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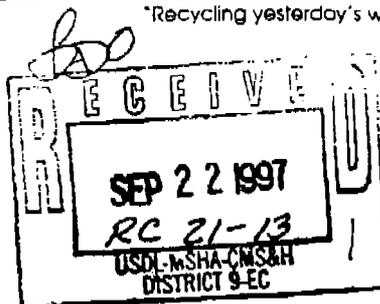


COVOL

TECHNOLOGIES, INC.

"Recycling yesterday's waste into tomorrow's resources."

September 19, 1997



MPA 411001

RC 21-12
MPA 411000

Mr. John A. Kuzar
District Manager
Mine Safety and Health Administration
District 9
PO Box 25367
Denver, CO 80225-0367

Re: Amendment to Ground Control Plan; Wellington, Utah Preparation Site
MSHA ID No. 42-00099

Dear Mr. Kuzar:

As per our discussions with Mr. Michael Stanton of your office, please find attached an amendment to the Ground Control Plan for Phase 1 (Testing Phase) of the Wellington, Utah Preparation Plant operations. This amendment addresses drainage and water diversion issues as requested by MSHA.

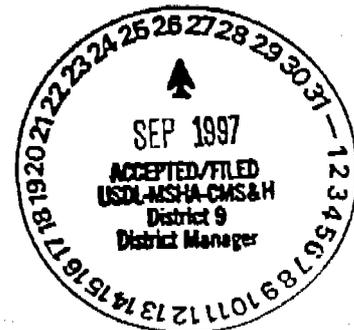
As always, if you have any comments or questions, please feel free to contact me at (801) 768-4481.

Best regards,

Steve Brown
Vice President, Engineering and Construction
Covol Technologies, Inc.

MSHA - PRICE
Jim Kirk
637-3051

Roy Bensen - COVOL



Wellington, Utah Preparation Plant

**Ground Control Plan
(Working Document for Phase One of Operations)**

as required by

Title 30 - Mineral Resources

**Chapter - Mine Safety and Health Administration
U.S. Department of Labor**

Subchapter 0 - Coal Mine Safety and Health

**Part 77 - Mandatory Safety Standards, Surface Coal Mines and Surface Work
Areas of Underground Coal Mines**

Subpart K - Ground Control

September 15, 1997



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Box Cuts; spoil material placement

Ground Control; inspection and maintenance; general

Drilling

Jackhammer; operations; safeguards

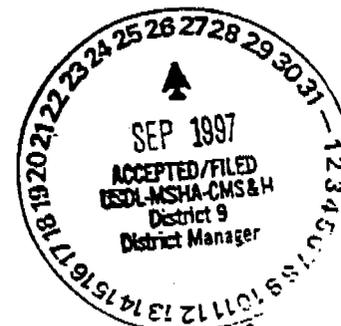
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Wellington, Utah Preparation Plant Ground Control Plan -- Working Plan

Name of Mining Operation: Covol Technologies, Inc., Wellington, Utah
Preparation Plant

Location: Wellington, Utah

MSHA Identification No. 42-00099

Name & Address of Operator/Owner: Covol Technologies, Inc.
3280 North Frontage Road
Lehi, Utah 84043
Tel. (801) 768-4481
Fax (801) 768-4483

Name & Title of Company Official: Roy Benson, Director of Safety

Location Map: See Figure 1

Intended Mining Activities & Request for Authorization of First Phase Operations

Covol Technologies, Inc. will recover approximately three million tons of coals fines deposited by previous preparation plant activities at the Wellington site. Said fines are situated in a refuse basin located at the site. It is anticipated that the entire recovery operation will last three years and will be carried out in three corresponding phases. This plan is intended to cover Phase 1, a test phase.

Phase Two and Phase Three will be submitted to MSHA before these phases begin.

Overview of Wellington Existing Conditions

The refuse basin is large. The basin contains a substantial amount of coal refuse from past coal cleaning operations. The refuse basin is separated from the clearwater basin on the southwest by a constructed dike. The refuse basin is divided by a dike into two main parts that form the upper refuse basin and the lower refuse basin. The dike for the lower basin is higher than the dike for the upper basin and therefore, the upper basin and the lower basin actual form one impoundment.



The excess water in the refuse basin currently overflows into the clearwater basin through three 18" diameter steel riser spillways that allow primary spillway water to overflow at controlled elevations above the upper dead band elevation of 5376'.

Description of Materials to be Recovered

There are approximately three million tons of coal fines that Wellington site. These fines are the by-product of prior coal preparation activities. The ponds cover approximately 584 acres. Coal fines are deposited to depths ranging up to 26 feet.

Description of Mining Operations:

Two mining methods will be employed, dry excavation and a wet dredging operation:

Dry Excavation: The initial recover of coal fines at the site will begin in the northwest area of the upper basin utilizing conventional excavating equipment. e.g.:

- Backhoe Cat. 235
- Loader Cat. D-6
- Loader Cat. 966
- Paddle Wheel Scraper Cat. 623
- Trucks: 10 Wheeler
- 20 Ton Belly Dump
- Or equivalent

It is anticipated that approximately 60,000 tons of coal fines will be removed during this 6-8 week period utilizing the dry excavation method.

Dredge Excavation: The long-term recovery method of coal fines will be utilization of a dredge excavation system.

The dredge will be a MudCat Series 370 manufactured by Ellicott. This equipment will have a 20 foot digging depth and will be operated and controlled with a stem wire system. The dredge will be powered with a 370 HP diesel engine.

Other pieces of equipment on board the dredge are:

- Portable bilge and fire pump with hoses
- Hand tool kit
- Anchors
- Lifeboat and life preservers
- Communication system

The dredged coal fines will be pumped to the fine coal washing plant.



The dredge will float on a minimal amount of water. Approximately, 4 feet of water will initialize its operation. Water will be charged into an excavation approximately 100 feet square when the dredge will commence its operation. The dredging operation will move systematically through the pond. It will be controlled by stem lines and spuds. Accurate control will be maintained both to control mined product as well as preserving a buffer zone near dikes. A minimum of 2 feet will be maintained as protection from disturbing the integrity of impounding dikes.

The dredging activity will operate at water levels at or below the existing dead band lower level and therefore, will be able to contain more than 4 times the required storm containment within the refuse basin. The existing decant structures will be refurbished and placed back into operation as originally designed. The existing normal decant pipes are designed to restrict flows to near normal operations as storm event water rises in the refuse basin storage dead band, so that storm water is regulated from the refuse basin to the clearwater basin over a period of several weeks.

The upper refuse basin decant structures will be refurbished and placed back into operation as originally designed. The upper refuse basin dike includes four 10" diameter existing normal decants pipes at approximately 5374' elevation and two 18" diameter steel riser spillways that allow primary spillway water to overflow at elevations above the upper dead band level of 5380'. Although a dead band exists for the upper refuse basin, it will not be required to contain a storm event.

The proposed northwest tailings area is fully contained with the upper refuse pond. The berm and is intended to provide a separation between tailings deposition and initial dredging operations. As such, the northwest tailings area berm is provided with a normal decant 20" diameter steel riser spillway that allows all water to pass through. Normal water level of the northwest area will be adjusted with overflow weir boards to maintain the depth of free water in the tailings area at approximately one to two feet. This shallow depth will be utilized to facilitate sub-aerial tailings deposition in the northwest area of the upper refuse basin.

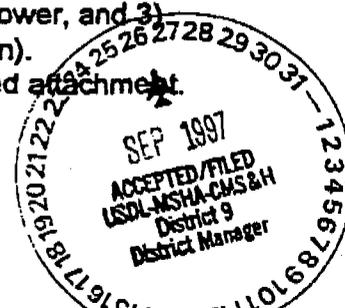
The crest of both the refuse basin dike and the clearwater dike are above the emergency spillways and service as final freeboard and overflow should such as unlikely event occur.

Deposition of Washed Tails

Washed tails being discharged from the fine coal wash plant will be deposited into the existing tailings basin. This deposition will be done in a controlled fashion to minimize the depth of retained water. As tails settle, a "beach" is advanced toward the water where the dredge is removing coal fines. The delivery system of pipe will be moved as required to achieve desired formation.

Impoundments

The Wellington site has three existing impoundments dikes, 1) upper, 2) lower, and 3) clearwater. (See Figure 2 -Impoundments: Ponds and Pipelines Site Plan). Corresponding impoundment numbers are included on the aforementioned attachment.



Covol's mining/recovery operations at the Wellington site will not create new or modify existing impoundments at the site. Therefore, the integrity of the existing impoundment structures will be maintained.

Safety Precautions for Dry Excavation

The expected duration of dry mining is short, and employs conventional excavating equipment. Nevertheless, all miners will be properly trained to operate equipment and to recognize hazards.

The coal fines will be removed from the top on the dry surface. The stability of the material will not support a highwall. The exposed face of the excavation will be sloped to a safe angle to prevent caving and sloughing. Daily inspections of the excavation will be made and documented.

Safety Precautions for Dredge Excavation

The dredge operation will be trained to operate the dredge equipment. Safety equipment will be supplied on the dredge including a life boat. The operator will have full time communication with plant supervision located at the washing facility.

Stripping; loose materials

None

Box Cuts; spoil material placement

None

Ground Control; inspection and maintenance; general

The active working area of the mining operation shall be inspected following every rain, freeze, or thaw before men work such area. The examination shall be made and recorded in accordance with §77.1713.

Drilling

None

Jackhammers; operations; safeguards

None

Air drills; safeguards

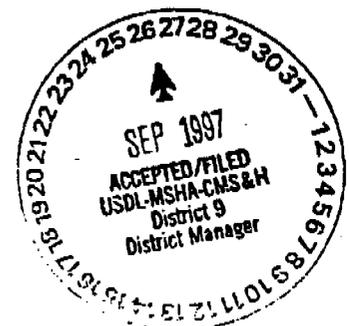
None

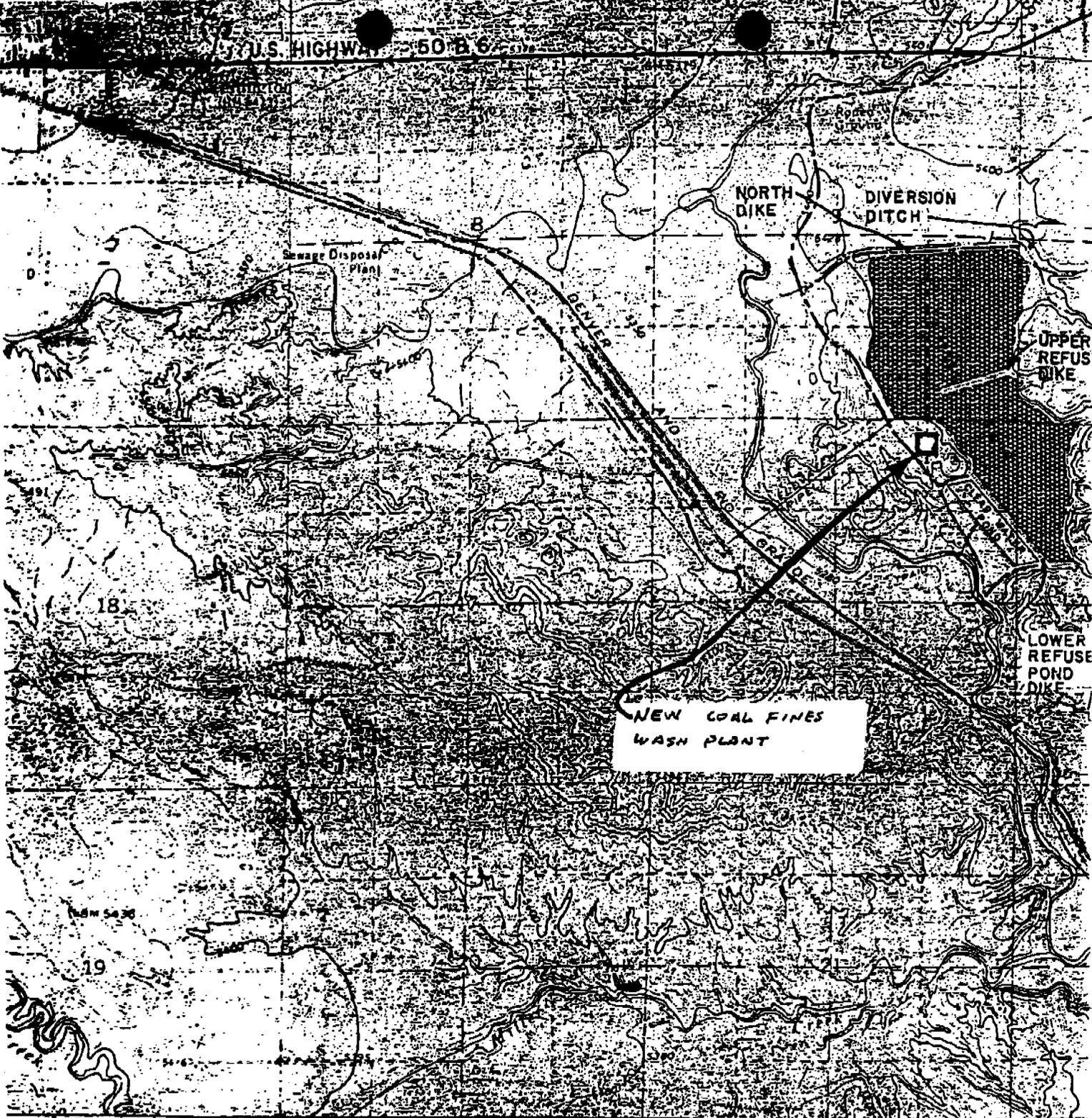


AMENDMENT 1**9/19/97****Drainage and Diversions**

The impoundment, described as the Refuse Basin, impounds drainage from Water Shed #7 and process water. Flow from some undisturbed areas is diverted around the Refuse Basin areas. These diversions are discussed below.

- The so-called Permanent Diversion is a Permanent Diversion that diverts runoff from 680 acres of undisturbed hills to the east of the Refuse Basin area. The Permanent Diversion was constructed approximately 10 years ago. The ditch was originally designed to have a 10-foot wide bottom width with 1.5 horizontal to 1 vertical side slopes and a 4 inch thick layer of riprap in selected locations (see Dwg. E9-3427). Field examination (June 19 1993) and analysis of the 1991 mapping reveals that the channel is well-vegetated and is stable. This diversion is designed to safely pass the runoff produced for 1 100-year, 6-hour precipitation event since it prevents run-on into the Upper Refuse Basin.
- The Siaperas Ditch is an old ditch that collected runoff from agricultural and undisturbed lands northwest of the basin area. The tributary area includes as much as 1266 acres in addition to the flow from the 680-acres drainage area diverted by the Permanent Division that empties into the Siaperas Ditch, for a total tributary area of 1946 acres. The Siaperas Ditch is designed to safely pass the runoff produced from a 100-year, 6-hour precipitation event since it prevents run-on into the Upper Refuse Basin.
- Drainage within the Refuse Basin are also designed with a single spillway and an emergency spillways that in combination will safety pass runoff from a 100-year, 6-hour precipitation event.
- Under Covol's operations, all of the runoff will be contained within the Refuse Basin sediment pond, which has contained and will continue to contain, all runoff from Watershed #7; the Refuse Basins will continue to meet regulator requirements for storage and spillway capacities.





LEGEND
 TRAVEL ROAD
 CITY & COUNTY ROAD
 ELEVATION

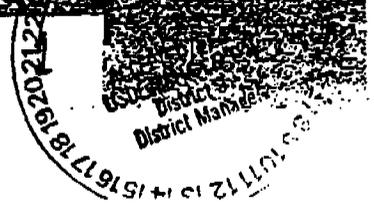
COVOL TECHNOLOGIES
 INC.

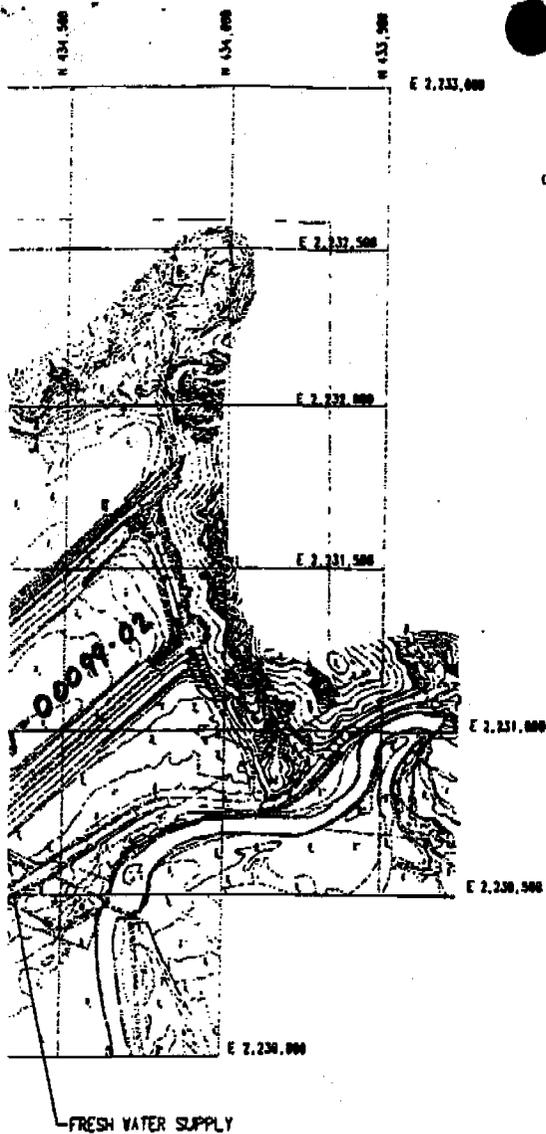
WELLINGTON FINE COAL
 WASH PLANT

LOCATION MAP

SCALE 1" = 2000 FT

FIG.





LEGEND

- FRESH WATER SUPPLY
- FINE COAL RECOVERY
- FAILS DISTRIBUTION



ORD	CURRENT DRAWING		
	DATE	STATUS	BY DATE
8-28-97	PRELIMINARY OR PLANNING		
	APPROVED FOR FINAL DESIGN		
	IN FINAL DESIGN		
	APPROVED FOR QUOTE/PURCH		
	APPROVED FOR CONSTRUCTION		

FIG. 2
IMPOUNDMENTS

CEntry
CONSTRUCTORS & ENGINEERS

Salt Lake City, Utah

MODULAR TAILINGS PREPARATION FACILITY
WELLINGTON, UTAH
PONDS AND PIPELINES SITE PLAN

FOR COVOL TECHNOLOGIES, INC.			LEHI, UTAH	
SCALE 1"=300'	JOB NO. E97119	CENTRY CAD CONTROL NO. 7119C02A	DRAWING NO. D-97119-C-102	REV A

**RB&G
ENGINEERING
INC.**

1435 WEST 820 NORTH
PROVO, UT 84601-1343
801 374-5771 Provo
801 521-5771 SLC

November 13, 1997

Mr. Steven R. Brown
COVOL Technologies, Inc.
3280 North Frontage Road
Lehi, Utah 84043

Re: Clearwater Reservoir

Dear Mr. Brown:

At your request, a visual inspection of the Clearwater Dam and Lower Refuse Dike at the COVOL Wellington Wash Plant has been performed. The Wash Plant is located at 5191 South Farnham Road in Price, Utah.

RB&G Engineering performed a detailed geotechnical investigation and slope stability analysis for these structures in 1978 for U.S. Steel Corporation¹. The Clearwater Dam and Lower Refuse Dike were at about elevation 5370 at that time, with the maximum water level at elevation 5365. The analyses included steady-state seepage and sudden drawdown conditions. It was concluded that an adequate factor of safety existed for both conditions and that the structures could be raised an additional 3 feet.

A geotechnical investigation was completed in 1983² by RB&G Engineering to evaluate increasing the height of the refuse dikes. The analysis included evaluating raising the Lower Refuse Dike to about elevation 5386. The stability analysis evaluated the dike when the clearwater pond was empty and also when it was full. A pseudostatic analysis was also performed for the Lower Refuse Dike. A detailed liquefaction analysis was not performed since the site is located in Seismic Zone II. An adequate factor of safety was obtained for each of the conditions evaluated.

A visit was made to the site on Wednesday, November 12, 1997. The Clearwater Reservoir was empty at the time of the visit. The Lower Refuse Dike had been raised and appeared to be about 13 feet higher than the Clearwater Dam. The raised section appears to extend over the

COVOL Technologies, Inc.

Page 2

November 13, 1997

coal fines with slopes as recommended in the 1983 study. No evidence of distress was observed on the crest, upstream, or downstream slopes of the Clearwater Dam or the Lower Refuse Dike. No transverse or longitudinal cracking was observed, nor was there any indication of slumping or erosion of the slopes. Vegetation, which includes weeds and tamarisk brush, has been recently removed from the inside slopes and reservoir floor in the southeast half of the structure. It is recommended that the clearing be continued to include the remainder of the facility. All brush should be removed from the inside slope, as a minimum.

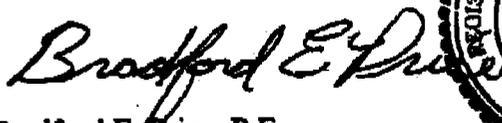
The overflow spillway and outlet structure appear to be in good condition. The gate was not tested during the site visit.

Since the reservoir has been out of operation for several years, it is recommended that filling be restricted to 1 foot raise in elevation per day after the first 5 feet and that a daily inspection of the downstream slope of the Clearwater Dam be made during filling. Any evidence of wet spots or seepage on the slope should be immediately reported to regulatory agencies.

It is our opinion that the Clearwater Dam and Lower Refuse Dike are stable at the present time and will perform satisfactorily under reservoir full conditions. If there are any questions relating to the information presented herein, please call.

Sincerely,

RB&G ENGINEERING



Bradford E. Price, P.E.

Principal, Geotechnical Engineer



1. Rollins Brown and Gunnell, Inc., *Soil and Foundation Investigation-Slope Stability Evaluation-U.S. Steel Tailings Dikes*, March, 1978.

2. Rollins Brown and Gunnell, Inc., *Geotechnical Investigations-U.S. Steel Settling Pond Dikes*, May, 1983.