

**Algodones Generating Station
Waste Mass Removal Corrective Action
Workplan**

Public Service Company of New Mexico

**414 Silver Avenue, SW
Albuquerque, NM 87102**



Submitted to:

New Mexico Environment Department
Ground Water Quality Bureau
PO Box 5469
Santa Fe, NM 87502

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1.0 Introduction

This Algodones Generating Station Waste Mass Removal Corrective Action Workplan (WMRCAW or Workplan) has been prepared for the New Mexico Environment Department Ground Water Quality Bureau (NMED-GWQB). This Workplan outlines removal of the buried waste mass referred to as the “Office Waste Landfill”, located on the eastern portion of the property. Prior to this Workplan, the Algodones Generating Station has been monitored voluntarily, in cooperation with the NMED under a separate CAW, from 2003 to 2024. Recommendations for excavation, profiling, transport, and disposal of the buried waste mass described below were developed based on previous site investigations, regulatory recommendations and requirements, site monitoring, and remedial activities.

2.0 Background

2.1 Site Description and History

The Algodones Generating Station (Station) is located on North Hill Road in Algodones, New Mexico, Sandoval County (Figure 1). The station began operations in 1954, functioning as a natural gas/fuel oil-fired steam electric power generating facility, and operated until 1987, when it was deactivated. In approximately 1980, the “Office Waste Landfill” was constructed and operated, likely as a receptacle for office waste developed by occupants of the plant main building until the station was decommissioned (Figure 2). Trenches associated with this landfill were backfilled in 2000 [Public Service Company of New Mexico (PNM) 2011]. PNM obtained 50 percent ownership and operating responsibility in the Station in July 2000, which was previously owned entirely by Tri-State Generation and Transmission Association, Incorporated (formerly Continental Divide Electric Cooperative and Plains Electric Generation and Transmission Cooperative).

2.2 Summary of Previous Assessment and Remediation

A National Pollutant Discharge Elimination System (NPDES) permit was issued for the facility in May 1987; however, no discharges have occurred since the permit issuance. PNM voluntarily initiated corrective action with the NMED-GWQB in 2003 to identify the source of elevated [above New Mexico Water Quality Control Commission (NMWQCC) numeric standards] total dissolved solids (TDS), sulfate, and dissolved manganese in groundwater under the site. In 1996, following plant closure and prior to PNM ownership, a fuel oil leak of approximately 100 gallons occurred and was investigated in accordance with NMED requirements. Plains Electric, in cooperation with the NMED, excavated the impacted soil (approximately 10 cubic yards) and stored it for remediation via landfarming within the tank containment berm (PNM 2003). In March 2003, PNM excavated an additional approximately 60 cubic yards of soil from the impacted area and disposed of the combined excavated volume at the Waste Management Landfill in Rio Rancho, New Mexico.

Quarterly monitoring of the three groundwater monitoring wells (MW-1, 2, and 3) (Figure 2) surrounding the Office Waste Landfill was conducted from 2003 to 2009, at which time the NMED approved a work plan revision for installation of two new monitoring wells (MW-4 and 5). MW-4 was installed upgradient of the site with the intention of capturing background concentration trends. MW-5 was installed to comply with NMED’s request for an investigation and subsequent corrective action report regarding a “white powder” identified along the south side of the Turrieta Arroyo (PNM 2009). The substance was identified as lime waste and was voluntarily removed in June 2010 (PNM 2011). Quarterly groundwater monitoring of all five on-site monitoring wells continued from 2009 to 2011, when the sampling frequency was changed to

annually. In 2012, the NMED-GWQB approved a work plan revision discontinuing sampling of MW-4 and MW-5, after sufficient data was gathered to indicate that there was no impact to groundwater from the removed lime waste (NMED 2012). A United States Geological Survey (USGS) study was published in 2004 that placed the Station within a geologic structure known as the Hagan Embayment in the southernmost part of the Espanola Basin. The Hagan Embayment is known to have Mesozoic aged gypsum formations, potentially contributing to elevated levels of TDS in the formation (Plummer et al 2004). Monitoring of MW-1, MW-2, and MW-3 continued until March 2024, when the final event associated with the previous CAW was completed. Groundwater elevation, sulfate, and TDS concentration trend graphs are included as Attachment 1. The most recent groundwater elevation contour map is included as Figure 3.

3.0 Project Objectives

The primary objective of this project is to remove the waste mass referenced historically as the “Office Waste Landfill” and, contingent on confirmation sampling, advance the site to a No Further Action (NFA) designation. Anecdotal accounts of the waste mass describe it as a single cell unlined trench receiving waste from the generating plant administrative building. The extents of the cell are estimated based on a historical image (Figure 4) with a conservative estimated total depth of 10 feet (ft) based on common unreinforced trench characteristics. The conservative estimate for total waste volume is 1,000 cubic yards.

4.0 Project Scope

Tasks described under this Plan include the following:

- Preliminary Soil Sampling
- Development of a Waste Excavation Plan
- Excavation, profiling, transport, and disposal of the “Office Waste Landfill” contents
- Confirmation soil and groundwater sampling
- Development of a Final Remediation Report.

These tasks are described in the following subsections.

4.1 Preliminary Soil Sampling

Preceding landfill excavation activities, four (4) preliminary soil samples will be collected from within the waste mass extents using a hand auger. Figure 5 depicts the preliminary sample locations. Samples will be collected from approximately four feet below ground surface (bgs), or at refusal depth, using a decontaminated hand auger. Following collection, the samples will be delivered to Eurofins Laboratories on ice and under chain of custody (COC) within respective hold times. The samples will be analyzed in accordance with the analytical suite outlined in Table 1. The results of the preliminary sampling will determine the confirmation sampling analytical suite.

Table 1. Preliminary soil sampling analytical suite.

Borehole ID	Analytes	Laboratory Method
PSB-1	VOCs	8260
PSB-2	sVOCs	8270
	TPH	8015
PSB-3	RCRA Metals	TCLP
PSB-4	Anions	300.0
	PCBs	8082

Notes:

PCB = polychlorinated biphenyl

PSB = preliminary soil boring

RCRA = Resource Conservation and Recovery Act

sVOC = semi-volatile organic compound

TCLP = Toxicity Characteristic Leaching Procedure

TPH = total petroleum hydrocarbons

VOC = volatile organic compound

4.2 Waste Excavation Plan

An approved licensed contractor will be selected for landfill removal activities described in this Workplan. In addition to the field activities described below, the contractor will be responsible for developing a Waste Excavation Plan for submittal to and approval by the NMED Solid Waste Bureau. The plan will follow guidance prescribed by the Solid Waste Bureau in the Waste Excavation Checklist (Attachment 2) and include, at a minimum, the following:

- Background Summary;
- Schedule of Proposed Activities;
- Excavation Locations with Sampling Plan;
- Waste Removal Description;
- Air Monitoring Requirements;
- Personal Protective Equipment Requirements;
- Hazard Assessment;
- Site Perimeter and Security
- Waste Hauler Description;
- Work Limitations;
- Emergency Contact Log and Route to Nearest Hospital; and
- Key Project Personnel.

4.3 “Office Waste Landfill” Removal

4.3.1 Excavation

The footprint of the waste mass cell is approximately 60 ft long by 40 ft wide with an estimated total depth of up to 10 ft. The expected excavation volume, assuming a 10 percent buffer for over-digging is estimated to be approximately 1,000 cubic yards. Excavation extents will be determined as ‘clean soil’, as confirmed via visual observation and field screening, when no evidence of waste is encountered in all directions. Actual waste excavation volume will depend on field screening and confirmation sampling. During excavation, clean soil will be segregated from impacted soil using visual observations and field screening. Clean soil will be stockpiled in a designated area and used as backfill following excavation completion.

Should waste and/or impacted soil be stockpiled due to hauling delays, the amassed material will be placed on an impermeable surface and covered to prevent runoff. An air monitoring program will be implemented during excavation. The air monitoring plan will be included as a portion of the Waste Excavation Plan described above and submitted to the Solid Waste Bureau under separate cover.

4.3.2 Profiling

The contents of the waste mass are unknown and anecdotal accounts have estimated it to be comprised of office refuse from the plant administrative building. Waste and impacted soil will be segregated from non-impacted soil. Landfill waste will be characterized by appearance, composition, and source. Hazardous waste is not expected to be encountered; however, in the event that suspected hazardous waste is discovered in the excavated material, it will be sampled and profiled following procedures prescribed in the Waste Excavation Plan.

4.3.3 Transportation and Disposal

A licensed waste transporter will be contracted to haul the excavated material. All transported material will occur under an official waste manifest signed by the generator, hauler, and receiver. The waste receiver will be determined based on profiling. Based on the anticipated composition, a municipal waste facility will be the likely recipient. In the event that special or hazardous waste is encountered, it will be transported to a licensed receiving facility.

4.4 Confirmation Soil and Groundwater Sampling

4.4.1 Confirmation Soil Sampling

Confirmation soil samples will be collected following completion of excavation, as determined by visual observation and field screening. Samples will be comprised of one 5-point composite sample collected for every 40 lineal feet of sidewall for an estimated total of five samples. Additionally, a total of four equally spaced soil samples will be collected from the pit bottom. The confirmation soil sampling analytical suite will be determined based on the preliminary sampling results.

4.4.2 Confirmation Groundwater Sampling

Following excavation and backfilling of the waste mass, groundwater samples will be collected from monitoring wells MW-1 through 5. The groundwater sampling analytical suite will be determined based on the preliminary sampling results and will include, at a minimum, total dissolved solids (TDS) and sulfate. Prior to sampling, the wells will be purged of a minimum of three well volumes using dedicated bladder pumps.

All confirmation samples will be collected in clean lab-provided sample containers and delivered to the laboratory on ice, under chain of custody, and within their respective hold times.

5.0 Reporting

Following receipt of confirmation sampling results, a Final Remediation Report will be developed, summarizing excavation activities, results of sampling, and recommendations for future site compliance activities. The report will include, at a minimum, the following sections:

- Introduction
- Historical Site Monitoring and Remediation

- Excavation Summary
- Confirmation Sampling Results
- Background Study, and
- Site Recommendations.

Contingent on confirmation sampling results and data analysis, a NFA designation will be recommended for future site conditions.

6.0 References

DeLapp, Robin. PNM. October 6, 2009. *Request to Delete Lime Waste Removal Requirement from Corrective Action Activities.*

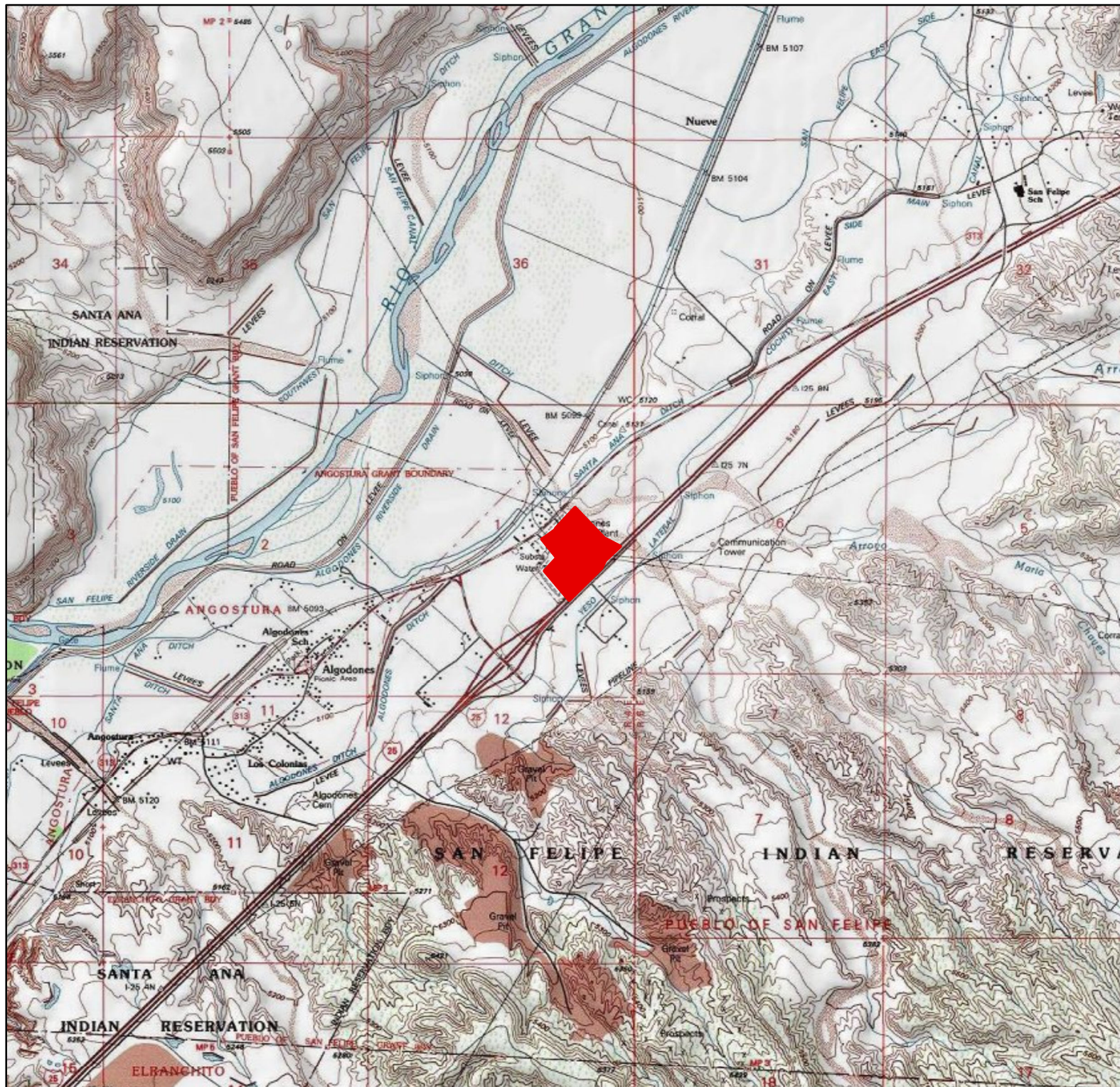
DeLapp, Robin. PNM. July 18, 2011. *Request of Ground Water Monitoring Activities at PNM Algodones Generating Station and Request for Revision to Corrective Action Work Plan.*

Doremus, Dale. NMED. February 12, 2012. *Corrective Action Work Plan Approval, Algodones Generating Station, Algodones New Mexico.*

Plummer, Niel. Bexfield, Laura. Anderholm, Scott. Sanford, Ward. Busenberg, Eurybiades. 2004. *Geochemical characterization of ground-water flow in the Santa Fe Group aquifer system, Middle Rio Grande Basin, New Mexico.* US Geological Survey.

PNM. September 2003. *Storm Water Pollution Prevention Plan for Algodones Generating Station as an Industrial Facility.*

Figures



Legend

Site Boundary



0 0.25 0.5 1 Miles

Figure 2
Algodones Generating Station
Site Location Map



Legend

- Monitoring Wells
- Excavation Extents



0 45 90 180
Feet

Figure 2
Algodones Generating Station
Waste Mass Excavation Aerial



Legend

- Monitoring Wells
- Groundwater Flow
- Groundwater Elevation

Notes:
Elevations in feet above mean sea level (ft amsl)

Contours dashed where inferred



0 87.5 175 350 Feet

Figure 3
Algodones Generating Station
Groundwater Contour Map
March 5, 2024

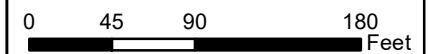
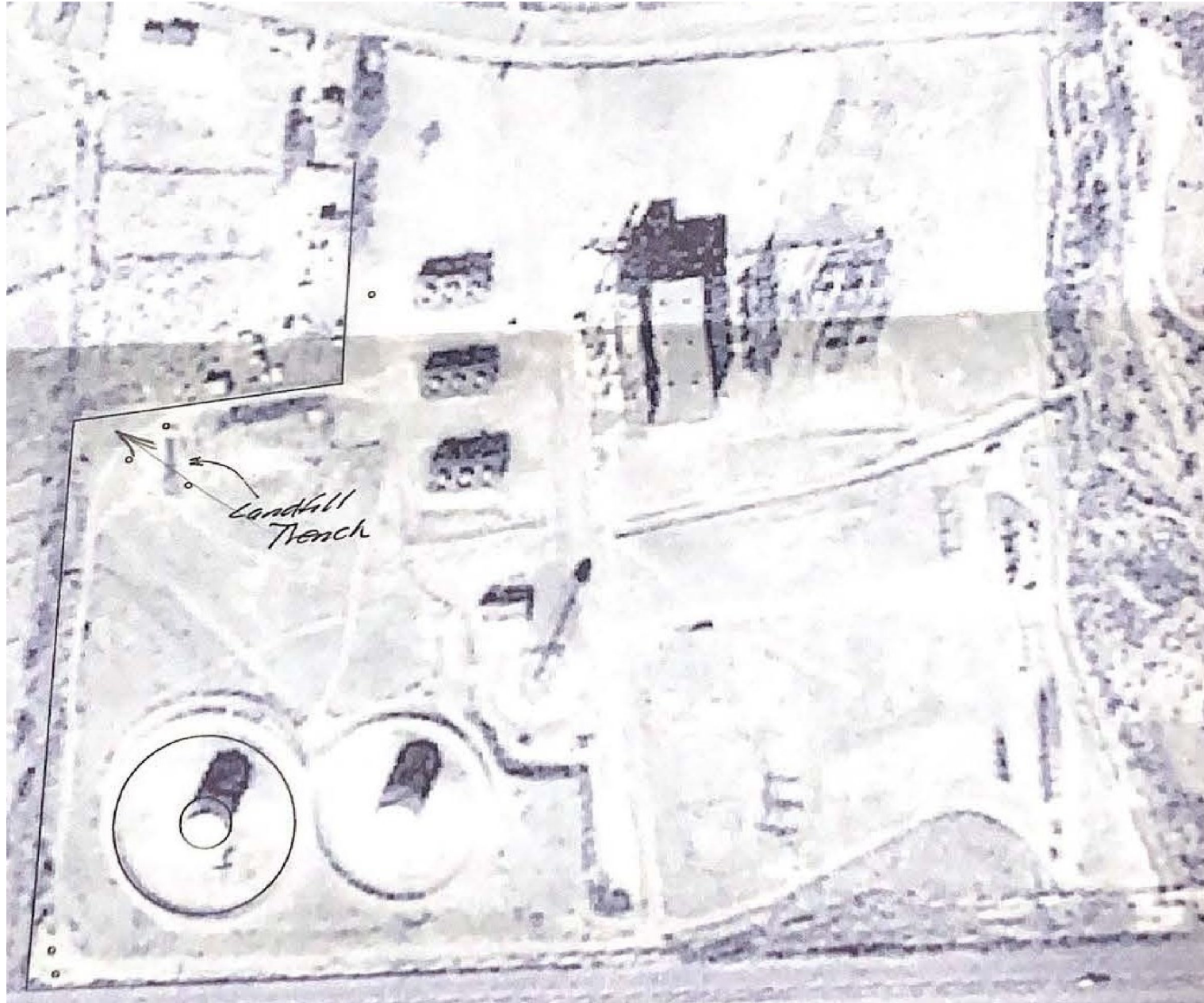
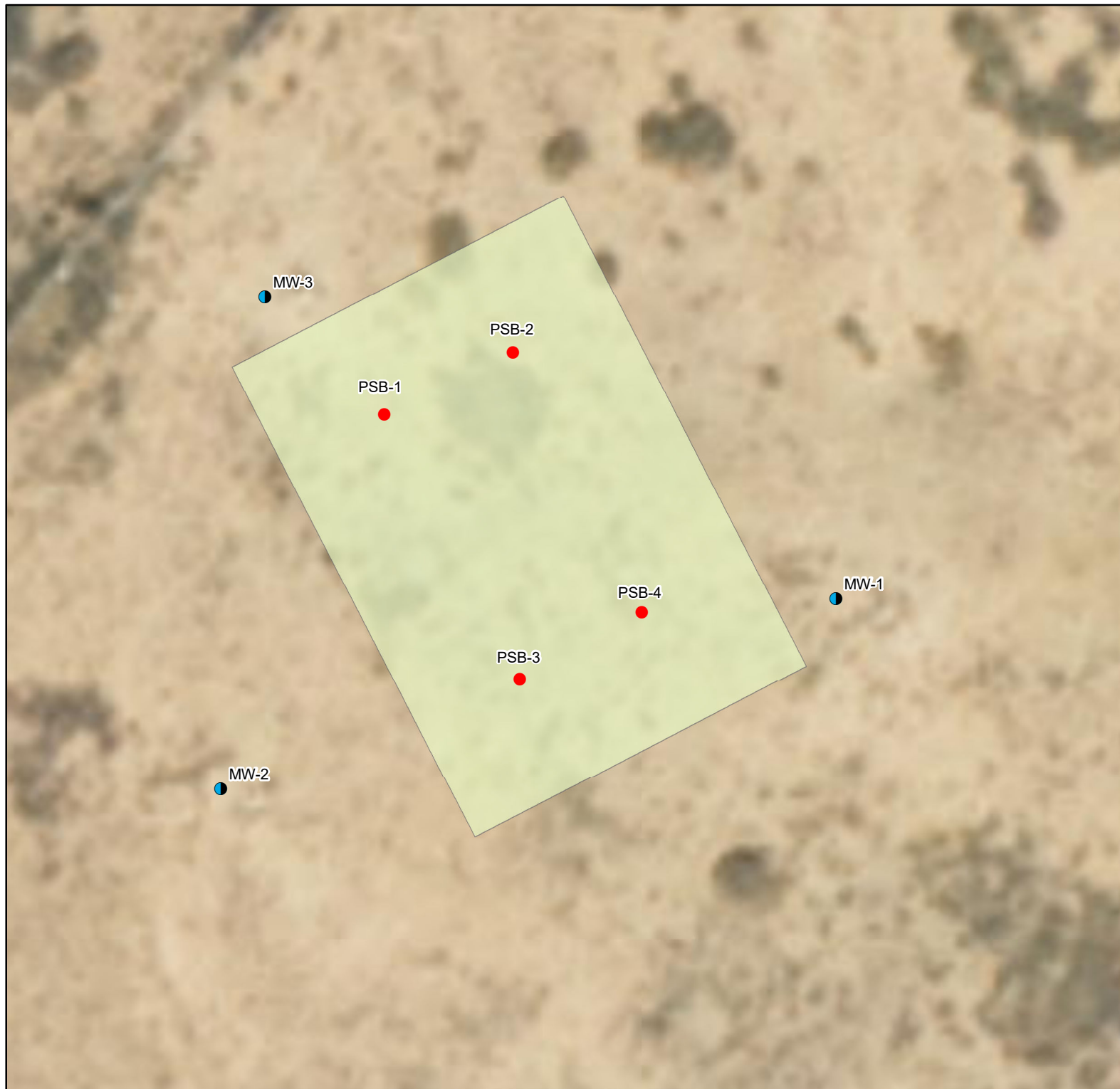


Figure 4
Algodones Generating Station
Historical Trench Imagery



Legend

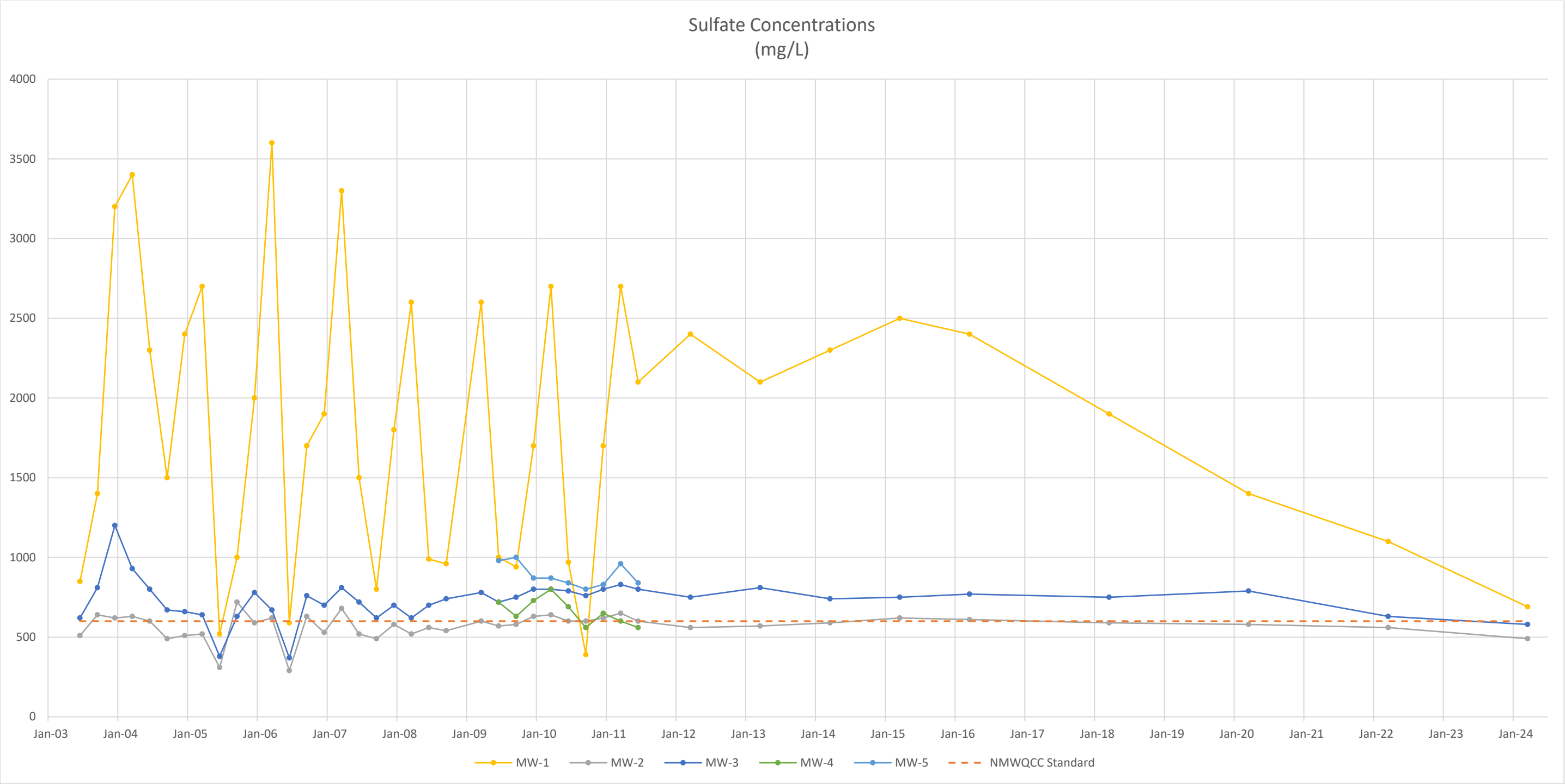
- Sample Location
- Monitoring Wells
- Excavation Extents

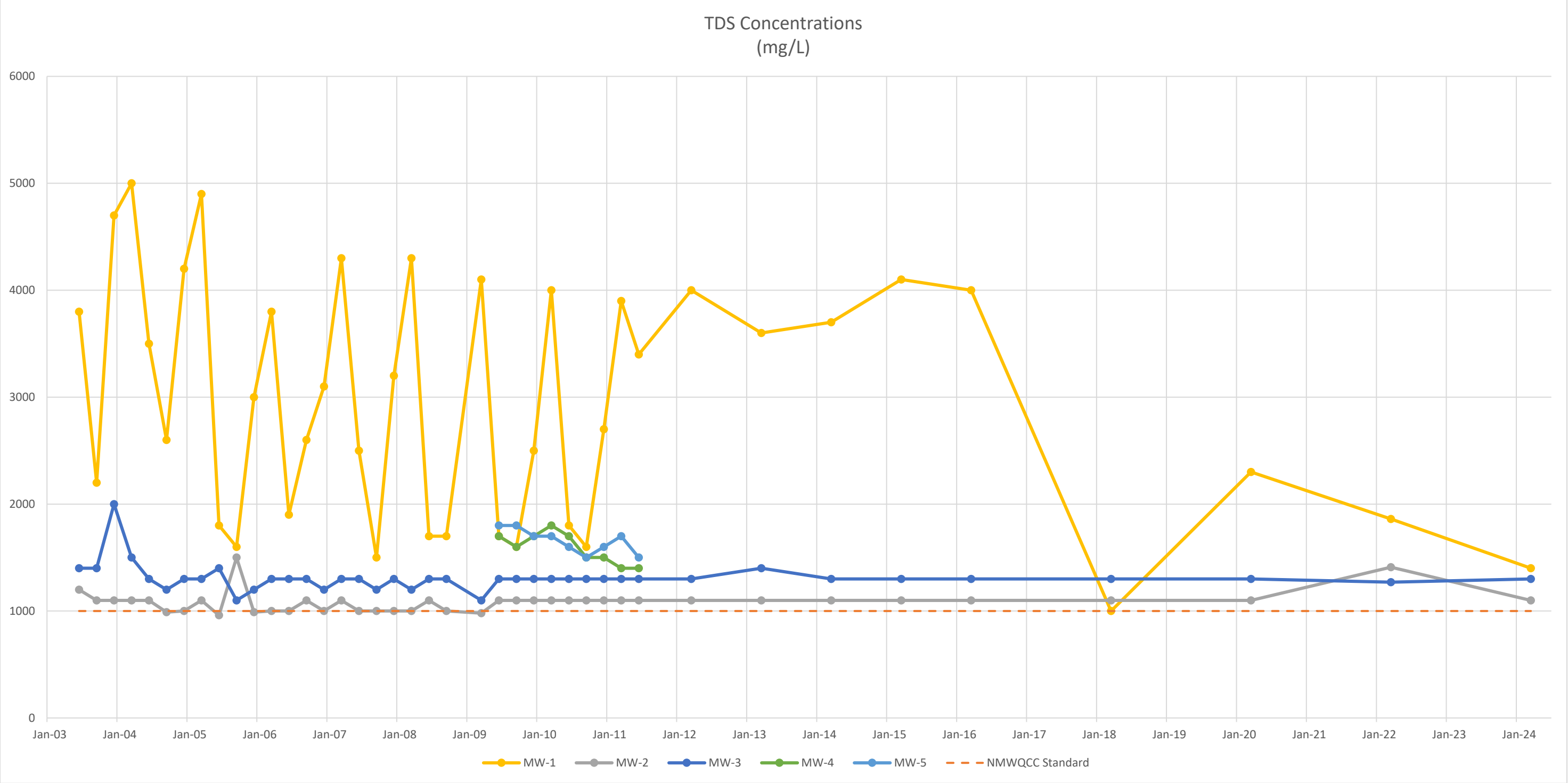


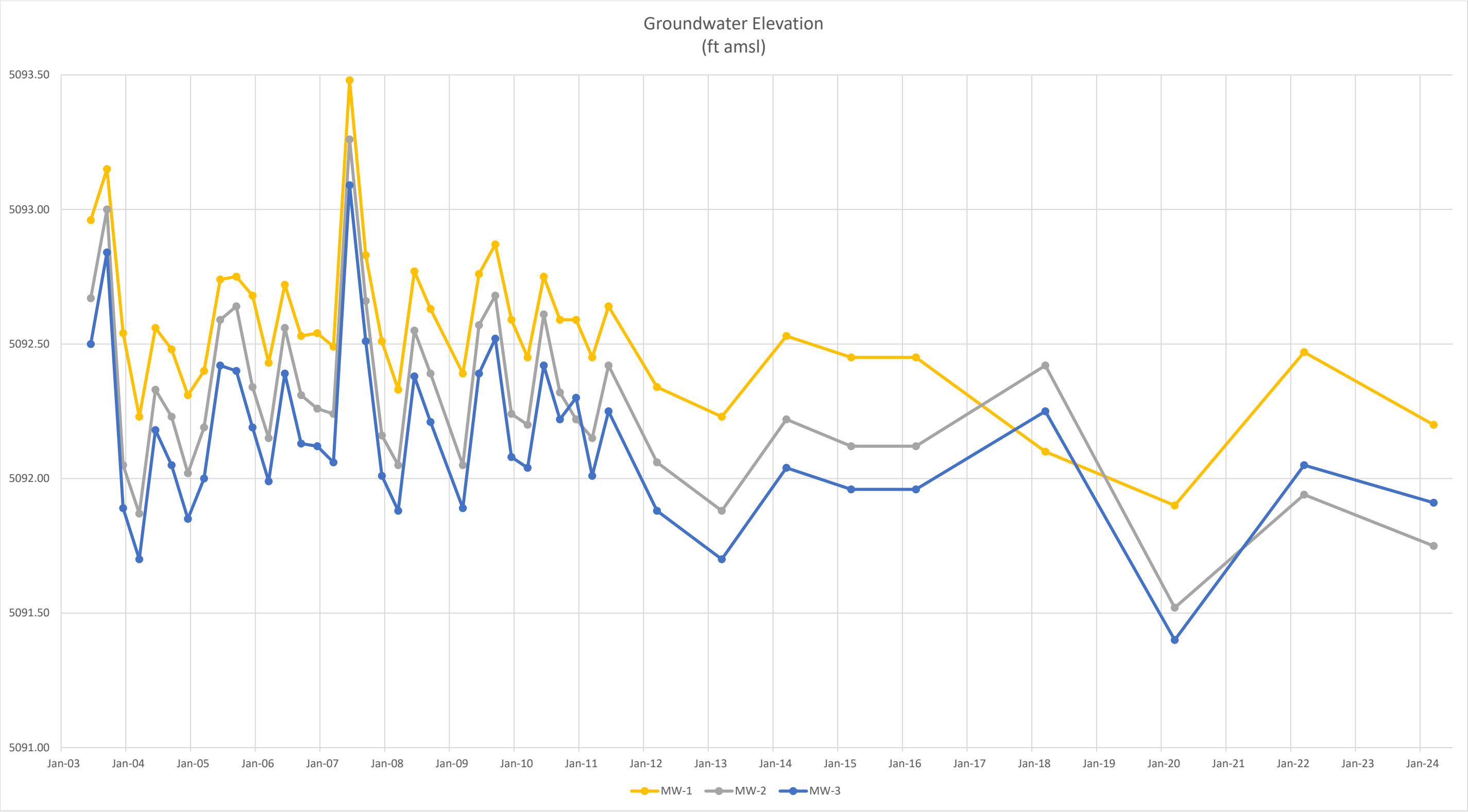
0 5 10 20
Feet

Figure 5
Algodones Generating Station
Preliminary Sample Locations

Attachment 1







Attachment 2

Waste Excavation Checklist

Background Summary

- Facility or project description, location and reason for the excavation

NMED Notification Prior to Commencement of Scheduled Activities

Schedule of Proposed Activities

Exploratory Pit Locations

- Plan view map with landfill boundaries, observations, objects encountered, soil vapor PID results (plan view with concentrations)

Waste Removal (Describe in Detail)

- How waste will be removed
- How stockpiling of waste will be avoided
- How, if necessary, temporarily stockpiled waste will be restricted from public access and covered, and what preventative measures will be taken to preclude soil or groundwater contamination
- Equipment to be used
- Screening equipment (if applicable)
- Type of trucks and owner(s)
- Protection mechanisms to prevent slope failure of the excavation (OSHA compliance)
- Dust control mechanisms (e.g., use of water, tarping, avoiding work at periods of high winds)
- Personnel that will be dedicated to monitoring excavation activities
- Type(s) of waste to be excavated or anomalies that will trigger cessation of excavation or monitoring

Air Monitoring

- Compliance with local laws/ordinances
- Types of air monitoring devices to be utilized, frequency of sampling
- Procedures to ensure worker safety during monitoring, sampling, and excavation activities

Personal Protective Equipment

- Required PPE to be used during excavation activities and protection levels, as appropriate

Hazard Assessment

- Chemicals and contaminants that may be encountered, potential health hazards, associated symptoms, and proposed response to such situations

Site Perimeter and Security

- Means of restricting or cordoning off excavated areas (during operations and at the end of each day)
- General site security procedures, to include description of exclusion zone(s) to be implemented

Letter from Landfill Acknowledging Acceptance of the Excavated Waste

Verification of Commercial Waste Hauler Registration for Hauler(s)

Work Limitations

- Anticipated days/hours of excavation activities, personnel shifts, weather conditions that would result in cessation of work

Emergency Contact Log and Directions & Route Map to Nearest Hospital

Key Project Personnel and Emergency Telephone Numbers

- Identification of the Site Safety Officer and other supervisory personnel
- Telephone numbers for nearby fire and police departments/substations, hospital(s), poison information center, NMED's 24-hour emergency reporting, and the local NMED Solid Waste Bureau's enforcement officer

******NOTE: All Waste Excavation Plans must address, but shall not necessarily be limited to, all of the items listed above.***