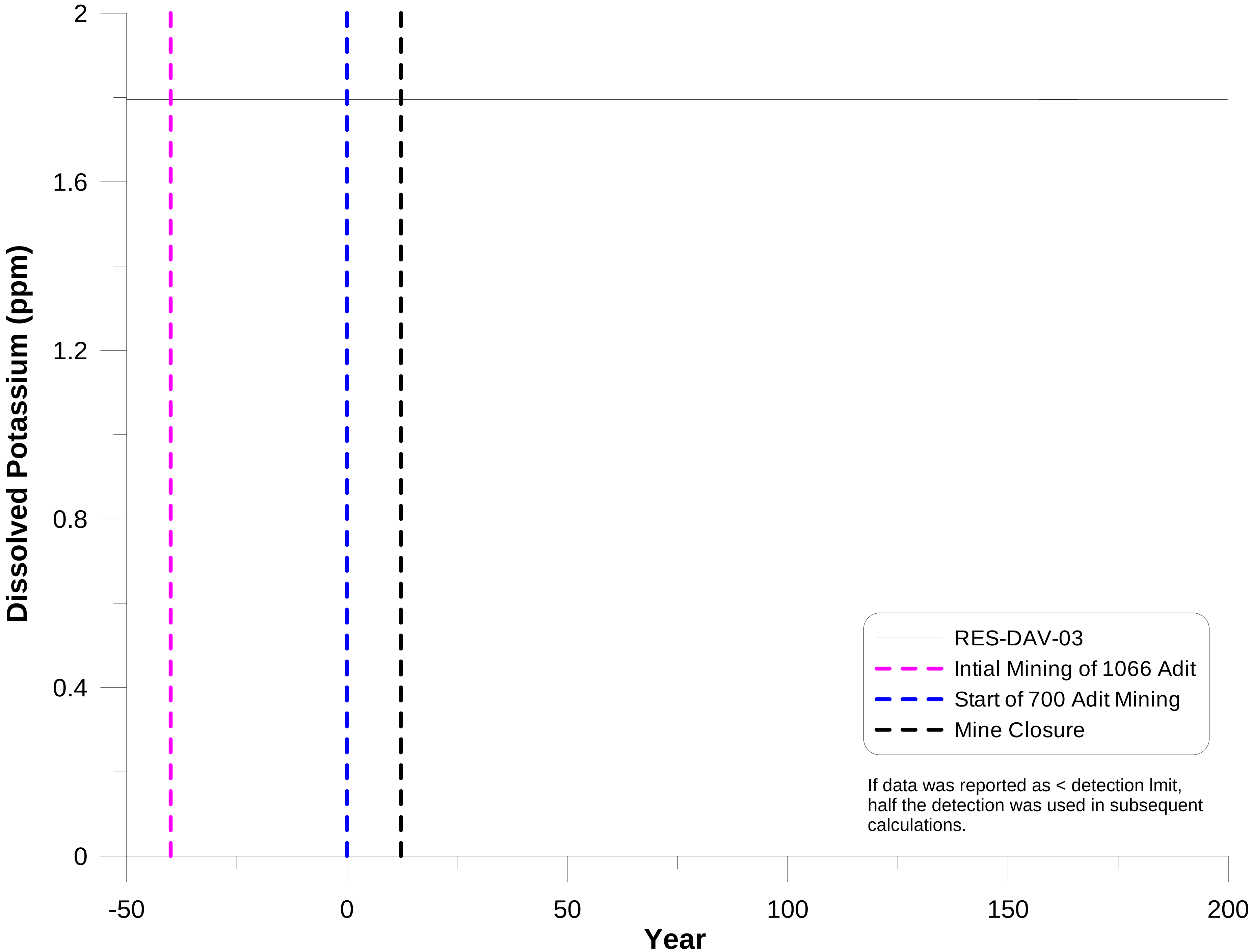


0.12
0.08
0.04
0
Dissolved Molybdenum (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

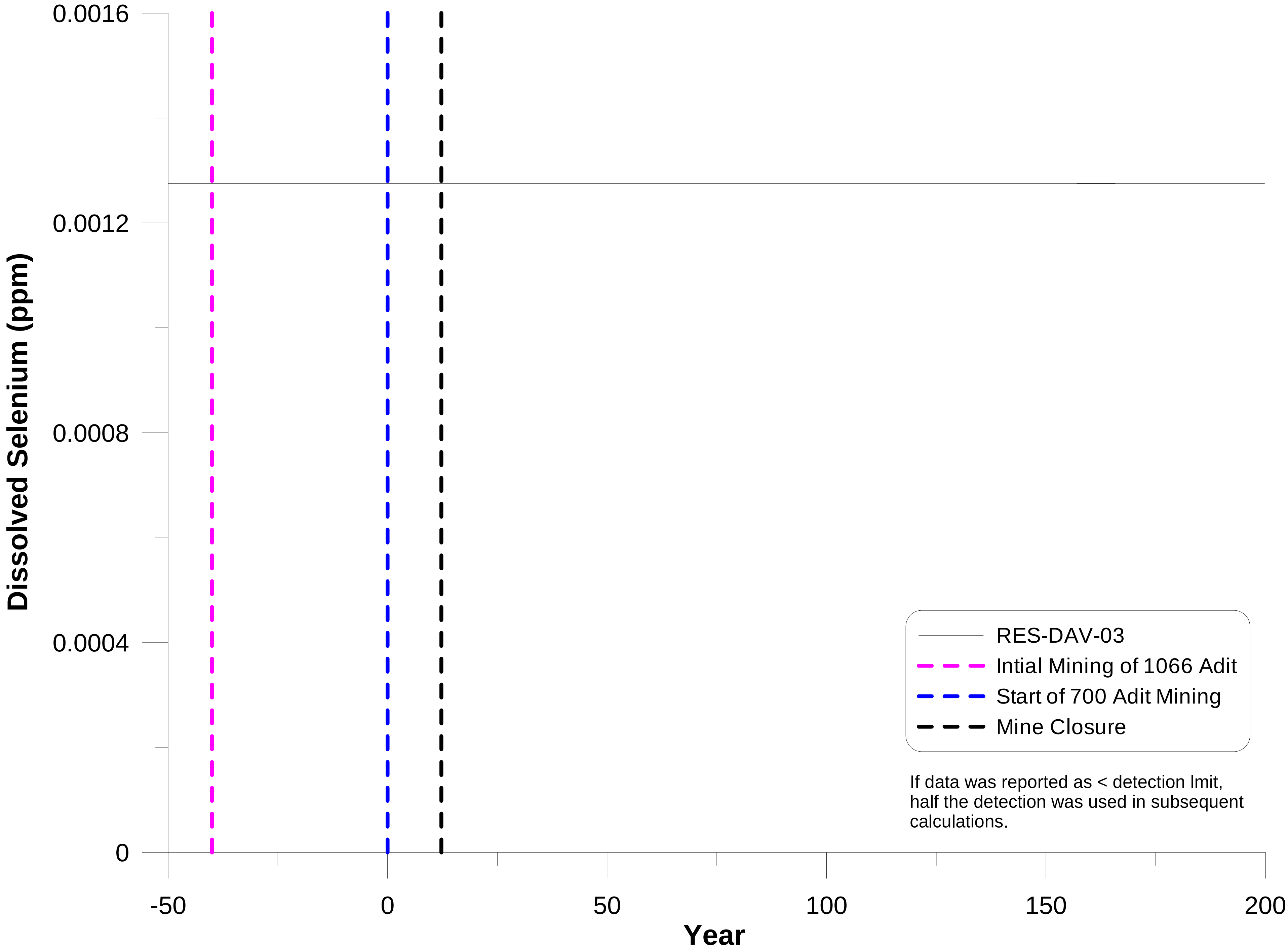


0.001
0.0008
0.0006
0.0004
0.0002
0
Dissolved Nickel (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit, half the detection was used in subsequent calculations.

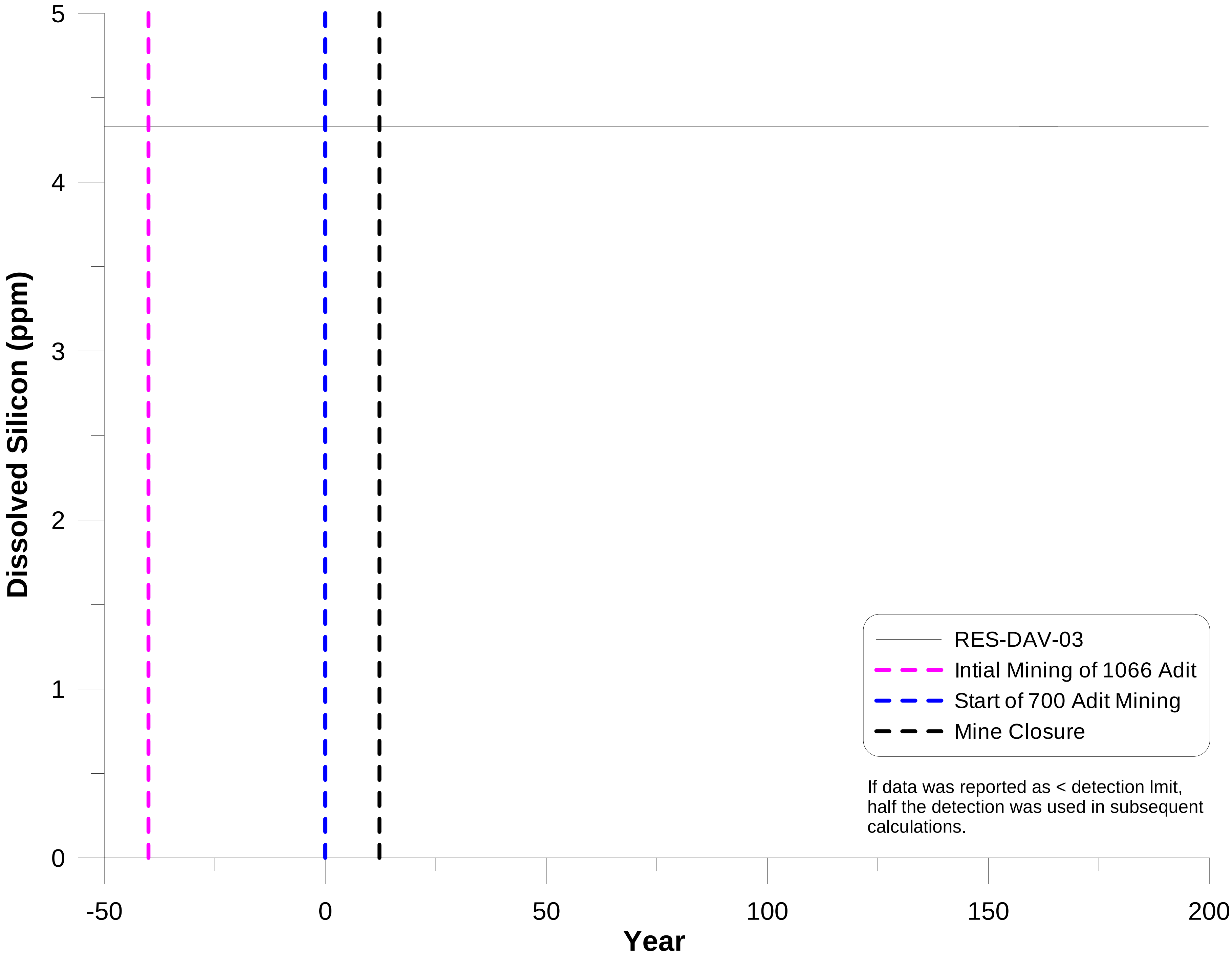

0.16
0.12
0.08
0.04
0
Dissolved Phosphorus (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



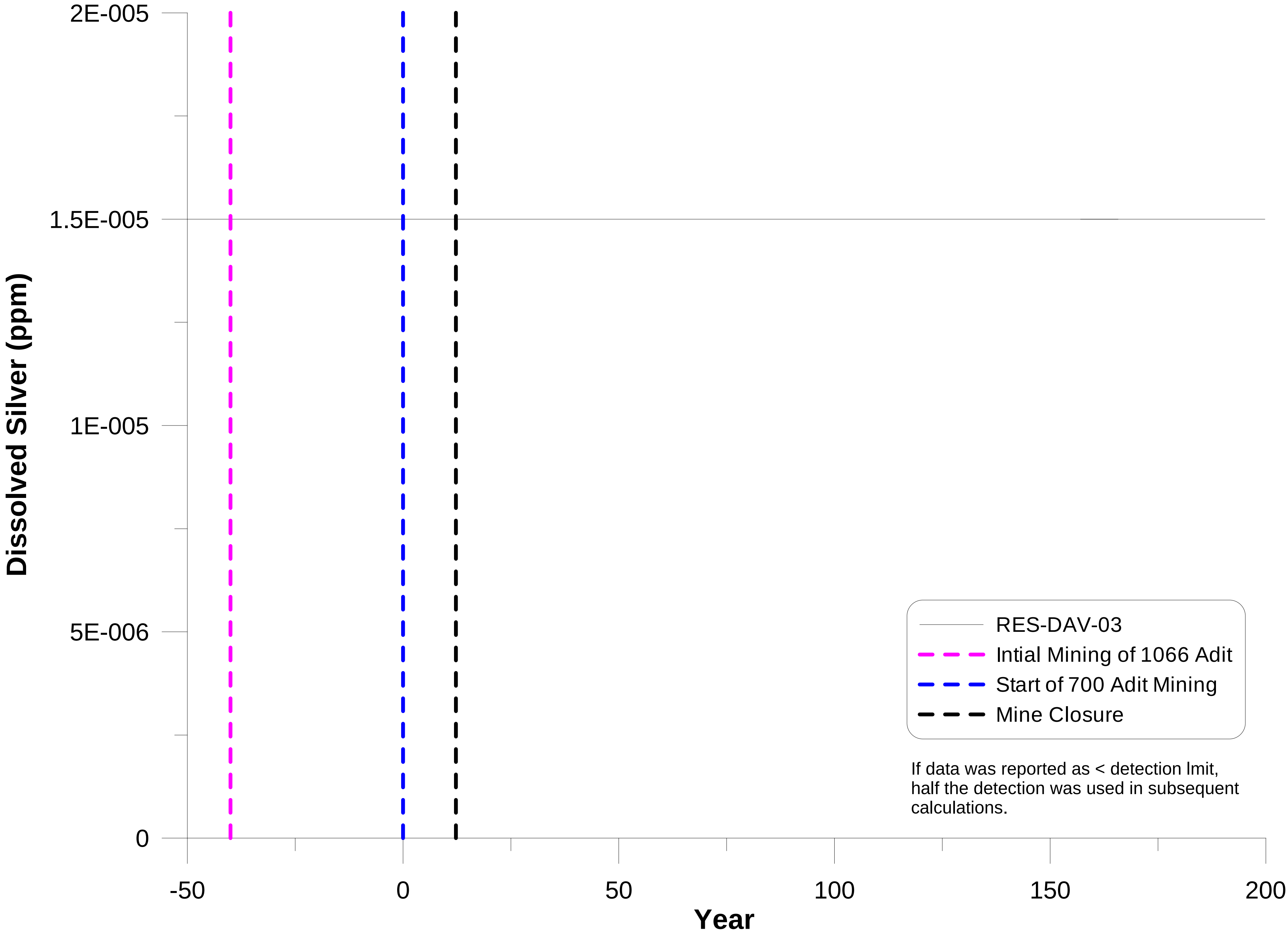
Dissolved Potassium (ppm)
2
1.6
1.2
0.8
0.4
0
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

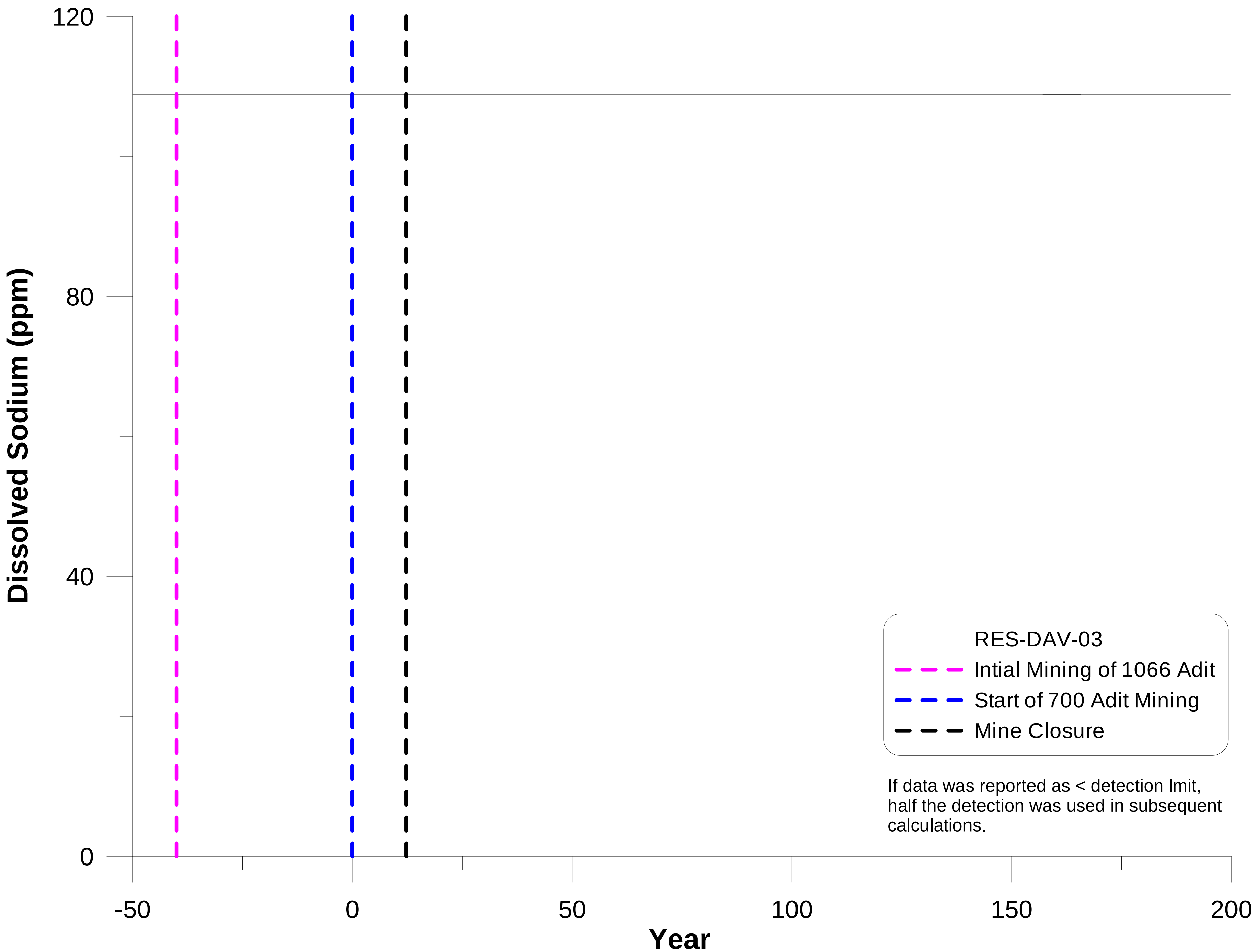


0.0016
0.0012
0.0008
0.0004
0
Dissolved Selenium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

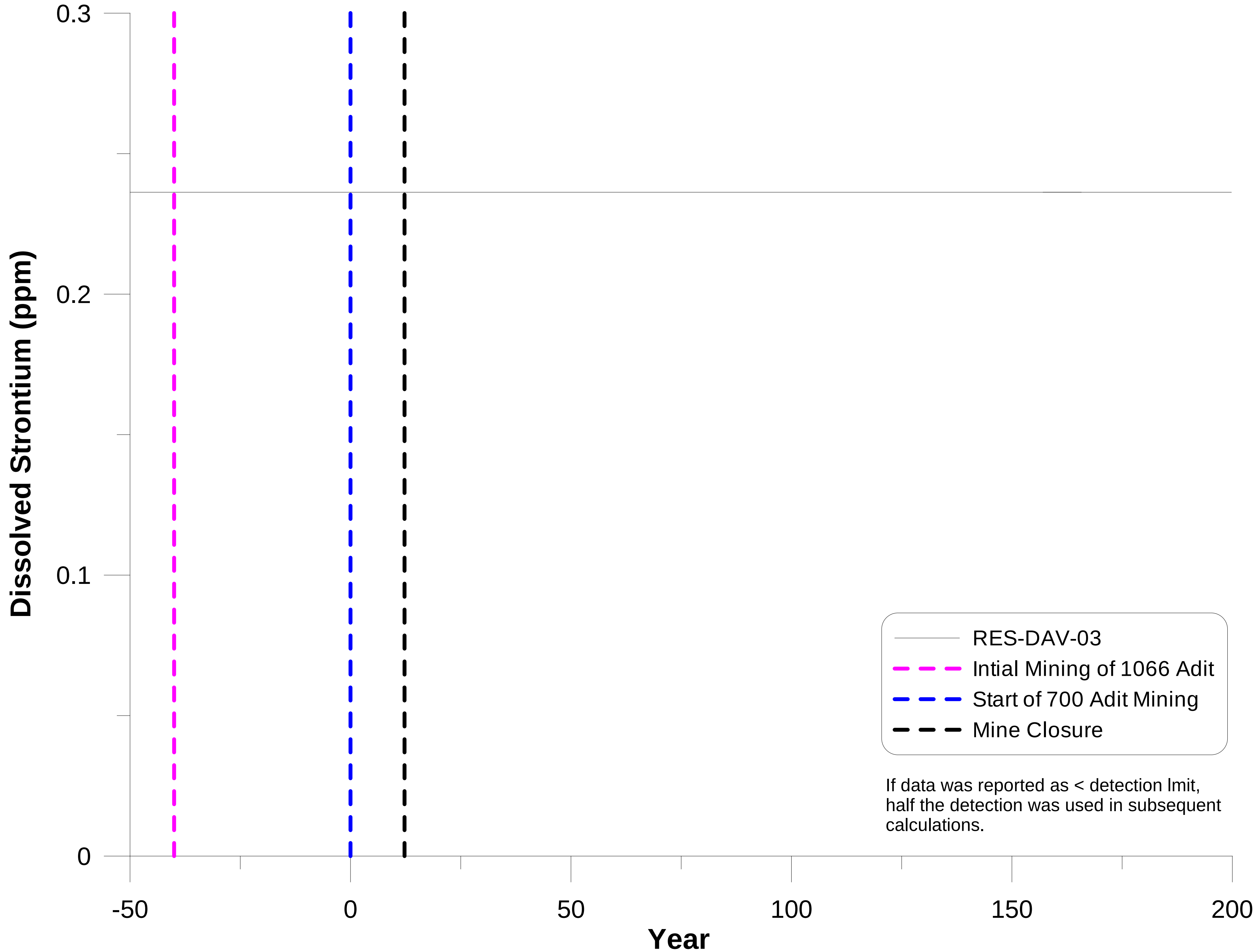


Dissolved Silicon (ppm)
5
4
3
2
1
0
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

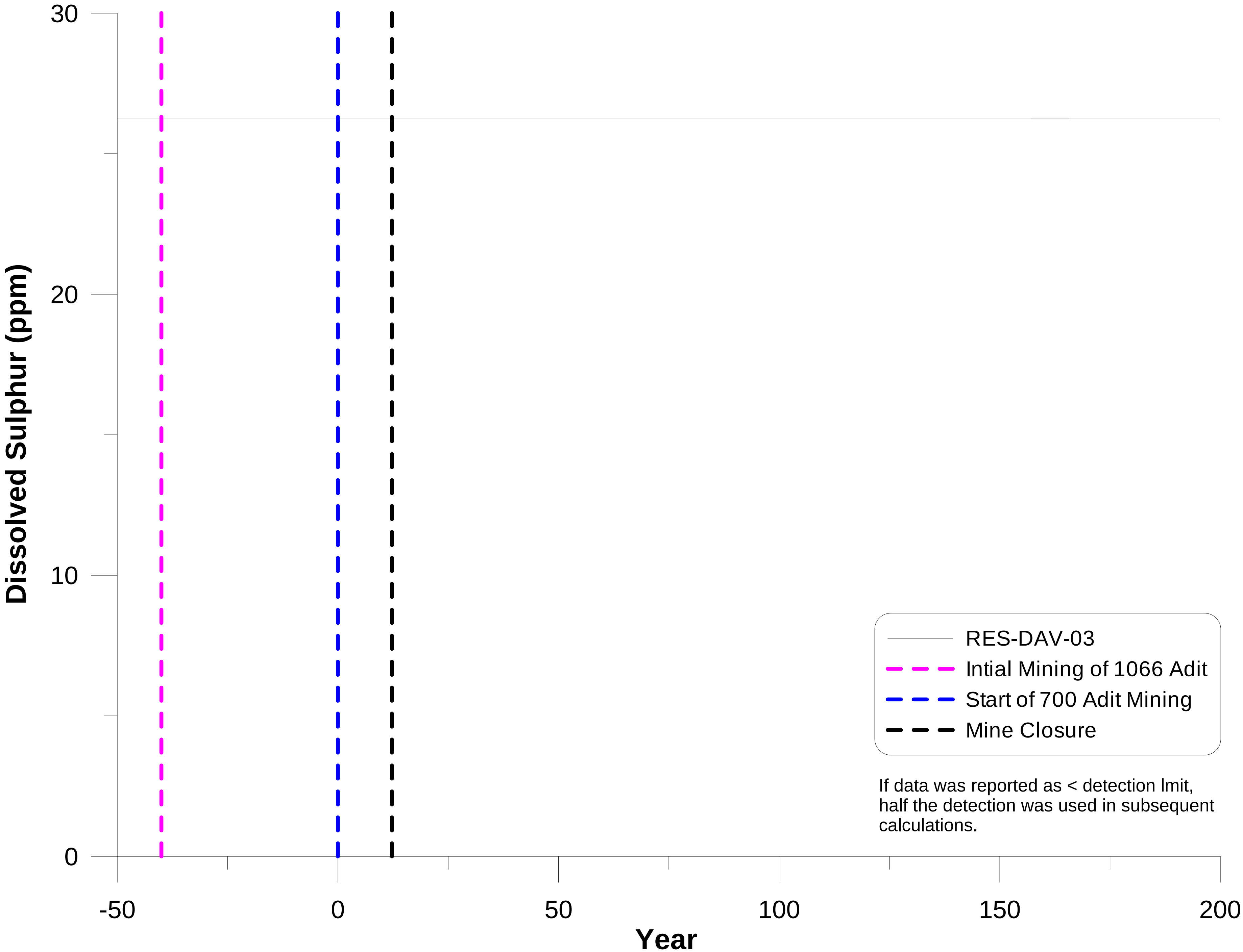

2E-005
1.5E-005
1E-005
5E-006
0
Dissolved Silver (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

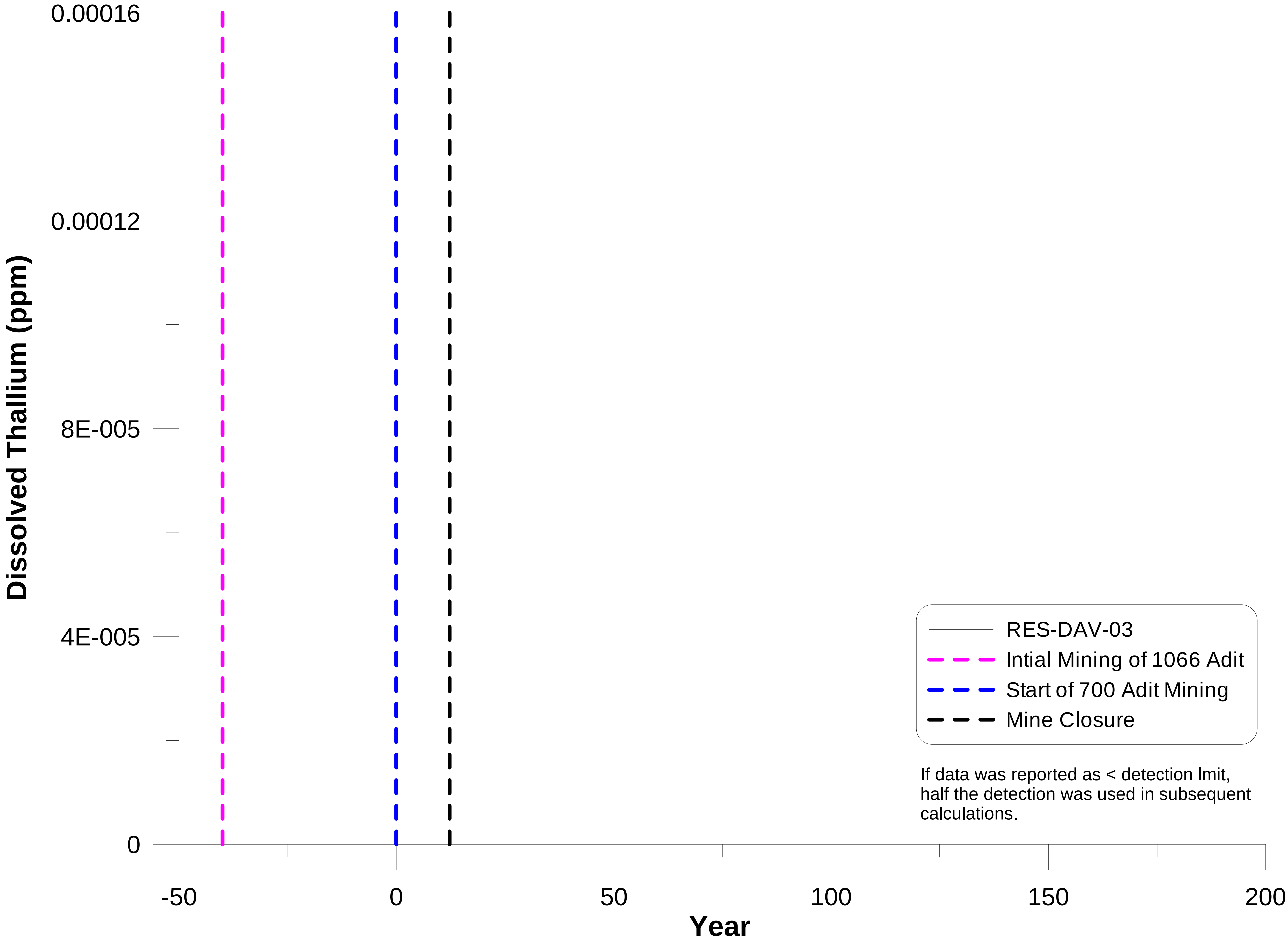


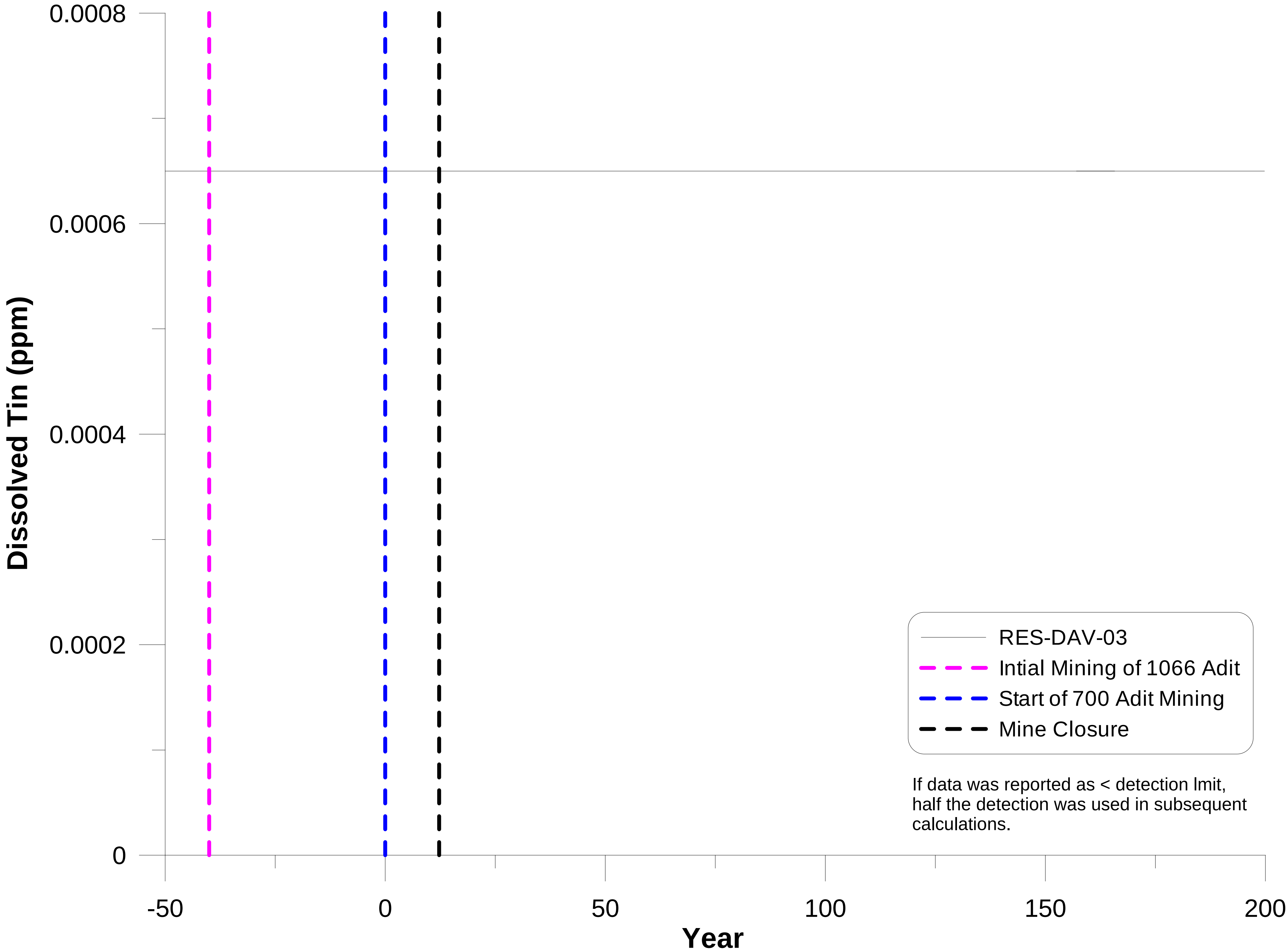
120
80
40
0
Dissolved Sodium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



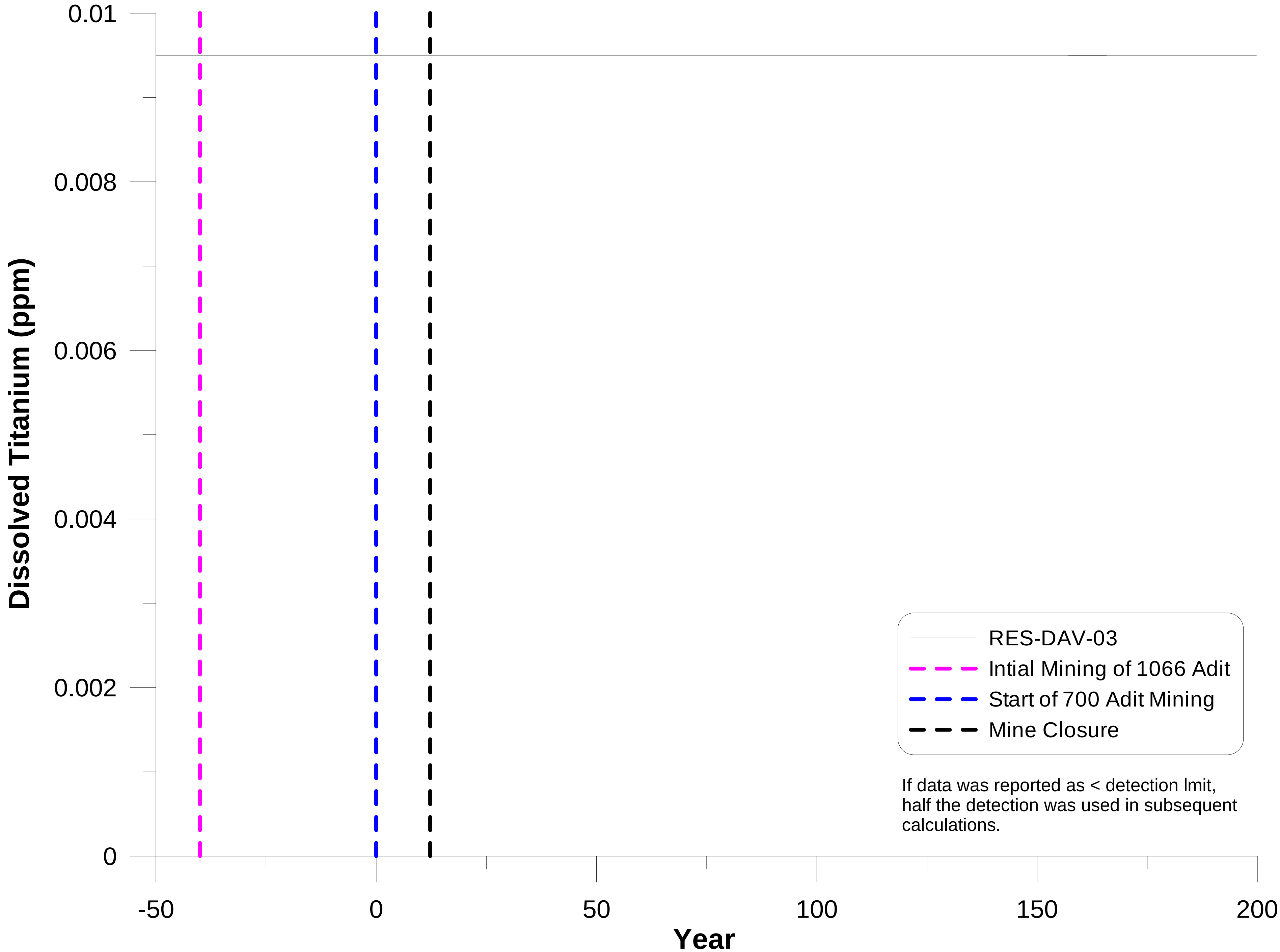
Dissolved Strontium (ppm)
0.3
0.2
0.1
0
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.


Dissolved Sulphur (ppm)
30
20
10
0
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

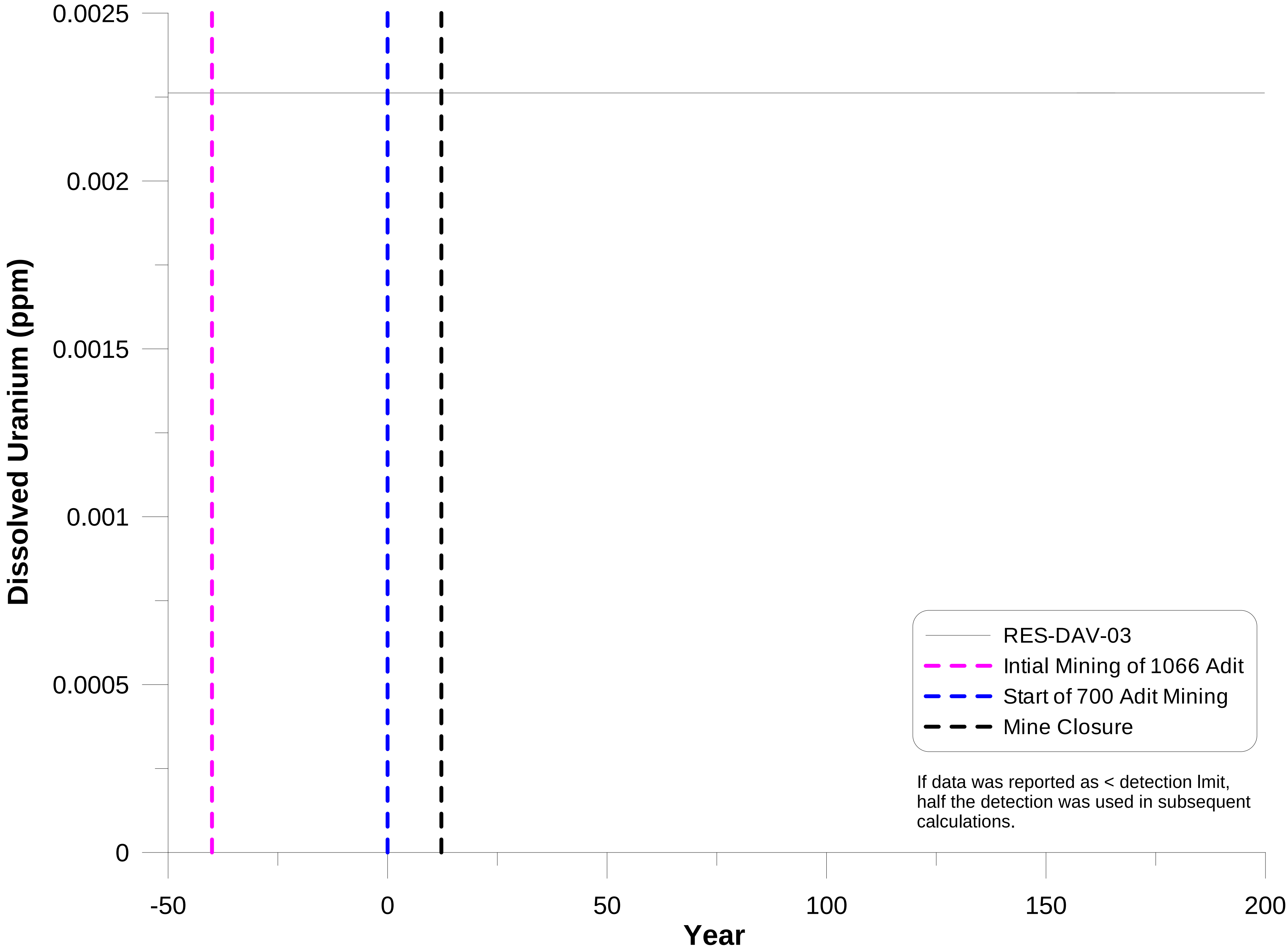

0.00016
0.00012
8E-005
4E-005
0
Dissolved Thallium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



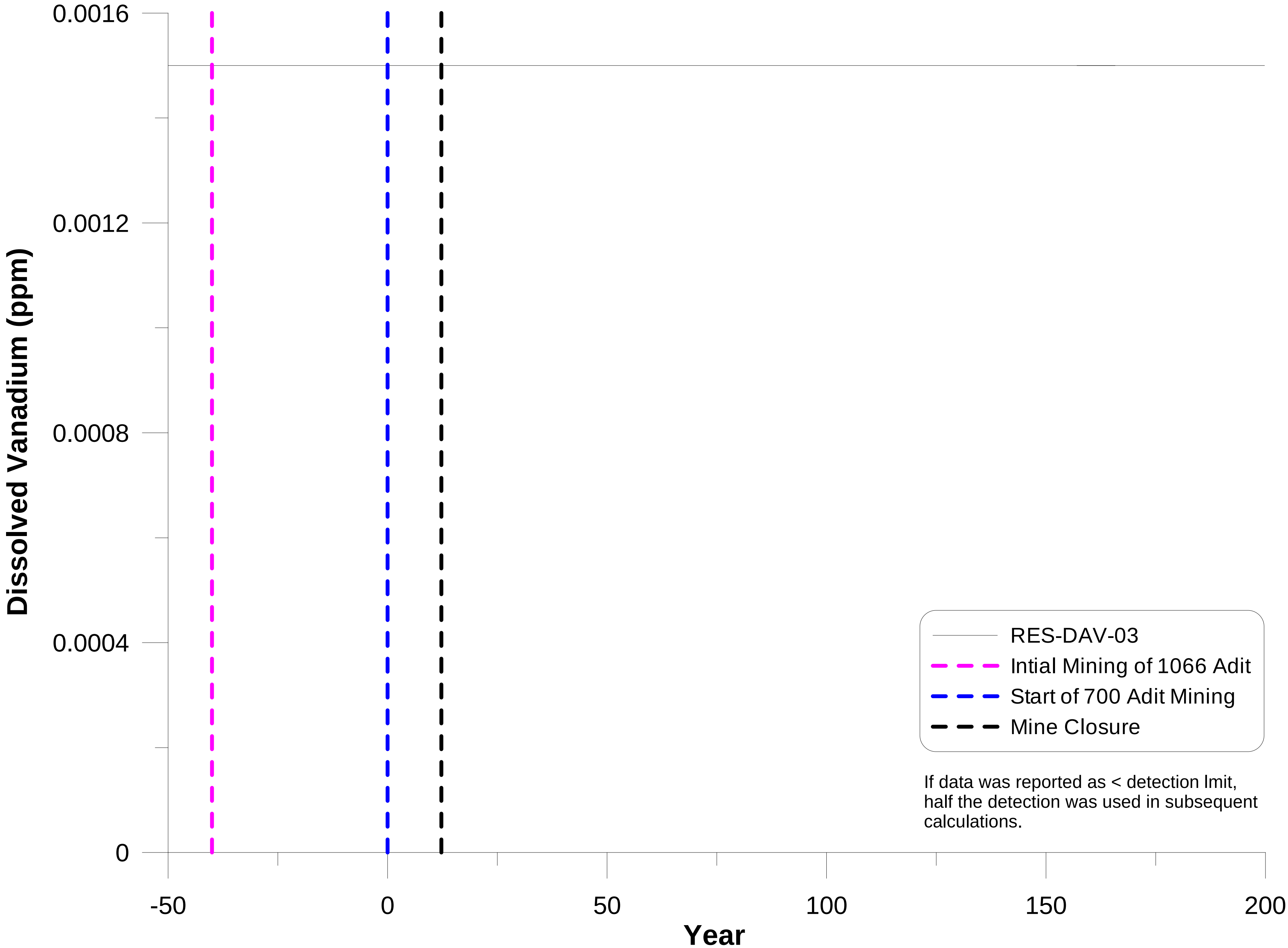
0.0008
0.0006
0.0004
0.0002
0
Dissolved Tin (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

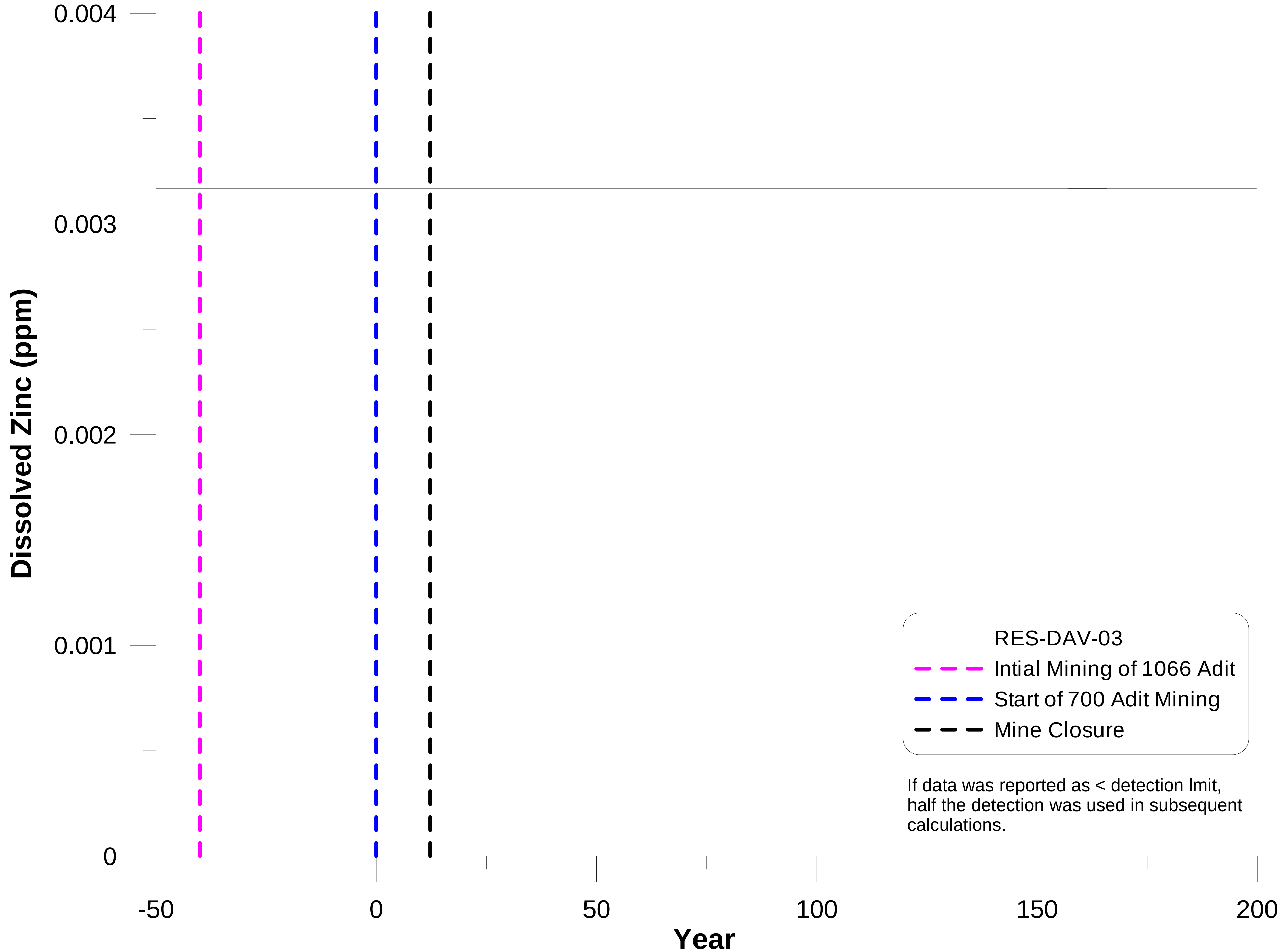


0.01
0.008
0.006
0.004
0.002
0
Dissolved Titanium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



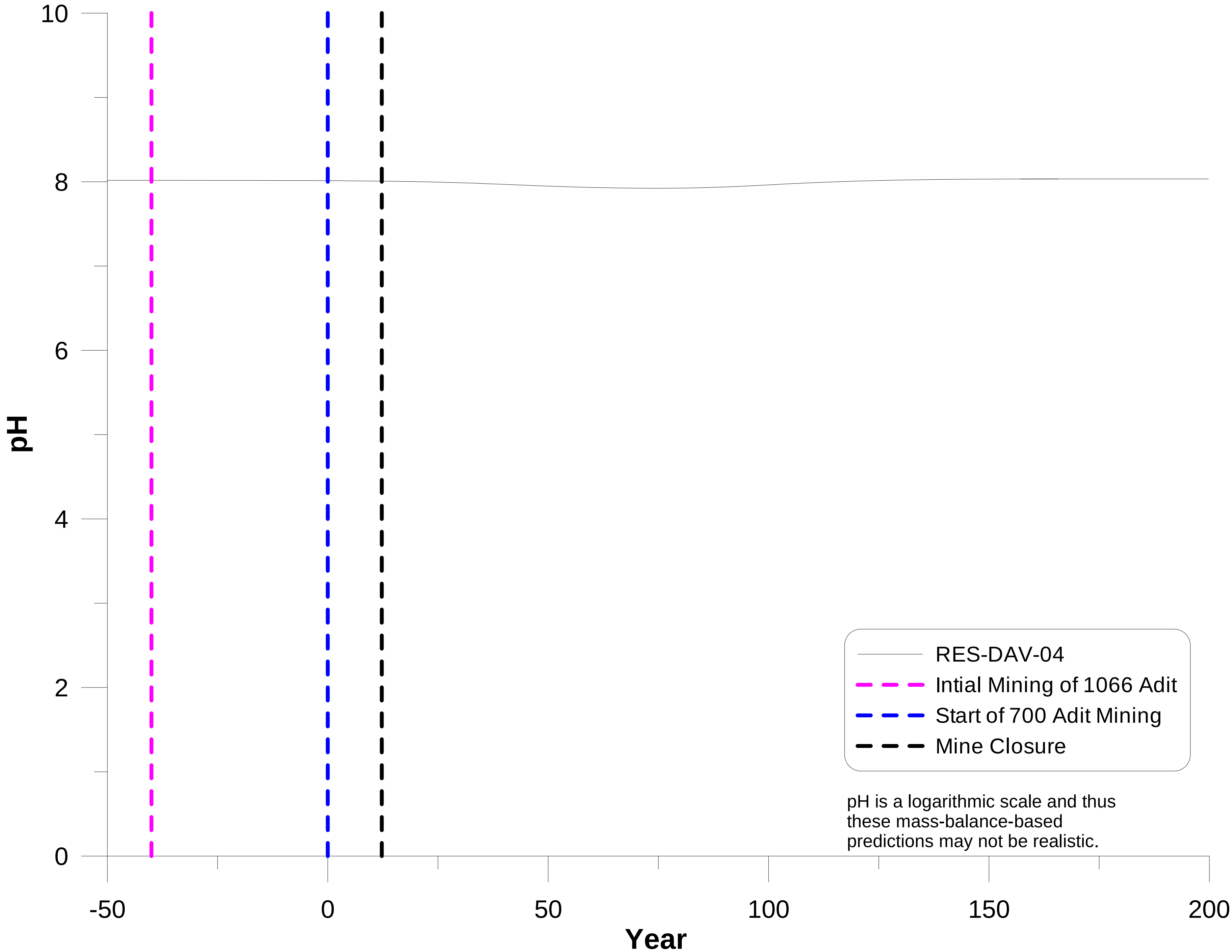
0.0025
0.002
0.0015
0.001
0.0005
0
Dissolved Uranium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.


0.0016
0.0012
0.0008
0.0004
0
Dissolved Vanadium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

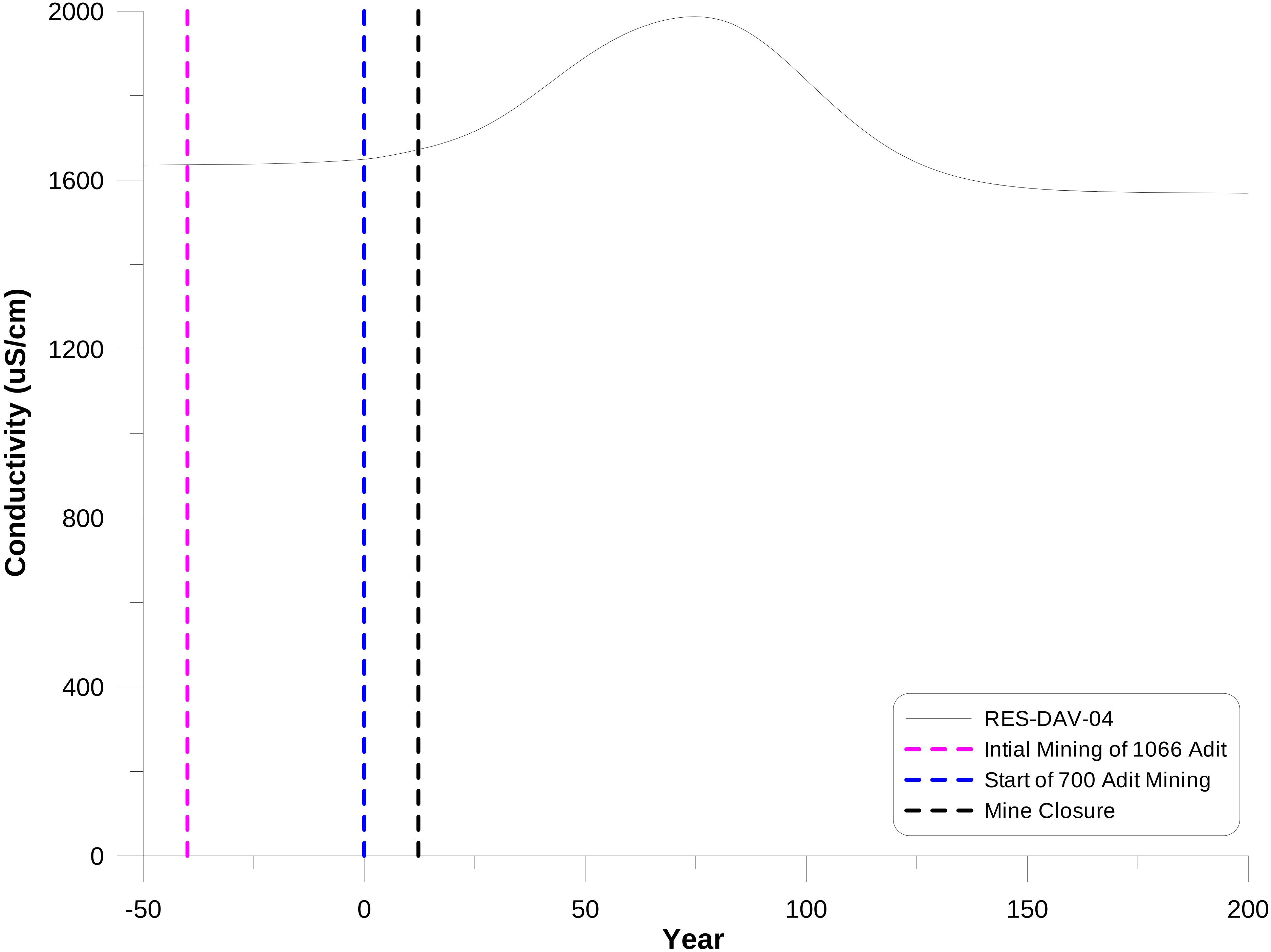

0.004
0.003
0.002
0.001
0
Dissolved Zinc (ppm)
-50
0
50
100
150
200
Year
RES-DAV-03
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

APPENDIX E.

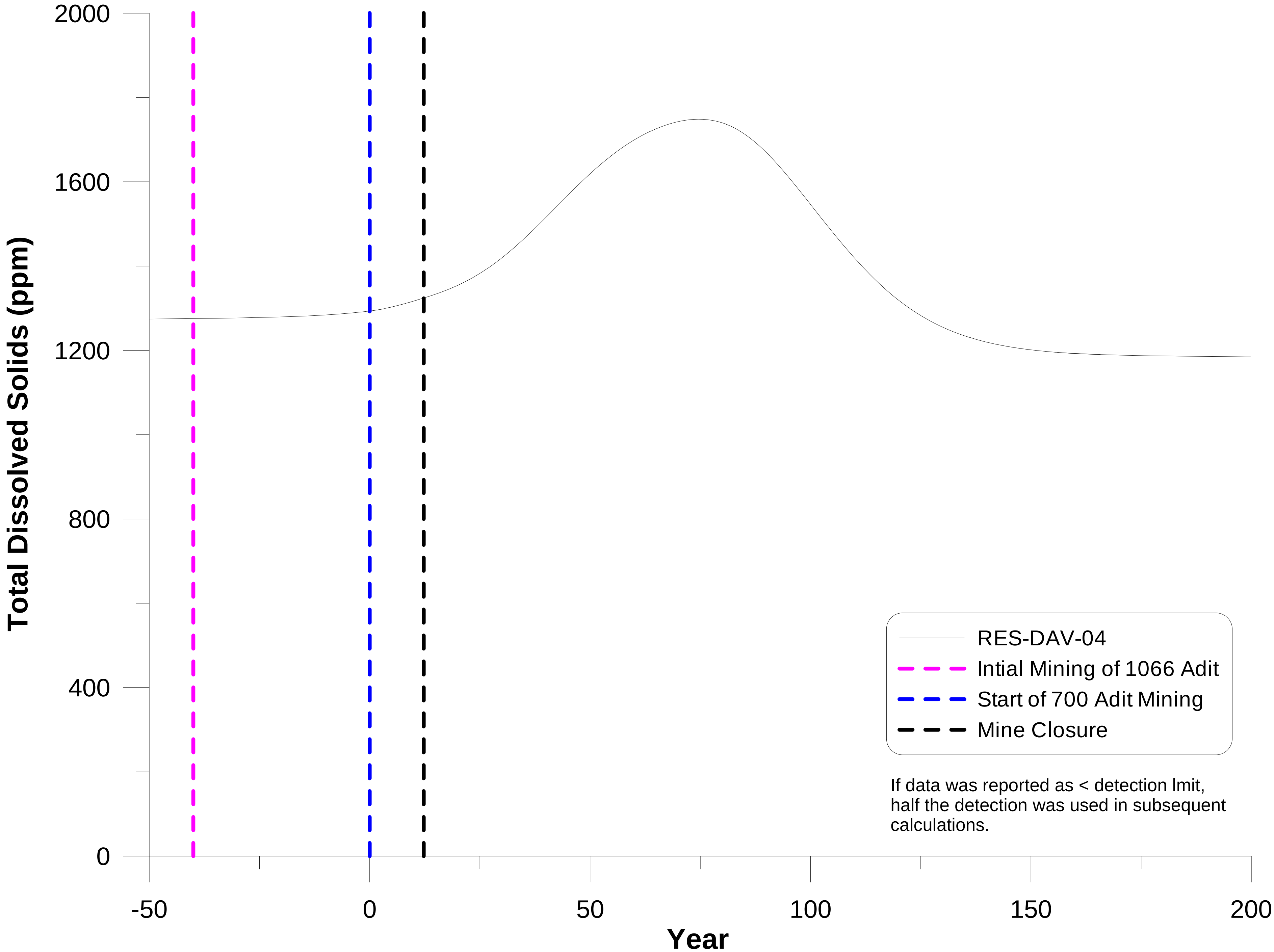
ESTIMATED CONCENTRATIONS FOR WELL RES-DAV-04 BASED ON MODFLOW MODELLING AND CURRENT AVERAGE WELL-WATER CHEMISTRY, BEFORE MINING, DURING OPERATION, AND AFTER CLOSURE

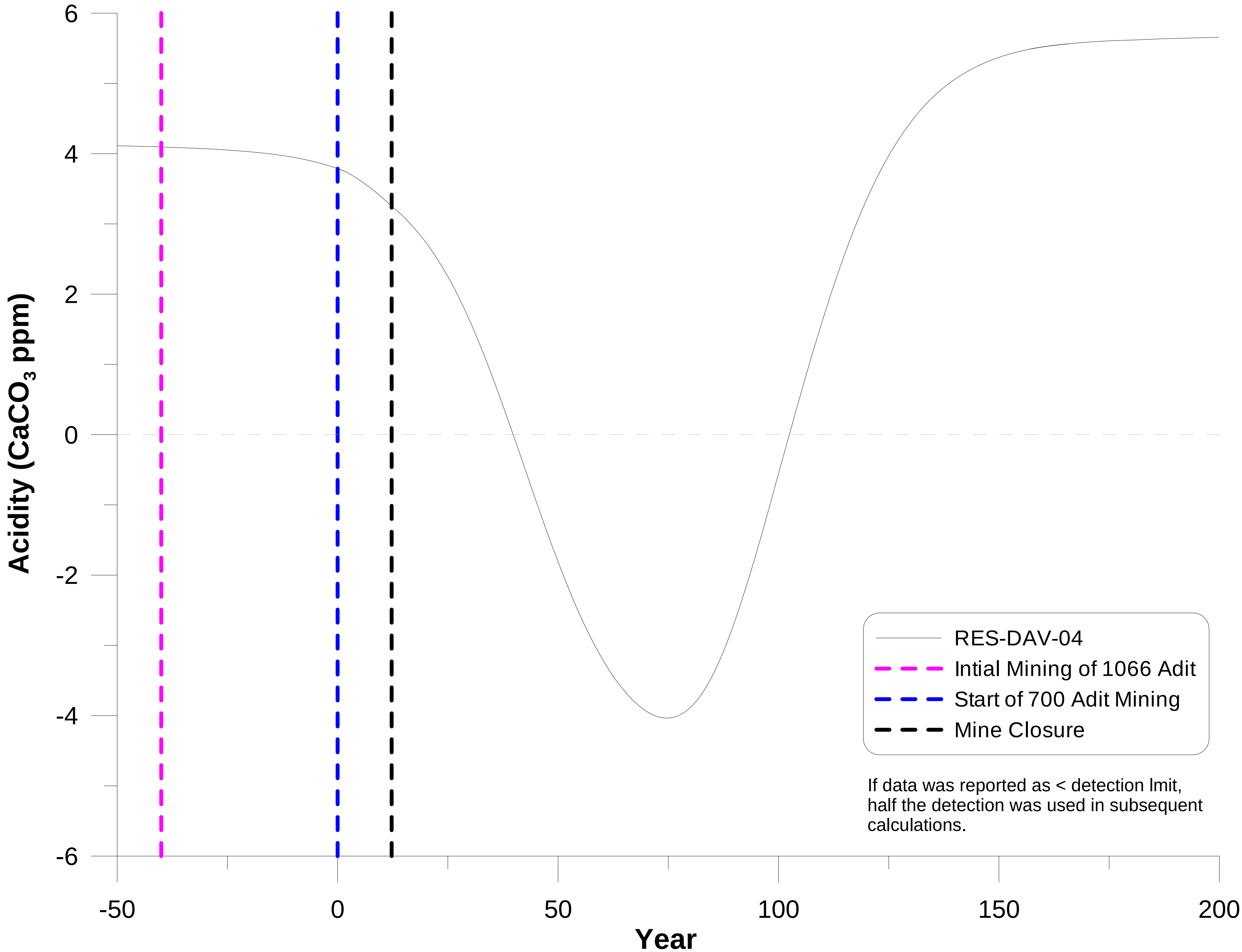


10
8
6
4
2
0
pH
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
pH is a logarithmic scale and thus
these mass-balance-based
predictions may not be realistic.

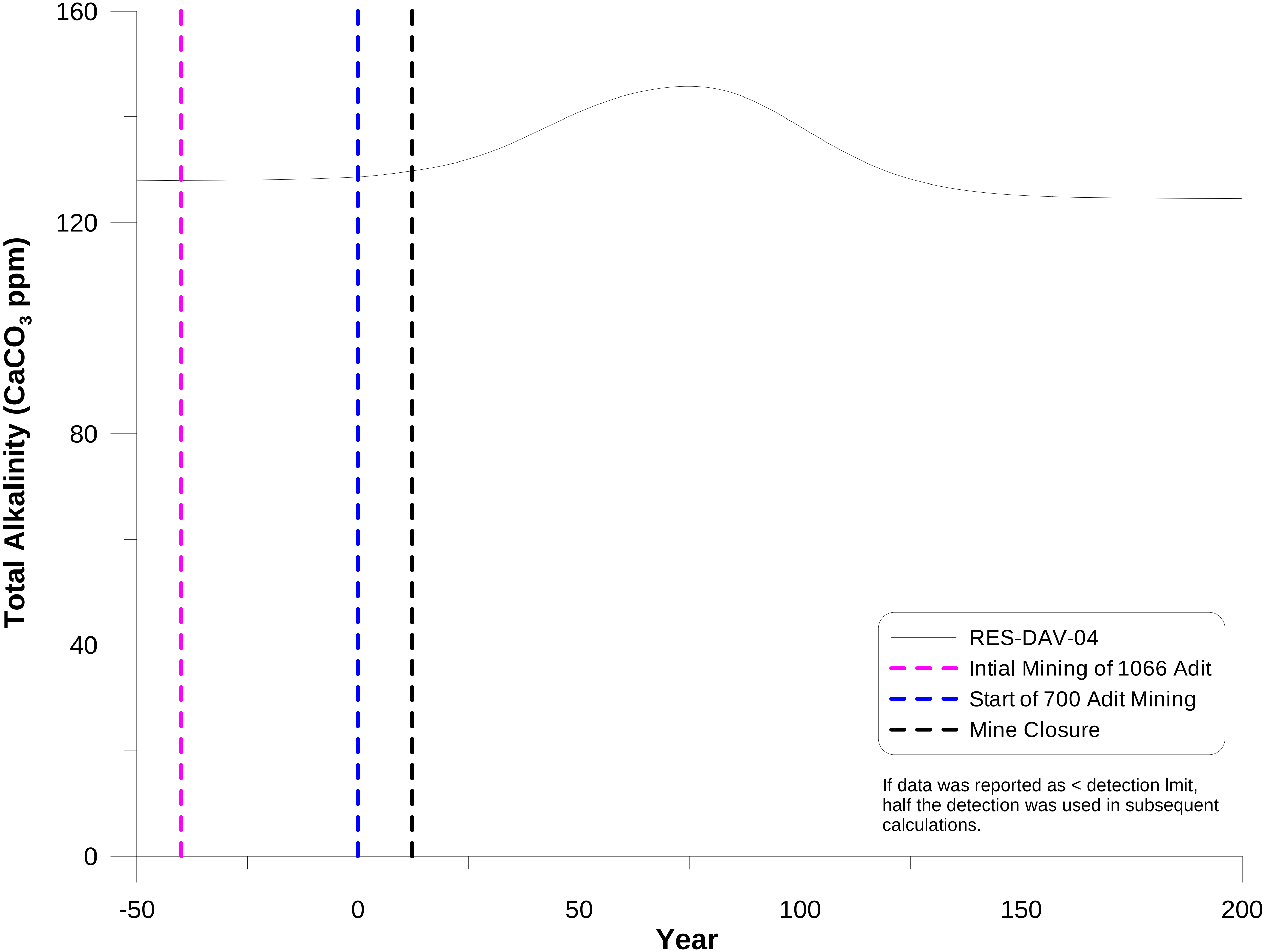


2000
1600
1200
800
400
0
Conductivity (uS/cm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure

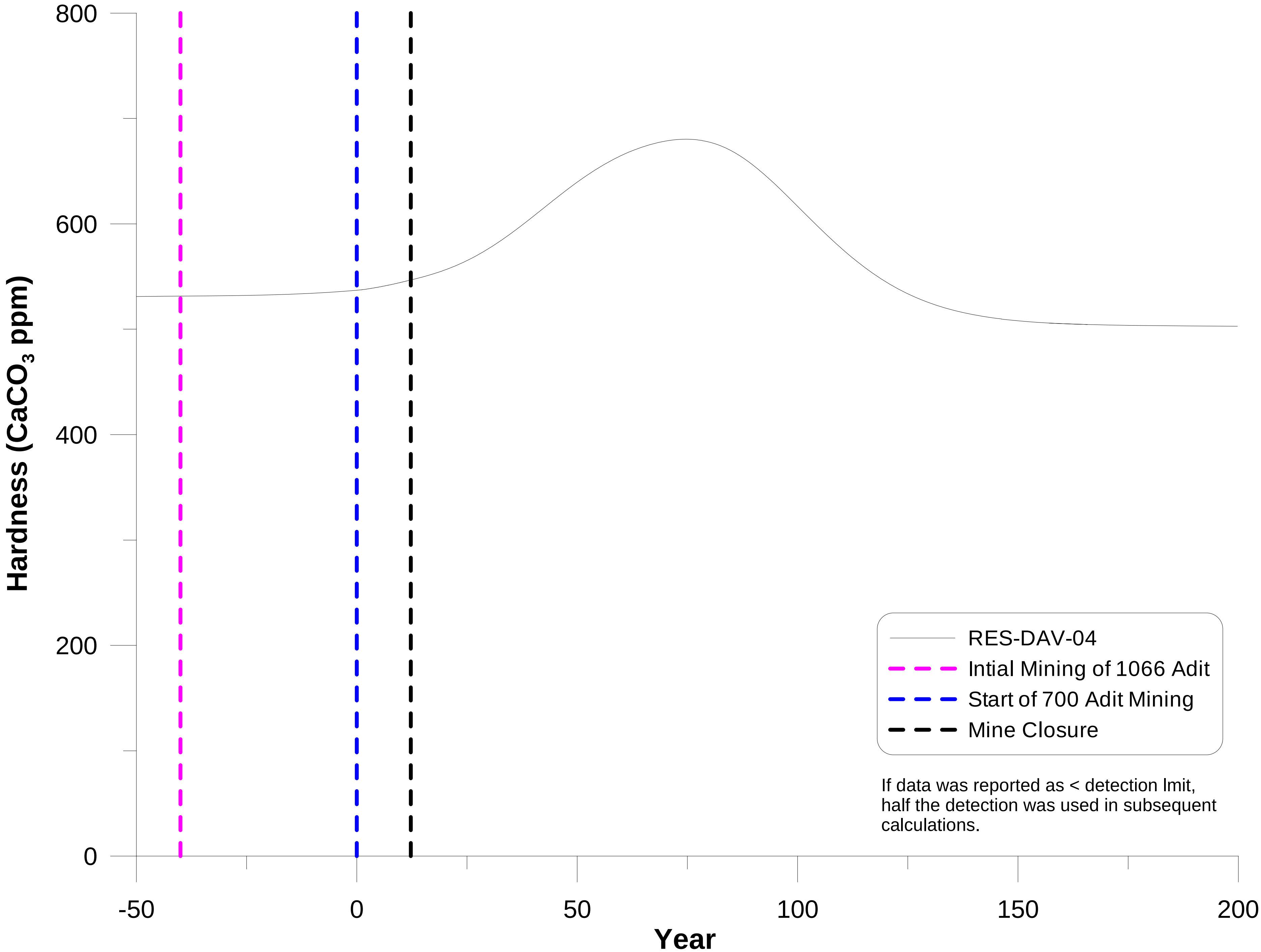

Total Dissolved Solids (ppm)
2000
1600
1200
800
400
0
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



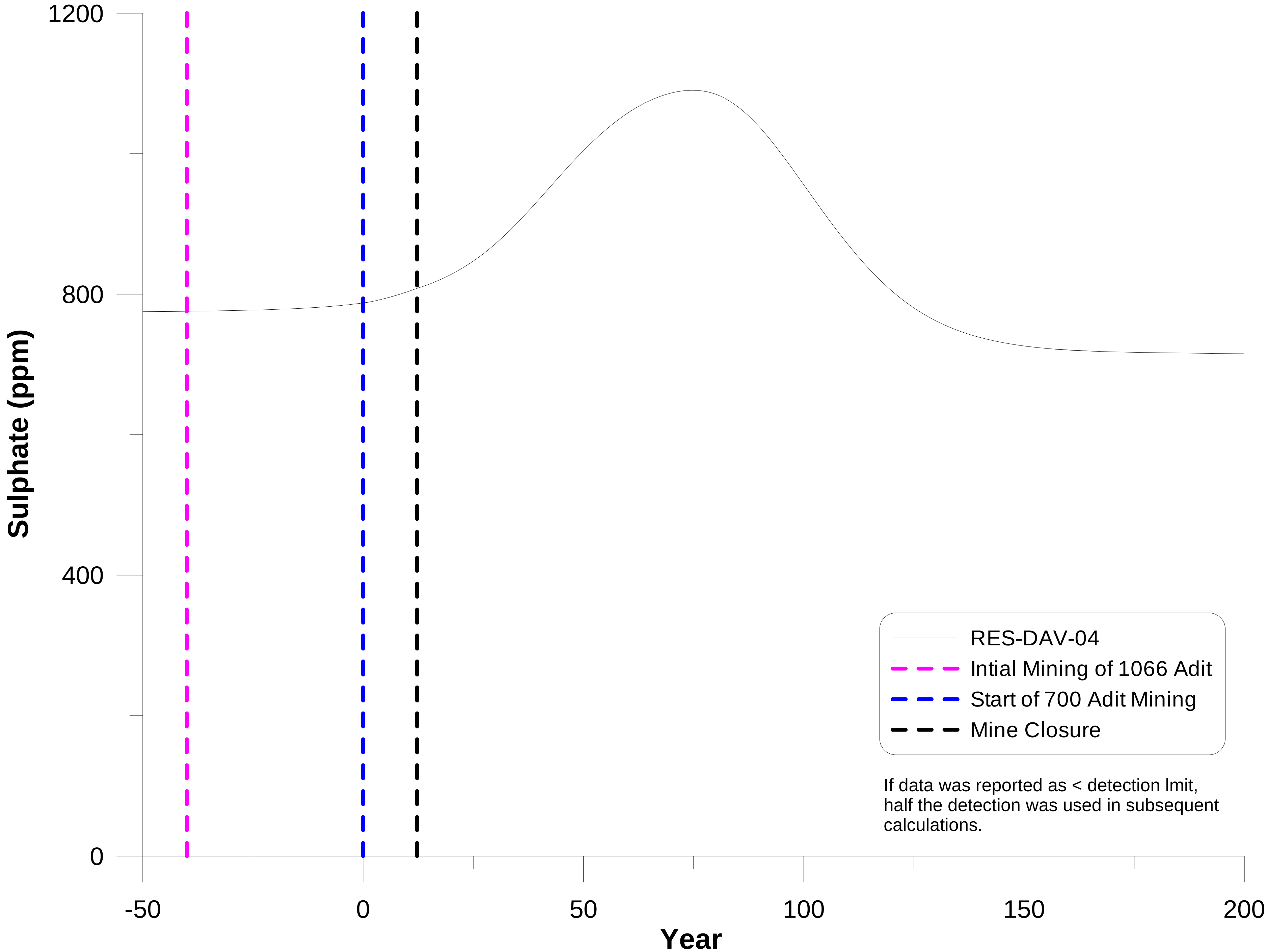
Acidity ($CaCO_3$ ppm)
6
4
2
0
-2
-4
-6
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

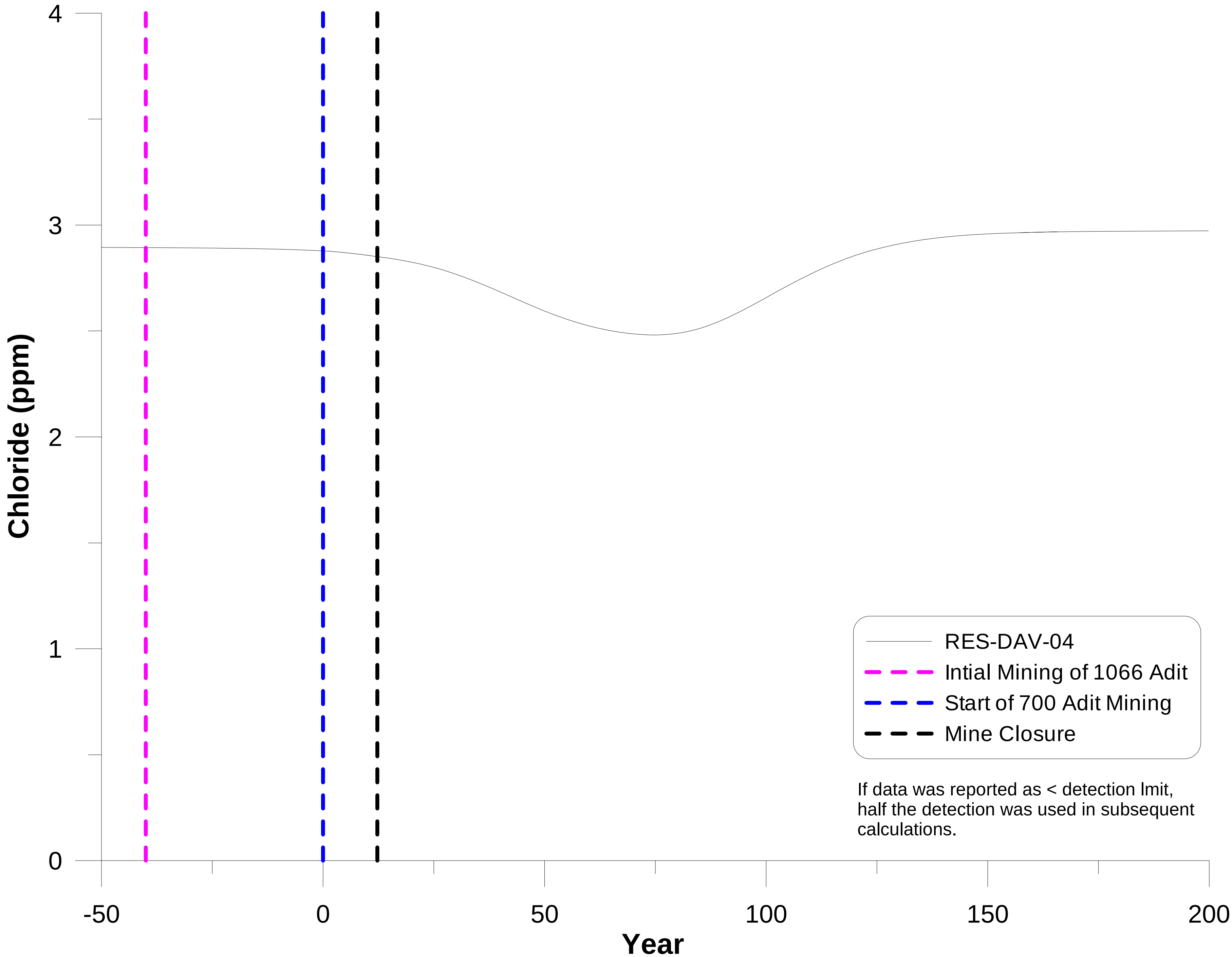


Total Alkalinity ($CaCO_3$ ppm)
160
120
80
40
0
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

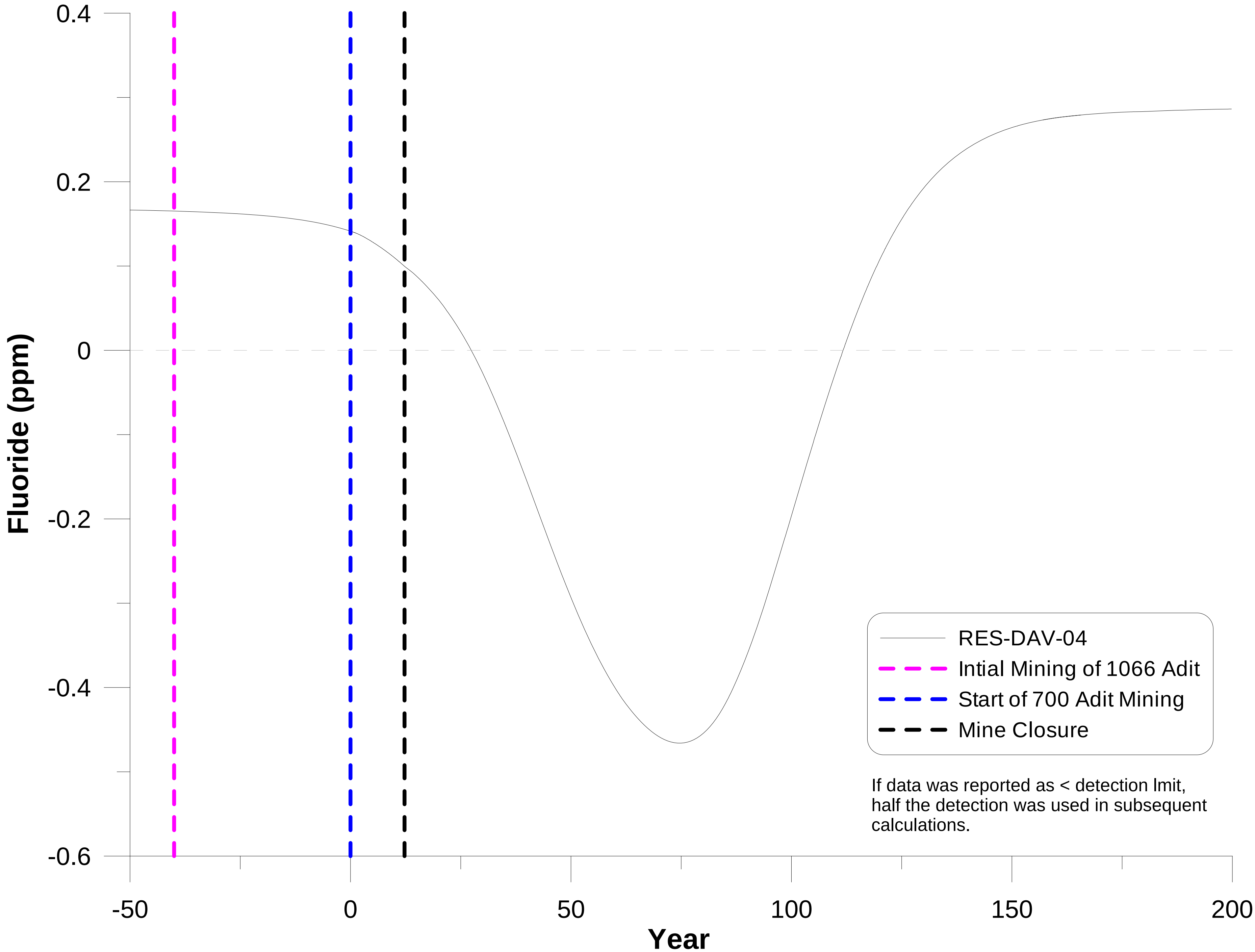


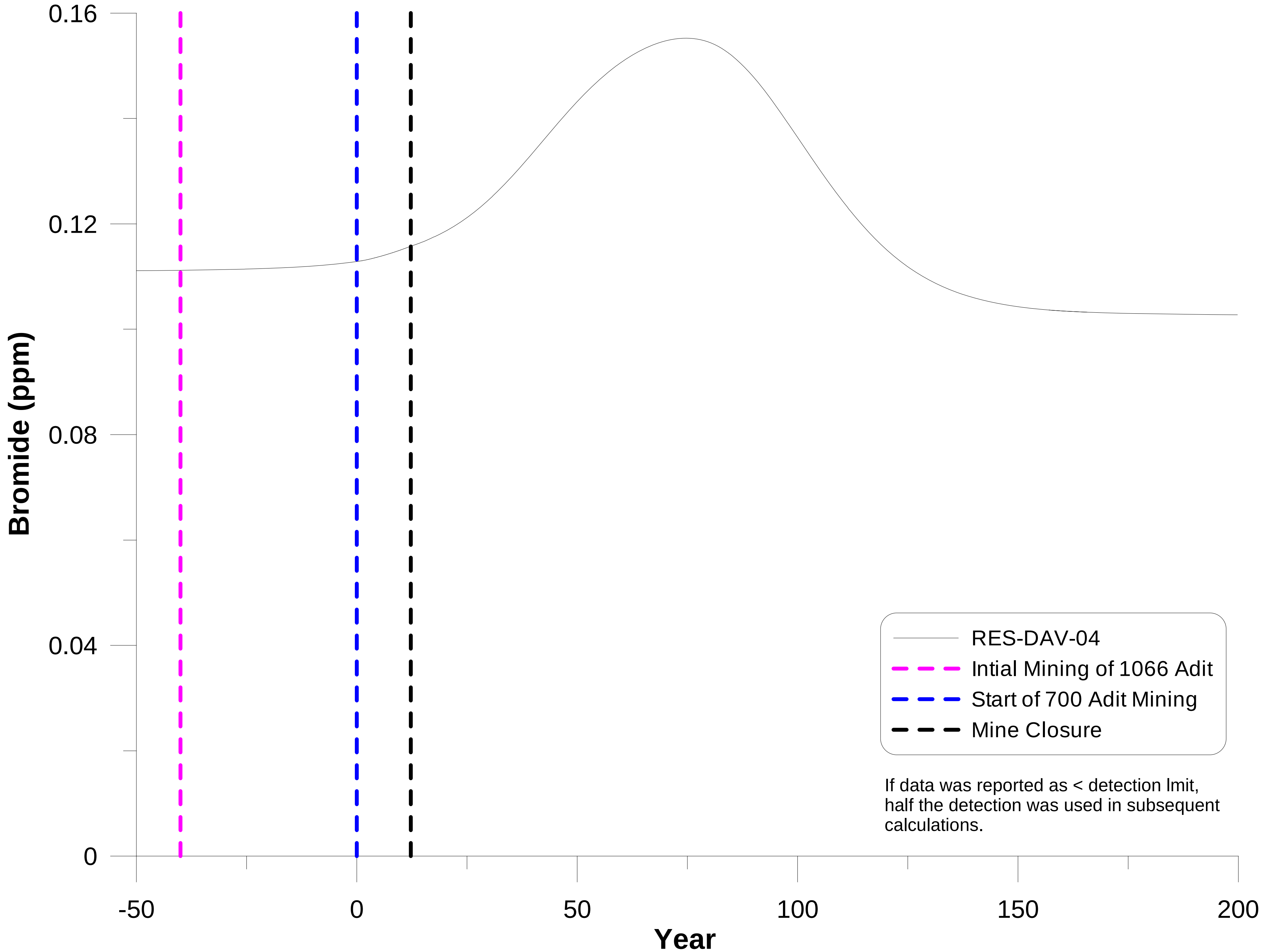
Hardness (CaCO3 ppm)
800
600
400
200
0
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.


1200
800
400
0
-50
0
50
100
150
200
Year
Sulphate (ppm)
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

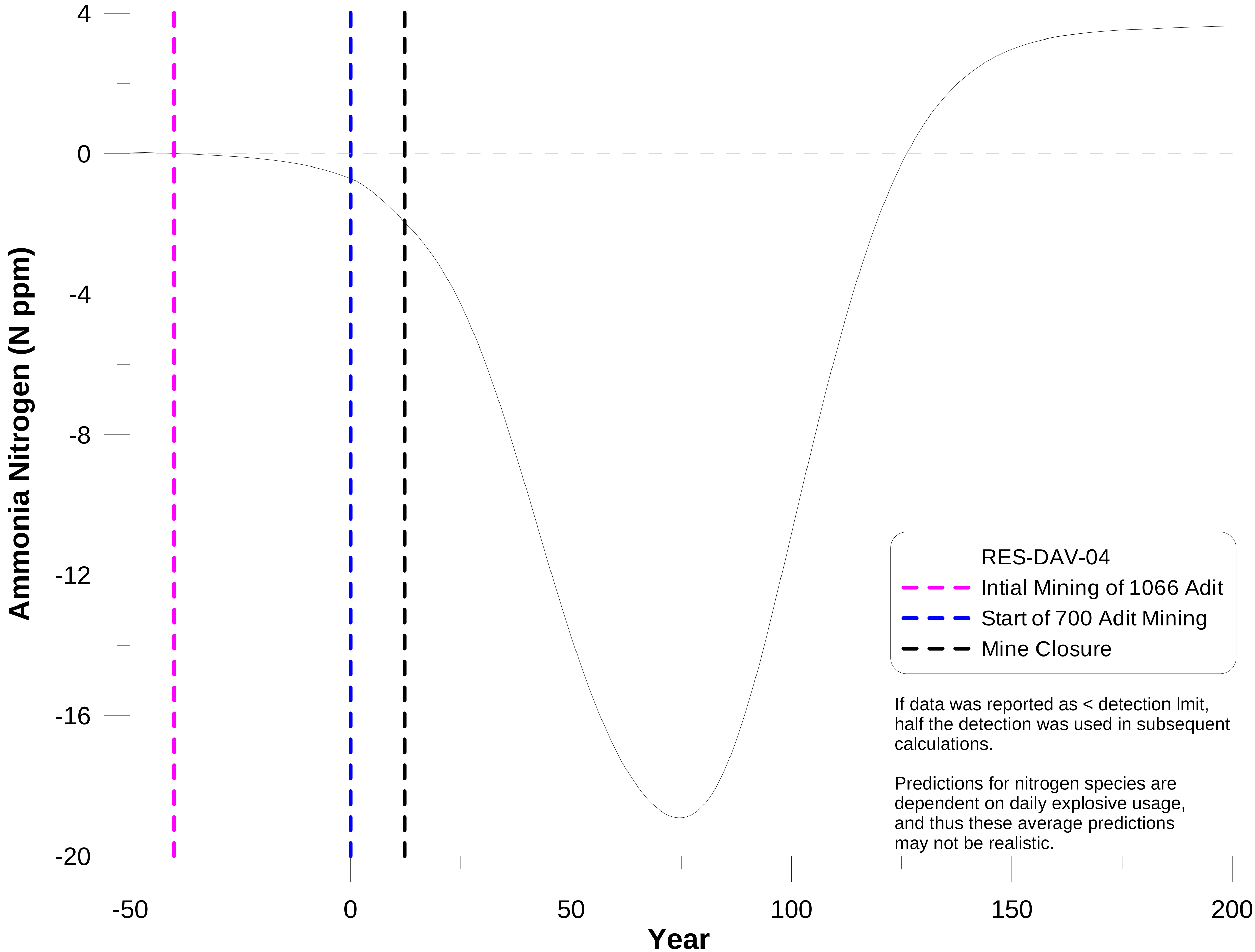


Chloride (ppm)
4
3
2
1
0
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

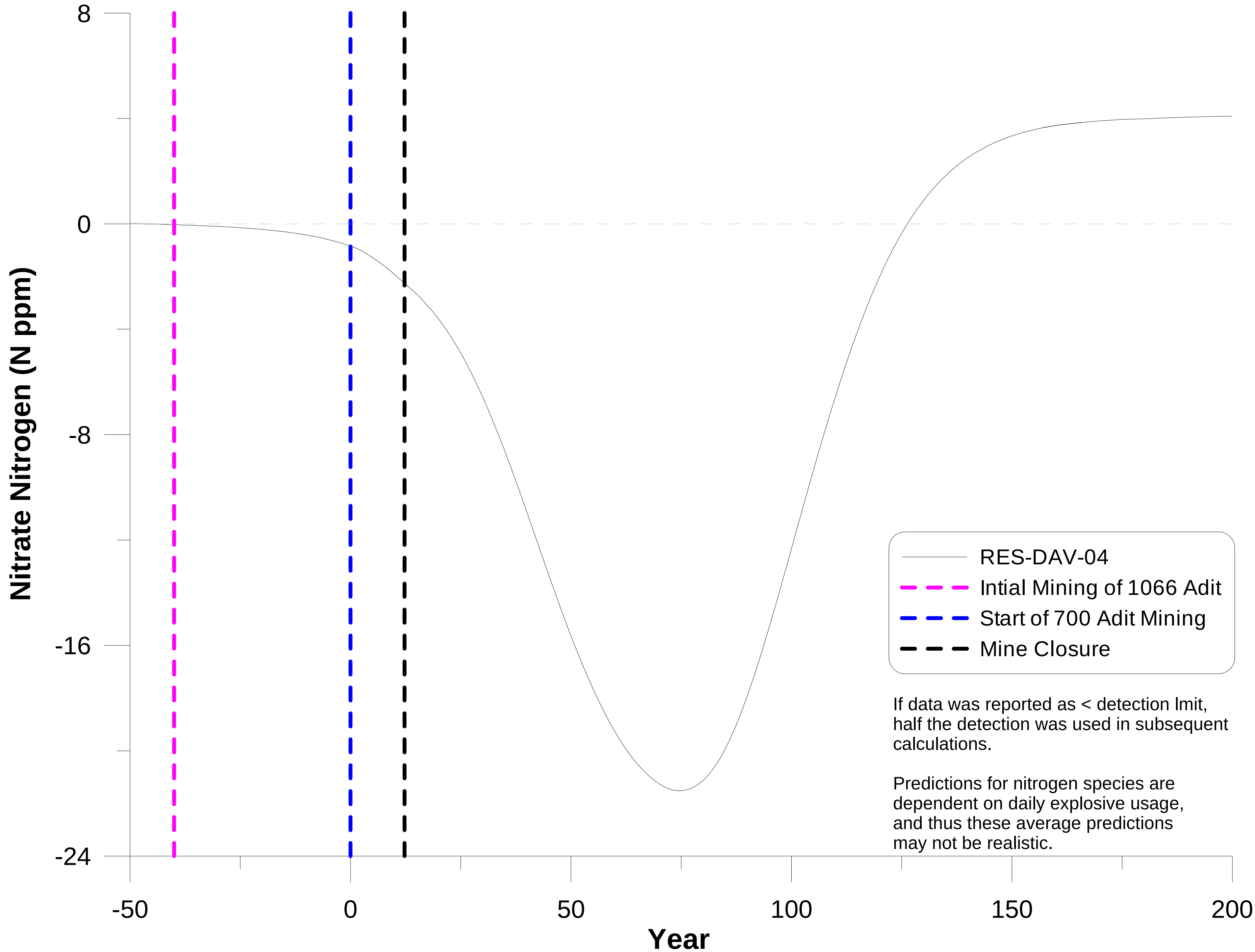

0.4
0.2
0
-0.2
-0.4
-0.6
Fluoride (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



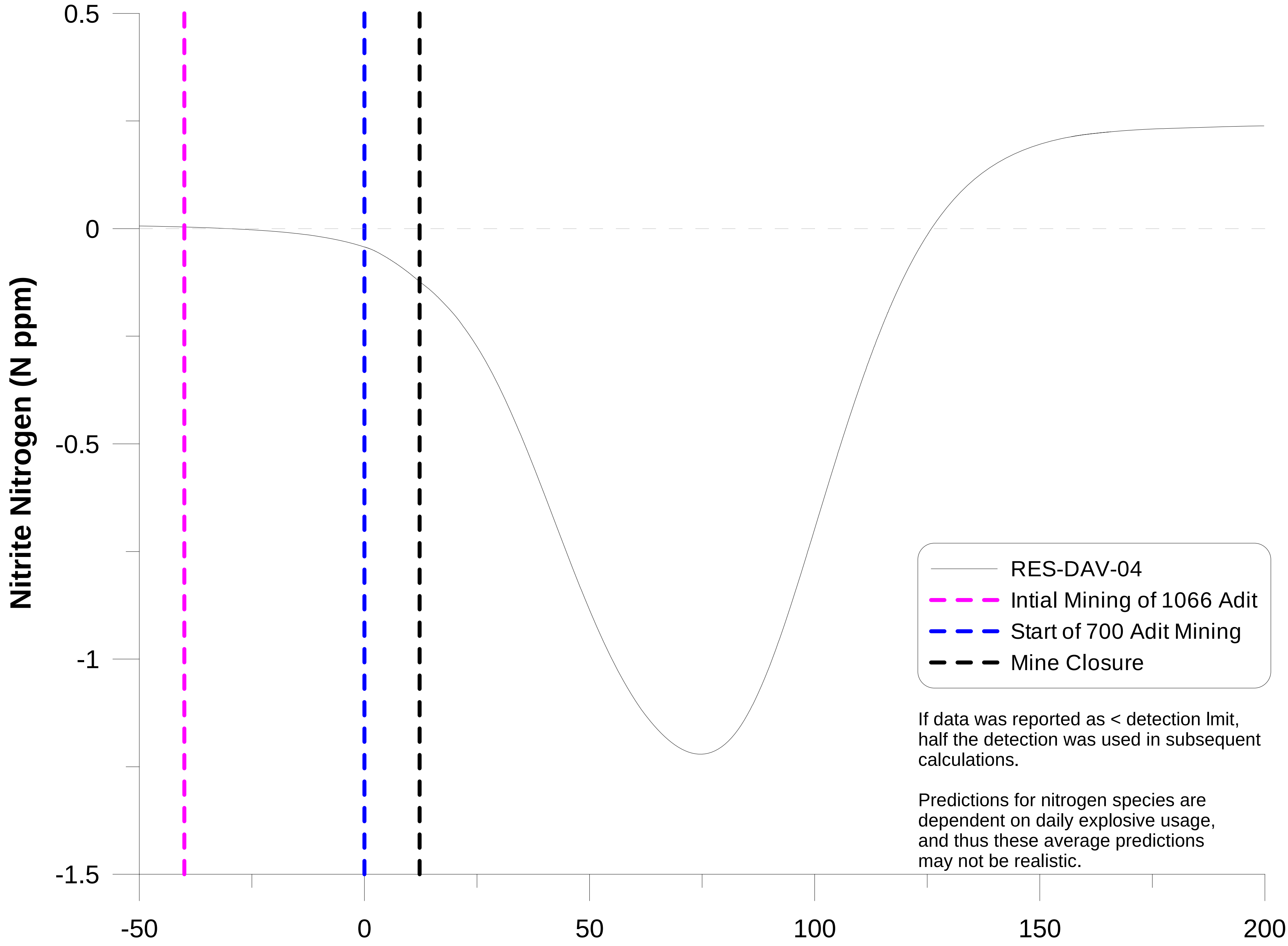
Bromide (ppm)
0.16
0.12
0.08
0.04
0
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



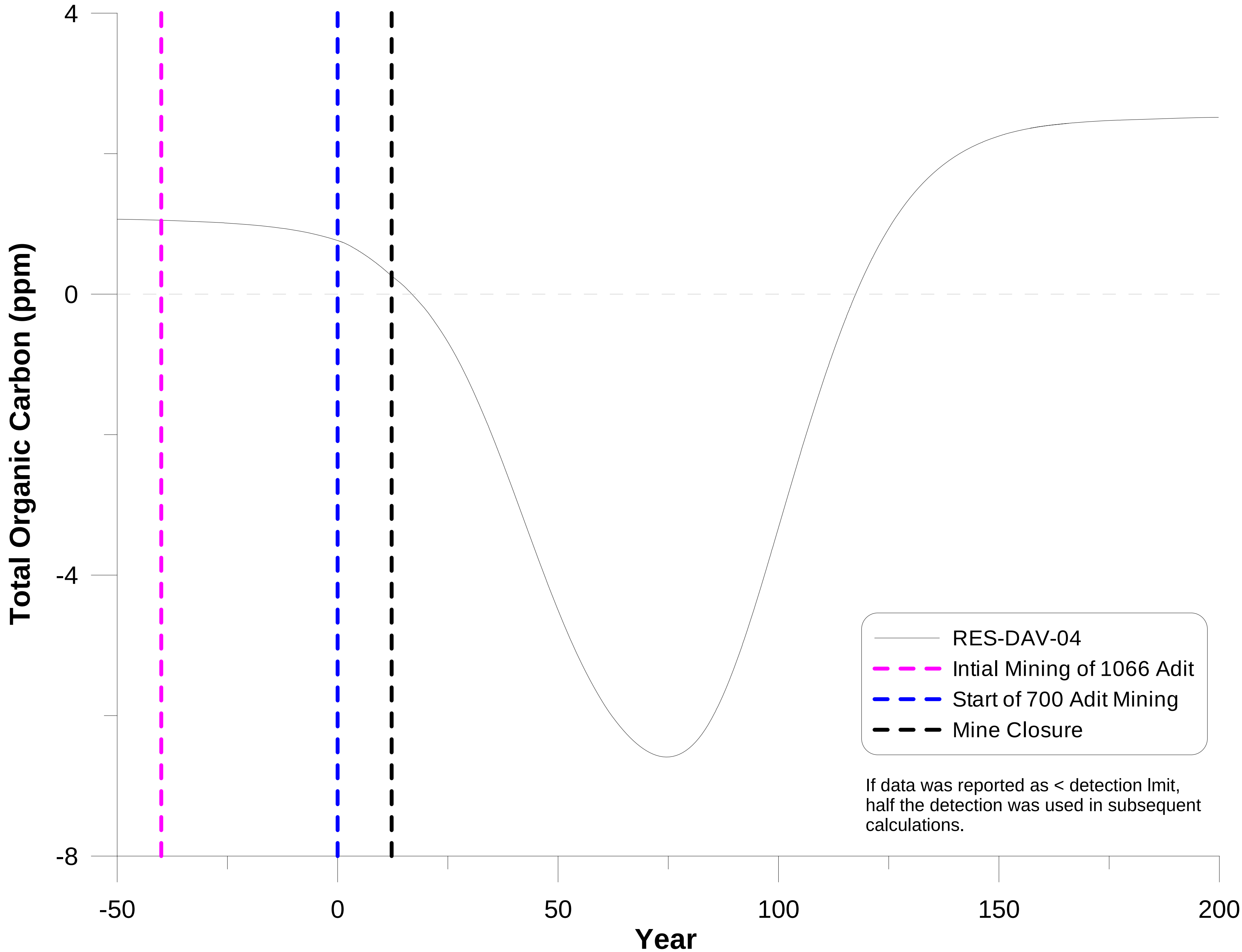
4
0
-4
-8
-12
-16
-20
Ammonia Nitrogen (N ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.



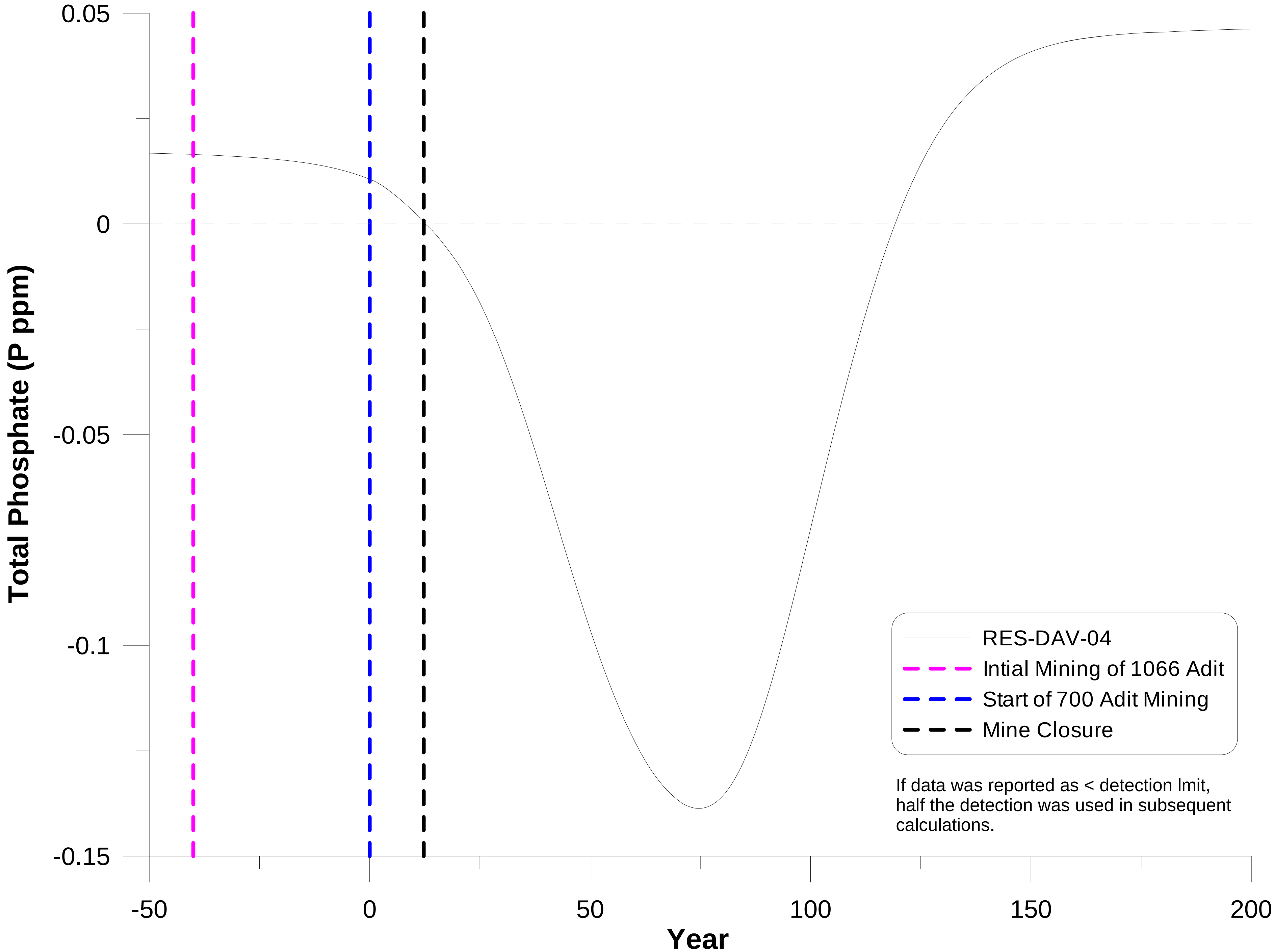
8
0
-8
-16
-24
Nitrate Nitrogen (N ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit, half the detection was used in subsequent calculations.
Predictions for nitrogen species are dependent on daily explosive usage, and thus these average predictions may not be realistic.



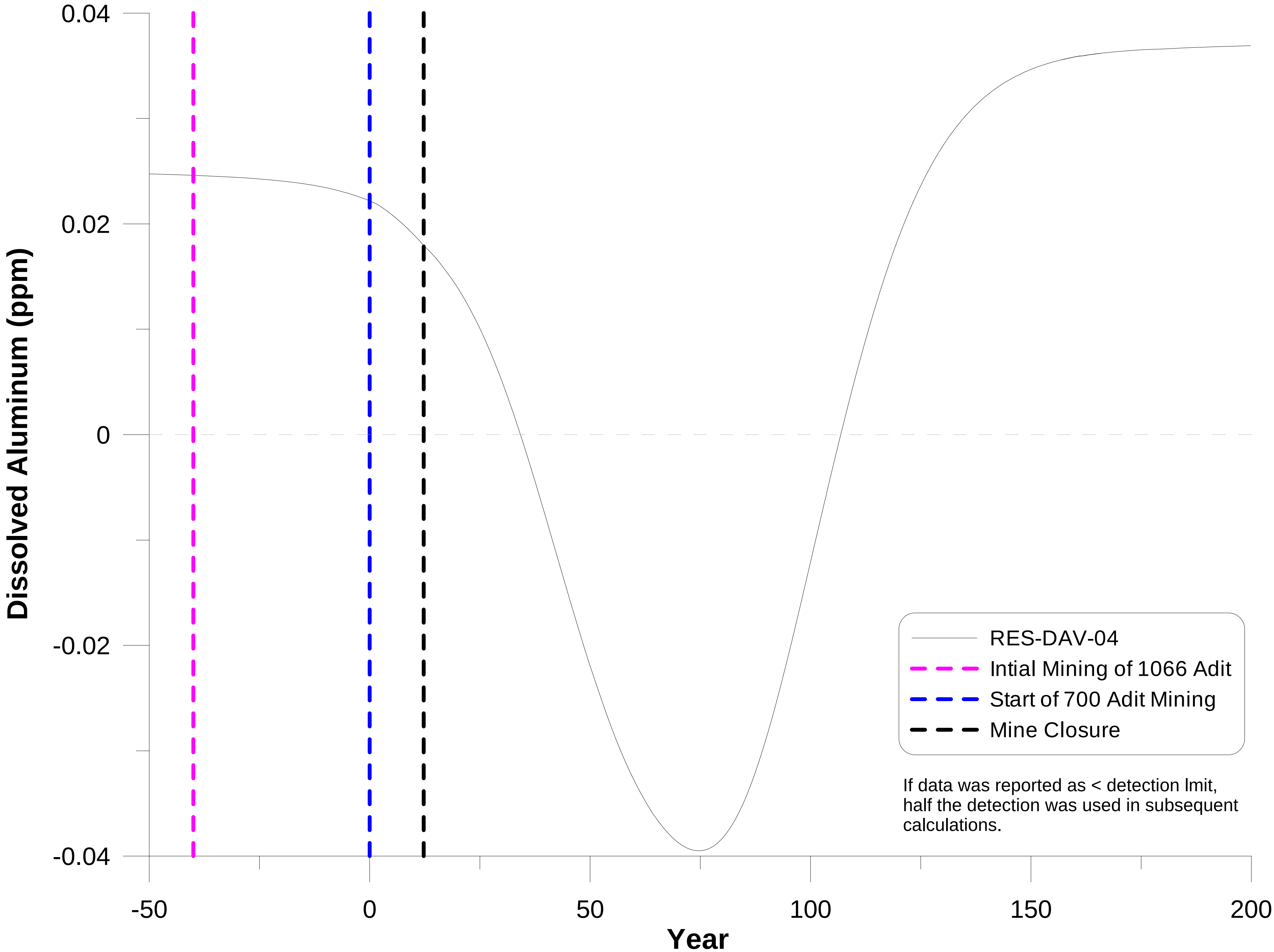
Nitrite Nitrogen (N ppm)
0.5
0
-0.5
-1
-1.5
-50
0
50
100
150
200
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.
Predictions for nitrogen species are
dependent on daily explosive usage,
and thus these average predictions
may not be realistic.

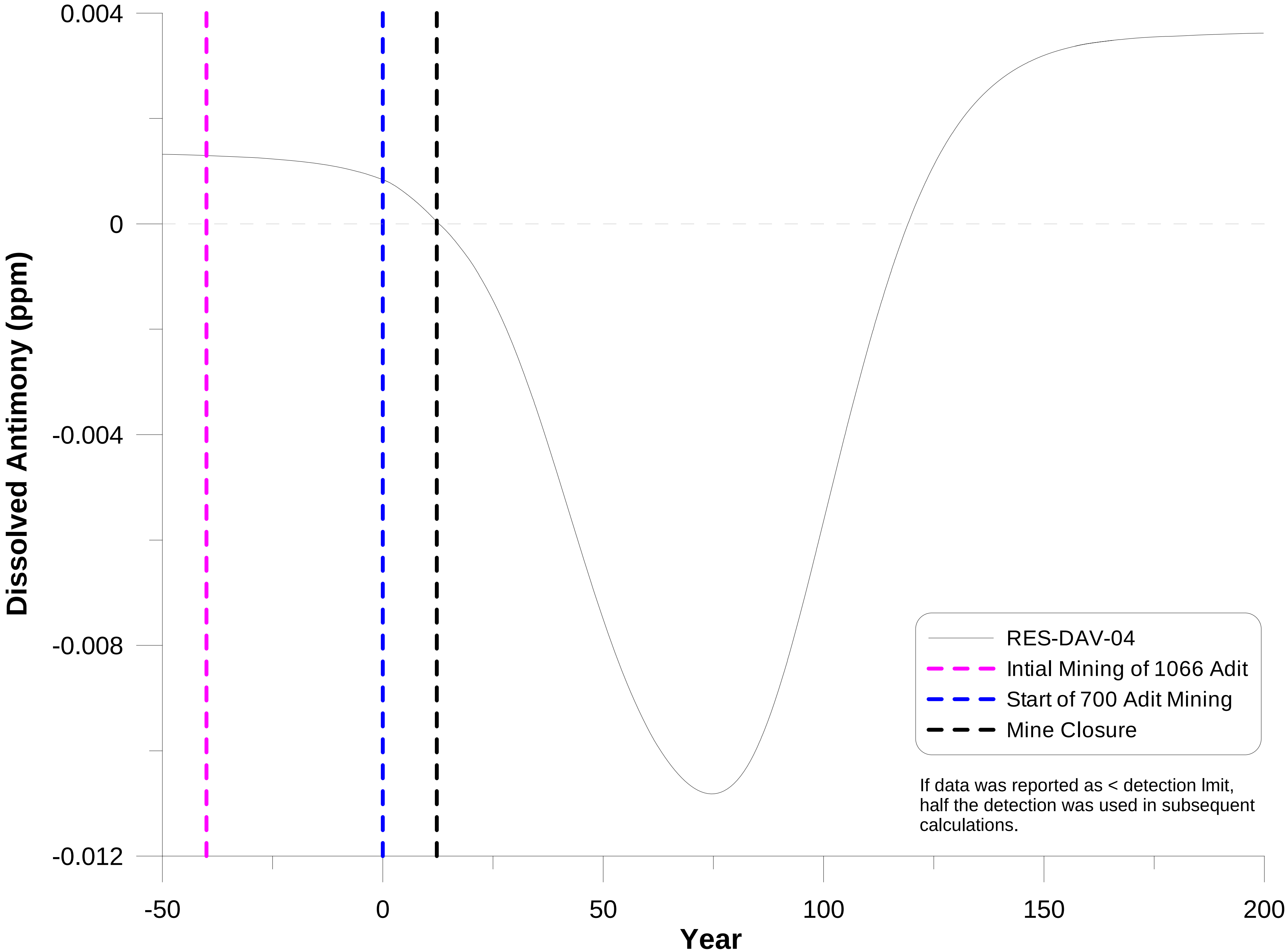


Total Organic Carbon (ppm)
4
0
-4
-8
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

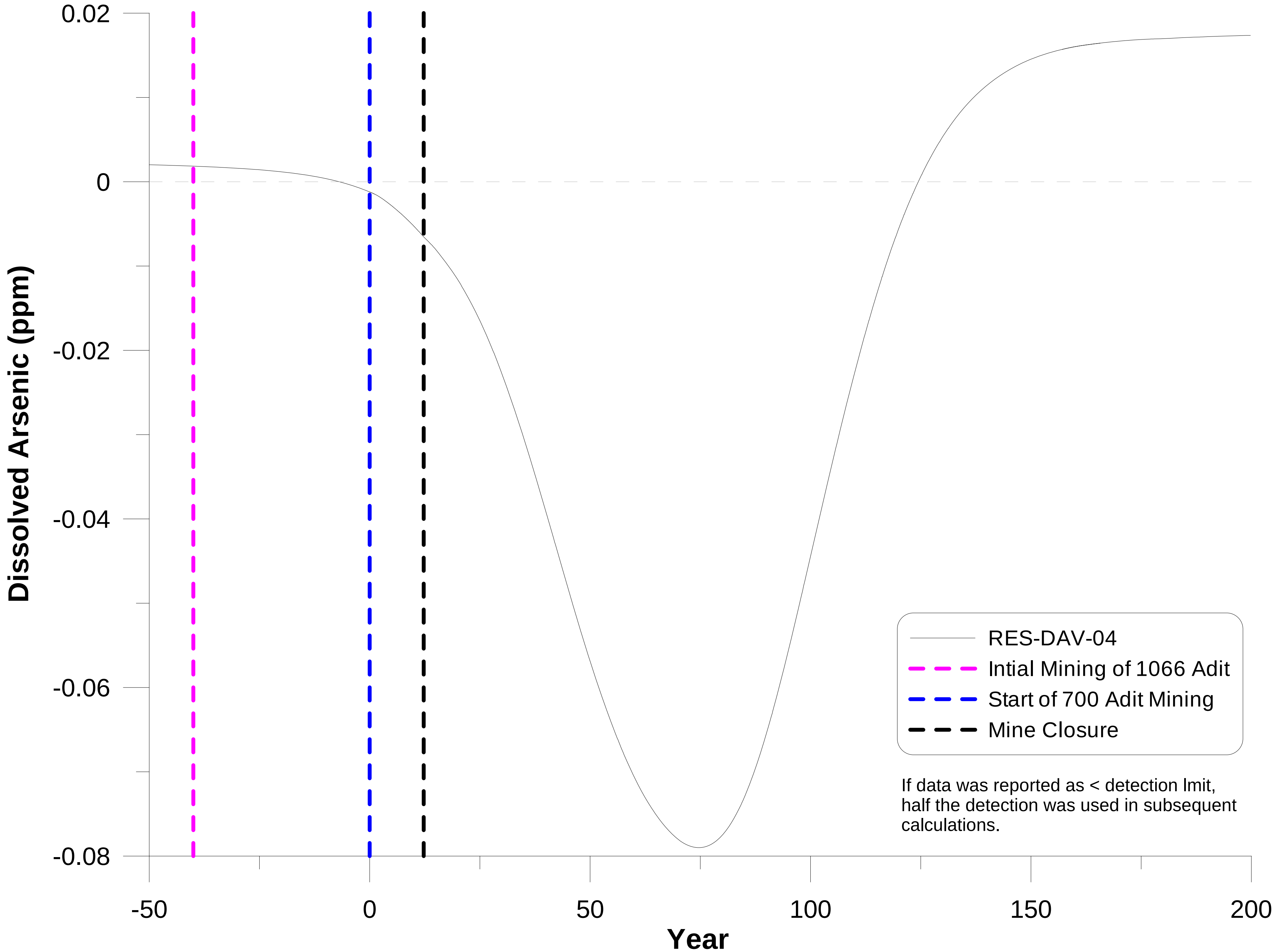


0.05
0
-0.05
-0.1
-0.15
Total Phosphate (P ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

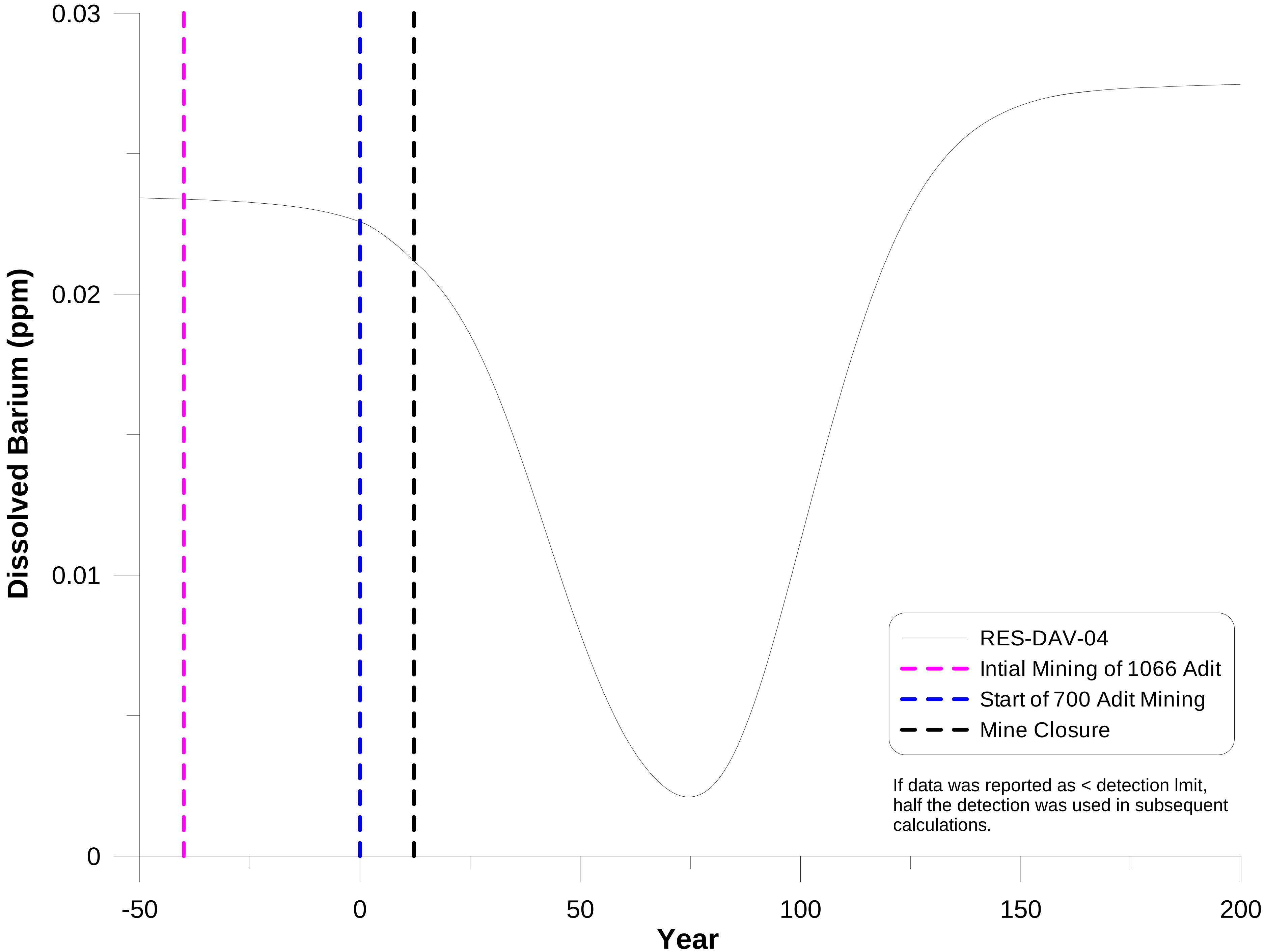

0.04
0.02
0
-0.02
-0.04
Dissolved Aluminum (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

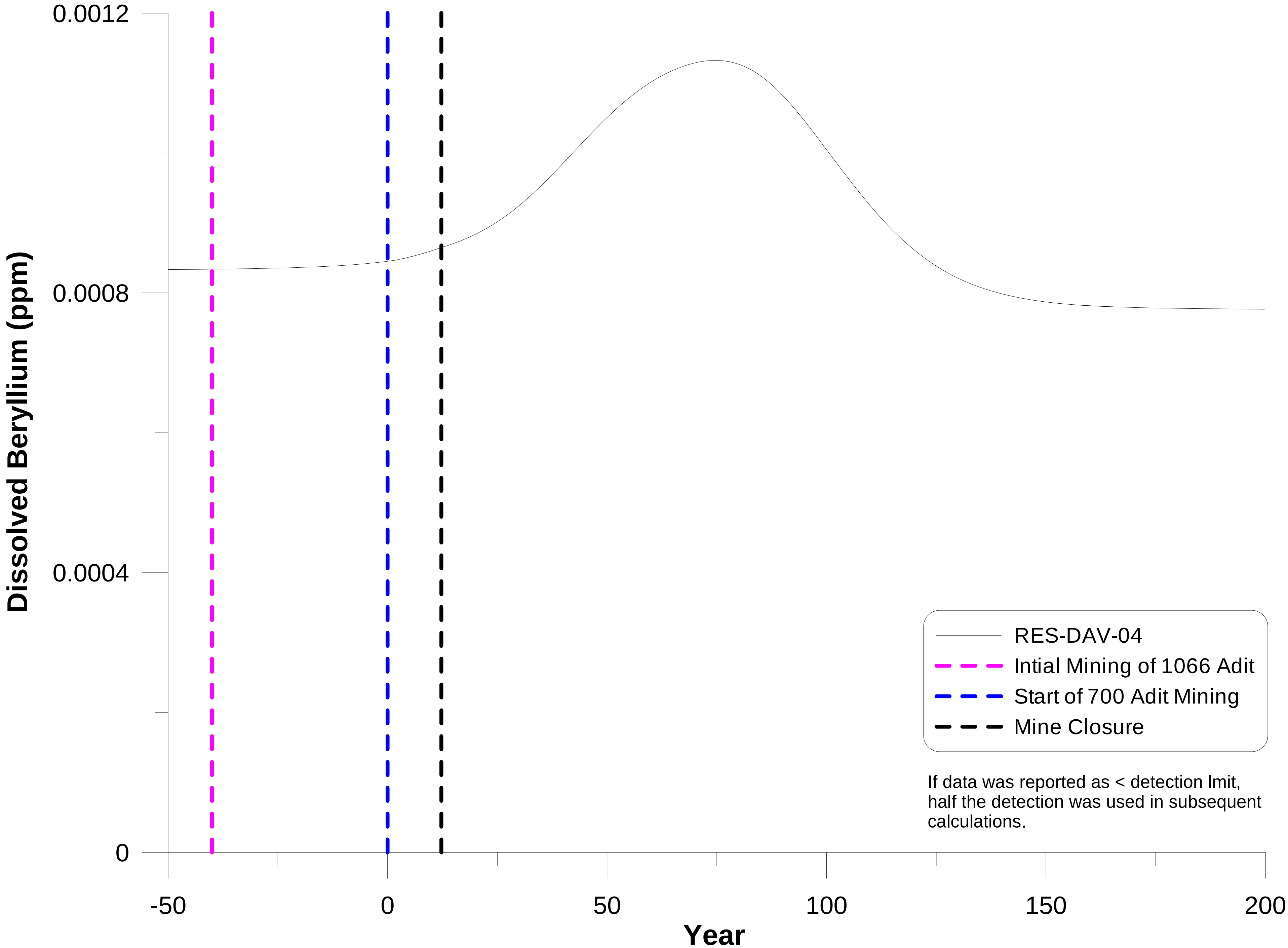


0.004
0
-0.004
-0.008
-0.012
Dissolved Antimony (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

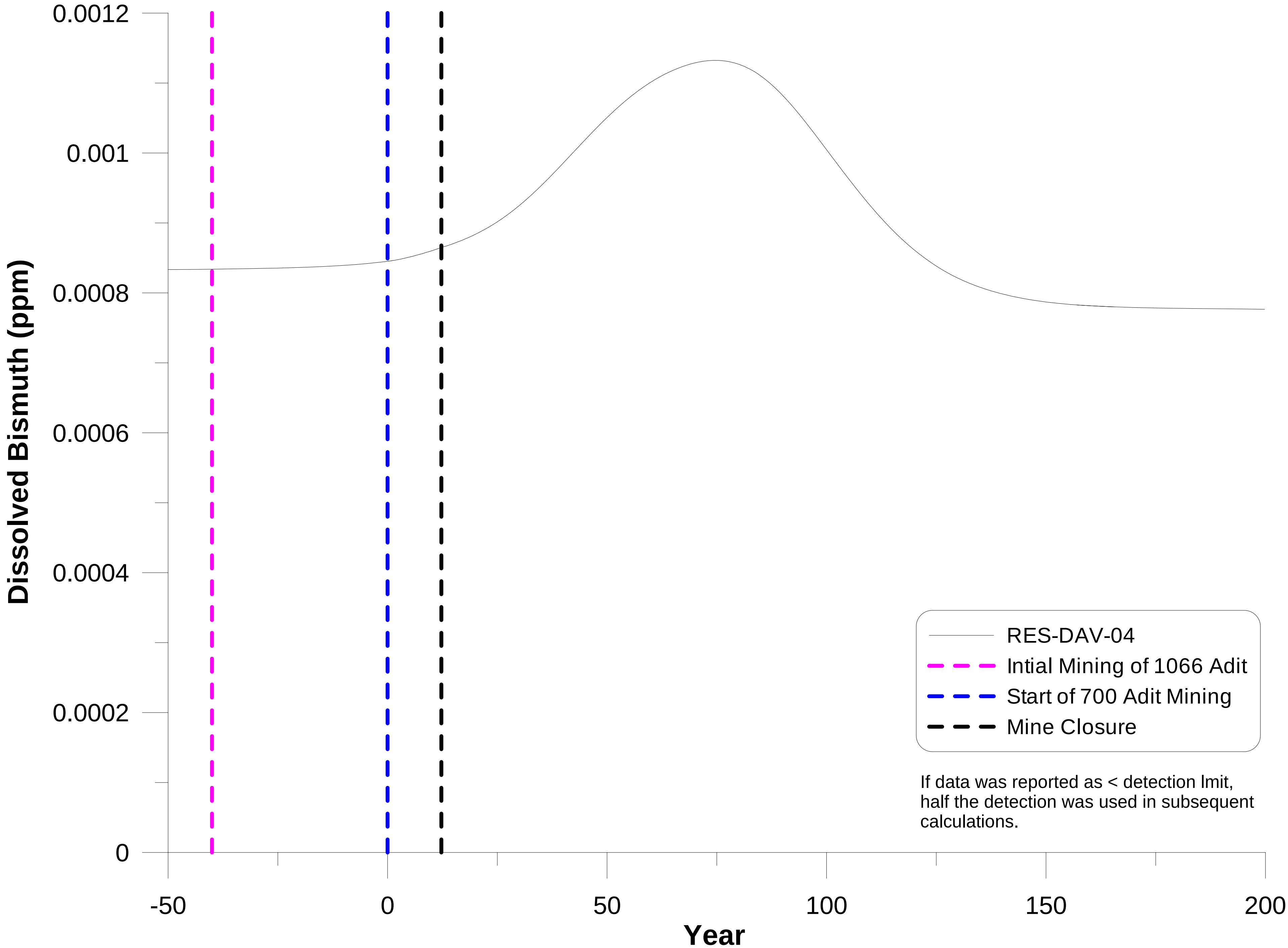


0.02
0
-0.02
-0.04
-0.06
-0.08
Dissolved Arsenic (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

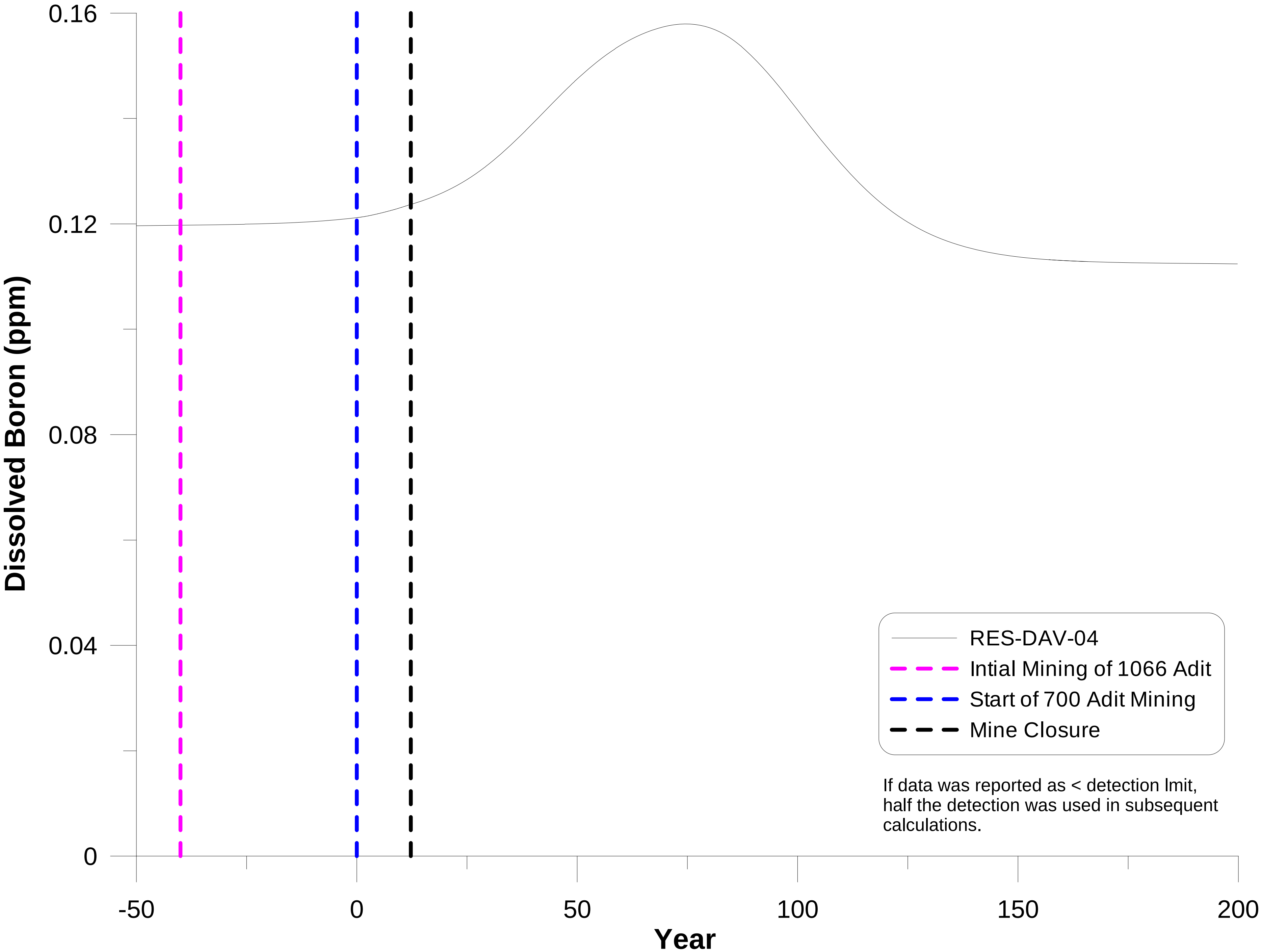

0.03
0.02
0.01
0
Dissolved Barium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

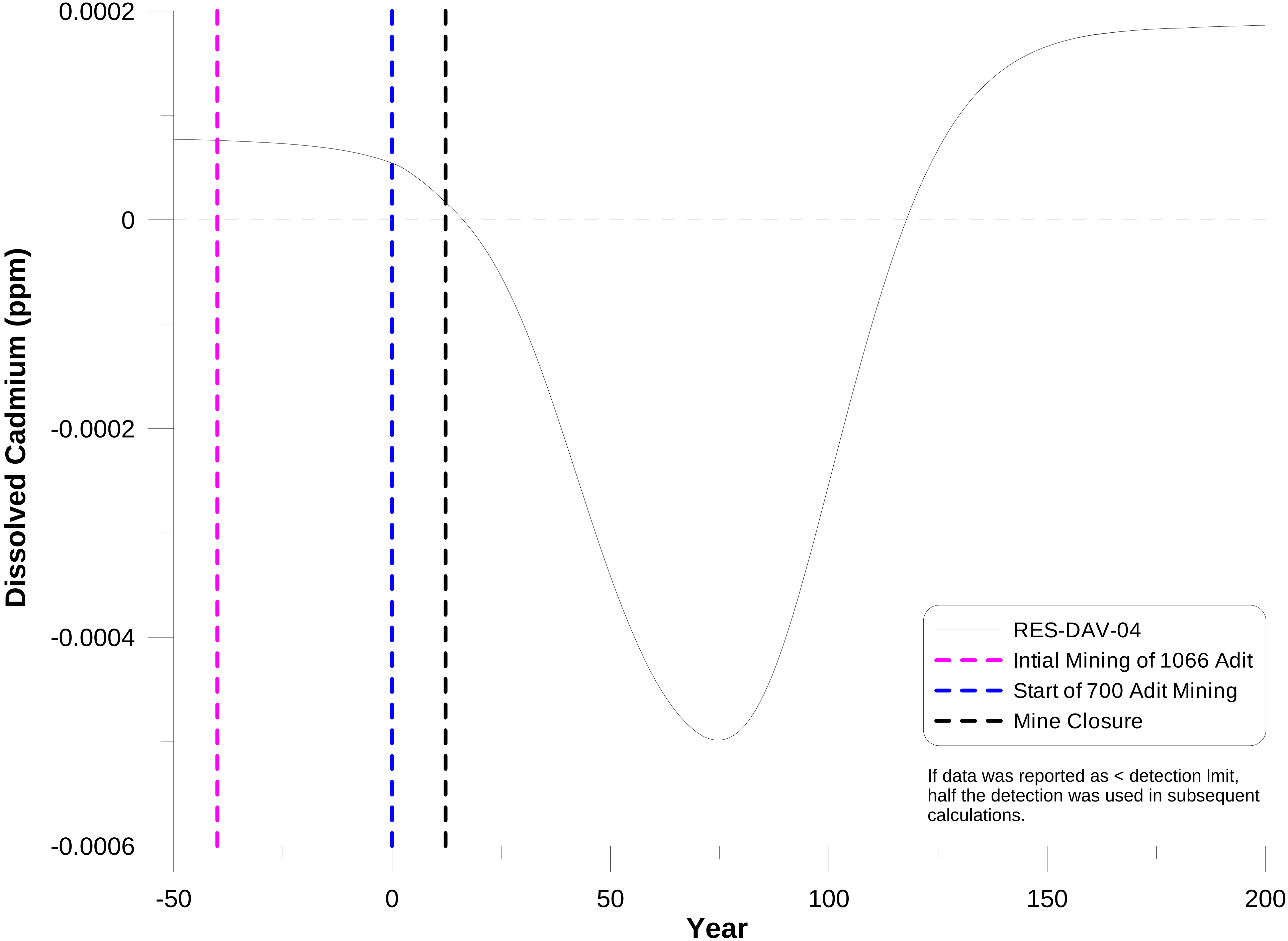


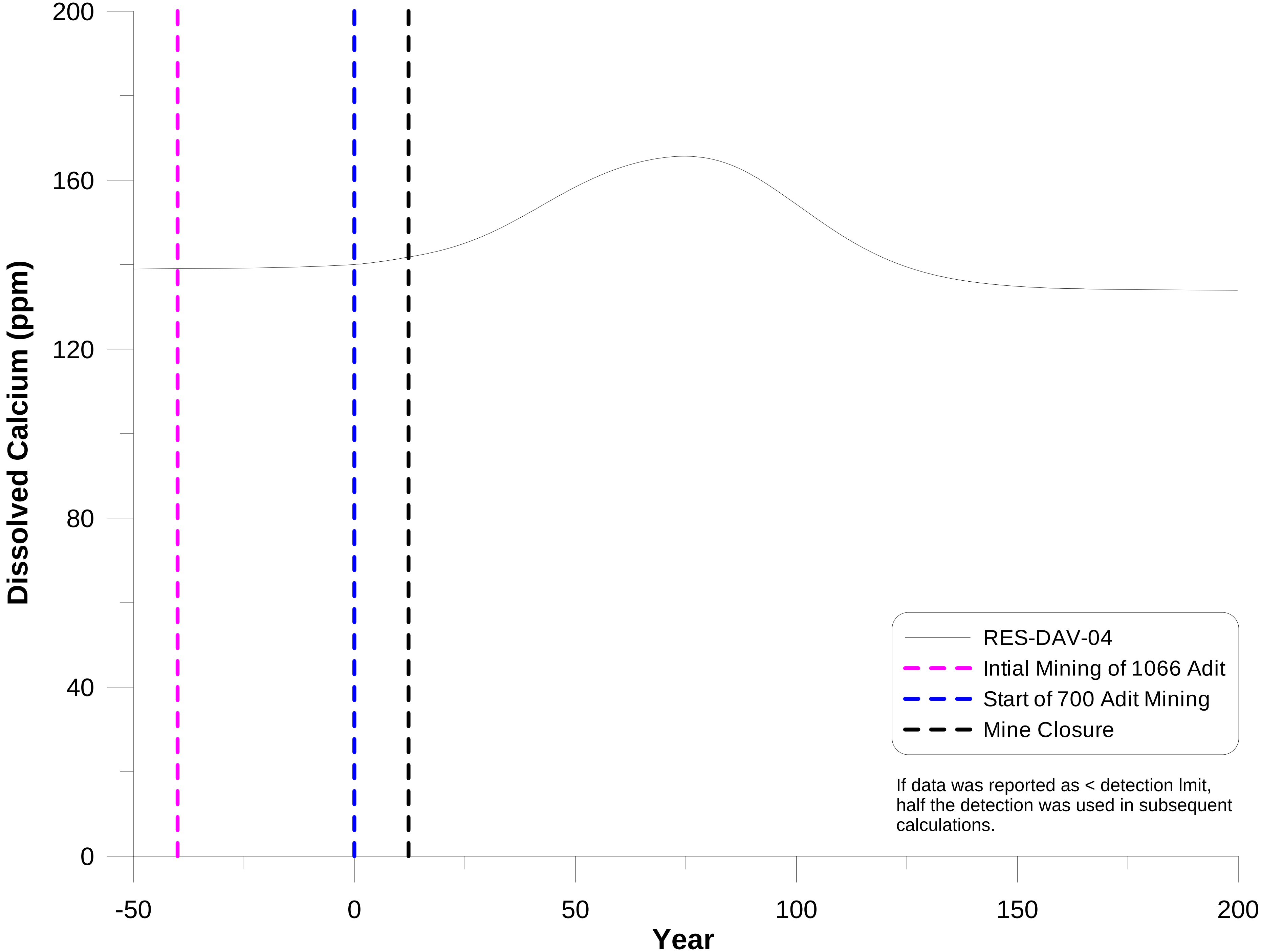
0.0012
0.0008
0.0004
0
Dissolved Beryllium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



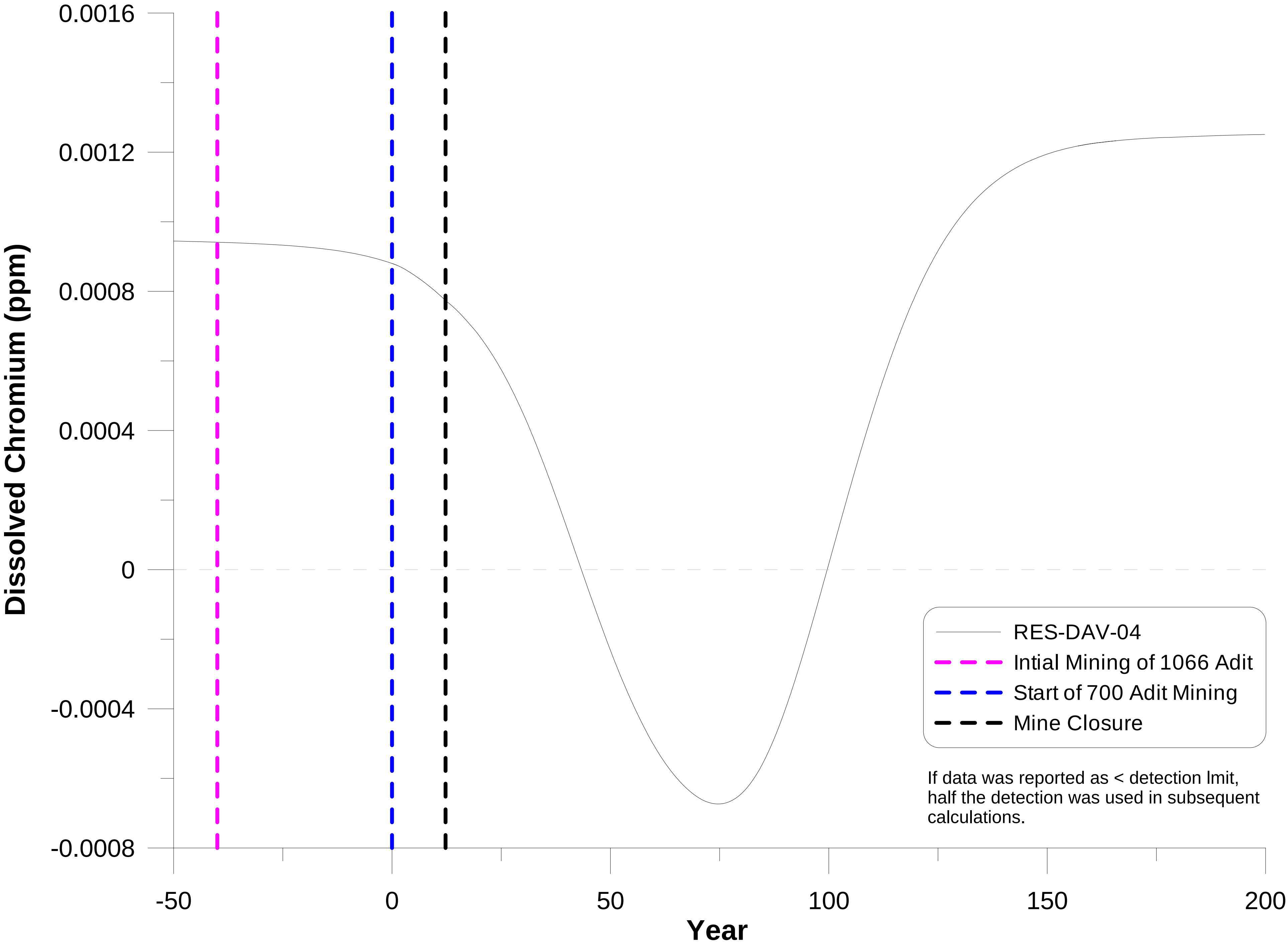
Dissolved Bismuth (ppm)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.


0.16
0.12
0.08
0.04
0
Dissolved Boron (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

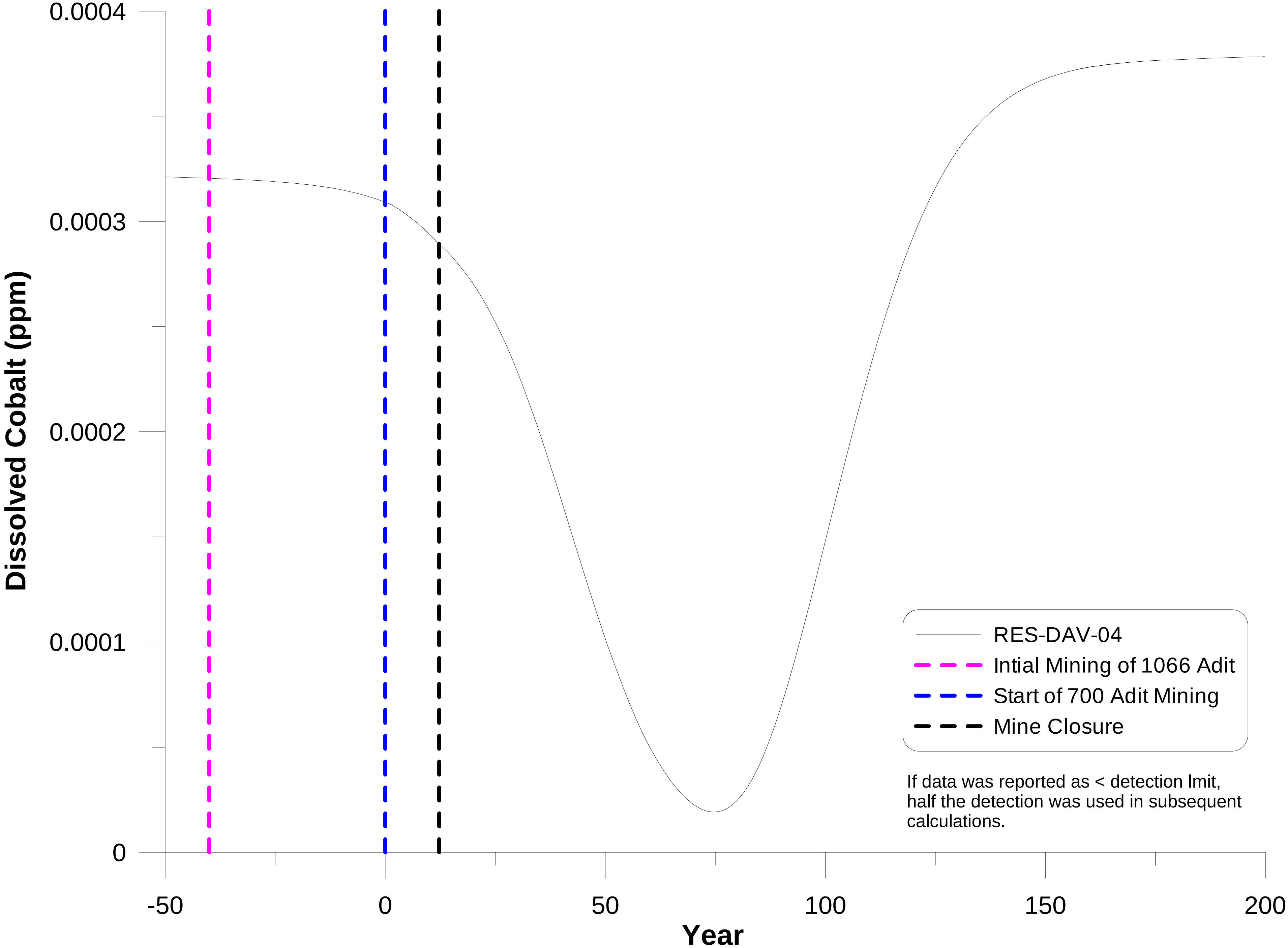

0.0002
0
-0.0002
-0.0004
-0.0006
Dissolved Cadmium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



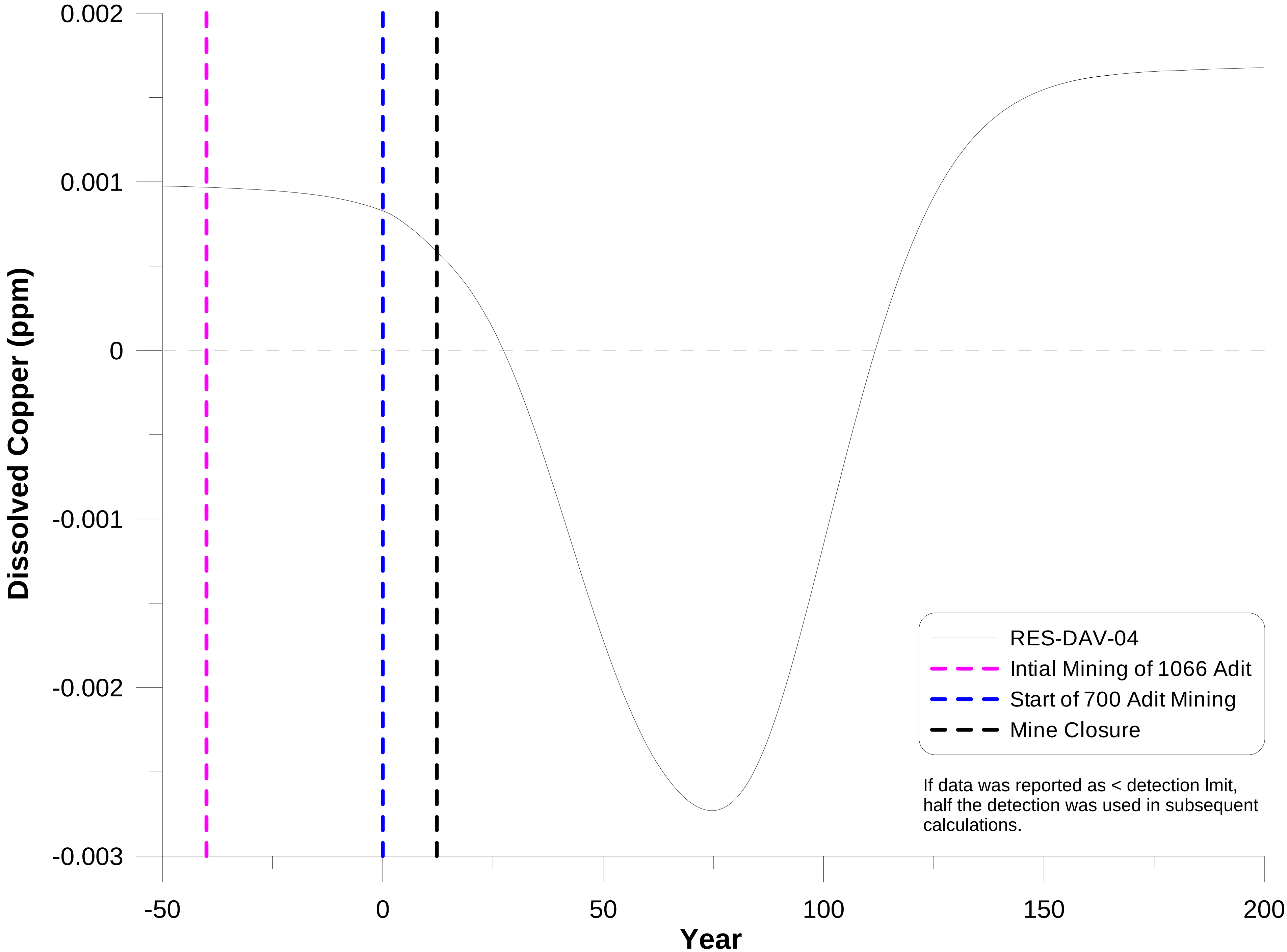
Dissolved Calcium (ppm)
200
160
120
80
40
0
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



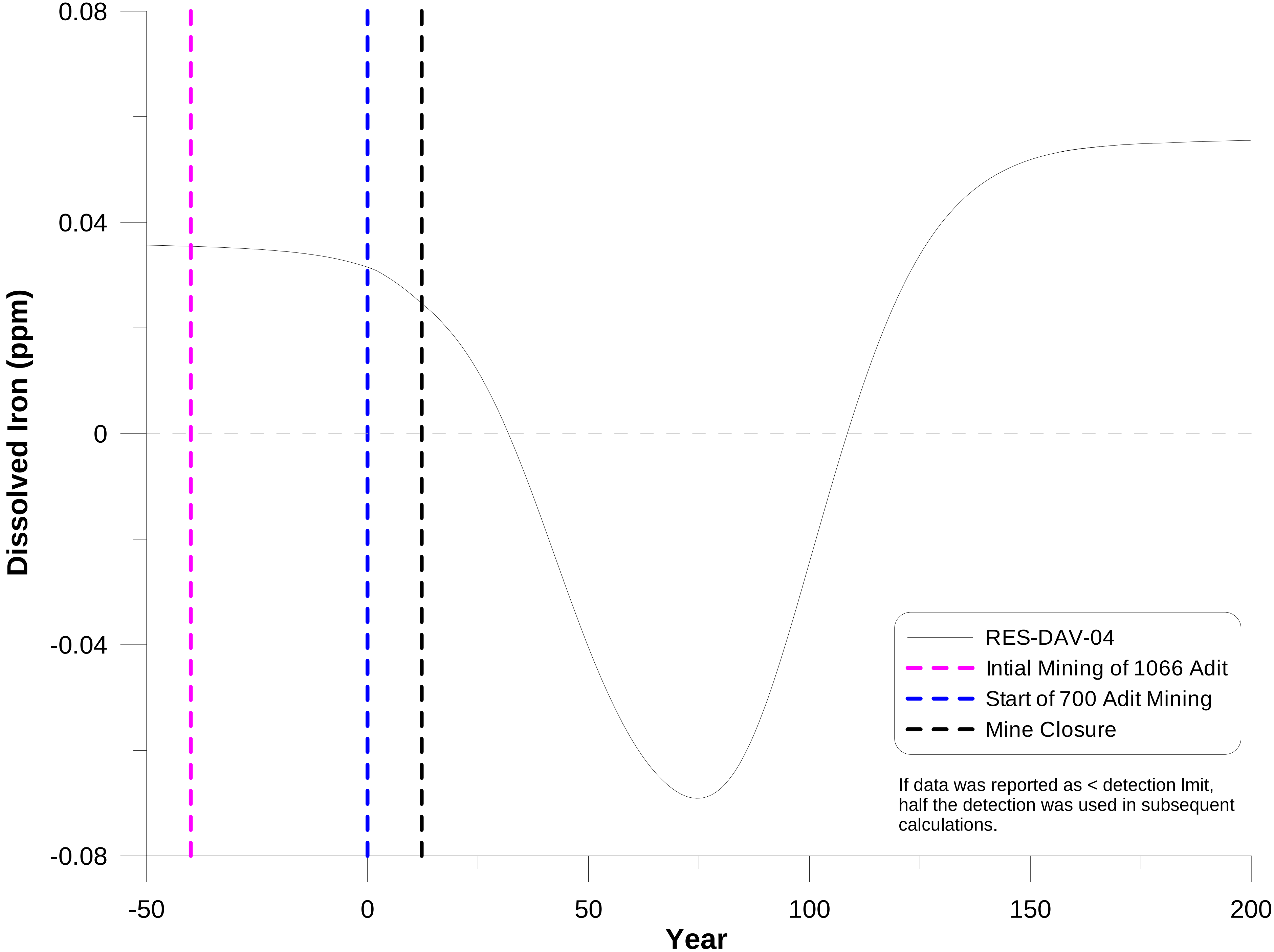
Dissolved Chromium (ppm)
0.0016
0.0012
0.0008
0.0004
0
-0.0004
-0.0008
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



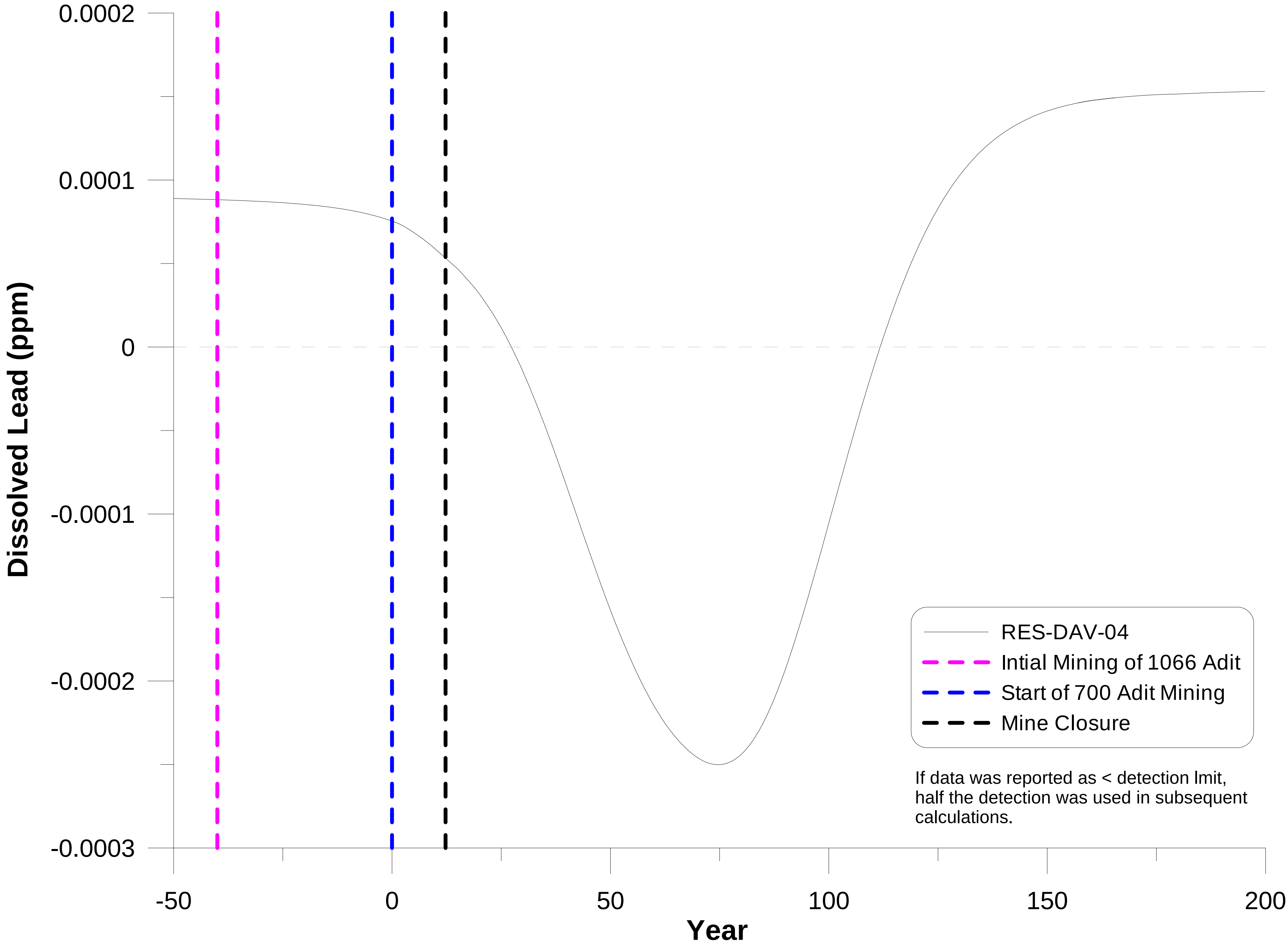
0.0004
0.0003
0.0002
0.0001
0
Dissolved Cobalt (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



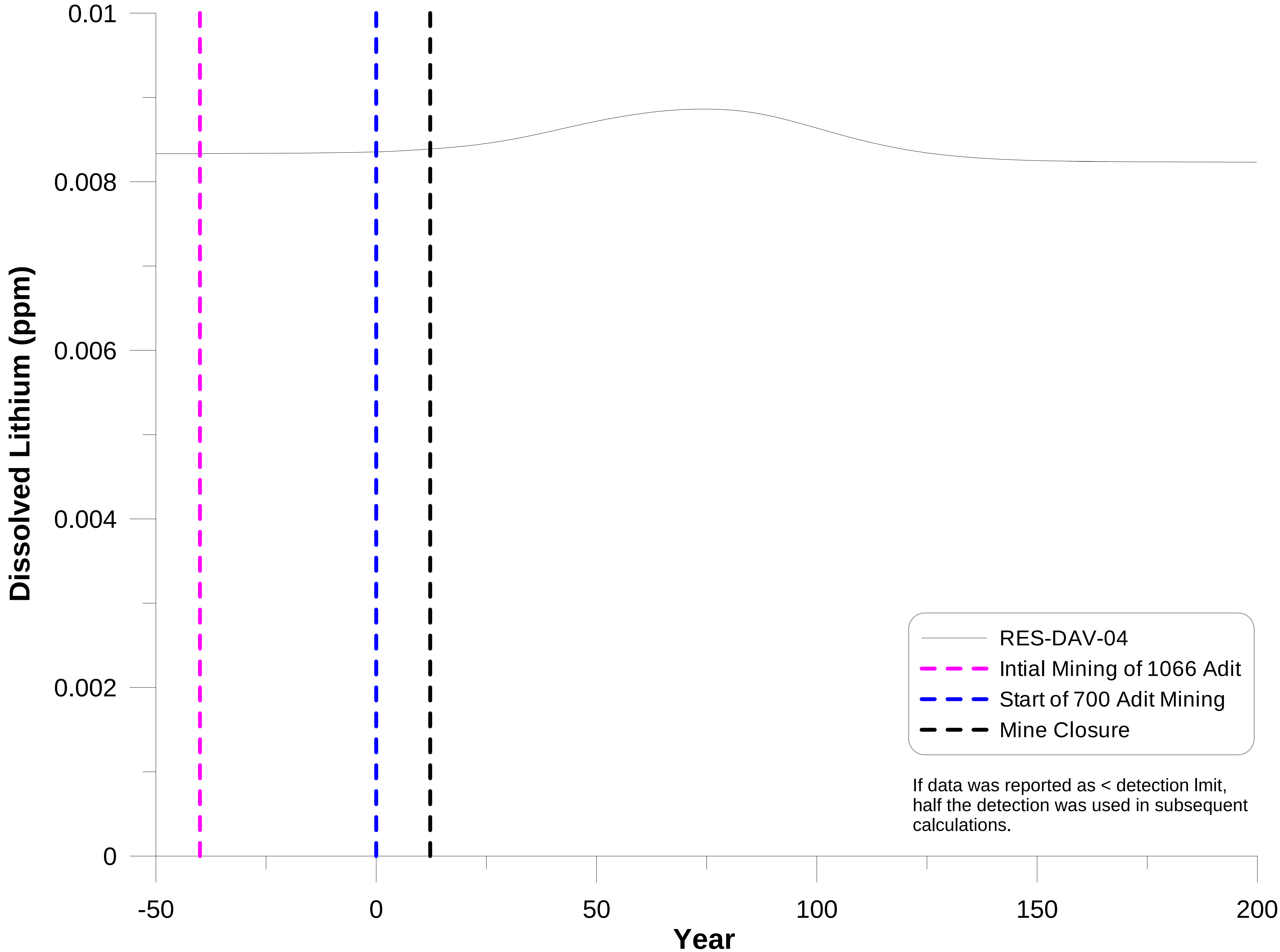
0.002
0.001
0
-0.001
-0.002
-0.003
Dissolved Copper (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



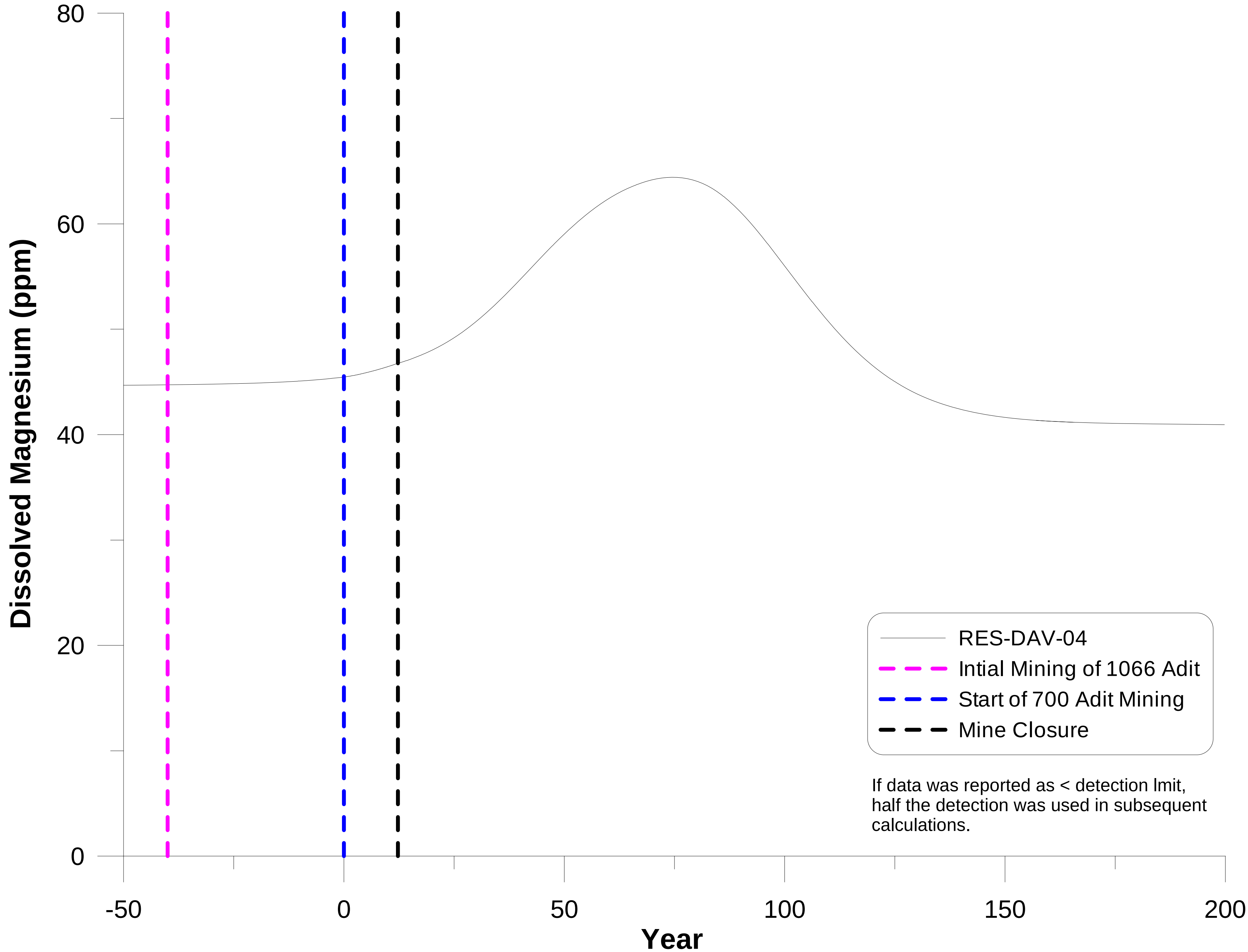
0.08
0.04
0
-0.04
-0.08
Dissolved Iron (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



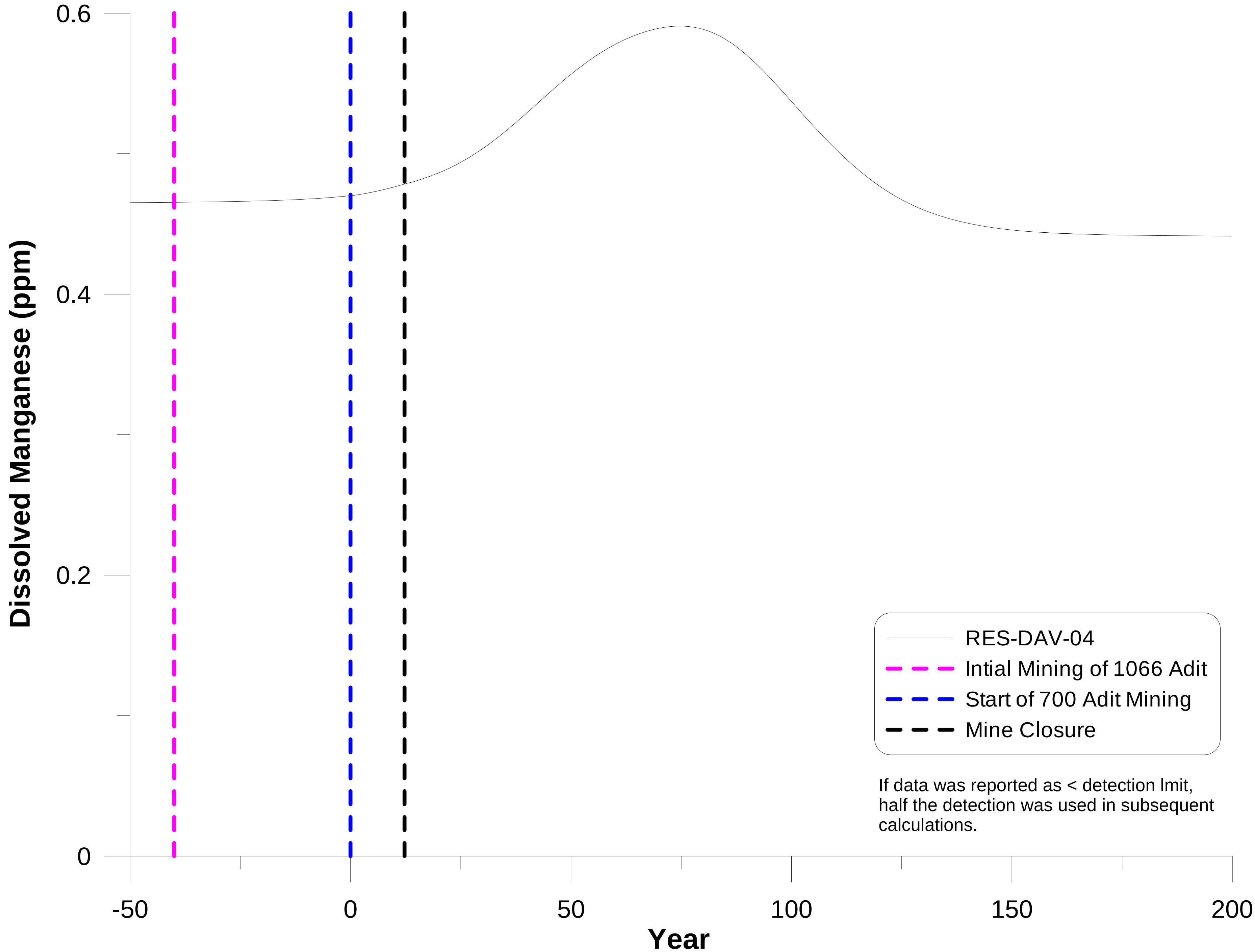
0.0002
0.0001
0
-0.0001
-0.0002
-0.0003
Dissolved Lead (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

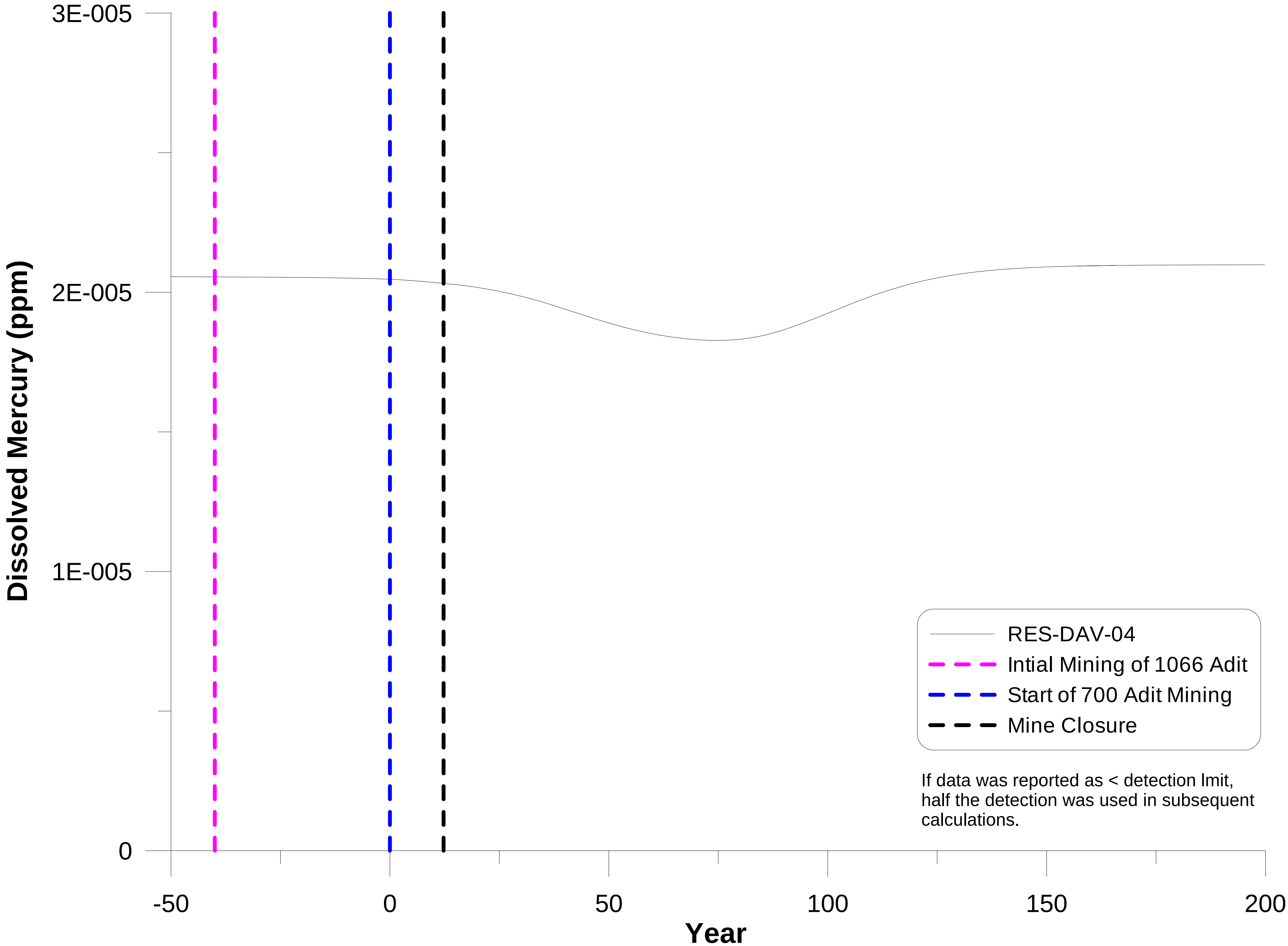


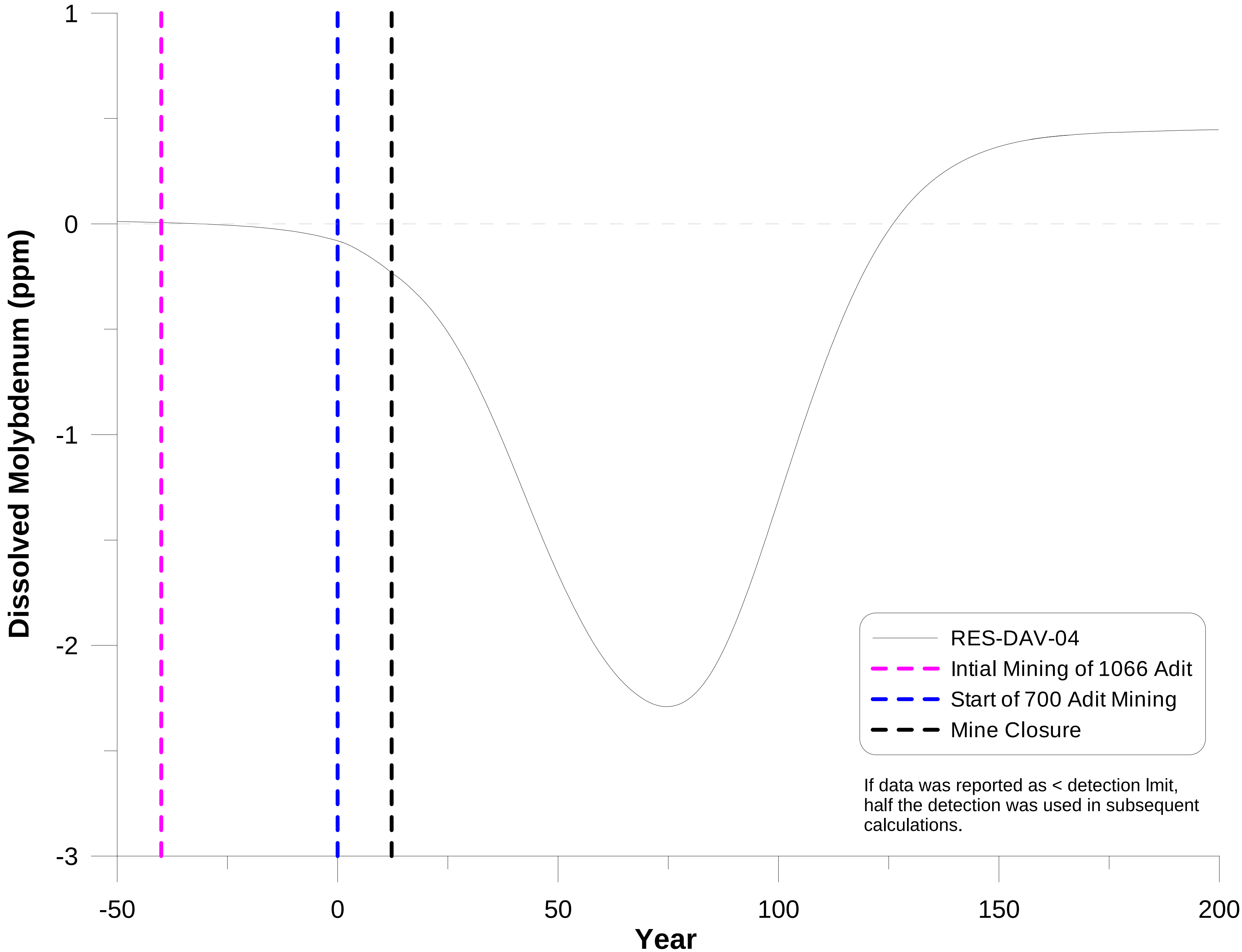
0.01
0.008
0.006
0.004
0.002
0
Dissolved Lithium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



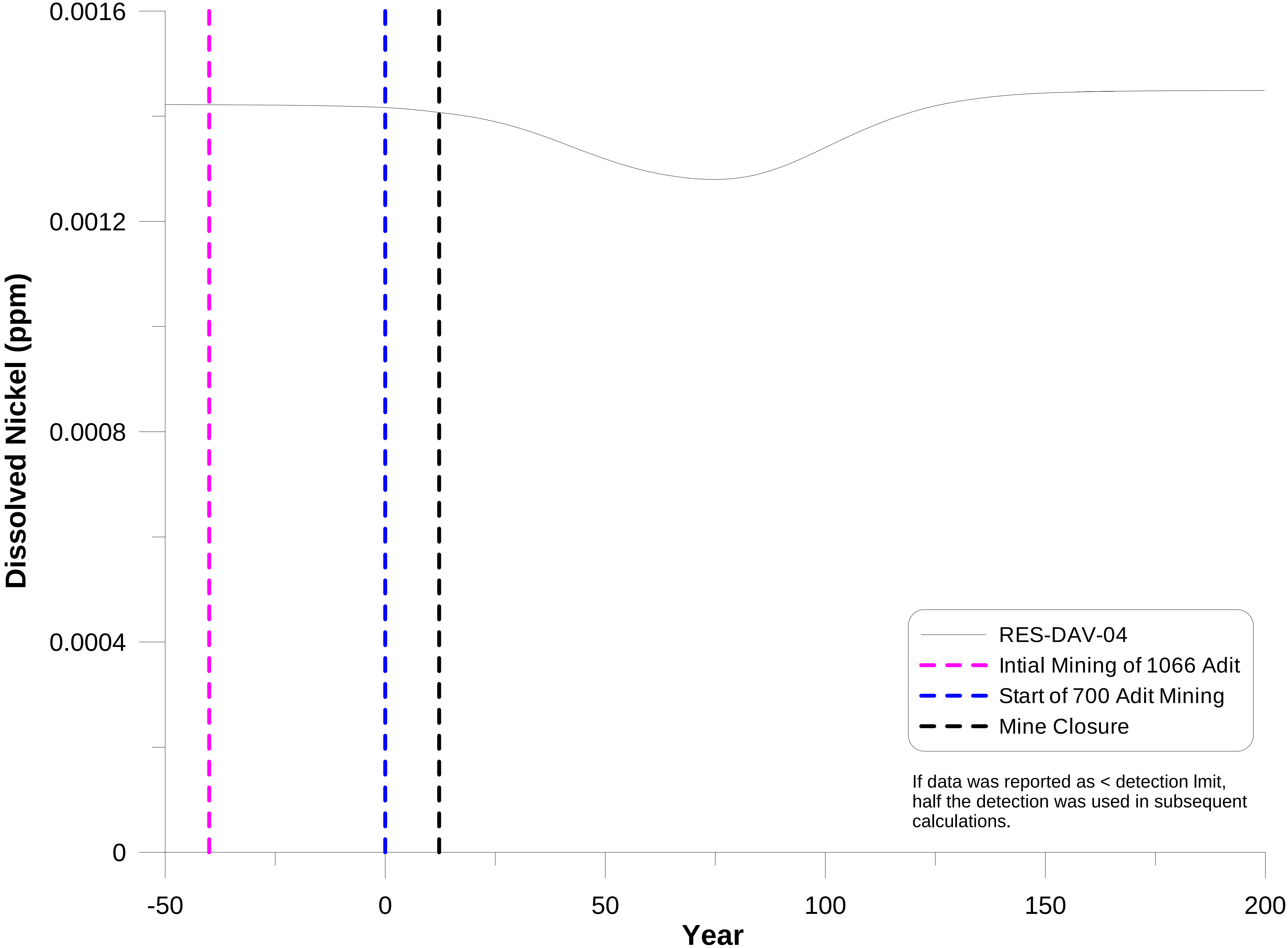
Dissolved Magnesium (ppm)
80
60
40
20
0
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

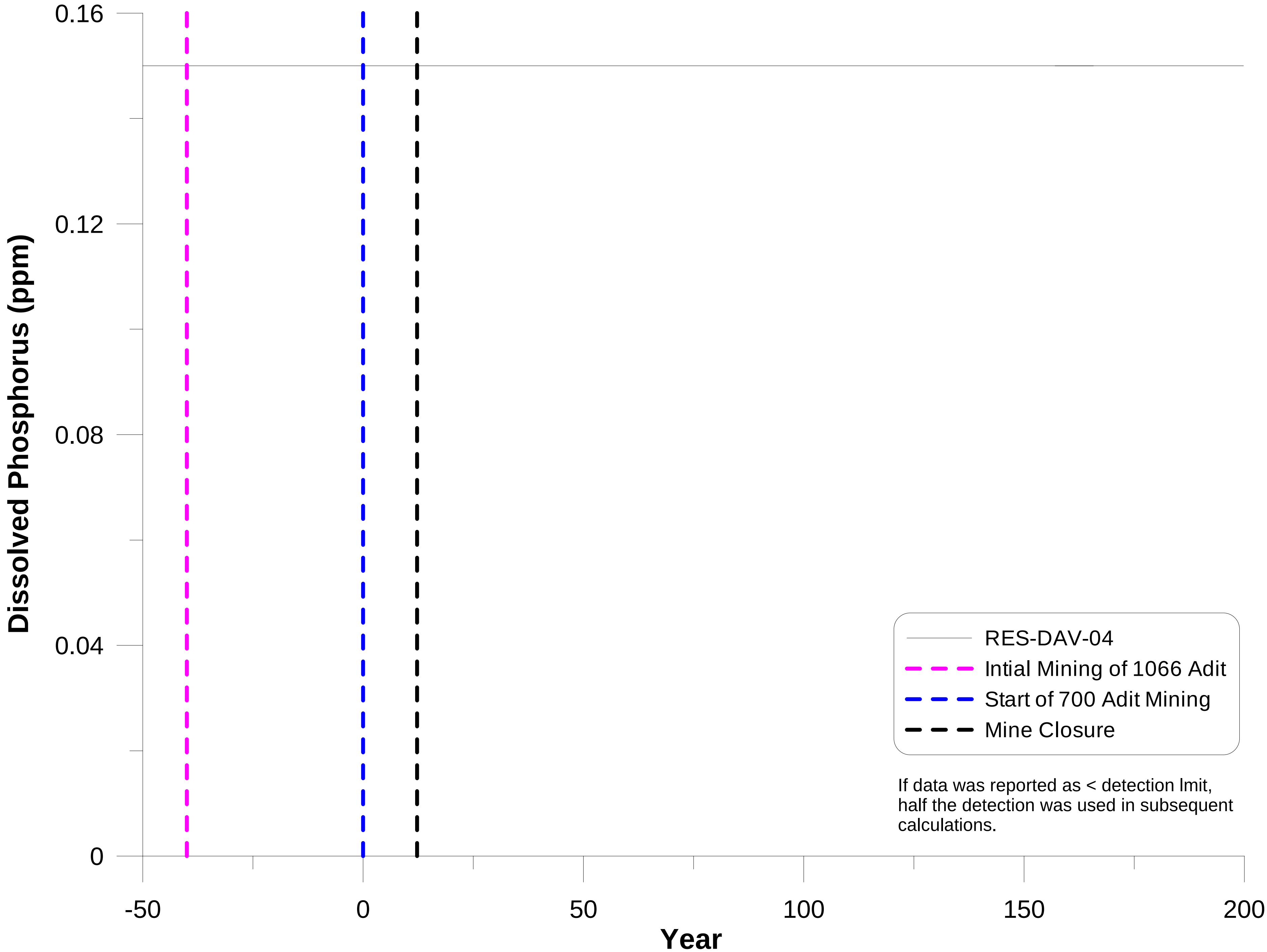

0.6
0.4
0.2
0
Dissolved Manganese (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

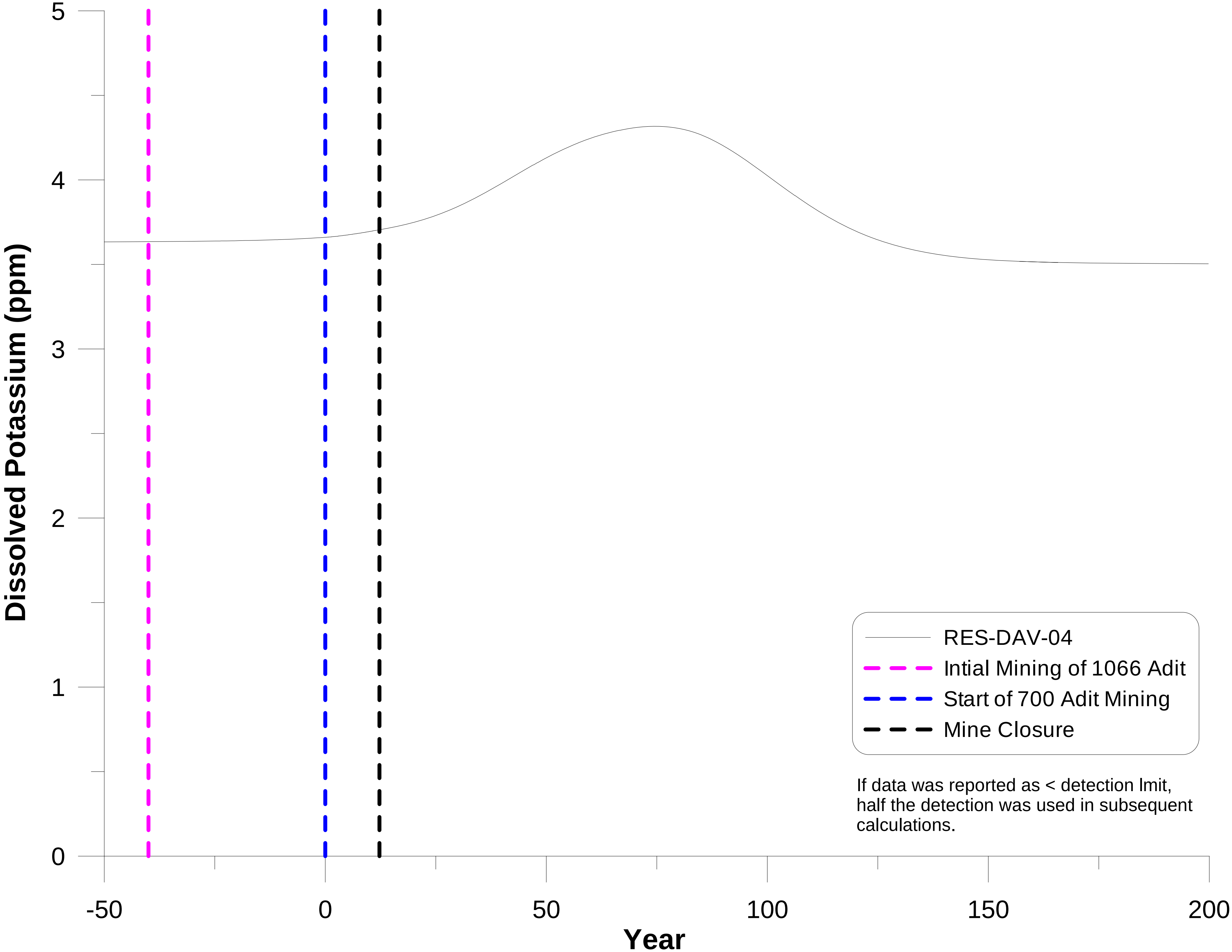

3E-005
2E-005
1E-005
0
Dissolved Mercury (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



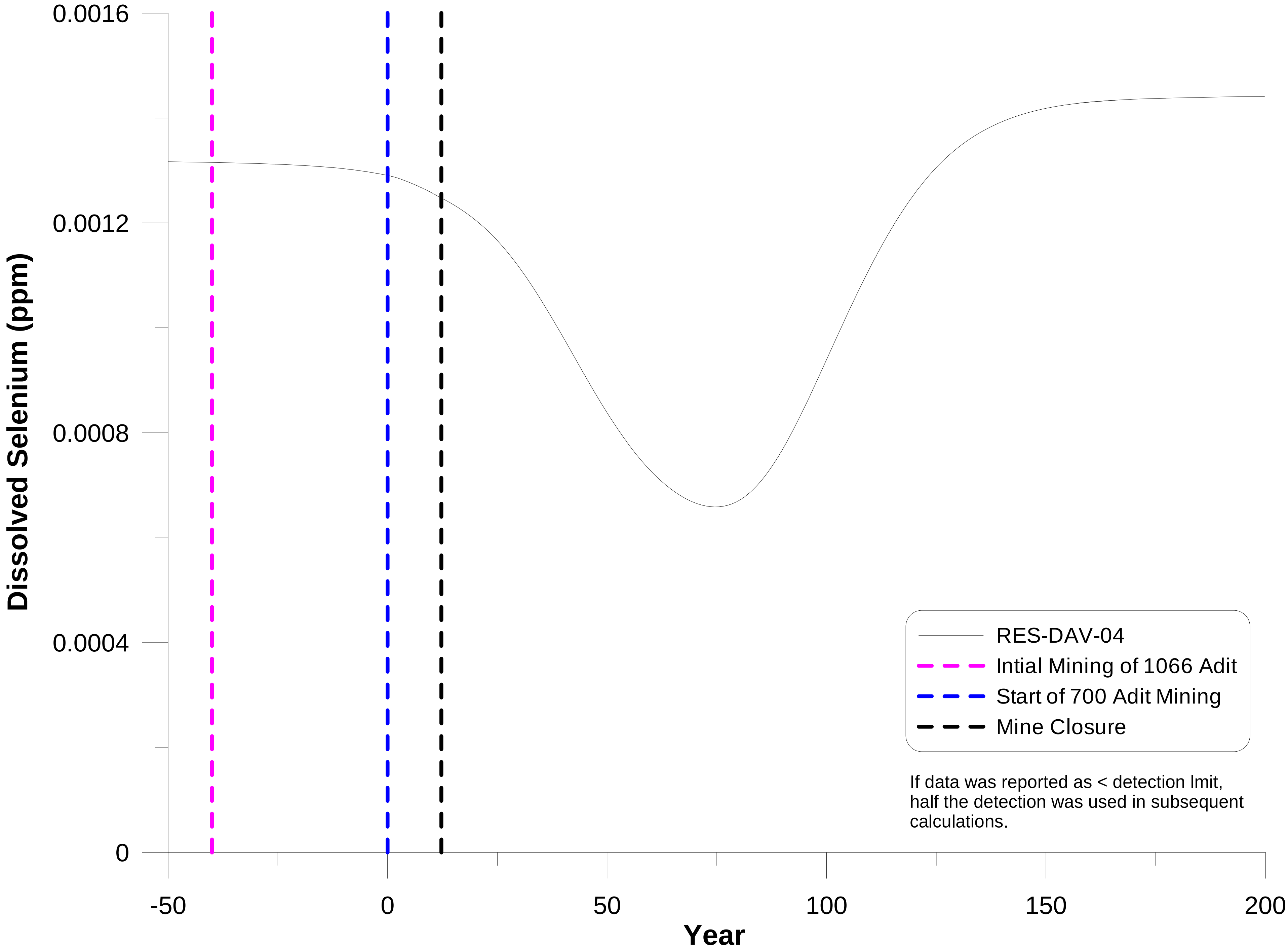
Dissolved Molybdenum (ppm)
1
0
-1
-2
-3
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

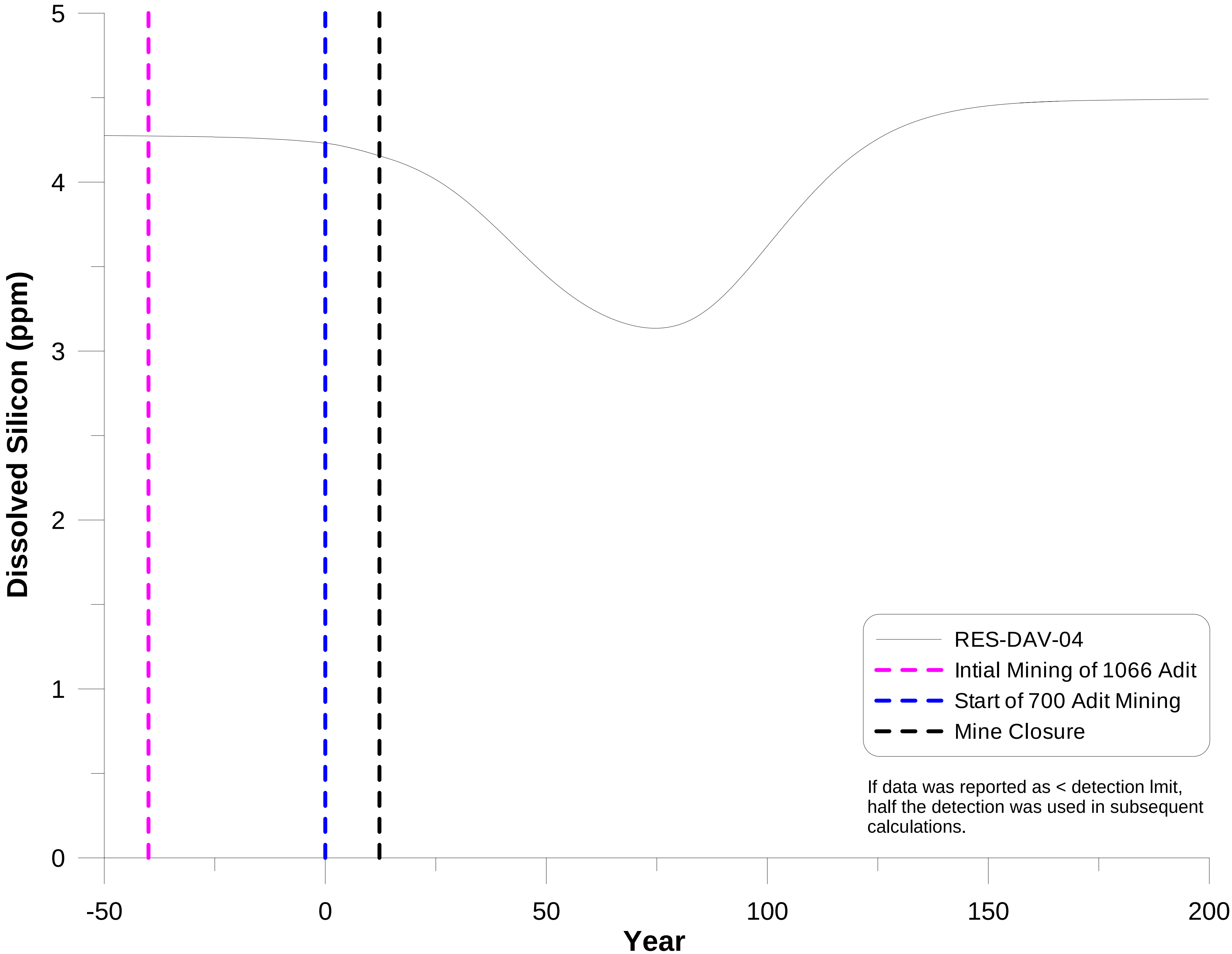

0.0016
0.0012
0.0008
0.0004
0
Dissolved Nickel (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.


Dissolved Phosphorus (ppm)
0.16
0.12
0.08
0.04
0
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

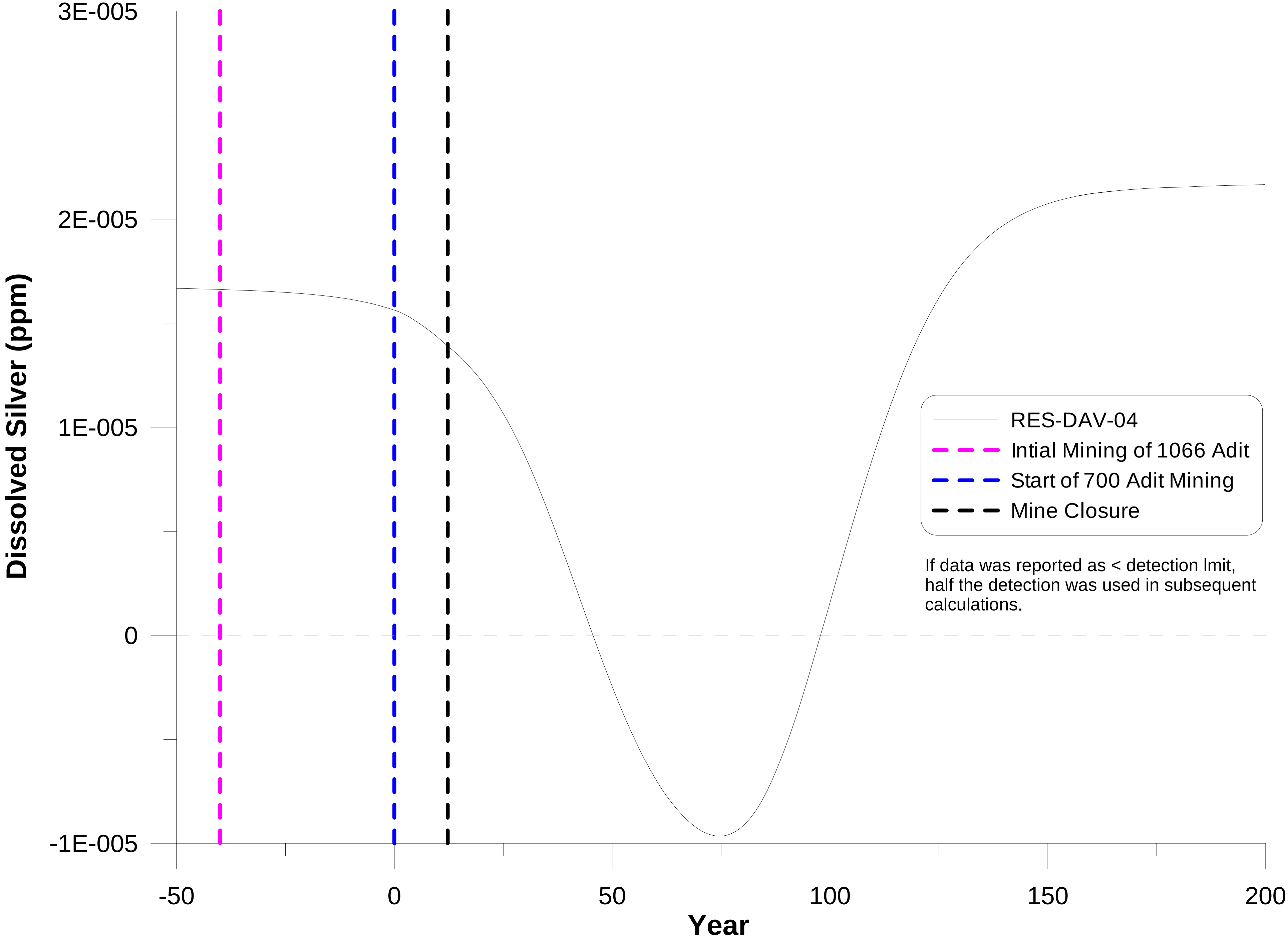


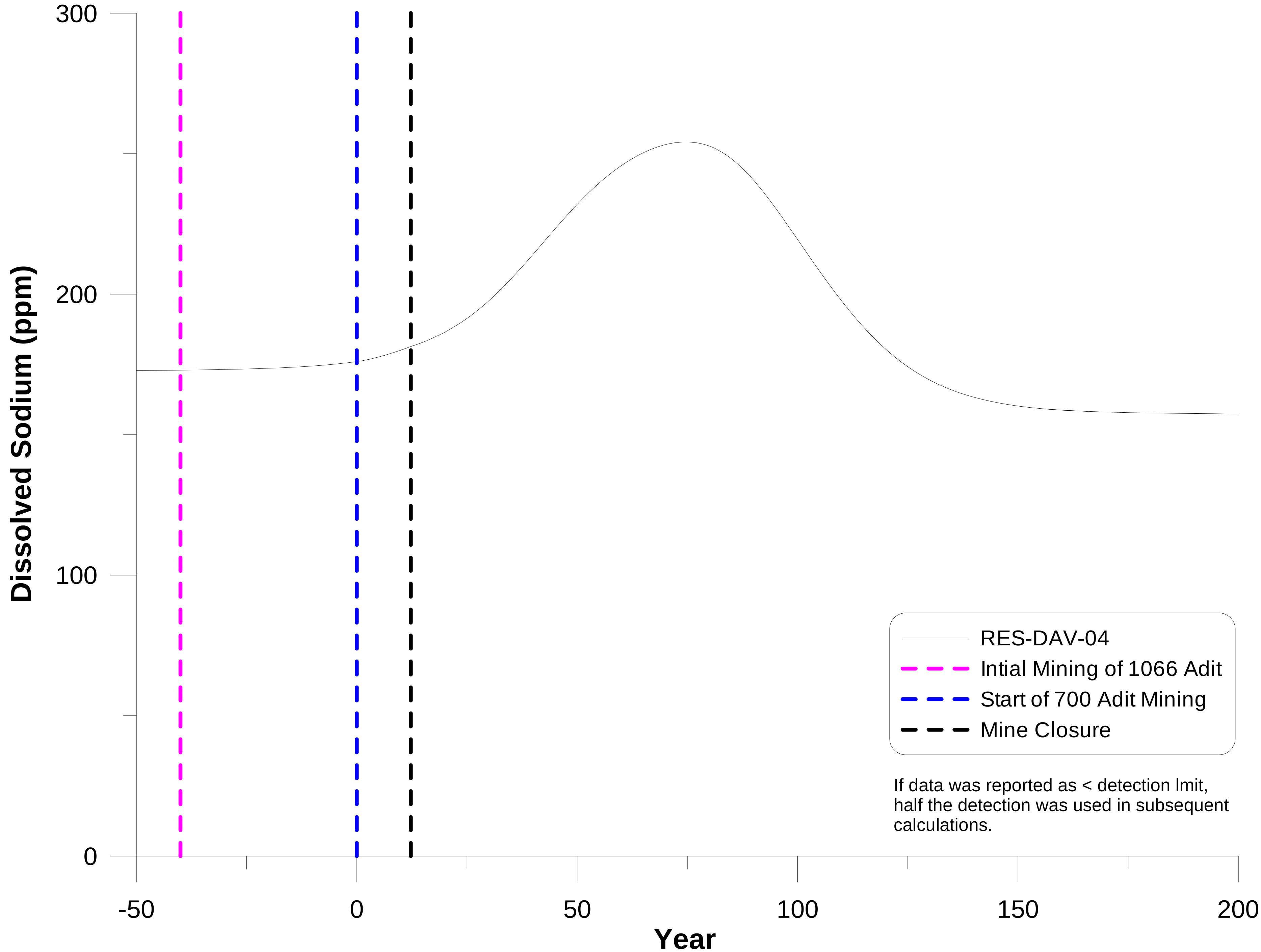
5
4
3
2
1
0
Dissolved Potassium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.


0.0016
0.0012
0.0008
0.0004
0
Dissolved Selenium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

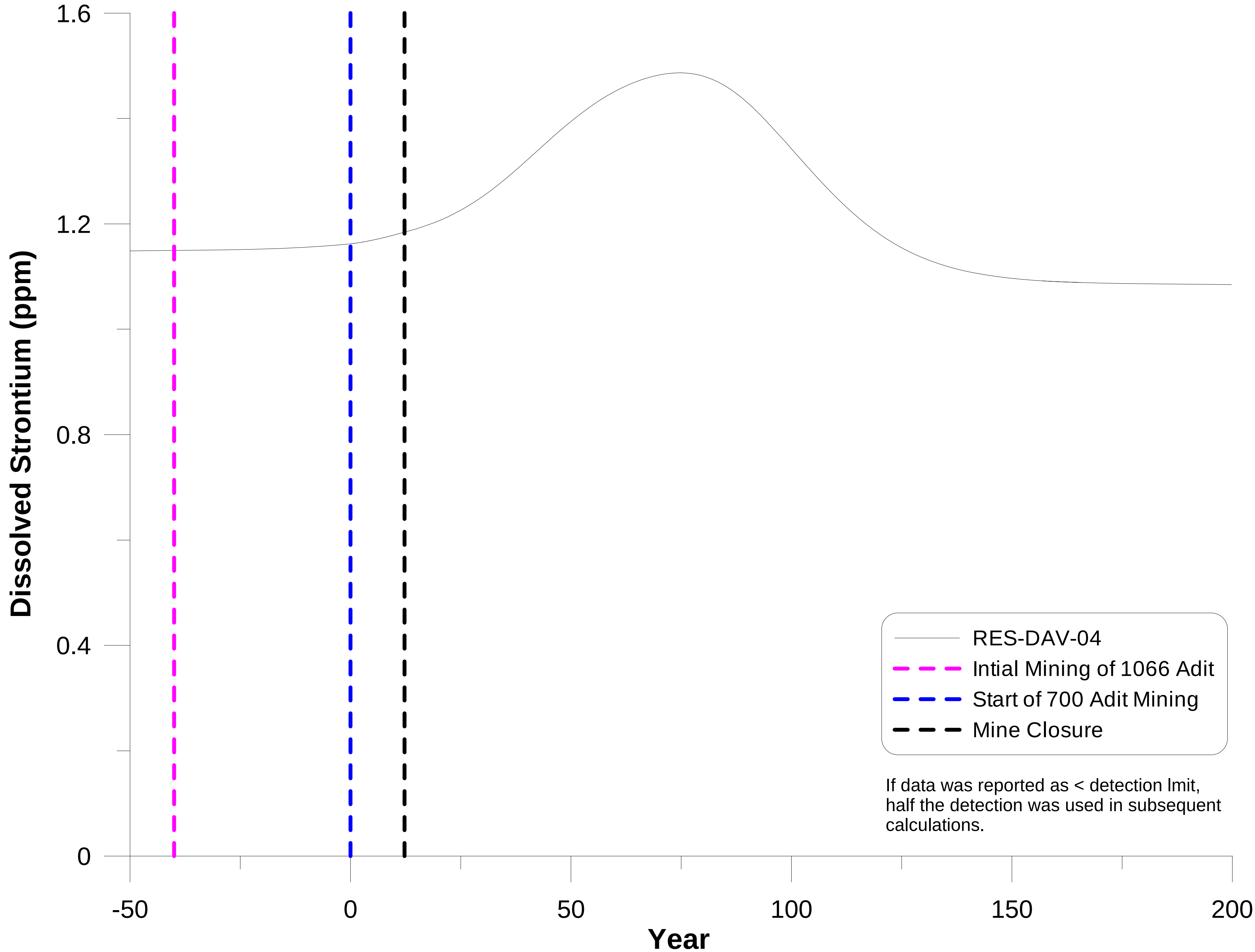


Dissolved Silicon (ppm)
5
4
3
2
1
0
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

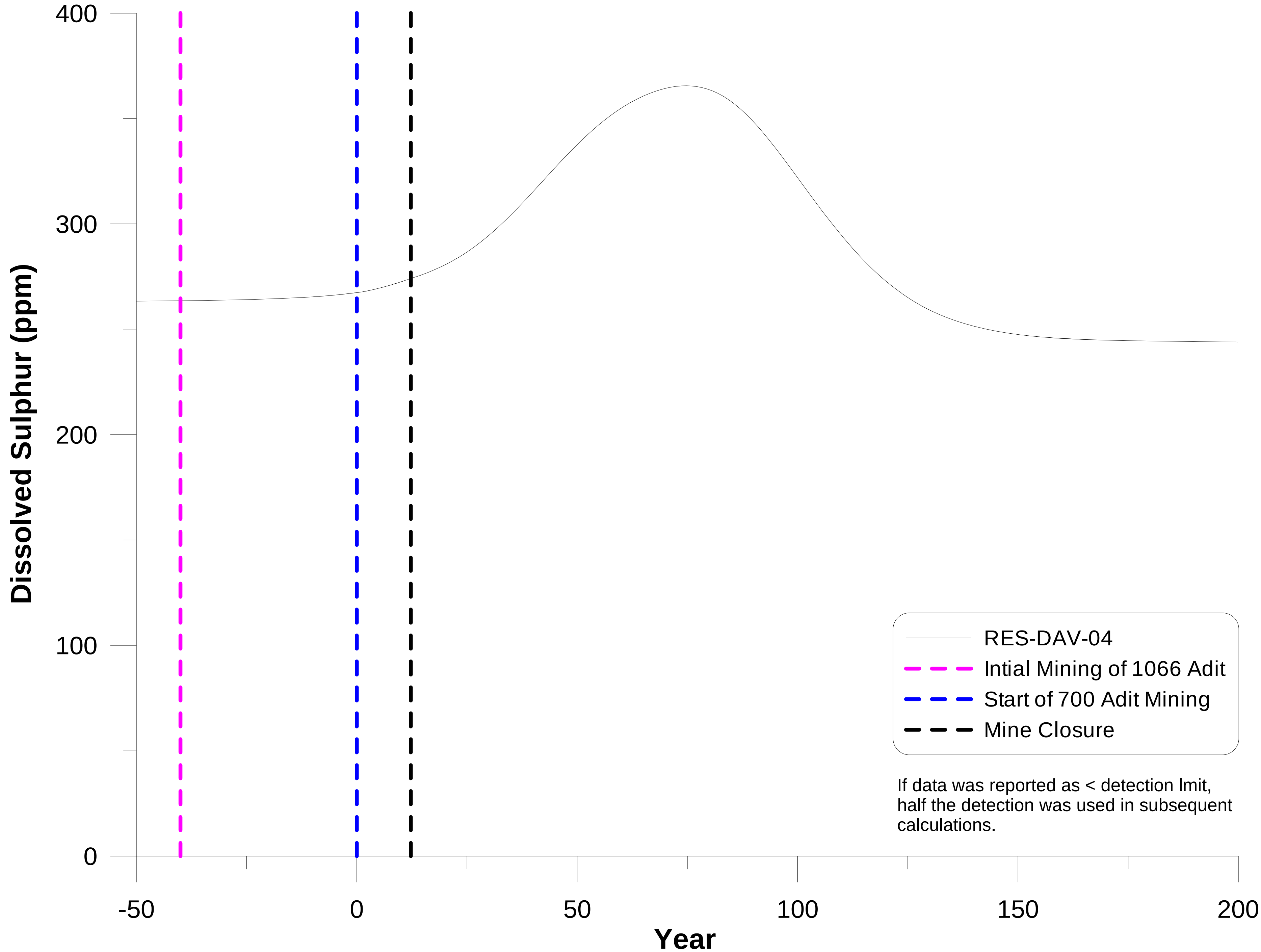

3E-005
2E-005
1E-005
0
-1E-005
Dissolved Silver (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

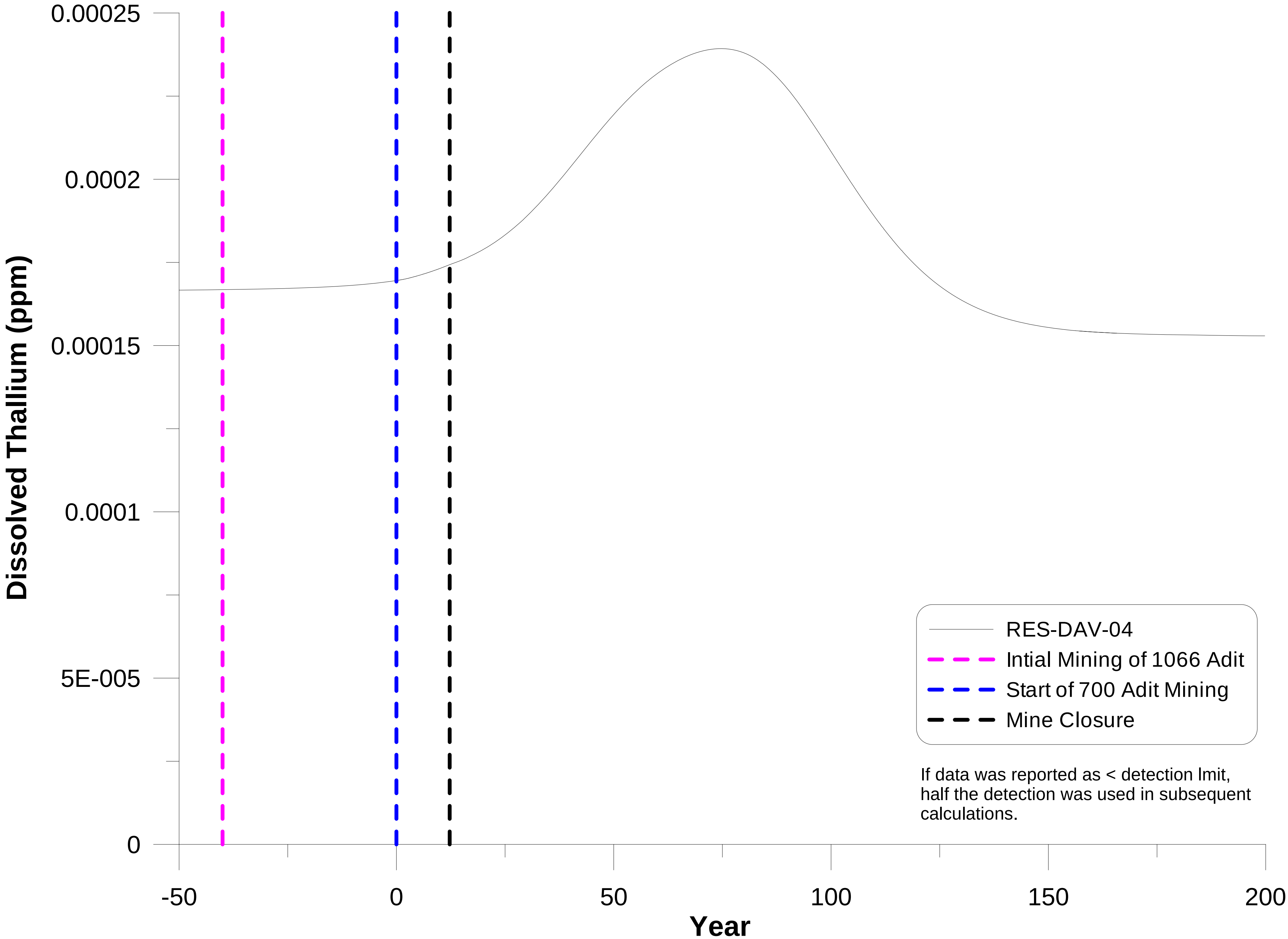


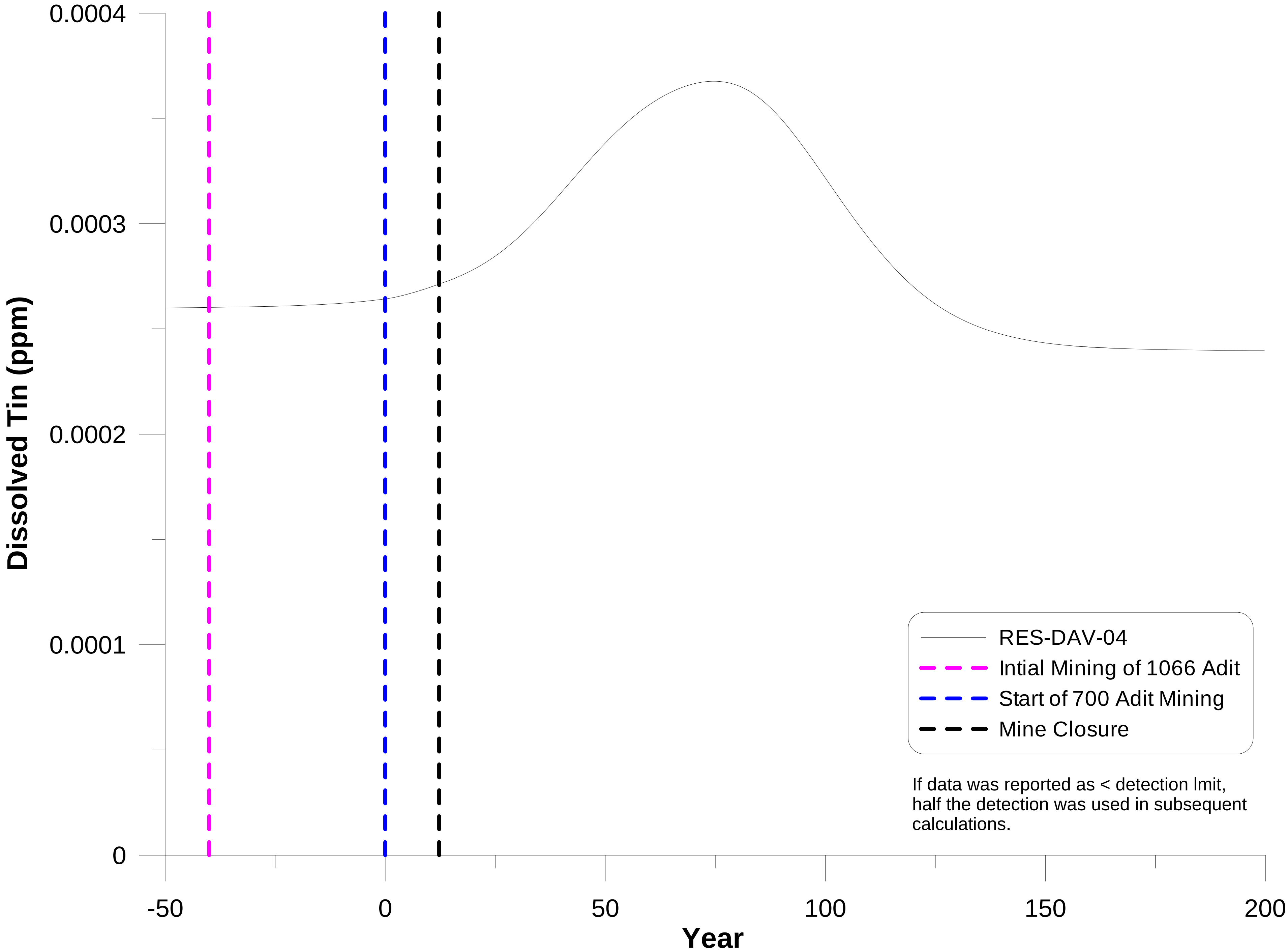
300
200
100
0
Dissolved Sodium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



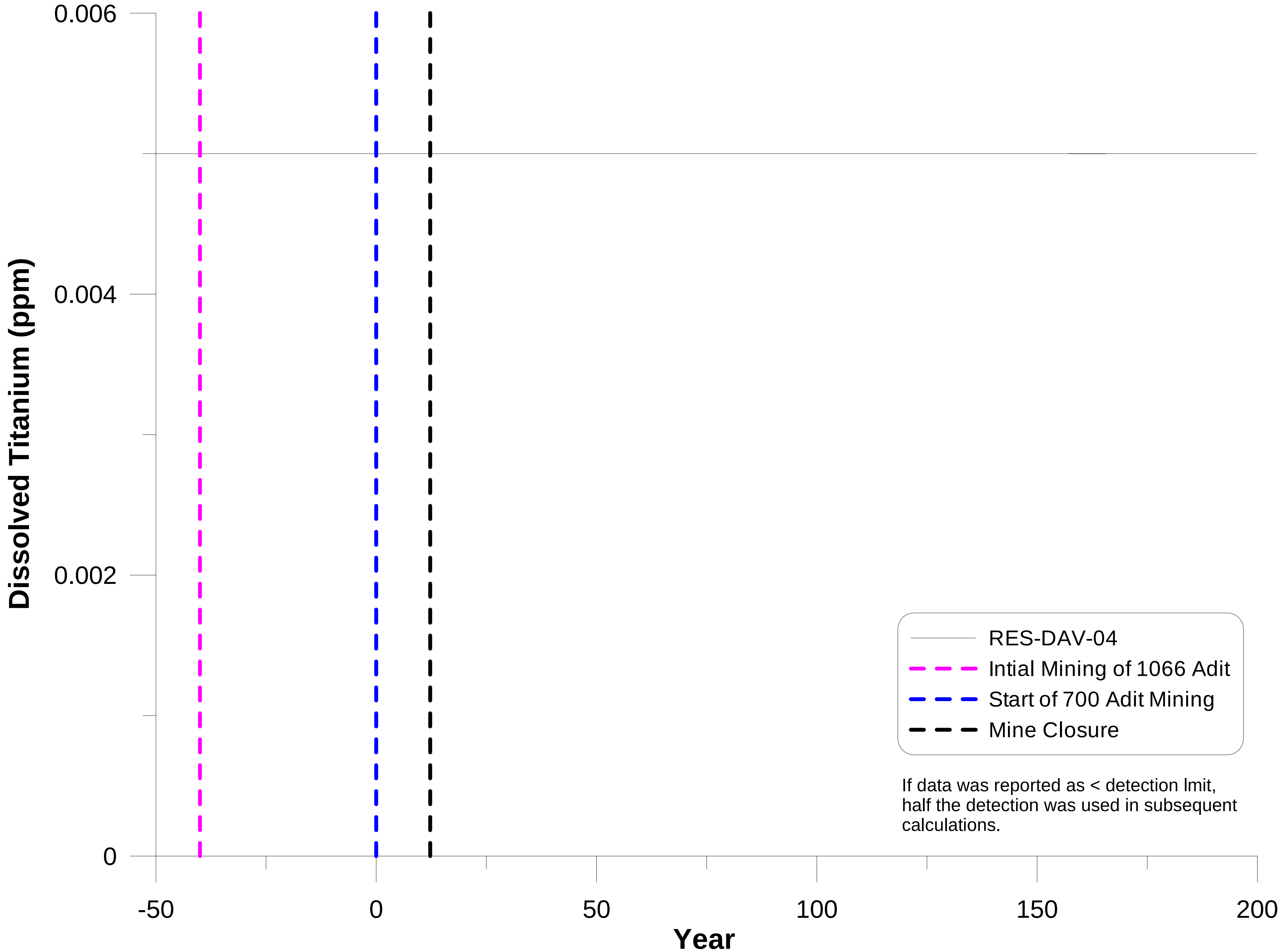
1.6
1.2
0.8
0.4
0
Dissolved Strontium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.


400
300
200
100
0
Dissolved Sulphur (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.

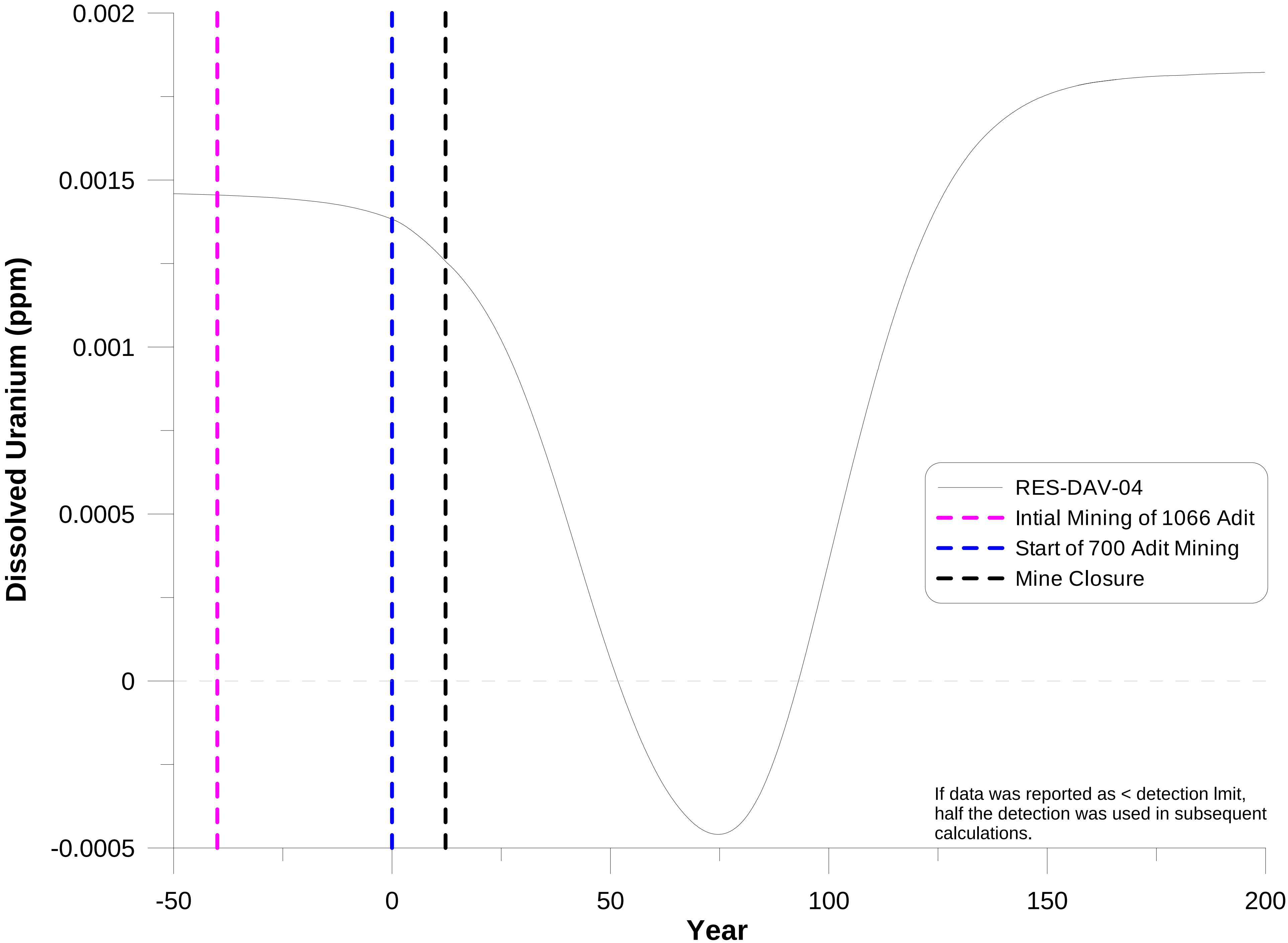

0.00025
0.0002
0.00015
0.0001
5E-005
0
Dissolved Thallium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



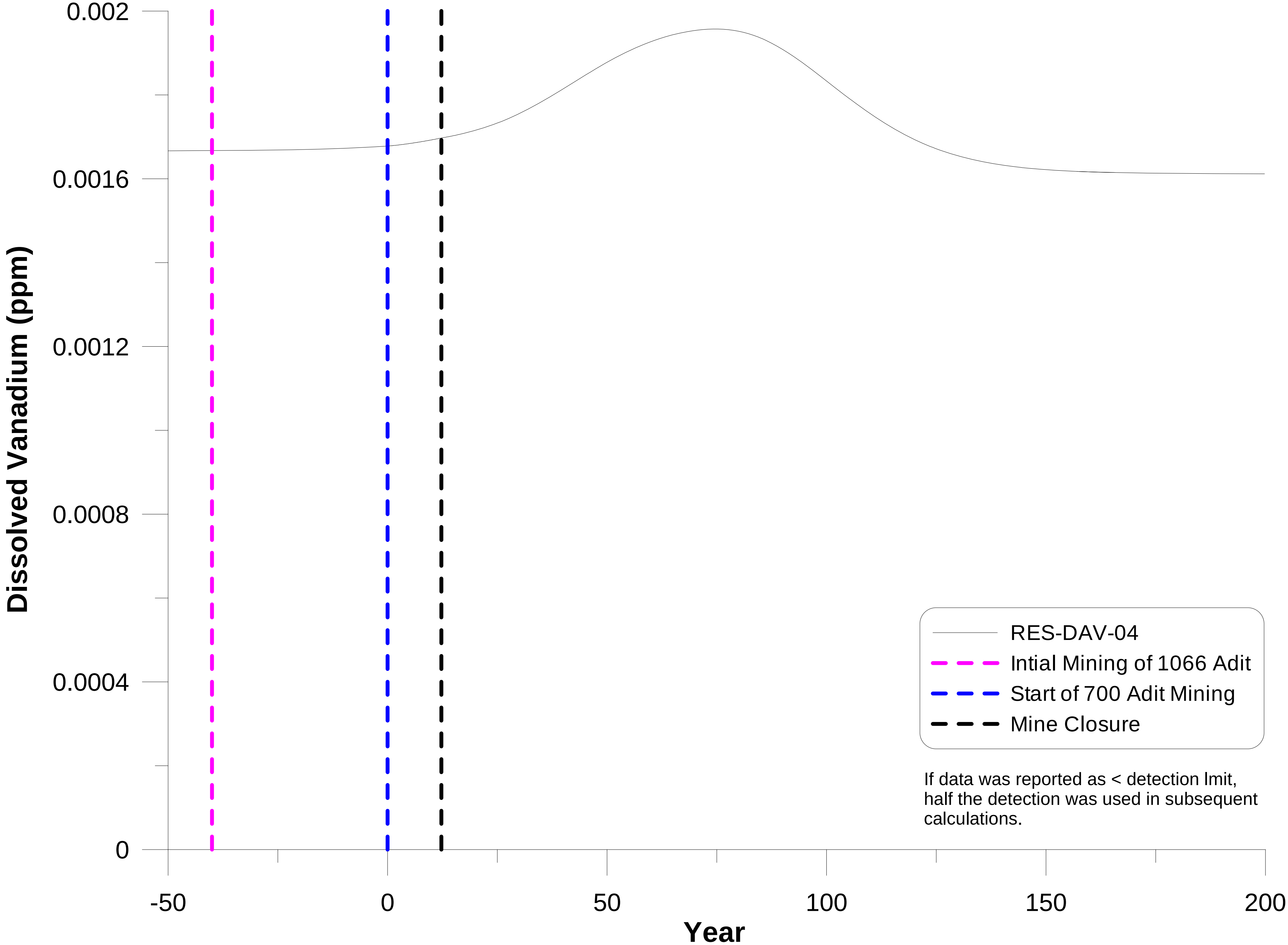
0.0004
0.0003
0.0002
0.0001
0
Dissolved Tin (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit, half the detection was used in subsequent calculations.



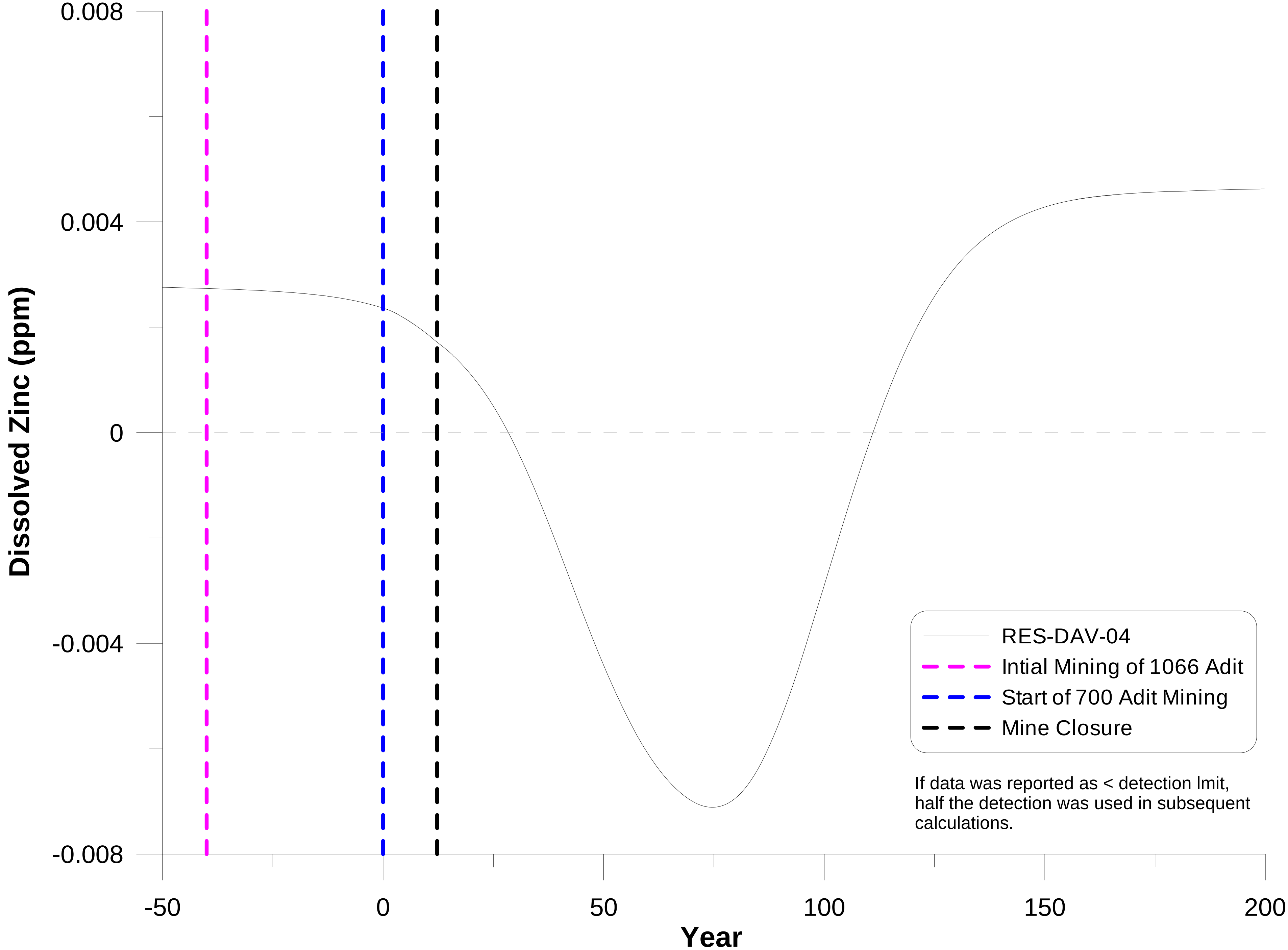
Dissolved Titanium (ppm)
0.006
0.004
0.002
0
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



Dissolved Uranium (ppm)
0.002
0.0015
0.001
0.0005
0
-0.0005
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.



0.002
0.0016
0.0012
0.0008
0.0004
0
Dissolved Vanadium (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.


0.008
0.004
0
-0.004
-0.008
Dissolved Zinc (ppm)
-50
0
50
100
150
200
Year
RES-DAV-04
Intial Mining of 1066 Adit
Start of 700 Adit Mining
Mine Closure
If data was reported as < detection lmit,
half the detection was used in subsequent
calculations.