



# COAL COMBUSTION RESIDUALS LANDFILL ANNUAL INSPECTION REPORT

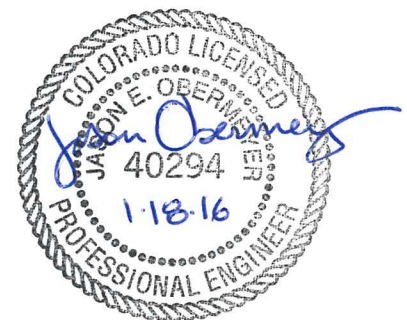
Nucla Station Ash Disposal Site



REPORT

**Submitted to:** Tri-State Generation and Transmission Association, Inc.  
1100 West 116<sup>th</sup> Avenue  
Westminster, Colorado 80234

**Submitted by:** Golder Associates Inc.  
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Lakewood, Colorado 80228



January 18, 2016

103-81938

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## 1.0 INTRODUCTION

### 1.1 Background

Golder Associates Inc. (Golder) has prepared this annual inspection report for Tri-State Generation and Transmission Association, Inc. (Tri-State) to summarize our review of available information and visual observation of the Nucla Station Ash Disposal Site (the facility). The facility serves as the location for final deposition of coal combustion residuals (CCRs or ash) generated at Tri-State's Nucla Station, a 110-megawatt, coal-fired electric generation plant. It classifies as an existing CCR landfill under 40 CFR 257. The intent of Golder's review of available information and visual observation was to satisfy the requirements of 40 CFR 257.84(b)(1), which entails periodic completion of these activities by a qualified professional engineer to verify that the design, construction, operation, and maintenance of the facility are consistent with recognized and generally accepted good engineering practice. This report is the initial annual inspection report for the facility under 40 CFR 257.84(b)(1).

This report presents a description of the facility (Section 1), a summary of Golder's review of available information about the facility (Section 2), the findings from Golder's visual observation of the facility (Section 3), and Golder's conclusions and recommendations (Section 4).

### 1.2 Facility Description

The facility is located in Montrose County, approximately 5.5 miles southeast of Nucla, Colorado. Tri-State currently disposes fly ash, bottom ash, and permitted non-hazardous utility-related wastes at the facility. The Colorado Department of Public Health and Environment (CDPHE) and Montrose County Board of Commissioners originally approved construction of the facility on a 40-acre parcel in October of 1987. Pursuant to a March 2002 application submittal, Tri-State expanded the facility laterally onto an adjacent 40-acre parcel under a Certificate of Designation granted by Montrose County in April 2004 and a Special Use Permit via Notice of Decision dated July 2005. Filling began in the expansion area in 2006, and the current disposal footprint encompasses approximately 61 acres. The facility is regulated by CDPHE under 6 CCR 1007-2, Part 1, "Regulations Pertaining to Solid Waste Sites and Facilities."

Disposal of ash at the facility initially occurred behind starter dikes that encompassed the deposition area. Over time, the height of the facility was increased gradually as needed to contain the volume of ash being generated. The height was increased through the use of containment berms that were periodically constructed around the perimeter of the facility in areas of active filling. Each individual containment berm, typically about five feet in height, was constructed atop and slightly inside of the previous containment berm (i.e., closer to the center of the facility) to form the embankment slopes. At approximate 20-foot vertical intervals, the containment berms were inwardly offset an additional 10 feet to establish benches with terrace channels for surface water routing. The resulting composite slope is approximately 3 horizontal to 1 vertical, with a slope between benches of approximately 2.5 horizontal to 1 vertical. The containment berms were designed to be constructed of suitable material, to have sufficient

thickness perpendicular to the embankment slope, and to be vegetated such that they would also serve as the final cover system on the embankment slopes. To date, the final cover system has been constructed over approximately 22 acres of the facility. The current configuration of the facility is shown on the figure included in Appendix A. Typical cross sections through embankment slopes and other typical construction details for the facility are shown on the drawings included in Appendix B (historical drawings provided by Tri-State).

## 2.0 REVIEW OF AVAILABLE INFORMATION

### 2.1 Information Reviewed

40 CFR 257.84(b)(1)(i) requires the annual inspection to include a review of information regarding the status and condition of the facility, including files available in the operating record. Golder reviewed information provided by Tri-State as part of our effort to verify that the design, construction, operation, and maintenance of the facility are consistent with recognized and generally accepted good engineering practice. The information Golder reviewed includes the following:

- The engineering design and operations report for ash disposal on the initial 40-acre parcel (Colorado-Ute Electric Association, Inc., 1987).
- The hydrogeologic investigation report for ash disposal on the initial 40-acre parcel (Western Colorado Testing, Inc., and J.F.T. Agapito & Associates, Inc., 1987).
- The design and operations report for ash disposal on the 40-acre lateral expansion parcel (Geo-Trans Inc. 2002).
- The fugitive dust control plan for the facility (Golder Associates Inc. 2015).
- Weekly inspection forms documenting weekly inspections conducted by qualified persons employed by Tri-State between October 22, 2015, and December 16, 2015.

This report describes the initial annual inspection, so no previous annual inspection reports were available for Golder to review.

### 2.2 Changes in Facility Geometry

40 CFR 257.84(b)(2)(i) requires the annual inspection report to include a summary of changes in facility geometry since the previous annual inspection. Since this report describes the initial annual inspection, such a summary is not practical. The current facility configuration is reflected on the figure included in Appendix A and may serve as the reference point for a description of the changes in facility geometry in next year's annual report.

### 2.3 Ash Volume Contained in the Facility

40 CFR 257.84(b)(2)(ii) requires the annual inspection report to include an estimate of the volume of CCRs contained within the facility at the time of the inspection. Based on historical information and survey data provided by Tri-State, Golder estimates that the volume of ash contained within the facility is 4,562,000 cubic yards as of the date of issuance of this report.

### 2.4 Changes Affecting Stability or Operation

40 CFR 257.84(b)(2)(iv) requires the annual inspection report to include a summary of changes that may have affected the stability or operation of the facility since the previous annual inspection. Since this report describes the initial annual inspection, such a summary is not practical. Visual observations of the facility conducted on September 9, 2015, are described in Section 3 and provide a reference point for a description of changes that potentially affect stability or operation in next year's annual report. Our review



of the weekly inspection forms completed between October 22, 2015, and December 16, 2015, indicates that changes affecting the stability or operation of the facility have not been detected during the weekly inspections. The weekly inspection forms indicate that minor issues, such as erosion rills that develop after precipitation events, are being addressed proactively.

## 3.0 VISUAL OBSERVATION

### 3.1 Overview

40 CFR 257.84(b)(1)(ii) requires the annual inspection to include a visual inspection of the facility that is intended to identify signs of distress or malfunction. 40 CFR 257.84(b)(2)(iii) requires the annual inspection report to include a description of appearances of structural weakness at the facility, in addition to existing conditions that are disrupting or have the potential to disrupt the operation and safety of the facility. These requirements are addressed in this section.

### 3.2 Visual Observation Terminology

Terms used in this section are defined as follows:

#### Condition of Facility Component

Good:	A condition that is generally better than the minimum expected condition based on the design criteria and maintenance performed at the facility.
Fair:	A condition that is generally consistent with the minimum expected condition based on the design criteria and maintenance performed at the facility.
Poor:	A condition that is generally worse than the minimum expected condition based on the design criteria and maintenance performed at the facility.

#### Severity of Deficiency

Minor:	An observed deficiency where the current condition is worse than the minimum expected condition but does not currently pose a threat to structural stability.
Significant:	An observed deficiency where the current condition is worse than the minimum expected condition and could pose a threat to structural stability if it is not addressed.
Excessive:	An observed deficiency where the current condition is worse than the minimum expected condition and either hinders the ability of an inspector to evaluate the facility component or poses a threat to structural stability.

### 3.3 Findings

Golder conducted a visual observation of the facility on September 9, 2015. Golder observed the condition of the ash deposition area, embankment slopes, embankment crest, embankment toe, and storm water control features. The annual inspection form is included in Appendix C.

#### 3.3.1 Ash Deposition Area

The ash deposition area was observed to be in good condition. No signs of ground movement, such as sloughing or sliding, cracking, subsidence, or bulging, were observed in the ash deposition area. Ash deposition was occurring at the time of the visual observation. The ash deposition methodology appeared to be appropriate. Ash contact water was being collected within the ash deposition area. A berm that was several feet in height was in place around the perimeter of the ash deposition area to prevent

migration of ash contact water out of the ash deposition area. Fugitive dust was being adequately controlled at the time of the visual observation. The typical condition of the ash deposition area is depicted in Figure 1.

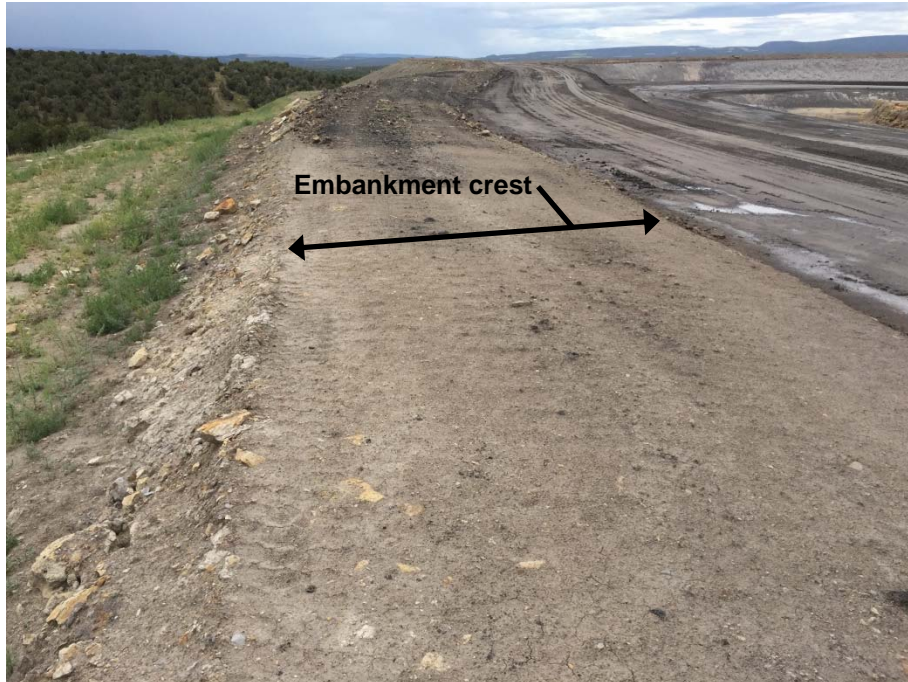


**Figure 1: Typical Ash Deposition Area Condition**

### **3.3.2 Embankment Crest**

The embankment crest was observed to be in good condition. No cracking indicative of ground movement was observed along the embankment crest. No low areas indicative of differential settlement were observed along the embankment crest. The typical condition of the embankment crest is depicted in Figure 2.





**Figure 2: Typical Embankment Crest Condition**

### **3.3.3 Embankment Slopes**

The embankment slopes were observed to be in fair condition. No signs of ground movement, such as sloughing or sliding, cracking, subsidence, or bulging, were observed on the embankment slopes. No evidence of significant or excessive erosion or slope deterioration was observed on the embankment slopes. Slope stability calculations completed by Golder indicate that the embankment slopes at the facility are expected to remain stable with acceptable factors of safety under anticipated maximum loading conditions (static and seismic). Native vegetation is being established on the embankment slopes as the facility is progressively built higher. Lower portions of embankment slopes have adequate vegetative coverage, while upper portions of embankment slopes have not yet been in place long enough for a mature vegetative community to be established. Repair of erosion rills is being conducted in these areas as needed, and one such repair location was noted. No unusually poor or thriving vegetative growth was observed on the embankment slopes. Some woody shrubs were observed on the embankment slopes. This type of vegetation is typical of the surrounding area, and mitigation is not considered to be necessary. No trees were observed on the embankment slopes. The extent of woody shrubs was minor and does not pose a threat to structural stability. Animal burrows were observed in three areas, as shown on the plan view included in Appendix C. The extent of burrowing was minor and does not pose a threat to structural stability. The typical condition of the embankment slopes is depicted in Figure 3. Animal burrows observed on an embankment slope in the southeast portion of the facility are shown in Figure 4.



**Figure 3: Typical Embankment Slope Condition**



**Figure 4: Animal Burrows on Embankment Slope**

### **3.3.4 Embankment Toe**

The embankment toe was observed to be in good condition. No signs of seepage, such as springs or boggy areas, were observed at the embankment toe. Golder observed one area along the embankment toe, shown on the plan view in Appendix C, where vegetation was thriving more than in the surrounding

areas. Upon further inspection, Golder found that surface water was being retained in a shallow pool at this location before draining away from the area. The retained surface water does not pose a threat to structural stability. The typical condition of the embankment toe is depicted in Figure 5.



**Figure 5: Typical Embankment Toe Condition**

### **3.3.5 Storm Water Control Features**

The storm water control features at the facility were observed to be in fair condition. Downchute channels and energy dissipation basins at the facility are constructed with riprap. Surface water calculations completed by Golder indicate that the downchute channels are located and sized appropriately to convey the 100-year, 24-hour storm event. Some of the downchute channels had relatively large shrubs growing in the flow path, and Golder recommended that these be removed periodically to maintain proper functionality. However, the shrubs do not pose a threat to structural stability and did not impact the ability to inspect the facility. The typical condition of the downchute channels is depicted in Figure 6. Terrace channels at the facility are provided at approximate 20-foot vertical intervals and are grass-lined. Straw wattles have been installed to control erosion and capture sediment in the terrace channels at appropriate intervals. Surface water calculations completed by Golder indicate that the terrace channels are located and sized appropriately to convey the 100-year, 24-hour storm event. The typical condition of the terrace channels is depicted in Figure 7. Perimeter channels at the facility are generally constructed with soil and rock. Straw wattles have been installed to control erosion and capture sediment in the perimeter channels at appropriate intervals. The typical condition of the perimeter channels is depicted in Figure 8.



**Figure 6: Typical Downchute Channel Condition**



**Figure 7: Typical Terrace Channel Condition**

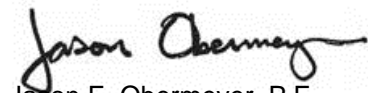


**Figure 8: Typical Perimeter Channel Condition**

#### 4.0 CONCLUSIONS AND RECOMMENDATIONS

Golder completed an annual inspection for the Nucla Station Ash Disposal Site to address the requirements of 40 CFR 257.84. No signs of distress or malfunction of the facility were observed, and no appearances of actual or potential structural weakness of the facility were identified. Facility maintenance practices that should continue as the need is indicated by weekly inspections conducted in accordance with 40 CFR 257.84(a) include control of burrowing animals, repair of erosion damage on embankment slopes, establishment of appropriate vegetation on embankment slopes, control and containment of ash contact water, and establishment of positive storm water drainage away from the facility.

##### GOLDER ASSOCIATES INC.



Jason E. Obermeyer, P.E.  
Associate and Senior Engineer



Ron R. Jorgenson  
Principal and Senior Practice Leader

## 5.0 REFERENCES

Colorado-Ute Electric Association, Inc. (1987). Nucla Station Fly Ash, Bottom Ash, Slag and Flue Gas Emission Control Waste Disposal Facility Engineering Design and Operations Report. Report prepared for the Colorado Department of Health. February 6.

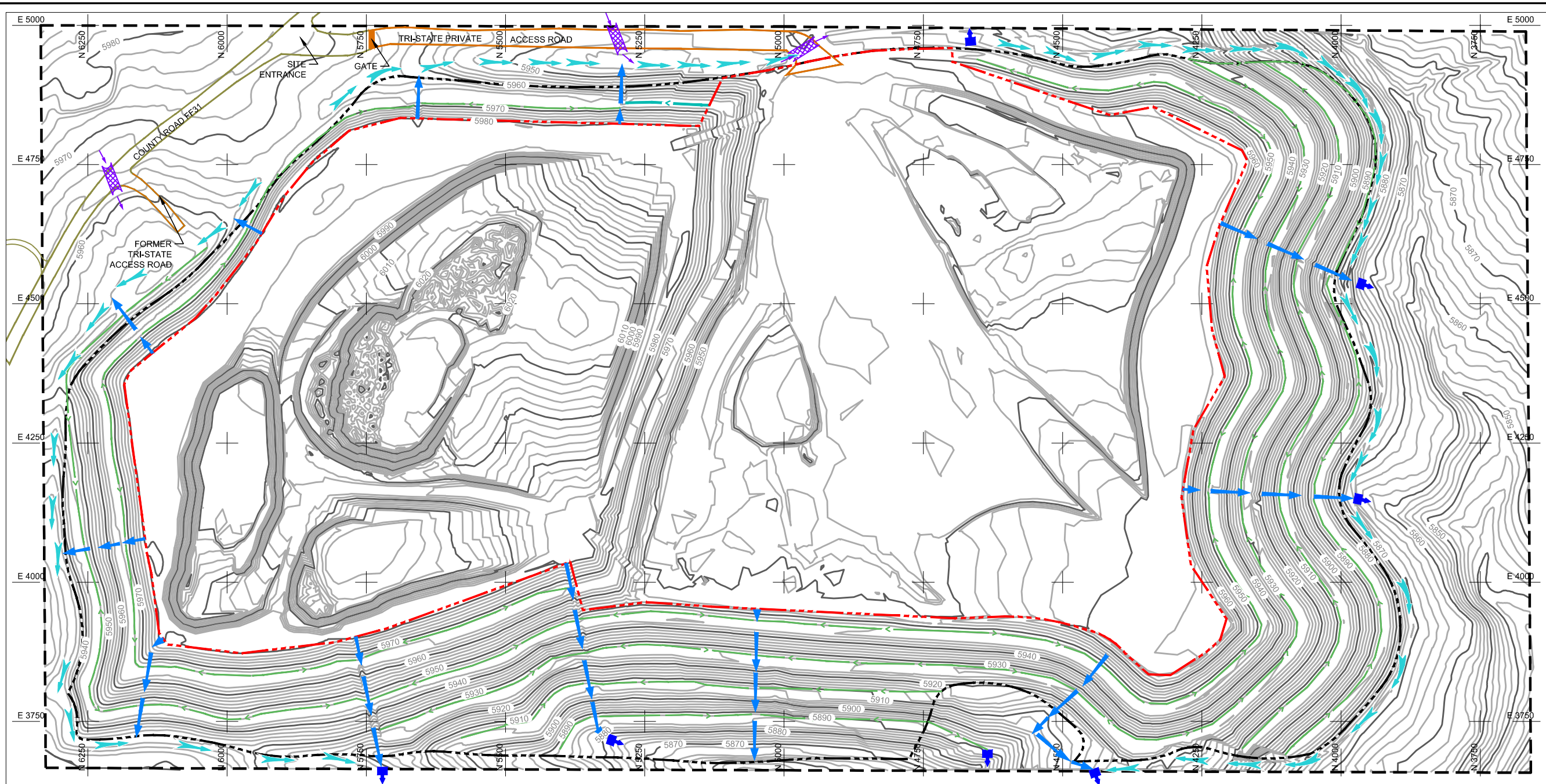
Geo-Trans Inc. (2002). Design and Operations Report, Nucla, Colorado, Ash Disposal Facility. Report prepared on behalf of Tri-State Generation and Transmission Association, Inc., for the Colorado Department of Public Health and Environment. March 21.

Golder Associates Inc. (2015). Nucla Generating Station Coal Combustion Residuals Fugitive Dust Control Plan. Plan prepared for Tri-State Generation and Transmission Association, Inc. October.

Western Colorado Testing, Inc., and J.F.T. Agapito & Associates, Inc. (1987). Geological and Geohydrological Evaluation of Dry Storage Site, Nucla CFB Demonstration Project. Report prepared on behalf of Colorado-Ute Electric Association, Inc., for the Colorado Department of Health. July.

**APPENDIX A**  
**EXISTING CONDITIONS MAP**

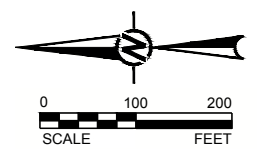




- LEGEND**
- EXISTING GROUND TOPOGRAPHY (SEE REFERENCE 1)
  - PUBLIC ROADS
  - PRIVATE ROADS
  - PROPERTY LINE (SEE REFERENCE 1)
  - TERRACE CHANNEL
  - DOWNCHUTE CHANNEL
  - LIMIT OF FINISHED SIDESLOPES (22 ACRES)
  - APPROXIMATE ASH DISPOSAL FOOTPRINT LIMIT (PROVIDED BY TRI-STATE) (61 ACRES)
  - STORMWATER DISCHARGE POINTS
  - PERIMETER CHANNEL
  - CULVERT WITH FLOW DIRECTION

- NOTES**
1. THE CONTOUR INTERVAL IS 2 FEET
  2. THE LOCATIONS OF DOWNCHUTE CHANNELS ARE APPROXIMATE AND ARE BASED ON EXISTING GROUND TOPOGRAPHY AND AERIAL IMAGERY.

- REFERENCES**
1. EXISTING GROUND TOPOGRAPHY WAS PROVIDED BY TRI-STATE GENERATION AND TRANSMISSION ASSOCIATION, INC. TOPOGRAPHY IS A COMPOSITE BASED ON SURVEYS PERFORMED BY DEL-MONT CONSULTANTS BETWEEN 2008 AND 2015.
  2. COORDINATES ARE BASED ON PLANT GRID SYSTEM.



REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
B	2016-01-18	ISSUED WITH ANNUAL INSPECTION REPORT	ELH	ELH	JEO	RRJ
A	2015-12-11	ISSUED FOR CLIENT REVIEW	ELH	ELH	JEO	RRJ

CLIENT  
**TRI-STATE GENERATION AND TRANSMISSION**  
 1100 W. 116TH AVENUE  
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 (303) 980-0540  
 www.golder.com

PROJECT  
**NUCLA STATION  
 ASH DISPOSAL FACILITY  
 ANNUAL INSPECTION REPORT**

TITLE  
**EXISTING CONDITIONS**

PROJECT NO.  
**103-81938**

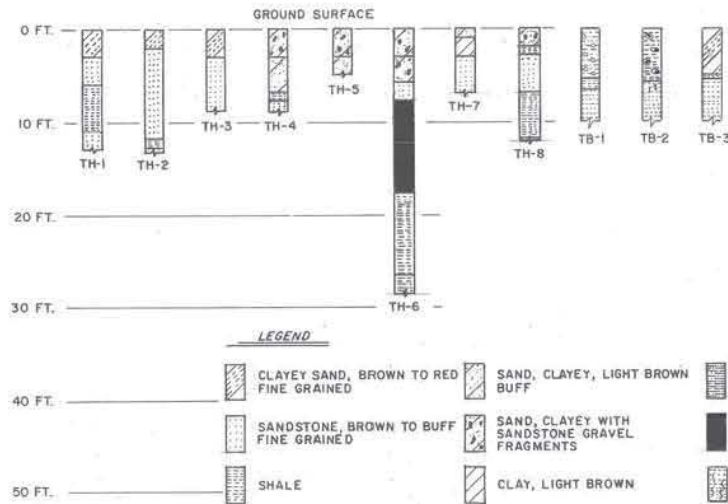
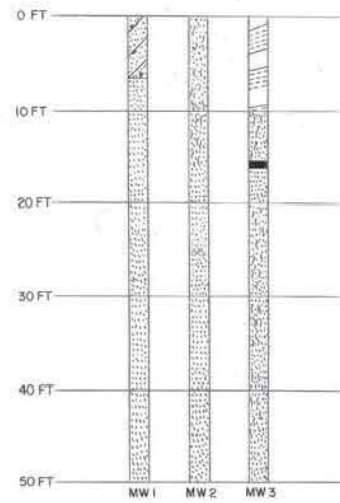
REV.  
**B**

FIGURE  
**1**

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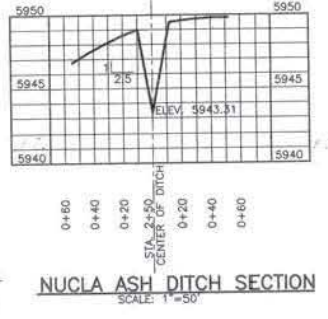
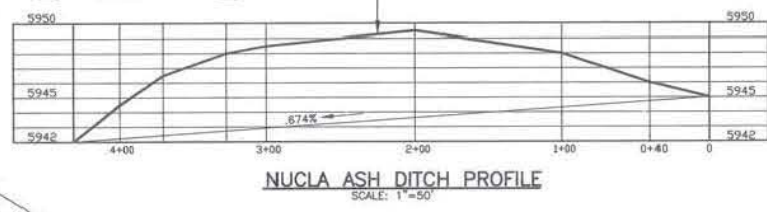
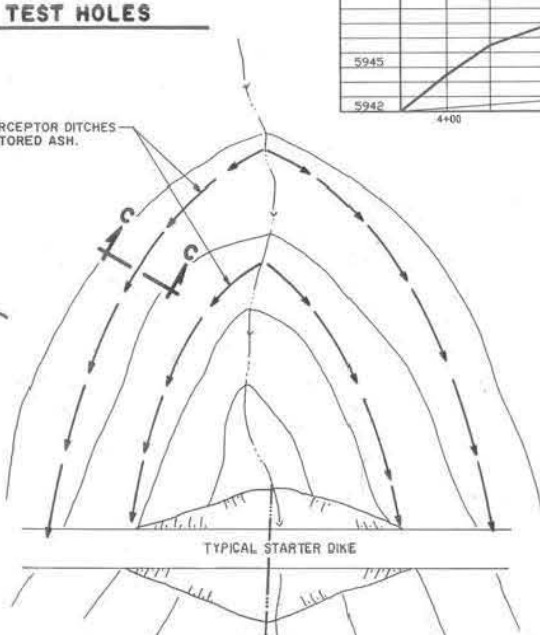
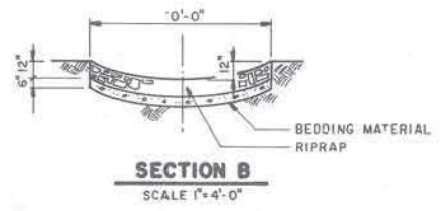
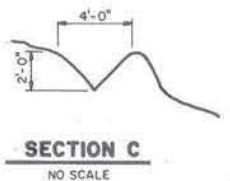
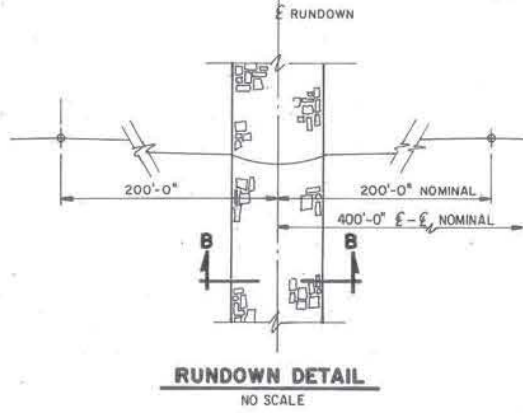
1" IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM A3/D

**APPENDIX B**  
**TYPICAL CROSS SECTIONS AND CONSTRUCTION DETAILS**  
**(HISTORICAL DRAWINGS BY OTHERS)**

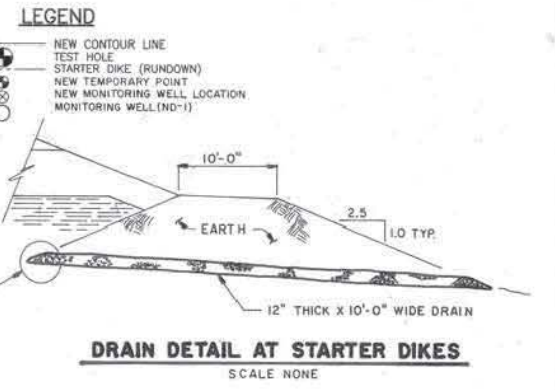
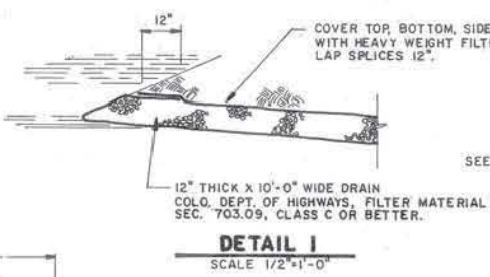
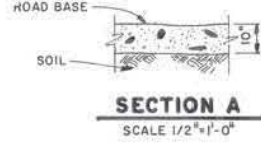
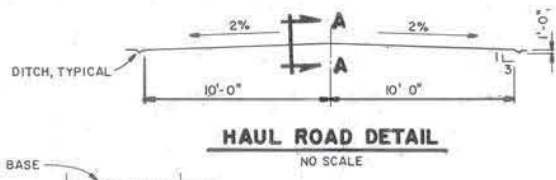


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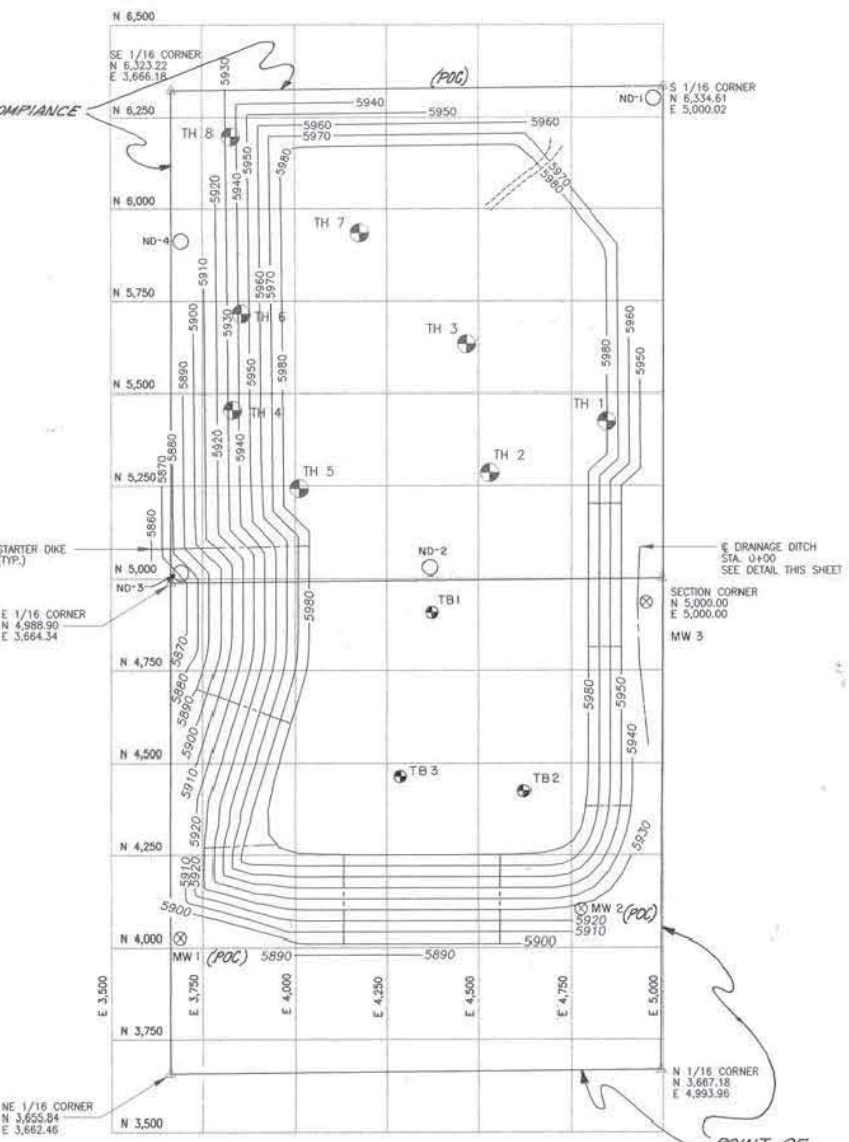
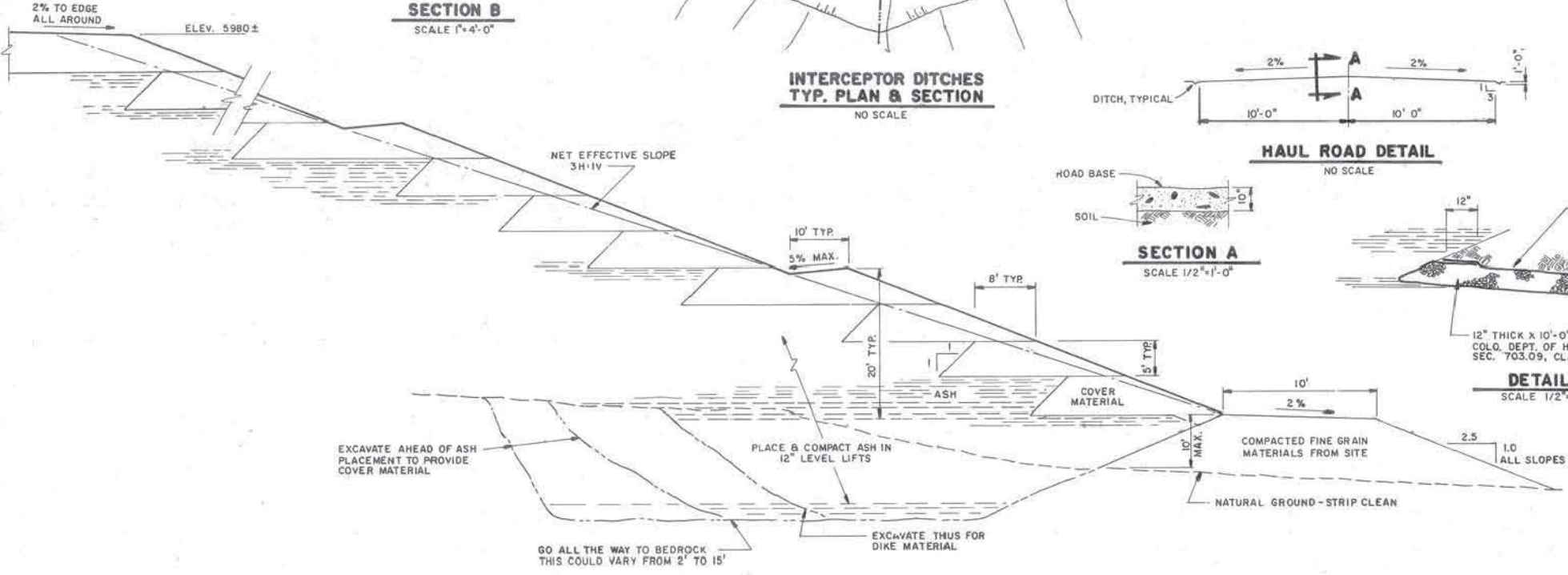
	CLAYEY SAND, BROWN TO RED FINE GRAINED		SAND, CLAYEY, LIGHT BROWN BUFF		SILTSTONE, GRAY VERY FINE GRAINED		SILT AND CLAY, SOME PEBBLES
	SANDSTONE, BROWN TO BUFF FINE GRAINED		SAND, CLAYEY WITH SANDSTONE GRAVEL FRAGMENTS		COAL		SILT WITH HIGH ORGANICS
	SHALE		CLAY, LIGHT BROWN		SANDSTONE WITH ORGANICS (IN BANDS)		CONGLOMERATE



**NOTE:**  
SLOPE 2.5 TO 1 TYPICAL EXCEPT IN ROCK. ROCK MAY BE VERTICAL.



**NOTE:**  
ESTIMATED TIME FOR PHASE I COMPLETION IS 6 1/2 YEARS.



**NOTE:**  
1. CONTOURS ARE AT 10' INTERVALS, AND AT A 3:1 SLOPE.

**LEGEND**

- NEW CONTOUR LINE
- TEST HOLE
- STARTER DIKE (RUNDOWN)
- NEW TEMPORARY POINT
- NEW MONITORING WELL LOCATION
- MONITORING WELL (ND-1)

9/5/25/11	REVISED PER MARKED PRINT	AJM			
8/3/08/02	REVISED PER MARKED PRINT	RDM	MR		
7/10/24/01	REVISED PER MARKED PRINT	RDM	JLG		
6/9/20/01	REVISED PER MARKED PRINT	RDM	JLG		
5/7/17/01	REVISED GRADING PLAN	RDM	JLG		
4/3/25/25	ADDED 2 TEMPORARY DITCHES TO GRADING PLAN	SEA	DEB		
3/5/23/88	RELOCATED ND-1, -2, & -4	WRB	DEB		
7/14/87	REVISED STARTER DIKE LOCATION	DDC	DEB		
1/23/87	REVISED MONITORING WELLS	DEB			

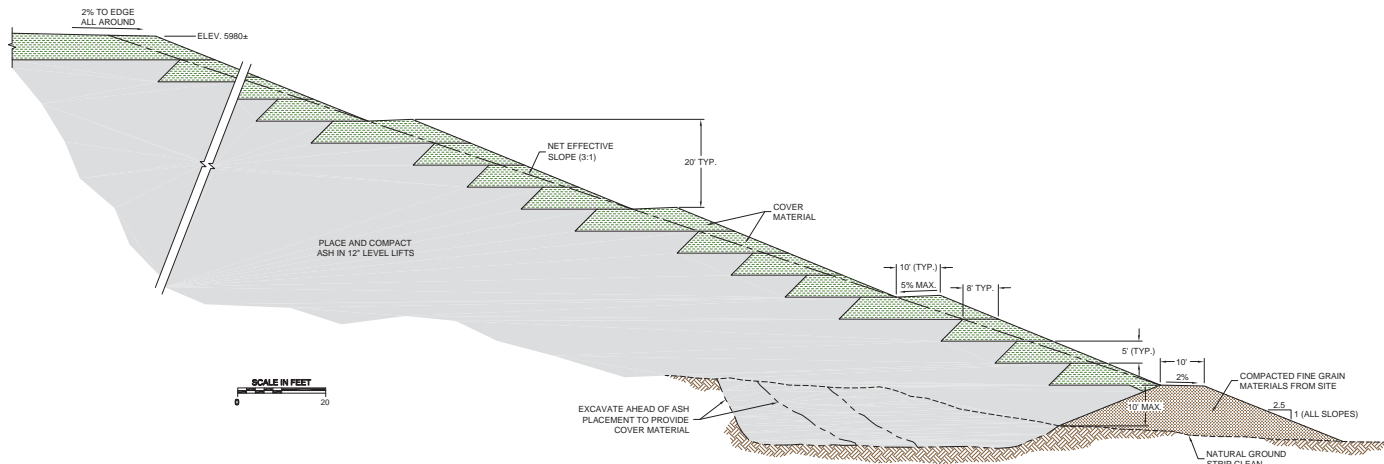
0011-160-07-0008

**COLORADO-UTE ELECTRIC ASSOCIATION, INC.**  
MONTROSE, COLORADO

**NUCLA CFB DEMONSTRATION PROJECT**  
**ASH DISPOSAL AREA**  
**CONSTRUCTION & OPERATION PLAN**

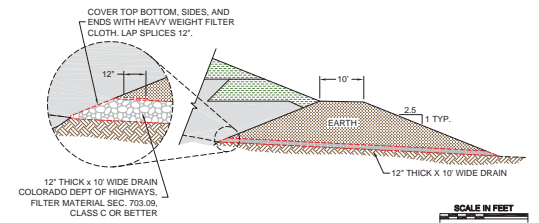
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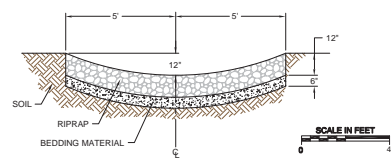


1 PILE CONSTRUCTION SECTION

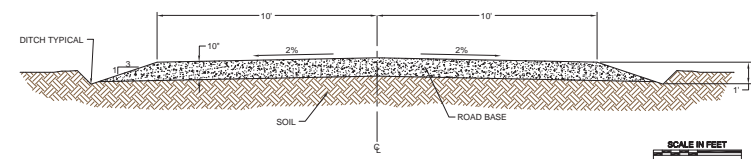
STARTER DIKE



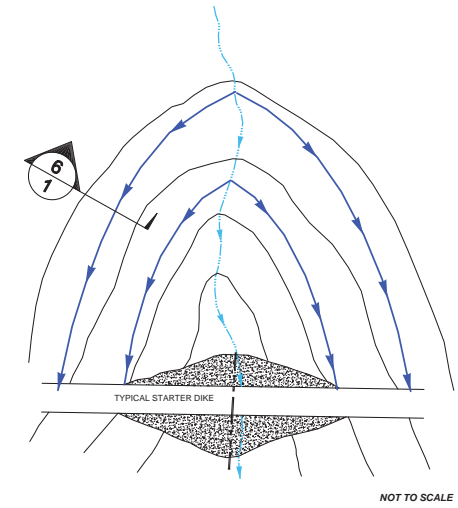
2 STARTER DIKE SECTION AND DRAIN DETAIL



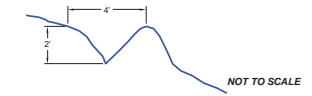
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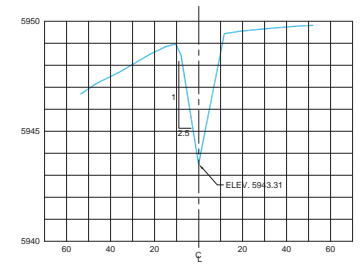
4 ENTRANCE / EXIT HAUL ROAD SECTION



6 INTERCEPTOR DITCHES TYPICAL PLAN



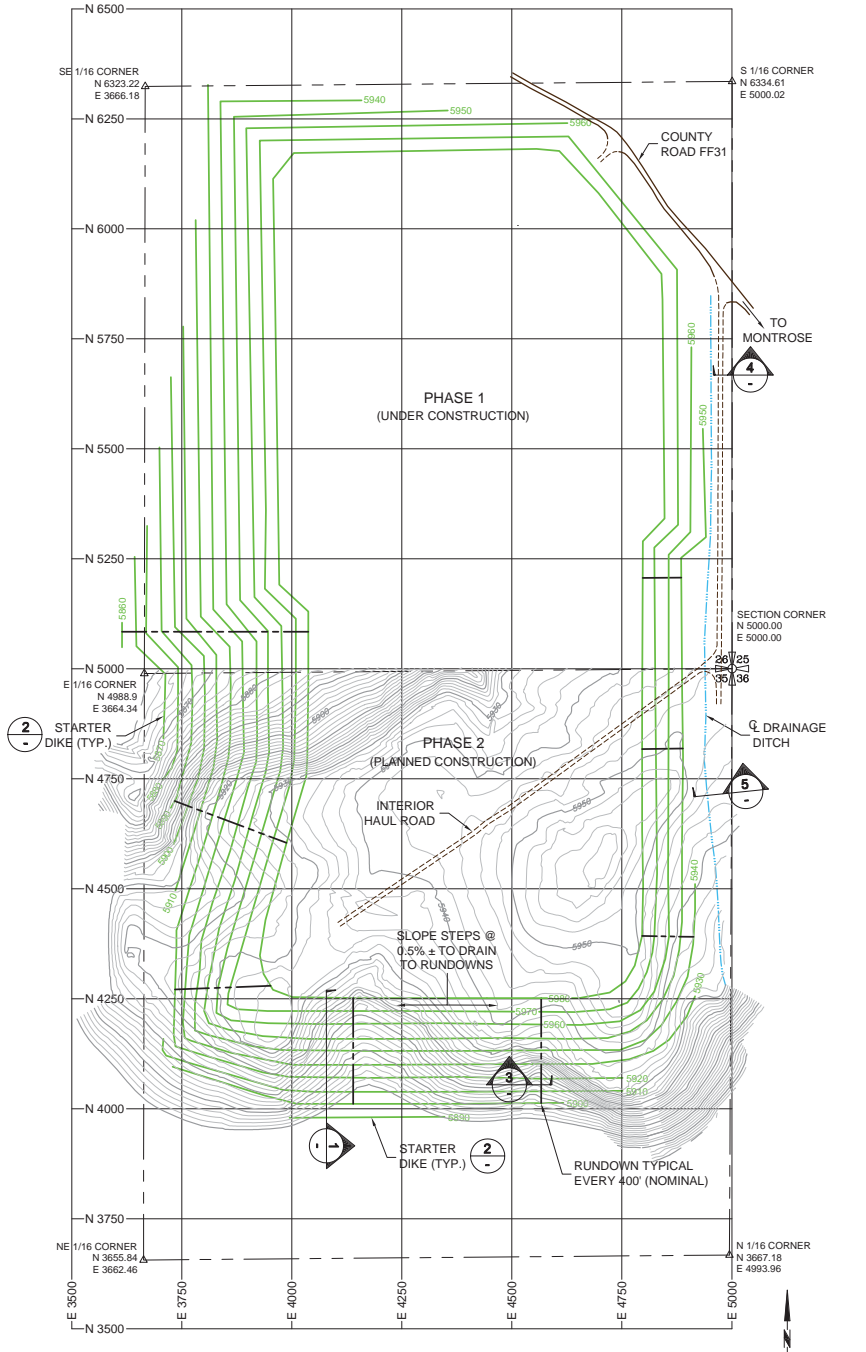
6 INTERCEPTOR DITCHES SECTION



5 NUCLA ASH DITCH SECTION AT STA 2+50 (VERTICAL EXAGGERATION 5 TO 1)

Notes:

1. Drainage Control Plan
  - a. Storm water that flows toward the site is prevented from entering the facility by re-routing along the east edge of the existing and new disposal areas.
  - b. Interceptor ditches prevent storm water that falls on the site from contacting the ash by diverting it around the active ash area.
  - c. Storm water that falls on the active ash area collects in retention areas and evaporates from the site.
2. Starter Dike Design
  - a. The starter dike will be constructed from on-site material by spreading one foot of fine-grained material and then compacted using heavy equipment.
  - b. Multiple starter dikes will be necessary for construction of the landfill.
3. Construction Description
  - a. First the starter dike will be constructed, as described above, from on-site materials.
  - b. Waste disposal will begin by placing one-foot thick lifts of ash and then compacting the ash, as needed.
  - c. Dust will be controlled by placing a thin layer of larger grain size cover material over the ash or by lightly watering.
  - d. Ash placement will continue until the height of the starter dike is reached, then a cover material dike approximately five feet high will be constructed, then, ash will be again be placed in one-foot thick lifts and compacted.
  - e. Ash placement will continue until the height of the cover material dike is reached, then another cover material dike will be constructed and this process continues until the pile has been constructed.
4. Slopes on Steps are Sloped in Two Directions
  - a. The steps are sloped no more than 5% back into the pile so that drainage will flow into the step rather than over the exterior of the pile.
  - b. Second, the steps are sloped tangentially at 0.5% towards the rundowns to divert the drainage down the rundowns.
5. Slopes on Cover Material Dikes
  - a. Cover material are sloped 2.5 to 1 on exterior faces and 1 to 1 on interior faces.
  - b. The 1 to 1 interior face slope will have ash placed against it and the maximum height of the dike is only 5 feet. This slope was selected to minimize disposal volume lost due to the cover material dikes.



GRADING PLAN  
CONTOURS AT 10' INTERVALS, 3:1 SLOPE

LEGEND:  
 --- PRE-CONSTRUCTION CONTOURS  
 --- FINAL CONTOURS

No.	DESCRIPTION	BY	CHKD.	APPROVED	DATE
0	PHASE 2 NUCLA ASH DISPOSAL PROJECT STORMWATER AND ROAD CONSTRUCTION	AW	JG		6/2/03

DWG No.	DRAWING TITLE

DESIGNERS	ENGINEERING RECORD	BY	DATE

PREPARED BY

PREPARED FOR

TITLE

**PHASE 2  
NUCLA ASH DISPOSAL PROJECT  
STORMWATER AND ROAD  
CONSTRUCTION**

PROJECT: 181005	DATE: JUNE 2003	DRAWING: 01	REVISION: 0
SCALE: AS NOTED	ACRIFILE: CONSTRUCT.dwg		

**APPENDIX C**  
**ANNUAL INSPECTION FORM**

**TRI-STATE GENERATION AND TRANSMISSION ASSOCIATION**  
**NUCLA STATION ASH DISPOSAL SITE**  
**ANNUAL INSPECTION FORM**



<b>Inspection Date:</b> September 9, 2015	<b>Inspection Time:</b> 2:00 pm to 4:00 pm	<b>Legend:</b> Y Yes N No NI Not inspected NA Not applicable RA Requires action
<b>Inspector(s):</b> Jason Obermeyer, PE	<b>Title(s):</b> Senior Engineer	
<b>Reviewer:</b> Ron Jorgenson	<b>Title:</b> Senior Practice Leader	

*Instructions: Complete each part of the annual inspection form. Indicate areas of concern on the plan view on page 3. Elaborate on deficiencies in Section J.*

**A. Previous Open Items**

1. Please list open items from the previous year's annual inspection form (Section I.) and indicate whether or not the open items have been resolved:

a.	Y	N	NI	NA	RA	If N and/or RA, please elaborate.
b.	Y	N	NI	NA	RA	If N and/or RA, please elaborate.
c.	Y	N	NI	NA	RA	If N and/or RA, please elaborate.

**B. Atmospheric Conditions**

1. Briefly describe precipitation conditions (rainy, dry, snowy) or notable precipitation events over the last five days: Dry during the inspection, some rain in the last five days.

2. Briefly describe wind (calm, breezy, windy, gusty) and weather (cold, warm, cloudy, sunny) conditions during the inspection: Breezy, warm, and sunny.

**C. Facility Access**

1. Are facility access roads (including the turn from FF31 Road) in good condition?	Y	N	NI	NA	RA	If N and/or RA, please elaborate.
2. Are facility access controls (signage, fencing, gates) in good condition?	Y	N	NI	NA	RA	If N and/or RA, please elaborate.
3. Do you observe signs of unauthorized access or disposal?	Y	N	NI	NA	RA	If Y and/or RA, please elaborate.

**D. Fill Area**

1. Where are ash and/or other materials currently being deposited (indicate on the plan view on page 3 or write N/A)? Refer to the plan view on page 3.

2. Do you observe signs of ground movement in the fill area?	Y	N	NI	NA	RA	If Y and/or RA, please elaborate.
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If Y, please circle those that apply: Slough or Slide Cracking Subsidence Bulging

3. Do you observe ponded water in the fill area (if Y, sketch on the plan view on page 3)?	Y	N	NI	NA	RA	If RA, please elaborate.
4. Does it appear that fugitive dust (fill area and roads) is being adequately controlled?	Y	N	NI	NA	RA	If N and/or RA, please elaborate.
5. Are controls in place to keep ash contact water from migrating outside of the fill area?	Y	N	NI	NA	RA	If N and/or RA, please elaborate.

**E. Embankment Crest**

1. Do you observe cracks along the embankment crest?	Y	N	NI	NA	RA	If Y and/or RA, please elaborate.
2. Do you observe differential settlement (low areas) along the embankment crest?	Y	N	NI	NA	RA	If Y and/or RA, please elaborate.
3. Are the roads around and on the facility in good condition?	Y	N	NI	NA	RA	If N and/or RA, please elaborate.

<b>F. Exterior Slopes</b>						
1. Briefly describe ground conditions (wet, dry, soft, firm). North: Firm	East: Firm		South: Firm		West: Firm	
2. Do you observe signs of movement or instability on the exterior slopes? If Y, please circle those that apply: Slough or Slide Cracking Subsidence Bulging	Y	N	NI	NA	RA	If Y and/or RA, please elaborate.
3. Do you observe signs of excessive erosion or slope deterioration?	Y	N	NI	NA	RA	If Y and/or RA, please elaborate.
4. Do you observe unusual vegetative growth (thriving or poor growth) or woody vegetation?	Y	N	NI	NA	RA	If Y and/or RA, please elaborate.
5. Do you observe animal burrows on the exterior slopes?	Y	N	NI	NA	RA	If Y and/or RA, please elaborate.
<b>G. Embankment Toe</b>						
1. Do you observe signs of seepage (springs or boggy areas) at the embankment toe?	Y	N	NI	NA	RA	If Y and/or RA, please elaborate.
2. Do you observe ash outside of the disposal footprint?	Y	N	NI	NA	RA	If Y and/or RA, please elaborate.
<b>H. Storm Water Controls</b>						
1. Are rundowns (downchute channels) and energy dissipation features in good condition?	Y	N	NI	NA	RA	If N and/or RA, please elaborate.
2. Are terrace channels in good condition and providing positive drainage toward rundowns?	Y	N	NI	NA	RA	If N and/or RA, please elaborate.
3. Are perimeter channels and discharge outfalls in good condition?	Y	N	NI	NA	RA	If N and/or RA, please elaborate.
<b>I. Open Items</b>						
1. Please list unresolved items from previous annual inspections (RA in Section A.) and new items identified during the annual inspection (RA in Sections B. through H.):						
a.						
b.						
c.						
d.						
e.						
<b>J. Elaboration</b>						
<b>Identify the specific item number (for instance, F.2.) and elaborate on each deficiency or issue identified during the annual inspection. Attach documentation (photographs or sketches) if practical.</b>						
A.1. This is the initial annual inspection, so annual inspection forms from previous years do not exist.						
F.4. Some woody shrubs were observed on the embankment slopes. This type of vegetation is typical of the surrounding area, and mitigation is not considered to be necessary. No trees were observed on the embankment slopes, and the woody shrubs do not pose a threat to structural stability.						
F.5. Animal burrows were observed in two areas, as shown on page 3. The extent of burrowing was minor and does not pose a threat to structural stability. Nevertheless, taking measures to discourage the presence of burrowing animals at the facility is advisable.						



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