



COAL COMBUSTION RESIDUALS LANDFILL ANNUAL INSPECTION REPORT

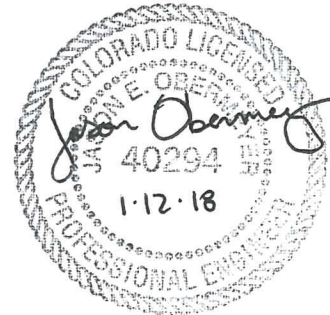
Nucla Station Ash Disposal Site

REPORT



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

Submitted by: Golder Associates Inc.
44 Union Boulevard, Suite 300
Lakewood, Colorado 80228



January 12, 2018

1779126B

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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 located near Nucla, Colorado. 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 prescribes 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. Golder's visual observations took place on December 7, 2017. This report is the third 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 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 has been increased gradually as needed to contain the ash being generated. The height is increased through the use of containment berms that are periodically constructed around the perimeter of the facility in areas of active filling. Each individual containment berm, typically about five feet in height, is constructed atop and slightly inside of the previous containment berm to form the embankment slopes. At approximate 20-foot vertical intervals, the containment berms are inwardly offset an additional 10 feet to establish benches with terrace channels for surface water management. 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 are designed to be constructed of

suitable material, to have sufficient thickness perpendicular to the embankment slope, and to be vegetated such that they 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 embankment slope area and approximately 17 acres of top surface area. The most recent ground topography for 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 by others 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 has 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 has 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);
- The initial annual inspection report for the facility (Golder Associates Inc. 2016a);
- The second annual inspection report for the facility (Golder Associates Inc. 2017);
- The run-on and run-off control system plan for the facility (Golder Associates Inc. 2016b); and
- Weekly inspection forms documenting weekly inspections conducted by qualified persons employed by Tri-State between December 29, 2016, and December 27, 2017.

The weekly inspection forms provided valuable information regarding the condition of the facility throughout 2017, as well as the repair and improvement activities that were completed.

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. The geometric design criteria, ash placement limits, and construction methodology for the facility did not change in 2017. Ash generation was limited in 2017, as coal combustion only took place at Nucla Station for about 52 days over the course of the year. Ash placement resulted in increased surface elevations within a relatively small area in the southern half of the facility. The containment berm around the southern half of the facility also increased in elevation as needed to contain placed ash, ash contact water, and fugitive dust emissions.

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 the estimated volume of ash contained in the facility at the time of the second annual inspection report (4,610,000 cubic yards) and Tri-State's estimate of the volume of ash placed in the facility from that time to the date of the inspection (27,000 cubic

yards, based on an in-place dry density of 66 pounds per cubic foot), Golder calculates that the volume of ash contained within the facility is 4,637,000 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. Our review of the weekly inspection forms completed between December 29, 2016, and December 27, 2017, indicates that changes affecting the stability or operation of the facility have not been identified during the weekly inspections. The weekly inspection forms indicate that minor issues, such as erosion rills and animal burrows, are being addressed proactively. Indications of changes that affect stability or operation of the facility were not identified during Golder's visual observations on December 7, 2017 (refer to Section 3).

3.0 VISUAL OBSERVATION

3.1 Overview

40 CFR 257.84(b)(1)(ii) requires the annual inspection to include visual observation 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 December 7, 2017. 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. Signs of ground movement, such as sloughing or sliding, cracking, subsidence, or bulging, were not observed in the ash deposition area. Ash deposition was not occurring at the time of the visual observation because the generating unit was not operating. The ash deposition area was appropriately graded so that ash contact water would collect 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 not observed at the time of the visual observation, and a water truck was observed applying water for dust suppression. The typical condition of the ash deposition area is depicted in Photograph 1.



Photograph 1: Typical Ash Deposition Area Condition

3.3.2 Embankment Crest

The embankment crest was observed to be in good condition. Cracking that would be indicative of ground movement was not observed along the embankment crest. Low areas that would be indicative of differential settlement were not observed along the embankment crest. The typical condition of the embankment crest is depicted in Photograph 2.



Photograph 2: Typical Embankment Crest Condition

3.3.3 Embankment Slopes

The embankment slopes were observed to be in good condition. Signs of ground movement, such as sloughing or sliding, cracking, subsidence, or bulging, were not observed on the embankment slopes. Evidence of significant or excessive erosion or slope deterioration was not observed on the embankment slopes. Some areas of minor rilling were noted. The observed rills do not pose a threat to structural stability, and it was evident that repair of erosion rills is being conducted on an ongoing basis. 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 has been established on the embankment slopes as the facility has been progressively built higher. Portions of the embankment slopes had adequate vegetative coverage at the time of the visual observation, while other portions had been reseeded in 2017 in an effort to establish a more robust vegetative coverage in these areas. Other than these reseeded areas, where insufficient time had elapsed to establish mature vegetative communities, unusually poor or thriving vegetative growth was not observed on the embankment slopes. Some shrubs were observed on the embankment slopes. This type of vegetation is typical of the surrounding area. The extent of shrubs was minor and does not pose a threat to structural stability. Thus, mitigation is not considered to be necessary. No trees were observed on the embankment slopes. Minor animal burrowing was observed in three areas, as shown on the plan view

included in Appendix C. Tri-State indicated that an extermination effort was undertaken in 2017; the burrows may have predated that effort, as no sign of active burrowing was observed. 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 Photograph 3. The embankment slopes shown in Photograph 3 were among those that were reseeded and subsequently tracked with a dozer in 2017, and vegetative coverage on these embankment slopes is therefore limited.



Photograph 3: Typical Embankment Slope Condition

3.3.4 Embankment Toe

The embankment toe was observed to be in good condition. Signs of seepage, such as springs or boggy areas, were not observed along the embankment toe. The typical condition of the embankment toe is depicted in Photograph 4.



Photograph 4: Typical Embankment Toe Condition

3.3.5 Storm Water Control Features

The storm water control features at the facility were observed to be in good 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 small shrubs growing in the flow path, and Golder recommends that the shrubs be removed periodically if they become large enough to impede flow or cause riprap to shift. However, the shrubs do not pose a threat to structural stability and did not impact Golder's ability to inspect the facility. The typical condition of the downchute channels is depicted in Photograph 5. Terrace channels at the facility are provided at approximate 20-foot vertical intervals and are grass-lined. Erosion control 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 Photograph 6. Perimeter channels are in place around the facility where they are needed. Perimeter channels at the facility are generally constructed with soil and rock. Surface water calculations completed by Golder indicate that the perimeter channels are located and sized appropriately to convey the 25-year, 24-hour storm event. Debris (tumbleweeds) buildup in a perimeter channel at the outlet of the corrugated metal culverts under the entrance road were

noted, as shown on the plan view included in Appendix C. This buildup should be removed periodically, but does not pose a threat to structural stability and did not impact Golder's ability to inspect the facility. Erosion control wattles have been installed at appropriate intervals in the perimeter channels to control erosion and capture sediment. The typical condition of the perimeter channels is depicted in Photograph 7.



Photograph 5: Typical Downchute Channel Condition



Photograph 6: Typical Terrace Channel Condition

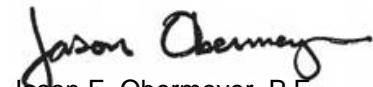


Photograph 7: Typical Perimeter Channel Condition

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. The facility is in good condition overall. Signs of distress or malfunction of the facility were not observed, and appearances of actual or potential structural weakness of the facility were not identified. Current facility maintenance practices, including 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, should continue as the need is indicated by weekly inspections conducted in accordance with 40 CFR 257.84(a).

GOLDER ASSOCIATES INC.



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

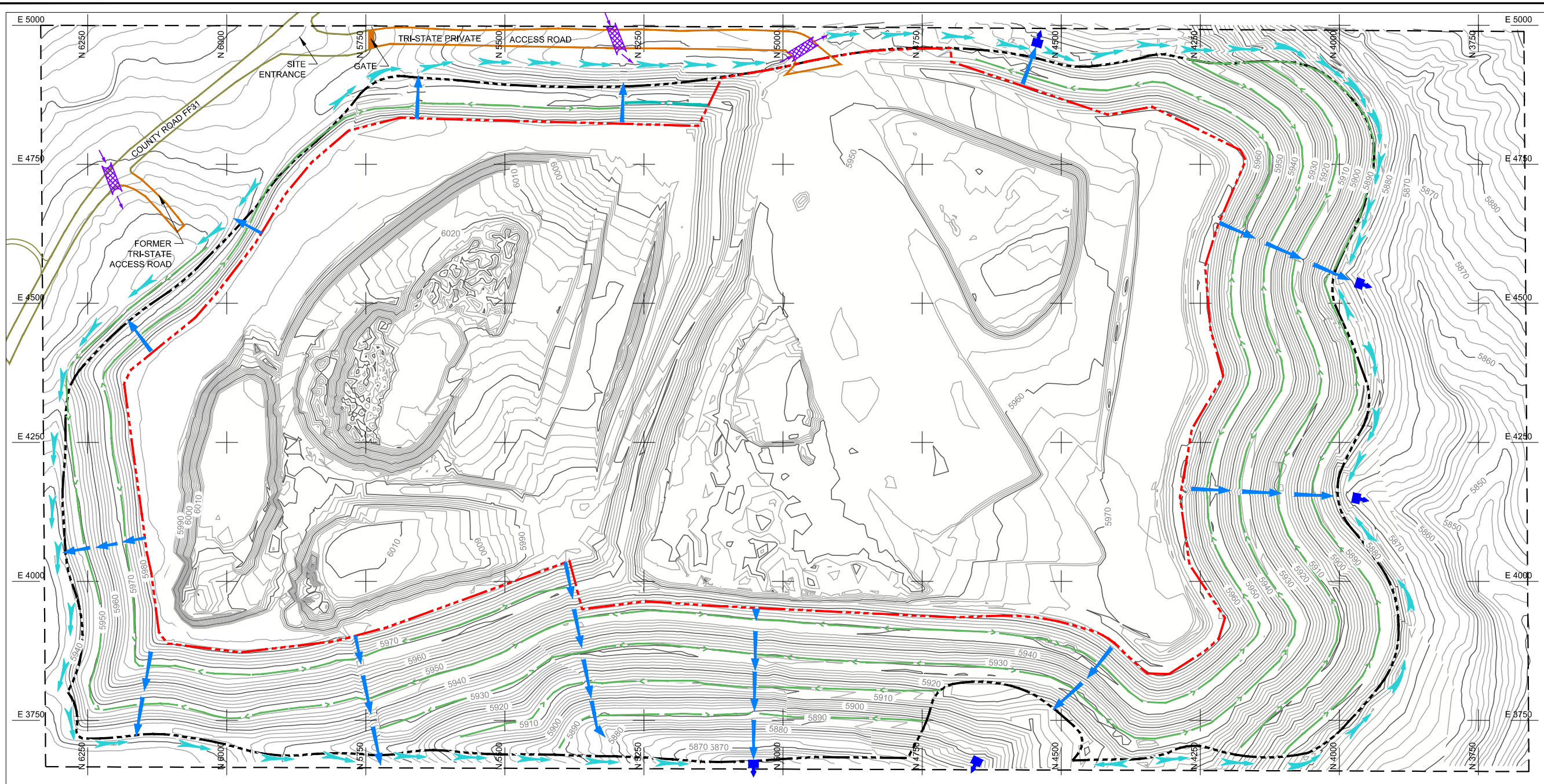


Ron R. Jorgenson
Principal and Senior Practice Leader

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.
- Golder Associates Inc. (2016a). Coal Combustion Residuals Landfill Annual Inspection Report, Nucla Station Ash Disposal Site. Report prepared for Tri-State Generation and Transmission Association, Inc. January.
- Golder Associates Inc. (2016b). Run-on and Run-off Control System Plan, Nucla Station Ash Disposal Facility. Plan prepared for Tri-State Generation and Transmission Association, Inc. October.
- Golder Associates Inc. (2017). Coal Combustion Residuals Landfill Annual Inspection Report, Nucla Station Ash Disposal Site. Report prepared for Tri-State Generation and Transmission Association, Inc. January.
- 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 FIGURE



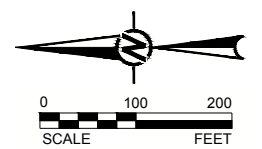
LEGEND

	EXISTING GROUND TOPOGRAPHY (SEE REFERENCE 1)
	PUBLIC ROADS
	PRIVATE ROADS
	PROPERTY LINE
	TERRACE CHANNEL
	DOWNCHUTE CHANNEL
	LIMIT OF FINISHED SIDESLOPES (22 ACRES)
	APPROXIMATE ASH DISPOSAL FOOTPRINT LIMIT (PROVIDED BY TRI-STATE) (61 ACRES)

	STORMWATER DISCHARGE POINT
	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 2016.
 2. COORDINATES ARE BASED ON PLANT GRID SYSTEM.



REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
D	2018-01-08	ISSUED WITH ANNUAL INSPECTION REPORT	ELH	KAC	JEO	RRJ
C	2017-01-03	ISSUED WITH ANNUAL INSPECTION REPORT	ELH	KAC	JEO	RRJ
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
 WESTMINSTER, COLORADO 80234



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 44 UNION BLVD., SUITE 300
 LAKEWOOD, COLORADO
 USA
 (303) 980-0540
 www.golder.com

PROJECT
NUCLA STATION
 ASH DISPOSAL SITE
 ANNUAL INSPECTION REPORT

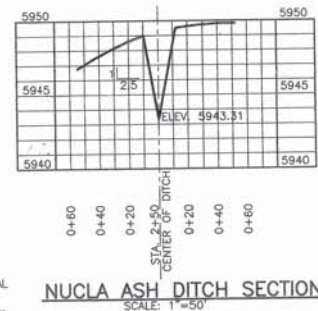
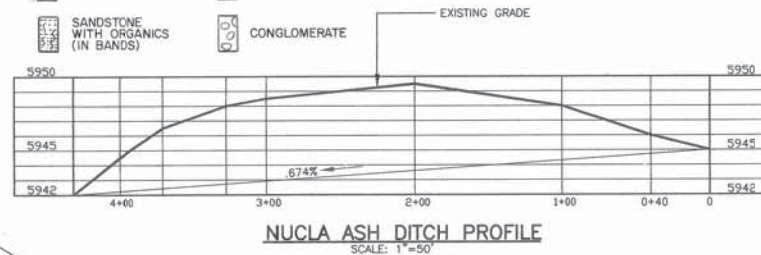
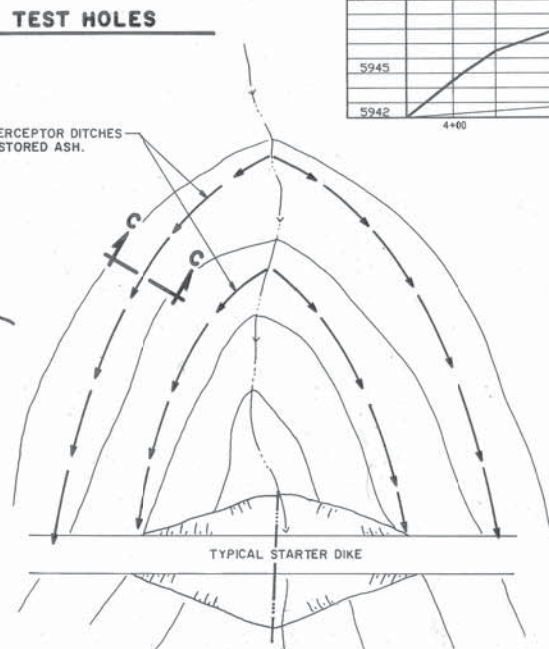
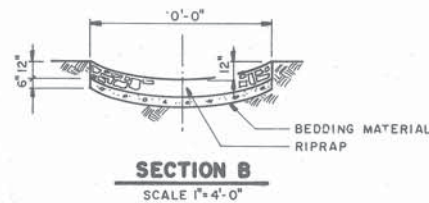
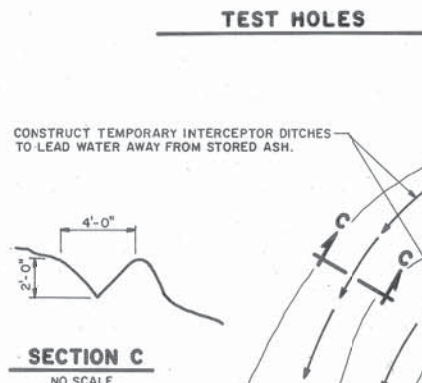
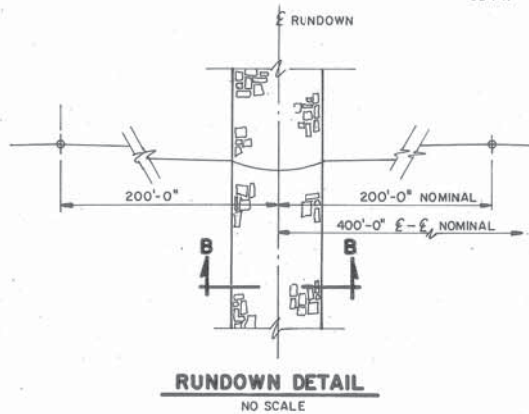
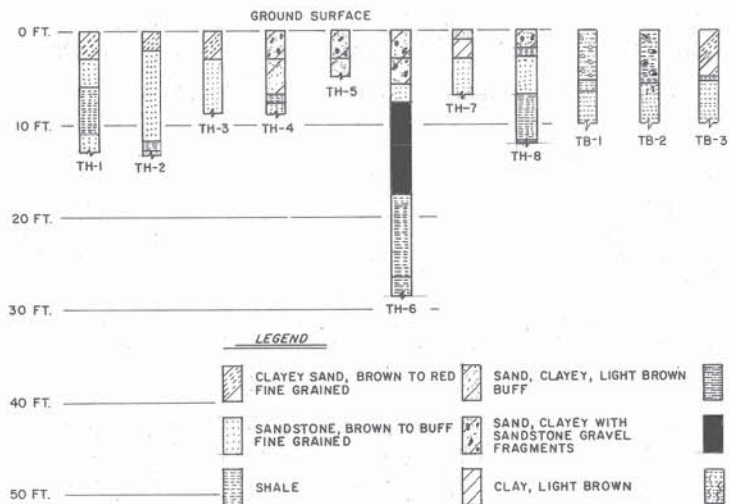
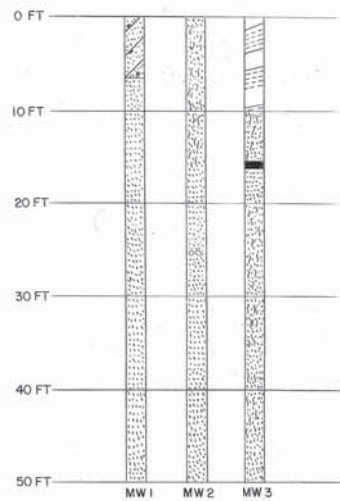
TITLE
EXISTING CONDITIONS

PROJECT NO. 1779126B
 REV. D
 FIGURE A-1

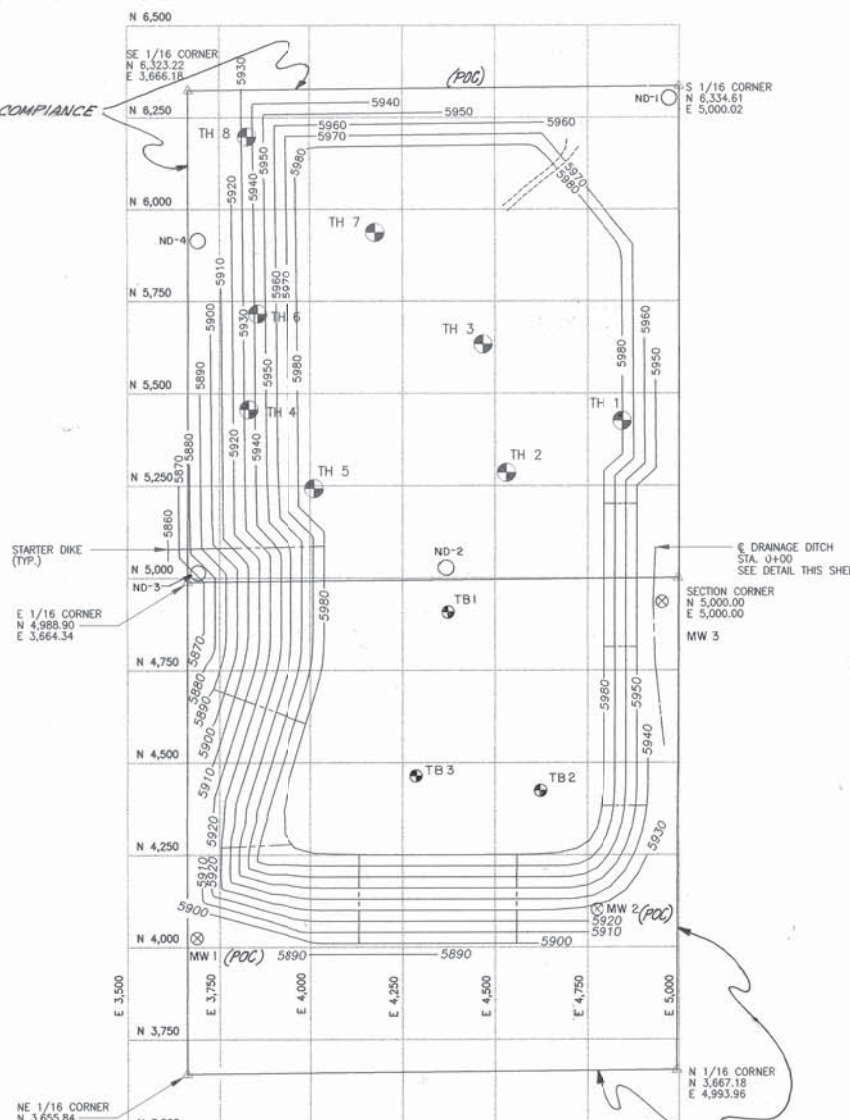
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1 in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM A NS D

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

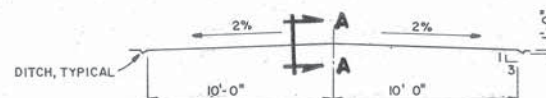


NOTE:
SLOPE 2.5 TO 1 TYPICAL EXCEPT IN ROCK. ROCK MAY BE VERTICAL.

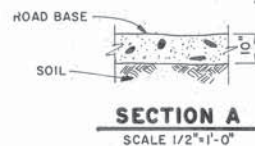


NOTE:
1. CONTOURS ARE AT 10' INTERVALS, AND AT A 3:1 SLOPE.

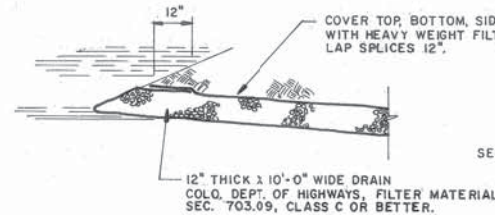
GRADING PLAN
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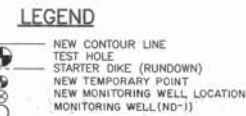
HAUL ROAD DETAIL
NO SCALE



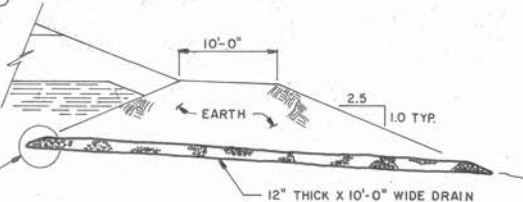
SECTION A
SCALE 1/2"=1'-0"



DETAIL I
SCALE 1/2"=1'-0"

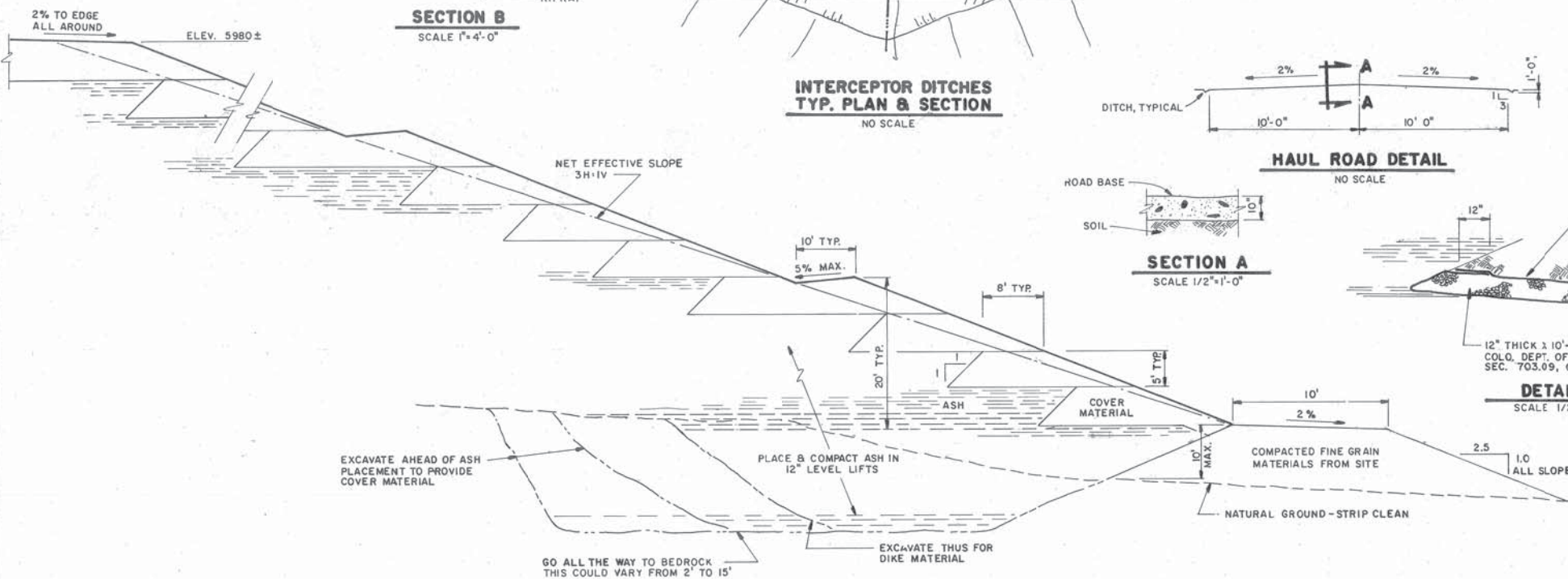


LEGEND



DRAIN DETAIL AT STARTER DIKES
SCALE NONE

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



EXCAVATE AHEAD OF ASH PLACEMENT TO PROVIDE COVER MATERIAL
GO ALL THE WAY TO BEDROCK THIS COULD VARY FROM 2' TO 15'
EXCAVATE THIS FOR DIKE MATERIAL

PILE CONSTRUCTION DETAIL
SCALE NONE

STARTER DIKE
SCALE NONE

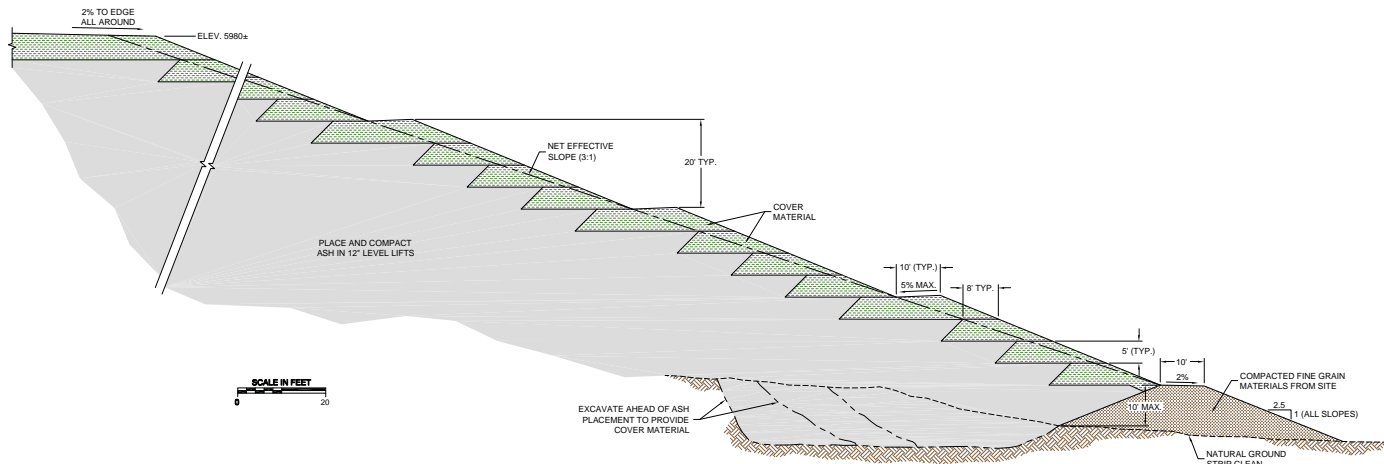
NO.	DATE	REVISION	BY	CHKD.	APPV.
9	5-25-11	REVISED PER MARKED PRINT	ALJ		
8	3-08-02	REVISED PER MARKED PRINT	RDM	MR	
7	10-24-01	REVISED PER MARKED PRINT	RDM	MR	
6	9-20-01	REVISED PER MARKED PRINT	RDM	JLG	
5	7-17-01	REVISED GRADING PLAN	RDM	JLG	
4	3-25-99	ADDED 2 TEMPORARY DITCHES TO GRADING PLAN	S.A.		
3	5-23-88	RELOCATED ND-1, -2, & -4	WRB		
2	7/14/87	REVISED STARTER DIKE LOCATION	DGC		
1	1/23/87	REVISE MONITORING WELLS	RDM		

0011-160-07-0008

COLORADO-UTE ELECTRIC ASSOCIATION, INC.
MONTROSE, COLORADO

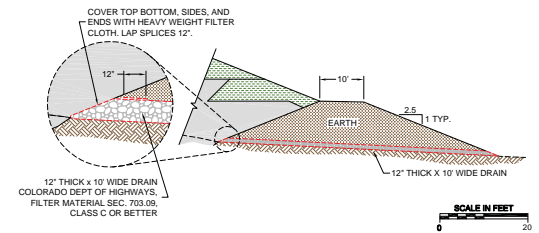
**NUCLA CFB DEMONSTRATION PROJECT
ASH DISPOSAL AREA
CONSTRUCTION & OPERATION PLAN**

DRAWN: M.A. [Signature] SCALE: SEE ABOVE
CHECKED: J.S. [Signature] DATE: DEC. 12, 1986
DWG. NO.: 0350-12-009-001 SHEET: 18

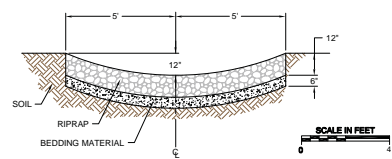


1 PILE CONSTRUCTION SECTION

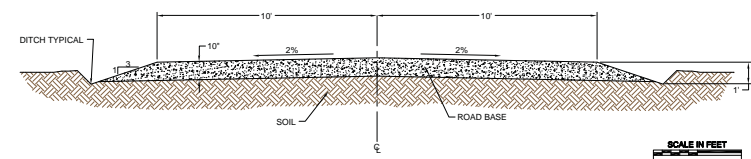
STARTER DIKE



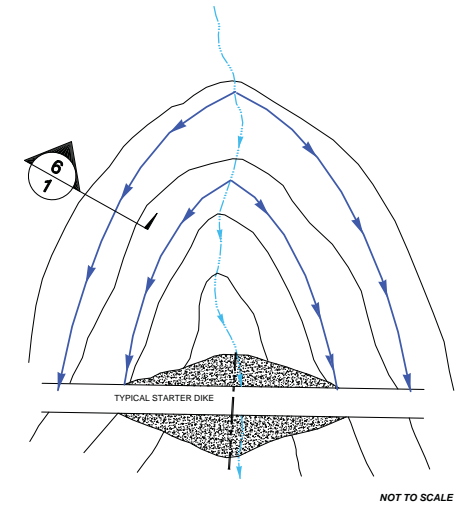
2 STARTER DIKE SECTION AND DRAIN DETAIL



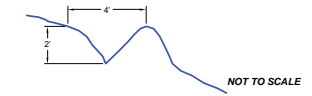
3 RUNDOWN SECTION



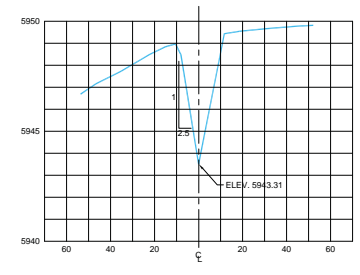
4 ENTRANCE / EXIT HAUL ROAD SECTION



INTERCEPTOR DITCHES TYPICAL PLAN



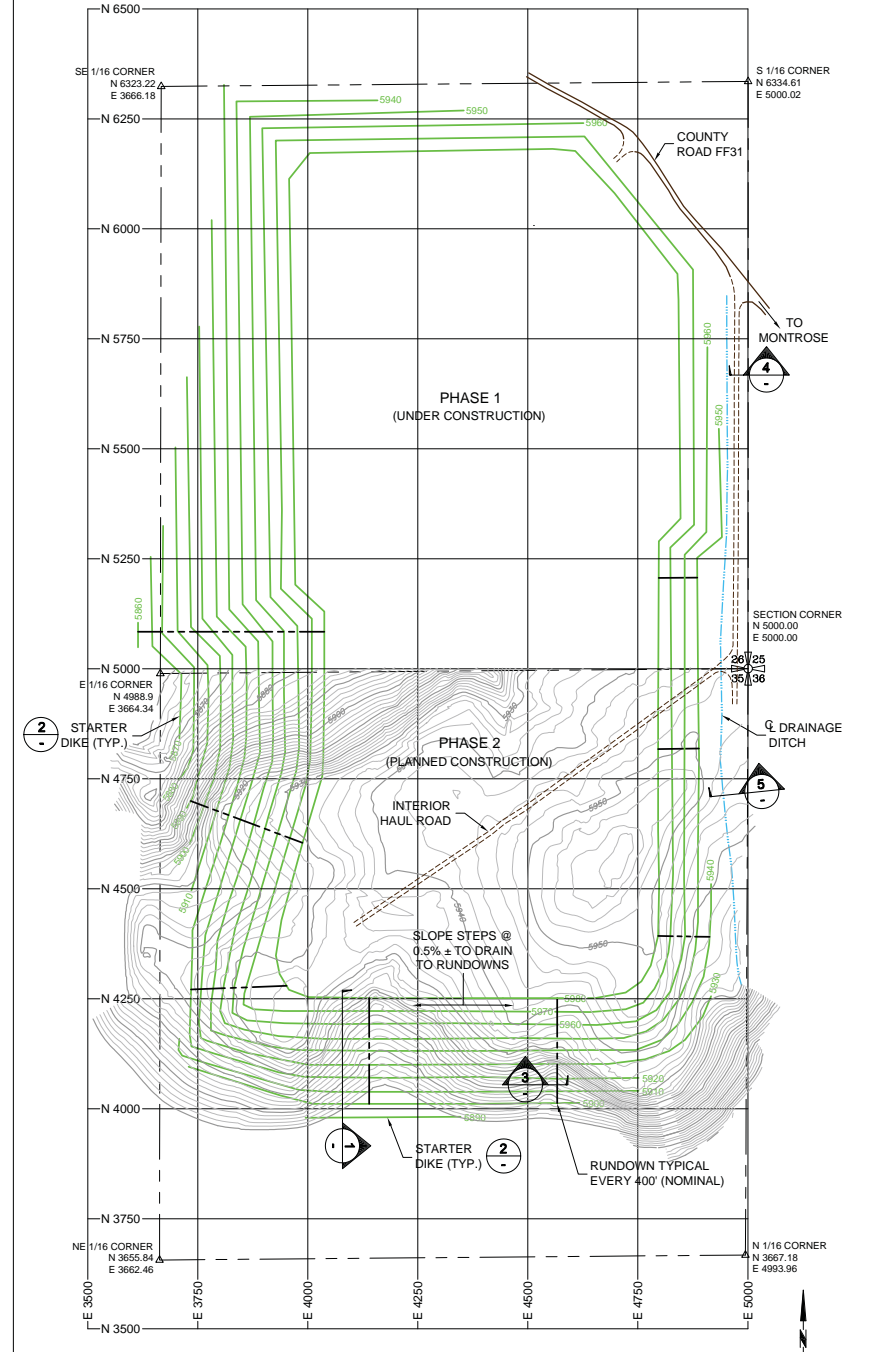
6 INTERCEPTOR DITCHES SECTION



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

PROJECT: 181005
SCALE: AS NOTED

DATE: JUNE 2003
ACRIFILE: CONSTRUCT.dwg

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

DRAWING: 01
REVISION: 0

APPENDIX C
ANNUAL INSPECTION FORM

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



Inspection Date: December 7, 2017	Inspection Time: 9:15am to 11:00am	Legend: Y Yes N No NI Not inspected NA Not applicable RA Requires action
Inspector(s): Jason Obermeyer, PE	Title(s): Senior Engineer	
Reviewer: Ron Jorgenson	Title: 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: None.

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, no precipitation in the last five days

2. Briefly describe wind (calm, breezy, windy, gusty) and weather (cold, warm, cloudy, sunny) conditions during the inspection: Calm, sunny, cold (~25°F)

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)? N/A (no active deposition; latest fill area observed – 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.

F. Exterior Slopes						
1. Briefly describe ground conditions (wet, dry, soft, firm). North: Dry, firm East: Dry, firm South: Dry, dozer-tracked West: Dry, 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.
G. Embankment Toe						
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.
H. Storm Water Controls						
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.
I. Open Items						
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.						
J. Elaboration						
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.						
F.5. A few burrows were observed in each of the locations shown on page 3. The burrows did not show evidence of recent activity and are not currently of concern for stability of the embankment slopes.						



Aerial Image: Google Earth Pro, April 2015.



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