HW 12/6/12
AO & for AJM 12/7/12
files

Project No. 4003-03
November 29, 2012

Aspet Ordoubigian, P.E.
California Department of Water Resources
Division of Safety of Dams
2200 X Street, Suite 200
Sacramento, CA.

By the 11/30/12 email, I notified Holdrege & Kull that the report is satisfactory & no written acknowledgement will be sent.
AO. 12/7/12

Reference: ***Lake Van Norden Dam***
Nevada County, California

Subject: ***Summary of Additional Spillway Repairs***

Dear Mr. Ordoubigian:

Holdrege & Kull (H&K) prepared a workplan presented in a letter dated August 31, 2012 to perform additional repairs to the spillway at the existing Lake Van Norden Dam. The purpose of our workplan was to outline additional areas needing repair that could not be completed due to weather conditions at the time that initial repairs were performed in December 2011. The workplan was approved by you in an e-mail correspondence dated September 7, 2012.

Observation of Repairs

We visited the Lake Van Norden dam site on October 29, 2012 to observe the remaining repairs. A concrete truck and a pump truck were on site and the crew pumped approximately 9 cubic yards of concrete into the voids. The concrete was a 3/8-inch, 3,000 psi mix with a 3-inch slump. The batch ticket and mix design are attached. Areas that we had delineated for repair were sawcut and the old concrete was removed, broken into small pieces, and placed in the void under the concrete.

Photo 1 shows a void near the downstream portion of the spillway that was filled with approximately 5 cubic yards of concrete. The void was roughly 3 feet deep; however, based on the amount of concrete placed, it was apparent that the void extended laterally under the concrete shell.

Photo 2 shows a smaller void that was sawcut, the concrete was broken up and placed in the larger void shown in Photo1. This smaller void took less than ¼ cubic yard of concrete.

Photo 3 shows the finished filled void in Photo 1.

Photo 4 shows the transverse crack along the right side of the spillway at a cold joint. The crack was approximately 60 feet long, up to 6 inches wide, with voids up to 18 inches deep. This void took approximately 1.5 cubic yards of concrete.

Photos 5 and 6 show where the contractor cut a hole above the void near the foundation of the right side of the spillway to place concrete. The plywood form contained the majority of the concrete. Photo 6 shows the bulging of the form and stake under the weight of the fresh concrete. This void took approximately 2 cubic yards of concrete.

Photo 7 shows a small void that was opened up with the use of a hammer. Approximately 3 cubic feet of concrete was placed in the void.

Based on our observation of additional repairs, it appeared that the repairs were performed in accordance with our workplan dated August 31, 2012.

Please contact us if you have any questions.

Sincerely,

HOLDREGE & KULL

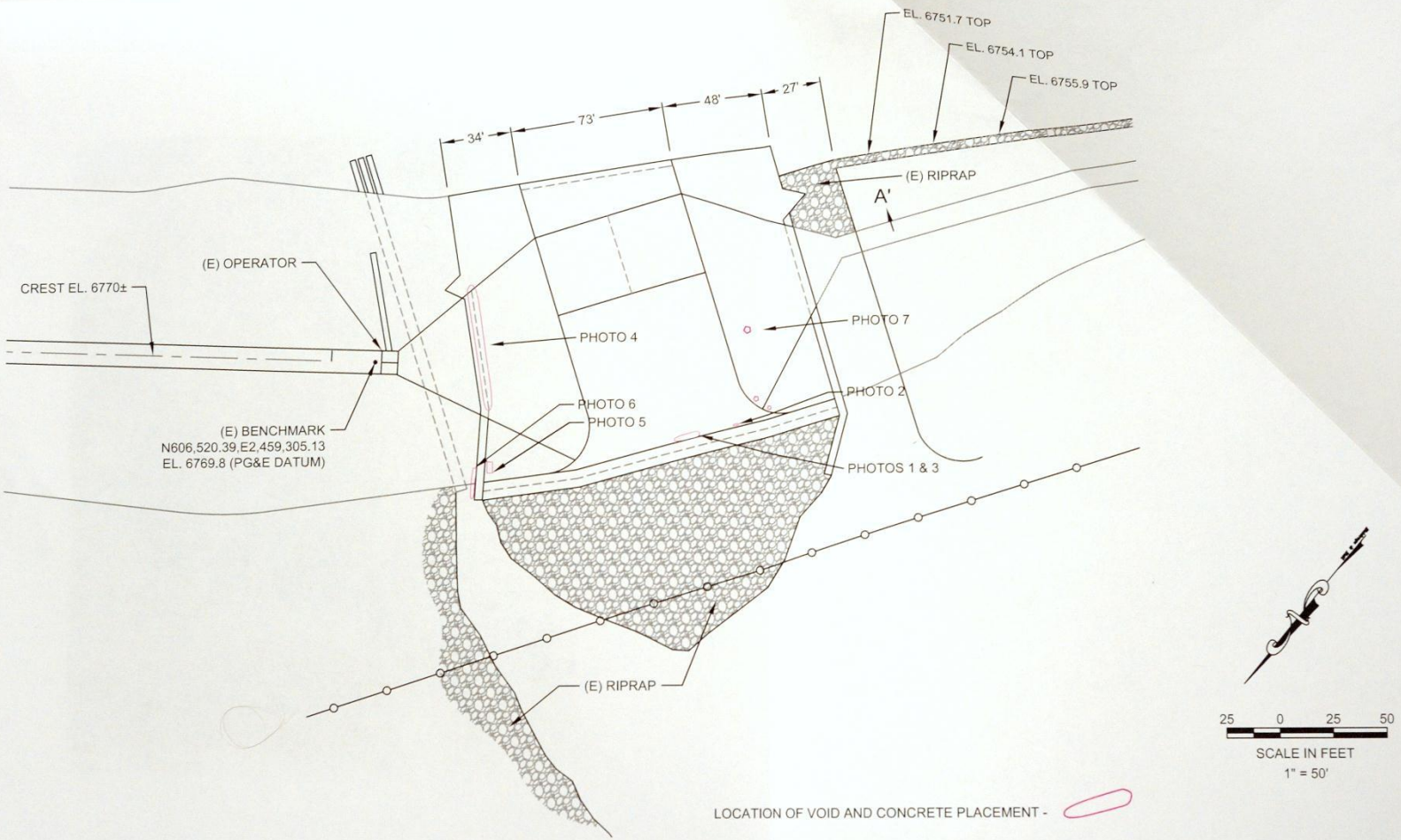
REGISTERED PROFESSIONAL ENGINEER
CHARLES R. KULL
No. 2359
Exp. 6/13
GEOTECHNICAL
STATE OF CALIFORNIA

Chuck Kull, G.E. 2359
Principal Engineer

Attached: Figure 1
Photographs
Batch Ticket and Mix Design

Copies: David Achey via email: DAchey@royalgorge.com
Douglas Wilson Companies/Attn: Liz Belloso via email: lbelloso@douglaswilson.com

F:\1 Projects\4003 Lake Van Norden Dam\4003-03 Repairs 11.29.12.doc



4003-03-FIG 1

HOLDREGE & KULL
CONSULTING ENGINEERS • GEOLOGISTS
792 SEARLS AVENUE
NEVADA CITY, CA 95959
(530) 478-1305 FAX 478-1019

SPILLWAY REPAIR AREAS

LAKE VAN NORDEN DAM

PLACER COUNTY, CALIFORNIA

DRAWN BY: DFD	CHECKED BY: CRK
PROJECT NO.: 4003-03	
DATE: NOVEMBER 2012	
FIGURE NO.: 1	

Photo 1 – Pumping concrete into large void near the end of the spillway.

Photo 2 – Small void that was sawcut

Photo 3 – Finished concrete from Photo 1 location.

Photo 4 – Concrete filling of transverse crack

Photo 5 – Hole cut on top of spillway to fill void in Photo 6 location

Photo 6 – Concrete plug at right side of the lower spillway.

Photo 7 – Finished patch on left abutment of spillway.

Submittal # 12--000119 Version 1
VAN NORDEN DAM
11/28/2012

AMX CONSTRUCTION
P.O. BOX 3605
TRUCKEE, CA 96160

Dear RANDY MEZGER,

All the materials and concrete delivered to this project will conform to ASTM C-94, ACI 301 and ACI 318 Specifications for Ready Mixed Concrete.

The following Mix Designs are included in this submittal.

Mix Code	Description
F-7.5A	3000 psi 3/8"

Please have your personnel place the order for concrete using the designated mix number. The concrete will come from our Pioneer Batch Plant. The phone number is 1-530-582-3600.

PLEASE NOTIFY THIS OFFICE AS TO THE ACCEPTANCE OR REJECTION OF THESE MIX DESIGNS. LACK OF RESPONSE PRIOR TO FIRST POUR SHALL RESULT IN ACCEPTANCE.

NOTE: ALL CONCRETE MUST BE ORDERED BY THE APPROVED MIX DESIGN NUMBER. NOTE: THE EVALUATION OF THIS CONCRETE MUST BE CONDUCTED ACCORDING TO ASTM AND ACI STANDARDS.

Thank-you for giving us this opportunity to be of service to you. Please feel free to contact me if you should need any further assistance.

Sincerely yours,

Mike Rodarte

MIKE RODARTE , 530-582-3600

TRUCKEE NORTH TAHOE MATERIALS
PHONE (530)550-2350 FAX (530)550-2356 10642 Pioneer Trail, Truckee, CA 96161

TNT MATERIALS

Concrete Mix Design Submittal

Date : 11/28/2012 No. 12-000119 Version 1

Mix Code : **F-7.5A** Description : **3000 psi 3/8"**

Customer	AMX CONSTRUCTION
Contact	RANDY MEZGER
Office Phone	550-8288
Project Name	
Project Contact	
Usage/ Placement	3000 PSI

	Design	Tolerance
Air Content	6	+/-1.5%
Slump	4"	+/-1"
Design Strength	3000	psi
Unit Weight	136.3	lb/ft3
W/C Ratio	0.40	

Material Type	Material Code	Description	Source Supplier	<DEFAULT>	Design Quantity	Specific Gravity	Volume (ft3)
Cement	NC	Nevada Cement	NEVADA CEMENT -CE		601 lb	3.15	3.06
Fly Ash	POZZ	CLASS N POZZOLAN	NEVADA CEMENT -CE		150 lb	2.28	1.05
Fine Aggregate	PAIUTE	PAIUTE CONCRETE SAND	CEMEX AGGREGATE -		1529 lb	2.56	9.57
Coarse Aggregate	TR38	Teichert Rock 3/8"	TEICHERT AGGREGA		1100 lb	2.56	6.89
Admixture	D64	WRDA 64 WATER REDUCER	GRACE ADMIXTURE -(		23 lq oz	-	-
Water	WATER	WATER	WELL-WELL		36.0 gal	1.00	4.81
Admixture	AT60	DARAVAIR AT60	GRACE ADMIXTURE -(		3 lq oz	-	-
			Air Content		**6.00 %**	**-**	**1.62**
			Yield		**3680 lb**	**-**	**27.00**

NOTES

NOV 29 2012

Mr. David Achey, General Manager
Royal Gorge Lands Partners, LLC
9411 Hillside Drive
Soda Springs, California 95728

Lake Van Norden Dam, No. 7000-120 (Illegal)
Nevada County

Dear Mr. Achey:

This is in reply to Ms. Liz Belloso's October 26, 2012 letter requesting a one-year time extension to further evaluate and select an alternative for abating the illegal status of Lake Van Norden Dam.

Ms. Belloso's request for a time extension is approved. In the meantime, the facility must be closely monitored for any unsafe conditions. Maintenance repairs, such as the recent work to fill voids under the spillway apron, must continue as necessary.

By October 30, 2013, notify us on which alternative you have selected for abating the illegal status. In addition, include a schedule for submitting the appropriate application, filing fee, and plans and specifications for any necessary construction.

Ms. Belloso indicated that one of the alternatives under study is to transfer ownership of the dam to the United States Forest Service. If this transfer occurs, the dam will no longer be subject to our jurisdiction as to safety, and no further action will be required by you or taken by this Department.

If you have any questions or need additional information, you may contact Area Engineer Aspet Ordoubigian at (916) 227-4635 or Regional Engineer Andrew Mangney at (916) 227-4631.

Sincerely,

ORIGINAL SIGNED BY

David A. Gutierrez, Chief
Division of Safety of Dams

cc: (See attached list.)

AOrdoubigian:TGlorioso
Lake Van Norden Dam.doc
Spell Check 11/27/12

SURNAME DWR 155 (Rev 1/09)			
	Aspet Ord 11/27/12	11/27/12	11/28/12

October 26, 2012

Per Mow 10/30/12 MGW

Aspet Ordoubigian
Division of Safety of Dams
Department of Water Resources
P.O. Box 942836
Sacramento, CA 95818

Via Email aspeto@water.ca.gov
Via U.S. Mail

AO C for AJM 10/31/12 AO

Files

Re: Lake Van Norden Dam, Nevada County, California
APN 47-440-20-000, Dam No. 7000-120
Request for Extension of Time

Dear Mr. Ordoubigian,

Please consider this the Receiver's formal request for a one-year extension of time to resolve the violation of Section 6077 of the California Water Code referenced in the Division's letter dated September 29, 2011.

As you know, the Receiver and his engineer Chuck Kull of Holdrege & Kull have been working diligently for the past year to identify and develop various potential remedies for Lake Van Norden Dam. Some of the alternatives include lowering the spillway of the dam to reduce the capacity to less than 50 acre-feet or transferring the property to the U.S. Forest Service after it is sold by the Receiver to the Truckee Donner Land Trust and The Trust for Public Lands (collectively the "Land Trust"). The property is under contract for sale to the Land Trust, the due diligence period has expired and the transaction is scheduled to close escrow on December 20, 2012. It is our understanding that the Land Trust intends to continue Mr. Kull's engagement on this matter post-closing.

In the meantime, studies are ongoing to develop appropriate alteration plans and specifications. The Receiver is also making interim repairs to the dam as identified at your August 2, 2012 inspection. Therefore, the Receiver respectfully requests this extension of time for resolution of the Lake Van Norden Dam matter.

Should you need any further information at this time, please contact me directly at (619) 906-4358 or lbelloso@douglaswilson.com.

Sincerely,

LBelloso

Liz Belloso
Agent for Douglas P. Wilson, Receiver for
Royal Gorge Lands Partners, a California general partnership
Superior Court State of California, County of Placer
Case No. SCV 002962

cc: Ms. Liz Belloso, Managing Director
Douglas Wilson Companies
450 B Street, Suite 1900
San Diego, California 92101

Mr. Perry Norris, Executive Director
Truckee Donner Land Trust
10069 West River Street, Suite C-1
Truckee, California 96161

Mr. Terry Brennan, P.E.
United States Department of Agriculture
Forest Service, Tahoe National Forest
631 Coyote Street
Nevada City, California 95959

Mr. Chuck Kull, G.E., Principal Engineer
792 Searls Avenue
Nevada City, California 95959

Mr. Michael Contreras, Environmental Scientist
State Water Resources Control Board
Division of Water Rights
Post Office Box 2000
Sacramento, California 95814

Mr. E. Brian Keating, District Manager
Placer Flood Control and Water Conservation District
3091 County Center Drive, Suite 220
Auburn, California 95603

Date: October 17, 2012

To: Files

From: Aspet Ordoubigian, Area 4 Engineer
Department of Water Resources

Subject: Lake Van Norden Dam, No. 7000-120 (Illegal)
Nevada County
Dam ownership clarification

By the attached August 24, 2012 e-mail, Ms. Liz Belloso, Managing Director with Douglas Wilson Companies, clarified that Royal Gorge Lands Partners, a California general partnership, is the owner of record for Lake Van Norden Dam. She transmitted Title Report and Grant Deed documents. The documents contain numerous pages which are not dam safety related; therefore, only a few pertinent pages from these documents are attached for our records.

Ms. Belloso noted in the e-mail that Royal Gorge Lands Partners has owned fee title to this parcel since October 4, 2004, when it received title from RG-SB Lands. She clarified that Douglas Wilson Companies is the asset manager retained by Douglas P. Wilson, the Court-appointed Receiver for Royal Gorge Lands Partners.

Based on her explanation, I revised our Responsible Persons sheet to show Royal Gorge Lands Partners as the owner and Douglas Wilson Companies as the annual fee addressee.

SURNAME DWR 155 (Rev 1/09)	Aspet Ordoubigian 10/18/12			

From: Ordoubigian, Aspet
Sent: Monday, August 27, 2012 11:50 AM
To: 'Liz Belloso'
Cc: 'ckull@handk.net'; Mangney, Andy J.
Subject: FW: Lake Van Norden Dam - Ownership Clarification
Attachments: PTR - Nevada County (hyperlinked) - 8.7.2012 (Order No. 725141239 - #103167) - Royal Gorge.pdf; 2012 02 24 DSOD re Dam Statistics Data Change.pdf; 47-440-20-000 conveyance deeds.pdf

Liz:

Thanks for the clarification. I will change our records to reflect the owner as Royal Gorge, LLC (with David Achey as the General Manager), and will keep Douglas Wilson Companies (with you as the Managing Director) for the Annual Fee Addressee, Dam inspections, and Emergency Contacts. I will include David's info for Dam inspections and emergency contacts as well.

Look forward to receiving Chuck's repair plan, and seeing you again on the site in the future.
Aspet.

From: Liz Belloso [mailto:lbelloso@douglaswilson.com]
Sent: Friday, August 24, 2012 6:07 PM
To: Ordoubigian, Aspet
Cc: 'Chuck Kull'
Subject: Lake Van Norden Dam - Ownership Clarification

Hi Aspet,

Chuck met at Lake Van Norden Dam on Wednesday with the contractor to review the repairs discussed at your August 2, 2012, inspection, and he will have his repair plan to you probably next week.

In the meantime, I've been reviewing the copies of the DSOD files Chuck obtained for me when he came down to your office a few weeks ago. I noticed a discrepancy on an internal memorandum dated 2/24/12 re Dam Statistics Data Change which notes ownership of the dam changed from Royal Gorge, LLC to Douglas Wilson Companies (see attached). It's important that DSOD's records are clear that Royal Gorge Lands Partners, a California general partnership is the owner of Nevada County APN 47-440-20-000 where the dam is located. Royal Gorge Lands Partners has owned fee title to this parcel since October 4, 2004, when it received title from RG-SB Lands, who received it from PG&E on August 7, 2007. A current title report and copies of the conveyance deeds are also attached for your records. Douglas Wilson Companies is the asset manager retained by Douglas P. Wilson, the Court-appointed Receiver for Royal Gorge Lands Partners (et al) and has no ownership interest in the property.

Thanks again for your help on this project. Look for Chuck's plan shortly and please let us know if you have any questions in the meantime.

Thanks,

Liz Belloso
Managing Director

Douglas Wilson Companies
Serving clients throughout the United States

From: Chuck Kull [ckull@handk.net]
Sent: Thursday, October 04, 2012 10:58 AM
To: Ordoubigian, Aspet; Liz Belloso
Cc: David Achey; amx3@me.com; amx4@me.com; Mangney, Andy J.
Subject: RE: Lake Van Norden Dam Spillway Repairs

You bet, thanks Aspet

Chuck Kull, GE, CEG
Principal

Holdrege & Kull Consulting Engineers and Geologists
792 Searls Avenue | Nevada City, CA 95959
530.478.1305 | 478.1019 fax | 362.1290 cell ckull@handk.net | www.HoldregeandKull.com

-----Original Message-----
From: Ordoubigian, Aspet [mailto:aspeto@water.ca.gov]
Sent: Thursday, October 04, 2012 9:56 AM
To: Chuck Kull; Liz Belloso
Cc: David Achey; amx3@me.com; amx4@me.com; Mangney, Andy J.
Subject: RE: Lake Van Norden Dam Spillway Repairs

Chuck:

A small area can be opened on the top surface, a few inches deep, to allow concrete to flow beneath the crack. The concern here is not to open additional invisible cracks under the larger surficial cracks, thereby creating an unwanted seepage path. Let me know a few days prior to start of the work to see if we can make an inspection of the repair work.

Thanks for the follow up,
Aspet.

From: Chuck Kull [ckull@handk.net]
Sent: Thursday, October 04, 2012 8:38 AM
To: Liz Belloso; Ordoubigian, Aspet
Cc: David Achey; amx3@me.com; amx4@me.com; Mangney, Andy J.
Subject: RE: Lake Van Norden Dam Spillway Repairs

Aspet,
After reviewing your recommendations to our letter, I am not sure that using a sealant would be the best option. There is a significant void under that Transverse joint. Maybe we can just open a small area and let concrete flow into the void and then use a sealant.

Get well soon!

Chuck Kull, GE, CEG
Principal

-----Original Message-----
From: Liz Belloso [mailto:lbelloso@douglaswilson.com]
Sent: Thursday, October 04, 2012 7:34 AM
To: Ordoubigian, Aspet
Cc: Chuck Kull; David Achey; amx3@me.com; amx4@me.com; Mangney, Andy J.
Subject: Re: Lake Van Norden Dam Spillway Repairs

Thanks Aspet. Yes your additional comments are included in the scope of work of the contract. Speedy recovery and we'll keep you posted!

Sent from my iPhone

On Oct 3, 2012, at 8:38 PM, "Ordoubigian, Aspet" <aspeto@water.ca.gov> wrote:

> Thanks for the update Liz. Please make sure AM-X is aware of my comments which I sent previously in response to Chuck's repair proposal.
>
> I am home recovering from a knee surgery, but plan to return to work in a week or so. Talk to you soon.
> Aspet.
>
> _____
> From: Liz Belloso [lbelloso@douglaswilson.com]
> Sent: Wednesday, October 03, 2012 1:58 PM
> To: 'Chuck Kull'; Ordoubigian, Aspet
> Cc: 'David Achey'; 'amx3@me.com'; 'amx4@me.com'
> Subject: Lake Van Norden Dam Spillway Repairs
>
> Dear Chuck and Aspet,
>
> Just a quick update that we haven't forgotten about this work and the urgency to have it completed before the winter. We have agreed on a proposal from AM-X Construction (same contractor as last year) for the work and the contract should be executed within the next day or two. AM-X has a few critical path projects that they must complete by October 15, and this job will be scheduled right behind that. We expect that the work will be completed the week of October 15th.
>
> We'll keep you posted once the contract is executed so that Chuck can coordinate with AM-X and the scheduling can be confirmed for the work and Aspet's inspection.
>
> Please let me know if you have any questions in the meantime.
>
> Thanks,
>
> Liz Belloso
> Managing Director
>
> Douglas Wilson Companies

From: Ordoubigian, Aspet
Sent: Friday, September 07, 2012 1:11 PM
To: 'ckull@handk.net'
Cc: 'Liz Belloso'; tcaldwell@handk.net; Mangney, Andy J.; 'David Achey'; 'tbrennan@fs.fed.us'
Subject: FW: Lake Van Norden
Attachments: 4003-03 Repairs.pdf

Chuck:

You may proceed with the repairs. No application is required for the work and it can be treated as maintenance, as it was done last year. Your proposed work plan is satisfactory, provided the following comments are incorporated into the plan:

1. For the transverse joint at the right edge of the spillway invert (where it meets the right wall, shown in photos 3 and 4), use concrete sealer, such as Sika Flex, to seal the joint. Do not saw cut the joint as it may damage the barriers beneath, and create an unwanted seepage path between the upstream and downstream sides.

2. For the longitudinal cracks at the downstream edge of the spillway invert, you may saw cut, break up the cracked concrete, and fill the entire void with new concrete.

Please notify me prior to start of the work, so that I may schedule an inspection.
Thanks,
Aspet.

From: Terri Caldwell [mailto:tcaldwell@handk.net]
Sent: Friday, August 31, 2012 2:11 PM
To: Ordoubigian, Aspet
Cc: Liz Belloso (lbelloso@douglaswilson.com); Chuck Kull
Subject: Lake Van Norden

Good Afternoon Aspet,

I have attached Holdrege & Kull's summary workplan for proposed repairs to the Lake Van Norden spillway. You will also receive a hard copy by mail. Please do not hesitate to call with any questions or comments.

Regards,

Terri Caldwell
Technical Editor

Holdrege & Kull Consulting Engineers and Geologists
792 Searls Avenue | Nevada City, CA 95959
530.478.1305 | 530.478.1019 fax | 530.362.0105 cell
tcaldwell@handk.net | www.HoldregeandKull.com

HK HOLDREGE & KULL
CONSULTING ENGINEERS • GEOLOGISTS

California Natural Resources Agency
Department of Water Resources
Division of Safety of Dams

Memorandum of Field Inspection
Lake Van Norden Dam, No. 7000-120 (Illegal)
Nevada County

August 2, 2012
By Aspet Ordoubigian AO 10/26/12
ATM 10/26/12

INTRODUCTION

This inspection was made to investigate the condition of the maintenance repairs performed last year to the notched spillway section of the dam, to discuss future courses of action to abate the illegal status of the dam, and to discuss further interim maintenance repairs to the notched section, needed to keep the dam in satisfactory condition until the owner determines a path to abate the illegal status. The notched section is herein referred to as the "spillway" (the dam also has a higher level spillway when it was jurisdictional prior to 1976). The dam at the notched section is 10 feet high and has a capacity of about 300 acre-feet.

The following persons were present during the inspection:

David Achey – General Manager with Royal Gorge Lands.
Liz Belloso – Managing Director with Douglas Wilson Companies.
Chuck Kull, G.E. – Principal Engineer with Holdrege & Kull Consulting.
Michael Contreras and Victor Vasquez – with State Division of Water Rights.
Terry Brennan, P.E. – Officer with U.S. Forest Service, Tahoe National Forest.
Perry Norris – Executive Director with Truckee Donner Land Trust.

EMBANKMENT

We walked the crest in between the trees and bushes and observed both faces of the dam where visible. The dam was overgrown with mature and small trees. The upstream face was lined with stone and mortar. Heavy vegetation growth prevented a thorough assessment, but no obvious signs of instability were noted.

Spillway

The reservoir water level was about 2 inches below the spillway. Repairs made last year to the concrete invert were holding up well. The large hole below the right side of the concrete wall at the downstream end of the spillway was still

present. Everyone agreed with me that the hole needs to be fully backfilled with concrete. Longitudinal cracks on the left half of the concrete invert slab at the downstream end near the hinge point were also present. These cracks, located next to those repaired last year, will also need to be repaired. I requested Mr. Chuck Kull to devise a repair plan and submit it to DSOD for approval prior to implementation. The work is considered maintenance; therefore, no application would be required.

Mr. Kull submitted a repair plan by the 8/31/12 e-mail (and later a hard copy by mail). The proposed work includes filling the hole at the right side with concrete, saw cutting the cracked concrete invert and backfilling with new concrete to grade. We found the proposed work plan satisfactory, provided our comments noted in the 9/7/12 and 10/4/12 e-mails are adhered to. The work is scheduled to commence by the later part of October and to be completed in a couple days, weather permitting.

We also walked to the left end of the dam and found the original spillway, which is at a higher level than the notched section. The spillway was lined with stone and mortar. There were small trees and bushes growing in the downstream channel, but it appeared fairly unobstructed and operational, considering many decades of no maintenance.

Outlet

There is a low-level outlet to this dam, located on the right side of the notched section. The outlet has an upstream gate. The stem is rusted and gate's operability is doubtful.

Seepage

The dam is overgrown with trees and vegetation and the seepage condition could not be assessed, but no obvious signs were detected. The usual tail water was present downstream of the notched spillway.

Instrumentation

There is no instrumentation at this dam. Old well caps were noted on the crest, but none are currently monitored.

Conclusions

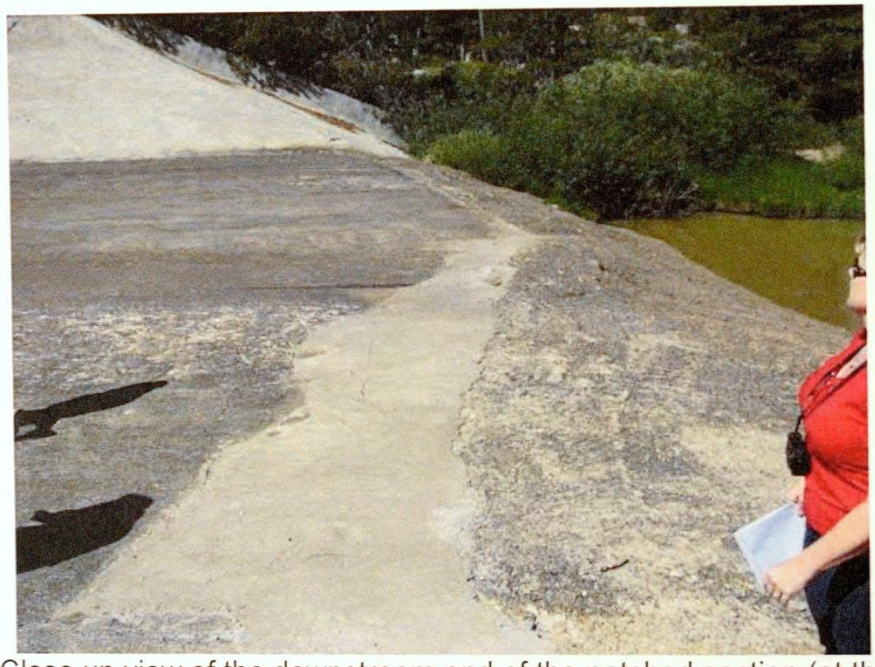
The dam is in poor condition due to its age and overgrown trees and vegetation. Our safety assessment for this facility is limited to the notched spillway section. The section is in satisfactory condition in the interim, while negotiations are ongoing to abate its illegal status, provided timely repairs are made to the notched section and the facility is continuously monitored.

Several options are currently being considered to terminate the illegal status of the dam. One option is to further lower the notched section to bring the dam to less than the jurisdictional size. Mr. Kull has sounded the reservoir for capacity calculations, and is in the process of determining how much the spillway has to be lowered for the dam to be less than jurisdictional size.

Another option under consideration is to transfer the ownership of the dam to the U.S. Forest Service (USFS), in which case DSOD will no longer have jurisdiction over the dam. The transfer, if found to be the preferred alternative, will go through the Truckee Donner Land Trust. The Trust will purchase the dam and will turn it over to the USFS.

Douglas Wilson Companies is currently the court-appointed Receiver for Royal Gorge Lands Partners, who is the owner of the dam (see my 10/17/12 memo to files for the ownership clarification).

1. The downstream end of the notched spillway section, looking upstream.



2. Close up view of the downstream end of the notched section (at the hinge point), showing the repairs made to the concrete invert slab last year.

3. Void under the right spillway wall remaining from last year. The hole needs to be fully backfilled with concrete.

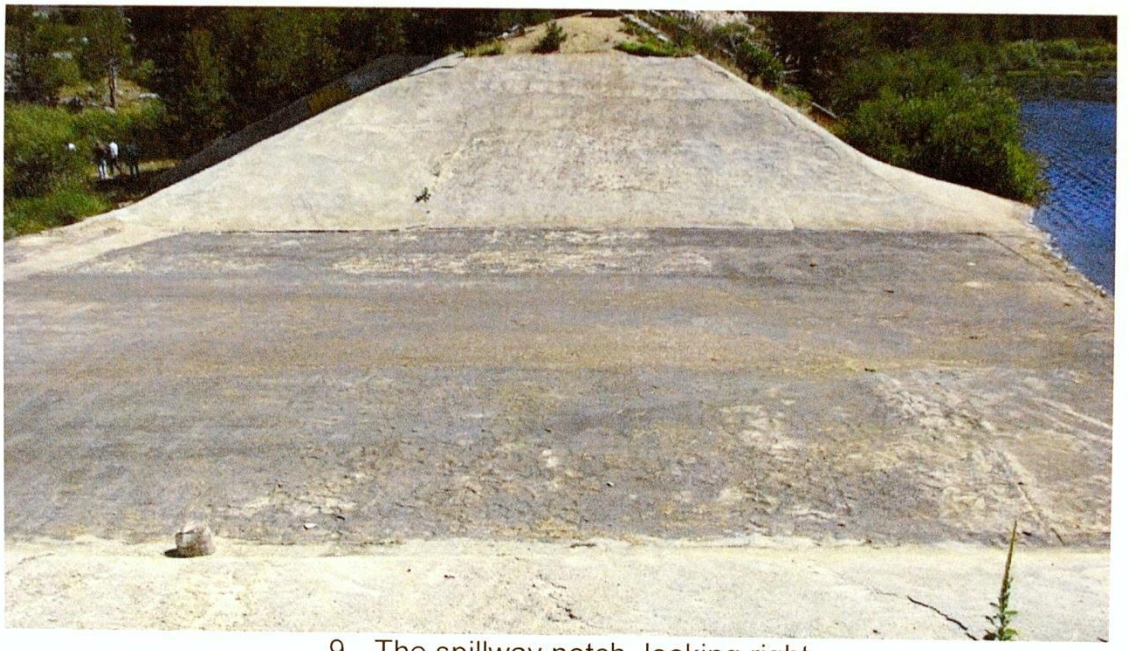
4. Large crack on the left half of the spillway's invert at the downstream end, needing to be saw cut and backfilled with new concrete.

5. Close up view of the spalled and cracked concrete at the downstream end of the spillway.

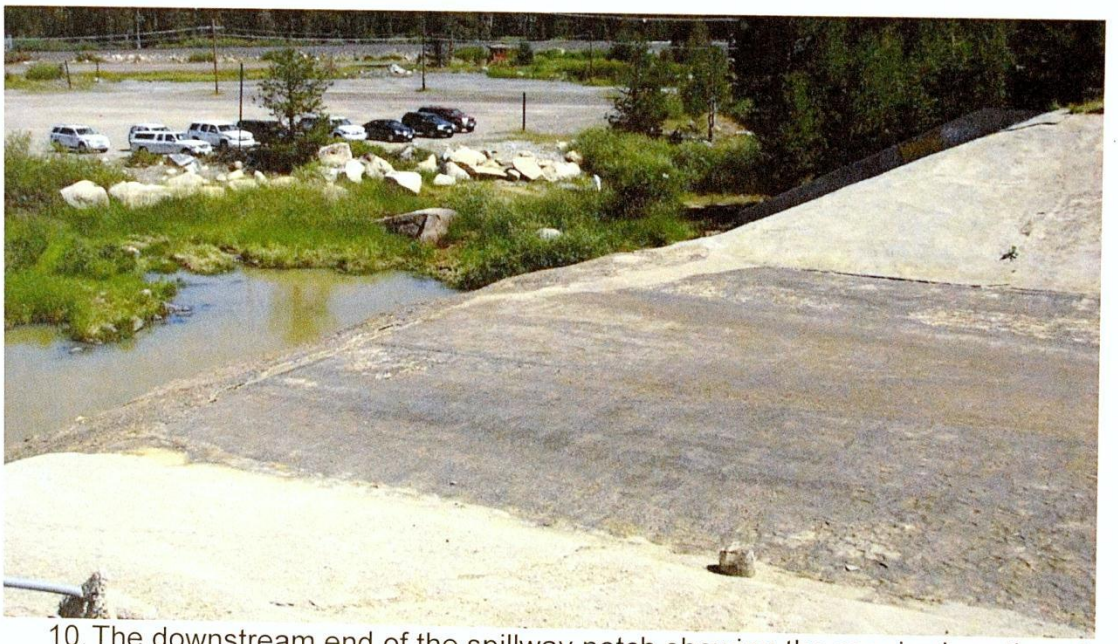
6. The upstream end of the notched spillway section, looking right.

7. The spillway notch, looking upstream.

8. The spillway notch, looking downstream.



9. The spillway notch, looking right.



10. The downstream end of the spillway notch showing the repaired section at the hinge point on the right half, and cracks on the left half to be repaired.

HOLDREGE & KULL
CONSULTING ENGINEERS • GEOLOGISTS

Project No. 4003-03
August 31, 2012

Douglas Wilson Companies
450 B Street, Suite 1900
San Diego, CA 92101

No need for letter back. work is maintenance similar to last year. AO will address in recent inspection report. AJM 9/11/12

HW 9/9/12
AJM 9/12/12
AO 10/15/12
files

Attention: Liz Belloso, Managing Director

Reference: ***Lake Van Norden Dam***
Nevada County, California

Subject: ***Workplan for Spillway Repairs***

I sent the attached comments to this repair proposal on 9/7/11. The proposal was e-mailed on 8/31/12 prior to this hard copy. AO. 10/15/12

Dear Ms. Belloso,

At your request, Holdrege & Kull (H&K) has prepared this workplan to perform additional repairs to the spillway at the existing Lake Van Norden Dam. Our workplan to perform additional repairs was prepared as discussed with you and Aspet Ordoubigian of the Division of safety of Dams during our site visit on August 2, 2012.

Proposal is also discussed in AO's report from his 8/2/12 inspection. AJM 10/27/12

Summary of Proposed Repair Methods

We visited the Lake Van Norden dam site again on August 22, 2012 and met with Mr. Randy Mezger of Am-X to discuss the remainder of the repairs and paint mark the locations that require saw cutting and additional concrete. Emergency repairs were performed at the site between December 13 and 16, 2011. Due to the amount of water in the spillway and upcoming storm events, we were only able to perform a portion of the repairs.

The additional repairs include filling a void under the spillway along the right abutment. This will be performed by forming up the outside of the spillway, cutting a hole in the concrete spillway at the top of the void and filling the void with concrete. Photo 1 shows the gap to be filled and Photo 2 shows the hole that will be cut in the spillway to fill the void.

We also observed voids at the cold joint between the right abutment and spillway. Photo 3 shows the void at the cold joint and Photo 4 shows the area planned to be cut and filled with concrete.

In addition, we also observed and discussed repair methods for the hinge point on the spillway that contains voids (Photos 5 and 6). This area will also be saw cut and filled with concrete to grade.

We propose to have the repairs completed in late September to early October while the water level is low, weather permitting.

Please contact us if you have any questions.

Sincerely,

HOLDREGE & KULL

REGISTERED PROFESSIONAL ENGINEER
CHARLES R. KULL
No. 2359
Exp. 6/13
GEOTECHNICAL
STATE OF CALIFORNIA

Chuck Kull, G.E. 2359
Principal Engineer

Attached: Photographs

F:\1 Projects\4003 Lake Van Norden Dam\4003-03 Repairs.doc

Photo 1 – Void under spillway, right abutment

Photo 2 – Area to be cut in spillway above void in Photo 1.

Photo 3 – Cold joint void between right abutment and spillway

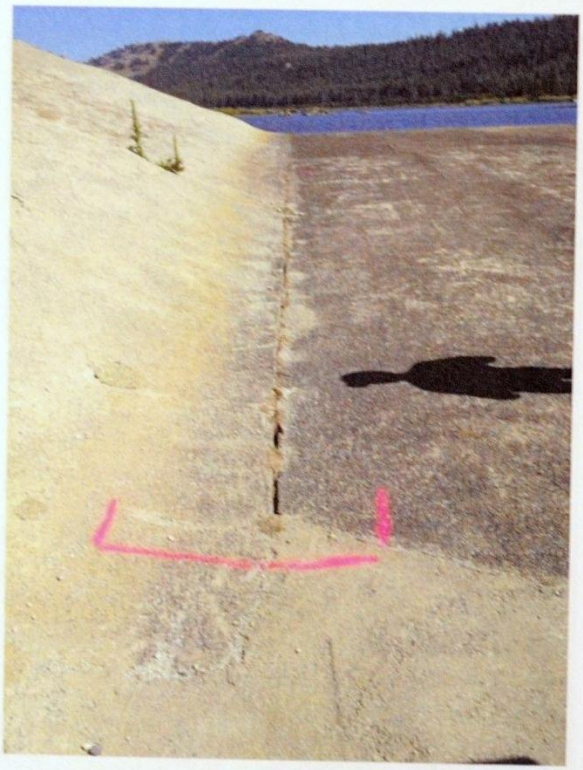


Photo 4 – Painted area to be cut and filled with concrete.

Photo 5 – Hinge point on spillway to be cut and filled with concrete.

Photo 6 – Void along spillway and left abutment to be cut and filled with concrete.

Fidelity National Title Company
OF CALIFORNIA

PRELIMINARY REPORT

In response to the application for a policy of title insurance referenced herein, ***Fidelity National Title Company of California*** *hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a policy or policies of title insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an exception herein or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations or Conditions of said policy forms.*

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said policy or policies are set forth in Attachment One. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Attachment One. Copies of the policy forms should be read. They are available from the office which issued this report.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

The policy(s) of title insurance to be issued hereunder will be policy(s) of Fidelity National Title Insurance Company, a California corporation.

Please read the exceptions shown or referred to herein and the exceptions and exclusions set forth in Attachment One of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects and encumbrances affecting title to the land.

FIDELITY NATIONAL TITLE COMPANY OF CALIFORNIA

BY _____ President

ATTEST _____ Secretary

_____
Countersigned

OF CALIFORNIA

ISSUING OFFICE: 11050 Olso[illegible] Rancho Cordova, CA 95670
916 853-760[illegible] 38-1285

PRELIMINARY REPORT

Amended

Title Officer: Keith Read

Title No.: 11-**103167**-E-KR
Locate No.: CAFNT0929-0929-0051-0000103167

Escrow No.: 725141239

TO: Fidelity National Title
1300 Dove Street Suite 310
Newport Beach, CA 92660

ATTN: Justin H. VanderVeen
YOUR REFERENCE: 725141239

PROPERTY ADDRESS: Royal Gorge - Nevada County, CA

EFFECTIVE DATE: August 1, 2012, 07:30 A.M.

The form of policy or policies of title insurance contemplated by this report is:

CLTA Standard Coverage Policy - 1990

1. THE ESTATE OR INTEREST IN THE LAND HEREINAFTER DESCRIBED OR REFERRED TO COVERED BY THIS REPORT IS:

   A FEE as to Parcel(s) 1, 2, 3, 4 & 5;
   AN EASEMENT more fully described below as to Parcel(s) 4A & 5A

2. TITLE TO SAID ESTATE OR INTEREST AT THE DATE HEREOF IS VESTED IN:

   Royal Gorge, LLC, a California limited liability company, AS TO PARCELS 1, 2 & 3;

   AND

   Royal Gorge Lands Partners, a California General Partnership, which erroneously acquired title as Royal Gorge Lands, a California partnership, AS TO PARCELS 4 & 5

3. THE LAND REFERRED TO IN THIS REPORT IS DESCRIBED AS FOLLOWS:

   SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF

YD\YD 12/09/2011

LEGAL DESCRIPTION

EXHIBIT "A"

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE UNINCORPORATED AREA, COUNTY OF NEVADA, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL 1:

The South 1/2 of the Southeast 1/4, and the Southeast 1/4 of the Southwest 1/4 of Section 21, Township 17 North, Range 14 East, M.D.B. & M., according to the Official Plat thereof.

EXCEPTING THEREFROM any portion of said property lying within Placer County.

PARCEL 2:

The West 1/2; the South 1/2 of the Northeast 1/4; and the East 1/2 of the Southeast 1/4 of Section 10, Township 17 North, Range 15 East, M.D.B. & M., according to the Official Plat thereof.

EXCEPTING THEREFROM all that portion lying Southerly of Interstate Highway 80.

ALSO EXCEPTING THEREFROM that portion conveyed to the State of California by Deed recorded September 14, 1959 in Book 267 of Official Records, at Page 438, Nevada County Records.

PARCEL 3:

The East 1/2 of Section 9, Township 17 North, Range 15 East, M.D.B. & M., according to the Official Plat thereof.

EXCEPTING THEREFROM all that portion of said East 1/2 of Section 9, which lies South of the Northerly line of the freeway parcel, as described in the Deed dated July 23, 1959, recorded September 14, 1959, in Book 267 of Official Records, at Page 438, Nevada County Records, executed by James A. Sheritt, et al., to the State of California.

PARCEL 4:

All those Sections of Section 23, Township 17 North, Range 14 East, M.D.B. & M. described as follows:

The Southeast 1/4 and the parcels of land described in Deed from E.L. McClure to South Yuba Canal Company dated June 6, 1879 and recorded in Book 57 of Deeds at Page 279, Nevada County Records, and in Book "EE" of Deeds at Page 561, Placer County Records, and therein designated 1st, being a portion of the Southwest quarter.

EXCEPTING THEREFROM that portion thereof lying Northeasterly of the Southwesterly boundary line of the 400 foot Central Pacific Railway right of way traversing said Section 23; ALSO EXCEPTING THEREFROM the parcel of land awarded to J.O. Jones in the Judgment and Decree Quieting Title between J.O. Jones, Plaintiff and PG&E and others, Defendants, dated March 7, 1941 and filed in the County Clerks Office of the County of Nevada as Case Number 7752.

ALSO EXCEPTING THEREFROM the parcel of land described in the indenture made by and between J.O. Jones and others and PG&E dated April 25, 1939 and recorded in Book 52 of Official Records at Page 485, Nevada County Records; and modified in the Agreement by and between Dennis Jones and Muriel Jones, husband and wife and PG&E, dated March 18, 1965 and recorded in Book 390 of Official Records at Page 525, Nevada County Records.

ALSO EXCEPTING THEREFROM the parcel of land des

BEGINNING at a 5/8 inch rebar with cap stamped "PG&E , being a point lying within the boundary lines of the Southwest 1/4 of Section 23, Township 17 North, Range 14 East, M.D.B. & M., from which the found standard U.S. B.L.M. Monument shown on Record of Survey No. 1175 filed for record August 1, 1986 in Book 10 of Record of Surveys at Page 61, Placer County Records, accepted as marking the Southwest corner of said Section 23, bears South 39° 30' 30" West, 1155.43 feet; thence from said POINT OF BEGINNING: (1) South 82° 51' 15" West, 166.45 feet, more or less, to a point in the general Easterly boundary line of the parcel of land described in said indenture dated April 25, 1939 and modified in said agreement dated March 18, 1965; running thence along said general Easterly boundary line; (2) North 15° 39' 06" West, 27.97 feet; thence (3) North 12° 25' 02" West, 218.90 feet; thence (4) North 09° 33' 26" East, 138.28 feet; thence leaving said general Easterly boundary line (5) South 60° 15' 41" East, 187.82 feet, more or less to a 5/8 inch rebar with cap stamped "PG&E Company"; thence (6) South 07° 08' 37" East, 260.41 feet to the POINT OF BEGINNING.

ALSO EXCEPTING THEREFROM any portion in Placer County.

PARCEL 4A:

A non-exclusive easement for ingress and egress, maintenance of underground utility lines and incidental purposes more particularly described in the document recorded October 4, 2004 as Instrument No. 2004-41492, Nevada County Records.

PARCEL 5:

All those portions of Section 24, Township 17 North, Range 14 East, M.D.B. & M. more particularly described as follows:

The South 1/2 of the Southwest 1/4.

EXCEPTING THEREFROM that portion thereof lying Northeasterly of the Southwesterly boundary line of the 400 foot Central Pacific Railway right of way traversing said Section 24.

ALSO EXCEPTING THEREFROM any portion in Placer County.

PARCEL 5A:

A non-exclusive easement for ingress and egress, maintenance of underground utility lines and incidental purposes more particularly described in the document recorded October 4, 2004 as Instrument No. 2004-41492, Nevada County Records.

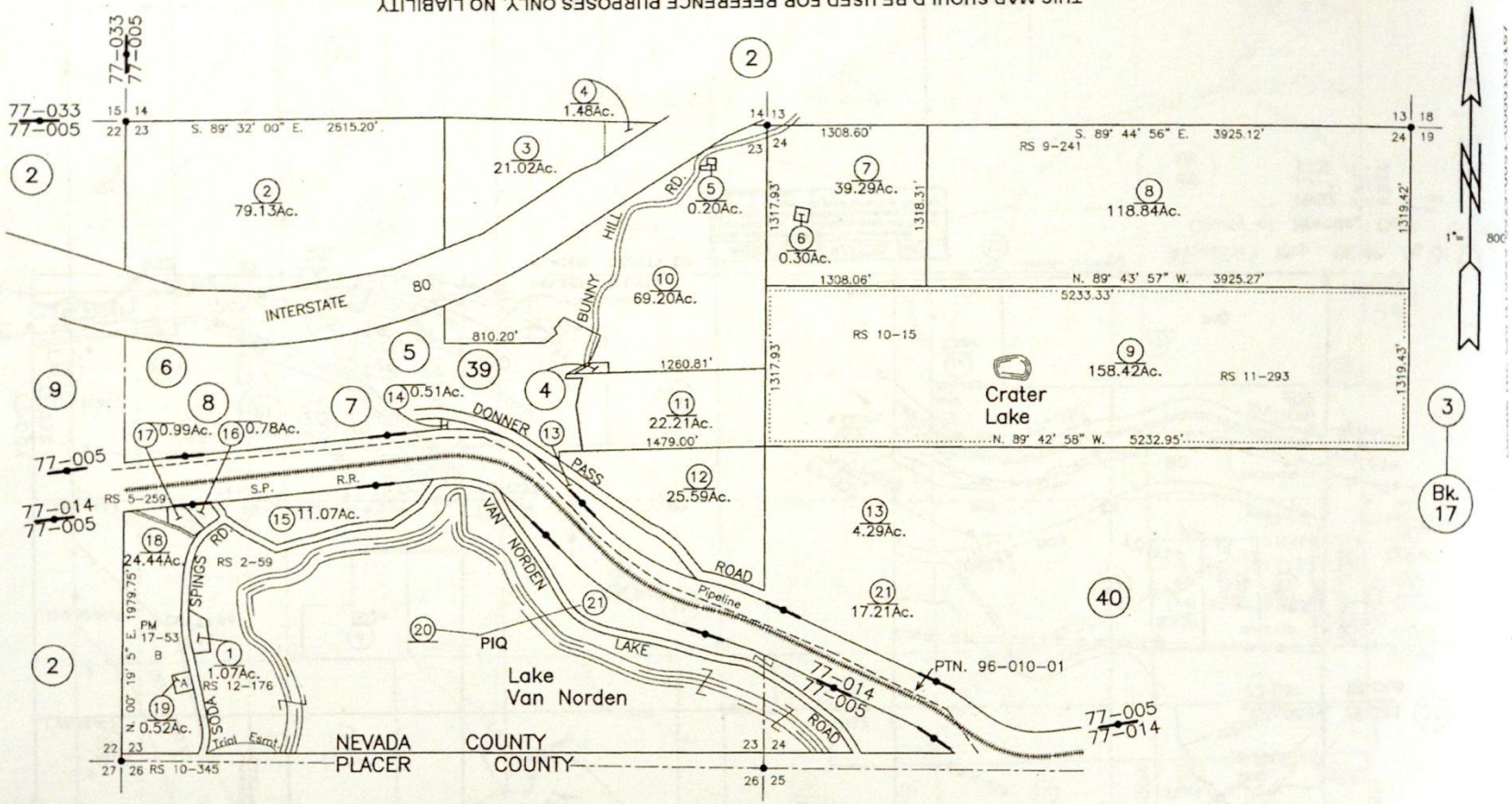
APNs: 17-010-10-000 (Affects Parcel 3)
47-440-20-000 (Affects portion of Parcels 4 and 5)
47-440-21-000 (Affects portion of Parcels 4 and 5)
47-010-13-000 (Affects Parcel 1)
17-020-23-000 (Affects Parcel 2)

PTN. SEC'S 23 & 24 T.17 N. R.14 E. M.D.B. & M.

Tax Area Code
77-005
77-014

47-44
(Fmly. Ptn. 15-34
(Fmly. Ptn. 47-02

THIS MAP SHOULD BE USED FOR REFERENCE PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN. PARCELS MAY NOT COMPLY WITH SUBDIVISION OR BUILDING ORDINANCES.



ASSESSOR'S PARCEL MAP
This map was prepared for assessment purposes only. No liability is assumed for the accuracy of data shown. Assessor's parcels may not comply with local lot-split or building site ordinances.

1-1-01
1-1-05

Assessor's Map Bk. 47 –Pg. 44
County of Nevada, Calif.
2000

NW 8/00

PARCEL ONE

Beginning at a 5/8 inch rebar with cap stamped "PG&E COMPANY", being a point lying within the boundary lines of the southwest quarter of Section 23, Township 17 North, Range 14 East, M.D.B.&M. from which the found standard U.S.B.L.M. monument, shown on Record of Survey No. 1175 filed for record August 1, 1986 in Book 10 of Record of Surveys at page 61, Placer County Records, accepted as marking the southwest corner of said Section 23, bears south 39°30'30" west 1155.43 feet; thence from said point of beginning

(1) south 82°51'15" west 166.45 feet, more or less,

to a point in the general easterly boundary line of the parcel of land described in said indenture dated April 25, 1939 and modified in said agreement dated March 18, 1965, running thence along said general easterly boundary line

(2) north 15°39'06" west 22.97 feet; thence

(3) north 12°25'02" west 218.90 feet; thence

(4) north 09°33'26" east 138.28 feet;

thence leaving said general easterly boundary line

(5) south 60°15'41" east 187.82 feet, more or less,

to a 5/8 inch rebar with cap stamped "PG&E COMPANY"; thence

(6) south 07°08'37" east 260.41 feet

to the point of beginning.

SECTION 24: The south half of the southwest quarter, excepting therefrom that portion thereof lying northeasterly of the southwesterly boundary line of the 400 foot Central Pacific Railway right of way traversing said Section 24

SECTION 25: The east half and the northwest quarter, excepting therefrom that portion thereof lying northeasterly of the general southwesterly boundary line of the parcel of land described in the deed from PG&E to Central Pacific Railway Company dated February 18, 1924 and recorded in Book in 208 of Deeds at page 241, Placer County Records.

SECTION 26: The north half

Reserving to PG&E, its successors and assigns, any and all riparian and appropriative rights which are annexed to, inherent in and parts and parcel of said real property being conveyed, whether prescriptive or other, together with all right, title, and interest of any nature whatever in and to waters which now or hereafter flow in the Yuba River and any tributaries thereof.

Reserving to PG&E its existing facilities for the transmission and distribution of electric energy and for communication purposes and necessary easements to reconstruct, replace, remove, maintain and use the same as PG&E shall at any time and from time to time deem necessary; together with easements to excavate for, construct, install, repair, reconstruct, replace, remove, maintain and use at any time and from time to time, additional facilities for the transmission and distribution of electric energy and for communication purposes, consisting of one or more lines of underground wires and cables (enclosed at PG&E's option within conduits), and one or more lines

EXHIBIT A

Nevada County APNs.: 047-021-38 & 39

Real property situate in Township 17 North, Range 14 East, M.D.B. & M. County of Nevada, State of California, described as follows:

SECTION 23: The southeast quarter and the parcels of land described in the deed from E.L. McClure to South Yuba Canal Company dated June 6, 1879 and recorded in Book 57 of Deeds at page 279, Nevada County Records, and in Book "EE" of Deeds at page 561, Placer County Records, and therein designated 1st, being a portion of the southwest quarter, EXCEPTING therefrom that portion thereof lying northeasterly of the southwesterly boundary line of the 400 foot Central Pacific right-of-way traversing said Section 23; also EXCEPTING therefrom the parcel of land awarded to J.O. Jones in the Judgment and Decree Quieting Title Between J.O. Jones, and PG&E and others, defendants, dated March 7, 1941', and filed in the County clerk's office of the County of Nevada as case number 7752; also EXCEPTING therefrom the parcel of land described in the indenture made by and between J.O. Jones and others and PG&E dated April 25, 1939 and recorded in Book 52 of Official Records at page 485, Nevada County Records and modified in the agreement by and between Dennis Jones and Muriel Jones, husband and wife, and PG&E dated March 18, 1965 and recorded in Book 390 of Official Records at page 525, Nevada County Records; ALSO EXCEPTING THEREFROM the parcel of land herein designated PARCEL ONE and described as follows:

PARCEL ONE

Beginning at a 5/8 inch rebar with cap stamped "PG&E COMPANY," being at a point lying within the boundary lines of the southwest quarter of Section 23, Township 17 North, Range 14 East, M.D.B. & M. from which the found standard U.S.B.L.M. monument shown on Record of Survey No. 1175 filed for record August 1, 1986 in Book 10 of Record of Surveys at page 61, Placer County Records, accepted as marking the southwest corner of said Section 23, bears south 39°30'30" west 1155.43 feet; thence from said point of beginning

(1) south 82°51'15" west 166.45 feet, more or less, to a point in the general easterly boundary line of the parcel of land described in said indenture dated April 25, 1939 and modified in said agreement dated March 18, 1965; running thence along said general easterly boundary line

(2) north 15°39'06" west 22.97 feet; thence

(3) north 12°25'02" west 218.90 feet; thence

(4) north 09°33'26" east 138.28 feet; thence leaving said general easterly boundary line

(5) south 60°15'41" east 187.82 feet, more or less, to a 5/8 inch rebar with cap stamped "PG&E COMPANY"; thence

(6) south 07°08'37" east 260.41 feet to the point of beginning.

END OF DOCUMENT

DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS
RESPONSIBLE PERSONS TO BE CONTACTED ON DAMS

Lake Van Norden Dam No. 7000-120, Nevada County

	Name	Address	Telephone	
(A)	Douglas Wilson Companies Ms. Liz Belloso Managing Director	450 B Street, Ste 1900 San Diego, CA 92101	619-906-4358 619-517-9232	O C
(B)	Douglas Wilson Companies Ms. Liz Belloso Managing Director	450 "B" Street, Suite 1900 San Diego CA 92101	619-906-4358	O
(C)				
(D)	Liz Belloso Managing Director	450 B Street, Ste 1900 San Diego, CA 92101	619-906-4358 619-517-9232	O C
	David Achey,General Manager Royal Gorge, LLC	9411 Hillside Dr Soda Springs, CA 95728	530-426-3871x105	
(E)	Kirk C Syme, Principal Woodstock Development Inc.	330 Primrose Rd., Ste 203 Burlingame, CA 94010	650-579-1901	O
	Todd B. Foster, Principal Foster Enterprises	1840 Gateway Dr, Ste 100 Foster City, CA 94404	650-312-9700	O
(F)	David Achey		530-426-3871x105	
	Liz Belloso		619-906-4358 619-517-9232	O C

(A) General Correspondence.
(B) Annual fee addressee.
(C) Spillway letter addressee.
(D) Contact(s) for inspections.
(E) Other contact(s).
(F) Emergency contact(s).

Key to Phone Numbers
O - Office F - Fax
C - Cell P - Pager
H - Home 2O - 2nd Office, etc.

7/23/2012 abjackso

(1) Visual observation weekly. Additional inspections are made when operating conditions require, and special inspections are made after unusual occurrences, such as heavy floods, earthquakes, etc. It is observed from the air at the time of each snow survey flight in the area, and also inspected jointly with the State Engineer annually.

a. No.

b. No other instrumentation.

c. --

d. --

(2) As stated in (1) above. The flashboards are installed gradually, as required by storage, in April or May by the Bear Valley personnel, and they are removed early in season when the water moves off of the boards, roughly, July or August.

a. No.

b. When dam is not being visited or inspected, as above.

(3) Flashboard structure with provisions for quick release of boards and a 22-inch outlet pipe with two gates.

a. Structures downstream should be capable of passing the maximum flow without damage. If the release should suddenly be made in summer there could be loss of life due to the unexpected rise of water level in the channel. (About 2200 cfs)

b. The top three feet could be released in about nine hours. After the water level drops below the spillcrest the water will drop at a rate of about one foot in $3\frac{1}{2}$ days, until the reservoir is emptied. This assumes no inflow to the reservoir.

c. About two hours after notice of an emergency.

(4) No written plans; however, as in the case of any other emergency arising within the Company affecting Company's facilities, the line of command dictates that notification by the field man be sent immediately to his superior, thence to the System Load Dispatcher, who in turn contacts the management staff of the department affected, of which someone is on call at all times to analyze the case and arrange for appropriate action to be taken.

a. Yes.

b. Cannot estimate.

(5) None.

(6) Yes.

Pacific Gas and Electric Company
245 Market Street
San Francisco, California

ROBERT P. MADDOW
CARL P. A. NELSON
CRAIG L. JUDSON

SHARON M. NAGLE
DOUGLAS E. COTY

A PROFESSIONAL CORPORATION
500 YGNACIO VALLEY ROAD, SUITE 325
WALNUT CREEK, CALIFORNIA 94596-3840
TELEPHONE (925) 933-7777
TELEFAX (925) 933-7804

FREDERICK BOLD JR.
(1913-2003)

AJDE for MGW 7/2/12
~~MGW~~
~~AJM~~
AO & for AJM 7/2/12
~~AO~~
files

June 28, 2012

Michael Contreras
Environmental Scientist
Enforcement Unit No. 3
State Water Resources Control Board
P.O. Box 100
Sacramento, Ca 95812-0100

Re: Request for Water Right Information Regarding Seasonal Storage
At Lake Van Norden Dam, Nevada County

Dear Mr. Contreras:

This office represents Douglas P. Wilson, Receiver for Royal Gorge, LLC, *et al.*, appointed on August 2, 2011, by the Superior Court of the State of California for the County of Placer, Case No. SCV 0029620 (Receiver). The purpose of this letter is to provide an initial response within the timeframe set forth in your letter of May 31, 2012 that was addressed to the attention of Douglas Wilson Company's Robert Richley.

Upon receipt of your letter on or about June 5, the Receiver requested that his consulting engineer Chuck Kull of Holdrege & Kull contact you. After trading several messages, you and Mr. Kull spoke on June 18 about the activities of the Division of Safety of Dams ("DSOD") concerning the site and about Mr. Kull's role in that work. Mr. Kull reported back to the Receiver that your inquiries raised questions beyond that which he was addressing with DSOD.

Other than through Mr. Kull's ongoing work with the DSOD, the Receiver and his staff had no knowledge or information regarding the water rights questions raised in your letter. As I indicated to you in our two telephone conversations, my office had no prior knowledge of any aspect of this matter until the Receiver's office contacted me about it on the afternoon of June 19. I began to gather the relevant facts on June 20 and June 21 (the day of our first phone conversation). At this point it is fair to say that I have about half of the facts that I believe I will need to advise my client on making a more complete response to your letter.

As you and I discussed on Tuesday, June 26, we still do not know a number of details about property ownership and use that relate directly to the water rights questions which the Receiver will need to address in formulating a more complete response.

MAY 3 1 2012

AJM MW 6/7/12
6/11/12
AJM
DO 6/25/12
Files

CERTIFIED MAIL NO. 7004-2510-0003-9146-0637
Return Receipt Requested

Douglas Wilson Company
Attn: Robert Richley
450 B Street, Suite 1900
San Diego, CA 92101

Dear Mr. Richley:

REQUEST FOR WATER RIGHT INFORMATION REGARDING SEASONAL STORAGE AT LAKE VAN NORDEN DAM, NEVADA COUNTY

The State Water Resources Control Board (State Water Board), Division of Water Rights (Division) received a copy of the Department of Water Resources' (Department) letter dated September 29, 2011, regarding their inspection of the dam at the water storage facility known as Lake Van Norden, situated on Nevada County Assessor's Parcel Numbers 47-440-20[1] and 47-440-21 and Placer County Assessor's Parcel Numbers 069-020-070 and 069-020-071. County parcel data indicate that these properties are owned by Royal Gorge LLC; however, Division staff understands that Royal Gorge LLC, is now under receivership administered by the Douglas Wilson Company.

According to the Department's letter, it has determined that, despite the partial deconstruction of the dam situated on Nevada County Assessor's Parcel Number 47-440-20 in May 1974, the remnant 10-foot high dam, measured from the downstream toe to the spillway crest, creates a water storage facility which has the capacity to impound up to 300 acre-feet of water. Therefore, the facility's dam is subject to the jurisdiction of the Department's Division of Safety of Dams. The Department's letter specifically required that the property owners timely decide upon a course of action to address the unauthorized status of the dam.

The diversion and use of water without a valid basis of right constitutes a trespass against the State of California, and the owners of unauthorized facilities are subject to appropriate enforcement actions, including the imposition of an Administrative Civil Liability Complaint in the amount of up to $500 for each day of unauthorized diversion, and/or the imposition of a Cease and Desist Order with penalties of up to $1,000 per day for the violation of such an order. My review of the Division's records did not locate any filing for the appropriation of water to seasonal storage at Lake Van Norden. My review also failed to locate a Statement of Water Diversion and Use (Statement), as required by recent revisions to California law.

[1] The partially deconstructed dam is situated on Nevada County APN 47-440-20, land currently held in the name of Royal Gorge Lands.

1. If you believe you have been contacted in error, recently sold the above listed property, or do not have a reservoir on the identified properties, please immediately contact Division staff at the number below to rectify Division records accordingly, or

2. Submit a copy of the authorizing water right documentation for the diversion to storage in the facility situated on Nevada County Assessor's Parcel Number 47-440-20, or

3. File a Statement to report diversions pursuant to a pre-1914 claim, or

4. Submit evidence that demonstrate that the water stored in your facility is from sources not subject to the Division's permitting authority, or

5. Submit a letter of commitment that indicates your intention to file an application to appropriate up to 300 acre-feet of water to seasonal storage.

The Division's website at http://www.waterboards.ca.gov/waterrights/board_info/ can provide you useful information regarding the purpose of the Statement program and the State Water Board's water right permitting authorities. Note that a riparian claim of right does not apply because seasonal storage activities must be covered by an appropriative water right.

If you cannot respond according to one of the possible actions listed above, the Division may require you to submit a general plan and schedule to render the facility's dam incapable of storing water. Please note that this option will require that you coordinate with various other agencies having oversight for the deconstruction of the dam, including but not limited to: the Department of Water Resources' Division of Safety of Dams; the Department of Fish and Game; the Central Valley Regional Water Quality Control Board; and possibly other local agencies.

Please address your response to my attention within 30 days from the date of this letter. Your failure to respond may result in appropriate enforcement action without further notice. Written correspondence should be addressed as follows:

State Water Resources Control Board
Division of Water Rights
Attn: Michael Contreras
P.O. Box 2000
Sacramento, CA 95814

If you have any questions regarding this request for information, I can be reached by telephone at (916) 341-5307, or via email at mcontreras@waterboards.ca.gov.

Sincerely,

Michael Contreras
Environmental Scientist
Enforcement Unit #3

cc: See next page.

cc: Royal Gorge Lands
c/o Douglas P. Wilson
450 B Street, Suite 1900

cc: Royal Gorge Lands
c/o Douglas P. Wilson
450 B Street, Suite 1900
San Diego, CA 92101

Truckee Donner Land Trust
Attn: Perry Norris, Executive Director
P.O. Box 8816
Truckee, CA 96162

Department of Water Resources
Division of Safety of Dams
Attn: David A. Gutierrez, Chief
1416 9th Street
Sacramento, CA 95812

Nevada County Department of Public Works
Attn: Doug Farrell, Director
950 Maidu Avenue, 1st Floor
Nevada City, CA 95959

Nevada County Office of Emergency Services
Attn: Victor Ferrera, Manager
10014 North Bloomfield Road
Nevada City, CA 95959

Placer County Department of Public Works
Attn: Peter Kraatz, Deputy Director
3091 County Center Drive, Suite 220
Auburn, CA 95602

Department of Water Resources
Division of Safety of Dams

STATUS OF APPLICATION AND CERTIFICATION OF DAM AND RESERVOIR

Dam Name New Lake Van Norden Dam Number 97-129

Owner PG&E

Type of Application construction Filed 2/11/1976 Acknowledged
File Copies Responsible Person Control Card

Estimated Cost $ Fee $ SAP#
Fee Clearance to Accounting
Amount/date

Notices to Cooperating Agencies:
- Dept. of Water Resources Region Office
- Division of Water Rights
- Office of Emergency Services
- Department of Fish and Game
- U. S. Forest Services
- Federal Energy Regulatory Commission

USGS Location Map

DISAPPROVED

Application Approved 12/8/11 Drawings Approved

Notice of Completion Received Date Completed

Certificate of Approval Signed Certificate Number
Emergency Procedure Letter Sent

Notice to Cooperating Agencies:
- U. S. Forest Service
- Federal Energy Regulatory Commission

Superseding Certificates Signed Certificate Number

As-Constructed Drawings Received Approved

Cost Statement Received Accepted
Final Cost $ Further Fee Due $
Further Fee Received SAP #
Fee Clearance to Accounting

1953 (Rev.01/04)

Memorandum

Date: March 23, 2012

To: Files

From: A.J. Mangney, Central Regional Engineer
Division of Safety of Dams
Department of Water Resources

Subject: Lake Van Norden Dam, No. 7000-120 (Illegal)
Nevada County
Memo of Phone Conversation - Response to Bill Oudegeest's February 9, 2012 Letter

On March 21, 2012, Bill Oudegeest and I discussed his February 9, 2012 letter in regards to Lake Van Norden Dam. Our discussion did not occur until about 6 weeks after his letter was written since Bill was traveling outside the country when I tried to contact him on several earlier occasions.

I started off the conversation by telling Bill I can probably more completely answer his questions in his letter on the phone rather than in writing. Bill stated he is active in the Donner Summit Historic Society and the Serene Lakes Property Homeowner's Association, and is on the Board for the Sierra Lakes County Water District. He said the reason for his letter is to get information since a group of organizations has an offer in to buy the property with the dam. I did not ask Bill which organizations are involved in the offer.

I discussed the dam's history, according to our files, from when it was lowered to less than jurisdictional size in 1976 to when it was found to be jurisdictional size during our inspection last summer. We discussed in detail the three alternatives for abating the dam's illegal status. I directed him to our website for information on our Division, and I also defined our height and capacity criteria for jurisdictional dams and directed him to the website link.

Bill asked if the Division has received a response to our September 11, 2011 letter requesting the owner state which alternative they selected for abating the dam's illegal status; the deadline was December 1, 2011. I told Bill we have not received anything formal, but that Area Engineer Aspet Ordoubigian has been in frequent discussions with the owner and their engineer, Chuck Kull with Holdrege & Kull. I stated we have verbally allowed more time since the owner is still researching their options. I said as long as the Division feels forward progress is being made toward a resolution, we are not focused on the deadline since there are no known immediate safety concerns with the dam. I indicated it is better for the owner to make an informed decision rather than a rushed decision.

SURNAME DWR 155 (Rev 11/04)	Mangney 3/23/12			

Attn: Robert Richley

In light of the forgoing, within 30 days from the date of this letter, please respond to this request for information. Choose among the following actions:

1. If you believe you have been contacted in error, recently sold the above listed property, or do not have a reservoir on the identified properties, please immediately contact Division staff at the number below to rectify Division records accordingly, or
2. Submit a copy of the authorizing water right documentation for the diversion to storage in the facility situated on Nevada County Assessor's Parcel Number 47-440-20, or
3. File a Statement to report diversions pursuant to a pre-1914 claim, or
4. Submit evidence that demonstrate that the water stored in your facility is from sources not subject to the Division's permitting authority, or
5. Submit a letter of commitment that indicates your intention to file an application to appropriate up to 300 acre-feet of water to seasonal storage.

The Division's website at http://www.waterboards.ca.gov/waterrights/board_info/ can provide you useful information regarding the purpose of the Statement program and the State Water Board's water right permitting authorities. Note that a riparian claim of right does not apply because seasonal storage activities must be covered by an appropriative water right.

If you cannot respond according to one of the possible actions listed above, the Division may require you to submit a general plan and schedule to render the facility's dam incapable of storing water. Please note that this option will require that you coordinate with various other agencies having oversight for the deconstruction of the dam, including but not limited to: the Department of Water Resources' Division of Safety of Dams; the Department of Fish and Game; the Central Valley Regional Water Quality Control Board; and possibly other local agencies.

Please address your response to my attention within 30 days from the date of this letter. Your failure to respond may result in appropriate enforcement action without further notice. Written correspondence should be addressed as follows:

State Water Resources Control Board
Division of Water Rights
Attn: Michael Contreras
P.O. Box 2000
Sacramento, CA 95814

If you have any questions regarding this request for information, I can be reached by telephone at (916) 341-5307, or via email at mcontreras@waterboards.ca.gov.

Sincerely,

Michael Contreras
Environmental Scientist
Enforcement Unit #3

cc: See next page.

Bill asked who will be responsible for paying for and completing work to abate the dam's illegal status if it is sold, and if Pacific Gas and Electric Company has any responsibility since they owned the dam when it went out of jurisdiction in 1976. I told him the Division will require whoever is the current owner of the dam to fund and complete the abatement work. I said the responsibility of past owners is a legal question I can't answer, and is not likely something the Division is going to get involved with.

I ended the conversation by asking Bill if I answered all his questions. He said I did and I provided him with very good information, and he agreed there is no reason for a written response to his letter. I gave him Aspet's and my contact information for future questions, along with the contact information of the owner's engineer, Chuck Kull. I also gave the phone number for our file room so he can visit our office to view files on the dam if he desires.

Bill seemed happy with our conversation and thanked me for my time.

Wm. Oudegeest
P.O. 728
Soda Springs, CA 95728
530-426-0135
bill@oudegeest.com

MW 2/16/12
DJM 2/27/12
AO 2/28/12
Files

February 9, 2012

Mr. David Gutierrez, Chief,
Division of Safety of Dams
1416 9th St.
Sacramento, CA 94236

Dear Mr. Gutierrez,

Your Fall, 2011 letter to Todd Foster and Kirk Syme about the Van Norden Dam in Soda Springs, California, has occasioned a lot of interest in the community. This is especially so since the lands belonging to Mr. Foster and Mr. Syme are in the hands of a receiver and will presumably shortly be sold.

We are interested in the reply your letter elicited by the December 1, 2011 deadline you stipulated. You gave Mr. Syme and Mr. Foster three alternatives.

- What was their reply to you?
- What will happen to the dam now and what are your next steps?
- If the properties are purchased by an entity, who is responsible for the repair or removal of the dam - previous or current owners?
- Along that line, why wouldn't PGE be responsible for the dam since they apparently did not comply with the order to remove it decades ago?
- How much repair is needed to achieve "minimum safety standards?
- How much of the dam would need to be removed "to eliminate all storage? For example would removal include the high earthen berms that extend for hundreds of yards north and then east and south of the spillway or do you require only the spillway to be removed so that water can no longer be backed up?
- What enforcement mechanisms do you have to enforce compliance with the order in your letter?

Thank you for your help.

Sincerely,

Bill Oudegeest

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY
EDMUND G. BROWN JR., Governor

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

SEP 2 3 2011

Mr. Kirk C. Syme, Principal
Woodstock Development
330 Primrose Road, Suite 203
Burlingame, California 94010

OCT – 3 2011

Mr. Todd B. Foster, Principal
Foster Enterprises
1840 Gateway Drive, Suite 100
Foster City, California 94404

Lake Van Norden Dam, Illegal
Nevada County

On July 20, 2011, Field Engineer Austin Roundtree inspected Lake Van Norden Dam on your partnership's property near the community of Soda Springs. The dam is located on the South Yuba River, within the SW ¼ of Section 23, T. 17 N., R. 14 E., MD B&M, in Nevada County (U.S.G.S. 7.5 minute Soda Springs, California Quadrangle), at Lat. 39°19'18" and Long. 120°22'24".

The dam's spillway was breached in 1976 to reduce the height to less than 25 feet and the reservoir's storage capacity to less than 50 acre-feet, thus removing the dam from State jurisdiction. However, Mr. Roundtree determined the dam to be 10 feet in height, measuring from the downstream toe to the spillway crest, and to have a reservoir capacity of approximately 300 acre-feet.

Dams that are 25 feet or more in height with a storage capacity of more than 15 acre-feet, and dams higher than 6 feet with a storage capacity of more than 50 acre-feet are subject to State jurisdiction. Therefore, your partnership's dam is under State jurisdiction as to safety.

The dam is currently in violation of Section 6077 of the California Water Code. This violation can be terminated by one of the following alternatives:

1. File an "Application for Approval of Plans and Specifications for the Construction or Enlargement of a Dam and Reservoir", including the appropriate filling fee, a full set of plans and specifications, and an engineering evaluation of the dam. Plans should include any necessary improvements required to meet minimum safety standards.

2. File an "Application for Approval of Plans and Specifications for the Repair or Alteration of a Dam and Reservoir", including the appropriate filing fee, and modify the dam to less than jurisdictional size as defined in Sections 6002 and 6003 of the California Water Code.

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY
EDMUND G. BROWN JR., Governor

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
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SEP 2 3 2011

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The dam's spillway was breached in 1976 to reduce the height to less than 25 feet and the reservoir's storage capacity to less than 50 acre-feet, thus removing the dam from State jurisdiction. However, Mr. Roundtree determined the dam to be 10 feet in height, measuring from the downstream toe to the spillway crest, and to have a reservoir capacity of approximately 300 acre-feet.

Dams that are 25 feet or more in height with a storage capacity of more than 15 acre-feet, and dams higher than 6 feet with a storage capacity of more than 50 acre-feet are subject to State jurisdiction. Therefore, your partnership's dam is under State jurisdiction as to safety.

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2. File an "Application for Approval of Plans and Specifications for the Repair or Alteration of a Dam and Reservoir", including the appropriate filing fee, and modify the dam to less than jurisdictional size as defined in Sections 6002 and 6003 of the California Water Code.

California Natural Resources Agency
Department of Water Resources
Division of Safety of Dams

Memorandum of Field Inspection
Lake Van Norden Dam, No. 7000-120 (Illegal)
Nevada County

December 6, 2011
By Aspet Ordoubigian AO 2/22/12
AJM 2/23/12

INTRODUCTION

The purpose of this inspection was to investigate the condition of the notched section of the dam, herein referred as the "spillway" (the dam also has a higher level spillway when it was jurisdictional prior to 1976), and to discuss interim repairs to the cracked concrete invert slab. The notched spillway invert has large cracks in the downstream portion, as reported in Austin Roundtree's July 20, 2011 Memorandum of Field Review. The dam at the notched section is 10 feet high and has a storage capacity of about 300 acre-feet.

By our September 29, 2011 letter, we requested the owner repair the cracks so that water will not flow through the cracks and further erode the material underneath, while they are selecting a preferred alternative to terminate the illegal status of the dam.

The following persons were present during the inspection:

Mr. David Achey – General Manager with Royal Gorge Lands.
Mr. Chuck Kull, G.E. – Principal Engineer with Holdrege & Kull Consulting.
Mr. Randy Mezger – Superintendent with AM-X Construction & Excavation Inc.

I also spoke with Mr. Terry Plowden, Senior Managing Director with Douglas Wilson Companies, before and after the inspection. Terry is a court appointed receivership for the property, since the owner has defaulted on the loan.

Notched Spillway Section

Snow and ice had partially covered the spillway invert and walls. About an inch of water was flowing over the spillway. I noted a 2-foot wide opening in the downstream section of the concrete slab, starting from the right end of the invert and extending toward the middle of the channel in longitudinal direction. The opening in the concrete invert slab, also referred to in the past as a large crack, varied in width and showed areas of undermining below. The void underneath the slab extended to the right end of the invert, daylighting on the right side of the concrete wall in the form of a large hole. A smaller hole was also noted at the left

side the wall at the downstream end of the channel. The opening in the invert slab appeared to have gotten wider from the photos taken in the past, by further erosion of the soil underneath and breaking of concrete invert slab panels, falling into the void below. The broken concrete slab and erosion is located at the downstream end of the 60-foot long spillway channel and is not considered an immediate safety concern at this time, but repairs are warranted to prevent further erosion. The downstream end of the spillway's gunited slope was also broken and undermined in 1983, and the area was subsequently repaired (see B. J. Vanberg's October 25, 1983 Memorandum to Files).

Proposed Repair Measure

It was agreed to break up the overhanging and cracked concrete slab sections and allowing them to fall into the void under the invert, then backfill the entire void with crushed rock to about 6 inches below grade. The opening would then be concreted over the crushed rock and would restore the concrete slab section.

The window for the construction season was narrowing rapidly. I asked Chuck to secure the necessary permits and complete the work while the weather was cooperating. I told him that we would not require an application for this work. By the attached December 12, 2011 e-mail, he forwarded his repair plan, which included diverting overflow water away from the damaged area, breaking up the undermined concrete slab and placing the chunks in the void below, backfilling the void with aggregate rock and tamping with vibratory plate, and capping with 4 to 6 inches of 2500-psi wire-mesh-reinforced concrete. I found the proposed repair plan acceptable.

Completed Work

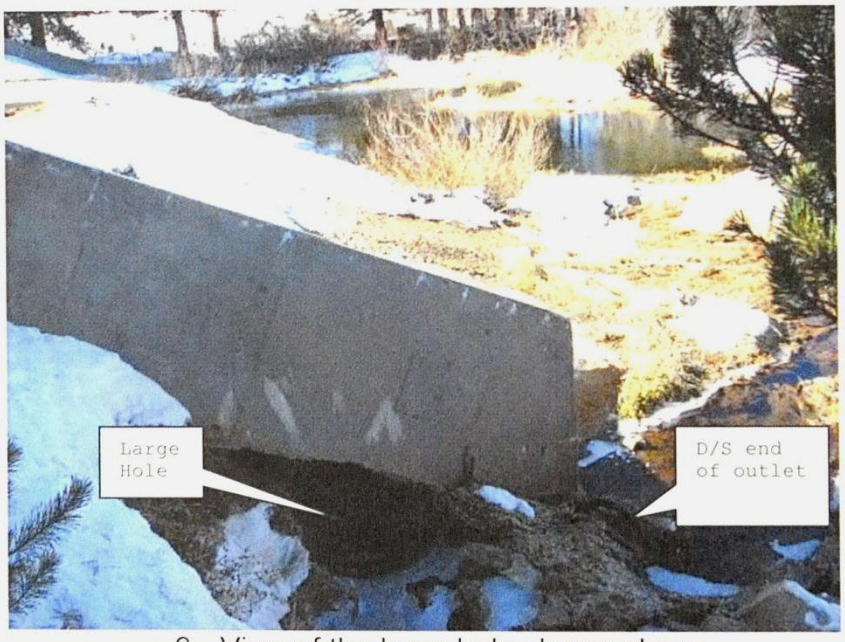
Mr. David Achey submitted the attached pictures of the work in progress. From the submitted pictures, the work appeared to have been completed in accordance with the proposed repair plan. I requested Chuck to submit a report certifying the completion of the work. I also requested the owner to monitor the repairs weekly, weather permitting, to ensure they are holding up well and no seepage is developing.

By the attached February 8, 2011 e-mail, Mr. Terry Plowden submitted a report by Holdrege & Kull, certifying the work as satisfactorily completed. He also mentioned in his 2/9/11 e-mail that they are exploring several options to resolve the illegal status of the dam and will get back to us by the end of February 2012.

1. The downstream end of the notched spillway section, looking upstream.

2. The notched section shown above, looking left from the right bank.

5. Looking upstream at the right concrete wall of the notched section. A large hole is present to the right of the bottom of the wall, shown below.



6. View of the large hole shown above.

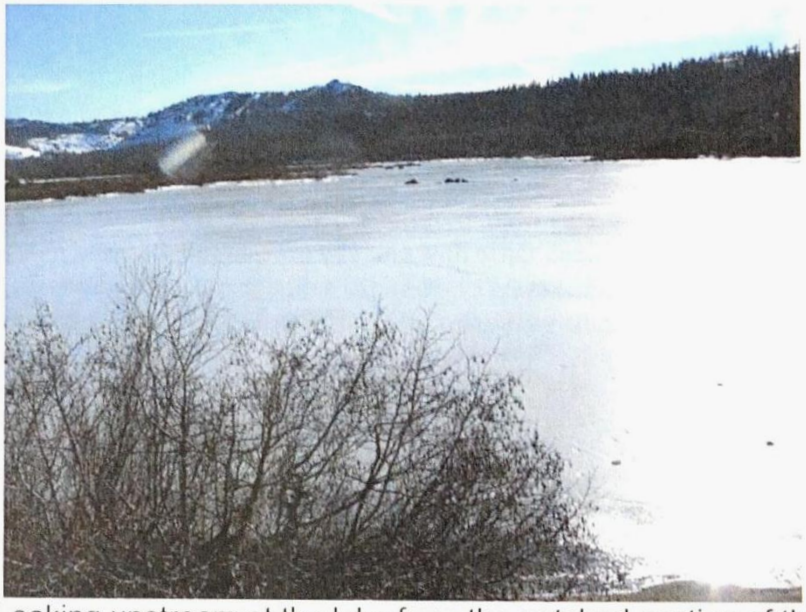
7. Another view of the large hole to the right of the concrete wall. A smaller hole to the left of the wall, and the downstream end of the outlet, are also visible in the foreground.

8. Close up view of the large hole shown above.

9. The outlet stem in a timber trunk on the upstream face, looking upslope.

10. The rusted outlet stem, looking downslope. The outlet gate is in the closed position and has not been cycled in decades. Its operability is doubtful.

11. The outlet gate concrete pedestal and handwheel, located on the crest to the right of the notched section. Matures trees in the background are present all over the embankment.



12. Looking upstream at the lake from the notched section of the dam.

Ordoubigian, Aspet

From: Terry Plowden [tplowden@douglaswilson.com]
Sent: Thursday, February 09, 2012 8:22 AM
To: Ordoubigian, Aspet
Cc: 'ckull@handk.net'; Liz Belloso; Mangney, Andy J.
Subject: RE: Lake Van Norden Dam

Aspet,
We are exploring several options to resolve this issue with Chuck's assistance. I hope to have some feedback later this month and will submit a formal extension request at that time.

Terry R. Plowden
Senior Managing Director
Douglas Wilson Companies
450 B Street, Suite 1900
San Diego, CA 92101
Phone: 619.641.1141
Fax: 619.641.1150

From: Ordoubigian, Aspet [mailto:aspeto@water.ca.gov]
Sent: Wednesday, February 08, 2012 5:25 PM
To: Terry Plowden
Cc: 'ckull@handk.net'; Liz Belloso; Mangney, Andy J.
Subject: RE: Lake Van Norden Dam

Terry:

Thanks for the report. Continue to have the dam monitored weekly (weather permitting) to insure the repair are holding up well and there are no new seepage or instabilities developing. We will inspect the dam again later this year.

I am still waiting to receive a letter from you regarding the selected alternative to terminate the illegal status of the dam. If no alternative has been selected, but you are working with other parties to formulate a preferred alternative, you can request for a time extension since the deadline expired on 12/1/11. I understand the difficult circumstances you are faced with regarding this dam and will work with you to rectify the situation.

Thanks again,
Aspet.

From: Terry Plowden [mailto:tplowden@douglaswilson.com]
Sent: Wednesday, February 08, 2012 4:46 PM
To: Ordoubigian, Aspet
Cc: 'ckull@handk.net'; Liz Belloso
Subject: FW: Lake Van Norden Dam

Aspet,

As requested, attached please find Chuck Kull's report on the spillway repair.

Please don't hesitate Chuck or me if you have any questions.

Terry R. Plowden
Senior Managing Director
Douglas Wilson Companies
450 B Street, Suite 1900
San Diego, CA 92101
Phone: 619.641.1141
Fax: 619.641.1150

From: Terri Caldwell [mailto:tcaldwell@handk.net]
Sent: Wednesday, February 08, 2012 12:56 PM
To: Terry Plowden
Cc: CRK - Chuck K
Subject: Lake Van Norden Dam

Good Afternoon Terry,

Chuck Kull asked me to send you the attached summary of observations and repairs. Please do not hesitate to call with any questions or comments.

Regards,

Terri Caldwell
Technical Editor

Holdrege & Kull Consulting Engineers and Geologists
792 Searls Avenue | Nevada City, CA 95959
530.478.1305 | 530.478.1019 fax | 530.362.0105 cell
tcaldwell@handk.net | www.HoldregeandKull.com

HK HOLDREGE & KULL
CONSULTING ENGINEERS • GEOLOGISTS

HOLDREGE & KULL
CONSULTING ENGINEERS • GEOLOGISTS

Project No. 4003-01
February 6, 2012

Douglas Wilson Companies
450 B Street, Suite 1900
San Diego, CA 92101

Attention: Terry Plowden, Senior Managing Director

Reference: ***Lake Van Norden Dam***
Nevada County, California

Subject: ***Summary of Emergency Repairs***

Dear Mr. Plowden,

At your request, Holdrege & Kull (H&K) has prepared this letter summarizing our observations and confirming that emergency repairs were performed for the existing Lake Van Norden Dam. Our work was performed in accordance with our proposal to you dated November 2, 2011.

Observations

We visited the Lake Van Norden dam site on October 23 and October 28, 2011 to observe the condition of the existing concrete lined spillway. The spillway had a large crack, approximately 15 to 18 feet long and up to 6 feet wide at the northeast end. Water had undermined the concrete and causing erosion of the supporting soil. A large void up to 6 feet deep was observed below the concrete apron. A portion of the concrete spillway apron had broken and had fallen into the void.

Repair Plan

On December 6, 2011 we visited the site and met with Aspet Ordoubigian, with the Division of Safety of Dams (DSOD), Mr. David Achey with Royal Gorge, and Mr. Randy Mezger, of AMX Excavation to prepare an emergency repair plan for the spillway. The concern was that if the weather changed quickly, the spillway would not be able to be repaired.

During the site visit, it was determined that the best option at this time was to break up the apron concrete that was cracked and place it in the bottom of the void. The contractor would then backfill the void with crushed rock to within 6 inches of the spillway surface and vibrate the material for consolidation. The remaining void at the surface would be filled with concrete with a minimum compressive strength of 2,500 PSI.

The contractor was able to start the repairs on December 13, 2011 and completed the repairs by December 16, 2011. Based on our review of photographs and previous site observations, our opinion is that the emergency repairs were completed in accordance with our verbal recommendations provided on December 6, 2011.

The spillway should be monitored periodically during the spring and summer run off to determine if any additional repairs should be made.

Please contact us if you have any questions.

Sincerely,

HOLDREGE & KULL

REGISTERED PROFESSIONAL ENGINEER
CHARLES R. KULL
No. 2359
Exp. 6/13
GEOTECHNICAL
STATE OF CALIFORNIA

Chuck Kull, G.E. 2359
Principal Engineer

F:\1 Projects\4003 Lake Van Norden Dam\PN11175 Lake Van Norden\4003-01 Repairs.doc

Ordoubigian, Aspet

From: Ordoubigian, Aspet
Sent: Friday, December 16, 2011 2:59 PM
To: 'David Achey'
Cc: 'Terry Plowden'; 'ckull@handk.net'; Mangney, Andy J.
Subject: Lake Van Norden Dam repair work
Attachments: IMG-20111216-00039.jpg

David:

This and the other four photos show the work as satisfactorily completed. As long as I receive a report from Chuck describing the details of the work and certifying it as complete, I don't have to make a separate trip until later next year. This repair work is sufficient in the interim while you folks are studying the available options for addressing the status of the dam.

Please monitor the repaired areas weekly, weather permitting, to ensure they are holding up and no seepage is developing. Let me know ASAP if you note any unusual conditions.

I look forward to receiving your letter regarding the preferred alternative to address the status of the dam. Feel free to contact me with any questions prior to sending the letter.

Thanks everyone for your efforts in completing the repairs under the harsh weather conditions.
Aspet.

From: David Achey [mailto:dachey@royalgorge.com]
Sent: Friday, December 16, 2011 2:23 PM
To: Ordoubigian, Aspet
Cc: 'Terry Plowden'; ckull@handk.net
Subject: FW: IMG-20111216-00039.jpg

Aspet,

Here is the first of four photos showing the completion of the work at Van Norden spillway. The project and design, construction was successful in eliminating any undermining of water/seepage into the spillway structure. If you would like to schedule a site visit, please let me know. At this point the project is completed as described by Chuck.

David Achey

From: dachey@royalgorge.com [mailto:dachey@royalgorge.com]
Sent: Friday, December 16, 2011 2:19 PM
To: dachey@royalgorge.com
Subject: IMG-20111216-00039.jpg

Irrigation				(Mo. & Day)
Domestic	0	0		
Recre-	0			

PACIFIC GAS & ELECTRIC COMPANY

Irrigation

Ordoubigian, Aspet

From: David Achey [dachey@royalgorge.com]
Sent: Friday, December 16, 2011 2:28 PM
To: Ordoubigian, Aspet
Cc: 'Terry Plowden'; ckull@handk.net
Subject: FW: IMG-20111216-00043.jpg
Attachments: IMG-20111216-00043.jpg

This photo is the north wall, there is a concrete bulkhead, and backfilled with the angular stone and fill.

From: dachey@royalgorge.com [mailto:dachey@royalgorge.com]
Sent: Friday, December 16, 2011 2:16 PM
To: dachey@royalgorge.com
Subject: IMG-20111216-00043.jpg

Ordoubigian, Aspet

From: Ordoubigian, Aspet
Sent: Friday, December 16, 2011 9:44 AM
To: 'David Achey'
Cc: 'Terry Plowden'; 'ckull@handk.net'; Mangney, Andy J.
Subject: FW: Donner-20111214-00034.jpg
Attachments: Donner-20111214-00034.jpg

David:

Thank you for the picture. I looked at the other two you sent me yesterday. I was out of the office all afternoon. Based on the pictures, the work looks satisfactory. Please send me additional pictures during and after concrete placement.

Chuck:

Can you send me a short narrative of the sequence of the work, including when the undermined concrete sections were broken up and when gravel was dumped in the voids, etc.. Include the gravel size and type of concrete (compressive strength if known) for my records.

Thanks much,
Aspet.

From: David Achey [mailto:dachey@royalgorge.com]
Sent: Thursday, December 15, 2011 3:17 PM
To: Ordoubigian, Aspet
Cc: 'Terry Plowden'; ckull@handk.net
Subject: FW: Donner-20111214-00034.jpg

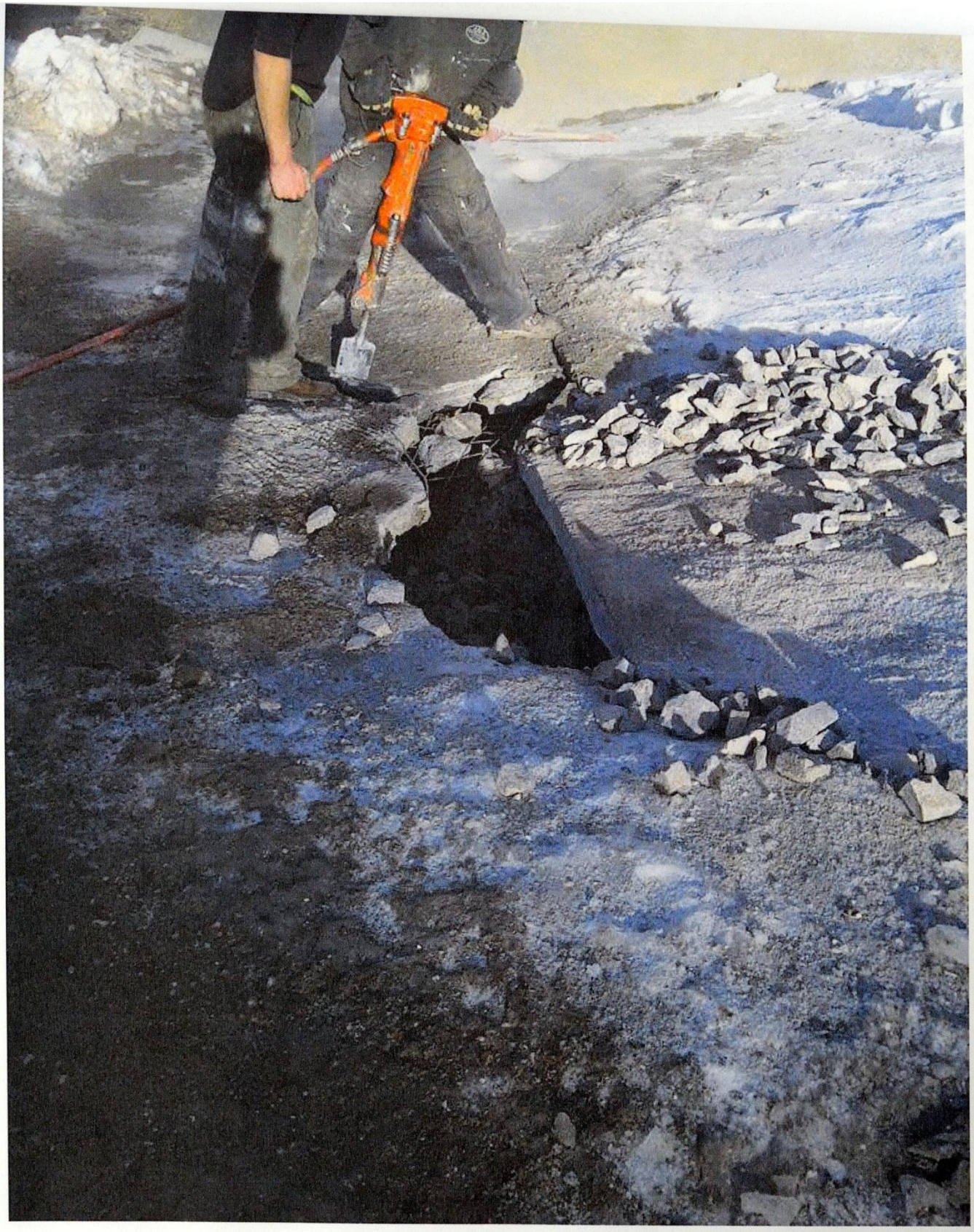
Aspet,

I am forwarding a few pictures from yesterdays work on the Van Norden Dam. The concrete was being poured today. I will send a few other pictures following this e-mail to document the work.

Any questions, please let us know.

David Achey

From: dachey@royalgorge.com [mailto:dachey@royalgorge.com]
Sent: Thursday, December 15, 2011 11:21 AM
To: dachey@royalgorge.com
Subject: Donner-20111214-00034.jpg



Ordoubigian, Aspet

From: Ordoubigian, Aspet
Sent: Monday, December 12, 2011 10:17 AM
To: 'ckull@handk.net'; 'Terry Plowden'; dachey@royalgorge.com
Cc: Mangney, Andy J.
Subject: RE: Work Plan for Lake Van Norden

Chuck:

The proposed repair plan is acceptable, provided the removed concrete apron is re-constructed to its original condition. Another words, the undermined concrete may be demolished and placed in the void, but the apron should be re-concreted to its original thickness and tightly connected to the adjacent concrete.

Placing aggregate rock into the voids, tamping with vibratory plate, and capping with 2500-psi concrete with wire mesh reinforcing is commensurate with our on-site discussions last week, and you got my approval to proceed. Randy (AM-X construction)) can get going ASAP while the weather is cooperating.

Thanks to all of you for following up with this interim repair measures. Keep me posted as the work proceeds.
Aspet.

From: Chuck's Sonic e-mail [mailto:ckull@handk.net]
Sent: Monday, December 12, 2011 8:22 AM
To: Ordoubigian, Aspet; 'Terry Plowden'; dachey@royalgorge.com
Subject: Work Plan for Lake Van Norden

Good Morning Aspet,

Thank you for meeting us at the spillway at Lake Van Norden last week.

Per our conversation, this is the work scope that the Contractor has proposed; we are in agreement with this schedule.

Am-X contractors plan to place approximately 250 sand bags to divert the water going over the spillway to the side that is not distressed. They will then remove the reinforced concrete that has been undermined by piping and place it in the void. The plan is to convey open graded aggregate rock into the void and tamp it with a vibratory plate. The upper 4 to 6-inches of the void will be capped with a minimum of 2,500 psi concrete. Reinforcing will be welded wire mesh such as 6 x 6 1.4/1.4. The Contractor will not be using filter fabric as originally proposed.

Please let us know if you concur with this emergency repair plan.

Thanks Aspet.

Chuck Kull
Principal Engineer

Holdrege & Kull Consulting Engineers and Geologists
792 Searls Avenue | Nevada City, CA 95959
530.478.1305 | 478.1019 fax | 362.1290 cell
ckull@handk.net | www.HoldregeandKull.com

Date: October 7, 2011

To: 1. Aspet Ordoubigian, Area 4 Engineer AO 10/7/11
2. Files

From: Andrew J. Mangney, Central Regional Engineer
Division of Safety of Dams
Department of Water Resources

Subject: Lake Van Norden Dam, Illegal
Nevada County

I returned a telephone message on October 7, 2011 regarding Van Norden Dam from Brian Keating, District Manager with Placer Flood Control and Water Conservation District (PFCWCD). He received a copy of our September 29, 2011 letter to the owner informing them Van Norden is jurisdictional size, and listing three options to abate the dam's illegal status.

Brian said that if the dam owner elects to alter the dam to abate its illegal status, PFCWCD will ask them to conduct a hydrology study to evaluate the downstream impacts in Placer County. The right side of the dam is in Nevada County and the left side of the dam is in Placer County. I told Brian I would put a memorandum in our files to copy PFCWCD on any letters the Division sends out so he can follow-up if a study by the owner is needed.

Below is PFCWCD's contact information:

E. Brian Keating, District Manager
Placer Flood Control and Water Conservation District
3091 County Center Drive, Suite 220
Auburn, California 95603
Phone: (530) 745-7592

SURNAME DWR 155 (Rev 11/04)	Mangney 10/7/11			

Memorandum

Date: September 30, 2011

To: 1. ~~Amy~~ Jackson, Office Services
2. Dean Smith, Database Manager
3. Files

From: A.J. Mangney, Central Regional Engineer
Division of Safety of Dams
Department of Water Resources

Subject: Lake Van Norden Dam, Illegal
Nevada County
New Dam Number and Disapproval of Inactive Construction Application

History

According to our records, Lake Van Norden Dam was owned by Pacific Gas and Electric Company (PG&E) until 2005. It was assigned the Dam No. 97-33 until it was lowered so it was Out of Jurisdiction in 1976. On February 11, 1976, PG&E submitted a construction application to rebuild the dam, and the dam was renamed New Lake Van Norden and assigned Dam No. 97-129. The application was never approved, and the Division placed the application in inactive status.

On July 20, 2011, Field Engineer Austin Roundtree inspected the dam, and found that it is now of jurisdictional size. The Division's understanding is the dam is now owned by Royal Gorge, LLC, a joint venture between Foster Enterprises, Inc. and Woodstock Development, Inc. In our September 29, 2011 letter, the new owners were informed of the Division's findings and options for abating the dam's illegal status.

New Dam Number

Since the dam is no longer owned by PG&E, it needs to be assigned a new 7000-series number.

Disapproval of Inactive Construction Application

Since the dam is no longer owned by PG&E, and the inactive construction application is more than 35 years old, the application should be disapproved. The Division's records need to be updated to reflect this change. By Division Procedure 5-7, a letter is sent to the dam owner explaining why an application is disapproved. Since PG&E no longer owns Van Norden Dam, there is no need for such a letter.

SURNAME DWR 155 (Rev 11/04)	Mangney 9/30/11			

FILE COPY

Mr. Kirk C. Syme, Principal
Woodstock Development
330 Primrose Road, Suite 203
Burlingame, California 94010

Mr. Todd B. Foster, Principal
Foster Enterprises
1840 Gateway Drive, Suite 100
Foster City, California 94404

Lake Van Norden Dam, Illegal
Nevada County

On July 20, 2011, Field Engineer Austin Roundtree inspected Lake Van Norden Dam on your partnership's property near the community of Soda Springs. The dam is located on the South Yuba River, within the SW ¼ of Section 23, T. 17 N., R. 14 E., MD B&M, in Nevada County (U.S.G.S. 7.5 minute Soda Springs, California Quadrangle), at Lat. 39°19'18" and Long. 120°22'24".

The dam's spillway was breached in 1976 to reduce the height to less than 25 feet and the reservoir's storage capacity to less than 50 acre-feet, thus removing the dam from State jurisdiction. However, Mr. Roundtree determined the dam to be 10 feet in height, measuring from the downstream toe to the spillway crest, and to have a reservoir capacity of approximately 300 acre-feet.

Dams that are 25 feet or more in height with a storage capacity of more than 15 acre-feet, and dams higher than 6 feet with a storage capacity of more than 50 acre-feet are subject to State jurisdiction. Therefore, your partnership's dam is under State jurisdiction as to safety.

The dam is currently in violation of Section 6077 of the California Water Code. This violation can be terminated by one of the following alternatives:

1. File an "Application for Approval of Plans and Specifications for the Construction or Enlargement of a Dam and Reservoir", including the appropriate filling fee, a full set of plans and specifications, and an engineering evaluation of the dam. Plans should include any necessary improvements required to meet minimum safety standards.

2. File an "Application for Approval of Plans and Specifications for the Repair or Alteration of a Dam and Reservoir", including the appropriate filing fee, and modify the dam to less than jurisdictional size as defined in Sections 6002 and 6003 of the California Water Code.

SURNAME DWR 155 (Rev 1/09)	A.C. ROUNDTREE AND/FOR AO 9/29/11	9/29/11	9/29/11

3. File an "Application for Approval of Plans and Specifications for the Removal of a Dam and Reservoir", including the appropriate filing fee, and remove the dam completely to eliminate all storage.

By December 1, 2011, notify us of which alternative you have selected for terminating this violation. At that time, submit a schedule showing dates for submitting the appropriate application, fees, engineering evaluation, and plans and specifications for necessary construction. Application forms and instructions are enclosed.

For all of the alternatives, the work must be performed under the direction of a civil engineer registered to practice in California and approved by this Division prior to beginning work.

If Alternatives 2 or 3 are selected, we will no longer have jurisdiction over the safety of the dam once the work has been satisfactorily completed.

During Mr. Roundtree's inspection, spill flows were flowing through large cracks at the downstream end of the concrete spillway apron and eroding the material underneath. Repair work is necessary before the winter weather arrives and the reservoir spills next year. Complete this work no later than October 31, 2011, and contact Area Engineer Aspet Ordoubigian for a follow-up inspection.

If you have any
Mr. Ordoubigia
(916) 227-463

Sincerely,

Original Sig
Michael G. Wa

David A. Gutie
Division of Saf

Enclosures
Certified Mail

cc: (See attac

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

MR KIRK C SYME PRINCIPAL
WOODSTOCK DEVELOPMENT
330 PRIMROSE RD STE 203
BURLINGAME CA 94010

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Lisa Stephenson ☐ Agent ☐ Addressee

B. Received by (*Printed Name*) Lisa Stephenson
C. Date of Delivery 10-3-11

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

97-129

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (*Extra Fee*) ☐ Yes

7010 3090 0002 6515 2391

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

3. File an "Application for Approval of Plans and Specifications for the Removal of a Dam and Reservoir", including the appropriate filing fee, and remove the dam completely to eliminate all storage.

By December 1
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are enclosed.

For all of the alt
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If Alternatives 2
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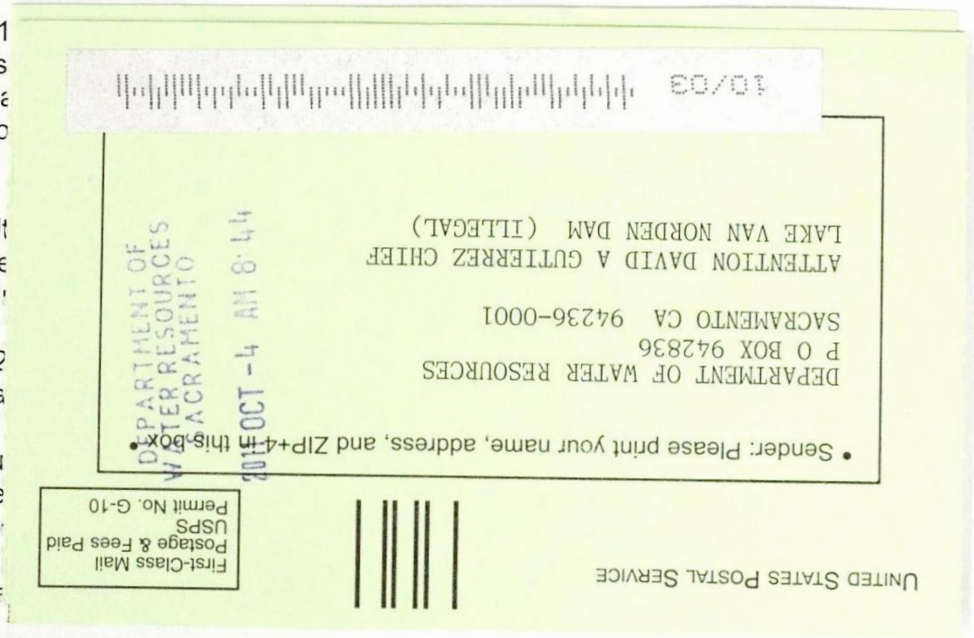


If you have any questions or need additional information, you may contact Mr. Ordoubigian at (916) 227-4635 or Regional Engineer Andrew Mangney at (916) 227-4631.

Sincerely,

Original Signed by
Michael G. Waggoner for

David A. Gutierrez, Chief
Division of Safety of Dams

Enclosures
Certified Mail

cc: (See attached list.)

cc: Mr. Andrew Bambauer, P.E.
Department of Water Resources
Division of Flood Management
3310 El Camino Avenue, Suite 200
Sacramento, California 95821

Ms. Barbara Evoy, Deputy Director
State Water Resources Control Board
Division of Water Rights
Post Office Box 2000
Sacramento, California 95812

Ms. Wendy Boemecke, Emergency Services Coordinator
California Emergency Management Agency
3650 Schriever Avenue
Mather, California 95655

Mr. Victor Ferrera, Manager
Nevada County Office of Emergency Services
10014 North Bloomfield Road
Nevada City, California 95959

Mr. Peter Kraatz, Deputy Director
Placer County Public Works
3091 County Center Drive, Suite 220
Auburn, California 95602

AOrdoubigian:TGlorioso
Lake Van Norden Dam.doc
Spell Check 9/26/11

California Natural Resources Agency
Department of Water Resources
DIVISION OF SAFETY OF DAMS

1. Author	Austin C. Roundtree	ACR	9/26/11
2. Area/Design Engr	Aspet Ordoubegian	ADm and/for AO	9/29/11
3. Reg/Project Engr	Andy Mangney	AO	
4. Database Coord.	Dean Smith		
5. Files			

JURISDICTIONAL DETERMINATION SHEET

Jurisdictional Status

Existing Dam
- (•) Illegal
- ( ) Not in Jurisdiction (NIJ)

Proposed Dam
- ( ) Proposed
- ( ) Not in Jurisdiction (NIJ)

Region Central **Area** 4 **Date Investigated or Date of JD Memo** July 20, 2011

Dam Name & No. Lake Van Norden Dam* **County** Placer

Owner's Name Royal Gorge Lands, LLC **Owner's Phone Number** 650-579-1901

Location: Section 23 **T** 17N **R** 14E **Base Line** MDB&M

Longitude 39.321695 (•) decimal **Latitude** 120.373355 (•) decimal

Description of Existing Dam Location to Assist in Locating the Dam
The dam is located on Soda Springs Road off Donner Pass Road in the Town of Soda Springs, California. NOTE: It is our understanding that Royal Gorge, LLC is a joint venture between Foster Enterprises, Inc. and Woodstock Development, Inc., and ownership of the dam is shared. The phone number listed is for Mr. Kirk C. Syme, Principal of Woodstock Development, Inc., who is the primary point of contact.

Height (ft) 27 **Total Freeboard (ft)** 17 **Barrier Height (ft)** 10 **Est. Storage Capacity (ac-ft)** 300

Note: Height is measured from dam crest to d/s toe. Barrier height (Jurisdictional height) referenced in Water Code §6002 and §6003 = Height - Total Freeboard

Reason for not in jurisdiction
The dam was originally owned by PG&E and had the dam number 97-33 until it went OJ in 1976.
In the1980s, the Donner Summit Public Utilities District proposed to purchase and rebuild the dam, and it was assigned a new dam number 97-129 (proposed).
In 2005, the dam was purchased by Royal Gorge Lands, LLC.
The dam needs to be assigned a new 7000-series dam number since it is no longer owned by PG&E.

Date Plotted and Initialed on Division's Quads: 7.5 min. 8/26/2011 **15 min.**

Quad Sheet Name and Page Soda Springs Quad., Page 2A-18A3

The Resources Agency
Department of Water Resources
Division of Safety of Dams

Memorandum of Field Review
Lake Van Norden Dam, Illegal
Nevada County
July 20, 2011
By Austin C. Roundtree ACR 9/26/11

Introduction

Lake Van Norden Dam was originally built in 1900 by the South Yuba Water Company, and was later acquired by PG&E. In 1974, the embankment was analyzed by DSOD and found to have an inadequate margin of safety for stability. In 1976, the dam was breached. The original intent of the owner was to reduce the dam height below 6 feet to Elevation 6745, but the reservoir area was believed to be only ½ acre at this elevation, and the owners were concerned about providing enough storage for the reservoir to act as an effective siltation basin. The crest of the breach was raised five feet to Elevation 6750, and the dam was reportedly surveyed, and estimated to have a capacity of 45 acre-feet at this elevation. The Division does not have a copy of this survey.

The dam is located along Soda Springs Road in the Town of Soda Springs, California. The dam is specifically located at Lat. 39°19'18" and Long. 120°22'24", and is within the SW ¼ of Section 23, T. 17N, R. 14E, MDB&M, in Nevada County (U.S.G.S. 7.5 minute Soda Springs, California Quadrangle). The dam is located along the South Yuba River.

Following a July 2011 news broadcast about large amounts of water seeping out from underneath the spillway apron, and the possible erosion of embankment material, DSOD researched and evaluated existing plans and records for the original construction of Lake Van Norden Dam, as well as plans for the final breach of the embankment. On July 20, 2011, I performed an unaccompanied inspection of the dam, and found it to be jurisdictional in size.

The current owner of the dam is Royal Gorge Lands, LLC, who purchased the land from PG&E in June of 2005. It is our understanding that Royal Gorge, LLC is a joint business venture between Foster Enterprises, Inc. and Woodstock Development, Inc., and ownership of the dam is shared. On August 30, 2011, Area Engineer Aspet Ordoubigian and I called Foster Enterprises and Woodstock Development, to inform the owners of their responsibilities. We were told that Mr. Kirk Syme of Woodstock Development, Inc. will be the primary point of contact. Mr. Ordoubigian sent an email to Mr. Syme that same afternoon and also spoke with him by phone on September 20, 2011, informing him of our findings and telling him that he will receive a letter with alternatives to abate the dam's illegal status. A copy of Mr. Ordoubigian's email is attached.

Inspection

The old dam was a 30-foot high earthfill dam, approximately 1,630 feet long and 6 feet wide at the crest. The crest of the dam is at Elevation 6770. Prior to the breach, maximum water surface was Elevation 6768. Total reservoir area at this elevation was 390 acres, and total storage capacity was 5,280 acre-feet.

The breach is approximately 70 feet across, 20 feet deep and 60 feet long, with 2:1 side slopes. According to the plans, the upstream sill of the breach is at Elevation 6749.9, and the downstream toe of the dam is at Elevation 6740.2, a difference of 9.7 feet. I verified this elevation difference using a hand level, and found the total height of the breach to be ~10 feet above the bed of the downstream channel. There is a 4-inch thick gunite lining on the floor of the breach which extends 15 vertical feet up the side slopes of the breach.

I inspected the dam and the breach spillway for safety. The upstream face, crest and downstream face of the dam were covered with dense vegetation consisting of brush and trees (saplings and mature). This vegetation made it difficult to walk the crest of the dam, and observation of the faces was difficult; therefore, I could not make an accurate assessment of the embankment's condition. I did not note any obvious signs of instability. There were minor signs of rodent activity, but I noted nothing serious.

I noted no signs of seepage on the downstream face or along the toe of the dam. A small ditch running a portion of the length of the toe flows into the downstream channel, but I believe these flows were from runoff and snowmelt, not seepage.

The approach and the breach control section were clear and unobstructed. There were several willows in the downstream channel, but they did not impede downstream flow and do not present any safety concern. Visually, the breach appears adequate to pass the flood flows for the reservoir's 12-square-mile drainage area. The gunite lining over the breach is beginning to age, and cracking at the downstream end was severe. There is a single large crack extending the transverse length of the breach at the downstream lip. Several large cracks at the downstream right side of the breach have developed to the degree that water is pouring into them and eroding the rock fill behind the gunite. According to our files, this side of the breach surface failed and needed to be rebuilt once in the past.

The current cracking and erosion underneath the breach surface gunite is located at the downstream end of the apron, and it is not judged to be an immediate dam safety concern, but repair work is warranted. Once flows into the reservoir recede, this portion of the breach can be filled with rock or concrete, and the gunite lining repaired.

According to the as-built drawings, the dam's low level outlet consists of a 3/16-inch thick, 22-inch diameter riveted steel pipe which extends about 140 feet through the base of the dam. The outlet pipe is encased in concrete from the upstream inlet to the wooden core wall near the center of the dam. The wheel and stem operator is located at the upstream edge of the crest approximately 150 feet north of the breach centerline. The end of the outlet could not be located. The working condition of the outlet is unknown, but it does not appear that it has been operated for years.

Capacity Analysis

I drove the adjacent roads and estimated the dimensions of the reservoir by my odometer. By my best estimate, the reservoir was approximately 4,000 feet long and 2,000 feet wide. I estimated that only half of this area was actually surface area. I also estimated that the deepest part of the reservoir near the dam was at least 6 feet deep, and that the outer reaches of the reservoir were approximately 2 feet deep. I therefore assumed an average depth of 4 feet, and calculated the storage of the reservoir as:

$$V = [(4{,}000 \text{ feet} * 2{,}000 \text{ feet})/2 \times 4 \text{ feet}] / 43{,}560 \text{ ft}^3/\text{acre} = \underline{367 \text{ ac-ft}}$$

When I returned to the office, I verified the lake dimensions using Google Earth. The aerial image available showed the lake at low elevation, but the high water line was evident around the perimeter, and I was able to obtain a surface area for both. Just as during my visual inspection, there did not appear to be any surface barriers in the reservoir which would isolate an upstream pool of any significant size. Using the average of low (70 acres) and high (100 acres) surface areas and the same average depth as before, I recalculated storage capacity as:

$$V = (70 \text{ acres} + 100 \text{ acres})/2 \times 4 \text{ feet} = \underline{340 \text{ ac-ft}}$$

I also calculated storage using Lake Van Norden Dam's old area-capacity curve. At Elevation 6750 (the elevation of the notched crest), the capacity of Lake Van Norden Dam was recorded as ~24 million cubic feet. At Elevation 6745, the capacity was recorded as ~6 million cubic feet. This five foot difference matched my previous estimates of storage depth closely, so I calculated storage using the old area-capacity curve as:

$$V = (24 \text{ mcf} - 6 \text{ mcf}) / 43{,}560 \text{ ft}^3/\text{acre} = \underline{413 \text{ ac-ft}}$$

Lastly, I calculated the surface area of the reservoir at Elevation 6750 using an electronic planimeter and an old aerial survey of Lake Van Norden. I measured three times and averaged the (present) full capacity surface area at 135 acres. I then calculated the storage area by the simple formula V = SA*D/3, where SA is

surface area and D is maximum depth. Assuming a surface area of 135 acres and a maximum depth of 6 feet, I calculated storage as:

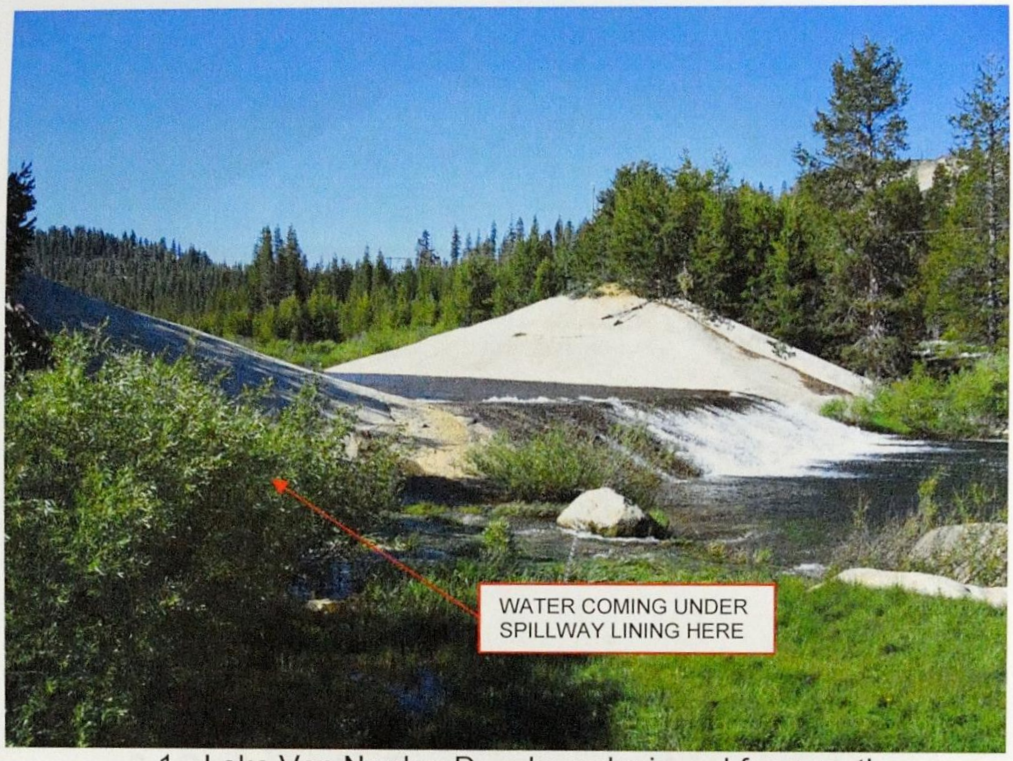
$$V = 1/3 * 135 \text{ acres} * 6 \text{ feet} = \underline{270 \text{ ac-ft}}$$

These four values are close enough together to suggest that the reservoir in its present condition has a storage capacity of roughly 300 acre-feet.

Conclusion

Lake Van Norden Dam is approximately 10 feet high and the reservoir capacity is roughly 300 acre-feet; therefore, this dam is of jurisdictional size. A letter will be sent to the owner informing them of our findings and listing available options for abating the dam's current illegal status.

The dam is in questionable condition given it could not be thoroughly inspected due to heavy vegetation growth. The large cracks and erosion underneath the spillway liner does not pose an immediate dam safety concern, but it should be repaired before the dam spills next year. Other less significant maintenance items the owner should address include removing woody vegetation from the embankment and restoring the outlet so it is operational.



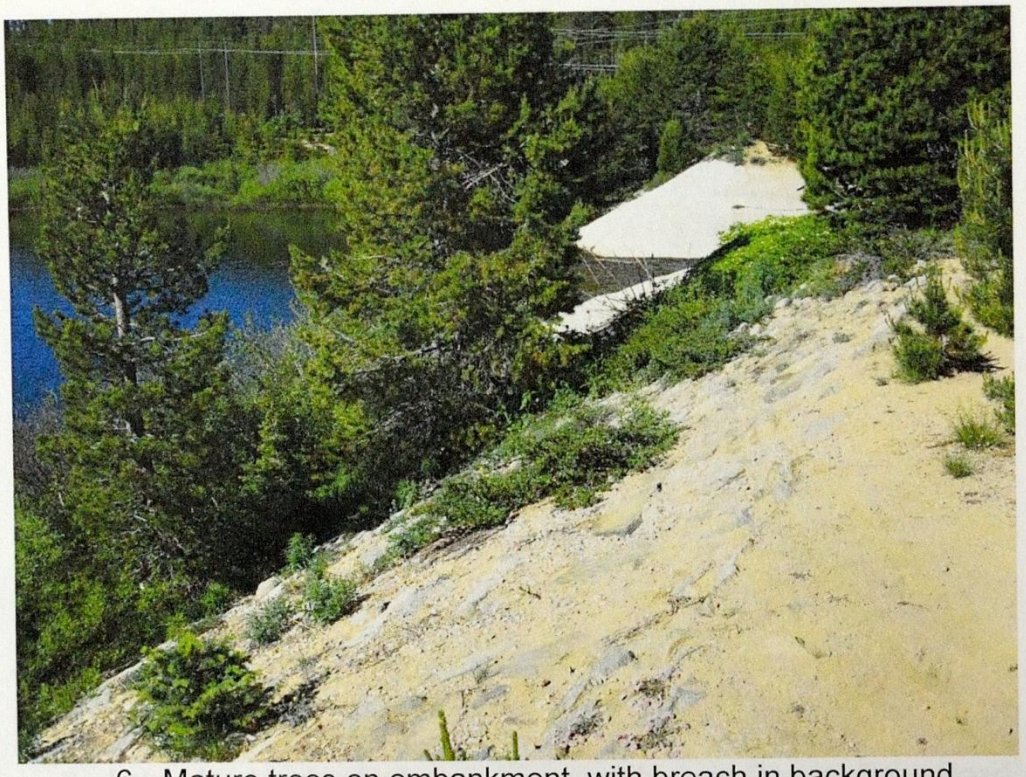
1. Lake Van Norden Dam breach viewed from north.

2. Close-up of water coming under spillway lining.

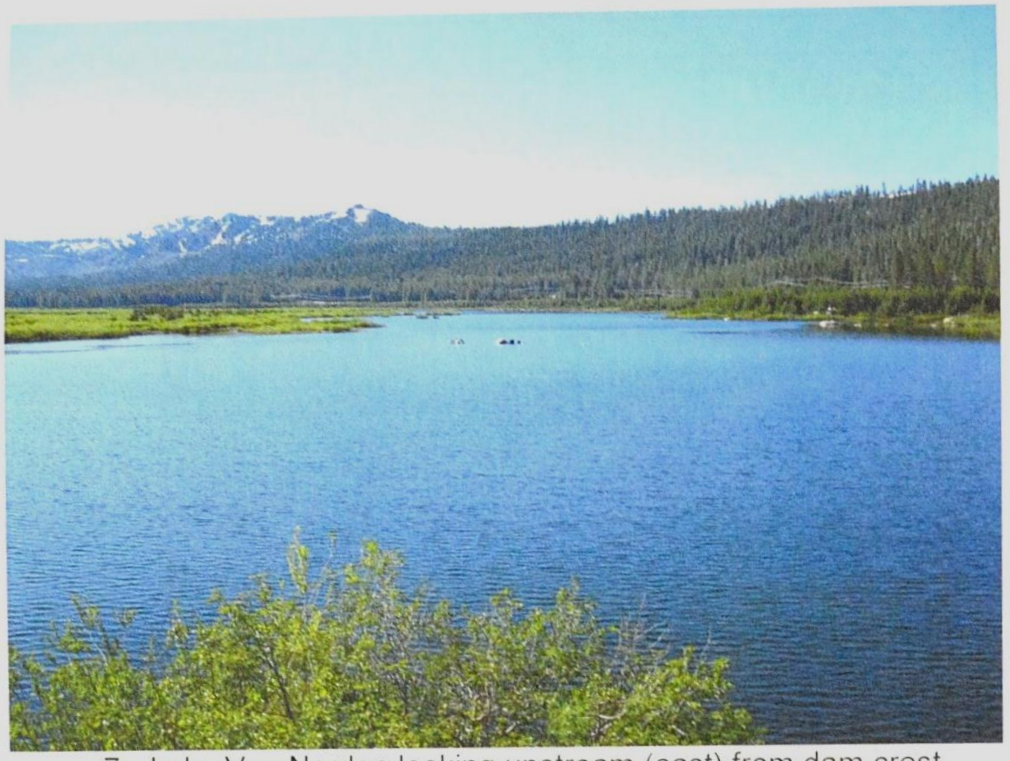
3. Gunite-lined spillway apron viewed from crest of dam.

4. Crack in downstream end of spillway apron causing leakage.

5. Typical vegetation growing on the embankment.



6. Mature trees on embankment, with breach in background.



7. Lake Van Norden looking upstream (east) from dam crest.

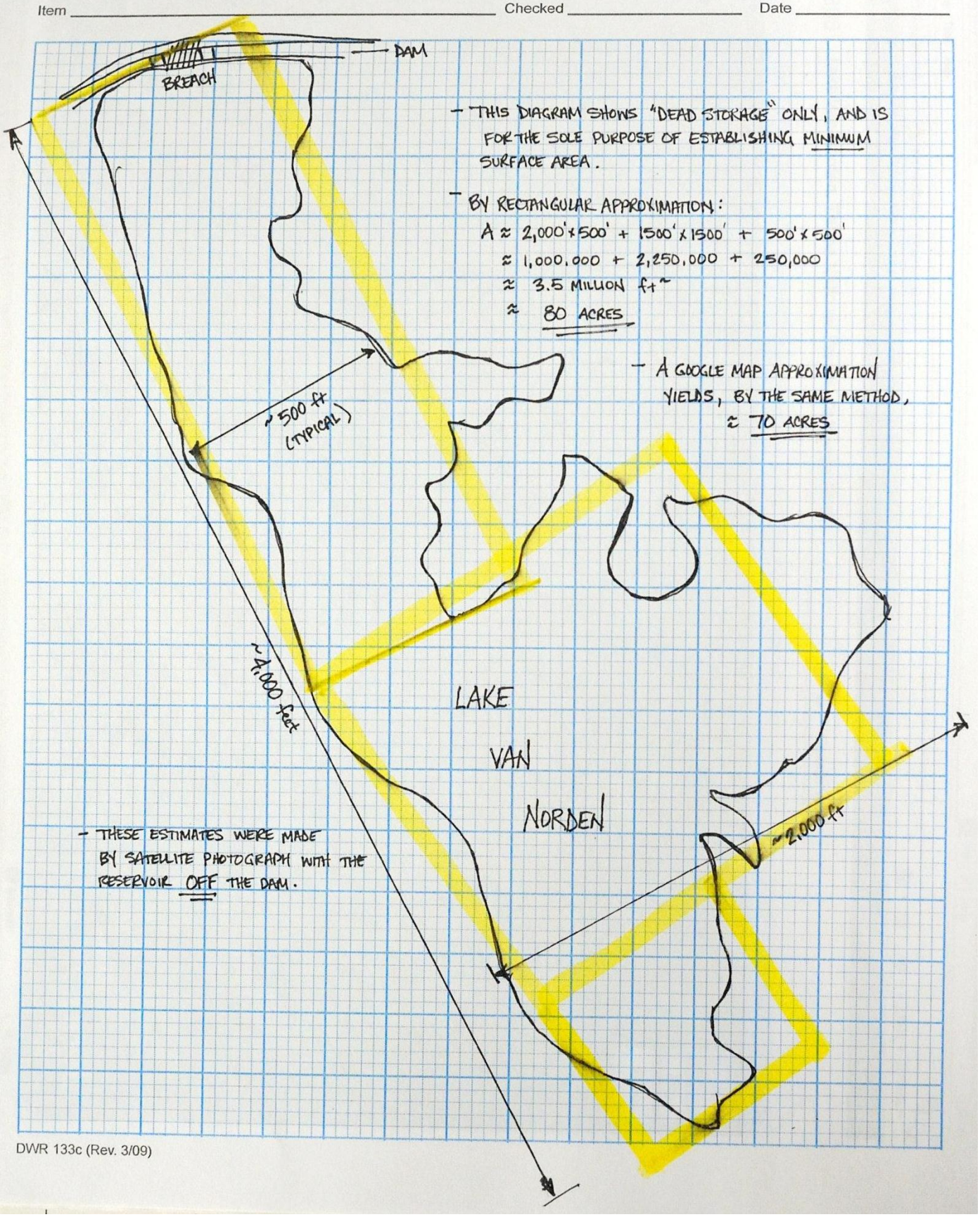
8. Lake Van Norden looking across (south) from Donner Pass Road.

COMPUTATION SHEET

Project LAKE VAN NORDEN Sheet 1

Feature STORAGE ESTIMATE Designed Date

Item Checked Date



- THIS DIAGRAM SHOWS "DEAD STORAGE" ONLY, AND IS FOR THE SOLE PURPOSE OF ESTABLISHING MINIMUM SURFACE AREA.
- BY RECTANGULAR APPROXIMATION:

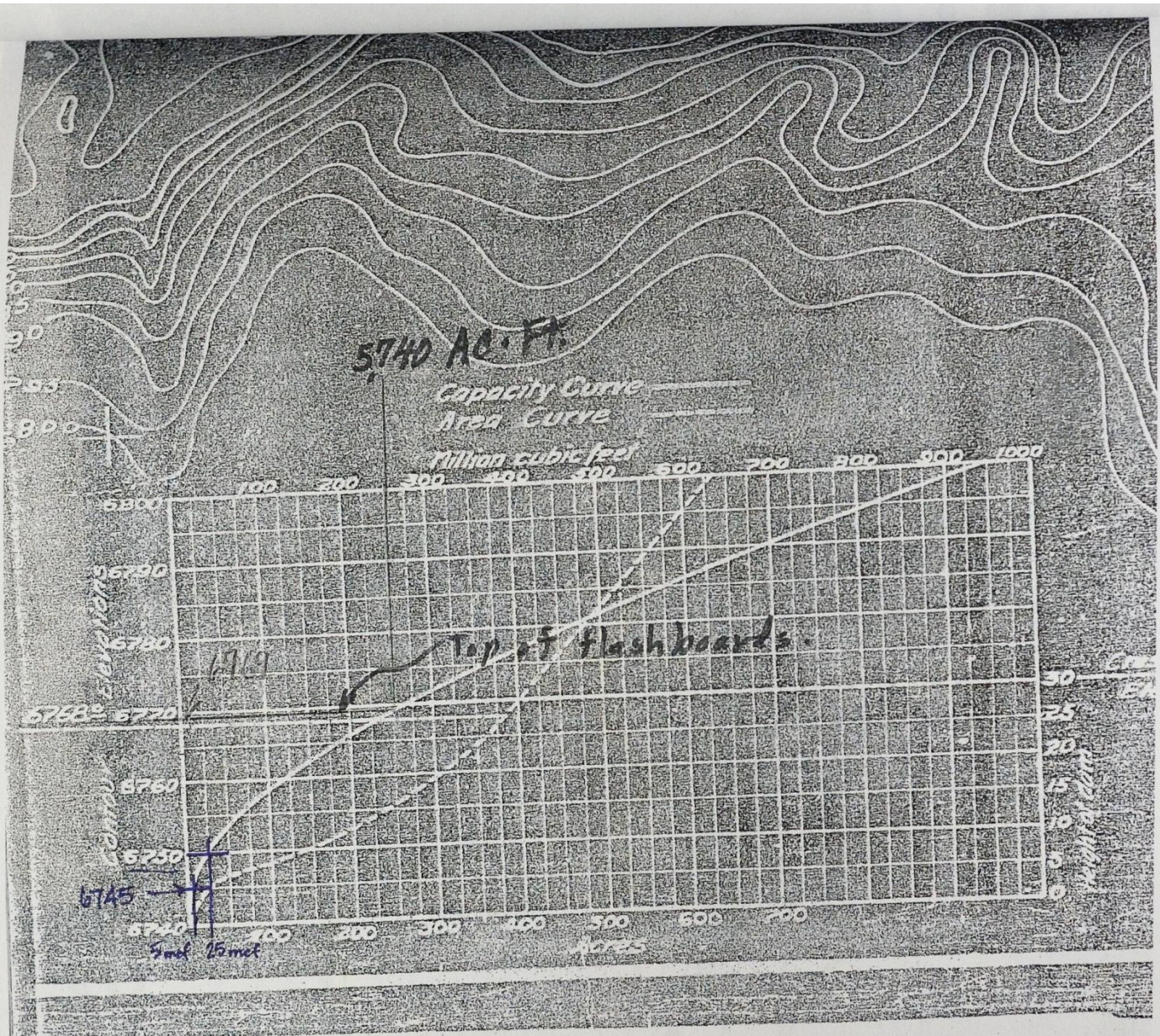
  $A \approx 2{,}000' \times 500' + 1500' \times 1500' + 500' \times 500'$

  $\approx 1{,}000{,}000 + 2{,}250{,}000 + 250{,}000$

  $\approx$ 3.5 MILLION ft^2

  $\approx$ 80 ACRES
- A GOOGLE MAP APPROXIMATION YIELDS, BY THE SAME METHOD, $\approx$ 70 ACRES
- THESE ESTIMATES WERE MADE BY SATELLITE PHOTOGRAPH WITH THE RESERVOIR OFF THE DAM.


Videos
Maps
News
Shopping
Gmail
more
roundtreecottage@gmail.com
Search Maps
Print
Send
Link
Map
Photos
Image © 2011 DigitalGlobe
©2010 Google
Terms of Use

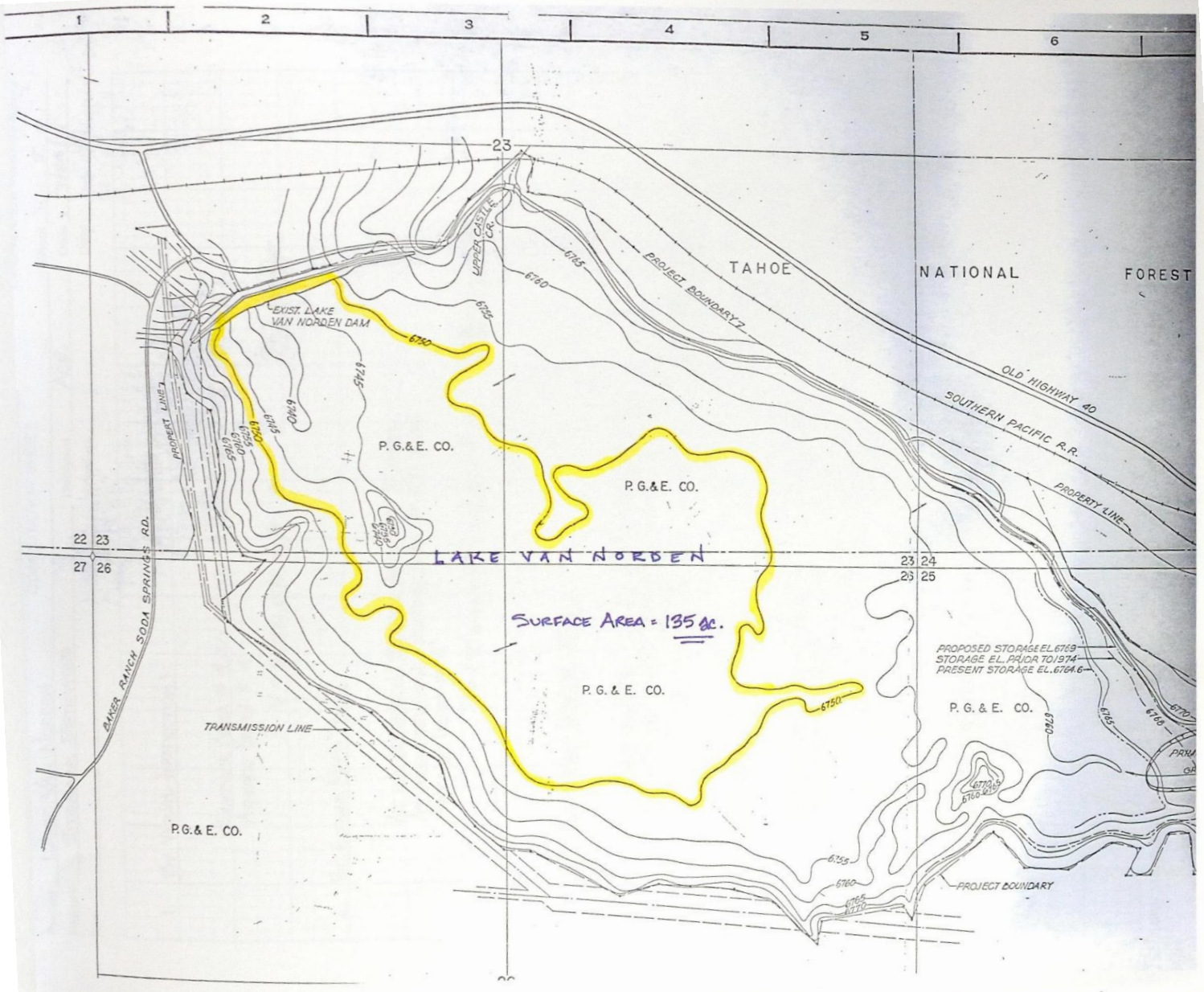


25 mcf - 5 mcf = 20 mcf

20 mcf / 43,560 ft per ac = 459 ac-ft

Lake Van Norden

Dwg. No. C 502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4
5
6
23
TAHOE
NATIONAL
FOREST
EXIST. LAKE
VAN NORDEN DAM
UPPER CASTLE CR.
PROJECT BOUNDARY
OLD HIGHWAY 40
SOUTHERN PACIFIC R.R.
PROPERTY LINE
PROPERTY LINE
BAKER RANCH SODA SPRINGS RD.
P. G.&E. CO.
P. G.&E. CO.
P. G.&E. CO.
P. G. & E. CO.
P. G. & E. CO.
P.G.& E. CO.
LAKE VAN NORDEN
SURFACE AREA = 135 ac.
PROPOSED STORAGE EL.6769
STORAGE EL. PRIOR TO 1974
PRESENT STORAGE EL. 6764.6
TRANSMISSION LINE
PROJECT BOUNDARY
6745
6750
6755
6760
6765
6770
6775
22 23
27 26
23 24
23 25

COMPUTATION SHEET

Project: LAKE VAN NORDEN | Sheet: 2
Feature: STORAGE ESTIMATES | Designed: ACR | Date: 7/24/11
Item: | Checked: | Date:

1. BY VISUAL INSPECTION:

SURFACE AREA ≈ 4,000' x 2,000' x ½ = 4,000,000 sq.ft.
AVERAGE DEPTH ≈ 4'
V = 16,000,000 sq.ft. = 367 acre-feet

2. BY GOOGLE MAPS TOOL:

AT LOW ELEVATION, SURFACE AREA ≈ 70 acres
AT HIGH ELEVATION, SURFACE AREA ≈ 100 acres
AVERAGE DEPTH ≈ 4'
V = (70 acres + 100 acres)/2 x 4' = 340 acre-feet

3. BY 1970's AREA-CAPACITY CURVE:

AT ELEVATION 6750, CAPACITY ≈ 24,000,000 ft^3
AT ELEVATION 6745, CAPACITY ≈ 6,000,000 ft^3
V = 18,000,000 ft^3 = 413 acre-feet

4. BY PLANIMETER:

SURFACE AREA @ ELEVATION 6750 ≈ 135 acres
MAX RESERVOIR DEPTH ≈ 6 ft.
V = ⅓ · (135 acres) · (6 ft.) = 270 acre-feet

5. AVERAGE OF THESE VALUES IS: **347 acre-feet**

From: Ordoubigian, Aspet
Sent: Tuesday, August 30, 2011 10:29 AM
To: 'ksyme@woodstockdevelopment.com'
Cc: Mangney, Andy J.; Roundtree, Austin C.
Subject: Lake Van Norden Dam

Good morning Mr. Syme:

My name is Aspet Ordoubigian and I am the Area Engineer with California Division of Safety of Dams. According to the Nevada County Office of Emergency Services (OES) and Foster Enterprises, you represent Royal Gorge Lands, which is the owner of Lake Van Norden Dam.

It was brought to our attention by the Nevada County OES that the dam may be of jurisdictional size. Our Field Engineer inspected the dam on July 20, 2011 and determined the dam to be approximately 10 feet in height and containing roughly 300 acre-feet of storage; therefore, the dam is under State jurisdiction as to safety.

You have several options to bring the dam into or remove it from our jurisdiction. Repairs will also be needed to maintain the dam in a satisfactory condition while reviews are ongoing. Please call me at the following numbers to discuss those options. We will send you a letter outlining the options, but wanted to talk to you personally before sending the letter out.

Thanks much and sorry for the inconvenience. I'll work with you to rectify these issues. Look forward to hearing from you,

Aspet Ordoubigian, P.E.
Area 4 Engineer
California Department of Water Resources
Division of Safety of Dams
2200 X Street, Suite 200
Sacramento, CA. 95818
Office (916) 227-4635
Cell (916) 761-0866
Fax (916) 227-4500
aspeto@water.ca.gov

AUG 2 4 1989

FILE COPY

Mr. Rodney J. Strub, Manager
Hydro-Generation Department
Pacific Gas and Electric Company
77 Beale Street, Room F-759
San Francisco, CA 94101

Dear Mr. Strub:

Lake Van Norden Dam, No. 97-33
Nevada County
Macumber Dam, No. 97-94
Shasta County

For your information and record, Mr. David Akola of EPS Associates, Inc. in Reno, Nevada and Ms. Cynthia Duff of Northern California Council Federation of Flyfisheries in Sacramento inspected our files concerning the subject dams on April 18, 1989 and March 3, 1989, respectively.

If you have any questions, please telephone Office Engineer T. C. Liu at (916) 323-1113.

Sincerely,

ORIGINAL SIGNED BY
D. H. BABBITT

Vernon H. Persson, Chief
Division of Safety of Dams

SURNAME			
DWR 540 (REV. 76)	A. Souza II 8/24/89	T.C. Liu 8/24/89	Babbitt 8/24

4. _____
5. Files

State of California
The Resources Agency
Department of Water Resources
Division of Safety of Dams

INSPECTION REQUEST

Please arrange for me to inspect the public records for Dam No. 97-129, New Lake Van Norden ~~Dam~~ Dam and Reservoir, for the purpose of determining status

My relationship, if any, with the owner of this dam and reservoir is ~~N/A~~ represent Donner Summit P.U.D.

Printed Name Chuck Briggs

Organization Law Offices of Patrick Leathers

Address 1225 8th st #570

Date 6-21-89 Signature Chuck Briggs

Inspection of the records was authorized by Directors Office of the Division of Safety of Dams. Type of identification shown in person

---

Owner's representative _____

was advised of the above record inspection by phone/letter by Area Engineer

_____ on _____

Re: Lake Van Norden Project
Soda Springs, California

Keaches estimates $2 -3 M for the dam

In 1987, the Donner Summit Public Utilities District (DSPUD) became seriously interested in restoring Lake Van Norden, located along the south fork of the Yuba river near Soda Springs, California.

Lake Van Norden was previously owned and operated by Pacific Gas & Electric between 1900 and 1976. The site consisted of an earthen dam and a resultant reservoir with a maximum capacity of 5874 acre-feet covering approximately 382.4 acres. Lake Van Norden collected snowmelt from a 12.14 square mile basin for release during the summer and fall to PG & E's Spaulding-Drum hydroelectric power facility downstream. As per a 1963 agreement with the California Department of Fish and Game, minimum releases to the south fork of the Yuba River were set at 5 cubic feet per second during the winter and raised to 10 cubic feet per second in the summer. In 1976, due to concerns regarding the stability of the dam under conditions of seismic stress, the dam at Lake Van Norden was breached.

The DSPUD is currently interested in restoring Lake Van Norden to its previously pristine state. DSPUD proposes to accomplish this by completely reconstructing the dam to meet requirements for seismic safety. The new dam will be a maximum of 35 feet in height and will hold approximately 6,000 acre-feet of water.

Once completed, Lake Van Norden will once again be an excellent area for both boating and trout fishing. In addition, Lake Van Norden will attract migrating waterfowl, as it once did, and will insure a steady, consistent downstream flow in the reach between Soda Springs and Spaulding Lake. Furthermore, restoration of the lake will serve as a preventive measure against the habitat damage presently underway due to the annual sheep grazing in the dry lakebed area.

Concerned citizens who live in the area, as well as people who currently have summer homes in the region, have been almost unanimously in support of this restoration project. The people who had previously enjoyed the scenic and recreational benefits of Lake Van Norden are eager for the completion of this restoration project.

DSPUD has submitted an Application to Appropriate Water for fish and wildlife enhancement and recreation to the State Water Resources Control Board, and the application is still before the Board, pending approval.

DSPUD is currently investigating the possibility of buying/leasing the reservoir area at fair market value. However, the problem of funding such an acquisition, in addition to the problems of funding the design and construction of the dam present a serious problem for a small, publicly owned utility district such as DSPUD. Therefore, it is imperative that governmental revenue sources be explored. These possibilities include grants and low interest loans or any other special entitlements available for a project of historical significance and/or fish, wildlife and recreation enhancement.

Re: Lake Van Norden Project
Soda Springs, California

1225 8TH ST., STE. 570
SACRAMENTO, CA 95814
(916) 446-3080
FAX (916) 444-0159

818 CONNECTICUT AVE., N.W., STE. 1010
WASHINGTON, D.C. 20006
(202) 223-4200
FAX (202) 331-7538

Chuck Briggs 451-3104 - SAC.

In 1987, the Donner Summit Public Utilities District (DSPUD) became seriously interested in restoring Lake Van Norden, located along the south fork of the Yuba river near Soda Springs, California.

Lake Van Norden was previously owned and operated by Pacific Gas & Electric between 1900 and 1976. The site consisted of an earthen dam and a resultant reservoir with a maximum capacity of 5874 acre-feet covering approximately 382.4 acres. Lake Van Norden collected snowmelt from a 12.14 square mile basin for release during the summer and fall to PG & E's Spaulding-Drum hydroelectric power facility downstream. As per a 1963 agreement with the California Department of Fish and Game, minimum releases to the south fork of the Yuba River were set at 5 cubic feet per second during the winter and raised to 10 cubic feet per second in the summer. In 1976, due to concerns regarding the stability of the dam under conditions of seismic stress, the dam at Lake Van Norden was breached.

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from who

David H. Akola, P.E., P.L.S.
President
P.O. Box 5245, Reno, NV 89513
(702) 747-6044

3. ~~Area Engineer~~ AD
4. _____
5. Files

~~...~~ of California
The Resources Agency
Department of Water Resources
Division of Safety of Dams

INSPECTION REQUEST

Please arrange for me to inspect the public records for Dam No. 9733 OJ

Lake Van Norden Dam and Reservoir, for the

purpose of Determing status

My relationship, if any, with the owner of this dam and reservoir is

None

Printed Name DAVID AKOLA

Organization EPS ASSOCIATES, INC

Address PO Box 5245

RENO, NV 89513

Date 4/18/89 Signature David Akola

Inspection of the records was authorized by _____

of the Division of Safety of Dams. Type of identification shown _____

Owner's representative Rodney Strab, Mgr

was advised of the above record inspection by ~~phone~~/letter by ~~Area~~ office Engineer

TCL on _____

✓

G. A. Hayes

From : **Department of Water Resources**

97-129

Subject: Lake Van Norden Dam, No. 97-33 (OJ)
Telephone Call from David Akola

On March 13, 1989, Mr. David Akola of EPS Associates Reno (702) 747-6644 inquired about what would be required from a dam safety standpoint to reconstruct Lake Van Norden. His client is a private developer. I suggested that he review the DSOD files himself, but pointed out that there had been stability problems before the dam was breached.

After PG&E conducted exploration work and stability analysis they decided it would be too costly to repair.

GAHayes:kh
4/17/89

SURNAME G A Hayes 9/20/99

DWR 155 (Rev. 2/86)

READING FILE

APR 18 1988

FILE COPY

Mr. Steve Beucus
Donner Summit Public Utility District
P. O. Box 7
Soda Springs, CA 95728

Dear Mr. Beucus:

Lake Van Norden Dam, No. 97-33 (O. J.)
Nevada County — filed 3-1-88

According to "Application to Appropriate Water, No. 29206," Donner Summit Public Utility District proposes reconstruction of Lake Van Norden Dam. The proposed dam with a height of 34 feet and storage capacity of 6500 acre-feet will be under the jurisdiction of the State of California, Division of Safety of Dams.

To initiate our review of your proposed project, you must submit an Application for Approval of Plans and Specifications for the Construction or Enlargement of a Dam and Reservoir to this Division. Application forms and a booklet titled "Statutes and Regulations Pertaining to Supervision of Dams and Reservoirs" are enclosed. Application requirements are covered in Chapter 5, Article 1 and fee information is included in Chapter 6 of the Statutes and Regulations.

Please advise us of your work plans before beginning field exploration and design.

Before construction can commence, the Division's written approval of plans and specifications is required. During construction, the dam is inspected by Division personnel to assure compliance with approved plans and specifications.

If you have any questions, please call Design Engineer Jim Marchant at (916) 323-5420, or Project Engineer Sam Linn at (916) 323-5304.

Sincerely
Original signed by
Donald H. Babbitt for

Vernon H. Persson, Chief
Division of Safety of Dams

Enclosures

JWMarchant/jwm
04/14/87

SURNAME	Marchant 4/18/88	4-18-88	Fitzpatrick 4/18/88

DWR 540 (REV. 76)

State Water Resources Control Board
DIVISION OF WATER RIGHTS
901 P Street, Sacramento
P. O. Box 2000, Sacramento, CA 95810

DAMS

APPLICATION to APPROPRIATE WATER

(For explanation of entries required, see booklet "How to File an Application to Appropriate Water in California")

STATE WATER RESOURCES CONTROL BOARD
1989 MAR 15 AM 8:35
DIV. OF WATER RIGHTS
SACRAMENTO

Application No. 29206

1. APPLICANT

I, Donner Summit Public Utility District (Attn: Mr. Steve Beucus)
(Name of Applicant) 916-426-3456

(Telephone Number where you may be reached between 8 a.m. and 5 p.m.–include area code)

P.O. Box 7 (Address) | Soda Springs (City or Town) | CA (State) | 95728 (Zip Code)

do hereby make application for a permit to appropriate the following described waters of the State of California, SUBJECT TO VESTED RIGHTS

2. SOURCE

a. The name of the source at the point of diversion is the South Fork of the Yuba River & its unnamed
(If unnamed, state nature of source and that it IS unnamed)
~~tributary to~~ tributaries above an elevation of 6730 MSL

b. In a normal year does the stream dry up at any point downstream from your project? YES [XX] NO [ ]. If Yes, during what months is it usually dry? August through October

3. POINT of DIVERSION and REDIVERSION

a. The point of diversion will be in the County of Nevada

b.

List all points giving coordinate distances from section corner or other tie as allowed by Board regulations	Point is within (40-acre Subdivision)	Section	Township	Range	Base and Meridan
N606520 E 2,459,305, Calif. Coord.	NW ¼ of SW ¼	23	17N	14E	Mt. Diablo
System	¼ of ¼				
	¼ of ¼				

c. Does applicant own the land at the point of diversion? YES [ ] NO [XX].

d. If applicant does not own land at point of diversion, state name and address of owner and state what steps have been taken to obtain right of access: Pacific Gas & Electric Co., 1050 High St., Auburn, CA 95603
916-885-2431 (Contact Mr. R.E. Metzker) The DSPUD is negotiating to obtain the site.

4. PURPOSE of USE, AMOUNT and SEASON

a. State the purpose(s) for which water is to be appropriated, the amounts of water for each purpose and dates between which diversions will be made in the table below. Use gallons per day if rate is less than 0.025 cubic feet per second (approximately 16,000 gallons per day).

PURPOSE OF USE	DIRECT DIVERSION				STORAGE		
	AMOUNT		SEASON OF DIVERSION		AMOUNT	COLLECTION SEASON	
	RATE (Cubic feet per second or gallons per day)	Acre-feet per year	Beginning Date (Mo. & Day)	Ending Date (Mo. & Day)	Acre-feet per year	Beginning Date (Mo. & Day)	Ending Date (Mo. & Day)
Irrigation	0	0	0	0	0	--	--
Domestic	0	0	0	0	0	--	--
Recreation	-0	-0	-0	-0	6,500*	Oct. 1	June 15
Wildlife & Habitat	0	0	0	0	6,500*	Oct. 1	June 15
	0 (TOTAL)				6,500* (TOTAL)		

*concurrent

b. Total combined amount taken by direct diversion and storage during any one year will be 6,500 acre-feet.

*/86)

JUSTIFICATION OF AMOUNT

a. IRRIGATION: Maximum acreage to be irrigated in any one year will be 0 acres.

CROP	ACRES	METHOD OF IRRIGATION (Sprinklers, flooding, etc.)	ACRE-FEET (per year)	NORMAL SEASON	
				Beginning Date	Ending Date

b. DOMESTIC: The number of residences to be served N/A. Separately owned: YES ☐ NO ☐

The total number of people to be served N/A. Estimated daily use per person _____ (gallons per day).

The total area of domestic lawns and gardens N/A (square feet).

Miscellaneous domestic uses N/A (Dust control area. Number and kind of domestic animals, etc.)

c. STOCKWATERING: Kind of Stock N/A. Maximum Number _____. Describe type of operation (feed lot, dairy, range, etc.)

d. RECREATIONAL: Type of recreation: Fishing ☒, Swimming ☒, Boating ☒, Other ☐.

(Submit "Supplement to Application", form SWRCB 1-1, for justification of amount for uses not listed above.)

6. DIVERSION WORK

a. Diversion will be by pumping from N/A (sump, offset well, channel, reseryoir, etc.). Pump discharge rate _____ (cfs, gpd). Horsepower _____.

b. Diversion will be by gravity by means of N/A (pipe in unobstructed channel, pipe through dam, siphon, gate, etc.)

c. Estimated total cost of the diversion works proposed is N/A (Give only cost of intake, or headworks, pumps, storage reservoirs, and main conduits.)

d. Main conduit from diversion point to first lateral or offstream storage reservoir:

CONDUIT (Pipe or channel)	MATERIAL (Kind of Pipe or channel lining)	CROSS SECTIONAL DIMENSION (Pipe diameter or ditch depth and top and bottom width	LENGTH (feet)	TOTAL LIFT OR FALL (feet)	(+ or −)	CAPACITY (estimated)
	See Supplement SWRCB Form 1-1					

e. The following applies to storage reservoirs: (For reservoirs having a capacity of 25 acre-feet or more, complete supplemental form SWRCB 1-1,

Name or number of reservoir, if any	DAM: Height of dam from streambed to spillway level (ft.)	DAM: Material construction	DAM: Dam Length (ft.)	DAM: Freeboard Dam height above spillway crest (ft.)	RESERVOIR: Approximate surface area when full (acres)	RESERVOIR: Approximate capacity (acre-feet)	RESERVOIR: Max. water depth
Van Norden Reserv.	34	Earthfill	1650	6 feet	402	6500	46

(Planned as reconstruction of existing dam and reservoir)

f. If water will be stored and the reservoir is not at the diversion point, the maximum rate of diversion to offstream storage will be 0 cfs.

Diversion to offstream storage will be amde by pumping ☐; gravity ☐.

7. PLACE OF USE

a. Applicant owns the land where the water will be used: YES ☐ NO ☒. Land is in joint ownership: YES ☐ NO ☒.

All joint owners should include their names as applicants and sign the application. If applicant does not own land where the water will be used, give name and address of owner and state what arrangements have been made with the owner.

Owner: Pacific Gas & Electric Co., 1050 High St., Auburn, CA 95603

916-885-2431 Attn: Mr. R.E. Metzker

Applicant intends to obtain land as part of the Lake Van Norden Recon.

USE IS WITHIN (40-acre Subdivision)	SECTION	TOWNSHIP	RANGE	BASE AND MERIDIAN	IF IRRIGATION: State Number of Acres	IF IRRIGATION: Presently cultivated (Yes or No)
¼ of ¼						
¼ of ¼						
¼ of ¼		See attached listing				
¼ of ¼						
¼ of ¼						
¼ of ¼						

If area is unsurveyed, state the location as if lines of the public land survey were projected. If space does not permit listing all 40-acre tracts, include on another sheet or state sections, townships and ranges, and show detail on map. For public districts or other extremely large areas, see Page 16 of instruction booklet "How to File an Application to Appropriate Water in California".

8. COMPLETION SCHEDULE

APPLICATION NO. 29206

SUPPLEMENT TO APPLICATION

(This supplement is required for uses other than irrigation, domestic, stockwatering, and recreation and for surface storage of 25 acre-feet or more.)

5. JUSTIFICATION of AMOUNT

e. MUNICIPAL: Estimated projected use: N/A

POPULATION 5-year periods until use is completed		MAXIMUM MONTH		ANNUAL USE		
PERIOD	POP.	Average daily use per capita (gal.)	Rate of Diversion (cfs)	Average daily use (gal. per capita)	Acre-foot (per capita)	Total Acre-feet
Present						
19						
19						
19						
19						

Month of maximum use during year _____. Month of minimum use during year _____.

Is it planned to individually meter each service connection? YES ☐ NO ☐. If so, when? _____

f. HEAT CONTROL: The total area of heat protection is _____ (net acreage) acres. Type of crop protected _____

Rate at which water is applied to use: _____ (gpm) (cfs) (circle one)

The heat protection season will begin about _____ (beginning date) and end about _____ (ending date).

g. FROST PROTECTION: The total area of frost protection is _____ (net acreage) acres. Type of crop protected _____.

Rate at which water is applied to use: _____ (gpm) (cfs) (circle one)

The frost protection season will begin about _____ (beginning date) and end about _____ (ending date).

h. INDUSTRIAL USE: Type of industry _____

Basis of determination of amount of water needed _____

i. MINING: The name of the mine is _____ (name of claim). Patented ☐ or Unpatented ☐.

The nature of the mine is _____. Mineral to be mined is _____.

Type of milling or processing _____.

After use, the water will be discharged into _____ (name of stream)

in _____ (state 40-acre subdivision) of Sec. ____, T____, R ____, ____ B.&M.

j. POWER USE: The total fall to be utilized is _____ feet. The maximum amount of water to be used through the penstock is _____, cubic feet per second. The maximum theoretical horsepower capable of being generated by the works is _____ (cubic feet per second x fall ÷ 8.8)

The use to which power is to be applied is _____ (for distribution and sale or private use, etc.). The nature of the works by means of which power is to be developed is _____ (Turbine, Pelton wheel, etc.). The size of the nozzle to be used is _____ inches.

After use, the water will be discharged into _____ (name of stream) in _____ (state 40-acre subdivision) of Sec. ____, T____, R ____, ____ B.&M.

k. OTHER: Describe use: Water storage for recreation and wildlife/fish enhancement in S. Yuba River. Basis of determination of amount of water needed: Historical usage provided from 1900-1975 at former Lake Van Norden.

6. DIVERSION WORKS (Storage Reservoirs)

The following applies to storage reservoirs having a capacity of 25 acre-feet or more:

Diameter of outlet pipe (inches)	Length of outlet pipe (feet)	Vertical distance between entrance and exit of outlet pipe (feet) Fall	Vertical distance from spillway to outlet pipe in reservoir (feet) Head	Estimated storage below outlet pipe entrance (Dead storage)
36*	200*	12 feet*	29.5 feet*	15 A-F

* May vary with final design

(ATTACH SUPPLEMENTAL SHEETS HERE)

9. GENERAL

a. What is the name of the post office most used by those living near the proposed point of diversion? Soda Springs, CA 95728

b. Does any part of the place of use comprise a subdivision on file with the State Department of Real Estate? YES ☐ NO ☒. If Yes, state name of subdivision _____ If No, is subdivision of these lands contemplated? YES ☐ NO ☒.
Is it planned to individually meter each service connection? YES ☐ NO ☐. If Yes, when? N/A

c. Have you consulted the California Department of Fish and Game concerning this proposed project? YES ☒ NO ☐. If Yes, state the Department's opinion concerning the potential effects of your proposed project on fish and other wildlife and state measures required for mitigation CDF&G would require a streambed alteration permit, habitat evaluation process (HEP), maintain min. downstream flows and replacement of any wetlands inundated by reservoir.
If No, state the effects on fish and other wildlife you foresee as potentially arising from your proposed project. _____

d. Please name other public agencies, if any, from which you have obtained or are required to obtain approvals regarding this project:
See attached comments

e. What are the names and addresses of diverters of water from the source of supply downstream from the proposed point of diversion?
Pacific Gas & Electric, 1050 High St., Auburn, CA 95603
Nevada Irrigation District, P.O. Box 1019, Grass Valley, CA 95945

f. Is the source used for navigation, including use by pleasure boats, for a significant part of each year at the point of diversion, or does the source substantially contribute to a waterway which is used for navigation, including use by pleasure boats? _____
See attached comments

10. EXISTING WATER RIGHT

Do you claim an existing right for the use of all or part of the water sought by this application? YES ☐ NO ☒

If yes, complete table below

Nature of Rights (riparian, appropriative, groundwater.)	Year of First Use	Purpose of use made in recent years including amount, if known	Season of Use	Source	Location of Point of Diversion

11. AUTHORIZED AGENT (Optional)

With respect to: ☒ All matters concerning this water right application, ☐ those matters designated as follows: _____
see attached

Name _____ Address _____

_____ Zip Code: _____

is authorized to act on my behalf as my agent. (Telephone No. of agent between 8 a.m. and 5 p.m.)

12. SIGNATURE of APPLICANT

I (we) declare under penalty of perjury that the above is true and correct to the best of my (our) knowledge and belief.

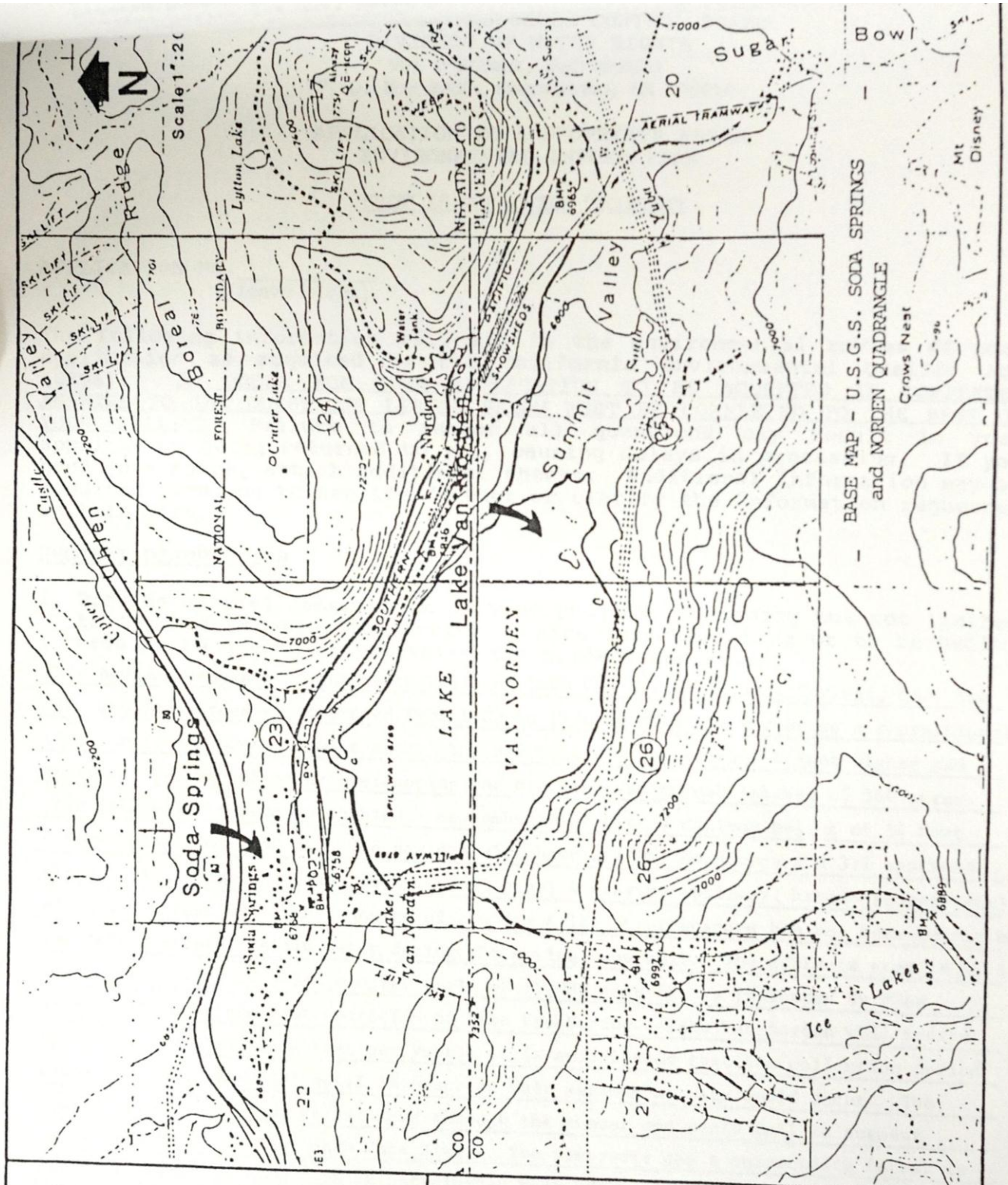
Dated MARCH 3 19 88, at SODA SPRINGS, California

Ms. Mr.
Miss, Mrs. Linda L. Bennett
(Signature of applicant) (Refer to Section 671 of the Board's regulations)

If applicants are members of the same family (i.e., husband, wife, mother, father, son, brother, sister, etc.) or reside at the same address, please indicate their relationship:

Ms. Mr.
Miss, Mrs. _____
(Signature of applicant) (Refer to Section 671 of the Board's regulations)

Additional information needed for preparation of this application may be found in the leaflet entitled "HOW TO FILE AN APPLICATION TO APPROPRIATE WATER IN CALIFORNIA". If there is insufficient space for answers in this form, attach extra sheets. Please cross reference all remarks to the numbered item to which they may refer. Send application in duplicate to the STATE WATER RESOURCES CONTROL BOARD, DIVISION OF WATER RIGHTS, P. O. Box 2000, Sacramento, CA 95810, with $100 minimum filing fee.



KLEINFELDER	VICINITY MAP Lake Van Norden Soda Springs, California	PLATE 1
PROJECT NO. 30-1708-01		

M-6

29206

DIVISION OF WATER RIGHTS
901 P Street, Sacramento
P. O. Box 2000, Sacramento, CA 95810

APPLICATION TO APPROPRIATE WATER
ENVIRONMENTAL INFORMATION

(THIS IS NOT A CEQA DOCUMENT)

APPLICATION NO._____
(leave blank)

The following information will aid in the environmental review of your application as required by the California Environmental Quality Act (CEQA). IN ORDER FOR YOUR APPLICATION TO BE ACCEPTED AS COMPLETE, ANSWERS TO THE QUESTIONS LISTED BELOW MUST BE COMPLETED TO THE BEST OF YOUR ABILITY. Failure to answer all questions may result in your application being returned to you, causing delays in processing. If you need more space, attach additional sheets. Additional information may be required from you to amplify further or clarify the information requested in this form.

PROJECT DESCRIPTION

1. Provide a brief description of your project, including but not limited to type of construction activity, structures existing or to be built, area to be graded or excavated and project operation.

This project consists of the restoration of Lake Van Norden in Soda Springs, CA. The old Lake Van Norden was operated from 1900 to 1976 by PG&E and served as a recreational resource in the Donner Summit area. The new lake will be approx. 4 feet higher and cover an area of 402 acres overlapping the old Lake Van Norden lakebed of 384 acres. This lake will be retained behind a new embankment with a maximum height of 34 feet & crest length of 1650 ft. The new dam will have 2 1/2:1 downsteam and 3:1 upstream slopes. A new outlet works(36-in. steel pipe) & gravity spillway(broad-crested weir) will be constructed. Final design of the dam & its appurtenances has not been completed. The reservoir will retain water during the spring snow melt. The drainage area is 12.4 square miles with an average water yield of 15,000 acre-ft. as indicated by PG&E historical data from past operation of Lake Van Norden. Lake Van Norden will retain approximately 6,500 acre-feet per year. It is anticipated that the collection period would run from late fall until late spring when maximum storage would occur. The stored water would then be released through the summer and early fall to augment downstream flows in the South Yuba River. The reservoir dam & surrounding forest is currently owned by PG&E. It is anticipated that DSPUD will obtain the land from PG&E for the project. Any construction activities such as earthwork, borrow sites, outlet pipe placement & spillway construction will be performed within the limits of the old Lake Van Norden dam & reservoir. No streambed alteration or road construction outside of the old reservoir area is expected. Clearing & grubbing will be generally confined to the grasses & immature conifers which have rooted in the lakebed since it was drained in 1976 though some minor clearing along the old lakeshore may be necessary. The reconstruction of Lake Van Norden will enhance late summer stream flows in the Yuba River (Southfork) from Lake Van Norden to Lake Spaulding. This reach of the Yuba River currently drops to a very low flow & ceases completely in drought years. The reconstruction of Lake Van Norden will likely result in improvements to the riparian habitat between Lake Van Norden and Lake Spaulding.

GOVERNMENTAL REQUIREMENTS

Before a final decision can be made on your water right application, we must consider the information contained in an environmental document prepared in compliance with the requirements of CEQA. If an environmental document has been prepared for your project by another agency, we must consider it. If one has not been prepared, a determination must be made as to who is responsible for the preparation of the environmental document for your project. The following questions are to aid us in that determination.

2. Contact your county planning or public works department for the following information:
   (a) Assessor's Parcel No. Block 69, Page 2, Parcels 4 & 10
   (b) County Zoning Designation Nevada County - Forest & Recreation (FR) Placer County - Water influence/Forest & Dev. Reser
   (c) Will the county have to issue any permits or approvals for your project? Yes If yes, check appropriate spaces below:
   X Grading Permit, _____ Use Permit, _____ Watercourse Obstruction Permit, _____ Change of Zoning, _____ General Plan Change, _____ Other: _____
   (d) If any permits have been obtained list permit type and permit number: None obtained
   (e) Person contacted Sharon Boivin-Nevada County Bill Combs-Placer County Date of contact Nevada 6-30-87 Placer 6-23-
   Department Nevada Co. Planning Dept. Placer Co. Planning Dept. Telephone ( ) 916-265-1440 916-823-9721

3. Are any additional state or federal permits required for your project? (i.e., Federal Energy Regulatory Commission, U.S. Forest Service, Bureau of Land Management, Soil Conservation Service, Department of Water Resources (Division of Dam Safety), Reclamation Board, Coastal Commission, State Lands Commission, etc.)
   For each agency from which a permit is required provide the following information:
   Permit type See attached summary
   Person contacted _____ Agency _____
   Date of contact _____ Telephone ( ) _____

4. Has your agency, if it is a public agency, or any permitting agency prepared any environmental documents for your project? No
   If so, you must submit a copy of the latest environmental document with this application, including a copy of the notice of determination.
   If not, will any environmental documents be prepared by any permitting agency, or will you be preparing environmental documents for your project? Yes If so, explain: We will prepare CEQA documentation and file an environmental assessment.

Note: When completed, the final environmental document (including notice of determination) or notice of exemption must be submitted to the Board. Processing of your water right application cannot proceed until such documents are submitted.

5. Will your project, during construction or operation, generate waste or wastewater containing such things as sewage, industrial chemicals, metals, or agricultural chemicals, or cause erosion, turbidity or sedimentation? No If so, explain: _____

If you answered yes or you are unsure of your answer, contact your local Regional Water Quality Control Board for the following information (See attachment for address and telephone number):
Will a waste discharge permit be required for your project? _____
Person contacted _____ Date of contact _____
What method of treatment and disposal will be used? _____

What method of treatment and disposal [illegible]

3. Permit Needed	Agency	Contact	No.	Date
Dam Safety	Calif. Dept. of Water Resources, Div. of Dam Safety	--	916-445-7606	5-27-87
Section 404	U.S. Army Corps of Engineers	Art Champ	916-551-2275	12-8-87
Erosion Control During Construction	Central Valley Regional Water Quality Control Board	Brian Newman Dan Fua	916-361-5658 916-361-5623	1-25-88 1-25-88
Streambed Alteration Permit	Calif. Dept. of Fish & Game	Mike Meinz	916-355-7030	1-14-88
Grading	Placer Co. Planning Dept.	Bill Combs	916-823-4721	6-23-87
Grading	Nevada Co. Planning Dept.	Sharon Boivin	916-265-1440	6-30-87

preparing an archeological report to satisfy another public agency? No

Do you know of any archeological or historic sites located within the general project area? Yes If so, explain: PG&E files list two sites Prehistoric Site (located SW 1/4 of NW 1/4, Section 25, T17N R14E) GW Layton Cabin (located NE 1/4 of NW 1/2, Section 25, T17N, R14E)

ENVIRONMENTAL SETTING

7(a) Describe the current land use of the area at the point of water diversion, immediately downstream of the diversion, and at the place where the water is to be used. Attach photographs of these areas. Date and label photos.
Point of diversion: The diversion point is the former Van Norden Dam which was constructed in 1900 and breached in 1976.

Photos are attached

Downstream of diversion: Soda Springs area which consists of vacation cabins

Place of use: None. The place of use is the former lakebed of Lake Van Norden.

(b) Describe the types of existing vegetation at the point of diversion, immediately downstream of the point of diversion, and at the place where the water is to be used. These vegetation types should be shown in the photographs submitted.
Point of diversion: Short annual grasses with small conifers which have rooted in the old dam embankment.

Downstream of diversion: Alpine stream with annual grasses and mature conifers.

Place of Use: Annual grasses & small, immature conifers which have rooted in the former dam and lakebed of Lake Van Norden.

8. What changes in the project site and surrounding area will occur or are likely to occur because of construction and operation of your project? Include in your answer such things as approximate number and size/age of trees to be removed or areas of vegetation/brush removal; area or extent of streambed alteration, trenching, grading, excavation, plowing, or road, dam or building construction; etc. Consider all aspects of your project, including diversion structure, pipelines or ditches, water use, and changes at the place of use.

The new Van Norden Dam will essentially occupy the area of the old Lake Van Norden which was drained in 1976. The new lake will cover approx. 402 acres as opposed to 382.4 acres covered by the old Lake Van Norden. Work for development of the new Lake Van Norden will be entirely contained in old project limits including the new dam embankment and spillway. A borrow site will be established for development of embankment materials. However, this pit will be within the proposed inundation area. Tree and vegetation removal will generally be confined to those areas which have grown in the old inundation area with possible exception of more mature trees adjacent to the old lakeshore. No road building or streambed alteration is planned.

FISH AND WILDLIFE CONCERNS

Contact your regional office of the State Department of Fish and Game (DFG) to obtain the information requested in questions 9 through 17 (see page 6 for address and telephone number):

9. Person contacted Mike Meinz

Date of contact 1-14-88 Telephone (916) 355-7030

10. According to the DFG representative, when did or when will a DFG representative visit the project site area? The representative is famili with the site. No specific visit was performed.

What is the name of the DFG representative who made or will make the inspection of the project site area? Mike Meinz

11. According to the DFG representative, will this project require a Streambed Alteration Agreement? Yes

12. According to the DFG representative, do any resident or migratory game or non-game fish species occur in the affected stream? Yes

If so, what species? Resident rainbow and brown trout

What season of the year do they occur in the stream? Year-round

13. According to the DFG representative, do any plants or animals which are (1)federally identified as candidate, threatened, or endangered; (2)state listed as rare, threatened, or endangered; or (3)listed by the DFG Natural Diversity Data Base, occur in the project area? yes

Will they be impacted in any way by the project? Unknown

If so, identify the species and explain how they will be impacted:

A survey of rare and endangered species was performed in and around the project area in 1984 as a part of a revised facility plan for the DSPUD Sewer and Wastewater Treatment Plant expansion. A copy of this study is attached as sheet 3-25 through 3-31.

14. Does the DFG representative expect that your project will have an adverse effect on any resident or migratory fish populations, any wildlife populations, or any rare or endangered plant or animal species? Unknow If so, explain:

. Will have positive impact on downstream trout habitat.
. May inundate existing wetlands. CDF&G will require a "habitat evaluatio program" (HEP) to assess whether any wetlands exist. If so, may require replacement of wetlands.

15. What measures relating to your project have been proposed by the DFG representative to protect fish, wildlife or endangered or rare species:

. Habitat Evaluation Program
. Maintain minimum downstream flows
. May request minimum pool volume
. May require replacement of wetlands, if present

16. Will you make changes in your project as recommended by DFG? Yes

If not, explain:

17. If your application lists wildlife enhancement as a proposed use, what specific species or habitat type will be enhanced? *Riparian habitat for 16 miles downstream from site; aquatic habitat over same reach to be substantially enhanced by creation and augmentation of late summer flows.*
According to the DFG representative, does your proposed project utilize a sound technique for the purpose of wildlife enhancement?

Yes

EXISTING STORAGE OR DIVERSIONS

If you currently have an interest in any other water projects which store or divert water and this application requests additional water from the same watershed, answer the following additional question for each project:

18. Does the project have fish and wildlife protection requirements?_____
If so, list the permit number and specific protection requirements for each project:

The applicant does not have an interest in other water projects.

FICATION

hereby certify that the statements I have furnished above and in the attached exhibits are complete to the best of my ability, and that the facts, statements, and information presented are true and correct to the of my knowledge.

MARCH 3, 1988

Vegetation and Wildlife

The vegetation in and surrounding the study area does not vary significantly from that typical for the Canadian and lower Hudsonian zones within the Boreal Coniferous Forest biome. This area is also referred to as the lodgepole pine-red fir belt within which these two conifers are abundant. Other characteristic plants include deciduous trees such as Pupulus tremuloides, aspen; shrubs such as Arctostaphylos spp., manzanita; ceanothus spp., snow brush and squaw carpet; and Salix spp., willow. Because of the increasing elevation and exposed grantie ridges in parts of

Table 3-6

CANADIAN AND LOWER HUDSONIAN ZONES REPRESENTATIVE VEGETATION

Plant Type and Species	Common Name	Comments
TREES		
Pinus murrayana	Lodgepole pine	Predominant tree-invasion Sps. on disturbed land
Pinus monticola	Western white pine	
Pinus jeffreyi	Jeffrey pine	Predominate tree
Pinus ponderosa	Ponderosa pine	Uncommon at this elevation
Abies magnifica	Red fir	Predominate tree
Juniperus occidentalis	Sierra juniper	Mainly exposed granite ridges
Populus tremuloides	Aspen	Meadows or gravelly slopes
Tsuga mertensiana(a)	Mountain hemlock	6,000' - 11,000'
SHRUBS		
Castanopis chrysophylla	Chinquapin	Shrub variety at this elevation
Ceanothus cordulatus	Snowbrush	
Ceanothus velutinus	Tobacco brush	
Ceanothus prostatus	Squaw Carpet	
Amelachier alnifolia	Serviceberry	Moist places
Arctostaphylos spp	Manzanita	
Arctostaphylos nevadensis	Pinemat manzanita	
Chrysothamnus nauseosus	Rabbit Brush	
Artemesia tridentata	Sagebrush	
Ribes spp.	Currants and Gooseberries	(Intermediate hosts for white pine blister rust)
Phyllodoce breweri(a)	Red mountain heather	6,500 - 12,000 ft. in swampy places
Sorbus sitchensis(a)	Mountain ash	Uncommon 6,500 ft and higher; shrub or tree
Salix spp.	Willows	
WILDFLOWERS		
Camassia quamash	Camas	Wet meadows
Lilium parvum	Small tiger lily	Boggy placer or riparian
Habenaria leucostachys	Sierra Rein-orchis	Moist places
Aquilegia truncata	Red columbine	Shaded sites
Delphinium glaucum	Tall larkspur	Riparian/meadows
Lupinus breweri	Brewer lupine	Dry, stony slopes
Epilobium angustifolium	Fireweed	Disturbed areas, very common
Heracleum lanatum	Cow parsnip	Moist places
Sarcodes sanguina	Snow plant	Common but unique (saprophyte)
Castilleia pinetorum	Paintbrush	
Wyethia amplexicaulis	Mule's ears	Dry, wooded areas; very common
Verbascum thapsus	Common mullein	Dry areas; very common
Cirsium californicum	Sierra thistle	Open, dry areas; very common
Silene invisa(b)	Catchfly	RARE
Mahonia sonnei(b)	Truckee barberry	RARE AND ENDANGERED
Eriogonum umbellatum(b) var. Torreyanum	Torrey's buckwheat	RARE AND ENDANGERED

(a) These plants are of occasional occurrence in the study area and would be afforded additional consideration if encountered during project implementation.

(b) These rare or endangered plants from the list on page are known to occur within the study area.

All of the environmental abiotic factors previously discussed in conjunction with the vegetation preference types make up the habitats for the wildlife in the area. At least 175 species of vertebrate wildlife are known to inhabit the general vicinity either on a permanent or temporary basis. Of this number, 50 are mammal species, 10 are fish species, and the remainder are birds.

In the study area, eight species of birds and mammals have an endangered, rare or undetermined status. Table 3-7 lists these species and indicates which ones may be found in or near the study area. Threatened and endangered species habitat information is often limited because verified sightings are lacking or unavailable. Bald eagles and peregrine falcons have been sighted near the Donner Pass/Truckee area in the past but there are no known nest sites for either. Most bald eagle sightings are during winter months near large bodies of water. Their chief food is fish. Falcons forage in a variety of vegetation types and their primary food is small birds which are captured in flight. Practices which would be detrimental to either of these birds are associated with disturbance of nesting areas.

Several wolverine sightings in surrounding areas have occurred in the past also but their habitat is not readily predictable. It is generally thought that wolverines are using the lodgepole pine and barren habitat from about 6,000

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Table 3-7

ANIMALS OF RARE, ENDANGERED, OR UNDETERMINED STATUS

Class and Species (Common Name)	Comments
MAMMALS	
Wolverine(a)	State of California List - Rare Coniferous forest/timberline
Fisher	Undetermined official status. Sensitive to its habitat, it is now rare in the Sierras, 5,000 - 8,000 ft.; Climax coniferous forest.
Marten	Undetermined official status. Secretive animal rarely seen. Uncommon. Prefers rock slides in warm months, otherise climax coniferous forest; 7,000 - 10,000 ft.
Sierra Red Fox	Scarce. Prefers higher elevations, occasionally down to 6,000 ft. in winter.
BIRDS	
Bald eagle	State and Federal Endangered Lists.
Peregrine falcon	State and Federal Endangered Lists.
Willow flycatcher(b)	Undetermined. Found in willow or alder thickets along streams, or at edges of meadows.
Yellow warbler(b)	Undetermined. A common bird but local population may be decreasing. Alder and willow thickets.

(a) A nearby wolverine sighting occurred just north of the South Yuba River across from the existing DSPUD leachfield.
(b) Sightings have occurred in Truckee, California.

feet to the Sierra Crest. Activities thought to be detrimental to wolverines include increase in the number of people in simi-wilderness areas and the development of areas for year long use.

The major lakes downstream from the study area support several species of coldwater game fish and warmwater non-game fish. Because of the seasonal nature of the South Yuba River, the direct importance of the fisheries within the study area is minimal. However, this does not diminish the importance of downstream effects of activities therein.

The Donner Pass/Soda Springs area is known as a major butterfly population area. There are 110 species found there, 80 of which are permanent residents. Although two species are scarce in the area, they are found elsewhere and are not considered threatened.

A representative list of animal species found in the study area is given in Table 3-8 along with their respective successional stage preference. This concept is discussed later under "Environmental Processes".

There are no known critical habitats in the area; however, the Forest Service has listed the Summit Valley area as a "key" wildlife habitat. This designation relates to no particular species and is probably due to the semi-riparian/meadow nature of the area.

Table 3-8

REPRESENTATIVE FAUNA

Class and Species (Common Name)	Comments
MAMMALS	
Chickaree (Douglas Squirrel)	Climax stages (mature trees)
Northern flying squirrel	Climax stages including snags (nocturnal)
Black bear Porcupine Mule deer Mountain lion Bobcat Townsend chipmunk	Do best with scattered successional stages for food sources (brush/seedlings)
Belding ground squirrel Golden-manteled ground squirrel Long-tailed weasel	Prefer brushy, early stages; frequently near meadows/ scattered trees
Yellow-bellied marmot Pika	Prefers rocky areas/talus slopes
Coyote	Ubiquitous and readily adaptable
Snowshoe hare	Forest/streamside willow thickets
BIRDS	
Great gray owl Pileated woodpecker Goshawk Clark's nutcracker(a)	Climax stages (mature trees and snags)
Band-tailed pigeon(b) Mountain chickadee Stellar's jay Hermit thrush	Do best with scattered successional stages (brush understory)
Violet-green swallow Mountain bluebird(c) American robin	Prefer meadow/scattered trees
Green-tailed towee White-crowned sparrow Fox sparrow	Perfer brushy areas
Yellow warbler Willow flycatcher Western kingbird Wilson's warbler	Prefer meadow/riparian thickets
Water ouzel	In or near fast streams
FISHES	
Rainbow trout Brown trout Brown bullhead	Found downstream from the study area
REPTILES AND AMPHIBIANS	
Garter snakes Western fence lizard Pacific treefrog Long-toed salamander Western toad	
INSECTS (BUTTERFLIES) (d)	
West coast lady Lorquin's admiral Buckeye Mourning cloak Edith's copper Mormon metal-mark	 On monkey flower On willow/cottonwood On buckwheat

(a) Also found in subalpine barren habitat.
(b) Populations around Donner Lake have been increasing in recent years.
(c) A cavity nester sensitive to competition from more aggresive species. Needs adequate nest sites, mainly abandoned woodpecker nests.
(d) Important plant pollinators requiring different plant species during life cycles. For some species in Donner Pass area, host plants are as yet undetermined.

JUN 08 1987

Mr. E. F. Kaprielian
Vice President - Electric Operations
Pacific Gas and Electric Company
77 Beale Street
San Francisco, CA 94106

Dear Mr. Kaprielian:

Lake Van Norden Dam, No. 97-33 OJ
Nevada County

For your information and record, Mr. Chris Spandau of J. H. Kleinfelder and Associates in Reno, consultants to Donner Summit Public Utility District, inspected our files concerning the subject dam on May 28, 1987.

If you have any questions, please telephone Clifford S. Nomura, Office Engineer, at (916) 323-1113, or Donald H. Babbitt, Chief, Field Engineering Branch, at (916) 445-9517.

Sincerely,

Original signed by
James J. Doody

James J. Doody, Chief
Division of Safety of Dams

ASousa:ef
6/4/87

SURNAME
DWR 540 (REV. 76)

ASousa 6/5 | C. Nomura 6/5/87 | Babbitt 6/5

Files

DAM STATISTICS SUMMARY SHEET

Lake Van Norden Dam No. 7000-120

Nevada County

ILLEG

Owner: Douglas Wilson Companies

Emergency Contacts:	David Achey	530-426-3871x105
	Liz Belloso	619-517-9232
Inspection Contacts:	Liz Belloso	619-906-4358
	David Achey,General Manager	

Dam

Type:		ERTH
Height, ft (toe to dam crest)		10.0
Length, ft		1633
Instrumentation Reported		NO
Parapet Code		
Volume, cu yd		
Crest Elev., Width, ft	6770.0	6.0
Cost		
Year Completed		1916
Certificate Date		

Location

Region, Area		Central 4
Watercourse		South Yuba River
CA Coordinates	S23 T17N R14E	MDB&M
Latitude, Longitude	39.322000	-120.377000
Quad Book		
Nearest Town		
Town Distance, mi		

Correspondence Address

Douglas Wilson Companies
450 B Street, Ste 1900
San Diego, CA 92101

Reservoir

Name	
Storage Capacity, AF	300.0
Surface Area, acre	
Drainage Area, sq mi	12.0

Reservoir Routing

Storm Type and Date
Impaired
Hazard Class and TCW
Peak Inflow, cfs
Peak Inflow, cfs/sq mi
Residual Freeboard, ft
Peak Outflow, cfs
Gating Code

Operation

Purpose and Use	
Total Freeboard, ft	
Operating Freeboard, ft	
Maximum Storage Elevation, ft	6750.0

Notes: 97-33 went O.J.; then renamed 97-129 per construction appl; then appl became inactive; then ownership changed; then dam became illegal and assigned to 7000-120. See 9/30/2011 memo by AMangney.

Federal Agency Coordination

Hazard Class = FERC = National ID = CA00362 National Forest =

7000-120

State of California
The Resources Agency
Department of Water Resources
Division of Safety of Dams

TO: 1. Area Engineer ~~A. Ordoubigian~~ AO 2/24/12 DATE: 2/24/12
2. Regional Engineer ~~A. Mangaley~~ AJM 2/24/12
3. Field Branch Office Engineer RJE 3/13/12
4. Database Manager ~~DWS AF~~ AP 3/13/12
5. Office Services Supervisor ~~ABJ~~ 3/19
6. Files

FROM: Aspet Ordoubigian SUBJECT: Dam Statistics Data Change

Dam Name Lake Van Norden Dam No. 7000-120 (Illegal)

					Comment
Change	Height	from	Blank	to 10'	From D/S Toe to max. storage level, which is top of breached s/w
Change	Storage capacity	from	Blank	to 300 AF	
* Change	Drainage Area	from	Blank	to 12 mi^2	From the old "Dam File Info. Sheet".
Change	Length	from	Blank	to 1633'	From attachment to the 12/18/74 letter
Change	Crest Elev. & width	from	Blank	to 6770' & 6'	" (& plan sheet)
Change	Max. Storage Elev.	from	Blank	to 6750'	DSOD letter dated 1/12/77
Change	Owner	from	Royal Gorge LLC	to Douglas Wilson Companies	

DWR 2323 (Rev. 06/05/03)

To : Files

Date : October 25, 1983

File No.:

Subject : Lake Van Norden Dam No. 97-33 (OJ in 1976) Placer County, Repair of Interest

From : B. J. Vanberg
Department of Water Resources

I passed Lake Van Norden on August 25, 1983. The downstream 2:1 gunited slope of the spillway was broken up and undermined. The undermining was from the spill crest down and only on the downstream side. The undermining is up to 4 feet back under the gunite.

It appears that the erosion of the sandy silt embankment under the gunite is due to flow over the spillway running into the weep holes along the edges of the invert then flowing out at the toe. The area just upstream of the toe was eroded vertically. The area under the weep holes is eroded 1-2 feet near the downstream half of the spillway.

The owner, PGandE, repaired the spillway by removing the damaged gunite, dozing large rocks into the eroded area then placing slurry concrete into the space between the rocks, placing two layers of wire mesh over the top, and covering the area with concrete. The weep holes were enlarged, concrete vibrated under the gunite, and the holes plugged.

According to Lou Lillis, they placed 95 cubic yards of concrete in the repair.

Photos taken August 25, September 15, and September 29 show three steps in the repair.

Attachments

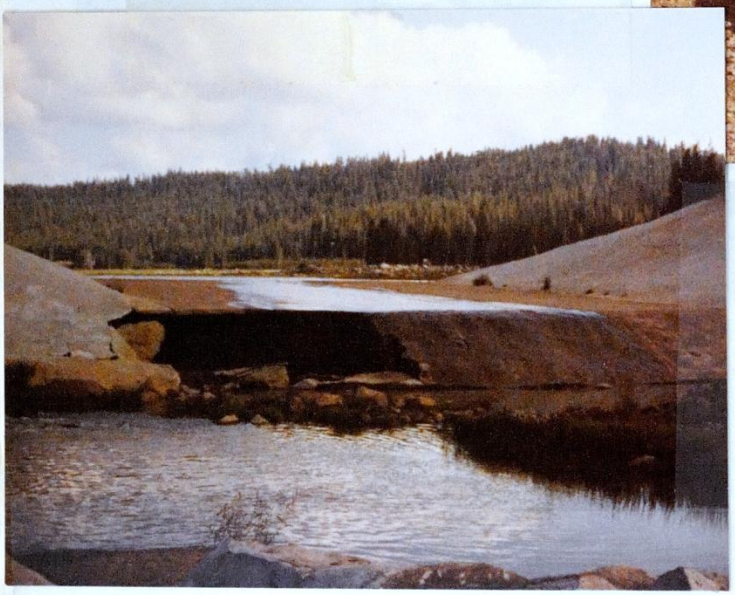
BJVanberg:rer
11/7/83

NOV 14 '83 BJV

SURNAME				
DWR 155 (REV. 4-62)				

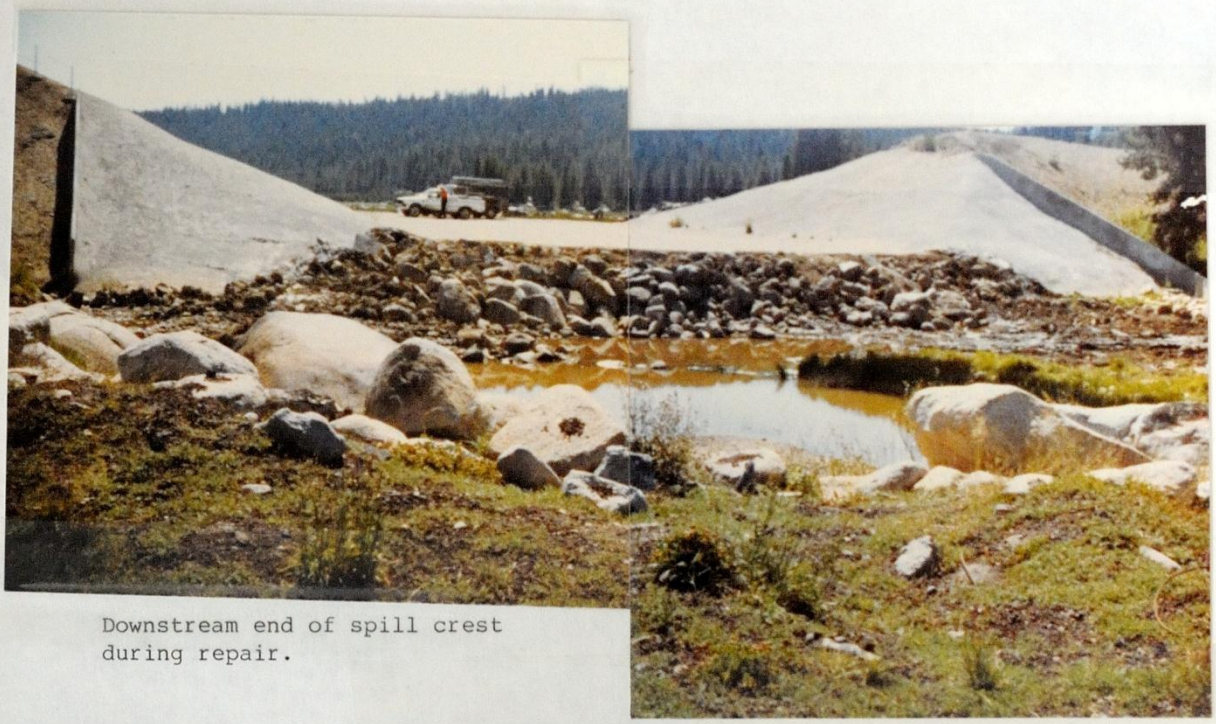
Failure of New Spillway

Snow load from adjacent road collapsed end section of old spillway walkway.



Failure of downstream end of the new spillway.

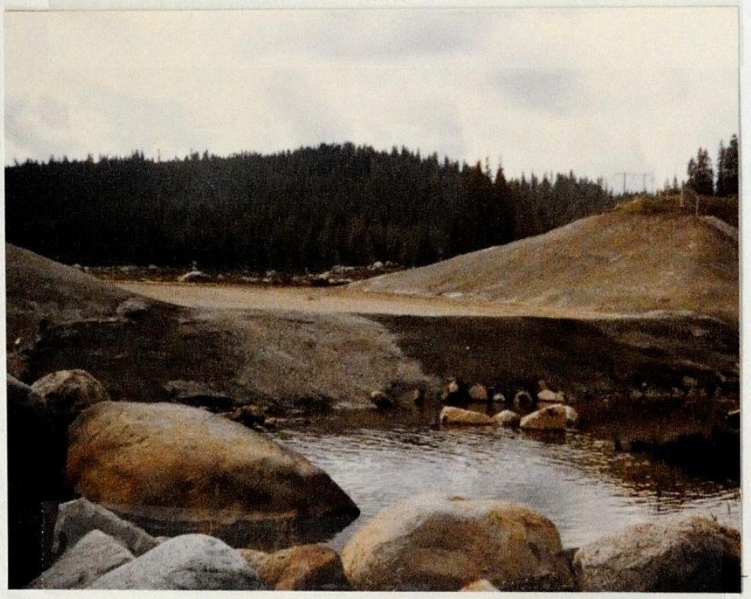
LAKE VAN NORDEN DAM (OJ) No. 97-33
B. J. Vanberg 8/25/83



Downstream end of spill crest
during repair.

LAKE VAN NORDEN DAM (OJ) 97-33
BJVanberg 9/15/83

Lake Van Norden Dam (OJ) After Repair.



Downstream end of Spill Crest After Repair.

LAKE VAN NORDEN DAM (OJ) 97-33
B. J. Vanberg 9/29/83

PACIFIC GAS AND ELECTRIC COMPANY

PG&E — 77 BEALE STREET • SAN FRANCISCO, CALIFORNIA 94106 • (415) 781-4211 • TWX 910-372-6587

April 11, 1978

97-32
97-33 (0.J)

~~JJD~~
~~VHP~~
~~JFG~~ 4-17
~~WAMcQ~~

Mr. James J. Doody, Chief
Division of Safety of Dams
Dept. of Water Resources
P.O. Box 388
Sacramento, CA 95802

Subject: Van Norden Dam
Lake Valley Dam

Dear Mr. Doody:

Enclosed are copies of four letters between T. M. Leps and Dr. B. A. Bolt concerning the seismic environment at Lake Valley Dam and Van Norden Dam.

This information was requested by Mr. Fred Chaimson.

Sincerely,

R. V. BETTINGER
Chief Civil Engineer

Enclosures

March 16, 1978

Mr. T. M. Leps
Consulting Civil Engineering
177 Watkins Avenue
Atherton, Ca. 94025

Van Norden Dam

Dear Tom,

I think that the reasons for our different estimates for Van Norman have been clarified from our exchange of letters.

There are two points in your March 6 letter that go to the heart of the matter. First is the different distance involved. Based upon the State map that was available to me originally I measured a distance of about 10 miles from the end of the fault with historic displacement shown by Jennings. The enlarged scale map that you supplied shows a slightly greater distance (20 km) to the end of the fault. If the center of the radiating seismic energy from the fault is placed a quarter of the way from its southern end, the distance of travel becomes about 25 km - as you suggest. This would reduce somewhat the peak ground acceleration at the site.

Secondly, your estimation of site acceleration relies heavily on magnitude as the scaling parameter. My approach gives more weight to other parameters such as fault type, focal depth, properties of the crust and dimensions. In this case I have used mainly the mean curve for "medium intensity sources" in Fig 1.10 of "Geological Hazards". For a distance of 17 km this predicted 0.25g to 0.30g at the dam; for a revised distance of 25 km the predicted accelerations are 0.20g to 0.25g. In both cases I prefer to give a range of 0.05g to allow somewhat for the various uncertainties.

As you know I have undertaken in the last 10 years many estimations of this kind and I have tried hard to keep an overall consistency between the various evaluations. In this case it seems to me that any further reduction below 0.20g for the (admittedly cautious) estimate for maximum acceleration would violate other assessments. Of course, the situation might be much altered if more definitive fault information were available for the region but this geological work is outside my present data.

Again I appreciate the chance to rework this problem in the light of your arguments.

Sincerely,

Bruce

Bruce A. Bolt

CONSULTING CIVIL ENGINEERING
177 WATKINS AVENUE • ATHERTON, CALIFORNIA 94025

March 6, 1978

Dr. Bruce A. Bolt
Registered Geophysicist
1491 Greenwood Terrace
Berkeley, California 94708

Re: Van Norden Dam -
Seismic Environment

Dear Bruce:

This is in response to your letter of February 23 which presents your reconsideration of the reasonable peak ground acceleration expectable at Van Norden Dam in the next 100 years. I fully appreciate your taking another look at this matter and your sympathetic understanding of my position in the matter.

At the clear risk of being accused of nit picking and pushing beyond the state of the art, however, I am taking the liberty of coming back to you one more time for further definition of two points you are relying on, as follows:

1. The distance from the reasonable design epicenter (as suggested on the attached map) to Van Norden Dam is about 25 km rather than the 10 mi. (17 km) postulated in your 1/12/75 report. On most attenuation curves, this is a significant change. For example, for the M 6.0 curve on Fig. 1 attached, which is the earthquake magnitude that you mention as being a not unreasonable event in the next 100 years, the peak acceleration would drop from 0.15 g at 17 km to 0.1 g at 25 km.

2. The "90% confidence limits" for peak acceleration attenuation, as shown in Fig. 1-10 of your book on "Geologic Hazards" (1975), may not need to be considered as restrictive in this case. To illustrate, I have plotted those limits on the attached Fig. 1. If you can accept that the M 6.5 "average" curve, as developed by Neville Donovan from the San Fernando Earthquake data, is appropriate, the confidence limits band from 0 to 40 km is suggested on balance to be applicable to an about M 6.7 event. If such is the case, then it would not be embarrassing for you to lower the acceleration values mentioned in your Feb. 23 letter even further.

In summary, looking at a possible revised epicentral distance and a possible revised attenuation band, I would be tempted to advocate a peak acceleration of between 0.1 and 0.15 g for Van Norden Dam. I certainly recognize that, in view of

the gross uncertainties involved, such an estimate may not be sufficiently conservative, in your good judgment. As a civil engineer, however, who is being ever more crowded into the position of designing, or evaluating the safety of, structures against extremely remote though possible hydrologic and seismic events, I feel it is a professional duty to my clients to consider all reasonable optimistic evidence in balance with all reasonably conservative estimates.

I trust you will not be offended by the foregoing concepts, and that you will let me know if and how far I may be off base.

With best regards,

Thomas M. Leps

TML:jw
Attach (2)

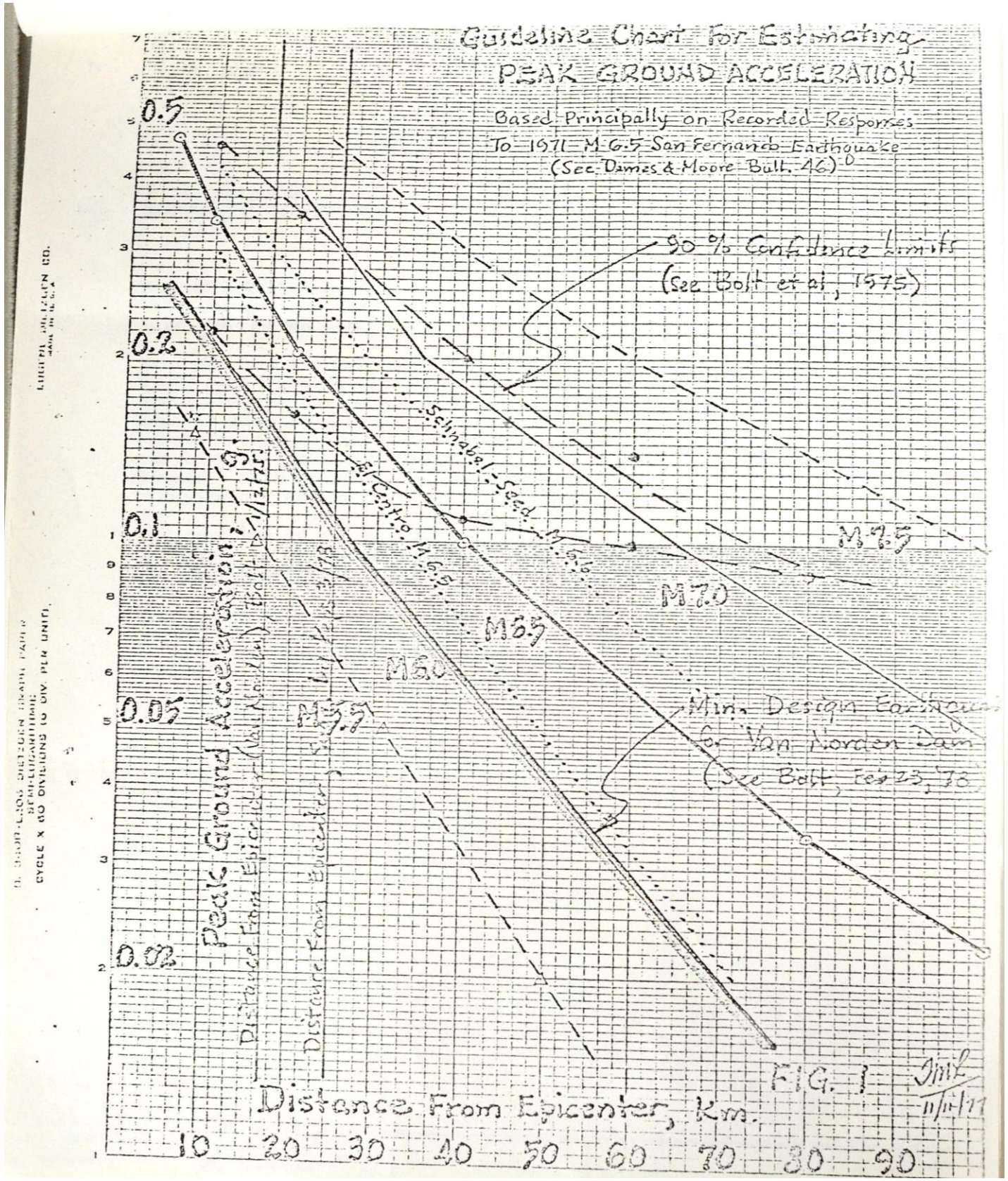


FIG. 1

JMF
11/11/77

To : R. B. Robie

2/6/78

Date : February 6, 1978

File No.:

Subject : Lake Van Norden Dam, No. 97-33

News Media Contact
Sierra Sun, Truckee

From : R. F. Delparte
Department of Water Resources

Ms. Gail Grimes of the Sierra Sun newspaper, Truckee, CA, called this morning and talked to me about the flooding downstream of Lake Van Norden Dam.

In 1976, the storage capacity in the reservoir was lowered from 5,400 acre-feet to less than 50 acre-feet by excavating a large notch through the embankment. Ms. Grimes wanted to know if the present flooding of the county road downstream of the dam was a direct result of reduced storage capacity. I informed her that the loss of storage could cause higher peak flood flows in the stream. This would depend on the storage level behind the pre-1976 dam at the time of the storm.

The capacity of the pre-1976 spillway is many times larger than the capacity of the bridge under the county road. This road has been inundated during previous winter storms.

Ms. Grimes also wanted to know whether or not the dam would be reconstructed. I told her that, at the present time, there is no active plan under consideration for rebuilding Lake Van Norden Dam.

cc: Robin Reynolds

SURNAME
DWR 155 (REV. 4-62)

Delparte 2/6

CONSULTING CIVIL ENGINEERING
177 WATKINS AVENUE • ATHERTON, CALIFORNIA 94025

December 21, 1977

Dr. Bruce A. Bolt
1508 Le Roy Avenue
Berkeley, California 94708

Re: Van Norden Dam -
Lake Valley Dam

Dear Bruce:

Your search for local quantitative data on the September 12, 1966, Truckee Earthquake, as reported in your letter of October 28, 1966, was, as you may know, related to an attempt on my part to determine, to the best degree possible, the probable historic seismic activity at PG&E's Lake Valley Dam. The location of the dam is indicated on the attached fault map of the northern Sierra Nevada which was just recently prepared for PG&E by Lloyd Cluff's group; the attached WCA draft report gives Cluff's background discussion of the evaluation he makes of the many principal faults indicated. (In my reports to PG&E on their dams, I have chosen to consider only well identified, and probably still active, faults.)

In connection with my searching look at Lake Valley Dam, I of course have taken note of the content of your January 20, 1975, report to PG&E on the nearby Lake Van Norden seismic environment. It is in this connection that I would be most interested in having your further review of the area, asking yourself if there might be now, two years later, a rational and professionally acceptable basis for revising your estimated peak ground accelerations for the Van Norden site downwards.

I here pause to offer my humble apologies for presuming to question your excellent judgment in such matters, and I assure you that no one has been a more staunch and articulate supporter of your abilities and good judgment than I. But in the Van Norden case, the philosophy which you expressed, and the quantitative result, could strongly affect judgments on the safety of not just one dam but of nine dams in the vicinity, including Lake Valley Dam. Hence, I hope you would agree that a second look at the situation may be merited, and would not be personally or professionally offensive.

The philosophic detail that I would suggest is most important is your apparent assumption that the 12 km long Quaternary faults that cross through the town of Truckee, only 17 km from Lake Van Norden, could be the source of a M 6.25 to 6.5 event, similar to historic experience just west of Reno. If these short faults have, in fact, <u>not</u> moved in over 200,000 years, would it be acceptable to doubt

their importance, and instead postulate a design event in the documented, historically active area midway between Truckee and Reno, about 30 km from Van Norden?

Also, in addition to your assuming a conservatively near epicenter, I am concerned over the conservatism that can be introduced by utilizing an acceleration-attenuation curve that is relatively pessimistic. To be specific, it is my strong impression that the Schnable-Seed curve which is so widely referred to by designers of nuclear plants, etc., is pessimistically conservative for most dams and for distances from 10 to 50 km. The following examples for a 17 km distance from epicenter to Lake Van Norden Dam illustrate this:

Authority	Est. Peak Accel., g
Cloud-Perez	0.35
Schnable-Seed	0.31
Bolt (Van Norden report)	0.30
Donovan (San Fernando E.Q.)	0.24
Donovan (El Centro E.Q.)	0.21

I fully appreciate, of course, that certain, unexplained, high spot records, such as that for Lake Hughes in 1971, seem to justify heavy conservatism in making acceleration-attenuation estimates, but my civil engineering judgment tells me that the very small risk involved in using middle-of-the-road values for most dam safety evaluations, rather than "probable maximum" values, is practically, socially and economically justified. Moreover, it is my intuitive impression that the value 0.24 g, shown as Donovan (San Fernando E.Q.), is already heavily conservative because it is representative of a M 6.6 earthquake which caused record high accelerations. On this basis, together with my impression that the thrust faulting mechanism of the San Fernando Earthquake is most unlikely in the Truckee area, I would be most inclined to accept acceleration values in that vicinity based on the El Centro event.

In summary, I would invite you to reconsider your Lake Van Norden evaluation, possibly relocating the design event at a distance of perhaps 30 km, and possibly utilizing the El Centro acceleration-attenuation curve. If this were fully acceptable, it could reduce the design peak acceleration to about 0.11 g.

If you would be willing to undertake this review, I should appreciate your sending me an invoice covering whatever time you would elect to put in on it. Please be assured that, regardless of the results of your review, I would accept it without further question.

Cordially,

Thomas M. Leps

Attach: Fault map
WCA draft report 11/30/77
TML draft report 11/11/77

Berkeley, Ca. 94708

February 23, 1978

Mr. T. M. Leps
Thomas M. Leps, Inc.
177 Watkins Avenue
Atherton, Ca. 94025

Van Norden Dam - Lake Valley Dam

Dear Tom,

I appreciate your letter discussing the seismicity and predicted intensity for these sites. The points you raise are important ones and I have given more thought to my previous assessment for Van Norden in the light of your arguments. Also the new fault map and discussion by Woodward-Clyde provides more up-to-date and, I suppose, more detailed information than was available to me in January 1975.

I took the controlling event for Van Norman as the September 12, 1966 Truckee earthquake (which I take to be Magnitude 6.0). I associated it with the 15 km long fault drawn by Jennings and repeated (as a "fault with historic displacement") by Woodward-Clyde. I do not see how I can avoid this data. If, as you mention, such a short fault can be shown geologically not to have moved for 100,000 years or so then my assessment of the expected intensity at Van Norman would be sharply lower. There would still, of course, be the question of finding a source for the 1966 earthquake.

As you mention the attenuation of ground motion with distance is subject to uncertainties and variations - to some extent brought about by the variation in geological structures. I suggested 0.25g to 0.30g at Van Norden, which is consistent with my own studies (Figure 1.10 of "Geological Hazards"). I felt that I could not increase the attenuation because the granitic basement rock would dampen the waves less than normal. I also had in mind the 1941 Santa Barbara earthquake (M_L = 5.9) with a peak acceleration of 0.24g.

In response then to the new points and evidence raised I would be prepared to use 0.25g for Van Norden (the lower end of my previous range) rather than 0.30g (the upper end) but I cannot see, without further field geological mapping etc., how to obtain an estimate below this figure.

The situation with the other dams in the region that you mention is perhaps not as serious as you indicate. For example, Lake Valley dam seems to be 40 km from the

assumed Truckee earthquake source. Thus even if my previous line of argument were followed the expected maximum intensity there would be close to the value you mention in your second last paragraph.

I hope that these comments are of some help.

Yours sincerely,

Bruce A Bolt

Bruce A. Bolt
(Registered Geophysicist
Cal.)

To : File

Date : November 4, 1977

File No.:

Subject : Lake Van Norden Dam and Reservoir, No. 97-33 (O.J.)

From : Vernon Tipton
Department of Water Resources

On October 27, 1977, a meeting was held in the office of Deputy Director Robert W. James to reach a consensus among the three departments (Water Resources, Fish and Game, and Parks and Recreation) in response to a request from Assemblyman Eugene A. Chappie that we investigate possible means by which the State could participate in a program to assist in the restoration of Lake Van Norden Dam.

The following individuals were present:

Department of Water Resources

Deputy Director Robert W. James
Elmer Stroppini
Vernon B. Tipton
Jacob Angel

Department of Fish and Game

James S. Leiby, Chief of Operations

Department of Parks and Recreation

No representative.

The central focus of the discussion was a draft letter addressed to Assemblyman Chappie which had been developed over a period of several months by a task force of representatives from each of the three departments involved. A copy of the letter in final form dated November 1, 1977, is attached.

The Department of Parks and Recreation indicated at a previous meeting (March 4, 1977) that there is insufficient statewide recreation interest in Lake Van Norden to justify participation by that Department.

Mr. Leiby from the Department of Fish and Game also indicated that there is no program in his Department which could provide financial support for the reconstruction or maintenance and operation of this dam.

SURNAME DWR 155 (REV. 4-62)	Tipton 11/4/77			

Mr. Angel indicated that there are very limited funds which might be available by virtue of the Davis-Grunsky Act. Grants, as provided by this act, are only authorized to public agencies and only in those cases in which there is a statewide recreation interest. This would mean that Lake Van Norden Dam and Reservoir would have to be transferred to a public agency as a first requirement for qualifying for a Davis-Grunsky grant. The initiative for such action would rest with local interests.

Subject to these considerations, it was the recommendation of the group that the letter should be finalized for Mr. Robie's signature and sent to Assemblyman Chappie. Unless he makes further requests from us, we will consider that there is no further need for action in the matter.

Attachment

VBTipton:ef

NOV 1 1977

~~250.0~~
97-109

Honorable Eugene A. Chappie
Member of the Assembly
State Capitol, Room 2114
Sacramento, CA 95814

Dear Gene:

In a meeting in your office with representatives from Pacific Gas and Electric Company (PG&E), and the Departments of Parks and Recreation, Fish and Game, and Water Resources you requested a review be made of possible means in which the State could participate in a program to assist in the restoration of Van Norden Dam. The present dam has been determined to be unsafe for earthquake forces. A spillway slot has been cut through the dam to limit storage to less than 50 acre-feet. This eliminates the structure from jurisdiction of the State of California.

The State agencies involved have had several meetings to discuss this subject. From these meetings it was concluded that there is insufficient justification for obtaining financial assistance from any State program. The use of this lake for recreation purposes in the past has been minimal. The acquisition and development of this facility would not be in the best interest of the State park system.

PG&E has been contacted regarding their latest plans for the dam and reservoir. We have been informed that a proposal is being developed for consideration by the Donner Lake Public Utility District.

Very limited funds for grants on a case by case basis are available under the Davis-Grunsky Act for new recreational facilities to public agencies. Also, limited funds for loans for the repair of dams determined to be unsafe may be made. If PG&E were to transfer ownership to the District, funds may be available from this source. To qualify, the District must be a public agency and statewide interest must be demonstrated for the repair of the dam.

SURNAME	B Holmes 10/27	Reynolds 10/27	S/ R. Cahill on phone contact 11/1

20. Amount of material in dam 90,000

NOV 1 1977

There appears to be no immediate action for the State to take on the restoration of Lake Van Norden Dam. We will be pleased to work with the Donner Lake Public Utility District if they acquire ownership of the dam and reservoir.

Sincerely,
(sgd.) Ron

Ronald B. Robie
Director

EWStroppini/RWJames:ljc

(916) 445-9248

FILE COPY

47-129

SEP 21 1977

Mr. Gerald W. Olmsted
9 Plaza Drive
Berkeley, CA 94705

Dear Mr. Olmsted:

Your letter of September 2, 1977, discusses the importance of Lake Van Norden Dam to you in providing flood control protection of your property and in maintaining summer flow in the South Yuba River. We appreciate and understand your concern.

As you may know Lake Van Norden Dam is an old earthfill structure with a wooden core wall. In recent years the Department's Division of Safety of Dams has observed signs of deterioration and has worked with the owner, Pacific Gas and Electric Company (PG&E), to effect major repairs. After conducting extensive geotechnical exploration and studies, PG&E concluded that reconstruction of the dam to modern standards would not be economical and that there existed a foundation condition inimical to the safety of the dam. PG&E elected to breach the dam in December 1976 in order to eliminate the immediate hazard. This work was done under emergency provisions of the California Environmental Quality Act. This action had the effect of removing the dam from State jurisdiction, since the breach reduced the maximum height of the dam to less than six feet.

The State does not have the authority to direct an owner to rebuild a dam judged to be unsafe. The owner may elect to remove his dam from our jurisdiction by reducing the storage or height of the dam, as was done in this case.

SURNAME	Tipton 9/19	Tipton for Day 9/19	Finkbeiner 9/19	B Olmsted 9/19

SEP 21 1977

Neither can the State preclude a prospective builder of a dam from claiming flood control or recreation benefits for his project. Such claims are considered in the environmental impact review process open to the public and to governmental agencies such as the Department of Water Resources. If claims made for public benefits are inappropriate, we can and do challenge them.

We are unable to speculate on the future of Lake Van Norden Dam. PG&E may be willing to finance a substantial share of the cost of a new dam, but I suspect they would require local financial participation bearing some relationship to the recreation and flood control benefits that would accrue to the public. At the request of Assemblyman Chappie, the State has been considering ways to finance a portion of the cost with little success so far.

I understand your concern at the loss of Lake Van Norden. We will assist in whatever way we can for a restoration of the project but the initiative for action does not rest with the Department of Water Resources or any other State agency that I know of.

Sincerely,

(sgd) Ronald B. Robie

Ronald B. Robie
Director

cc: Honorable Eugene Chappie
Member of the Assembly
State Capitol, Room 2114
Sacramento, CA 95814

Mr. F. F. Mautz
Vice President-Engineering
Pacific Gas and Electric Co.
77 Beale Street
San Francisco, CA 94106

Mr. H. P. Braun
Vice President-Electric Operations
Pacific Gas and Electric Co.
77 Beale Street
San Francisco, CA 94106

VBTipton/GWDulketh:lb/sd
Control 571

Gerald W. Olmsted
9 Plaza Drive
Berkeley, Calif. 94705

September 2, 1977

97-129

Mr. Ronald B. Robie, Director
Dept. of Water Resources
State of California
PO Box 388
Sacramento, Calif. 95802

Dear Mr. Robie:

For some years now, we have been hearing of all the benefits that will accrue to California citizens by the construction of new dams. When selling the public on a new dam (as in Proposition 15), it's not the economic benefits that get the attention. The public isn't interested in providing PG&E with more electrical power nor to provide owners of fallow land with the water to make their property values soar. Certainly, it's the recreational benefits and the promise of flood control that make a new dam "saleable".

Now we have a curious situation in California, the breaching of the Van Norden dam on the South Yuba River. To destroy a dam, the owners apparently felt there was no need to "sell" the public and so, only the economic justifications needed to be considered. The recreational and flood control aspects were ignored.

I owned a cottage on the South Yuba River. On January 31, 1963, it was destroyed by a flood. I built a new house slightly above the old one which gives some additional flood protection. Without the Van Norden dam, it's difficult to project what another flood might do.

I bought the property for its recreational value, including the excellent fishing along the river. Now, it's down to a trickle, caused in part by the drought, but also by the loss of the dam.

I urge the Department of Water Resources to force PG&E to rebuild the dam. If that is not possible, then I urge the Department to forbid PG&E or any other builder of dams to use the arguments of flood control and recreational benefits as justification for the building of any new dams in California.

Very truly yours,

Gerald W. Olmsted

cc: Honorable Eugene A. Chappie
Assembly, California Legislature

yc - R. Robie
yc - R. Reynolds

9/19/77
Central 571

United States Senate

WASHINGTON, D.C. 20510

May 27, 1977

5/11

5736 252.0

97-33

230-

State of California
TO: Department of Water Resources
Post Office Box 388
Sacramento, California 95802

ENCLOSURE FROM:

Mr. Dwight F. Partell
Post Office Box 186
Soda Springs, California 95728

Enclosed is a letter from a constituent requesting my assistance in a matter which I believe falls under your jurisdiction. I've written to the constituent pointing out that this is not a federal matter and advising that I've forwarded the letter to you for your response.

Please send your response and other communications directly to the constituent.

I've suggested to the constituent that any further concerns in this matter should be communicated to his or her assemblyman or state senator.

Thank you for your cooperation.

Alan Cranston

Alan Cranston

Enclosure

1977 MAY 31 PM 2 18

DEPARTMENT OF WATER RESOURCES SACRAMENTO

3300

EDMUND G. BROWN JR., Governor

ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION
1111 HOWE AVENUE
SACRAMENTO, CALIFORNIA 95825
(916) 322-3107

W.

May 17, 1977

97-129

Lic Van Norden

626.0

Mr. R. A. Knudsen
President
Donner Summit Area Association
P. O. Box 248
Soda Springs, CA 95728

Dear Mr. Knudsen:

Thank you for your letter of January 17, 1977, expressing your concerns about Lake Van Norden. The California Energy Commission does not have jurisdiction over the generation of hydroelectric power in the State of California. We do, however, forecast the demand for electricity and evaluate utility generation plans. Our most recent forecast indicates that demand for electricity will continue to grow in California as you indicated in your letter. If you would like further information on California's demand for electricity and proposals to meet the demand for generating additional electricity, please refer to Volume 3, Electricity Forecasting and Planning Report, a part of the 1977 Biennial Report of the State Energy Commission.

You also expressed a concern over the ability of the dam to withstand an earthquake. I suggest you contact the California Division of Mines and Geology for more information on this subject.

Thirdly, you expressed a concern about improving recreation in your area. The California Department of Parks and Recreation has primary jurisdiction for planning and maintaining the State's recreation system. I suggest you contact them about your recreation concerns. An additional party that you might wish to contact is the California Department of Water Resources. The Department of Water Resources has primary jurisdiction of the State's surface waters.

Perhaps an effective way to meet with all of these responsible state agencies would be for you to suggest that Pacific Gas and Electric or your group arrange a public meeting or workshop with the State Department of Parks and Recreation, the Department of Water Resources, and this agency to discuss your concerns.

If you have any questions, please feel free to contact Mr. Ross Deter of my staff in Sacramento at (916) 322-2355.

Sincerely,

Original Signed by

SEYMOUR E. GOLDSTONE, Chief
Energy Assessment Division

ERD:te

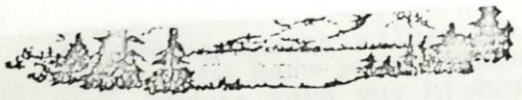
bcc: Bob Shinn
Loyd Forrest

Ronald B. Robie
Director
Department of Water Resources
1416 Ninth Street
Sacramento, CA 95814

Herbert Rhodes
Director
Department of Parks and Recreation
1416 Ninth Street, 14th Floor
Sacramento, CA 95814

Thomas E. Gay, Jr.
State Geologist
Division of Mines and Geology
1416 Ninth Street
Sacramento, CA 95814

RLM



DONNER SUMMIT AREA ASSOCIATION
Post Office Box 248 • Soda Springs, California 95728

January 17, 1977

Richard Maullin, Chairman
Energy Resources Conservation &
Development Committee
704 11th & L Bldg.
Sacramento, CA 95802

Dear Mr. Maullin:

The people of the Donner Summit Area have a grave concern over the developments relating to Lake Van Norden.

Originally, the Lake was to be lowered, and dam improvement was to be commenced by its owner, P. G. & E. The people felt it an excellent opportunity to take certain stumps and large rocks from the bottom of the resorvoir, or bury objects which are a hazard to boating or swimming. A boat ramp and small park were requested to be pursued by the Truckee-Donner Recreation District.

A safe lake with an adjoining campground could be a significant asset to the Donner Summit Area in social, economic, and recreational prospectives.

Our latest information indicates that P. G. & E. wishes to abandon the dam and Lake because of what they consider excessive costs to meet earthquake standards. These standards are being mandated by the State of California.

The Lake has been in existence since approximately 1900. Should Lake Van Norden cease to exist, we feel a number of momentous events will transpire and to some degree the destiny of Donner Summit will be aversely affected.

A lessened summer water flow in the South Fork of the Yuba River will deter a number of establishments of summer recreational business. (Soda Springs Hotel, Donner Summit Lodge, Kingvale Lodge, Rainbow Lodge and Tavern). Rainbow and Kingvale Lodges will be the most affected. Fish plantings by the State Department of Fish and Game will decrease, thus affecting the hundreds of people who fish the River yearly.

Thousands of motorists will be deprived of the majesty of the River intertwining Interstate 80, and perhaps unduly alarming them regarding our water situation.

Generations of campers and land owner swimmers won't find a waterhole deep enough in which to swim. Wildlife habitat will be deprived, thus perhaps eliminating what few beaver we do have left and spreading the deer herds.

We feel property values along the River will diminish, thus depriving people who have paid premium prices for lots, homes, cabins, businesses, and in turn pay higher taxes.

We have established a growth in California which is directly dependent on Sierra snowfall for water. Although the Lake is somewhat small, its capability is needed, as the past two years have shown that the only consistent thing about Sierra weather is that it is inconsistent.

Those of us who have seen the Yuba River on a rampage are uneasy about flooding possibilities. We feel the dam has averted several flooding occurrences. When we have a snow pack, we often get a warm rain from the southern latitudes. When this occurs, excessive amounts of water are generated. Without the dam, torrential amounts of water may pour out of the basins near Sugar Bowl and Castle Peak. The dam could at least store the water of the Sugar Bowl Basin. We remember still, the floods of the early sixties, and do not wish even greater amounts of water pouring through our homes, across our property, and tearing up our roads. We wonder if one flood aversion would pay for the cost of the dam repair?

1/ We understand a growing energy requirement is upon us, and we are perplexed by these developments relating to Lake Van Norden.

2/ Inversely, we also want the dam to be safe, and are vitally concerned with its ability to withstand earthquakes.

3/ We are somewhat alarmed, and would appreciate any assistance and support you might provide in the effectuation of the continuance of Lake Van Norden, the development of a secure dam, and the origination of an improved recreation facility.

4/ We are also open to your recommendations as to how we might be able to help ourselves.

Your prompt attention to this urgent matter will be greatly appreciated by the Donner Summit Community.

Very truly yours,

R. A. Knudsen, President
Donner Summit Area Assn.

RAK, RH/bb

RNV 1A40

(916) 445-9248

March 17, 1977

Mr. R. A. Knudsen, President
Donner Summit Area Association
P. O. Box 248
Soda Springs, CA 95728

Dear Mr. Knudsen:

Your letter of January 17, 1977 discusses the importance of Lake Van Norden to your community and its related economy. We appreciate and understand your concern.

As you know Lake Van Norden Dam is an old earthfill structure with a wooden core wall. The dam had been under the jurisdiction of this Department's Division of Safety of Dams (DSOD) until it was recently breached by Pacific Gas and Electric Company (PG&E), the dam owner. Since it has been lowered to under six feet in height the structure has been taken out of our jurisdiction.

The DSOD regulates all private and State-owned dams in California with regard to public health and safety. The recent review of Lake Van Norden Dam by PG&E and DSOD indicated that the dam embankment and its foundation could not withstand the possible seismic activity projected for this site.

PG&E conducted geologic exploration, soil testing, and stability studies before deciding it was not economically feasible to reconstruct the dam. They elected to lower the embankment by breaching it to a height that was less than required for State jurisdictional control. This was done under emergency conditions with regard to the California Environmental Quality Act. This Department agreed with that action and PG&E completed the work in December of 1976.

SURNAME DWR 155 (REV. 4-62)	Stoppins 3/14/77	Ley for Shepleth 3/15	Barner 3/15

10. Amount of material in dam 90,000

MAR 17 1977

DSOD does not have the authority to direct an owner to rebuild a dam judged to be unsafe. The owner may elect to remove the dam from our jurisdiction by reducing the storage or height of the dam as was done in this case.

In a recent meeting called by Assemblyman Chappie the subject of reconstruction of the dam was discussed. Present were representatives from PG&E and the Departments of Parks and Recreation, Fish and Game, and Water Resources. He requested the State agencies to look into possible methods of assisting in the reconstruction of the dam. A meeting is to be scheduled in the near future to discuss various alternatives available.

Sincerely,

(sgd.) Ronald B. Robie

Ronald B. Robie
Director

cc: Honorable Eugene Chappie
Member of the Assembly
State Capitol, Room 2114
Sacramento, CA 95814

Mr. F. F. Mautz
Vice President, Engineering
Pacific Gas and Electric Company

Mr. H. P. Braun
Vice President, Electric Operations
Pacific Gas and Electric Company
77 Beale Street
San Francisco, CA 94106

Mrs. Priscilla Grew, Director
Department of Conservation
1416 Ninth Street, 15th Floor
Sacramento, CA 95814

VHPersson/EWStroppini:sd

Control No. 1963

Revised by R B Robie, 3-11-77

To : Mr. Gordon Dukleth - Safety of Dams

Date : MAR 17 1977

File No.: 97-33 @

Subject : Cost Estimate - Revamping Van Norden Dam

Robert B. Jansen - Design and Construction

From : **Department of Water Resources**

Attached is an estimate of the cost of revamping existing Van Norden Dam. Also attached is an outline of a proposed construction approach and an earthwork routing chart.

The estimate was prepared in response to an oral request from Don Babbitt to Keith Barrett.

Attachment(s)

SURNAME			
DWR 155 (REV. 4-62)	Berger 3/17/77 Wong 3/17 for fg	Barrett 3/17	Jansen 3/17

PROJECT Van Norden Dam SHEET 1 OF 2

FEATURE Earth Fill Dam - Crest El. 6773 EST. BY G. Peifer CHK. BY [illegible]

Max. Storage Elev. - 6769.0 PRICE BASIS July 77

ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST
Earthwork				
1. Remove Existing Dam To 1½ ft Above O.G & Stockpile	CY	44 000	90	39 600
2. Remove Bottom 1½ ft of Existing Dam and Strip Foundation - Waste Material Near Borrow Pit (Estimated as very wet)	CY	52 500	1 85	97 125
3. Excavate Cut-off Trench & Stockpile Material	CY	19 000	2 15	40 850
4. Remove Timber Core	Mbm	225	210 -	47 250
5. Strip Topsoil From Borrow Pits - Replace After Completion	CY	27 000	1 80	48 600
6. Dry Material In Borrow Pit - Haul To Dam - Compact	CY	114 000	2 50	285 000
7. Prewet & Mix Material In Stockpile - Place In Cut-Off Trench - Compact	CY	19 000	2 50	47 500
8. Prewet & Mix Material In Stockpile - Haul To Dam And Compact	CY	32 000	1 75	56 000
9. Furnish And Compact Filter Material For Downstream Toe	CY	2 400	15 -	36 000
10. Care of Water	LS			30 000
Sub-Total - Earthwork				727 925
Outlet Works				
1. Structural Concrete	CY	120	225 -	27 000
2. Reinforcing Steel	Lb	11 300	35	3 955
3. 36-in Dia., ¼" wall, Coal Tar Epoxy Lined, Steel Pipe	LF	180	67 -	12 060
4. 4-in Dia, Extra Strong, Galvanized Vent Pipe	LF	105	18 -	1 890
5. 2-in Dia. Stainless Steel Slide Gate Stem	LF	110	32 -	3 520

DWR 229 (REV. 5/66)

CK 2118

PROJECT Van Norden Dam SHEET 2 OF 2

FEATURE Crest Elev = 6773 EST. BY G. Peifer CHK. BY

PRICE BASIS July 1977

ITEM	UNIT	QUANTITY	UNIT COST	ITEM COST
6. Stem Guides	Ea	17	50 -	850
7. CPE - 12 Gate Lift	LS			1 000
8. 36-in Gate	LS			925
Sub-Total - Outlet Works				51 200
Spillway & Facing				
1. Structure Excavation	CY	965	6 -	5 790
2. Structure Backfill	CY	286	12 -	3 432
3. Structure Concrete	CY	363	185 -	67 155
4. 9-in Water Stop	LF	70	5 -	350
5. Pneumatic Applied Mortar At Spillway - 6"	CY	365	106 -	38 690
6. Pneumatic Applied Mortar On Dam Face	CY	1 432	106 -	151 792
7. Reinforcing Steel	lb	63 500	35	22 225
8. Welded Wire Fabric	Lb	91 800	45	41 310
9. Furnish & Place Sealing Compound In Joints	CF	50	60 -	3 000
10. Walkway Metal	Lb	8 000	2 50	20 000
Sub-Total - Spillway & Dam Facing				353 744
Contract Cost				1 132 869
Contingencies - ± 10%				113 131
Sub-Total				1 246 000
Engineering - Design -	10%			125 000
S.O. -	15%			187 000
Total Cost				1 558 000

DWR 229 (REV. 5/66)

Ck JHB.

Feature Cost Estimate Designed G. Peifer Date Mar 16, 1977

Item Summary Checked [signature] Date 3/16/77

Van Norden Dam and reservoir is located in Placer and Nevada Counties near Soda Springs. Access to the dam is by way of Interstate 80 and old Highway 40. The area is subject to thunder showers during the summer and heavy snow during the winter months.

The existing dam was breached in November, 1976 to lower the lake level below 50 acre-feet. The lake level can be lowered more by opening the 24-in outlet valve.

The attached estimate was prepared using data and quantities furnished by Ralph Moore of Dam Safety, DWR. A field trip was taken on March 11 by George Peifer, DWR Cost Estimating; Ron Del Parte, DWR Dam Safety; and Steve Onken, PG&E, Auburn Office.

It was estimated that once the project receives approval PG&E will open the outlet works valve to lower the reservoir as much as possible and open a trench through the area of the breach. This will allow for some drainage and remove standing water before earthmoving operations begin.

It is estimated the contractor will begin work by removing the existing dam by 30 yd scrapers, excavating until material begins to be too wet for rubber-tire equipment (1½ ft above O.G.) This material will be stockpiled near the area the breached material is stockpiled. The scrapers will then move to the site of the borrow pits and strip those areas, stockpiling the topsoil for later replacement. At the damsite a dragline will excavate the wet material, loading into bottom dumps for hauling to

Feature Cost Estimate Designed G. Peifer Date Mar 16, 1977

Item Summary Checked [signature] Date 3/16/77

a site near the borrow pits to spoil. The dragline will also excavate the wet silty material under the existing dam, stripping for the new dam. This material will also be spoiled.

The core trench will be excavated by dragline loading into 631 scrapers for hauling to the stock pile near the dam.

In the borrow pits, Cat dozers will dry the material by discing. A loader will load out 18 yd bottom dumps for hauling 2 miles to the dam embankment. On the stock pile, assumed relatively dry, the material will be wet and premixed for hauling 1500 LF to the dam by 631 scrapers.

The embankment will be compacted by 12 passes of a sheepsfoot roller. The equipment used will be a motorized sheepsfoot roller and a dozer pulling a towed roller. A motor grader will spread material hauled in by bottom dump.

Pumps will keep the foundation dewatered until the outlet works can be put in service.

It is estimated the outlet works and embankment will be completed in one season and concrete work will be finished the following year.

Gunite work was discussed with Phil Cassis and Mr Dennis of Delta Gunite, Sacramento. They quoted $2/SF for the work.

Wage rates used were for 1976-1977 with 9% escalation and $2 per hr subsitence.

Feature Earthwork Designed G. Reifer Date 3-15-77

Item Routing Chart Checked Blair Date 3/16/77

Δ 0SP

Mr. Jacob Angel, Senior Engineer
Department of Water Resources, Central District
3251 S Street
Sacramento, California

March 15, 1977

Letter to Assemblyman Chappie

Attached is a rough draft of the letter that we are sending to Assemblyman Chappie concerning the meeting that we held on 3/4/77.

Art P. Camacho
Assistant Landscape Architect

Attachment

A-2/3

APC

Honorable Eugene A. Chappie
Member of the Assembly
State Capitol
Sacramento, California 95814

Dear Mr. Chappie:

This is a follow-up on the February 24 meeting on Van Damme, in which we met with the four staff members of P.G.&E., representatives of the Department of Fish and Game, the Department of Water Resources and from the Department of Parks and Recreation. At that time you suggested that these three agencies get together to discuss possible alternatives to the situation at Van Norden Dam. Therefore, on March 4, 1977, a meeting was held with the following members of State agencies:

Arthur Camacho and Joann Weiler of the State Park System Planning Section, Department of Parks and Recreation.

Robert W. James, Deputy Director; Mr. Jake Angel, Senior Engineer of Central District; Gordon W. Dukleth, Division Engineer of Division of Safety of Dams; E. W. Stroppini, Chief of Design Engineering, Division of Safety of Dams; all of Department of Water Resources.

James S. Leiby, Chief of Operations, and Robert W. Lassen, Region II Manager, Department of Fish and Game.

The purpose of the meeting was to determine if these State agencies, by a combination of the three involved, could come up with funds to cover the operations and maintenance costs, and also rehabilitation of the Van Norden dam. It seems that P.G.&E. has discovered that the dam was built on sand and not on rock as previously supposed. Therefore, P.G.&E. can no longer operate Van Norden

dam as a productive reservoir because the cost of repairing the dam would be in the range of $2 to $3.5 million; therefore P.G.&E. has decided to lower the dam to six feet, which would maintain only 45-acre feet. As it is now understood, P.G.&E. apparently would deed the property to the State if one of the State agencies were to take over the facilities. Secondly, P.G.&E. would put up approximately $1.5 to $1.6 million for the repair of the dam, as their share.

In an analysis, we came up basically with four alternatives: (1) it being the most obvious--to do nothing; (2) would be the exchange of lands with U.S. Forest Service lands; (3) would be to draft a bill (to be carried by you) for the amount of the dam repair; and (4) a combination of the above mentioned alternatives. Basically, the figure for dam repair is approximately $2 million. Of that, on the other side of the equation, $1.5 to $1.6 million could be provided by P.G.&E., plus a grant of $500,000 to $400,000 from the Dedeh-Grunsky Act. A second option would be for the U.S. Forest Service or a public utility district to maintain and operate the facility, thereby lowering the O&M for P.G.&E. A third alternative would be for Parks and Recreation or Department of Fish and Game to have ownership of the facilities and it could be operated by either P.G.&E. as their $1.5 to $1.6 million contribution, or a portion of it being operated by Fish and Game.

The Department of Parks and Recreation has not identified a need in that area for recreation (reference the California Outdoor Recreation Resources Plan, and also the Planning Districts 3 and 5 for this particular region). However, there is use along that corridor but not to the point where it becomes of statewide significance, we feel. Therefore, at this time, acquisition and development would not be in the best interest of the State Park System or its operation, and could not best interpret the recreational demands in other areas at this time.

Therefore, of the above mentioned options, the only one we see as the most viable project would be either a transfer to the U.S. Forest Service, a major land holder in the area, or a public utility district, with them providing the operation and maintenance for the facility and the dam repair to be picked up by P.G.&E.

One of the main concerns to the Department of Parks and Recreation is the cost of operation and maintenance. Secondly, our concern is that we feel it is in the area of responsibility for the U.S. Forest Service. They should be contacted in order to identify and clarify their role in this region.

I think we have come up with a solution; however, I think it is in its schematic stage and needs to be worked out in finer detail before we can proceed with the concept. I hope this can give you a perspective from the Department of Fish and Game, the Department of Water Resources, and also the Department of Parks and Recreation as to what the State's contribution could be in solving this problem.

Sincerely,

Memorandum of Inspection

Lake Van Norden Dam and Reservoir
No. 97-33 (O.J.)

March 11, 1977

By R. F. Delparte

MAR 17 '77 RFD

Mr. George Peifer, Division of Design and Construction, and Mr. Steve Onken, Pacific Gas and Electric Company, participated in the inspection of the dam. The ground was covered with approximately 3 feet of snow.

The purpose of the inspection was to acquaint Mr. Peifer with the project. He is preparing an estimate of the cost to rebuild the dam.

RFDelparte:fs

Memorandum of Conference

New Lake Van Norden Dam, No. 97-129

February 24, 1977

E. W. Stroppini

A meeting was held in Assemblyman Chappie's office to discuss the general problem of Lake Van Norden Dam reconstruction. Those present were:

James Lieby	Department of Fish and Game
Ed Lassen	"
Joan Wyler	Department of Parks and Recreation
Bob James	Department of Water Resources
E. W. Stroppini	"
John Fraser	Pacific Gas and Electric Company
Bob Metzger	"
George Fee	"

Assemblyman Chappie opened the meeting with comments pertaining to letters he has received regarding the effect of Lake Van Norden not being operable.

Mr. Metzger gave the background information that went into the lowering of the storage to 45 acre-feet. He explained the economics of the project as it relates to PG&E. He indicated the cost to rebuild would be about 3 to 3.5 million dollars, and that PG&E would sustain a loss of about 250,000 dollars per year. PG&E is willing to try to work out some type of cooperative agreement on rebuilding the dam.

Assemblyman Chappie wants the State agencies involved to look into the problem and try and develop a solution.

In a discussion with the Fish and Game people following the meeting it was agreed that they will look into possible funds from Fish and Wildlife. We will look into possible funds from Davis-Grunsky. The Division is to check the cost of reconstructing the dam.

A meeting, about two weeks from now, is to be scheduled by Bob James.

EWStroppini:sd

2/7/77 (Same ltr from R. Knudsen to RBR)

: Ronald B. Robie

Date : January 31, 1977

File No.:

FEB 1 1977 Noted RBR

Subject: Legislative Contact
Lake Van Norden Dam and
Reservoir, No. 97-33

V. B. Tipton
: Department of Water Resources

February 14, 1977

R. A. Knudsen
President
Donner Summit Area Association
Post Office Box 248
Soda Springs, California 95728

Dear Mr. Knudsen:

Thank you for your letter of January 15, expressing interest in developments relating to Lake Van Norden. Since this matter is under the jurisdiction of the Department of Water Resources, Division of Safety of Dams, we have referred your letter to them for response.

Sincerely,

Jack Dye
Chief, Administrative Services

cc: Gordon Dukleth
Dept. of Water Resources
Div. of Safety of Dams
Room 1248-5
1416 - 9th Street
Sacramento, CA 95814

Prepare Reply for Director's signature directly to Mr. Knudsen, cc to Mr. Dye. Send cc. of our letter to Knudsen to Director of Conservation and tell him we received same letter 2/27

To : Ronald B. Robie

FEB 1 1977 Noted RBR

Date : January 31, 1977

File No.:

Subject: Legislative Contact Lake Van Norden Dam and Reservoir, No. 97-33

From : V. B. Tipton
Department of Water Resources

I received a call this afternoon from Sandi McCubbin of Senator John F. Dunlap's Woodland office. She reported that a constituent had expressed the understanding that Pacific Gas and Electric Company (PG&E) is breaching Lake Van Norden Dam, possibly because of requirements by the Division of Safety of Dams may be so strict as to make the expense of repairing the dam uneconomical.

I told her that in keeping with normal procedure, the owners normally make their own findings with regard to the nature and extent of work necessary to assure the continued safe operation of a dam. Our role is to review and approve such solutions after they have proposed them. In this case, the owner, PG&E, found that the foundation conditions for construction of a new dam at this site would make it necessary to conduct further investigations which would involve a number of alternatives. These investigations would require more time, and the company recognized that the existing dam could present some possible hazards. It was mutually agreed by the company and the Division of Safety of Dams to breach the existing dam pending their further investigation in order to remove all possible hazards to the public. By this action, the company has reduced the effective size of the dam such that it is no longer under State jurisdiction.

cc: J. E. Ley
G. W. Dukleth
R. W. James

SURNAME	Tipton 2/1			

DWR 155 (REV. 4-62)

Place issue

(6)

Water Resources Ag.

26 January 1977

Senator Alan Cranston
Senate Office Bldg.
Washington, D.C. 20510

Honorable Senator Cranston:

Believing that you have been active in conservation causes, I would like to bring to your attention a possible blight that could occur in California's Sierra Nevada Mountains.

Our beautiful Lake Van Norden, located at Soda Springs, has been drained. This by the Pacific Gas & Electric Company. This draining of the Lake was ordered by the E.P.A. because the dam at the west end of the Lake was leaking and needed repairs.

After draining, the P.G.& E. discovered that to repair their dam they would have to extend their footings much deeper than previously estimated.

The rebuilding of the dam and the refilling of the Lake has now become a doubtfull issue. The Lake bed is not attractive and certainly does not enhance our community. Further, the Lake and dam provide flood control for the Soda Springs area and are the origin of the South Fork of the Yuba River, a river known in the past for its scenic beauty and recreational value.

Is there anything you might do to bring back our Lake to it's former attractiveness ?

Sincerely,

Dwight F. Partell

Dwight F. Partell
P.O. Box 186
Soda Springs, CA. 95728

Memorandum of Review

As-Built Drawing

Lake Van Norden Dam and Reservoir, No. 97-33

January 21, 1977

by R. F. Delparte RFD 1/25

Reference

Mr. R. V. Bettinger's letter of January 14, 1977, transmitting two as-built prints for Lake Van Norden Dam.

Lake Van Norden Dam has been breached and the structure is now less than 25 feet high and stores less than 50 acre-feet. This as-built drawing shows the breach.

I have reviewed the drawing and find that it correctly shows the work as constructed.

I recommend acceptance of the drawing.

Except for return of the Certificate of Approval, this completes the administrative requirements for altering Lake Van Norden Dam to nonjurisdictional size.

RFDelparte:fs

DONNER SUMMIT AREA ASSOCIATION
Post Office Box 248 • Soda Springs, California 95728

Ronald B. Robin
Department of Water Resources
Box 388
Sacramento, CA 95802

January 17, 1977

97-33

Dear Mr. Robin:

The people of the Donner Summit Area have a grave concern over the developments relating to Lake Van Norden.

Originally, the Lake was to be lowered, and dam improvement was to be commenced by its owner, P. G. & E. The people felt it an excellent opportunity to take certain stumps and large rocks from the bottom of the resorvoir, or bury objects which are a hazard to boating or swimming. A boat ramp and small park were requested to be pursued by the Truckee-Donner Recreation District.

A safe lake with an adjoining campground could be a significant asset to the Donner Summit Area in social, economic, and recreational prospectives.

Our latest information indicates that P. G. & E. wishes to abandon the dam and Lake because of what they consider excessive costs to meet earthquake standards. These standards are being mandated by the State of California.

The Lake has been in existence since approximately 1900. Should Lake Van Norden cease to exist, we feel a number of momentous events will transpire and to some degree the destiny of Donner Summit will be aversely affected.

A lessened summer water flow in the South Fork of the Yuba River will deter a number of establishments of summer recreational business. (Soda Springs Hotel, Donner Summit Lodge, Kingvale Lodge, Rainbow Lodge and Tavern). Rainbow and Kingvale Lodges will be the most affected. Fish plantings by the State Department of Fish and Game will decrease, thus affecting the hundreds of people who fish the River yearly.

Thousands of motorists will be deprived of the majesty of the River intertwining Interstate 80, and perhaps unduly alarming them regarding our water situation.

Generations of campers and land owner swimmers won't find a waterhole deep enough in which to swim. Wildlife habitat will be deprived, thus perhaps eliminating what few beaver we do have left and spreading the deer herds.

2/7/77
Letter 1963

x- R. Reynolds
R. James

We feel property values along the River will diminish, thus depriving people who have paid premium prices for lots, homes, cabins, businesses, and in turn pay higher taxes.

We have established a growth in California which is directly dependent on Sierra snowfall for water. Although the Lake is somewhat small, its capability is needed, as the past two years have shown that the only consistent thing about Sierra weather is that it is inconsistent.

Those of us who have seen the Yuba River on a rampage are uneasy about flooding possibilities. We feel the dam has averted several flooding occurrences. When we have a snow pack, we often get a warm rain from the southern latitudes. When this occurs, excessive amounts of water are generated. Without the dam, torrential amounts of water may pour out of the basins near Sugar Bowl and Castle Peak. The dam could at least store the water of the Sugar Bowl Basin. We remember still, the floods of the early sixties, and do not wish even greater amounts of water pouring through our homes, across our property, and tearing up our roads. We wonder if one flood aversion would pay for the cost of the dam repair?

We understand a growing energy requirement is upon us, and we are perplexed by these developments relating to Lake Van Norden.

Inversely, we also want the dam to be safe, and are vitally concerned with its ability to withstand earthquakes.

We are somewhat alarmed, and would appreciate any assistance and support you might provide in the effectuation of the continuance of Lake Van Norden, the development of a secure dam, and the origination of an improved recreation facility.

We are also open to your recommendations as to how we might be able to help ourselves.

Your prompt attention to this urgent matter will be greatly appreciated by the Donner Summit Community.

Very truly yours,

R. A. Knudsen, President
Donner Summit Area Assn.

RAK, RH/bb

(916)445-1520

JAN 1 2 1977

Mr. H. P. Braun
Vice President-Electric Operations
Pacific Gas and Electric Company
77 Beale Street
San Francisco, CA 94106

Attention: Mr. F. C. Buchholz, Manager
Hydro-Generation Department

Dear Mr. Braun:

Lake Van Norden Dam and Reservoir, No. 97-33

On December 21, 1976, Field Engineer T. S. McLean examined Lake Van Norden Dam and found that the work of breaching the dam was essentially complete.

To create a small reservoir the crest elevation of the concrete floor slab, shown on the approved drawing, was raised from Elevation 6745 to approximately Elevation 6750. Mr. George Yoshikado determined on December 2, 1976, that at Elevation 6750 the reservoir has an impounding capacity of approximately 45 acre-feet. Field Engineer R. F. Delparte approved this revision in the field on December 3, 1976. Since the dam is now less than 25 feet in height and stores less than 50 acre-feet, the structure is no longer subject to State jurisdiction as to safety.

Please return the Certificate of Approval dated May 29, 1974, and send us an as-constructed print showing the revisions to Drawing No. 338110-1.

Sincerely,

Sgd. E. W. STROPPINI for

Gordon W. Dukleth
Division Engineer
Division of Safety of Dams

cc: Mr. F. F. Mautz
Vice President-Engineering

RFDelparte:rk

JAN 1 3 1977 DW

FILE COPY

SURNAME Form DWR 540	Delparte 1/12	Tipton 1/12	Tipton for Ley 1/12	Stroppini for Dukleth 1/12

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
Division of Safety of Dams

Inspection Request

Please arrange for my inspection of the Public Records on Lake Van Norden Dam and Reservoir, No. ~~97-3~~ 97-129 SFC, for the purpose of Inspecting environmental comments.

My relationship, if any, with the owner of this dam is None.

Date 1-4-77.

Richard Paul Art *
Signature

Richard Paul Art
Name (printed)

PO Box 159 Soda Springs Ca 95728
Address

* Donner Summit Association - SFC

Approved - SFC 1-4

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of dam Lake Van Norden Dam No. 97-33 County Nevada
Type of dam earth Type of Spillway flashboard structure
Water is ____ feet ____ (above, below) spillway crest and ____ feet ____ (above, below) dam crest.
Reservoir empty

Contacts made Workmen at the site.
Detail in question Breaching the dam
Action taken See remarks.

*Remarks**

Pacific Gas and Electric Company expects to complete the work related to the breaching of the dam either today or tomorrow. The invert of the breach is covered with a concrete slab and the sides have been gunited. Drain holes were drilled along the toe of the gunited sides and along the downstream edge of the invert slab.

Material that was removed to form the breach is stockpiled along the left side of the reservoir area. A dozer was shaping the material today.

The reservoir was essentially empty, and there are only patches of snow on the ground.

The breaching of the dam has altered the dam height to less than 25 feet and the storage to less than 50 acre-feet. The alteration has either reduced or has not increased the danger to life and property.

TSM 1-18-77

Typed by rlk
Date 1/12/77
cc for

*Note any change in condition since last inspection such as: seepage; erosion; deterioration of materials; cracks; method of operation; use of flashboards; etc.

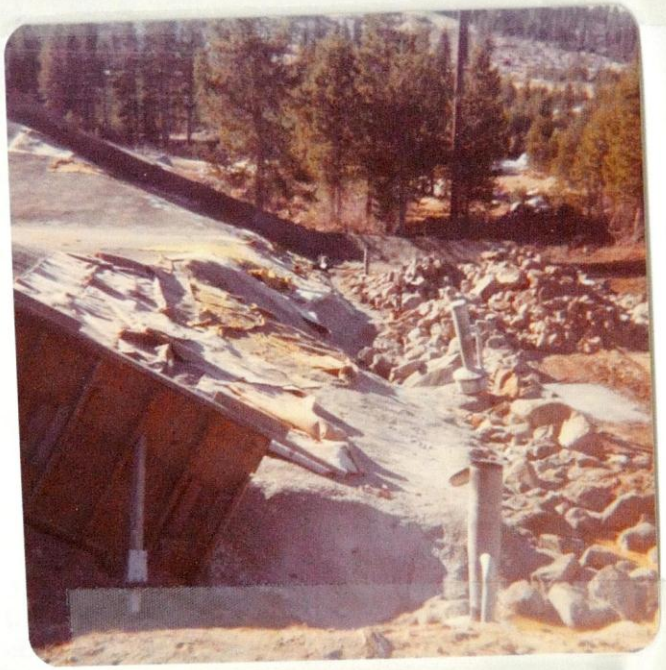
Inspection by T. S. McLean
Date of inspection 12/21/76
Date of report 1/4/77
Photos taken? Yes [X] No [ ]

DWR 1261 (Rev. 2/70)

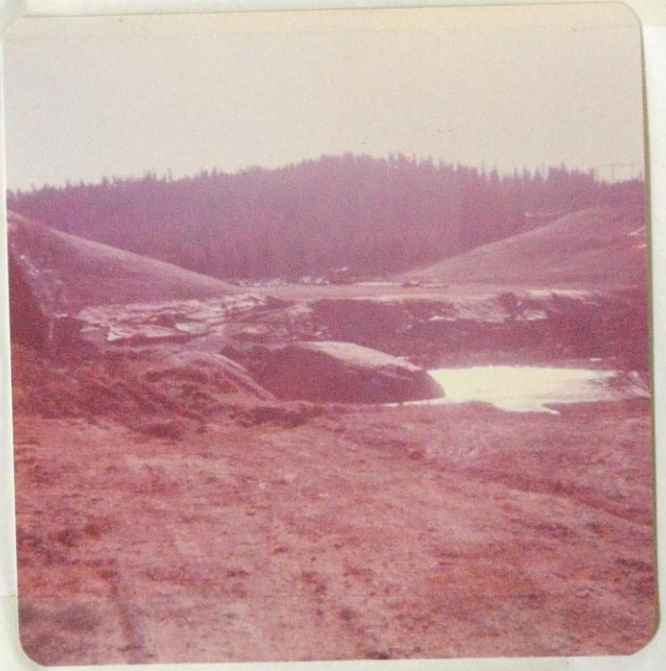
Sheet ____ of ____ Sheets

Trucks parked in breach of dam.

Upstream toe of breach.



Downstream toe of breach.



Looking at breach from downstream area.

LAKE VAN NORDEN DAM AND RESERVOIR,
NO. 97-33
TSMcLean

12-21-76

TSM 2-28-77

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of dam Lake Van Norden Dam No. 97-33 County Nevada
Type of dam earth Type of Spillway flashboard structure
Water is reservoir feet empty (above, below) spillway crest and _____ feet _____ (above, below) dam crest.

Contacts made Inspected with Mr. Dale Kelley
Detail in question Breaching embankment
Action taken See remarks

*Remarks**

The excavation to alter the dam to nonjurisdictional size is complete. Placement of the concrete lining on the floor of the excavation through the embankment was divided into two sections. On December 8, 1976, the first section on the right side was completed and during this inspection concrete was being placed in the left section. Temperatures at the dam lower to about 10° F. at night and rise to the 32° F. during the day. Polyethylene sheets were placed over the first concrete placement and Salamander heaters were set around the excavation. Some of the new concrete may have frozen.

Two pounds of calcium chloride were added to each cubic yard of concrete for the left section of the spillway floor to accelerate the setting time. In addition carpet will be placed over the new concrete to keep it from freezing.

On the downstream side of the embankment the gunite lining will be extended on both sides to prevent erosion of the fill. A small wall will also be constructed to keep high flows from spilling onto the embankment. These **revisions** will be shown on the as-constructed drawings.

Typed by fs
Date 12/21/76
cc for X

*Note any change in condition since last inspection such as: seepage; erosion; deterioration of materials; cracks; method of operation; use of flashboards; etc.

Inspection by RFDelparte
Date of inspection 12/9/76
Date of report 12/14/76
Photos taken? Yes ☒ No ☐

Placing concrete in floor of breach.

Placing floor panels.

LAKE VAN NORDEN DAM, No. 97-33
RFDelparte 12/9/76

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of dam Lake Van Norden Dam No. 97-33 County Nevada
Type of dam earth Type of Spillway flashboard structure
Water is reservoir feet empty spillway crest and _____ feet _____ dam crest.
(above, below) (above, below)

Contacts made Inspected with Mr. Dale Kelley
Detail in question Excavation to breach dam
Action taken See remarks

*Remarks**

At Elevation 6745, the reservoir area would be about 1/2 acre. This would not provide enough storage for sedimentation to reduce siltation of the South Yuba River. For this reason the overflow crest of the breach has been raised to Elevation 6750.

On December 2, 1976, Mr. George Yoshikado surveyed the reservoir and determined that at Elevation 6750 the reservoir will have a capacity of 45 acre-feet. I approved this revision of Drawing No. 338110.

The excavation through the embankment is essentially complete to the revised elevations. Concrete placement in the floor of the breach is scheduled to begin on December 8, 1976. This 150 cubic yard placement will be divided into 3 transverse panels. Gunite will be used on the slopes of the excavation.

The wood in the core wall is in excellent condition below Elevation 6755. The 3 x 8 inch timbers appear to be pine or fir. There was some redwood at higher elevations in the embankment.

Typed by fs
Date 12/21/76
cc for X

*Note any change in condition since last inspection such as: seepage; erosion; deterioration of materials; cracks; method of operation; use of flashboards; etc.

Inspection by RFDelparte
Date of inspection 12/3/76
Date of report 12/6/76
Photos taken? Yes ☒ No ☐

DWR 1261 (Rev. 2/70)

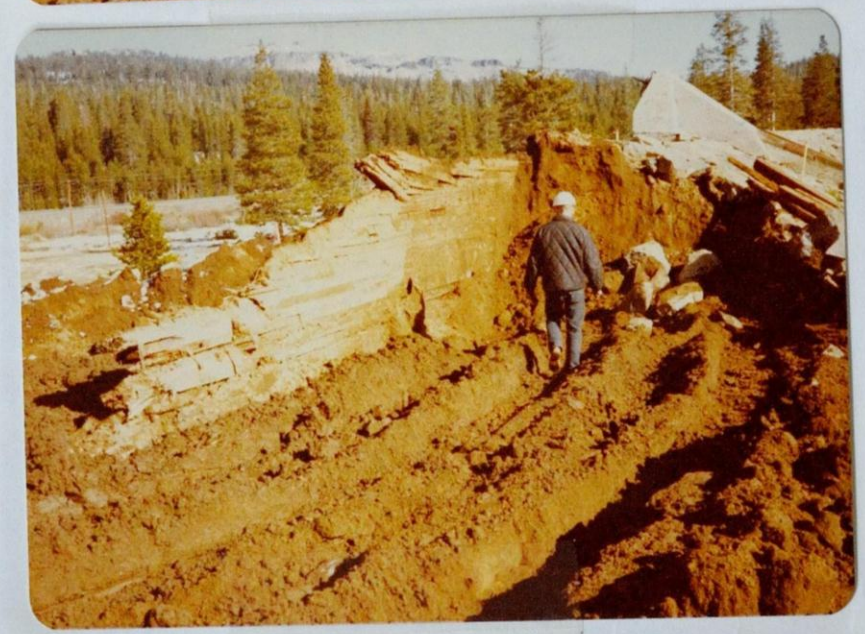
Sheet _____ of _____ Sheets

Excavation for breach of dam at approximately Elevation 6750.

Breach looking downstream.

LAKE VAN NORDEN DAM, No. 97-33
RFDelparte 12/3/76

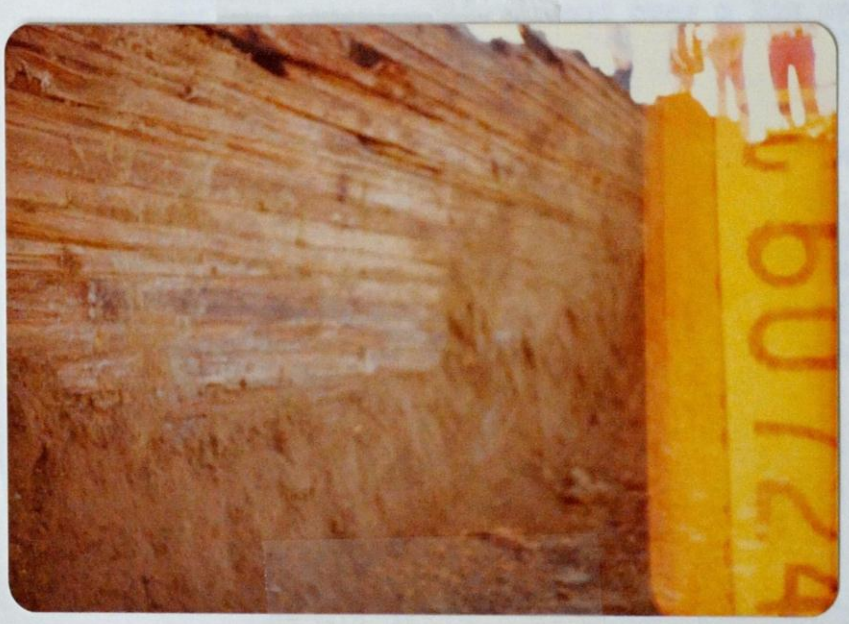
Breaching embankment.



Timber core wall.

LAKE VAN NORDEN DAM, NO. 97-33
RFDelparte 11-26-76

Breaching embankment.



Timber core wall.

LAKE VAN NORDEN DAM, NO. 97-33
RFDelparte 11-26-76

(916) 445-1816

NOV 24 1976

Mr. Trevor Jones
Foreman, Placer County Grand Jury
Drawer X
Tahoe City, CA 95730

Dear Mr. Jones:

Lake Van Norden Dam, No. 97-33

In response to your November 19, 1976, telephone request to Mr. Don Babbitt of this office, we have briefly reviewed the effect of breaching Lake Van Norden Dam on the bridge immediately downstream of the dam. We obtained some of the following information from the owner of the dam, Pacific Gas and Electric Company.

The bridge has a clear span of 30.5 feet and is 7 feet above the stream channel. This configuration would usually allow a flow of 2,000 cubic feet to pass under the bridge. We understand, however, that there are some large rocks under or near the bridge that partially block the flow and that this situation is compounded by snow and ice being dumped into the channel. The result has been that water from the dam's spillway has occasionally flowed over a low spot in the road. Breaching the dam may allow this situation to occur more often if the channel is allowed to continue to be clogged.

It is impossible to be specific on times and amounts of water involved in the above situation, or to determine the protection provided the bridge by the dam from runoff caused by intense storms, without detailed calculations. We have made such calculations for extreme floods to determine the required capacity of the spillway, but they are too extreme to use to evaluate the effects on the bridge. Because of the potential hazards, spillways are sized to protect dams from extreme events. It would be uneconomical to provide similar protection for bridges.

SURNAME
FORM DWR 540

Babbitt 11/23 | Sukkestad 11/24

We hope this material improves your understanding of the situation. If we can be of further assistance, please contact us.

Sincerely,

Original Signed by
G. W. Dukleth

Gordon W. Dukleth
Division Engineer
Division of Safety of Dams

cc: Mr. F. F. Mautz
Vice President-Engineering
Pacific Gas and Electric Company
77 Beale Street
San Francisco, CA 94106

DHBabbitt:rk

To : File

Date : November 22, 1976

File No.:

Subject : Lake Van Norden Dam
No. 97-33

Telephone Calls
(11/19 & 22)

D. H. Babbitt

From : **Department of Water Resources**

Mr. Trevor Jones, Foreman of the Placer County Grand Jury, called the Division on November 19, 1976, to inquire about the effect removing the dam will have on the bridge immediately downstream. Someone who was concerned about access to the Serene Lakes area had contacted him. He said he had read about the need to remove the dam and was not objecting to the removal. He just wanted some information on the increased hazard to the bridge.

I told him that it would take some time to find what information we had or to make some computations. He asked that we write to him rather than calling because he is not in his office very often. His address is Drawer X, Tahoe City, CA 95730.

I called Jerry Jedlicka at P.G.& E. Company a few minutes after the above call to inform him of the contact and to ask if they had studied the situation. He tried to find the designer and could not. He said he would call back on Monday, the 22nd. I asked him to consider if P.G.& E. should be writing the letter.

George Yoshikado returned Jerry's call on November 22, 1976. P.G.& E. does not have any hydrology studies that would help to determine the increased hazard to the bridge. He did, however, provide the following information. The clear span of the bridge is 30.5 feet. There is a 12-inch center pier. The clearance is 7 feet. He thought that it would pass 2,000 cfs if the channel was clear. There are some large rocks under the bridge. Someone, probably the ski resort, pushes snow and ice into the channel so that water backs up and flows over a low spot in the road. P.G.& E's legal staff concluded that they had the right to release inflow into the reservoir so could not be held responsible for any damage to the bridge caused by increased flows when the dam is removed. George indicated they might consider removing the rocks under the bridge. I told him I would write to Mr. Jones and send them a copy and wait to see if there is any followup.

DHBabbitt:rk

SURNAME	Babbitt 11/23			

DWR 155 (REV. 4-62)

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of dam Lake Van Norden Dam No. 97-33 County Nevada
Type of dam earth Type of Spillway flashboard structure, lined channel
Water is reservoir feet empty (above, below) spillway crest and _____ feet _____ (above, below) dam crest.

Contacts made Field Foreman
Detail in question Periodic evaluation
Action taken See remarks

Remarks *

The excavation to breach the embankment began on November 15, 1976. At the time of this inspection the upper 10 feet of the fill was removed. A loader and two trucks were being used to load and haul the material to the stockpile area in front of the spillway.

The breach will be 70 feet wide with 2:1 side slopes. The invert of the excavation will be lined with concrete or gunite and the side slopes will be protected with gunite to a height of 15 feet above the invert.

The excavation work is progressing slowly because the materials in the embankment are loose and wet. Upstream of the wood core wall the loader is barely able to maneuver through the fill to load the trucks. Downstream of the wall the sandy silts are drier and are stable under the equipment.

The condition of the wood core wall in the upper 10 feet of the dam is variable. In some small areas the 3- x 8--inch timbers are rotted clear through and in other areas the wood is still in relatively good condition. The wood in the core wall does not appear to be redwood.

Typed by fs
Date 12/21/76
cc for X

*Note any change in condition since last inspection such as: seepage; erosion; deterioration of materials; cracks; method of operation; use of flashboards; etc.

Inspection by RFMoore RFDelparte
Date of inspection 11/19/76
Date of report 11/22/76
Photos taken? Yes [X] No [ ]

Job File

To: Secretary for Resources
1416 Ninth Street, Room 1311
Sacramento, CA 95814

From: Division of Safety of Dams
Department of Water Resources
P. O. Box 388
Sacramento, CA 95802

PROJECT TITLE:
Breaching of Lake Van Norden Dam.

PROJECT LOCATION - SPECIFIC:
SW ¼ Sec. 23, T. 17N., R. 14E. MDB&M

PROJECT LOCATION - CITY:
Near Soda Springs on the Nevada and Placer County line.

PROJECT LOCATION - COUNTY:

DESCRIPTION OF NATURE, PURPOSE, AND BENEFICIARIES OF PROJECT:
The Department on November 10, 1976, ordered the Pacific Gas and Electric Company, to breach Lake Van Norden Dam. The purpose is to prevent most of the storage behind the existing old deteriorating dam. Principal beneficiaries are downstream property owners.

NAME OF PUBLIC AGENCY APPROVING PROJECT:
Department of Water Resources, Division of Safety of Dams

NAME OF PERSON OR AGENCY CARRYING OUT PROJECT:
The Pacific Gas and Electric Company

EXEMPT STATUS: (CHECK ONE)

_____ Declared Emergency [Sec. 15071(a)]	X Emergency Project [Sec. 15071(b) or (c)]
_____ Ministerial, (Sec. 15073)	_____ Categorical:
	Class _____, Section _____

REASONS WHY PROJECT IS EXEMPT:
Because of the deteriorated and unsafe condition of the dam it is essential that the dam be breached immediately, so that storage will not occur during the winter and spring.

CONTACT PERSON: Donald H. Babbitt
AREA CODE 916 TELEPHONE 445-1816 EXTENSION

CONCUR:
G. Donald Meixner
G. Donald Meixner, Chief
Resource Evaluation Office
Nov 12 1976

SIGNATURE: G. H. Babbitt
TITLE: Division Engineer
DATE: 11/12/76

Date 76-11-12 | Ralph Moore 11/12/76 | Babbitt 11/12 | 11/14/76

DWR 3748B

PACIFIC GAS AND ELECTRIC COMPANY

PG&E 77 BEALE STREET • SAN FRANCISCO, CALIFORNIA 94106 • (415) 781-4211 • TWX 910-372-6587

November 12, 1976

Mr. Gordon W. Dukleth
Division Engineer
Division of Safety of Dams
Dept. of Water Resources
P.O. Box 388
Sacramento, CA 95802

Subject: Lake Van Norden Dam No. 97-33

Dear Mr. Dukleth:

Enclosed are two prints of Drawing 338110 showing the proposed breach at Van Norden Dam. The design is similar to that which you previously approved with mainly the following changes:

1. Use concrete (or gunite) to line breach rather than riprap.

2. Remaining height of dam at bottom of breach to be slightly less than 6 ft. Previous proposed height was about 2 ft.

We plan to begin this work November 15, 1976.

Sincerely,

R. V. BETTINGER
Chief Civil Engineer

By A. G. STRASSBURGER

Enclosures

(916) 445-1816

NOV 10 1976

Mr. F. F. Mautz
Vice President, Engineering
Pacific Gas and Electric Company
77 Beale Street
San Francisco, CA 94106

Dear Mr. Mautz:

Lake Van Norden Dam, No. 97-33

In response to your letter of November 9, 1976, we concur that the most prudent course of action is to breach the dam. You are ordered to start immediately to accomplish this. Breaching the dam now is necessary because winter and spring runoff could exceed the capacity of the outlet and cause reservoir storage behind this dam of questionable integrity.

The plan submitted with your letter of March 17, 1976, has been reviewed and is acceptable for breaching the dam.

We will appreciate being kept advised of your progress on the alternative studies to final disposition of the dam.

Sincerely,

Original Signed by
G. W. Dukleth

Gordon W. Dukleth
Division Engineer
Division of Safety of Dams

DHBabbitt:lb
bcc: 1. James, 2. Robie

SURNAME FORM DWR 540	Babbitt 11/10	Mautz 11/10/76	Dukleth 11/10

PACIFIC GAS AND ELECTRIC COMPANY

PG&E

77 BEALE STREET • SAN FRANCISCO, CALIFORNIA 94106 • (415) 781-4211 • TWX 910-372-6587

F. F. MAUTZ
VICE PRESIDENT
ENGINEERING

November 9, 1976

Mr. Gordon W. Dukleth
Division Engineer
Division of Safety of Dams
Department of Water Resources
P.O. Box 388
Sacramento, CA 95802

Lake Van Norden Dam, No. 97-33

Dear Mr. Dukleth:

On February 6, 1976 we requested your approval for reconstruction of subject dam. These construction modifications were predicated upon information obtained from certain dam and foundation exploratory work which had been performed, and upon assumptions regarding the remainder of the foundation not previously investigated. In early October of this year, additional foundation exploration upstream of the dam was performed. This work uncovered foundation material of a questionable nature. Subsequent thereto we met with you and your staff to discuss the implications of these findings.

The conclusion reached after discussions at those meetings was that the most prudent course of action would be to breach the dam. This would prevent storage within the reservoir until the implications of the questionable foundation can be resolved. We understand that in order for us to take this action, it will be necessary for you to order us to do so.

Upon receipt of such an order, we will immediately proceed to breach the main portion of the dam. We will take measures to prevent undue erosion and downstream silting. These will be essentially in accordance with the plans which had been submitted to you as a first stage in rebuilding the dam in accordance with the earlier application.

We will promptly proceed with alternative studies as to final disposition of the dam and will keep you advised as to our actions.

Sincerely,

F. F. Mautz

FFM:BDM

Memorandum of Office Conference

1. Lake Van Norden Dam and Reservoir, No. 97-33 ✓
2. New Lake Van Norden Dam and Reservoir, No. 97-129

October 21, 1976

By R. F. Moore

NOV 1 '76 RFM

On October 21, 1976, a meeting was held in the Division's Conference Room to discuss the future of the existing dam. Following is a list of the people who were in attendance:

Pacific Gas and Electric Company (PG&E)

Mr. Arthur Strassburger
Mr. Jerry Jedlicka

Division of Safety of Dams

Gordon W. Dukleth
Elmer W. Stroppini
Vernon B. Tipton (R.M.)
Donald H. Babbitt
Ralph E. Moore

Mr. Strassburger began the meeting by stating that the recent foundation exploration revealed that it was not economically feasible to construct the "New Lake Van Norden Dam" for which the Division has an Application for Approval of Plans and Specifications. He then discussed various alternatives that PG&E's staff had explored for solving the existing "Lake Van Norden Dam" deficiencies. They range from lowering the dam to a 15-foot height, a 6-foot height, and a total breach of the dam. It appeared that Mr. Strassburger was inquiring as to what schemes would be acceptable to the Division, so that he could take the acceptable ones back to PG&E's management to make a final selection. Public reaction and environmental considerations will be major considerations in the selection.

Mr. Strassburger asked what the Division's response would be to a request to leave the outlet conduit in the open position for two years without making additional alterations to the dam. This would allow time for the Division to prepare the required CEQA documentation, and to obtain public input to the solution. Mr. Stroppini stated that he believed the Department could accept this condition for one year, provided an application to remove the dam from State jurisdiction accompanied the request.

The meeting adjourned without a definite commitment from Mr. Strassburger as to when they would next communicate with the Division regarding Lake Van Norden Dam.

RFMoore:no
11-1-76

Memorandum of Office Conference

New Lake Van Norden Dam; No. 97-129

October 8, 1976

By R. F. Moore
OCT 15 '76 RFM

On October 8, 1976, a meeting was held in the Division's conference room to discuss the breaching of Lake Van Norden Dam.

Following is a list of people who attended the conference:

Gordon W. Dukleth
Elmer W. Stroppini
Donald H. Babbitt
Ralph F. Moore

Purpose

To determine a plan that would insure that Lake Van Norden Dam would be breached during October 1976, as previously planned.

Background

A tentative date of October 1976, had been agreed upon by PG&E and the Division for breaching the dam. The Division had prepaired, but not initiated, a "Notice of Exemption" for braching the old dam under an Emergency Project [Sec. 15071]. A preliminary draft letter was prepared for PG&E in which the Division asked for the breaching of the dam.

Conclusion From Discussion With Mr. Strassburger

The meeting was climaxed by Mr. Dukleth placing a conference telephone call to Mr. Strassburger of PG&E Company.

Following are the results of the telephone conversation:

1. Mr. Strassburger stated that the outlet conduit would remain open at Lake Van Norden Dam until breaching or taking it out of State jurisdiction.

2. Mr. Strassburger stated that the foundation exploration of October 5 and 6, 1976, indicated the foundation material was less desirable than anticipated and construction of a new dam did not appear financially feasible.

3. Mr. Strassburger said it would take about two weeks for the management of PG&E to formulate a plan for removing Lake Van Norden from State jurisdiction and communicating the

Moore

State of California
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

Technical Services Office
LABORATORIES BRANCH
SOILS LABORATORY

DIVISION OF SAFETY OF DAMS
DEPARTMENT OF WATER RESOURCES
OCT 14 1976

CLASSIFICATION TEST SUMMARY

PROJECT LAKE VAN NORDE

FEATURE

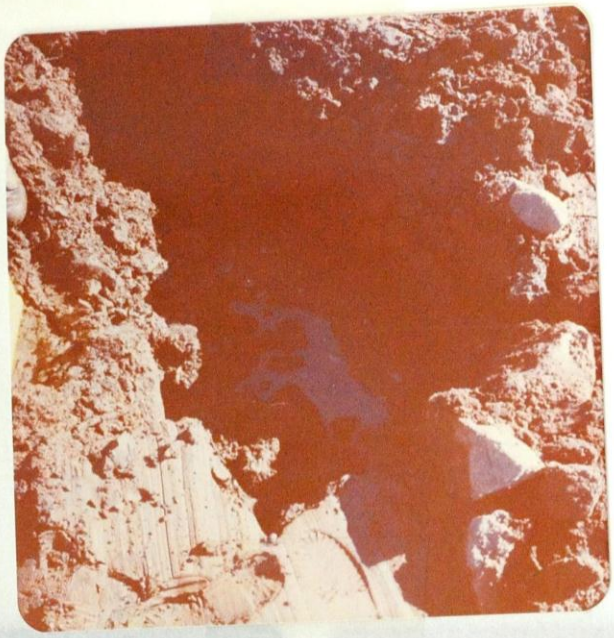
LAB. NUMBER	LOCATION: HOLE NO.	F.S. NO.	ELEV. OR DEPTH	GRADATION ANALYSIS – % FINER: GRAVEL 6"	3"	1½"	¾"	3/8"	SAND 4	8	16	30	50	100	SILT & CLAY 200	5 M	2 M	1 M	ATT. LIMITS L.L.	P.I.	HCl	G_s -#4	IN-SITU γ_d pcf	ω %	LAB. COMP. γ_d MAX. pcf	w_o %	CLASSIFI
6-490	NEAR SPILLWAY					100	96	89	84	78	72	63	52	37	25							2.68					

Reaction to H_cL
NO
H – High
M – Moderate
S – Slight
NP – Nonplastic
NG – No Good
G – Gravelly
NR – Not Received

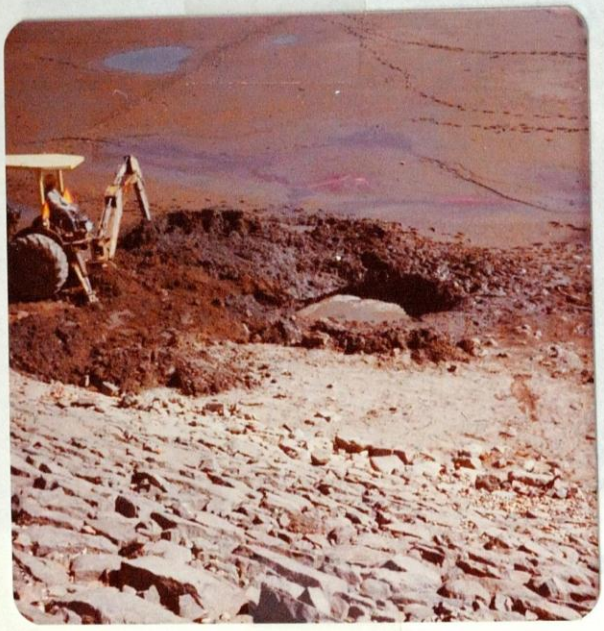
REMARKS Gradation run by DWR Lab, Bryte Ca.
R. M.

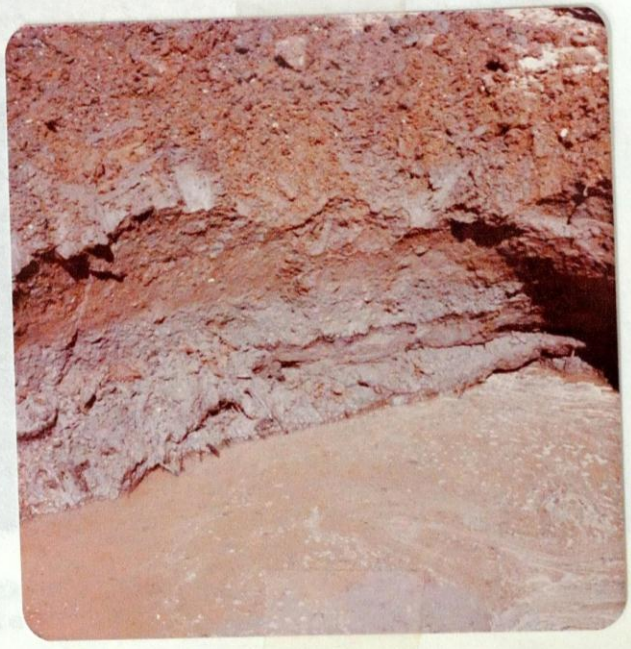
INITIAL al
CHECKED
REQUEST NO. WO 134

DWR 444 (Rev. 4/66)



Three views of backhoe test pit to right of outlet.



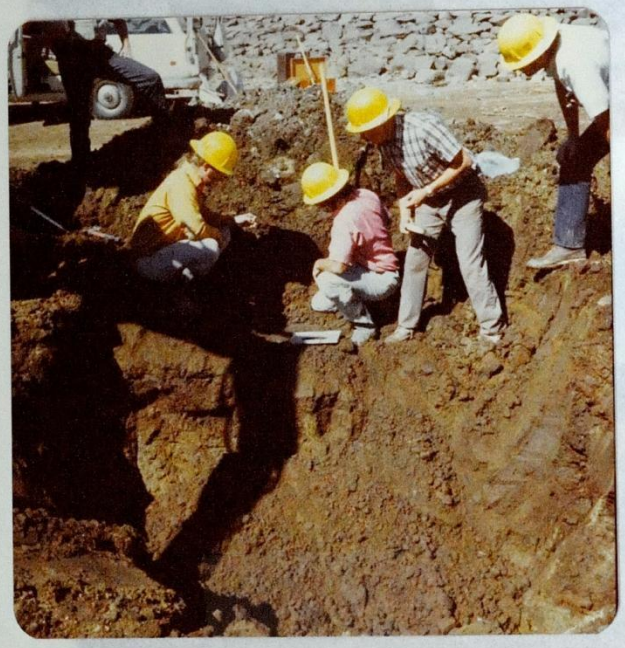


LAKE VAN NORDEN DAM, NO. 97-33
RFDelparte 10=6=76

Left end of dam.

LAKE VAN NORDEN DAM, NO. 97-33
RFDelparte 10-5-76

NOV 29 '76 RFD



Test Pit #1, 235 feet right of right spillway wall.

Test Pit #1, 235 feet right of right spillway wall.

LAKE VAN NORDEN DAM, NO. 97-33
RFDelparte 10-5-76

Reservoir area.

Empty reservoir.

LAKE VAN NORDEN DAM, NO. 97-33
RFDelparte 10-5-76

Memorandum of Geologic Inspection

New Lake Van Norden Dam and Reservoir, No. 97-129

November 8, 1976

By Mark J. McQuilkin NOV 22 '76 MJM

On October 5 and 6, 1976, personnel from this Division witnessed exploration being conducted by Pacific Gas and Electric Company (PG&E) for a new dam at the existing Lake Van Norden (No. 97-33) site. PG&E performed the exploration using their own forces and equipment. Present during the explorations were:

Pacific Gas and Electric Company

George Yoshikado
Thakor Desai
Terry Turner
Steve Onken
John Beede
Joe Webber
George Fee
Wes Smith

Safety of Dams

October 5 only: Messrs. Stroppini, Babbitt, Tipton
Both days: Messrs. Delparte, Moore, McQuilkin

Exploration

Exploration consisted of 3 backhoe pits located along the upstream toe of the existing dam -- the reservoir was drained several weeks before exploration began -- and 3 dozer trenches in a proposed borrow area.

Logs of the 3 backhoe pits were prepared separately and are attached to the back of this memorandum.

Materials in the borrow exploration pits, which were all located in the meadow upstream of the maximum storage level of the existing reservoir, consisted of silt, sand, and clay mixtures tending to increase in clay content toward the higher elevations. Plenty of materials suitable for embankment construction are available at this location.

Attachment

MJMcQuilkin:no
11/22/76

Brief Logs of Backhoe Pits

New Lake Van Norden Dam and Reservoir, No. 97-129

Pit 1 Dug October 5, 1976

Location: 215 feet right of right spillway wall of existing dam; 48 feet upstream of upstream toe of existing embankment.

Depth in feet below ground surface: left end of pit (right end of pit)	Material Description
0 - 2 (0 - 4)	CLAYEY SANDY SILT (ML): dusky gray to black, wet, soft, slightly plastic, contains disseminated organics and mica flakes; sand is fine.
2 - 4 (4 - 6)	SILTY SAND (SM): mottled moderate yellowish orange and medium gray, moist, dense, non-plastic, cemented with iron oxides; sand is granitic, poorly sorted, grains are subangular.
4 - 7 (6 - 7)	CLAYEY GRAVELLY SILTY SAND (SM): medium to dark gray, saturated, slightly compact to compact, slightly plastic, micaceous; sand is subrounded to rounded, and moderately sorted.
Bottom	Same: dense.

Pit 2 Dug October 5, 1976

Location: 30 feet right of right spillway wall of existing dam; 15 feet upstream of upstream toe of existing embankment.

Depth in feet below ground surface	Material Description
0 - 1½	CLAYEY GRAVELLY SILTY SAND (SM): light brown, damp, loose, slightly plastic.
1½ - 2½	SILTY CLAY (CL): dark brown to black, moist, soft to stiff, medium plastic, contains disseminated organics.
2½ - 5	GRAVELLY CLAYEY SILTY SAND (SM): dark brown, damp, compact, slightly plastic; sand is moderately sorted, grains are subangular.

Memorandum of Seismicity Review

Lake Van Norden Dam, No. 97-33

October 5, 1976

By W. W. Peak

A brief review has been made of Dr. Bruce Bolt's report "Seismicity and Seismic Intensity Report" on Lake Van Norden Dam, transmitted to me per Mr. R. F. Moore's memorandum of September 29, 1976. My comments follow:

Most of the fault analysis contained in the report is satisfactory. A comparison of my previously suggested design earthquake and that suggested by Bolt shows that we are generally in fairly close agreement (see table below). The actual 1966 earthquake near Truckee is included in the tabulation also as substantiation for the slightly larger design earthquakes.

Source	Magnitude	Distance	Acceleration (at Dam)
Actual (1966	6.0	12 miles	0.15 - 0.25g
Bolt	6.25 - 6.5	10 miles	0.25 - 0.30g
Peak	7.25	15 miles	0.35g

Based on Bolt's discussion, and further consideration of other seismologic information received since my 1974 memorandum in which the 7.25M earthquake was suggested, I would agree to a compromise acceleration of 0.30g, but no lower, for dam analyses. The duration of 15 seconds of strong-motion shaking suggested by Bolt is acceptable.

I would recommend the use of the Lake Hughes record, as opposed to the older Vernon record, for a design accelerogram for two reasons. Fist, earthquakes in the Lake Van Norden Dam area are most likely to occur on faults having an appreciable component of dip-slip movement (or a major component, as in the San Fernando earthquake), as opposed to a predominantly strike-slip movement such as would be expected from the Newport-Inglewood fault, recorded by the Vernon record. Secondly, the acceleration of the Hughes record is already 0.28g, therefore requiring less manipulation than a 0.15g record to bring it to the recommended 0.30g.

The use of intensities, even as a supporting check on results obtained by other means, is very tenuous. I am sure that Dr. Bolt would agree on this point. I know of at least six published attempts at correlating intensity to magnitude to acceleration, each varying appreciably from the others and each with its own devotees in the profession. These include (1) Neumann, (2) Gutenberg-Richter, (3) Hershberger, (4) Medveder, Sponheuer and Karnik, (5) Coulter, Waldron and Devine, and (6) Krinitzsky and Chang. The latter,

published by the Waterways Experiment Station of the U. S. Corps of Engineers in September 1975, has summarized the preceding studies (and its own) in the statement "Scatter of data is so large as to make such relationships (relation of earthquake intensity (M.M.) to peak accelerations) unsafe for most objectives of seismic design".

WWPeak:rk
10/18/76

Memorandum of Inspection

New Lake Van Norden Dam and Reservoir, No. 97-129

October 5 and 6, 1976

By R. F. Delparte

The following personnel participated in the inspection for the Division:

October 5, 1976	October 6, 1976
Messrs. E. W. Stroppini	Messrs. M. J. McQuilkin
V. B. Tipton	R. F. Moore
D. H. Babbitt	R. F. Delparte
M. J. McQuilkin	
R. F. Moore	
R. F. Delparte	

Pacific Gas and Electric Company was represented by:

Messrs. Joe Webber	Messrs. George Yoshikado
George Fee	Terry Turner
Steve Onken	Takor Dexai
Wes Smith	John Beede

The reservoir has been empty now for two or three weeks, and this opportunity was taken to do some additional exploration along the upstream toe of the existing dam. A backhoe was used to excavate three trenches and a dozer was used to excavate a shallow trench on the right abutment.

The purpose of this additional exploration was to determine the suitability of the foundation for the new dam, as shown on the drawings received September 13, 1976.

The first test pit was excavated to a depth of 8 feet in the left abutment, approximately 235 feet right of the right end of the spillway. The long dimension of the trench was dug parallel to the axis of the dam. Organic silts were exposed in the upper 1.5 feet at the south end of the trench and to a depth of 4 feet at the north end of the trench. In-place density tests were taken in this material using a nuclear gage and the sand cone apparatus. From 5 to 7 feet the silt materials are more compact and somewhat cemented. At this depth the foundation on the left abutment is judged adequate for the proposed dam.

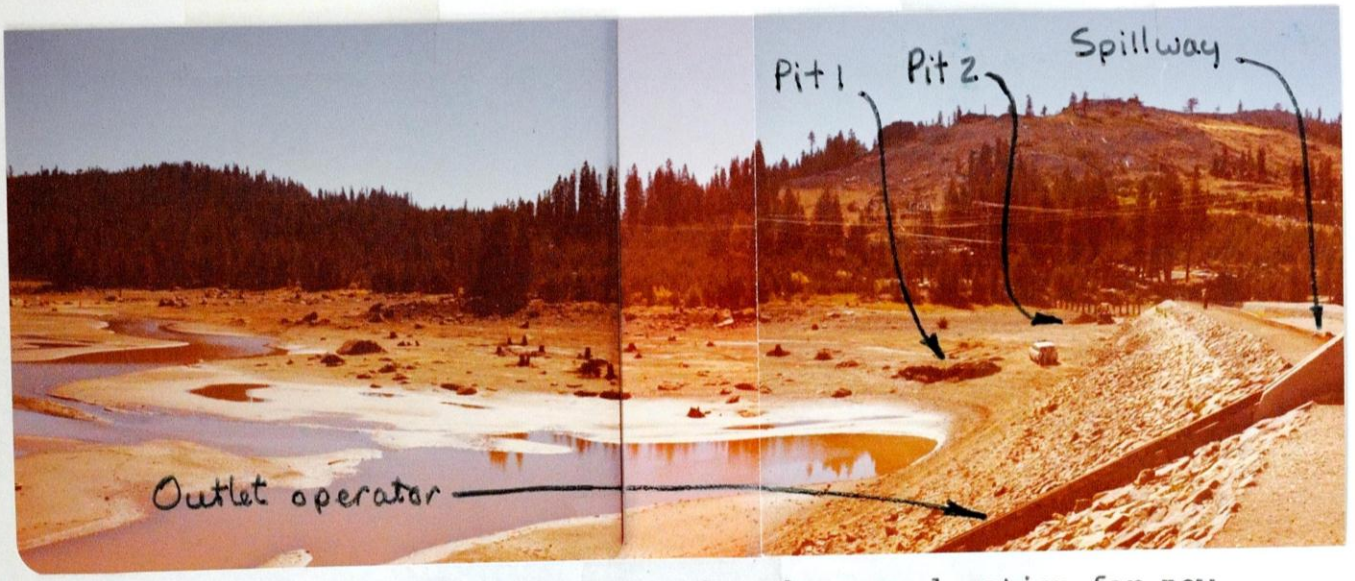
The second test pit was excavated 30 feet right of the right spillway wall. The pit was dug to a depth of 8 feet. At this depth a large boulder was encountered that may represent morainal material. From ground surface to a depth of 3 feet the material is weak, organic silt. From 3 to 5 feet the silt materials are tan in color and are relatively loose. The pointed end of a geologist's pick can be driven full depth with ease. From 5 feet to the bottom of the trench the silt materials are compacted and partially cemented. At a depth of 6 to 8 feet the foundation is adequate to support the new retaining wall at the left end of the dam.

The third test pit was excavated with a dozer on the right abutment, approximately 500 feet left of the right end of the dam. At a depth of 2 feet a gravely, sandy-silt morainal was exposed. This morainal material is a suitable foundation for the new dam.

On October 6, 1976, the fourth test pit was excavated at the upstream toe of the existing fill near the maximum section of the dam. The trench was located 100 feet right of the outlet conduit, and was dug to a depth of 6 feet. The upper 1.5 feet was a saturated organic silt. From 1.5 to 2 feet there was a lense of silty gravel. Below this depth the material, as excavated, was a mixture of alluvial sands, silts, and gravels. The excavation filled quickly with water, indicating the perviousness of the alluvial materials. Two pumps were used to attempt to unwater the excavation. However, the pumps' suction ends plugged repeatedly and the hole could not be unwatered. No materials were uncovered in this 6-foot-deep trench that would provide a satisfactory foundation for the dam.

We examined three dozer trenches at the upper end of the reservoir in the planned borrow area for the new dam. The materials range from silty sands to clayey silts. The more clayey materials are at higher elevations in the meadow. There are ample quantities of suitable materials for the new dam in the reservoir area and meadow above the reservoir.

RFDelparte:rd
10-29-76

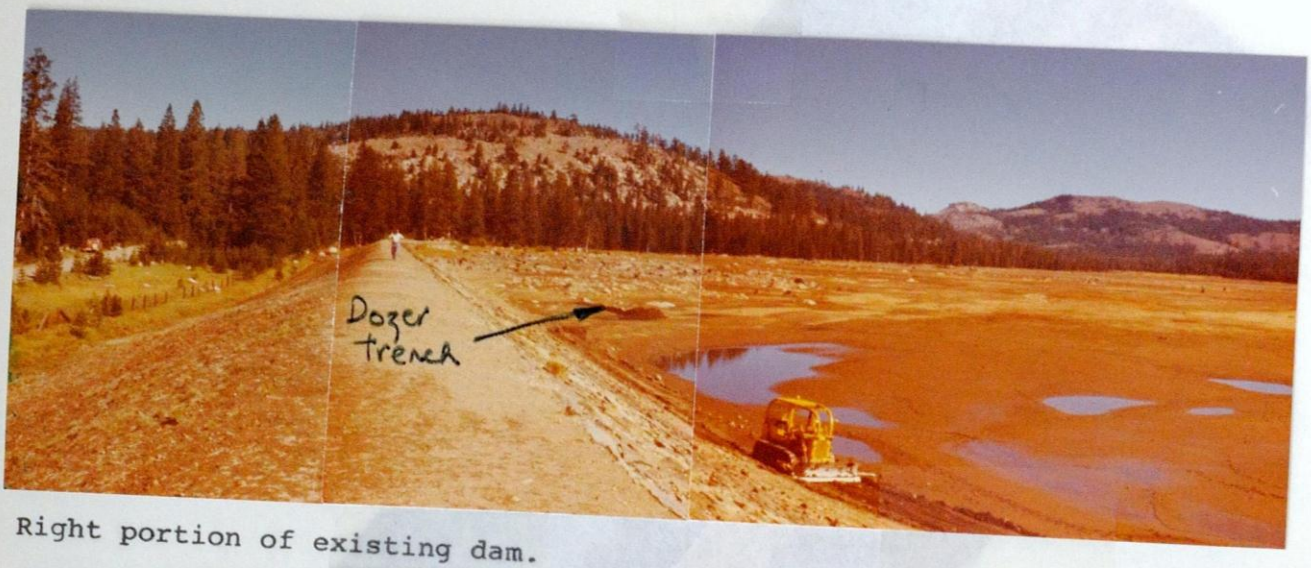


Left upstream toe area of existing dam where exploration for new dam was under way.

Left abutment and left channel area downstream of existing dam. Note grasses and shrubs supported by seepage.

NEW LAKE VAN NORDEN DAM, NO. 97-129
MMcQuilkin October 5 & 6, 1976

NOV 24 '76 MJM



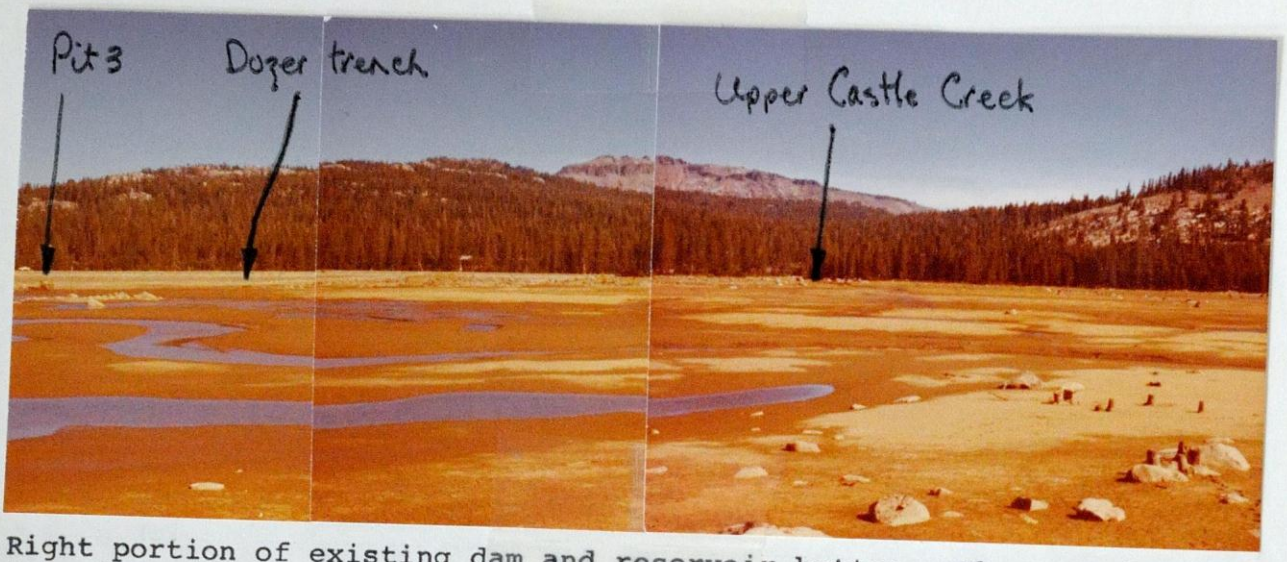
Right portion of existing dam.

Exploration Pit 3. Hoses lead to pumps attempting to unwater the pit.

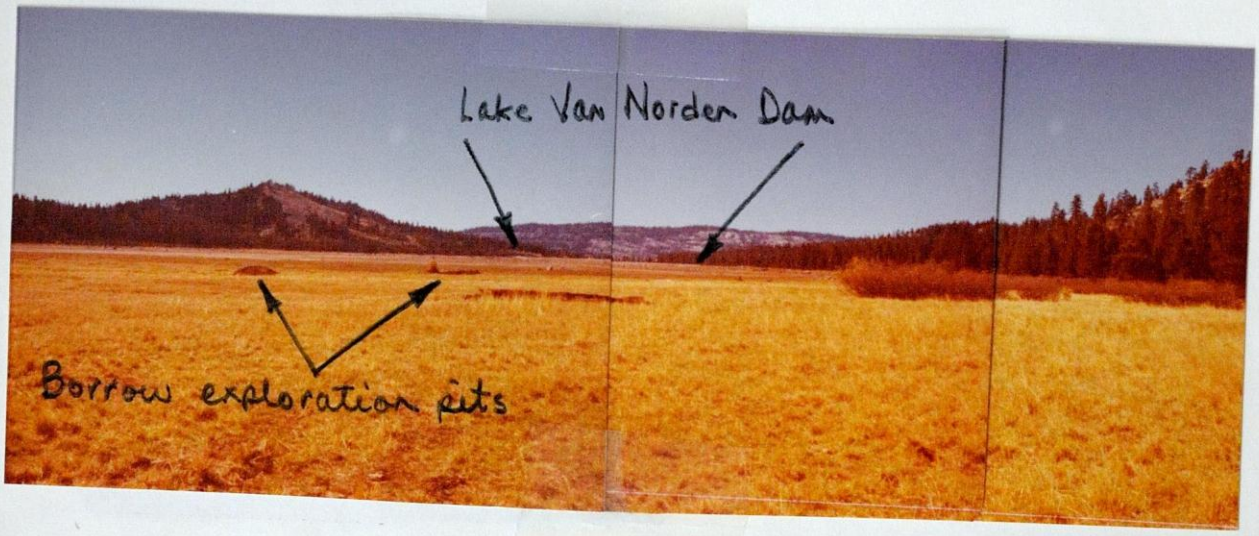
Left portion of existing dam and reservoir bottom. (This photo can be joined to next photo.)

NEW LAKE VAN NORDEN DAM, NO. 97-129
MJMcQuilkin October 5 & 6, 1976

NOV 24 '76 MJM



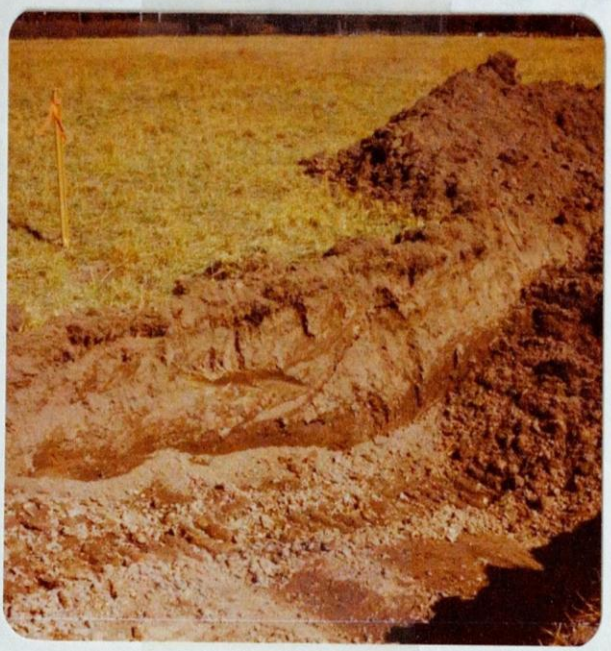
Right portion of existing dam and reservoir bottom. Shows exploration locations. (This photo can be joined to previous photo.)



Proposed borrow area.

NEW LAKE VAN NORDEN DAM, NO. 97-129
MJMcQuilkin October 5 & 6, 1976

NOV 24 '78 MJM



Closeup of borrow exploration pit.

NEW LAKE VAN NORDEN DAM, NO. 97-129
MJMcQuilkin October 5 & 6, 1976

(916)445-1816

OCT 1 1976

Mr. F. F. Mautz
Vice President-Engineering
Pacific Gas and Electric Company
77 Beale Street
San Francisco, CA 94106

Attention: Mr. R. V. Bettinger
Chief Civil Engineer

Dear Mr. Mautz:

New Lake Van Norden Dam and Reservoir
No. 97-129

Thank you for your letters of September 10 and 24, 1976, transmitting revised drawings and the seismicity and seismic intensity reports for New Lake Van Norden Dam. We are reviewing the drawings and report and will communicate with your staff within one month.

Mr. Jedlicka of your staff and members of this office plan on meeting at the subject dam October 5, 1976, to observe soils exploration in the left abutment and the upstream toe. Results of the soils exploration are of the greatest importance to our review of the design.

Sincerely,

Original Signed by
G. W. Dukleth

Gordon W. Dukleth
Division Engineer
Division of Safety of Dams

RFMoore:rd

SURNAME Form DWR 540	Ralph Moore 9/30/76	Balliett 9/30	Norgaard 9/30/76	Dukleth 10/1

Lake Van Norden Dam
No. 97-33
New Lake Van Norden
Dam, No. 97-129

E. W. Stroppini

Environmental Documentation

Old Dam

In the summer of 1971, leakage was noted flowing from a rodent hole on the downstream face of Lake Van Norden Dam, No. 97-33. Investigation of this condition revealed the redwood core wall was noticeably deteriorated and the embankment fill materials were poorly compacted. Leakage into the outlet pipe had been previously noted.

The owner (The Pacific Gas and Electric Company) was asked by letter of August 26, 1971, to investigate the stability of the embankment and the condition of the outlet.

Sampling and soil testing were performed by the owners. Low blow counts, low densities and high moisture contents were indicated. Our letters of May 26 and 29, 1974 amended the Certificate of Approval reducing the allowable storage 3.4 feet to the permanent spillway crest and indicated that "increased safety of the dam is necessary for continued storage" even at the reduced level. A proposed schedule to strengthen the dam in 1975 was accepted.

Using soil strengths derived from testing by the DWR laboratory a pseustatic stability analysis indicated very low safety factors. (Memorandum of Design Review November 25, 1974, W. M. Verigin)

New Dam

The owner filed application for construction of a new dam at the site, storing water 1.0 foot higher than the old dam, on February 11, 1976. Preliminary plans were received which were inadequate for evaluating the design. "Final" revised drawings were received on September 13, 1976 and are under review at this time.

The first required step of the construction of the new dam is the breaching of the old dam to prevent saturation of the old dam materials and new borrow areas to be used in the new dam. Breaching will also extend the construction season as the existing outlet is inadequate to evaluate flood flows.

Environmental Documentation

An Initial Study and Negative Declaration have been prepared and are (submitted to the State Clearinghouse.*) Because of certain factors i.e. The possibility of a rare species of chickweed (Silene invisa) in the area, and the discovery of extensive indian sites, the Initial Study could not be completed until after the flowering period of Silene (July) and the services of an archeologist could be secured and his report prepared. The archeologist's report was received on September 15, 1976. The draft of the Initial Study was completed immediately thereafter and submitted to Mr. Meixner.

* ? not done

Conclusions

1. Storage in the existing dam does not meet our usual safety requirements.
2. Performance of the dam has shown alarming trends in recent years, with concentrated leakage into the riveted steel outlet and leakage through the embankment.
3. The owner has had ample notice of this and is two years behind his proposed schedule for improvement.

Recommendations

In accordance with the attached letter it is recommended the owner be directed to proceed with the first stage of the proposed reconstruction, the breaching of the existing dam, while it may still be safety done this year.

In accordance with Mr. Meixner's recommendation a Notice of Exemption has not been prepared for the breaching of the old dam as being a duplication of the Initial Study.

To : Mr. J. E. Ley

Babbitt
Moore
File

Date : September 23, 1976

File No.:

Subject : New Lake Van Norden Dam, No. 97-129

R. F. Moore

From : Department of Water Resources

Please review the attached plans for the subject dam and forward your comments to me by October 15, 1976.

RFMoore:ms

We understand that dam will be altered to non-jurisdictional size or re-designed to show removal of weak fnd mtls. Our review is deferred until PG&E decides what they intend to do with the dam.

RZD 10/15/76

SURNAME				
DWR 155 (REV. 4-62)				

Memorandum of Geologic Review

Lake Van Norden Dam, No. 97-33

September 14, 1976

By W. W. Peak

Reference is made to my earlier memorandum, same subject, dated November 14, 1974. The portions of that memorandum dealing with faults and seismicity, including the maximum credible earthquake, remain unchanged by new data received recently from the dam owner. This new data consists primarily of results of drilling and testing of sampled materials and results of a two-line seismic survey run along the toe of the existing dam.

Results of the drilling and seismic programs do show that granite bedrock exists at a relatively shallow depth in the area, much more shallow than previous geologic studies had indicated likely (see my earlier memo). This depth to relatively fresh rock varies from about 5 feet to a maximum of about 30 feet in the outlet area.

The top 4 to 5 feet of the material overlying bedrock is probably recently developed slope wash and reworked morainal material. It apparently has very low densities and would seem to be a very weak material to leave in place beneath the dam. Beneath this newer material are silty sands and gravels of morainal origin, which probably are in their original condition as laid down by the glaciers, except for some minor compaction resulting subsequently from shallow burial and saturation. Almost no density data is available for these materials, but because of mode of deposition, I would expect densities to be relatively low. The silty sand, therefore, should be looked at for liquefaction potential.

For some reason, all exploratory holes in the 1975 drilling program were drilled in a 200-foot line along the toe of the existing dam on the right side of the outlet. There has been no work done to the left of the outlet, except for Seismic Line 2. It is probable, but not assured, that materials overlying bedrock in this left "abutment" area are similar in nature, percentages, etc. to those seen in the drill holes to the east (right). But the lack of drilling left of the outlet is, along with the lack of densities throughout, particularly the silty sands, one of the two main deficiencies of the 1975 drilling and testing program.

WWPeak:ms

SEP 16 '76 WWP

PACIFIC GAS AND ELECTRIC COMPANY

PG&E 77 BEALE STREET • SAN FRANCISCO, CALIFORNIA 94106 • (415) 781-4211 • TWX 910-372-6587

September 14, 1976

Mr. Gordon W. Dukleth
Division Engineer
Division of Safety of Dams
Dept. of Water Resources
P.O. Box 388
Sacramento, CA 95802

Subject: Lake Van Norden Dam
State No. 97-33 129
Archeological Survey

Dear Mr. Dukleth:

Transmitted are two copies of "Archeological Reconnaissance Report of Van Norden Reservoir Shore and Borrow Area". Two copies of PG&E's proposal for "Protection of Archeological Sites at Lake Van Norden" are also included.

The report was prepared by Mr. Louis A. Payen, a highly regarded Consulting Archeologist recommended by the Forest Service. The protective measures (riprap) for the significant sites were discussed with Mr. Payen in the field and have his approval.

This should satisfy the Forest Service of their archeological concerns. Please expedite the filing of the negative declaration since we would like to breach the old dam next month.

Sincerely,

R. V. BETTINGER
Chief Civil Engineer

J A Jedlicka for AGS

by A. G. Strassburger
Supervising Civil Engineer

Enclosures

filed 251.1
Items 2 + 3

To : ~~W. W. Peak~~
SEP 7 '76 WWP

Date : September 1, 1976

File No.:

Subject: New Lake Van Norden Dam and Reservoir, No. 97-~~33~~ 129

From : **Department of Water Resources**
R. F. Moore

The stability of New Lake Van Norden Dam, a proposed dam to replace Lake Van Norden Dam, is currently being investigated by the Division. To assist us in our stability analysis we need to know the seismic potential for the site.

We are attaching the following information transmitted by Pacific Gas and Electric's (PG&E) letter of August 12, 1976:

1. Department of Engineering Research Report No. 7904.240-75 together with a "Geophysical Location Map".

2. A Department of Engineering Research Report entitled "Van Norden Dam Foundation Materials Investigation" together with a "Boring Log" identified as Figure 1.

3. A report of "Large Scale Triaxial Testing" by Geo-Testing, Inc.

We plan to ask PG&E to breach the existing dam this fall. Naturally, PG&E is reluctant to breach the existing dam until the plans and specifications for New Lake Van Norden Dam have been approved by the Division. Therefore, we request that you prepare a Geologic and Seismologic Report for the site at your earliest convenience so that we may complete our stability analysis.

Attachments

RFMoore:rd

SURNAME				
155 (REV. 4-62)	Ralph Moore 9/2/76			

PACIFIC GAS AND ELECTRIC COMPANY

PG&E 77 BEALE STREET • SAN FRANCISCO, CALIFORNIA 94106 • (415) 781-4211 • TWX 910-372-6587

August 12, 1976

Mr. Gordon W. Dukleth
Division Engineer
Division of Safety of Dams
Dept. of Water Resources
P.O. Box 388
Sacramento, CA 95802

Subject: Foundation Information for
New Lake Van Norden Dam No. 97-33-129

Dear Mr. Dukleth

Transmitted for your use in evaluating the rebuilding project are two copies each of:

1. Dept. of Engr. Research Report No. 7904.240-75 together with a "Geophysical Location Map".
2. A DER report entitled "Van Norden Dam Foundation Materials Investigation" together with a "Boring Log" identified as Figure 1.
3. A report of "Large Scale Triaxial Testing" by Geo-Testing Inc.

We are revising the construction plans as discussed with your engineers and should have them ready in about two weeks.

The Report by Geo-Testing includes information on Lake Valley Dam as well as Van Norden. The samples tested in the large scale triaxial cells were tested at rather low densities since the samples were obtained relatively close to the surface. We feel that the strengths should be proportional to density and are planning to measure field densities at greater depths.

When Lake Van Norden is drawn down in the fall, trenches will be dug and densities measured. Tentatively we intend to make at least one additional boring at Lake Valley and use a down-hole nuclear probe to obtain a density profile.

Sincerely,

R. V. Bettinger/ajs

R. V. BETTINGER
Chief Civil Engineer

Enclosures

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
650 CAPITOL MALL
SACRAMENTO, CALIFORNIA 95814

97-129

REPLY TO SPKCO-O
ATTENTION OF

13 May 1976

File

PUBLIC NOTICE NO. 5957

TO WHOM IT MAY CONCERN:

Application has been made to this office by the Pacific Gas and Electric Company, 77 Beale Street, San Francisco, California 94106, for a Department of the Army Permit to reconstruct the Lake Van Norden Dam on the South Fork of the Yuba River in Sections 23 and 25, T, 17N, R, 14E, M.D.B & M, Nevada County, California as shown on the attached drawings.

A Department of the Army Permit is required for the discharge of dredged or fill material in waters of the United States in compliance with Section 404 of the Federal Water Pollution Control Act Amendments of 1972.

The existing dam was constructed in 1900 of loosely compacted earthfill with a timber corewall. In recent years, seepage through the dam has been prevalent which necessitates replacement of the structure. Reconstruction of the dam will be in accordance with current design standards and approved by the State Division of Dam Safety.

The proposed dam will be reconstructed at approximately the same location as the existing dam. The maximum water surface elevation will be raised one foot, thereby increasing the maximum reservoir area by 8 acres. Soil from the old dam that meets construction specifications, will be used for a portion of the new embankment. Additional soil will be obtained from PG&E property within or immediately adjacent to the reservoir.

Application has been made to the State Division of Dam Safety, Calfiornia Department of Fish and Game and the State Water Quality Control Board, Central Valley Region.

Any person who has an interest which may be adversely affected by the issuance of this permit may request a public hearing. The request must be submitted in writing to the District Engineer within thirty days of the date of this notice and must clearly set forth the interest which may be adversely affected and the manner in which the interest may be adversely affected by the activity. Other interested parties who are not necessarily adversely affected are invited to submit in writing, on or before **14 June 1976**, any comments they may have on the proposed work.

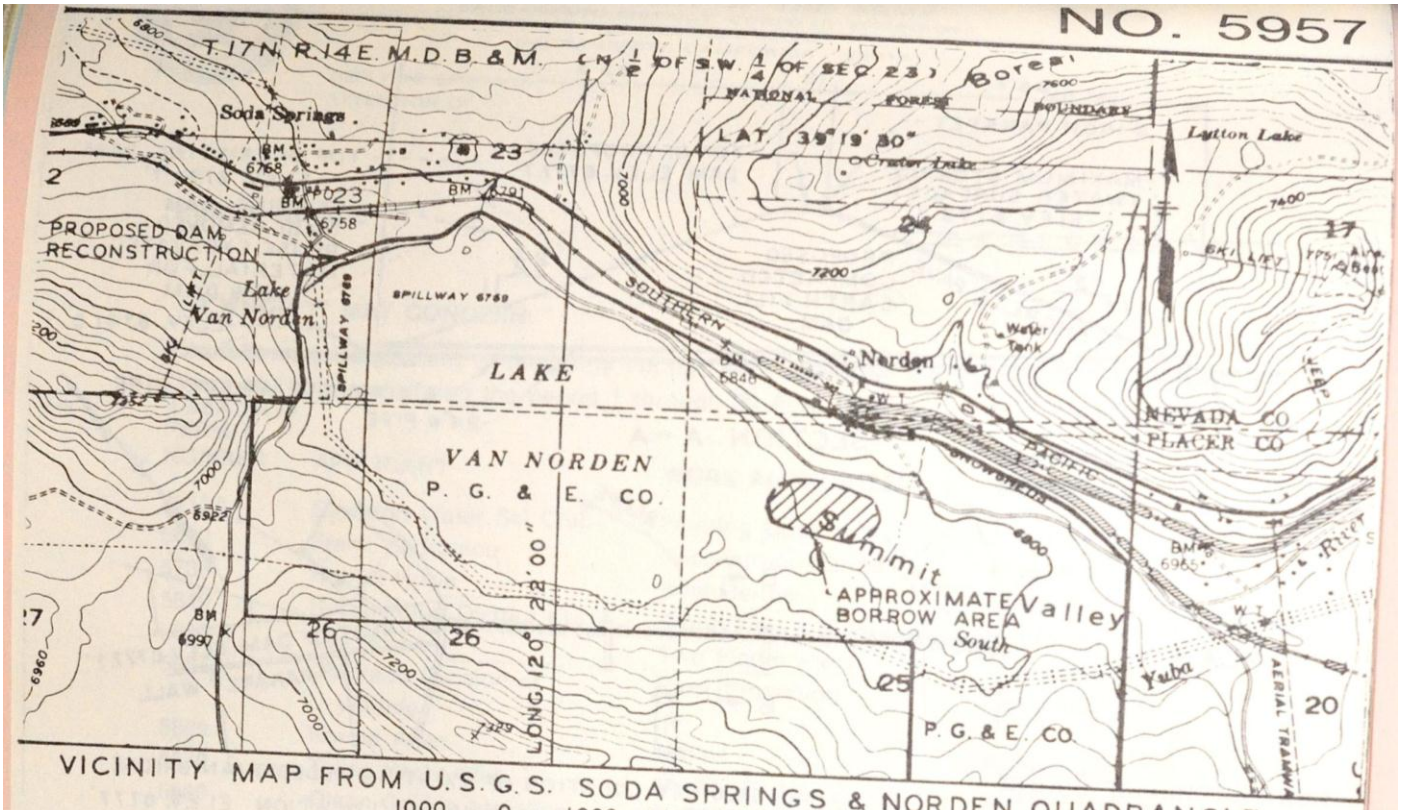
A permit issued by the Department of the Army does not give any property rights either in real estate or material or any exclusive privileges and does not authorize any injury of private property or invasion of private rights, or any infringement of Federal, State or local laws or regulations, nor does it obviate the necessity of obtaining State assent to the work authorized.

The decision whether to issue a permit will be based on an evaluation of the probable impact of this activity on the public interest. Evaluation will include application of guidelines set forth by the Administrator, EPA, under authority of **Section 404 (b)** of the Federal Water Pollution Control Act. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality and in general, the needs and welfare of the people. No permit will be granted unless its issuance is found to be in the public interest. Based on information received it is not anticipated that the proposed activity will require the preparation of an Environmental Impact Statement.

1 Incl
Two Drawings

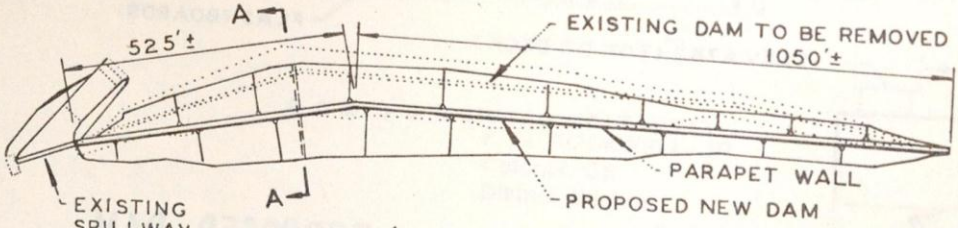
F. G. ROCKWELL, JR.
Colonel, CE
District Engineer

NO. 5957



VICINITY MAP FROM U.S.G.S. SODA SPRINGS & NORDEN QUADRANGLE

1000 0 1000 2000 3000 4000 5000 FEET



EXISTING SPILLWAY PEDESTRIAN BRIDGE TO BE RAISED
SEE SHEET 2

FLOW

APPLICATION BY
PACIFIC GAS AND ELECTRIC CO.

SCALE: 1" = 300'

100 0 100 200 300 400 500 FT.

PROPOSED DAM RECONSTRUCTION ON LAKE VAN NORDEN

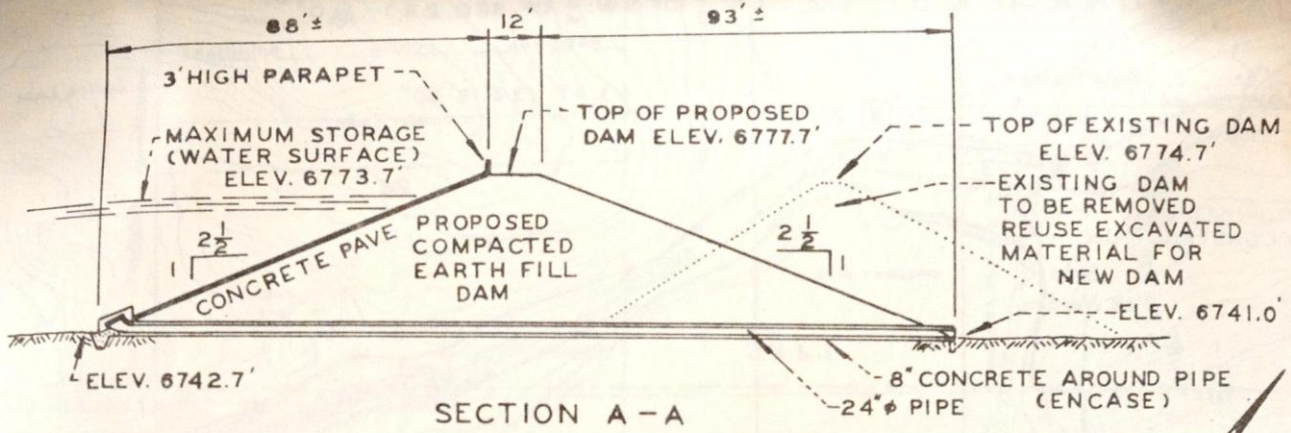
1/4 MILE S. OF SODA SPRINGS

NEVADA COUNTY

CALIFORNIA

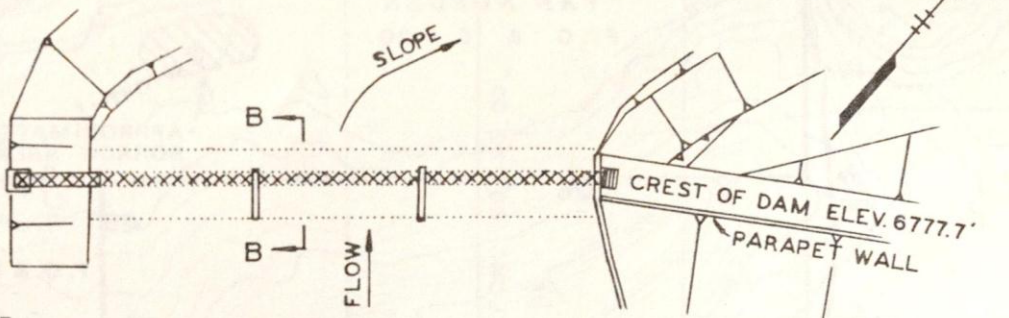
SHEET 1 OF 2 SHEETS

APRIL 9, 1976

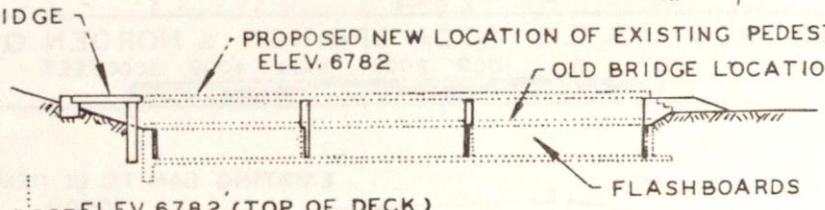


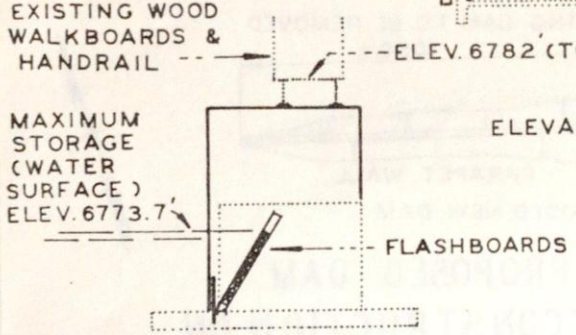
SECTION A–A

SPILLWAY PLAN



SPILLWAY PROFILE

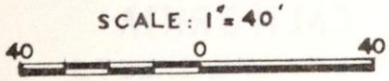




ELEVATION DATUM: U. S. C. & G. S.

SECTION B–B
SCALE: 1"=10'

APPLICATION BY
PACIFIC GAS AND ELECTRIC CO.
SCALE: 1"= 40'



PROPOSED DAM RECONSTRUCTION ON LAKE VAN NORDEN

¼ MILE S. OF SODA SPRINGS
NEVADA COUNTY
CALIFORNIA

SHEET 2 OF 2 SHEETS
APRIL 9, 1976

Memorandum

To : File

Date : May 6, 1976

File No.:

Subject : New Lake Van Norden Dam and Reservoir No. 97-129

From : R. F. Moore
Department of Water Resources

Telephone Call

Mr. George Yoshikado of Pacific Gas and Electric Company returned my telephone call of yesterday. I had telephoned Mr. Yoshikado to clarify certain soils data transmitted by PG& E's letter of April 1, 1976. The transmittal contained a sketch showing data for five undisturbed samples but did not indicate when or where the samples were gathered. Mr. Yoshikado stated that the sketch did not pertain to the new dam construction and should be disregarded.

Mr. Yoshikado stated that PG& E designers plan on widening the spillway channel. Also that they are studying the feasibility of not placing the coping wall at the right end of the dam embankment so that this section could be used for passing about 2,000 cfs of the PMP.

I told Mr. Yoshikado that the Division's study indicated that a minimum 3-foot Ø outlet conduit would be required for emptying half the reservoir volume in seven days. (This requirement is dictated by Engineering Memorandum No. 52.) Mr. Yoshikado stated that he does not mind providing what is required by the Division, but complained that he has to guess at what the Division's criteria are. He was told that the Division was finalizing some basic criteria and it may be possible to send him a preliminary copy and that Mr. Verigin will communicate with him regarding the criteria.

RFMoore:fs

SURNAME				
DWR 155 (REV. 4-62)	Ralph Moore 5/10/76	Verigin 5/10		

Memorandum of Design Review

New Lake Van Norden Dam and Reservoir, No. 97-129

Capacity of Outlet Conduit

April 23, 1976

By R. F. Moore

APR 27 '76 RFM

Reference: Pacific Gas and Electric Company Drawing No. 459926, received February 11, 1976.

A study was conducted to determine the time required to evacuate one-half the reservoir volume that is contained between the spillway crest elevation and the lowest point in the reservoir. Engineering Memorandum No. 52 states that the outlet conduit should have capacity for evacuating one-half the reservoir volume in seven days when the total volume is 5,000 acre-feet or less. New Lake Van Norden has a total volume of about 4,130 acre-feet.

Calculations indicate that it would take about 19 days to evacuate one-half the reservoir capacity through the 2-foot-diameter conduit shown on the plans. My calculations indicate that one-half the reservoir volume could be evacuated through a 3-foot-diameter conduit in slightly more than seven days. Plate No. 1 in Engineering Memorandum No. 52 confirms this discharge time.

Conclusion

A minimum 3-foot-diameter outlet conduit will be required to satisfy the requirement of Engineering Memorandum No. 52.

RFMoore:rd
4-27-76

COUNTY OF PLACER

OFFICE OF THE PLANNING COMMISSION

COUNTY ADMINISTRATIVE CENTER AUBURN, CALIFORNIA 95603
Rm. 501 TELEPHONE (916) 823-4721

THOMAS D. MC MAHAN, PLANNING DIRECTOR

April 20, 1976

Gordon W. Dukleth, Division Engineer
Division of Safety of Dams
State Department of Water Resources
P. O. Box 388
Sacramento CA 95802

SUBJECT: New Lake Van Norden Dam and Reservoir (No. 97-129)

Mr. Dukleth:

Based on the information supplied in the "Environmental Data Report", it appears a negative declaration for the proposed project would be difficult to justify.

The following areas would tend to indicate that an E.I.R. is necessary prior to project implementation:

1. Breaching the dam will effectively destroy riparian vegetation around the perimeter of a 382-acre body of water and disrupt all aquatic life within the reservoir (significant adverse impact).
2. The presence of rare and/or endangered plant species within the project area should be evaluated and mitigation measures identified prior to any construction activities taking place.
3. If chemical treatment of the entire watershed above Lake Van Norden is contemplated to eliminate non-game fish species, the impacts need to be evaluated on plant and animal life below the dam.
4. Reduction in flow from the lack of reservoir water could promote significant adverse environmental impacts to plants and animals from the dam to Lower Castle Creek (1.5 miles) and possibly beyond depending on the flow from Lower Castle Creek.
5. Siltation and sedimentation can be expected below the reservoir when the dam is breached.
6. A quantative analysis of material to be used for building the dam should be provided along with an environmental evaluation (impacts and mitigation measures) of the borrow site.

The "Environmental Data Report" highlights some of the areas where significant adverse environmental impacts will occur and merely substantiates the fact that a Negative Declaration is not feasible.

In conclusion, it appears that much of the reconnaisance work necessary for the preparation of an adequate E.I.R. has been done and completion of the final draft report should not be a difficult task.

If this office can be of further assistance, please feel free to contact us.

Sincerely,
THOMAS D. MC MAHAN
PLANNING DIRECTOR

Thomas D. Kubik

By Thomas D. Kubik
Associate Planner

TDK:mw

(916) 445-1520

APR 13 1976

Tahoe National Forest
Nevada City, CA 95959

Attention: Forest Supervisor

Gentlemen:

New Lake Van Norden Dam and Reservoir, No. 97-129

Attached is a copy of an environmental data report prepared by the project proponent, the Pacific Gas and Electric Company. Lacking indications to the contrary, I am assuming the Division of Safety of Dams is the lead agency under the California Environmental Quality Act of 1970.

The project is the construction of a new dam at the present site of Lake Van Norden Dam with a 1-foot increase in maximum storage level. To accomplish this, the existing dam will be breached in the fall of 1976, and no storage made during the 1977 runoff season.

Do you see anything in this report or in your knowledge of the project, that would conflict with our preliminary assessment of the project having no significant adverse effect on the environment?

We will appreciate comments to us by April 30, 1976.

Sincerely,

Original Signed by
G. W. Dukleth

Gordon W. Dukleth
Division Engineer
Division of Safety of Dams

Attachment

JFChaimson:cd

RNAME DWR 540	Chaimson 4-13	Vergin 4/13	[illegible] 4/13/76	Dukleth 4/13

Memorandum of Design Review

New Lake Van Norden Dam and Reservoir, No. 97-129

Hydrology and Routing Study

April 7, 1976

By R. F. Moore

APR 15 '76 RFM

Reference

Pacific Gas and Electric Company Drawings, Nos. 459923, 459925, 459926, and 459927, received February 11, 1976.

A study has been completed of the hydrology and routing for New Lake Van Norden Dam. The spillway geometry is that shown on Drawing No. 459923. The analysis and spillway rating indicates that the precipitation for a three-day-duration storm corresponding to a return period of 4,250 years can be passed with a residual freeboard of 0.3 foot (this value of freeboard does not consider the parapet wall).

A hydrology study utilizing techniques and data from "Rare Flood Estimates for Small Ungaged Watersheds in California" was made. The location and size of the dam makes it a Class II dam. Rainfall data used in the analysis includes the following stations: Soda Springs, Bowman Dam, Lake Spaulding, and Blue Canyon.

The watershed was broken down into four separate components, designated by A through D, having areas of 4.59, 2.90, 1.58, and 1.26 square miles respectively. Runoff from the individual components were combined into a single inflow and routed through the reservoir.

The following parameters were derived or calculated:

Total Drainage Area (sq.mi.)	10.3
Annual Precipitation (in.)	62.5
Surcharge (acre-feet)	3,248

Rainfall was distributed in 15 minute intervals. The design storm and other parameters were input to the unitgraph and hydrograph program for machine computations. Calculated inflow hydrograph characteristics are as follows:

	Area A	Area B	Area C	Area D	Total Area
Size of Area (mi^2)	4.59	2.90	1.58	1.26	10.30
Peak Inflow (cfs)	2,982	2,040	1,062	1,018	6,979
Peak Inflow (csm)	650	703	672	808	678
Runoff (in.)	24.73	24.73	24.73	24.73	24.73
Runoff (acre-feet)	6,054	3,824	2,084	1,662	13,585
Runoff Coefficient	0.82	0.82	0.82	0.82	0.82
Time of Concentration (hr.)	1.39	1.11	1.26	0.73	----
R/TC	1.50	1.50	1.50	1.50	----

For a comparison, runoff in csm for the total drainage area was compared to the following three cases:

Case 1

General curves (plotted for Butte, Nevada, Placer, Tehama and Yuba Counties) showing (a) "Maximum Observed Flow Envelopes", and (b) "Design Curves". These curves can be found in the Division's "Flood and Spillway Statistics".

Case 2

Upper Castle Creek gaging station is adjacent to the dam site. Peak flow for a return period of 4,250 years was computed for it. To make use of the Castle Creek peak runoff data, which consists of only six years of record, it was plotted against the peak runoff for the same years for South Yuba River near Cisco, California (see Figure 1). The latter station has 31 years of record. Fortunately, a major event occurred at both stations on January 31, 1963. The 31 years of record runoff values for the Cisco station was plotted on probability paper to determine the runoff for a return period of 4,250 years (see Figure 2). A plot of peak flows at Cisco versus Upper Castle Creek was then extended from a six-year period to the point where the Cisco flow for a return period of 4,250 years was intersected, and the corresponding flow for Upper Castle Creek

was read from the graph (see Figure 3). When the 4-square-mile watershed at Upper Castle Creek was adjusted to 10.3 square miles, the resulting peak flow for a return period of 4,250 years equaled 950 csm.

Case 3

The peak runoff for a return period of 1,000 years was computed by the Corps of Engineers' method, as outlined in Technical Bulletin No. 7, and determined to be 1,760 csm.

Summary of Inflows in CSM

Computed Value	678
Case 1-A	610
Case 1-B	680
Case 2	950
Case 3	1,760*

*Note Case 3 was computed for a return period of 1,000 years, whereas the rest are for a return period of 4,250 years.

Attachments

RFMoore:rd
4-15-76

Project Designed Date

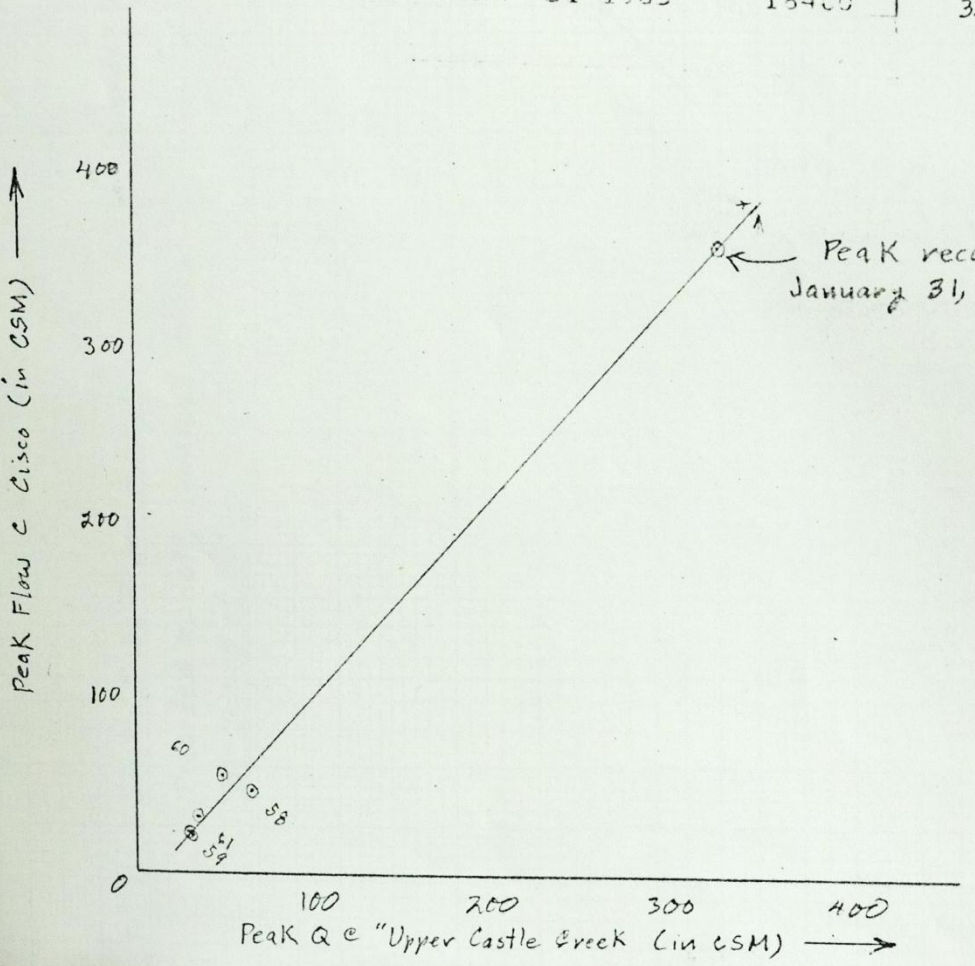
Item Checked Date

The following data was taken from Bill Verigins 15" by 11" blue binder of computer readouts

SOUTH YUBA RIVER NEAR CISCO, CALIF.

Area = 51.8 mi²

DATE MO.	DAY	YEAR	PEAK DISCHARGE	Discharge in (cfsm)
FEB	24	1958	2560	49
FEB	16	1959	1190	23
FEB	8	1960	2890	56
MAY	18	1961	1070	21
MAY	4	1962	1590	31
JAN	31	1963	18400	355



a_0

$y = -10.79226$

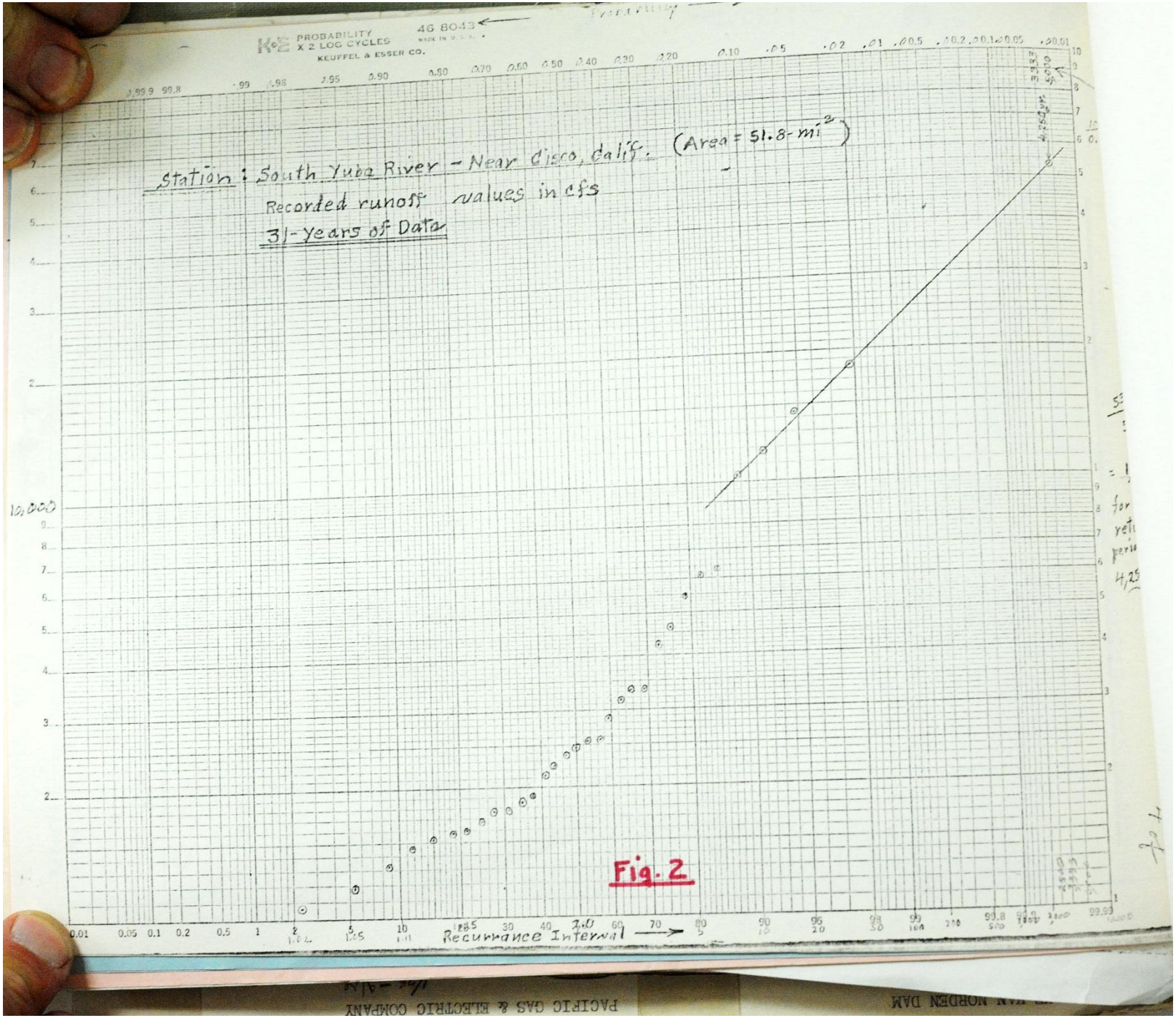
a_1

$+1.11272X$

$r^2 = 0.995$

Fig 1

Δ OSP


K&E PROBABILITY
X 2 LOG CYCLES
KEUFFEL & ESSER CO.
46 8043
Station : South Yuba River - Near Disco, Calif. (Area = 51.8 mi²)
Recorded runoff values in cfs
31-Years of Data
Recurrance Interval
Fig. 2

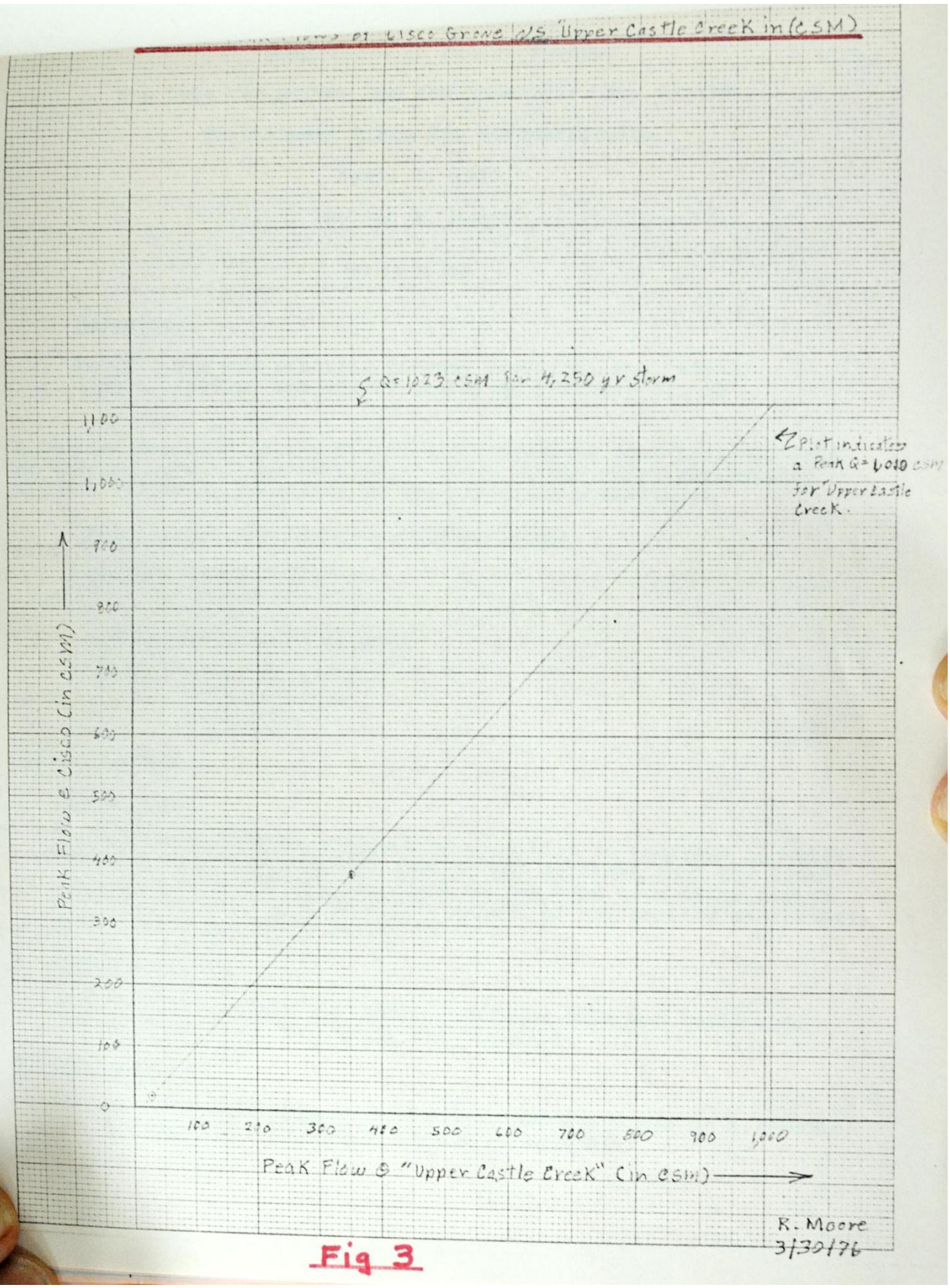
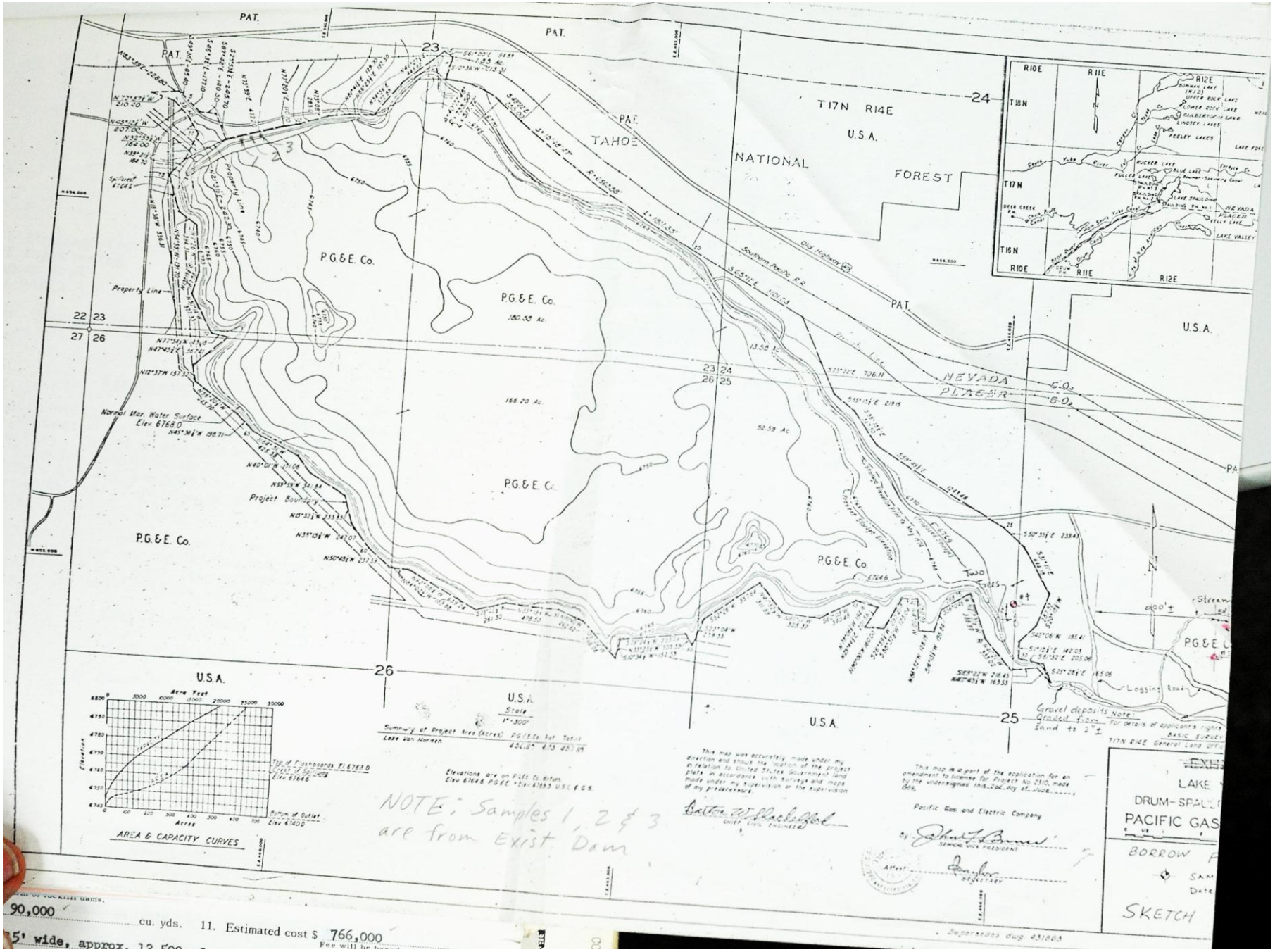


Fig 3


PAT.
T17N R14E
U.S.A.
NATIONAL FOREST
TAHOE
P.G.&E. Co.
Property Line
Normal Max. Water Surface Elev. 6768.0
Project Boundary
Old Highway 50
Southern Pacific R.R.
NEVADA
PLACER
U.S.A.
Gravel deposits Note: Grades from Sand to 2"±
AREA & CAPACITY CURVES
Acre Feet
Elevation
Acres
Top of Flashboards El. 6768.0
Crest of Spillway El. 6748.6
Bottom of Outlet Elev. 6740.0
Summary of Project Area (Acres)
Lake Van Norden
Elevations are on Pitt. Datum
Elev. 6768.6 P.G.&E. = Elev. 6769.5 USC&GS
This map was accurately made under my direction and shows the location of the project in relation to United States Government land plats in accordance with surveys and maps made under my supervision or the supervision of my predecessors.
This map is a part of the application for an amendment to license for Project No. 2310, made by the undersigned this ... day of June ...
Pacific Gas and Electric Company
By ... Senior Vice President
Attest ... Secretary
T17N R14E General Land Office
LAKE
DRUM-SPAUL
PACIFIC GAS
BORROW
SAM
SKETCH
NOTE; Samples 1, 2 & 3 are from Exist. Dam
90,000 cu. yds.
11. Estimated cost $ 766,000
Fee will be
Supersedes dwg 431865

Memorandum of Understanding

New Lake Van Norden Dam and Reservoir, No. 97-129

March 31, 1976

By R. F. Moore

MAR 31 '76 RFM

A meeting was held in Mr. Dukleth's office March 31, 1976, to discuss the proposed spillway at New Lake Van Norden Dam. The following people were in attendance:

G. W. Dukleth
E. W. Stroppini
W. M. Verigin
R. F. Moore

Discussion

Preliminary plans prepared by PG&E's design staff shows New Lake Van Norden Dam being constructed about 100 feet upstream of the existing dams. The plans show the old spillway structure being left in place with minor modification to it. The existing spillway channel has a direction change of about 108 degrees. Most of the spillway channel appears to be of rubble and gunite construction. A structural analysis of the existing spillway is not possible.

Following are the conclusions arrived at:

1. The Division would accept the existing spillway structure with certain changes in the design. A training wall structure along the right side of the spillway would be required to insure the integrity of the left end of the dam embankment from erosion.

2. A model study of the spillway channel will be required to check its capacity.

RFMoore:fs

Memorandum of Review

New Lake Van Norden Dam and Reservoir, No. 97-129

Preliminary Plans for Reconstruction

March 5, 1976

by R. F. Delparte MAR 10 '76 RFD

Reference: Pacific Gas and Electric Company Drawings, Nos. 459923, 459925, 459926, and 459927, received February 11, 1976.

Mr. R. F. Moore's memorandum of March 2, 1976, requested specific Field Branch comments on the suitability of the existing spillway and the suitability of the planned parapet wall.

First, it would be very desireable to construct a new spillway and have a completely new facility. Although we have not requested spillway repairs, the structure does have the following deficiences:

1. Erosion at the end of the lining.

2. Rock masonry walls and floor. Floor grouted in 1965.

3. Leakage behind the right wall.

In addition the spillway should be checked to see that it meets present-day standards for a major dam. If it does not, the spillway should be replaced as part of the embankment reconstruction. Also the hydraulic performance of the spillway channel needs to be evaluated. The skewed control section, rapid convergence, and the right angle turn may cause overtopping of the spillway walls during high flows.

The purpose of the parapet wall is unclear. The owner should understand that the water level cannot be raised above Elevation 6769, at some future time, because the dam was constructed with a 3-foot-high parapet wall. Also the parapet wall should not be considered as freeboard when routing flood flows through the spillway.

We note that the drawings are preliminary and that the submittal did not include a soils report or specifications. For this reason a detailed review of the drawings is inappropriate.

DEPARTMENT OF WATER RESOURCES
Division of Safety of Dams

STATUS OF APPLICATION AND CERTIFICATION OF DAM AND RESERVOIR

Dam Name New Lake Van Norden Owner P.G.& E. Company No. 97-129

1. Type Application construction Date Filed 2-11-76 Date Ackn. _____
   File Copies Made _____ So. Region _____ Rolodex Card 2-26-76
2. Est. Cost $766,000 Fee 11,660 Receipt #73405
   Fee Clearance to Acctg. 3-1-76 Drawings Received _____
3. Notices to Cooperating Agencies:
   Water Rights Notice 3-1-76 Returned 4-26-76
   Forest Service " 3-1-76 Returned 4-13-76
   Federal Power " 3-1-76 Acknowledged 3-10-76
   Fish & Game " 3-1-76 S.C.S Notice _____
   Water Quality " 3-1-76 O.E.S. Services 3-1-76
   Dwr 3.721 to WR + Co Nevada 3-1-76 - Retd 3-24-76
4. Structural Analysis Satisfactory _____
   Spillway Analysis Satisfactory _____
   USGS Location Map _____
5. Application and Drawings Prepared for Approval _____
6. Application Approved _____ Drawings Approved _____
   Letter Transmittal _____ Notice Public Util. Comm. _____
   Notice S.C.S. _____ Notice Federal Power Comm. _____
7. Notice of Completion Rec'd. _____ Acknowledged _____
   Field Eng. Branch Recomm. for Certificate of Approval _____
8. Certificate Prepared _____
   Forest Service Notice _____ Returned _____
   Federal Power Notice _____ Returned _____
9. Certificate of Approval Signed _____ Certificate No. _____
   Letter Transmittal _____ Emergency Procedure Letter Sent _____
10. Superseding Certificates _____ Certificate No. _____
    _____ _____
    _____ _____
11. As-constructed Drawings Rec'd. _____ Reviewed _____ Accepted _____
12. Spillway Analysis Sheet Revised _____
13. Cost Statement Rec'd. _____ Reviewed _____ Accepted _____
14. Final Cost _____ Further Fee _____ Receipt _____
    Fee Clearance to Acctg. _____
15. As-constructed Drawings Approved _____ Mailed _____

DWR 1953 (Rev. 7/72)

Inactive per memo dtd 1-14-77

NEW LAKE VAN NORDEN DAM

PACIFIC GAS & ELECTRIC COMPANY

Memorandum

To : State Water Resources Control Board
Division of Water Rights
2125 19th Street
Sacramento, CA 95818

Attention: Mr. R. L. Rosenberger

Date : MAR 3 1976

File No.:

Subject : Environmental Documentation
New Lake Van Norden
Dam, No. 97-129

From : Department of Water Resources

On February 11, 1976, Mr. F. F. Mautz of P.G.& E. Company, 77 Beale Street, San Francisco, CA 94106 filed with the State Department of Water Resources an application for approval of plans and specifications for the construction of an earth dam 24 feet in height with a storage capacity of 5600 acre-feet, at an estimated cost of $ 766,000 situated on South Yuba River tributary to Yuba River in SW¼ Sec. 23, T. 17N, R. 14E, M.D.B&M, Nevada County.

Prior to our approval of this application, the requirements of the California Environmental Quality Act of 1970 must be satisfied. To resolve your interest in this project, your early completion and return of one copy of this form would be greatly appreciated.

Gordon W. Dukleth
Division Engineer
Division of Safety of Dams

Has the applicant contacted your office for any permits or approvals? NO

Does your office require any permits or approvals? NO

If yes, is your office "Lead Agency" for Implementation of the California Environmental Quality Act of 1970? _____

If no, does your office have any interest in the environmental documentation? YES

Remarks: _____

By C. M. Harris Title Senior Engr. Date 4/22/76

DWR 3721

DEPARTMENT OF WATER RESOURCES
P.O. BOX 388
SACRAMENTO
95802

MAR 3 1976

County Clerk, Nevada County
Nevada County Courthouse
Nevada City, CA 95959

Subject: Environmental Documentation
No. 97-129
New Lake Van Norden Dam

Gentlemen:

On **February 11, 1976, Mr. F. F. Mautz of P.G.& E. Company, 77 Beale Street, San Francisco, CA 94106** filed with the State Department of Water Resources an application for approval of plans and specifications for the **construction** of **an earth** dam **24** feet in height with a storage capacity of **5600** acre-feet, at an estimated cost of **$766,000** situated on **South Yuba River** tributary to **Yuba River** in **SW ¼** Sec. **23**, T. **17N**, R. **14E**, **M.D**B&M, **Nevada** County.

3/24/76

Prior to our approval of this application, the requirements of the California Environmental Quality Act of 1970 must be satisfied. To resolve your interest in this project, your early completion and return of one copy of this form would be greatly appreciated.

Original Signed by
G. W. Dukleth

Gordon W. Dukleth
Division Engineer
Division of Safety of Dams

Has the applicant contacted your office for any permits or approvals? YES

Does your office require any permits or approvals? YES/MAY BE

If yes, is your office "Lead Agency" for Implementation of the California Environmental Quality Act of 1970? NO

If no, does your office have any interest in the environmental documentation? YES

Remarks: IF THE DAM IS A PUBLIC UTILITY STRUCTURE, AN USE PERMIT IS REQUIRED

By JAMES LOWE Title ASST PLANNING DIR. Date 3/23/76

DWR 3721

DEPARTMENT OF WATER RESOURCES
P.O. BOX 388
SACRAMENTO
95802

U. S. Forest Service
Region 5
630 Sansome Street
San Francisco, CA 94111

MAR 3 1976

WMH
J.T.C
RFM

Subject: Notice of Application Filed
No. 97-129
New Lake Van Norden Dam

Gentlemen:

On February 11, 1976, Mr. F. F. Mautz of P.G.& E. Company 77 Beale Street, San Francisco, CA 94106 filed with the State Department of Water Resources, an application for approval of plans and specifications for the construction of an earth dam 24 feet in height with a storage capacity of 5600 acre-feet, at an estimated cost of $ 766,000 situated on South Yuba River tributary to Yuba River in SW¼ Sec. 23, T. 17N, R. 14E, M.D.B&M Nevada County.

Please complete and return one copy of this form as soon as possible.

Sincerely yours,
Original Signed by
G. W. Dukleth

Gordon W. Dukleth
Division Engineer
Division of Safety of Dams

1. Do you have supervision over this dam? NO For whom? _____

2. The dam (~~will~~) (is not) located upon lands under the jurisdiction of the _____ National Forest.
(name of Forest if affirmative)

3. The reservoir (~~will~~) (is not) located upon lands under the jurisdiction of the _____ National Forest.
(name of Forest if affirmative)

4. Do you wish summary reports sent to you during construction? NO

5. Does the proposed work meet with your approval? YES

Remarks: _____

Agency acknowledging receipt: TAHOE NAT. FOREST By Stephen J. Thomas Date 3/26/76

DWR 1347 (Rev. 12/70)
927 (Rev. 2/69)

Memorandum

To : Mr. J. E. Ley

Date : March 2, 1976

File No.:

Subject : New Lake Van Norden Dam and Reservoir No. 97-129

251.01

R. F. Moore

From : **Department of Water Resources**

Request for Design Comments

We plan on communicating with PG&E Co. within one week regarding certain design features which may not be acceptable to the Division. This preliminary communication will aid PG&E in their design and preparation of the drawings.

We request your comments on the following two design features by March 8, 1976, so that we can formulate our comments to PG&E.

1. Leaving the existing spillway in place as shown on Drawing No. 459923, considering its poor condition and that it will be subjected to 3.5 feet of additional head.

2. Making use of a parapet wall in the construction of a new dam as shown on Drawing No. 459924 in place of constructing the dam to a higher elevation.

RFMoore:rk

Work Copy sent to E. V. Pol. 3/2/76
JEJ.

	Ralph F. Moore 3/2/76			

[For full information concerning the filling out and filing of this form send for Statutes and Regulations Pertaining to Supervision of Dams and Reservoirs.]

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS

Application No. 97-129 Filed February 11, 1976
Applicant must not fill in the above blanks

APPLICATION FOR APPROVAL OF THE PLANS AND SPECIFICATIONS FOR THE CONSTRUCTION OR ENLARGEMENT OF A DAM AND RESERVOIR

[This application involves in no way the right to appropriate water
To secure the right to appropriate water, application should be made to the State Water Resources Control Board on forms which will be furnished upon request.]

I, F. F. Mautz (Name of individual signing application) of 77 Beale St., San Francisco (Address)
County of San Francisco State of California, hereby make application for the approval of the plans and specifications for the New construction ~~enlargement~~ (Strike out one) of Lake Van Norden (Name of dam) dam.

The owner of the dam and reservoir is Pacific Gas & Electric Company (Name of owner)
of 77 Beale St. San Francisco (Address) County of San Francisco State of California

Is the owner a Public Utility? Yes (Yes or no)

If the owner is a corporation, give name and address of president and secretary—
J. F. Bonner - President, 77 Beale St., San Francisco, California 94106
J. F. Taylor - Secretary, 77 Beale St., San Francisco, California 94106

The applicant is acting for the owner in the legal capacity of Vice President Engineering (Agent, Lessee, Trustee, etc.)

Location of Dam

1. The dam is in Nevada County, in the SW ¼, Sec. 23, Tp. 17N, R. 14E, M.D. B. & M. and is located on South Yuba River (Creek, river or watershed) tributary to Yuba River (Creek or river)

Description of Dam and Reservoir

(If for an enlargement, the data given below are for the enlarged dam)

2. Type of dam earthfill (Concrete arch or gravity, earth, rockfill, etc.)
3. Length of crest 1580 (Not including Spillway) ft.
4. Height lowest outside limit of barrier to M.S.E.* ~~31~~ 24 ft.
5. Freeboard (MSE* to top) 7 ft. (Including 3' Parapet)
6. Thickness at dam crest ~~top~~ 12 ~~10~~ ft.
7. Spillway crest elevation 6764.6 ft.
8. Slope upstream** 2½:1
9. Slope downstream** 2½:1

**This information to be supplied for earth or rockfill dams.

10. Amount of material in dam 90,000 cu. yds.
11. Estimated cost $ 766,000 (Fee will be based on this figure)
12. Spillway data Concrete, 115' wide, approx. 12,500 cfs @ zero freeboard (Type, capacity, etc.)
13. Outlet data 24" Dia., ¼" thick, concrete encased, 90 cfs max. (Type, capacity, etc.)
14. Elevation of crest of dam 6773.0 (Approximate elevation to be given if true elevation not available) above PG&E Datum datum
15. Area of reservoir at M.S.E.* 390 acres.
16. Capacity of reservoir at M.S.E.* 5600 ac. ft.
17. Drainage, area ~~10.3~~ 12 sq. mi.

*Maximum Storage Elevation 6769.0 PG&E Datum ft.
To spillway crest, top of flashboards or top of spillway gates whichever is greatest

2. Earth
4. 24 + 7 = 31
MOL = 2'
6. 12
17. 12
Use: D.I.P. Purp-S
In Tahoe Nat Forest
DN 2-24-76
Fee OK
OK to process wmV 2/23

(68)

18. State what provisions will be made to divert flood flows during construction The reconstruction of the dam will be completed during the dry season (June through November).
If necessary to clarify this feature, drawings showing the temporary diversion works will be required

Precipitation, Flood or Inflow Data

19. **Rainfall.** If records of rainfall other than those published by the U.S. Weather Bureau are available, state the location and names of the stations and the maximum intensity of rainfall for 1, 12, 24 and 48 hours. (Use extra sheets or exhibits if necessary.)

U.S.W.B. Hydrometeorological Report No. 36 was used for PMF Studies.

20. State the estimated maximum rainfall on watershed 42.6 inches of rain in 72 hours.

21. **Flood or Inflow data.** If records of flood flow other than those published by the U. S. G. S. are available state: location and dates of measurements; maximum flow in cubic feet per second; duration in hours of crest flow and of the flood. State the estimated maximum flood flow in cubic feet per second and duration of flood and of crest flow in hours. State maximum inflow if flow data are not applicable. (Use extra sheets or exhibits if necessary.)

The Probable Maximum Flood (PMF) would have an estimated peak flow of about 12,400 cfs for a rainfall of 42.6 inches in 72 hours. It would cause spills of 1000 cfs or greater for about 60 hours.

General Information

22. State the purpose of the dam and reservoir storage only
Diversion only; storage only; storage and diversion; debris storage, etc.

23. State the use that is to be made of water mainly power production, some irrigation, domestic & rec.
Municipal, domestic, irrigation, power, mining or recreation

24. Engineers R. V. Bettinger; ;
Chief Engineer — Resident Engineer
Consulting Engineer

25. If the proposed dam and reservoir is to be built under federal license or permit, state what department has jurisdiction Federal Power Commission Project #2310 (Pending).

26. The maps, plans and specifications and filing fee of $11,660.00 accompanying this application are a part thereof.

[Signed] [signature]
Applicant

this 10 day of Feb. 1976

APPROVAL OF APPLICATION NO. _____, INCLUDING THE PLANS AND SPECIFICATIONS

This is to certify that Application No. _____, including the plans and specifications for the dam and reservoir has been examined and the same is hereby approved, subject to the following terms and limitations:

1. *Construction work shall be started within one year from date.*
2. *No foundations or abutments shall be covered by the material of the dam until the department has been given an opportunity to inspect and approve the same.*

DISAPPROVED

Witness my hand and the seal of the Department of Water Resources of the State of California this 8 day of December 19 2011

[signature]

PACIFIC GAS AND ELECTRIC COMPANY

PG&E

77 BEALE STREET • SAN FRANCISCO, CALIFORNIA 94106 • (415) 781-4211 • TWX 910-372-6587

F. F. MAUTZ
VICE PRESIDENT
ENGINEERING

February 6, 1976

Mr. Gordon W. Dukleth
Division Engineer
Division of Safety of Dams
Dept. of Water Resources
P.O. Box 388
Sacramento, CA 95802

Subject: Reconstruction of Lake Van Norden Dam, State No. 97-33 129

Dear Mr. Dukleth:

Transmitted are two copies of an "Application for Construction" for Lake Van Norden Dam and a check for the filing fee of $11,660.00. Also transmitted are two preliminary prints each of PG&E Dwgs. 459923 through 459927 showing the details of construction. An environmental data statement for this project is being prepared and will be sent to you in approximately one week.

We plan to breach the existing dam in late October of this year providing the necessary approvals and authorizations can be obtained. Beginning about June, 1977 the soil from the existing dam will be removed and recompacted at about the same location to form approximately one third of the new dam. The remainder of the soil will be obtained from the upstream end of the reservoir and from the adjacent meadow. We expect to complete the reconstruction by late October of 1977.

Sincerely,

F. F. Mautz

Enclosure

RECEIVED FEB 11 PM 3 31

check in the amount of $11660.00
to Accounting 2/11/76

Memorandum

To : Files

Date : December 22, 1975

File No.:

Subject: Status Report, Reevaluation and Investigation, Repair or Alteration Programs

From : Department of Water Resources

E. V. Poe

Lake Van Norden Dam,

No. 97-33

The subject dam has been identified for:

☐ Reevaluation ☒ Investigation

The feature requiring (reevaluation) (investigation) and reason:

☐ Spillway Capacity _____

_____

☒ Structural Design Embankment stability. Deteriorated outlet conduit.

Decisions, status, and progress

Reevaluation

☐ Reevaluation has been requested from the _____ Branch(s) with a target date for completion of _____(date).

Reevaluation has been completed and

☐ Repairs or alterations are unnecessary

☐ _____ (is) (are) necessary;
(investigation, repairs or alterations)

the dam is being placed on the "Investigation, Repair or Alteration Program" _____(date).

*The owner was informed of that decision on _____(date).

Investigation, Repair or Alteration

☐ An investigation was requested of the owner on _____(date).

☒ A repair or alteration was requested of the owner on 9-22-75 (date).

☐ An application was filed for repair or alteration on _____(date).

☐ Application was approved on _____(date), removed from program, place on "Construction Supervision Program Schedule".

☐ Minor work required without application.

☐ Minor work commenced on _____(date).

☐ Minor work was completed on _____(date), remove from program.

*The owner should be consulted on the decision before official written notification is sent.

cc: Office Engineer

RFDelparte:rd

SURNAME (REV. 4-62)	Delparte 12/22	Poe 12/23		

DEPARTMENT OF WATER RESOURCES
DIVISION OF SAFETY OF DAMS

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of dam Lake Van Norden Dam No. 97-33 County Nevada
Type of dam earth Type of Spillway flashboard structure
Water is - feet - spillway crest and ____ feet ____ dam crest.
(above, below) (above, below)

Contacts made Inspected with Mr. Steve Onken, Mr. Terry Turner, Mr. John Beede,
Detail in question Backhoe exploration & Mr. George Yoshikado
Action taken See remarks

Remarks *

Two backhoe pits were excavated to a depth of approximately 7 feet to supplement the exploration program for the new dam.

Mr. Yoshikado reported that most of the soil samples obtained from the August 1975 drill holes could not be used for triaxial shear testing because of poor recovery. Below a depth of 3 to 4 feet the foundation material is granular and; therefore, difficult to sample. For this reason the Company decided to obtain in-place densities and bulk soil samples of the foundation materials. Remolded samples at comparable densities and gradations will then be made for triaxial shear tests. A nuclear gauge was used for determining in-place density of the foundation.

The backhoe pits were located on the right abutment approximately 15 feet downstream of the embankment. The first pit was located 90 feet left of Piezometer No. 3 and the second pit was located 75 feet right of the outlet conduit. The materials in both trenches are similar.

The material in the top 4 feet of the trench is a saturated sandy silt. Below 4 feet the material is a relatively clean gravel. The gravel particles are rounded and up to 1½ inches in diameter. The backhoe bucket also digs up small amounts of silt with the gravels indicating possible silt layers. However the gravels are very pervious. The trench fills rapidly after the water is dipped out. Ground water is approximately 2 to 3 feet below the ground surface.

In both trenches the upper 4 feet of silt was removed and the nuclear tester was then used to obtain the in-place density of the gravels. Bulk samples of the gravels were taken for further laboratory testing.

Several density readings were taken in both trenches but only at a depth of 4 feet.

DEC 17 '75 RFD

R. F. Moore
W. M. Verigin
E. V. Poe

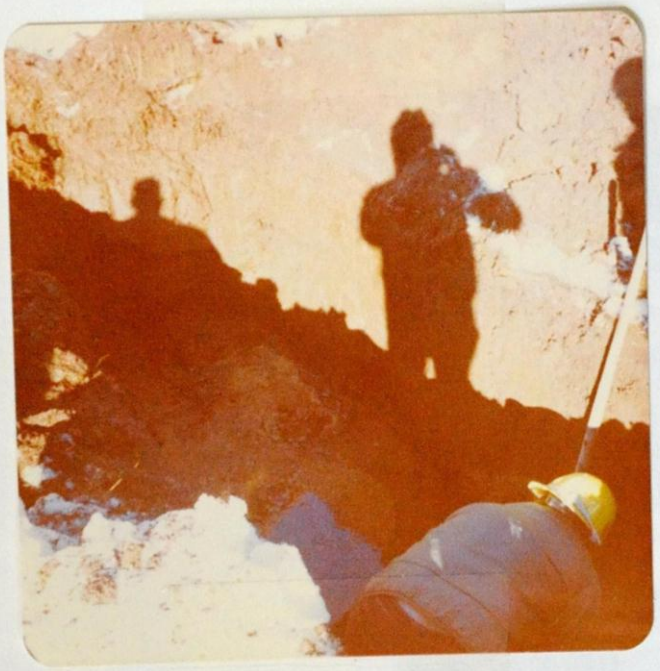
Typed by JH
Date 12-16-75
cc for x

*Note any change in condition since last inspection such as: seepage; erosion; deterioration of materials; cracks; method of operation; use of flashboards; etc.

Inspection by R. F. Delparte
Date of inspection 12-9-75
Date of report 12-12-75
Photos taken? Yes [X] No [ ]

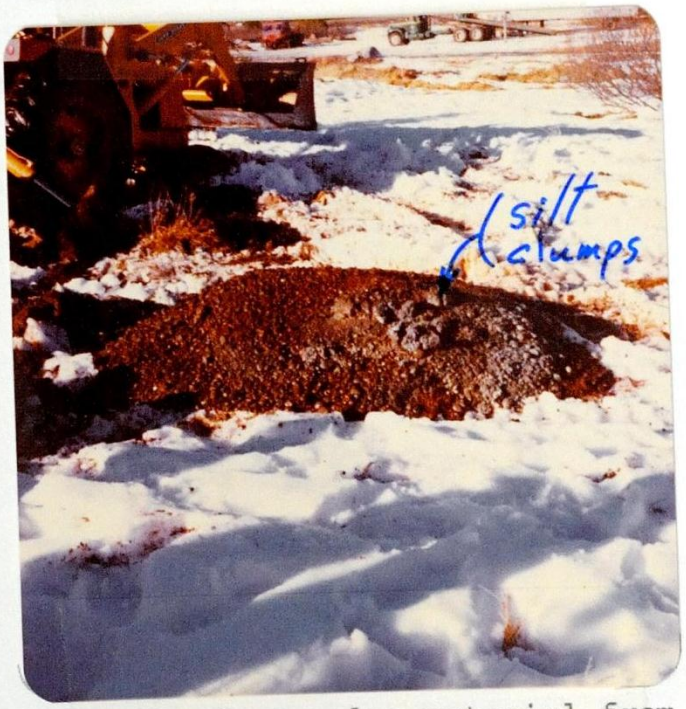
DWR 1261 (Rev. 2/70)

Sheet ____ of ____ Sheets



Backhoe test pit No. 2.

Location of second backhoe test pit.



Example of granular material from Backhoe Pit No. 2, below a depth of 4 feet.

LAKE VAN NORDEN DAM, NO. 97-33
RFDelparte 12-9-75

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of dam: Lake Van Norden Dam No. 97-33 County: Nevada
Type of dam: earth Type of Spillway: flashboard structure
Water is: * feet (above, below) spillway crest and ____ feet (above, below) dam crest.
*Gage 15.5

Contacts made: Inspected with Mr. Steve Onken
Detail in question: Periodic evaluation
Action taken: See remarks

*Remarks**

Reconstruction of Lake Van Norden Dam is scheduled for the summer and fall of 1977. To facilitate the rebuilding the embankment will be breached in the late fall of 1976. This will permit an earlier construction start in 1977.

At this reservoir stage there is no significant seepage along the toe of the fill.

The snow-damaged walkway beams over the left bay of the spillway have been replaced.

Vegetation control on the embankment is good.

DEC 17 '75 RFD

Typed by JH
Date 12-16-75
cc for X

*Note any change in condition since last inspection such as: seepage; erosion; deterioration of materials; cracks; method of operation; use of flashboards; etc.

Inspection by R. F. Delparte
Date of inspection 11-25-75
Date of report 12-3-75
Photos taken? Yes ☐ No ☒

DWR 1261 (Rev. 2-70)

Sheet ____ of ____ Sheets

DJB

FOR IMMEDIATE RELEASE

PG&E TO LOWER CREST OF LAKE VAN NORDEN DAM

Pacific Gas and Electric Company, in consultation with the State Division of Safety of Dams, has agreed to lower the crest of Lake Van Norden Dam in Placer and Nevada counties while the reservoir is still empty.

Removing a section of the dam, built in 1900, will prevent Lake Van Norden from filling during the winter months so that engineering studies can continue on PG&E's proposal for modifications to the dam.

PG&E said that a million dollar project for the Lake Van Norden Dam modifications had been programmed, but that recent field investigations conducted at the site indicate that further studies are advisable before any work begins.

Lowering the crest was agreed to be the most prudent step to take because of impending winter storms. Otherwise, rains or snowmelt could refill the reservoir, which had been emptied during the summer in anticipation of construction work.

At capacity, the lake formed by the Van Norden Dam floods about 380 acres. Water enters the lake from a 10-square-mile drainage area.

The earth-fill dam is 1750 feet in length, six feet wide at the crest and 145 feet at the base. The dam is 30 feet high.

Lake Van Norden waters flow down the South Yuba River and are used to supplement the waters of Lake Spaulding, which is a hydroelectric power reservoir.

***

DJB
11/11/75

LAKE VAN NORDEN
INFORMATION ABOUT PROPOSED DAM RECONSTRUCTION

LOCATION

Lake Van Norden is located on the South Yuba River near the crest of the Sierra Nevada range, two miles west of Donner Pass. It is at an elevation of about 6,770 feet (USGS datum) and is bisected by the Nevada-Placer County line. The reservoir is in portions of Sections 23, 24, 25 and 26, Township 17N, Range 14E, MDB&M. Lake Van Norden Dam is about 1/2 mile east of Soda Springs. Interstate Route 80, the major east-west route across the Sierra Nevada range, passes north of the reservoir, paralleling the Southern Pacific Railroad east-west mainline.

EXISTING BIOLOGICAL ENVIRONMENT

•Vegetation

The flora surrounding Lake Van Norden is composed of three distinct plant communities. The mountain meadow community is characterized by a variety of perennial grasses, sedges, and a number of low, broad-leaved herbs, as well as scattered thickets of willow. The lodgepole pine forest community is characterized by open to dense stands of lodgepole pine with an understory of perennial grasses and broad-leaved herbs. The red fir forest community consists of a variety of coniferous trees, primarily red fir, and an understory of low growing shrubs and broad-leaved herbs.

According to the California Native Plant Society, the following three rare and/or endangered plants have been collected in the vicinity of the project: Torrey's sulfur-flowered eriogonum (Eriogonum umbellatum var. torreyanum), Truckee barberry (Berberis sonnei), and Silene invisa. All three of these plants have been collected less than one mile from Lake Van Norden since 1945, but the precise locations are unknown.

•Wildlife

Deer are the most important big game mammal found in the project vicinity. Deer in this area are part of the Blue Canyon Deer Herd, in which both Columbian black-tailed deer and California mule deer occur. Black bear is also an important big game species in this area. Mountain lions are also reported to occur in the project vicinity, but sightings are rare.

Furbearers common to the area include coyote, bobcat, beaver, badger, mink, skunk, and raccoon. A variety of upland game are found throughout the Tahoe National Forest in suitable habitat. Waterfowl use Lake Van Norden as a resting and feeding area during fall and spring migrations.

A variety of nongame mammals such as the yellow-bellied marmot, golden mantled ground squirrel, Belding ground squirrel, chipmunk, meadow vole, pocket gopher, and broad-handed mole are common to the project vicinity. Some common nongame bird species in the area include grebe, marsh hawk, Cooper's hawk, killdeer, Steller's jay, red-breasted nuthatch, robin, and dark-eyed junco.

Several rare, endangered, or unique wildlife species occur in the Tahoe National Forest. However, no actual sightings of individuals, dens, or nest sites have been recorded for the Lake Van Norden area. The southern bald eagle and osprey are not known to nest around the lake.

•Fish

Lake Van Norden contains wild eastern brook trout and rainbow trout, which spawn in the tributaries. Because of the ease of access and relatively high angling pressure on the reservoir, the California Department of Fish and Game has supplemented the wild trout population with annual plants of 2,000 to 6,000 catchable-sized rainbow trout during each summer recreation season since 1969. In addition to the wild and planted trout, the reservoir contains stunted brown bullheads, usually under six inches in length, and the following nongame fish: tui chub, Lahontan redside, and speckled dace.

A resident eastern brook trout population exists in the reservoir's two main tributaries, the South Yuba River and Upper Castle Creek.

The storage that is released from Lake Van Norden contributes to maintaining a valuable sport fishery in approximately 16 miles of the South Yuba River between Lake Van Norden and Lake Spaulding. This section of the river receives large plants of catchable-sized rainbow trout, and also contains a wild brown trout population.

EXISTING SOCIAL ENVIRONMENT

- Project Vicinity Land Use

  Lake Van Norden is bisected by the Nevada-Placer County Line. Both county general plans designate Lake Van Norden and surrounding lands for multiple use management emphasizing general outdoor recreation and winter activity areas.

  Existing land uses in the vicinity of the reservoir are residential (both permanent and recreational), commercial, recreational, hydroelectric power generation and forestry. Recreation is an important regional industry. Extensive winter sports areas are located at Donner Lake, Sugar Bowl and Soda Springs. The latter is situated adjacent to Lake Van Norden. Summer season activities are less intensively developed and are oriented around the many small lakes and reservoirs in the region, including Lake Van Norden.

Urban density residential areas exist at nearby Donner Lake and in the Tahoe Basin, located east of Lake Van Norden. At present, however, Lake Van Norden is not experiencing the intense urban pressures of the nearby Tahoe basin, nor is it anticipated that these pressures will develop during the next decade. Census tract 220, in which Lake Van Norden is situated, had a permanent population of only 3,604 in 1970. This was an increase of only five percent from 1960, compared to a 36 percent population increase in Placer County. Total population of census tract 220, including seasonal residents and tourists as well as permanent residents, is estimated to be 18,000 people, with transients outnumbering permanent residents five to one.

- Project Area Land Use

Lake Van Norden and surrounding lands are owned in fee by PGandE. These lands are managed under a multiple use management concept emphasizing watershed yield for hydroelectric power production, recreation and forestry. Access to the reservoir is from Interstate Route 80 at Soda Springs to a paved road along the north shore of the reservoir. PGandE operates and maintains an eight-unit campground and a seven-unit picnic area to accommodate summer recreationists during the recreation season which extends from June through October. Summer recreation is primarily water-oriented day use and consists of fishing, swimming, boating and hiking.

No properties within the project boundaries are listed, under consideration, or eligible to be listed in the National Register of Historic Places. No archaeological sites are known to exist within the project boundaries.

EXISTING PROJECT

Lake Van Norden is a storage reservoir of the Drum-Spaulding Hydroelectric Project. With 3.4 feet of flashboards installed in the spillway, the reservoir has a maximum capacity of 5,261 acre-feet, a flooded area of 382 acres, and a maximum water surface elevation of 6,772.7 feet (USGS). The flashboards have not been used since 1973.

Storage and release of water at Lake Van Norden is controlled in accordance with an agreement dated April 11, 1963 with the California Department of Fish and Game and the United States Forest Service. This agreement states in part: "Storage in Lake Van Norden shall be released in a manner to augment flows in the South Yuba River and to maximize recreational use of the lake and river to the extent consistent with the primary purposes of the project."

Under normal project operations, Lake Van Norden is kept as full as possible during the summer recreation period. About ten cfs are released to augment flows in the South Yuba River. Starting

around October 1 each year, the reservoir draft is increased. Winter releases are maintained at about 5 cfs. Although some water is kept in the reservoir each winter, a shallow minimum pool of less than 200 acre-feet is not uncommon.

The existing dam was constructed in 1900 of loosely compacted earthfill with a timber corewall. The corewall (made of three inch by eight inch redwood planks laid flat and nailed together) was constructed as the water barrier. The dam presently has an upstream slope of 1-3/4 to 1 and a downstream slope of two to one. The crest width is presently about six feet. The dam has a total length of 1,752 feet (including the spillway) and a maximum height of 32 feet.

The existing concrete outlet structure was constructed in 1922 in conjunction with outlet pipe improvements. The pipe improvements involved encasing the upstream portion of pipe in concrete and providing cutoff collars. At that time, a new upstream ~~steel~~ slide gate was also installed.

The spillway was last improved in 1953 with the addition of a new flashboard structure and walkway bridge. The training walls were also raised at that time.

To bring the dam up to current design standards, PGandE is proposing to reconstruct the dam in 1977.

PROPOSED RECONSTRUCTION

Reconstruction of the dam will be in accordance with current design standards and approved by the State Division of Safety of Dams. The dam will be rebuilt at approximately the same location as the existing dam. The maximum water surface elevation will be raised one foot to elevation 6773.7 feet. The reservoir will have a maximum capacity of about 5,600 acre-feet and a flooded area of about 390 acres. The proposed improvements are as follows:

- The existing dam will be breached in October 1976 to insure that the reservoir will not fill during spring runoff and to prevent the existing dam material from becoming saturated and therefore unusable for the new dam and also to allow construction to proceed in a safe manner.

- The existing dam will be removed and a new earthfill dam will be constructed to replace it. Soil that meets construction specifications from the old dam will be used for a portion of the new embankment. Additional soil will be obtained from PGandE property within or immediately adjacent to the reservoir (borrow areas). The upstream face of the new dam will be gunited or covered with asphaltic concrete.

- The dam will have a minimum of four feet of freeboard above the maximum storage elevation and a crest width of ten feet.

- The crest of the dam will be at elevation 6777.7 feet and a gunite or concrete parapet wall will be provided to elevation 6780.7 feet. This will permit a larger flood to be safely discharged through the existing spillway when the spillway bridge and training walls are raised.

- A new concrete encased outlet trunk will be constructed.

CONSTRUCTION SCHEDULE

Breaching of the existing dam is planned in late October 1976. Reconstruction of the new dam is planned to start in June 1977 and be completed in October 1977.

CONSTRUCTION PLANS

Temporary construction areas will be at the dam's upstream and downstream slopes and crest, and at borrow areas on PGandE land within or adjacent to the reservoir.

The construction work force is expected to vary from about 10 to 25 persons employed by PGandE and contractors. The headquarters of the work force will be off the project area.

PGandE will post signs during construction warning the public of hazards and the closing of Lake Van Norden.

All construction debris will be removed from the project area at the completion of work.

A key map, a plan view and cross-sections of the proposed dam and spillway are shown on the attached drawing.

EFFECTS OF CONSTRUCTION

- Biological Environment

  Since it is expected that much of the borrow area will be located below the high water level of the lake, minimal impacts will occur on the terrestrial vegetation. However, the temporary presence of workers and equipment will create short-term disturbances to endemic species, and may destroy some individuals of local rare and/or endangered plant species if they are located in the work area.

  Resident and migratory wildlife dependent on open water will be temporarily displaced due to the draining of Lake Van Norden during the construction period.

  Noise from construction activities will cause some wildlife species to temporarily leave the area and will affect wildlife populations dependent on the areas surrounding the lake for nesting and breeding purposes. No rare or endangered vertebrate species should be adversely affected by the project.

If the planned borrow area proves unsatisfactory or is of insufficient capacity, an option to remove fill material from the meadow area will result in a temporary loss of about ten acres of meadow habitat, four acres of which would be inundated by the one-foot increased storage. Animals associated with this habitat will be forced to use adjacent meadow habitat which consists of approximately 160 acres. Following removal of the material for dam construction, this borrow area will be graded, reseeded and allowed to return to a natural state. Some original soil removed from the borrow area will be temporarily set aside and later replaced to offer a suitable substrate for revegetation if the substrate is unsuitable for reseeding. In addition to the direct impact on the meadow, a few trees and shrubs over approximately six acres may be lost along the reservoir banks as a result of increased storage and will result in the loss of nesting and forage habitat for some wildlife. The raising of the lake level will tend to encourage meadow expansion, a habitat type favorable to many wildlife species, particularly deer and fossorial mammals.

Although the reservoir will be essentially dry during one season for construction purposes, wildlife will be able to acquire water from adjacent streams and a small remaining pond.

Two of the three plants listed earlier as rare and/or endangered by the California Native Plant Society occur on dry slopes or rock banks, and not within meadows. The third, Silene invisa, occurs in lodgepole pine forest habitat and individual plants could be affected by increased storage if they are located within the newly flooded zone around the lake. However, the small area (ten acres) influenced by the one-foot increased storage and the short (about one month) duration of flooding above the original maximum storage level will result in a low probability of adverse impacts to any rare or endangered plants in the area.

PGandE will take the necessary precautions to prevent silt and construction debris from entering the South Yuba River, which will be flowing through the reservoir during construction activities. PGandE will also take appropriate measures to prevent existing accumulated silt on the reservoir's bottom from washing downstream into the South Yuba River. When the dam is breached in October 1976, a weir will be provided by setting the invert of the breach at least one foot above the invert of the existing outlet. This weir will form a stilling pool to minimize the migration of silt from the reservoir into the South Yuba River. The critical areas of the breach will be riprapped or protected by other appropriate means to prevent erosion. The invert of the breach will be lowered in 1977 only after the spring runoff has abated and the existing outlet or other means have been used to drain the remaining pool.

Breaching of the dam and draining of the reservoir will be done in October 1976 after the 1976 fish planting operations cease and the fishing season is almost ended. Because Lake Van Norden will be nearly empty during the 1977 recreation season, no fish will be planted that season. Populations of wild fish and the few planted rainbow trout remaining from plants in previous years may be adversely affected. However, during the period that the reservoir will be nearly empty for construction activities, the California Department of Fish and Game is considering chemical treatment of the entire watershed upstream from Lake Van Norden Dam to eliminate nongame fish species which are competitors for food as well as predators on small trout. Chemical treatment would be more effective and less costly when the reservoir is nearly empty. The reservoir and tributaries would be restocked by Fish and Game with game species after the new dam is completed.

During reconstruction of Lake Van Norden Dam, PGandE will attempt to deepen a portion of the minimum pool to a depth of about 15 feet, to improve future overwinter survival of the reservoir's trout populations.

Since little storage will be maintained during the construction period, the flow provided by the South Yuba River and of Upper Castle Creek immediately above the dam will be the natural flow of the river below the dam site. If this natural flow becomes very low, fish populations downstream could be adversely affected.

Lower Castle Creek flows into the South Yuba River approximately 1.5 miles downstream from Lake Van Norden. The inflow from Lower Castle Creek should help maintain fish populations in the South Yuba River below Lower Castle Creek. If additional inflow into the South Yuba River is needed during low flow periods, timely releases from three PGandE reservoirs, Kidd Lake and Upper and Lower Peak (Cascade) Lakes can be made. Releases from Kidd Lake and the Peak (Cascade) Lakes enter the South Yuba River about 4 and 4-1/2 miles, respectively, downstream from Lake Van Norden.

- Physical Environment

The reservoir will be closed to the public during the construction period, thus no recreation activities are expected to originate at the reservoir during the summer of 1977.

Bibliography of References

Brown, V. and R. Livezey. 1962. The Sierra Nevada Wildlife Region. Naturegraph Publishers Inc.; Healdsburg, California.

California Department of Fish and Game; Game Manager, Region II. Personal Communication. November 11, 1975.

California Department of Fish and Game; Marysville District Fish Biologist, Region II. Personal Communication. November 11, 1975.

California Department of Fish and Game; Warden, Region II. Personal Communication. November 11, 1975.

California Department of Fish and Game; Marysville District Fish Biologist, Region II. Personal Communication. December 12, 1975.

California Department of Fish and Game; Assistant Fishery Biologist, Region II. Personal Communication. January 22, 1974.

Powell, W. B. 1974. Inventory of Rare and Endangered Vascular Plants of California. Speical Publication Number 1, California Native Plant Society.

Nevada County Planning Department, 1973. Environmental Impact Report for the Conservation and Open Space Plant, E.I.S. 73-50.

U.S. Forest Service, Tahoe National Forest. 1967. Habitat Management Plan, Tahoe National Forest. Prepared by R. Lessel and M. Montagne.

U.S. Forest Service, Tahoe National Forest. 1973. Habitat Management Plan, Rare, Endangered and Unique Species. Prepared by D. Connell and R. MacGregor.

Report from 1975

ADDENDUM TO
LAKE VAN NORDEN
INFORMATION ABOUT PROPOSED DAM RECONSTRUCTION

To determine potential for impacts on a rare/endangered plant species of the Chickweed family (*Silene invisa*), a botanical consultant from the California Native Plant Society will investigate the presence or absence of this species during the early part of July, 1976 (flowering period of *Silene* sp.). If the plant is found, recommendations offered by the consultant for the protection of the species will be considered in order to minimize the project's impact.

Report from 1975

ADDENDUM TO LAKE VAN NORDEN

Information about Proposed Dam Reconstruction

The following areas numbered one through six are in reference to the April 20, 1976 letter from Mr. T. D. Kubik of Placer County to Mr. G. W. Dukleth of the Division of Safety of Dams, regarding PGandE's environmental information submitted on the Lake Van Norden proposed dam reconstruction.

Placer County Comment:

1. Breaching the dam will effectively destroy riparian vegetation around the perimeter of a 382-acre body of water and disrupt all aquatic life within the reservoir (significant adverse impact).

PGandE Response:

1. Breaching the dam will not in itself destroy riparian vegetation around the perimeter of the reservoir. The amount of riparian vegetation lost will be directly related to how long the reservoir is drawn down and the amount of precipitation during the period it is drained. Hardy trees such as lodgepole pines and willows will probably survive this interim loss of water; semiaquatic and aquatic forbs and herbaceous vegetation will die if the soil dries out sufficiently. Aquatic invertebrates and species dependent on these aquatic organisms as a food base will suffer losses. Nearly all forms of aquatic life in the reservoir will be disrupted. Flows from streams which pass through or near the reservoir will continue to offer some aquatic habitat for resident and migratory animal species during the construction phase when the reservoir is empty. Under normal operation, the reservoir is nearly drained each fall and does not refill until the spring snowmelt occurs.

   The shoreline surrounding the lake is presently vegetated with a variety of terrestrial and semiaquatic plant species. The area between elevations 6769.3 and 6772.7 was flooded annually (for a period of approximately one month each year) until three years ago. This 3.4 foot vertical band around the perimeter of the reservoir has revegetated itself in three years indicating that whatever vegetation that is lost due to the draining of the reservoir will reestablish itself.

Report from 1975

Placer County Comment:

2. The presence of rare and/or endangered plant species within the project area should be evaluated and mitigation measures identified prior to any construction activities taking place.

PGandE Response:

2. A survey of Lake Van Norden to determine the presence or absence of rare and/or endangered plant species was conducted initially on July 6 and 7. A followup survey to locate late blooming species will be conducted during late August or early September. At the present time, no rare and/or endangered plant species have been found within proposed borrow site areas or on the perimeter of the lake. When completed, the survey will be available from PGandE upon request. Mr. Peter Rubtzoff, a professional botanist and active member of the California Native Plant Society, is assisting PGandE biologists in field investigations of projected impact areas. Mitigation recommendations offered by the consultant and agreed to by PGandE will be implemented.

Placer County Comment:

3. If chemical treatment of the entire watershed above Lake Van Norden is contemplated to eliminate non-game fish species, the impacts need to be evaluated on plant and animal life below the dam.

PGandE Response:

3. Any chemical treatment of Lake Van Norden will be thoroughly evaluated by the California Department of Fish and Game. If the watershed is treated, the chemical would be detoxified before being released in order to protect downstream aquatic life.

Placer County Comment:

4. Reduction in flow from the lack of reservoir water could promote significant adverse environmental impacts to plants and animals from the dam to Lower Castle Creek (1.5 miles) and possibly beyond depending on the flow from Lower Castle Creek.

Report from 1975

PGandE Response:

4. The reduction in the flow of water below the dam could be a problem downstream. Any adverse impacts that occur would be a function of the difference between the normal regulated releases and the inflows that will be bypassed when the reservoir is drawn down. The alternative to improving the dam is to remove it, which would result in a permanent reduction in downstream flows during the dry season.

Placer County Comment:

5. Siltation and sedimentation can be expected below the reservoir when the dam is breached.

PGandE Response:

5. PGandE has no basis for assessing how much, if any, siltation and sedimentation might occur. However, PGandE will take precautions to minimize the movement of accumulated silt from the reservoir. The invert of the breach will be set at least one foot above the present outlet invert to form a stilling pool (a pool of relatively still water to settle out the silt) within the reservoir. The breach will be riprapped in critical areas. The runoff from storms is normally rather turbid and a significant increase in turbidity (due to the breach) is not expected.

   A sedimentation basin will be provided downstream of the dam during the construction period to settle out any silt. The basin will be formed by constructing a rock and gravel barrier across the South Yuba River. The barrier and any accumulated silt will be removed when construction is completed.

Placer County Comment:

6. A quantitative analysis of material to be used for building the dam should be provided along with an environmental evaluation (impacts and mitigation measures) of the borrow site.

PGandE Response:

6. A total of approximately 60,000 cubic yards of material will be required from borrow areas. PGandE will make

Report from 1975

every attempt to utilize as much material as possible from within the reservoir itself. Taking material from the reservoir will eliminate most terrestrial impacts (rare plants and wildlife habitat), and also eliminate the costly restoration of a meadow borrow site. The effect of increasing water depth from reservoir excavation will also benefit the fishery resource.

The borrow area site selection process involved an overall reconnaissance of the areas surrounding the lake by PGandE biologists and engineers. Five potential borrow area sites were found and compared on the basis of size, quality of soil, distance from lake and ecological habitat. These five sites (called the Primary Area, and Alternate Borrow Areas 1-4) are shown on the attached map.

Alternate borrow areas 1-3 are totally within the high mountain habitat. All three of these sites were rejected for this reason. No rare or endangered species were found in these areas.

Alternate borrow area 4 is much drier than areas 1-3 or the Primary. It contains few trees or brush and no meadow habitat. This area offers evidence of previous disturbance. No rare or endangered plants were found in this area and California Department of Fish and Game Region 2 biologists expressed approval of this area (phone conversation, 7/27/76). However, from an engineering standpoint, this site is too small and the soil is too rocky to be used exclusively for construction purposes.

The Primary Area is located adjacent to the lake and is partially underwater when the lake is at its normal storage elevation. Therefore, only a portion of the site is located in meadow habitat. No rare or endangered plant species were found at this site. This site is easily drained into the lake and will pose no "ponding" (stagnant water) problems. It was also found to contain soil of sufficient quality to be used for construction purposes.

In conclusion, every effort will be made to use soil within the reservoir exclusively or in conjunction with a borrow area site, Alternate Areas 1-3 have been

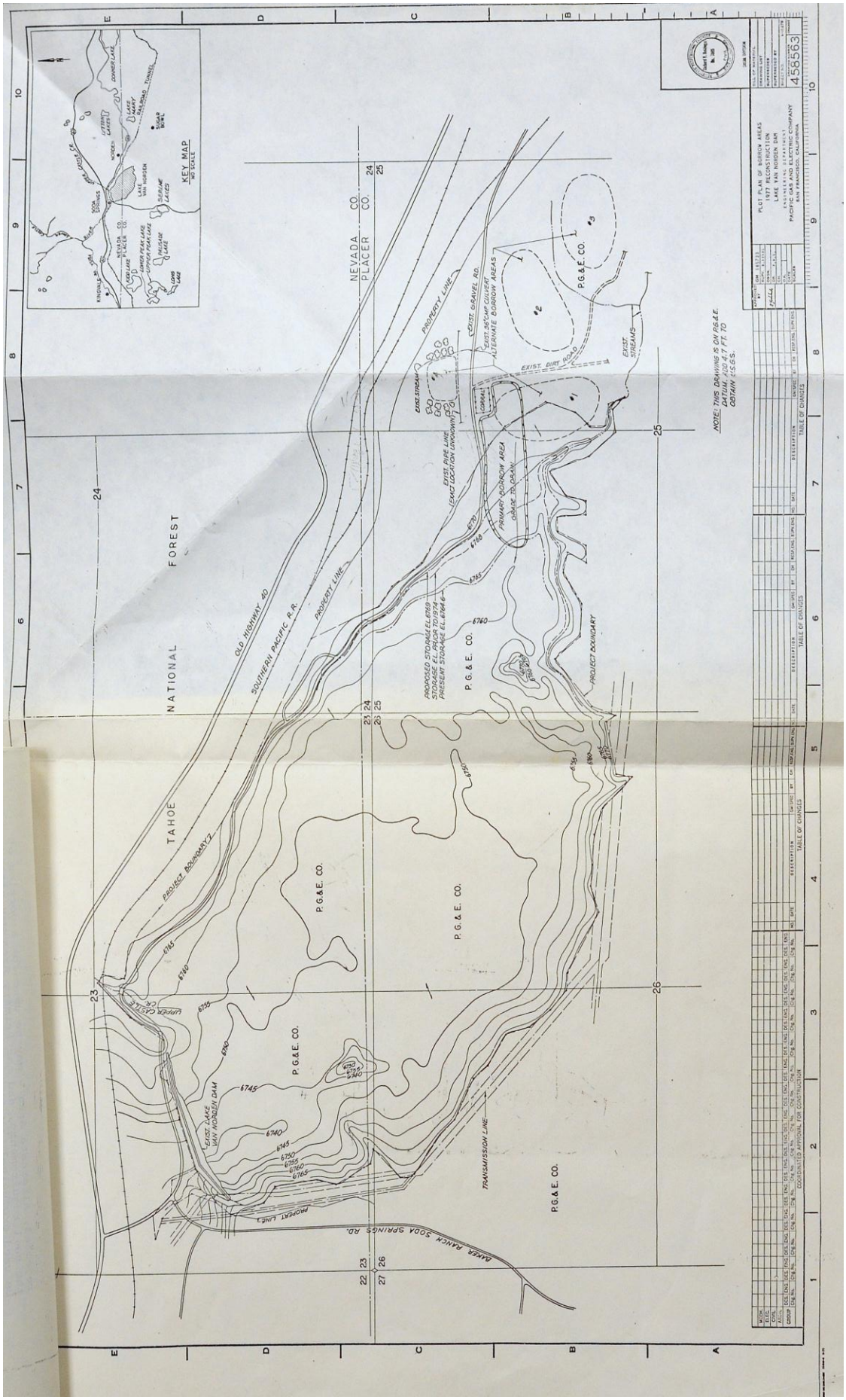
Report from 1975

rejected, Alternate Area 4 may be used for a portion of the soil requirements, and the Primary Area may either be used exclusively or in conjunction with Alternate Area 4 and/or with soil within the reservoir to fulfill soil requirements for construction.

Attachment

RGL:aaa
8/27/76

Report from 1975



(916) 445-1520

SEP 29 1975

Mr. F. F. Mautz
Vice President - Engineering
Pacific Gas and Electric Company
77 Beale Street
San Francisco, California 94106

97-33

Attention: Mr. R. V. Bettinger
Chief Civil Engineer

Subject: Lake Valley Dam and Reservoir, No. 97-32
Lake Van Norden Dam and Reservoir, No. 97-33 ✓

Dear Mr. Mautz:

Mr. R. V. Bettinger's letter of August 20, 1975, outlined the additional exploration and laboratory testing program planned for Lake Valley and Lake Van Norden Dams. A copy of Dr. H. J. Hovland's Comments on Additional Soils Testing at Lake Valley Dam was also included.

We have reviewed this information and find that the planned exploration and testing is essentially satisfactory. For the triaxial shear tests both total stress and effective stress values should be obtained on saturated samples.

During the past three weeks we have examined the drilling and soil sampling at Lake Valley and Lake Van Norden Dams and have observed that it is difficult to obtain good soil samples for testing. This is primarily because of the granular nature of the materials in the embankment and foundation.

At Lake Van Norden Dam, if you elect to construct a new dam and excavate to in-place rock, it may not be necessary to obtain samples of the granular materials overlying bedrock. However, if these materials are to be used in the new embankment, their strength properties will need to be determined.

SURNAME				
FORM DWR 540	[illegible] 9/26	[illegible] 9/26 D. J. Gardner	[illegible] for LEY 9/29	[illegible] for Dukleth 9/29/75

SEP 29 1975

At Lake Valley Dam, the strength properties of both the embankment and foundation materials are needed to reliably evaluate the stability of the structure.

Your cooperation is appreciated.

Sincerely,

Original Signed by
J. W. Keysor
for

Gordon W. Dukleth
Division Engineer
Division of Safety of Dams

cc: Each dam file

RFDelparte:tg

DIVISION OF SAFETY OF DAMS

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of dam: Lake Van Norden Dam No.: 97-33 County: Nevada
Type of dam: earth Type of Spillway: flashboard structure
Water is: -- feet (above, below) spillway crest and ____ feet ____ dam crest. (above, below)

Contacts made: Inspected with Mr. Terry Turner, Mr. A. Desai & Mr. Steve Onken
Detail in question: Foundation drilling
Action taken: See remarks

Remarks *

The purpose of this inspection was to examine the cores and samples obtained during the exploration drilling.

Three flight auger holes were drilled at the appropriate locations shown on the sketch attached to Mr. Bettinger's letter of August 20, 1975. These holes were drilled to determine the depth to bedrock. From left to right the flight auger was stopped at depths of 23, 15, and 13 feet. This depth to bedrock confirms information obtained from the seismic survey.

Adjacent to each of these flight auger holes another hole will be drilled to obtain soil samples of the foundation.

Mr. Turner explained that he planned to obtain 3-inch-diameter Shelby Tube samples. However, the material encountered was a sandy gravel and it was not possible to obtain large diameter samples. Standard penetration tests were taken and samples obtained from this operation were placed in glass jars for visual classification. Blow counts of from 10 to 40 per foot were obtained. The lower in the hole, the higher the blow count.

At what appears to be foundation rock, a core is to be obtained at least 5 feet into rock.

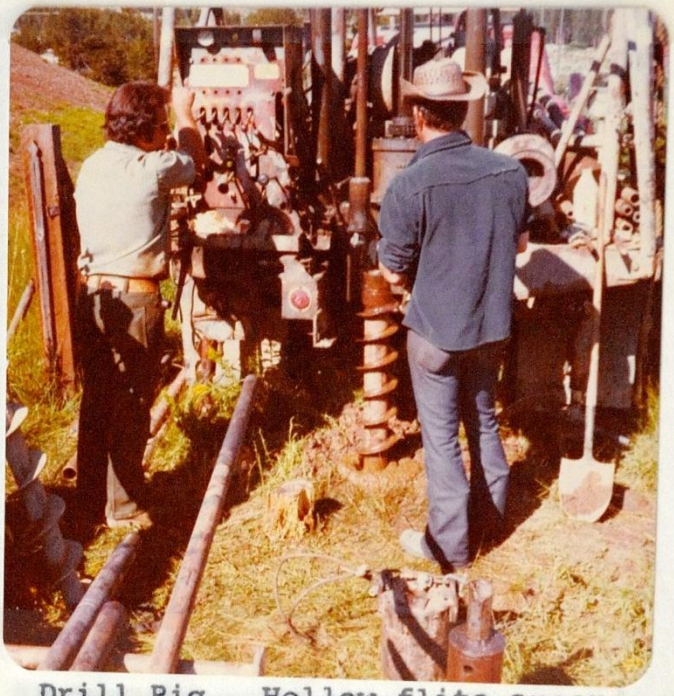
AUG 28 '75 RFD

Typed by: tg
Date: 8/28/75
cc for: X

*Note any change in condition since last inspection such as: seepage; erosion; deterioration of materials; cracks; method of operation; use of flashboards; etc.

Inspection by: R. F. Moore, J. A. Fitzpatrick, R. F. Delparte
Date of inspection: 8/26/75
Date of report: 8/28/75
Photos taken? Yes [X] No [ ]

Sample from Standard Penetration Test.



Drill Rig. Hollow flite auger.

Drill rig on Hole No. 1

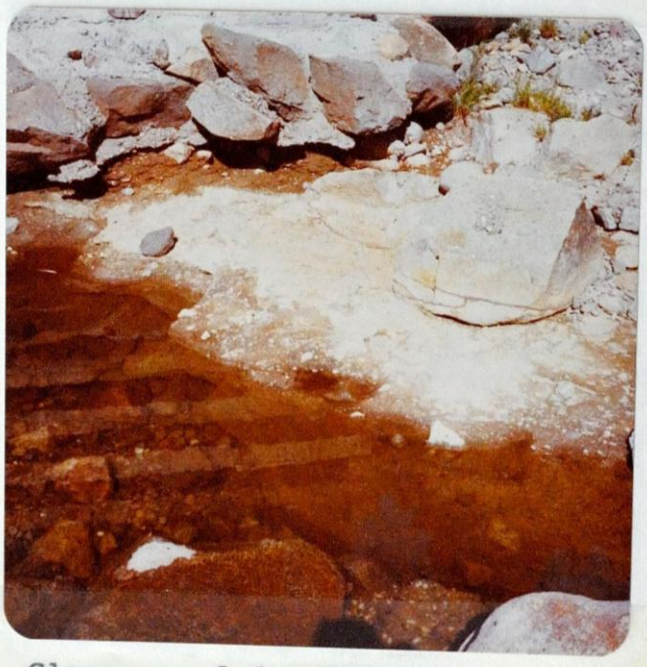
LAKE VAN NORDEN DAM AND RESERVOIR,
NO. 97-33
RFDelparte

8/26/75

Example of rock 200 feet right of the right end of dam.

Foundation drilling at toe of dam.

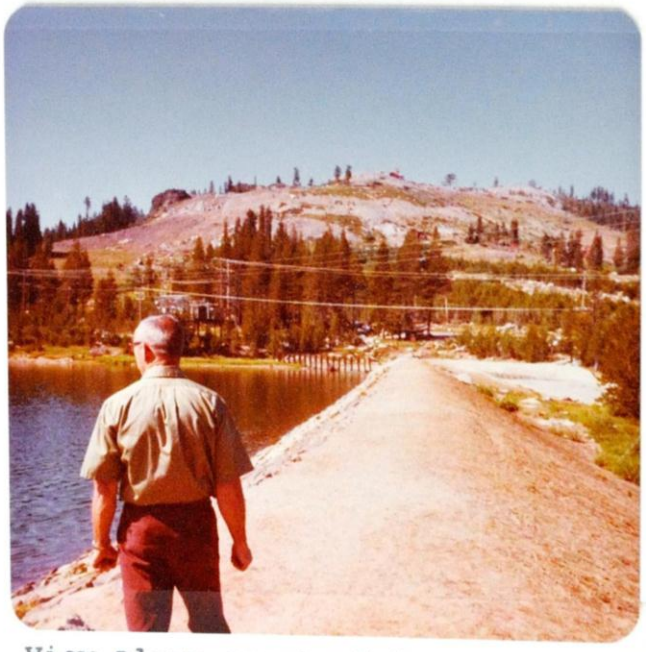
Foundation exposure on left side of spillway.



Close up of foundation in spillway.

LAKE VAN NORDEN DAM AND
RESERVOIR, NO. 97-33
RFDelparte 8/26/75

Foundation exposure on right side of spillway



View along crest of dam.

LAKE VAN NORDEN DAM AND
RESERVOIR, NO. 97-33
RFDelparte 8/26/75

DIVISION OF SAFETY OF DAMS

INSPECTION OF DAM AND RESERVOIR IN CERTIFIED STATUS

Name of dam Lake Van Norden Dam No. 97-33 County Nevada
Type of dam earth Type of Spillway flashboard structure
Water is * feet ____ spillway crest and ____ feet ____ dam crest.
(above, below) (above, below)
*Gage 20.6

Contacts made Inspected with Mr. Steven Onken and Mr. Bob Lambert
Detail in question Periodic evaluation
Action taken See remarks

*Remarks**

The pine tree seedlings have been removed from the embankment.

Leakage at the right end of the dam was estimated at 2 gpm.

Some erosion behind the right spillway wall at the terminal end of spillway lining. The attached photos show this erosion.

The owner is considering several alternatives for strengthening the dam. One of the alternatives is for replacement of the dam.

A seismic survey has been completed recently to define a bedrock profile. This survey indicates that bedrock is near ground surface at each end of the dam and approximately 30 feet deep near the outlet. Three 4-inch drill holes are planned near the maximum section to confirm the seismic survey. Soil samples will be obtained from the drill holes for testing.

AUG 28 '75 RFD

Typed by fs
Date 8/27/75
cc for

*Note any change in condition since last inspection such as: seepage; erosion; deterioration of materials; cracks; method of operation; use of flashboards; etc.

Inspection by RFDelparte
Date of inspection 8/22/75
Date of report 8/22/75
Photos taken? Yes ☒ No ☐

DWR 1261 (Rev. 2/70)

Sheet ____ of ____

Surface erosion on top of right spillway wall.

LAKE VAN NORDEN DAM AND RESERVOIR,
NO. 97-33
RFDELPARTE

8/22/75

To : File

Date : August 8, 1975

File No.:

Subject : Lake Valley Dam and Reservoir, No. 97-32
Lake Van Norden Dam and Reservoir, No. 97-33

From : R. F. Delparte
Department of Water Resources

Telephone Call

Mr. Wayne Edwards called this morning to report the following information on the investigations of these dams.

Lake Valley Dam

The seismic survey of the foundation will be completed next week. Backhoe pits will be excavated in the embankment soon to obtain additional soil samples for laboratory testing. Mr. Edwards is preparing an outline of the exploration and testing program to submit for our review and comment. This information is to be sent to us in approximately two weeks.

Drill holes are planned to supplement the seismic survey and to obtain samples from the foundation above bedrock. The Company plans to contract for this drilling.

Lake Van Norden Dam

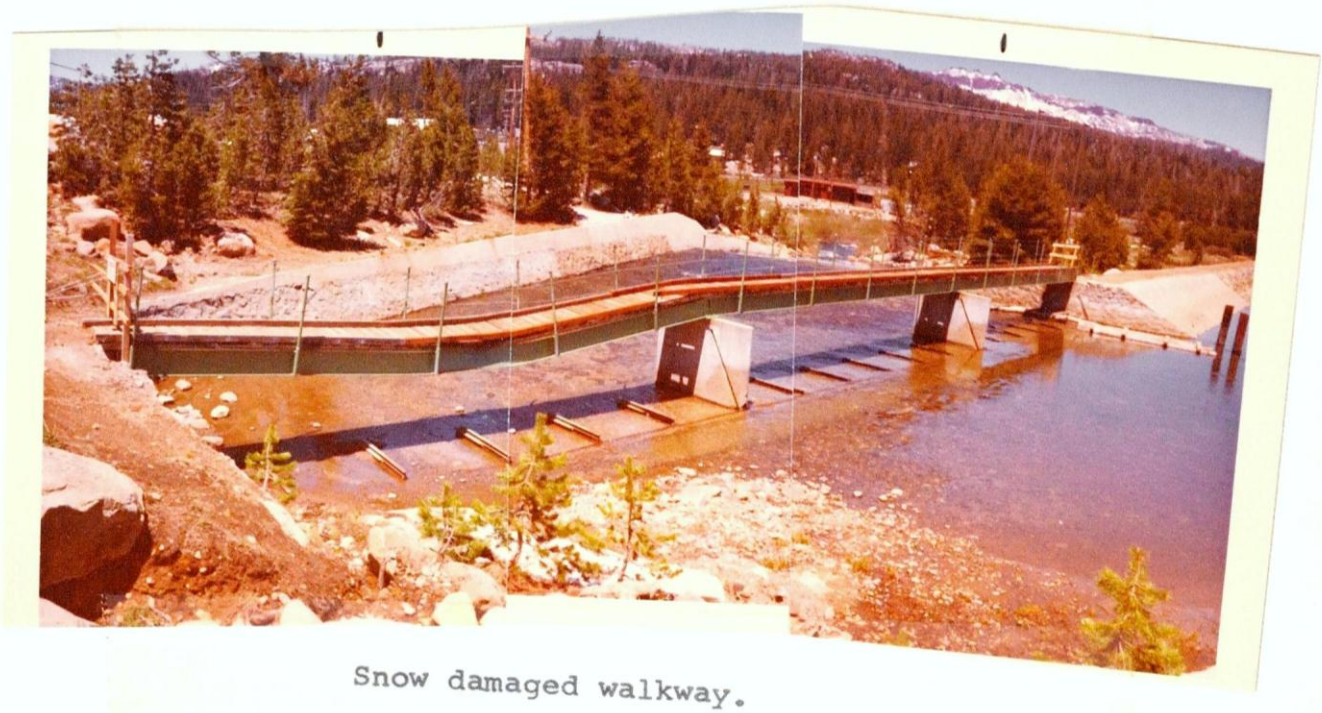
The seismic survey is complete, and it indicates the depth to bedrock is shallow on the abutments and approximately 30 feet below ground surface near the center of the dam. Three drill holes are planned to supplement the seismic survey and to obtain samples from the foundation above bedrock. A plan for this drilling will be submitted for our review in about two weeks.

cc: Each dam file

RFDelparte:tg

SURNAME Delparte 8/11

DWR 155 (REV. 4-62)



Snow damaged walkway.

LAKE VAN NORDEN DAM AND RESERVOIR, NO. 97-33
RFDelparte

AUG 11 '75 RFD

6/26/75

Rec'd. with letter dated 9-24-76

SEISMICITY AND SEISMIC INTENSITY REPORT

VAN NORDEN DAM, CALIFORNIA

for

PACIFIC GAS AND ELECTRIC COMPANY

by

Bruce A. Bolt

Registered Geologist and Geophysicist (State of California)

20 January 1975

REPORT ON SEISMICITY AND SEISMIC INTENSITY IN THE VICINITY OF VAN NORDEN DAM, CALIFORNIA

1. Introduction

The dam, built about 1900, is situated on the border between Nevada and Placer counties, not far from Soda Springs in the Sierra Nevada province. Its geographic coordinates are near 39°.3 N and 120°.3 W.

The dam is uncompacted wagon-fill, earth embankment, up to 32 feet high and 1,752 feet long. The capacity of the reservoir is 5,261 acre-feet. According to the letter of Mr. T.M. Leps to J.A. Jedlicka (December 31, 1974), the foundation of the embankment appears to be granular residual soil of 5 to 10 feet thickness resting on decomposed rock. The basement of the region is granitic rock of the Sierra plutons and is likely to attenuate high-frequency seismic waves less than occurs, say, in coastal California.

I am not able in this study to consider special effects (if any) of the glacial debris and soil underlying the embankment, but the presence of such material suggests that one should lean to the side of caution when estimating earthquake parameters likely at the site.

For this study, the complete list of historical earthquakes from the Retrieve file at the Seismographic Station, University of California, Berkeley was obtained and studied. Within an area of 60 miles of the site, 549 earthquakes were listed starting in 1851 through 1971. (No significant relevant earthquakes have been recorded since that date.) This list is supplied with this report, but it was felt to be unnecessary to plot the earthquakes because only a few are large enough to be significant to the evaulation.

From the assessment of location and intensity of recorded regional earthquakes (a) the location and size of the earthquakes which would be likely to give maximum ground motions at Van Norden lake were determined and (b) the interoccurrence time of such earthquakes was computed. Then, a range of intensity parameters for from firm? ground at the dam was estimated from available theoretical and empirical formula.

In this part of the Sierra geological province structural maps show a number of rather short faults, mainly striking N30-40W. This structural trend parallels the more extensive faults further to the north and west in California and to the east in Nevada (see Figure 1).

The special fault and geologic map compiled by C.W. Jennings (1973) makes a detailed classification (so far as current knowledge goes) of faults in the region (California only) in terms of recency of movement. The great majority of faults in the region centered on the dam are shown as being without recognized Quaternary movement (past 2 million years).

Ten to twenty miles to the east and southeast, near Lake Tahoe, a number of short faults (less than a few miles) with various strikes are shown as having Quaternary displacement but with no record of movement in the last 200 years. In my view, these faults are too short and unsystematic to indicate sources of significant earthquakes in the region.

The longest faults with Quaternary displacement in the region, according to Jennings, are the Honey Lake fault (60 miles away to the northeast) and a 20 mile long fault about 50 miles away to the south of Lake Tahoe. The Honey Lake fault extends through a portion of Long Valley into Nevada, where it turns more to the south and perhaps connects more-or-less with the fault zone along the east front of the Sierra Nevada. J.S. Diller and others have speculated that fault movements have occurred along this fault in recent times. The distance to this admittedly speculative fault zone to the east of the site is 30 miles.

An inferred fault line along the west side of Lake Tahoe has been traced northwest from Mount Tallac by way of Truckee, Independence Lake

toward Mohawk Valley, where it was studied in the field by H.W. Turner. An earthquake occurred in the Mohawk Valley about 35 miles from Van Norden dam in 1875. This resulted in a fresh fissure and a number of hot springs along the line of the fault.

It must be pointed out, however, that on the Jennings map, for example, there is no continuous fault shown along the profile described, but rather a series of en echelon short faults. Further, these are generally shown as having no known Quaternary offsets.

In the same way, a little further to the east, Lingren suggested a fault from the eastern side of Lake Tahoe northward across the Truckee River into the divide which bounds Sierra Valley on the south. It is further suggested that this feature continues northwest into Indian Valley, where there is evidence of normal faulting. The shortest distance from this hypothesized lineament to the dam is about 20 miles.

The only tectonic feature with recent movement shown on Jennings' map is a dashed line associated with the 1966 earthquake (magnitude 6.0, see next section). The dashed line means that the fault location is approximate or inferred (no clear surface fault rupture was observed in this earthquake). The inferred fault is 10 miles long and strikes NNE--across the regional trend. Its southern end is 12 miles from the dam.

III. Seismicity of the Region

As mentioned earlier, the occurrence of all known earthquakes for this region has been analyzed. The detailed records of the U.C. Seismographic Station show that small earthquakes occur reasonably frequently mainly to the north of the Sierra Batholiths and to the east of Lake Tahoe. The density of seismographic stations in the region is too low to provide enough precision and sensitivity to preclude minor seismicity in the Sierra Mountains themselves, but if it occurs it is not likely to be significant for the present evaluation.

A considerable number of historical reports indicate earthquakes felt at Soda Springs or Truckee (5 miles from the dam). The MM intensities at these places were usually less than V. However, an earthquake on June 23, 1909 to the north near Downieville was rated VI to VII at Truckee. The exact epicenter is not known but was probably over 30 miles away. Chimneys were damaged in Downieville.

The following earthquakes were specially examined.

1/24/1855	39°.58 N	120°.83 W		F VII	Downieville
3/15/1860	Western Nevada			F V	Sacramento
12/27/1869	39.5 (?)	120.0 (?)		F VI-VII	Virginia City
4/29/1888	39.25	121.00		F V(?)	Truckee
6/23/1909	39.33	120.92		F VI-VII	Truckee
4/9/1930	39.25	120.00	Plaster cracked at Tahoe	F V	Truckee
6/25/1933	39.08	119.33	M 6.1	F VII	Tahoe City
3/30/1943	39.43	120.40	M 5.3	F III	Soda Springs
12/29/1948	39.55	120.08	M 6.0	F VI	Truckee
1/22/1951	39.08	119.95	M 4.8	F IV	Soda Springs

4/1/1959	39.72	120.20	M 5.6	F VII Loyalton
9/12/1966	39.42	120.15	M 6.0 (Berk)	F VI Soda Springs

In addition, mention should be made of the great Owens Valley earthquake of 1872. The intensity of shaking in this earthquake in the Soda Springs area has been recently put at MM V by Roger W. Greensfelder. Major historical earthquakes in western Nevada such as the 1954 Dixie Valley earthquake (magnitude 7.1) occur generally at epicentral distances in excess of 50 miles from the dam, so that wave attenuation by geometrical spreading and other causes is considerable.

It should also be recognized that the dam has survived (evidently with no observable damage) all the last nine earthquakes in the list. This includes the 1966 earthquake (variously called the Truckee or Boca earthquake) which had a magnitude of 6.0 as measured by the Berkeley stations. ("Earthquake History of the U.S." quotes 6-1/4 to 6-1/2 magnitude.) It is of interest that after this earthquake ground cracks were reported in the Boca and Prosser (earth-fill) dams but no major failures occurred and no report of cracking at Van Norden dam, 12 miles from the (assumed) causative fault.

The interoccurrence time of the earthquakes in the vicinity has been calculated from the data. This indicates that within 50 miles of the site, the average number of earthquakes with magnitude of 7 or more in 100 years is essentially zero. The corresponding number with magnitudes between 6-1/2 and 7 is from 1 to 2. Of course, it is more important for engineering purposes of dam evaluation to know where the greatest expected earthquake might be centered.

IV. Intensity Parameters Near the Dam

The previous tectonic and seismicity analysis now enables a quantitative judgment to be made on the groundmotion that might be expected near the Van Norden dam in the next 100 years or so.

My assessment is that the largest earthquake of concern might be essentially a repetition of the 1966 Truckee earthquake. More specifically, an earthquake might occur of magnitude 6.25 to 6.5 centered about 10 miles from the dam. The most likely location would be just north of Lake Tahoe with perhaps mainly normal faulting.

From the recorded strong motion accelerograms now available, the above "design" earthquake could be expected to produce peak ground accelerations horizontally of between 0.25 g and 0.30 g (frequencies less than 8 Hz). Allowance is made here for wave propagation through the granitic basement.

Few field recordings are available to match approximately the geological conditions inferred for this case. One record which might be scaled up would be the Vernon record from the 1933 Long Beach earthquake (at an epicentral distance of 10 miles, peak horizontal acceleration of 0.15 g). Another possibility is the N69W record at Lake Hughes from the 1971 San Fernando earthquake (at an epicentral distance of 20 miles, peak acceleration of 0.28 g).

The recorded intensities provide some check. As mentioned, the largest assessed for Truckee is MM VII. On consulting the intensity-acceleration conversion curve of Neumann (1954), this corresponds to a peak acceleration of 0.15 g. This would be a firm lower bound to use in testing the behavior of structures near the dam site. The map of "Maximum Expectable Earthquake

Intensity" of the California Division of Mines and Geology shows the site in severity zone II, which corresponds to maximum intensity VII or VIII. The Neumann conversion curve yields corresponding accelerations of 0.20 g to 0.25 g.

The Van Norden dam is situated in a region where it has been subjected to minor ground shaking from earthquakes since its construction about 1900. Perhaps the largest acceleration to which it has been subjected occurred in the 1966 Truckee earthquake and amounted to about 0.15 g. (According to some attenuation curves for acceleration such as those of Schnabel and Seed, the dam was subjected to peak accelerations as high as perhaps 0.25 g in this earthquake.)

Although speculations exist, there is no hard evidence for major earthquakes to occur within 30 miles of this dam in its lifetime. The most likely maximum shaking of the dam is from an earthquake of magnitude 6.25 to 6.5 centered 10 miles or so from the dam. Because the dam is on glacial debris on hard rock, the peak horizontal accelerations might reach 0.30 g (for frequencies less than 8 Hz).

The duration of strong acceleration between the first and last peak which exceeds 0.05 g might reach 15 seconds.

If design tests are needed, it may be necessary to duplicate these specifications by constructing synthetic accelerograms. Plausible models are suggested in the previous section. Because of the regional tectonics, I recommend vertical accelerations of approximately two-thirds of the horizontal values, rather than the usual 0.56 $\pm$ 0.06 ratio.

Bruce A. Bolt

Bruce A. Bolt

January 12, 1975

References

Bolt, B.A., "Duration of Strong Ground Motion", Proc. Fifth World Conference on Earthquake Engineering, Paper 292, Rome, 1973.

Townley, S.D. and M.W. Allen, "Descriptive Catalog of Earthquakes of the Pacific Coast of the United States 1763 to 1928", Bull. Seism. Soc. Am., 29, 1939.

Bolt, B.A., W.K. Cloud and R. Miller, "The Seismicity of Northern and Central Sierra Nevada", Bull. Seism. Soc. Am. (in preparation), 1975.

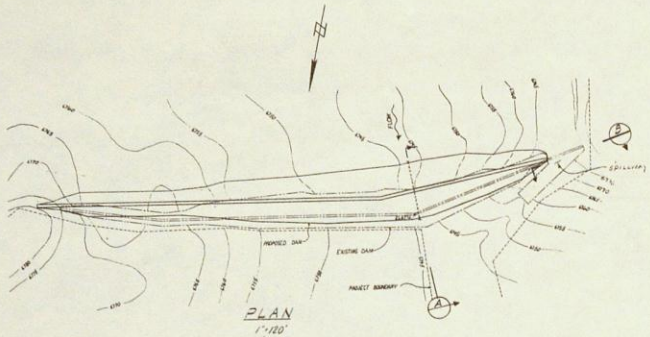
Jennings, P.C., G.W. Housner and M.C. Tsai, "Simulated Earthquake Motions", EERC Report, Cal. Tech., 1968.

Oakeshott, G.B. et al., "Owens Valley Earthquake of 1872", California Geology, 25, 51, 1972.

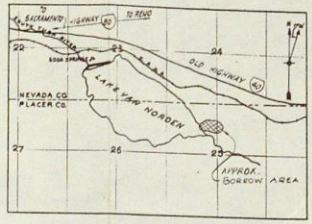
Bolt, B.A. and R. Miller, "Seismicity of Northern and Central California, 1965-1969", Bull. Seism. Soc. Am., 61, 1831, 1971.

Cloud, W.K. and V. Perez, "Strong-Motion Records and Acceleration", Proc. Fourth World Conference on Earthquake Engineering, Chile, 1969.

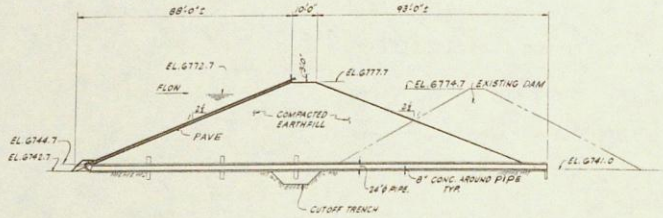
Tsai, Y. and K. Aki, "Source Mechanism of the Truckee, California, Earthquake of September 12, 1966, Bull. Seism. Soc. Am., 60, 1199-1208, 1970.



PLAN
1"=120'



KEY MAP
1"=2000'



SECTION (A)
1"=10'-0"

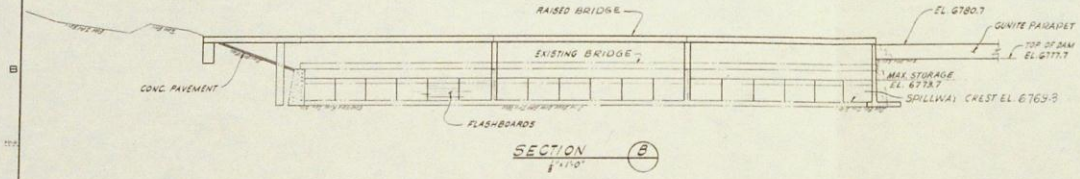
1977 IMPROVEMENTS

SCOPE OF WORK:

1. REMOVE EXISTING DAM, OUTLET PIPE, AND OUTLET STRUCTURE. KEEP THE EXISTING SPILLWAY.
2. BUILD NEW EARTHFILL DAM ABOUT 100' UPSTREAM OF EXISTING DAM. REUSE EXCAVATED MATERIAL FOR NEW DAM. ADDITIONAL EARTHFILL TO BE OBTAINED FROM UPPER LAKEBED.
3. CONSTRUCT NEW CONCRETE OUTLET STRUCTURE AND GRIZZLY. INSTALL NEW SLIDE GATE, STEM, GUIDES, AND OPERATOR.
4. PAVE UPSTREAM FACE OF DAM AND BUILD 3' HIGH PARAPET ON UPSTREAM EDGE OF DAM CREST.
5. RAISE SPILLWAY PEDESTRIAN BRIDGE. BOTTOM OF ▼ 16 AT ELEV. 6780.7.
6. RAISE FLASHBOARDS 1'.

NOTE:

ELEVATIONS ARE IN USC & GS DATUM.
EL. 6769.8 USC & GS = EL. 6764.6 PG & E.



SECTION (B)
1"=10'-0"

'77 CONSTRUCTION
VAN NORDEN DAM
PACIFIC GAS AND ELECTRIC COMPANY
SAN FRANCISCO, CALIFORNIA

SKETCH NO. VN-11-1.35

PACIFIC GAS AND ELECTRIC COMPANY

PG&E

77 BEALE STREET • SAN FRANCISCO, CALIFORNIA 94106 • (415) 781-4211 • TWX 910-372-6587

January 15, 1975

Mr. Gordon W. Dukleth
Division Engineer
Division of Safety of Dams
State of California Resources Agency
P.O. Box 388
Sacramento, CA 95802

gwd 1/23
1-22-75
RJF 1/29
FL-2072
Reply 1/29/75

Subject: Lake Van Norden Dam, No. 97-33
Your Letter Dated December 5, 1974

Dear Mr. Dukleth:

At full reservoir we have determined that the best method to increase the freeboard and to widen the crest is by placing fill on the crest and downstream slope. However, it appears that the economic solution is to lower the ressevoir elevation. The extent of strengthening which may be necessary for seismic stability will depend to a large degree on the size of the design earthquake.

We have authorized Dr. B. A. Bolt of the University of California to make a detailed seismological investigation of the Lake Van Norden Dam site and to recommend a design earthquake.

We have also had our consultant, Mr. T. M. Leps, review the available data including correspondence, drawings, photographs and soil information relative to seismic stability.

If it develops that the design earthquake is relatively large and the dam needs to be strengthened, Mr. Leps feels this could be done by buttressing the slopes. Satisfactory safety could also be achieved by lowering the storage elevation. We are studying both methods and others. We do not believe a sophisticated dynamic analysis is justified for this low dam. We expect to receive Dr. Bolt's report by the end of February and will send you a copy.

It is anticipated that drawings would be completed and submitted for your approval in time to complete the work this year.

Sincerely,

R. V. Bettinger

R. V. BETTINGER
Chief Civil Engineer

DLC
4/28

97-

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES
Division of Safety of Dams

Certificate of Approval

This Is To Certify That, pursuant to Part 1 of Division 3 of the California Water Code, the Department of Water Resources of the State of California has found that the Lake Van Norden Dam and Reservoir, State Application Number 97-33, located in Sec. 23, Tp. 17N., R. 14E., M.D.B. & M., Nevada County, State of California, are safe to impound water; and the use of said dam and reservoir to impound water in accordance with and subject to the following terms and conditions is hereby authorized: Water may be impounded to Elevation 6764.60, datum as shown on Pacific Gas and Electric Company's Drawing No. 413523, dated June 23, 1953.

This certificate of approval supersedes every previous certificate of approval or written consent for use issued by the State of California relative to said dam and reservoir.

Witness my hand and the Seal of the Department of Water Resources of the State of California this 29th day of May 19 74

G. W. Peckham
Division Engineer, Reg. C. E. No. 8692

safe

DWR 7 (REV. 8/69)

PACIFIC GAS & ELECTRIC COMPANY

NEW LAKE VAN NORDEN DAM

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES
Division of Safety of Dams

Certificate of Approval

This Is To Certify That, pursuant to Part 1 of Division 3 of the California Water Code, the Department of Water Resources of the State of California has found that the **Lake Van Norden** Dam and Reservoir, State Application Number **97-33**, located in Sec. **23**, Tp. **17N.**, R **14E.**, **M.D.**B. & M., **Nevada** County, State of California, are safe to impound water; and the use of said dam and reservoir to impound water in accordance with and subject to the following terms and conditions is hereby authorized: **Water may be impounded to Elevation 6764.60, datum as shown on Pacific Gas and Electric Company's Drawing No. 413523, dated June 23, 1953.**

This certificate of approval supersedes every previous certificate of approval or written consent for use issued by the State of California relative to said dam and reservoir.

Witness my hand and the Seal of the Department of Water Resources of the State of California this **29th** day of **May** 19**74**

G. W. Dubleth
Division Engineer, Reg. C. E. No. **8692**

RTD 1/24 EUP 1/25/74 JEL 1/25

DWR 7 (REV. 8/69)

PACIFIC GAS & ELECTRIC COMPANY

NEW LAKE VAN NORDEN DAM

State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES
Division of Safety of Dams

Certificate of Approval

This Is To Certify That, pursuant to Part 1 of Division 3 of the California Water Code, the Department of Water Resources of the State of California has found that the Lake Van Norden Dam and Reservoir, State Application Number 97-33, located in Sec. 23, Tp. 17 N, R. 14 E M.D. B. & M., Nevada County, State of California, are safe to impound water; and the use of said dam and reservoir to impound water in accordance with and subject to the following terms and conditions is hereby authorized: 1. Water may be impounded to Elevation 6768.00, datum as shown on Pacific Gas and Electric Company's Drawing No. 413523, dated June 23, 1953.

2. Flashboards shall be left out of the spillway every season between October 1 and April 1, both dates inclusive.

This certificate of approval supersedes every previous certificate of approval or written consent for use issued by the State of California relative to said dam and reservoir.

Witness my hand and the Seal of the Department of Water Resources of the State of California this 8th day of August 1966

FOR THE CHIEF ENGINEER

Robert D. Jansen

Division Engineer, Reg. C. E. No. 8218

SUPERSEDED

DWR 6 (REV. 4/66)

PACIFIC GAS & ELECTRIC COMPANY

NEW LAKE VAN NORDEN DAM

JJK
EVP

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

OBSERVATION AND CONTROL STATUS OF DAM

Name Lake Van Norden Owner PG&E Company No. 97-33

I. Observation

a. Program and staff: Routine visual observations are made. Inspections are also made when operating conditions require and after unusual conditions. The dam is not in continuous attendance.

b. Frequency:

Weekly.

II. Monitoring

a. Instrumentation — Frequency of readings

None available

b. Reporting of data:

None.

III. Hazard Control

a. Capacity of reservoir: 5,874 acre-feet.

b. Emergency emptying facilities: Flashboard structure, with provisions for quick release of boards; and a 22-inch outlet pipe with two gated.

c. Time required to empty: 75 days.

d. Downstream conditions:

Ski lodges are located immediately below the dam, and summer homes along the Yuba River below the dam would be affected by a failure. The location of the dam may be considered fairly hazardous.

SEP 21 '64 A.M.M.

SEP 25 '64 E.V.P.

SEP 10 '64 J.J.K.

SEP 11 1964 W.A.B.

9

State of California
Department of Public Works
Division of Water Resources

Certificate of Approval

of

LAKE VAN NORDEN DAM
AS ALTERED

This Is To Certify, That Mr. Walter Dreyer, Vice President and Chief Engineer for the PACIFIC GAS AND ELECTRIC COMPANY of San Francisco County of San Francisco State of California, on September 30, 1953 filed Application Number 97-33, for approval of plans and specifications for the alteration of the Lake Van Norden dam located in the SW¼, Section 23, T 17 N, R 14 E, MDB&M, Nevada County, State of California; that the dam as altered has been inspected; and that the State Engineer finds that the dam as altered is safe for use to the full extent contemplated in said application.

Now, Therefore, The said dam is hereby declared safe for use in accordance with the findings as hereinabove set forth.

WRB 7/27/54

Witness my hand and the Seal of the Department of Public Works of the State of California this 27th day of July 1954

A. D. Edmonston

A. D. Edmonston, State Engineer

FORM 19 77461 8-30 2M CALIFORNIA STATE PRINTING OFFICE

PACIFIC GAS & ELECTRIC COMPANY

NEW LAKE VAN NORDEN DAM

ANALYSIS OF SPILLWAY

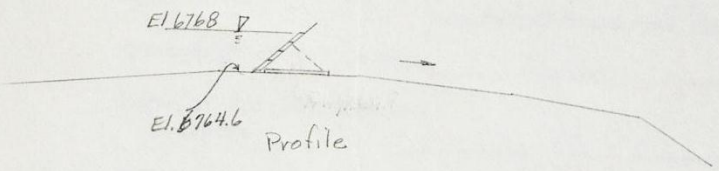
DAM NO. 97-33

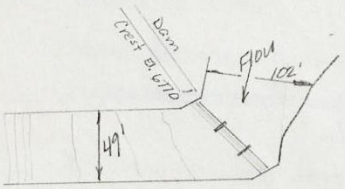
Name of Dam Lake Van Norden Dam Type Earth

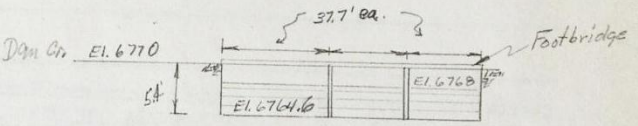
Flooded Area Spillway Crest 382 (Flashboards) acres		Flood Type	1:1000
Source Area-Capacity Curve Date rec'd. 2/3/30		Source	R.L.W. 1930
Drainage Area 12.14 sq. mi.		Peak Inflow, cfs	2064
Source APPI. Date 2/14/30		Peak Inflow, csm	170
Capacity to Spillway 5400 (Flashboards) A.F.		Myer	
Capacity above Spillway 802 A.F.		Volume, inches A.F.	
Area Capacity Curve Plans		Routed?	No
Date rec'd. 2/3/30		S/W Adequate?	Yes
S/W Q = $5.671 A\sqrt{A/T}$		Max. Res. Stage	676.18
Discharge to Elev. 6770		Peak Outflow, cfs	2064
Assumed Datum, is 7150 cfs		Residual Freeboard	3.2

Remarks: Peak flow of 2064 cfs would pass over flashboards with head of 3.1'. Dam would overtop.

Sketch of Spillway, As per Plans Date rec'd. 9/30/53







Calculated by DTF 1962 Checked by _____ 19___

DWR 852

AUG 30 '62 C.J.C.

NEW LAKE VAN NORDEN DAM

PACIFIC GAS & ELECTRIC COMPANY

Name LAKE VAN NORDEN Owner Pacific Gas & Electric Co. No. 97-33

1. Application Alteration Received 9-30-53 Acknowledged 10-1-53
   Other Applications
   Copies made USFS L.A. -- Keysort Card 10-1-53

2. Est. Cost -- Fee -- Receipt --
   Hydrograph = Topographic Sheet
   Tracings Received (2) # 413523 Tracings Prepared
   Call up for Approval

3. Water Rights Notice -- Returned Approved
   Forest Service " 10-1-53 Returned Approved
   Federal Power " -- Returned Approved
   Fish & Game " 10-1-53 Returned Approved
   P. M. A. " -- Returned S. C. S. --
   P. J. Coffey 10-1-53

4. Structural Analysis Satisfactory
5. Spillway Analysis Satisfactory
6. Fieldman's Clearance Geological Investigation

7. Application prepared for signature 10-13-53 L. A. Copies =

8. Application Signed 10-13-53 Tracings Signed none
   Letter Transmittal 10-14-53 Notice Public Utility Com.
   Notice P. M. A. = Notice S. C. S. =

- -
* *
- -

9. Notice of Completion 11-30-53 Acknowledged 12-1-53
   Request for Use. Order Authorizing Use

10. Fieldmans' Review of Plans
    Field Approval 6-29-54

11. Statement Costs Rec'd Reviewed Accepted

12. Final Cost Addition Fee Receipt
13. Final Tracings Rec'd

14. Structural Analysis Satisfactory Recert. #2051 - 8-8-[illegible]
15. Spillway Analysis Satisfactory L357.1 - #2880 5-29-74

16. Certificate Prepared July 27, 1954 Certificate No. 1053
    Water Rights Notice // Returned
    Forest Service " July 29, 1954 Returned
    Federal Power " // Returned
    P. M. A. " // S. C. S. //

17. Dam Satisfactory for Approval July 23 1954

18. Certificate Signed July 27, 1954 Tracings Signed //
19. Letter transmittal July 29, 1954 Tracings Mailed //

NEW LAKE VAN NORDEN DAM

PACIFIC GAS & ELECTRIC COMPANY

UNT

FORM 4

RECEIVED
DIV. OF WATER RESOURCES
SACRAMENTO

FILED IN DUPLICATE

[For full information concerning the filling out and filing of this form send for Rules and Regulations of the Division of Water Resources Governing the Supervision of Dams]

1953 SEP 30 AM 8 15

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

Dam No. 97-33 Application Filed September 30, 1953
Applicant must not fill in the above blanks

APPLICATION FOR APPROVAL OF PLANS FOR THE REPAIR OR ALTERATION OF A DAM

[This application involves in no way the right to appropriate water
To secure the right to appropriate water, application should be made to this department on forms which will be furnished upon request.]

I, WALTER DREYER (Name of applicant) of SAN FRANCISCO (Post office)
County of SAN FRANCISCO State of CALIFORNIA, hereby make application for the approval of plans for the alteration (Repair, alteration) of Lake Van Norden (Name of dam) dam.

The owner of the dam is Pacific Gas & Electric Co. (Name of owner)
of San Francisco (Post office) County of San Francisco State of California
Domestic Corporation, 245 Market Street, San Francisco
J. B. Black, President, E. E. Manhard, Secretary
If the owner is a corporation, state whether domestic or foreign; principal place of business; and name and address of president and secretary

The applicant is acting for the owner in the capacity of Vice President & Chief Engineer (Agent, Lessee, Trustee, Engineer, etc.)

Location of Dam

1. The dam is located on South Yuba (Creek or river) which is a tributary of Yuba (Creek or river)
in Nevada County and in the SW ¼, Sec. 23, Tp. 17 N, R. 14 E. M.D. B. & M.

Description

2. Type of dam Earth (Concrete arch or gravity, earth, rockfill, etc.)
3. Description of work contemplated Revision to spillway (Use extra sheets or exhibits if necessary)
The crest of the spillway will be lowered. The fixed flashboard supports will be removed and a collapsible type installed. The foot bridge will facilitate the handling of the flashboards.
Please refer to drawing 413523.

4. Work will result in

NEW LAKE VAN NORDEN DAM

PACIFIC GAS & ELECTRIC COMPANY

DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

FEB - 9 1931 S.A.H.

ANALYSIS OF SPILLWAY

No. 97-33

Name of Dam Lake Van Norden Type Earth fill

Flooded Area Spillway Crest 382.4 Acres:

Drainage Area 1214 Sq.Mi.:

Res. Capacity to Spillway 4480 / 5804 (Flashboards) A. F.:

Res. Capacity above Spillway _____ A.F.:

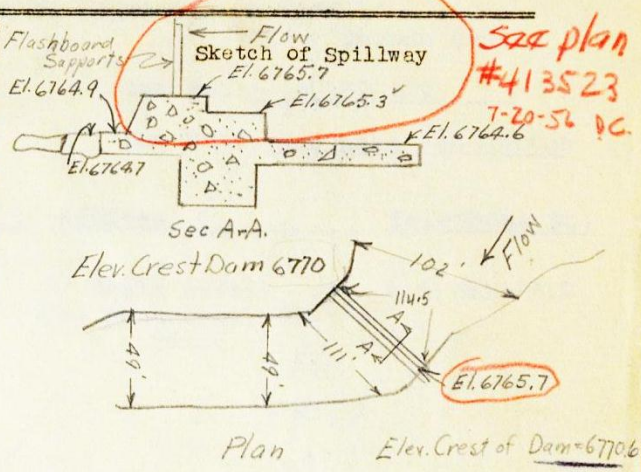
Minimum Allowable Freeboard _____ Feet:

Maximum Detention Available _____ A.F.:

Spillway Discharging Formula Q=

Authority for coefficient

Maximum Discharge to Elevation 6770.6 is 3700 c.f.s:



See plan #413523 7-20-52 D.C.

Elevations U.S.G.S. Datum

HYDROGRAPHIC DATA

	1/100 Year		1/1000 Year	
	Total	Per Sq. Mi.	Total	Per Sq. Mi.
Mean Daily Run-off	1214	100		
Peak run-off	2064	170	Melting Snow	
Hydrograph of Inflow made:	Tabular			
Curve of Spillway Discharge	No			
Detention Curve	Superceded DTF 8/29/62			
Water Elevation Curve				

CONCLUSIONS OR RECOMMENDED ALTERATIONS

$H = \left(\frac{2064}{2.6 \times 113}\right)^{2/3} = 3.98'$

Does the Spillway have Sufficient Capacity 1/100 yes ; 1/1000 _____

Elevation of Highest Water ..... 1/100 Not Calculated ; 1/1000 6768.9

Peak Discharge ..... 1/100 " " ; 1/1000 2064

Remarks Spillway Capacity is greater than Peak Flood Flow

Calculated by E.J.B. 7-2 1930. Checked by D.C. 2-9 1931.

O.K. SHH

NEW LAKE VAN NORDEN DAM

PACIFIC GAS & ELECTRIC COMPANY

State of California
Department of Public Works
Division of Water Resources

Certificate of Approval

of

LAKE VAN NORDEN DAM

(Constructed prior to August 14, 1929)

This Is To Certify, That PACIFIC GAS AND ELECTRIC COMPANY

of San Francisco County of San Francisco State of California, on February 14, 1930

filed Application Number 07-83, for approval

of the Lake Van Norden dam located in SW¼ Sec. 23, T 17 N, R 14 E, M.D.B. & M., in Nevada County,

State of California; that the State Engineer caused an examination to be made of said dam and finds the same to be safe for use to the full extent for which use will be made as stated in said application.

Now, Therefore, The said dam is hereby declared safe for use in accordance with the findings as hereinabove set forth.

Witness my hand and the Seal of the Department of Public Works of the State of California

this 24th day of May 1932

EDWARD HYATT
State Engineer

MAY 24 1932 E. K. R.

Filed by M. Cr

FORM 18 77461 8-30 4M CALIFORNIA STATE PRINTING OFFICE

PACIFIC GAS & ELECTRIC COMPANY

NEW LAKE VAN NORDEN DAM

DIVISION OF WATER RESOURCES

Resume of Investigations Leading to Approval of Dam

GENERAL DATA

Name of Dam Lake Van Norden Owner Pacific Gas & Electric Co.

Type Earth Fill Timber Core Date Completed 1900 Enlarged 1916

Legal Height 25 ft. Reservoir Capacity 5874 acre-feet Drainage Area 12.14 square miles

APPLICATIONS

For Approval	Old Dam	Construction:		
Received	2/14/30			
Approved				
Work Completed				
Estimated Cost	Fee Paid	Final Cost		Extra Fee Pd.

APPLICANTS DATA SUBMITTED

Maps and Plans 2/13/30 Consultants Reports None

Capacity Curve of Reservoir On plan Geological Reports "

Final Construction Drawings None Record of Gauge Heights "

Foundation Record " Grouting Record "

Concrete Tests Map of Location Points & Bench Marks

Other Data

COOPERATING AGENCIES

Water Rights. Clearance Received Unnecessary

R. R. Com. notified of approval of Plans "

U. S. Forest Service. Clearance Received "

Federal Power Commission. Clearance Received "

California Debris Commission. Clearance Received "

Other Federal Agencies "

OFFICE ANALYSIS

Stress Analysis satisfactory None possible Summary Attached

Made by

Spillway Analysis Satisfactory Yes Summary Attached Yes

Made by E. J. Bednardski Checked by Gerald McKinlay

FIELD INVESTIGATIONS BY STATE

Geological Investigations satisfactory None made

Made by

Engineering Investigations satisfactory Approval recommended

Made by Gerald McKinlay

Other Field Investigations None

REMARKS

Filled out by WAP Date 2/13/31 Form to be used 18a O.K. for approval WAP

NEW LAKE VAN NORDEN DAM

PACIFIC GAS & ELECTRIC COMPANY

Supervision of Dams Safety Office

RECORD OF INSPECTION OF DAM

Name ~~NEW LAKE VAN NORDEN DAM~~ Owner Douglas Wilson Companies ~~PACIFIC GAS & ELECTRIC CO~~ No. 7000-120 ~~97-129~~

DATE	INSPECTED BY	DETAIL IN QUESTION	ACTION TAKEN
11/8/76	M. J.McQuilkin	Geologic Inspection	See memo
		Fracture	

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4. Work will result in ~~Domestic~~ No change

Supervision of Dams Safety Office

RECORD OF INSPECTION OF DAM

Name ~~NEW LAKE VAN NORDEN DAM~~ Owner ~~PACIFIC GAS & ELECTRIC CO~~ Douglas Wilson Companies No. ~~97-129~~ 7000-120

DATE	INSPECTED BY	DETAIL IN QUESTION	ACTION TAKEN
11/8/76	M. J.McQuilkin	Geologic Inspection	See memo
	fracture		

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251.0 NEW LAKE VAN NORDEN DAM

PACIFIC GAS & ELECTRIC COMPANY

Division of Safety of Dams

RECORD OF INSPECTION OF DAM

Name LAKE VAN NORDEN DAM Owner PACIFIC GAS & ELECTRIC CO. No. 97-33

DATE	INSPECTED BY	DETAIL IN QUESTION	ACTION TAKEN
7/30/69	R. F. Delparte	Periodic Inspection	See remarks
10/27/69	R. F. Delparte	Periodic Inspection	See remarks
7/16/70	R. F. Moore	Periodic Inspection	See remarks
11/12/70	R. F. Delparte	Periodic Inspection	See remarks
8/9/71	R. F. Delparte	Periodic inspection	See remarks
10/12/71	R. F. Delparte	Repair of rodent hole	See remarks
11/10/71	R. F. Delparte	Periodic Evaluation	See remarks
5/17/72	R. F. Delparte	Inspection of outlet	See remarks
7/10/72	R. F. Delparte	Periodic Evaluation	See remarks
7/10/73	A. M. McClure	Observe boring ans sampling of fill	None
7/25/73	R. F. Delparte	Periodic evaluation	See remarks
11/2/73	R.F. DELPARTE	PERIODIC EVALUATION	SEE REMARKS
6/27/74	R. F. Delparte	Obtain soil samples	see remarks
7/8/74	R. F. Delparte	Periodic evaluation	See remarks
11/4/74	R. F. Delparte	Periodic evaluation	See remarks
11/25/75	R. F. Delparte	Perioidc evaluation	See remarks
8/22/75	R. F. Delparte	Periodic evaluation	See remarks
8/26/75	R. F. Delparte	Foundation drilling	See remarks
9/24/75	R. F. Delparte	See remarks	See remarks
12/9/75	R. F. Delparte	Backhoe exploration	See remarks
11/19/76	R. F. Moore R. F. Delparte	Periodic evaluation	See remarks
12/3/76	R. F. Delparte	Excavation to breach dam	See remarks
12/9/76	R. F. Delparte	Breaching embankment	See remarks
12/21/76	T. S. McLean	Breaching the dam	See remarks
3/11/77	R. F. Delparte	Memo of inspection	See memo

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NEW LAKE VAN NORDEN DAM

PACIFIC GAS & ELECTRIC COMPANY

Supervision of Dams Safety Office

RECORD OF INSPECTION OF DAM

Name LAKE VAN NORDEN DAM Owner PACIFIC GAS & ELECTRIC CO. No. 97-33

DATE	INSPECTED BY	DETAIL IN QUESTION	ACTION TAKEN
8/19/48	Cortright Engle	Periodic Inspection	None required
11/16/48	Engle Cortright	Repair of Riprap	See text
5/18/49	Engle	Periodic Inspection	See text
7/7/50	Engle	Periodic Inspection	None required
7/31/51	Stroppini Cleavinger	Periodic Inspection	None
9/30/52	Stroppini	Periodic Inspection	None
9/22/53	Stroppini	Periodic Inspection	None
11/5/53	Stroppini	Inspection	See report
6/29/54	Stroppini	Inspection	See report
7/20/55	Stroppini	Periodic Inspection	None
7/9/56	Cleavinger	Periodic Inspection	See report
7/8/57	Poe	Periodic Inspection	None required
8/11/58	Poe	Periodic Inspection	None required
7/1/59	Cleavinger	General Inspection	None
8/29/61	Poe	Periodic Inspection	See report
10/4/62	Poe	Periodic Inspection	See report
7/10/63	Poe	Periodic Inspection	None required
6/22/64	Poe	Periodic Inspection	None required
9/23/65	Delparte	Periodic Inspection	See remarks
6/20/66	Delparte	Periodic Inspection	None
8/14/67	Delparte	Periodic Inspection	See remarks
10-18-67	Delparte	Periodic Inspection	See remarks
6/24/68	Delparte	Periodic Inspection	See remarks
10/4/68	Swanson	Periodic Inspection	See remarks

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0 NEW LAKE VAN NORDEN DAM

PACIFIC GAS & ELECTRIC COMPANY

DIVISION OF WATER RESOURCES

RECORD OF INSPECTION OF DAM

NO. 97-33

NAME OF DAM Lake Van Norden OWNER Pacific Gas & Electric Company

DATE	INSPECTED BY	DETAIL IN QUESTION	ACTION TAKEN
7/8/30	G.McKinlay	General	Approval recommended
6/23/31	G.McKinlay	General	O.K.
7/6/32	G.McKinlay	Maintenance	
9/2/32	D.W.Morrison	Maintenance	
7/21/33	W.A.Perkins	Maintenance	
9/20/34	W.A.Perkins	Maintenance	
7/10/35	W.A.Perkins	Maintenance	
9/23/36	W.A.Perkins	Maintenance	
7/14/37	D.S.Cleavinger	Maintnnance	
9/2/37	W. A. Perkins	Periodic Inspection	
9/8/39	W. A. Perkins	Periodic Inspection	See text
10/19/39	W.A. Perkins	Repairs required in spillway	
6/27/40	R.L. Wing	Periodic Inspection	
6/12/41	W.A.Perkins	Periodic Inspection	None Necessary
9/11/42	W. A. Perkins	See remarks	To be discussed with Mr. Wanzer
6/2/43	G. F. Engle	Periodic Inspection	None required
11/3/43	G. F. Engle	Inspection of upstream face under low reservoir conditions	None
5/24/44	G. F. Engle	Periodic Inspection	None required
7/27/44	G. F. Engle	Periodic Inspection	None required
6/22/45	G.F. Engle	Periodic Inspection	
5/24/46	G.F. Engle	Periodic Inspection	None required
10/29/46	C. G.F. Engle	Periodic Inspection	None
5/14/47	G.F. Engle C.M.O'Donnell	Periodic Inspection	None

WORK STARTED 19 WORK COMPLETED 19

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