0030

Price Field Office
125 South 600 West
Price, Utah 84501

3482
SL-031286
U-64263
(UT-066)

Certified Mail--Return Receipt Requested
Certificate No. 299 521 601

AUG - 6 1998

RECEIVED
APR 1 1999
DIV. OF OIL, GAS & MINING

Mr. Art Palm
Acting General Manager
Cyprus Plateau Mining Corporation
P. O. Drawer PMC
Price, Utah 84501

Re: Longwall Equipment Abandonment, Starpoint Mine

Dear Mr. Palm:

On September 22, 1997, Cyprus Plateau Mining Corporation (Cyprus) submitted to the Bureau of Land Management (BLM) items for approval regarding mining operations at the Starpoint Mine. Ongoing resolution of issues with various Federal and state agencies regarding the disposal of materials on Federal coal leases has delayed the BLM acting on your requests, though various verbal authorizations have occurred. This letter is to officially notify Cyprus of the BLM's concurrence with items under our jurisdiction.

Cyprus requested authorization to leave the longwall machinery in place at panel #42 or 14 Left. A combination of adverse events lead Cyprus to this request. A breakdown of the shear in between crosscuts and adverse loading on the shields from a sandstone channel in the roof were some of the main reasons to abandon the longwall in place. Removing the machinery under the existing conditions would be uneconomical and would pose a safety risk. We have consulted with the Mine Health and Safety Administration (MSHA) and agree with their assessment that the longwall could not be removed without compromising worker safety.

Cyprus has provided certification, which we have verified, that all fluids and oils that could contaminate the underground water have been removed. Other sources and experts have confirmed to us that no adverse effects would occur by leaving the steel longwall equipment underground. Therefore, our concurrence to leave the longwall equipment underground is based on safety concerns, but also this action would have no adverse environmental effects.

Cyprus has also requested approval under the Mineral Leasing Laws to abandon and seal the west area of the Starpoint #2 Mine (sometimes referred to the Castle Valley Ridge Graben coal block) at the rock slopes. We have verified that all remaining recoverable coal has been mined and maximum economic recovery has been achieved. The request is approved, which confirms previous verbal approval for the last longwall mining panel in this area.

If you have any questions or concerns, please contact Stephen Falk of my staff at (435) 636-3600.

Sincerely,

/s/ THOMAS F. RASMUSSEN

Richard L. Manus
Field Office Manager

cc: UT-921, Utah State Office (w/staff report)
Manti-LaSal National Forest (w/staff report)
599 Price River Drive
Price, Utah 84501
Utah Division of Oil, Gas and Mining (w/staff report)
1594 West North Temple Ste 1210
Box 145801
Salt Lake City, Utah 84114-5801

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platuleavlngwl.ltr

Price Field Office
125 South 600 West
Price, Utah 84501

3482
U-64263
(UT-066)

Memorandum

To: The Files

From: Mining Engineer

Subject: Staff Report for Cyprus' Request to Leave Longwall Machinery Underground at Starpoint Mine.

This staff report documents the events and evaluation of the subject event at the Starpoint Mine. To start off, a brief history of the mining area needs to be discussed.

Cyprus has been mining in what is called the Castle Valley Ridge Graben area since 1989. This area is the west most property of the Starpoint Mine. Mining has been limited to the Wattis Seam (upper seam) as the lower Hiawatha Seam is only 4 feet thick over the extent of the area. The area is located on Federal coal leases U-13097 and U-64263, covering T. 15 S., R. 7 E., sections 26, 23, 14, and 11. This block of coal is in a long narrow graben formed by the west Pleasant Valley Fault system and another north-south fault on the east that forms a graben 3/4 mile wide. Access to the area from the existing mine to the east was via rock slopes across the east fault zone completed in 1989.

The rock slope accessed the Castle Valley Ridge Graben area at the north end of lease U-13097. East-west longwall panels were planned to be mined in succession starting from the top of the slopes and progressing south in this graben. At the same time, Cyprus applied for the Castle Valley Ridge lease tract adjacent and north of lease U-13097. The lease was issued to Cyprus and permitting the tract occurred about the time mining was completed in the south on lease U-13097. Development began north into the new lease, U-64263. Main entries were driven north near the east fault and longwall panels were developed west to the Pleasant Valley Fault. This is the layout of the area in question.

As mining extended the longwall panels north into lease U-64263, mining conditions slowly became less than ideal. Eight longwall panels were mined north from the graben slopes up to the planned 4 West submains. Just past the 4 West submains, a number of east-west fault/fracture zones were encountered. In addition, a large rock split was encountered in developing the longwall panels to the west which shortened the planned panel lengths to nearly 1/2 the projected length. Four of these short panels were completed with difficulty. Further advance north was stopped by one more east-west fault of large displacement. In addition, each of these last four longwall panels had intermittent channel scouring in the roof which forced the longwall cutting shear to mine rock. All these factors are mentioned to

impress the fact that the reserves in this north area of lease U-64263 were marginal at best. Cyprus reported net losses for the last few months of 1997. Numerous inspections by myself verified these facts and findings.

This lead up to the situation of leaving the longwall equipment in the last panel underground. The last longwall panel (named 14 Left or panel # 42) started up in August of 1997. The coal was thinning to the north and a sandstone channel had scoured out the coal to the west. This panel was only 1200 feet long. As the longwall approached crosscut 9, the planned take out room being crosscut 5, an associated channel scour in the middle of the panel was encountered. The channel had scoured out 3 feet of the coal along the face for 40 to 60 feet wide. Roof conditions were adverse as the sandstone top started to weigh heavily on the shields. Advance rates were slowed as cutting through the sandstone was hard. I had witnessed the problem and gave a tentative ok if Cyprus needed to terminate the panel before crosscut 5 as the mining was adverse and coal quality was below compliance with all the rock cut with the coal. Cyprus said they would have to advance at least to the next crosscut, #6, so that the machine could be pulled out under their approved safety plan. In September, Cyprus reported to me that the gear box on the shear was broke. The longwall then was between crosscut 7 and 6. Cyprus then made the decision to leave the longwall in place after removing all liquids and oils from the machinery. This decision was based on a number of factors.

With the gear box broke on the shear, the longwall could not advance any further, as the shear needs to cut the coal to advance the face, nor could the shear tram up and down the face without the gear box. The estimated repair cost ran over $80,000. The longwall machine along with the shields were very old and well past salvage value other than scrap metal. Standard longwall removal requires on open crosscut to extract machinery practically and safely. The longwall would need to advance another 60 feet which it could not do without repair. No take out procedures had been started such as wire meshing the roof and installing extra bolts and cribs. Cyprus would have to modify their extraction plan with Mine Safety and Health Administration (MSHA). After consultation with this agency (James Kirk, Price Field Office, MSHA), we are in agreement that trying to remove the machinery from the current place would be a major safety concern and any new extraction plans to MSHA would not meet safety standards. The sandstone channel rock was weighing heavily on the shields and I noted that several shields were at their load capacity. The sandstone was braking at the face and around the shields and would fall in as the shields were moved. The safety concerns of the longwall were the overriding factor in the decision to leave the machine in the mine but was coupled with the economics and practicality of the situation.

Cyprus formally requested to leave the longwall in place by letter to the BLM Area Manager dated September 22, 1997. A copy was also sent to the Manti-LaSal National Forest. The Forest Service responded back to Cyprus dated October 28, 1997, with concerns of leaving the longwall underground. Cyprus has since provide further information with two letters dated October 29 and December 1, 1997 and faxed information dated October 6, 1997.

Cyprus' situation is unique and one that could not be avoided. Situations arose that could not be controlled or planned. Cyprus considered other options but the conditions (broken shear, bad roof conditions, no move preparation) forced the issue. Cyprus supplied the information

and mitigated as many aspects as possible in leaving the longwall underground. These specific abandonment measures by Cyprus will be looked at next in this report. However, it is my opinion that unforeseen events and conditions beyond any control have dictated that the longwall could not be removed under any practical or safe conditions and would have to be abandon in place. In so doing it is also my opinion that no adverse impacts to the environment (ground or surface water quality and quantity) will occur in this case, the reasons follow.

Leaving longwall machinery underground raises some environmental concerns. Most of the concern is the potential to contaminate the ground water. If this being the case, would this in turn contaminate surface waters fed by ground water?

Issue # 1 - The longwall equipment contains some hazardous materials, namely fluids, oils and grease.- In Cyprus's case, these fluids were removed and drained. In the initial request, Cyprus committed to remove and drain all hazardous fluids. This was followed up with a listing of the fluids in the longwall machine and the Material Safety Data Sheets for the longwall shield hydraulic emulsion fluid. The emulsion fluid used was biodegradable and completely non toxic. Cyprus ran water through the shields for the last three days to flush the system of the emulsion fluid. Finally, an independent inspector (Joy Manufacturing rep.) verified that the fluids were drained as detailed in his report. In the Cyprus case, the longwall is devoid of any hazardous fluids or wastes left in the machine. Any residual grease and oils will be absorbed into the surrounding coal seam as coal is a hydrocarbon also and would act as a filter. Water contamination is not applicable in this specific case. The longwall is far up dip and away from any potential of being under water. A report from Hansen, Allen and Luce (report attached) came up to the same conclusion that contamination of the ground water will not happen. For future events, such as the Cyprus longwall, longwall machinery contains hazardous fluids, usually in the form of petroleum based fluids. However, if properly drained, little risk remains for hazardous fluids contaminating ground water.

Issue # 2 - The longwall machine may contain metals that in a free state could be classified as toxic which could degrade into the ground water. - We have contacted the University of Utah Metallurgical Department (Dr. Free and Dr. Miller) and they have concluded that deterioration of the metal is not a concern. The metals on a longwall (in fact most mining equipment) are high tensile metal alloys which are made to resist corrosion. Normal rates of corrosion are extremely slow, in the magnitude of 1000's of years. The exact metallurgy of the components of the longwall are trade secrets. However, the only potentially hazardous non-iron metal of any significant amount is chromium. According to the metallurgists, to have chromium leach out of the metal alloy, one would have to have the metal ground up to particle size to have a chemical release. Also, there needs to be a set environment to facilitate rapid corrosion (high humidity, acidic water, etc.) which is not the case at the Starpoint Mine. All the experts were in agreement that the situation at the Starpoint Mine could not contaminate the ground water from the metals in the longwall. The consultant report came to the same conclusion. They are also of the opinion that Utah coal mines in general could not have a situation where corrosion of metals from left equipment underground would be at a rate to contaminate the ground water.

Issue # 3. - Leaving the longwall underground would constitute a solid waste disposal site. -

After discussions with the EPA (Janice Pearson, Denver Region) and Utah Department of Environmental Quality (Ralph Bohn, DEQ, Salt Lake City), both agencies agreed that leaving incidental equipment and machinery underground would not constitute a solid waste disposal site unless materials were intended to be disposed there or if materials were hauled into the mine for disposal. EPA classifies old mining equipment as scrap and not solid waste (verbal conversation with Ms. Pearson, EPA, Denver). Though the regulations and definitions are vague, both agencies agreed that they would be hard pressed to permit an underground mine as a solid waste disposal site unless materials were purposely hauled into the mine to be disposed of. The problem I see that our agencies face is the vagueness of our definitions of terms. Large quantities of materials are left in underground mines, a large part being roof support materials such as roof bolts, steel arches, metal overcasts, etc. It was suggested that we could differentiate between structures left in the mine for support and equipment. Equipment would have to be removed but structures that are part of the mine could remain. This is not workable or defensible in my opinion. The whole reason for not leaving items underground is to prevent those items from contaminating the ground water. But if we say that steel roof bolts are ok it leave but steel longwall shields (with fluids removed) are not ok, we are being arbitrary and inconsistent since both items are made of essentially the same material. How can we make a decision which items can or cannot be left in the mine when those items are made of the same material and the purpose is to prevent contamination of the water from that material or metal? The amount of metal in all mining equipment in a mine would still only be a small percentage of the total metal left in the form of roof support materials. This problem seems to make classifying underground mining sites as solid waste disposal sites out of the question too. Every mine leaves large quantities of steel underground in the form of roof support materials. Again to make a determination that steel left for roof support is not a solid waste and steel equipment not used for roof support is a solid waste is indefensible. The two agencies in charge of solid waste disposal sites voiced their position that they could not regulate an underground mine as a disposal site unless there was clear use and intent to haul and dispose of solid waste underground.

Issue # 4. Leaving equipment underground is contrary to lease stipulations. The lease terms in my opinion, refer primarily to outside structures and equipment. Again, to define "support facilities, structures, equipment, and similar developments" as materials that should not be left underground would include all the items used for roof support and are used in the process of caving as the coal is mined out. We must go back to the purpose for not wanting items left underground, which is to prevent contamination of the ground water. It is unworkable to require removal of all underground items under the authority of lease stipulations as the terms in the stipulations are undefined and vague.

What should be the requirements of the Federal government? For common sense, no one wants things left underground for no reason. Casual disposing of materials in an underground mine could be a solid waste disposal site and could be regulated. A policy to not leave removable items underground without reason should be adopted. However, in the Cyprus case, overwhelming reasons exist. Laws to prevent the contamination of ground water are in place. If certain precautions are taken, materials and equipment used in mining can be made nearly inert to comply with the law. I do feel that the lease terms are vague and need to be reworded. However, I'm not so sure that the lease is where we want to address compliance with hazardous wastes. Those fall under an existing agency and duplication is not necessary.

Regulation of clean water and waste disposal laws, in my opinion, is rightly vested in the agency that has the authority to grant mining, the Utah Division of Oil Gas and Mining. To allow other agencies such as the BLM and the Forest Service to regulate disposal through lease terms is a duplication of regulations and counter-productive. To further address the situation via the NEPA process is also counter-productive and questionable if necessary. This is my recommendation, but is beyond this level of management.

Under the adverse conditions Cyprus found itself, they made a reasonable decision to leave the longwall underground. It is doubtful that anyone could have ordered the removal of the longwall, even right after the shear broke, due to safety concerns. But this incident raises questions. Can the agencies respond in a timely matter to make decisions that could be very time dependent? Coal operators need to be made aware of our policy, if we have one or agree on a new policy, and that leaving items that are normally not left in the mine can only be left for good cause and that any hazardous materials such as petroleum fluids be removed. This new awareness should be stressed to the operators but the agencies must have legal and united consensus on this and also a program to administer. Compliance checks will be difficult as only the BLM has underground inspectors with limited time and means to inspect.

My final conclusions are that materials that are not normally left in coal mines should be removed. Exceptions can be granted for reason and if normal hazardous materials are removed. Most solid materials in the mine under most conditions will not jeopardize the ground water regime. Finally, management of all agencies need to check their authorities and come to consensus for a workable and non-duplicate program that can be enforced and is very timely.

This is my report on the situation. I am currently on a team with DOGM and Forest Service to come to look into this problem. This report will be used for some basis for the team but is not a final recommendation from the team.

Stephen W Falk

Enclosures:

1. MSDS sheets for longwall emulsion
2. Cyprus submissions
3. Hansen Allen and Luce report

FAX TRANSMISSION

Cyprus Plateau Mining Corporation
PO Drawer 7007
Price Utah 84501-7007
(801) 637-2876
Fax (801) 637-2247

472-5125

To: Tom Hurst **Date:** 10/6/97

Fax # **Pages:** 5 including this cover sheet.

From: J. Pappas

Subject: DA Stuart Emulsion Fluid MSDS.

COMMENTS:

For additional Info:
contact
Lee Bunderson
801-637-2766

MATERIAL SAFETY DATA SHEET

ENTITY: ISOSYNTH VX 110 BF
s Used on Label and List)

HMIS HAZARD RATING

HEALTH: 1 (SLIGHT)
FLAMMABILITY: 0 (MINIMAL)
REACTIVITY: 0 (MINIMAL)

SECTION I

NUFACTURER'S NAME: STUART-IRONSIDES, INC.
DDRESS 7575 PLAZA COURT
Street,City,State,Zip) WILLOWBROOK, ILLINOIS, 60521

MERGENCY TELEPHONE NUMBER: (708) 655-4595
ELEPHONE NUMBER FOR INFORMATION: (708) 655-4595
ATE PREPARED: APRIL 24, 1992

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

HAZARDOUS COMPONENTS	OSHA PEL	ACGIH TLV	OTHER LIMITS	%
BENZYL ALCOHOL CAS# 100-51-6	NE	NE		< 4

E = NOT ESTABLISHED

CONTAINS COMPONENTS LISTED WITH TSCA.

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT:	>212°F	SPECIFIC GRAVITY (H2O=1):	0.98
VAPOR PRESSURE (mm Hg):	ND	MELTING POINT:	NA
VAPOR DENSITY (Air=1):	ND	EVAPORATION RATE (BUTYL ACETATE=1):	< 1
SOLUBILITY IN WATER:	SOLUBLE		
APPEARANCE AND ODOR:	CLEAR AMBER LIQUID; MILD AROMATIC ODOR	pH:	9.3

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method Used): NONE, WATER BASED PRODUCT

MATERIAL SAFETY DATA SHEET

DENTITY: ISOSYNTH VX 110 BF
As Used on Label and List)

LAMMABLE LIMITS: LEL ND UEL ND
EXTINGUISHING MEDIA:
DRY CHEMICAL, FOAM, CO_2
PECIAL FIRE FIGHTING PROCEDURES:
FIREFIGHTERS SHOULD WEAR SELF-CONTAINED BREATHING APPARATUS.
UNUSUAL FIRE AND EXPLOSION HAZARDS:
NONE

SECTION V - REACTIVITY DATA

STABILITY: STABLE CONDITIONS TO AVOID: NONE

NCOMPATIBILITY (Materials to avoid): STRONG OXIDIZING AGENTS
HAZARDOUS DECOMPOSITION OR BYPRODUCTS: CO, CO_2

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR CONDITIONS TO AVOID: NONE

SECTION VI - HEALTH HAZARD DATA

ROUTE(S) OF ENTRY:	INHALATION?	SKIN?	INGESTION?
	YES	YES	POSSIBLE

HEALTH HAZARDS (Acute and Chronic):
NO KNOWN HEALTH HAZARDS. PROLONGED OR FREQUENT CONTACT MAY CAUSE MILD SKIN AND EYE IRRITATION.

CARCINOGENICITY	NTP?	IARC?	OSHA REGULATED?
OT LISTED			

SIGNS AND SYMPTOMS OF OVEREXPOSURE:
POSSIBLE RED AND/OR ITCHING SKIN DUE TO OVEREXPOSURE.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:
NONE KNOWN

EMERGENCY AND FIRST AID PROCEDURES:
EYE CONTACT: FLUSH WITH WATER FOR AT LEAST 15 MINUTES AND SEEK MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT: WASH WITH SOAP AND WATER.

INHALATION: IF A PERSON BREATHES IN LARGE AMOUNTS OF THIS PRODUCT, MOVE THE EXPOSED PERSON TO FRESH AIR AT ONCE.

MATERIAL SAFETY DATA SHEET

IDENTITY: ISOSYNTH VX 110 BF
(As Used on Label and List)

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
EXTINGUISH ALL FLAMES IN THE VICINITY. DIKE SPILL AND SOAK UP ON INERT ABSORBENT MATERIAL.
WASTE DISPOSAL METHOD:
FOLLOW FEDERAL, STATE, LOCAL AND CORPORATE REGULATIONS FOR DISPOSAL.
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:
STORE CONTAINERS CLOSED, AWAY FROM EXTREME HEAT AND OPEN FLAME.
OTHER PRECAUTIONS:
USE GOOD PERSONAL HYGIENE. FOR INDUSTRIAL USE ONLY.

SECTION VIII - CONTROL MEASURES

RESPIRATORY PROTECTION (Specify Type): IF VENTILATION EQUIPMENT IS NOT SUFFICIENT TO KEEP AIRBORNE CONCENTRATIONS BELOW EXPOSURE LIMITS, A NIOSH APPROVED RESPIRATOR SHOULD BE WORN.

VENTILATION: LOCAL EXHAUST: ADEQUATE SPECIAL:
MECHANICAL (General): ADEQUATE OTHER:

PROTECTIVE GLOVES: WATER-PROOF EYE PROTECTION: SAFETY GLASSES

OTHER PROTECTIVE CLOTHING OR EQUIPMENT:
WEAR A PROTECTIVE APRON IF SPLASHING IS ANTICIPATED.
WORK/HYGENIC PRACTICES:
LAUNDER SOILED CLOTHING BEFORE REUSE.

SECTION IX - REGULATORY INFORMATION

SARA TITLE III STATUS:

SECTION 311 AND 312 HAZARDOUS CHEMICALS

THIS PRODUCT CONTAINS THE FOLLOWING INGREDIENT(S) DEFINED AS HAZARDOUS BY OSHA HAZARD COMMUNICATION STANDARD 29 CFR 1910.1200 (d).

CAS #	CHEMICAL NAME	% BY WEIGHT

MATERIAL SAFETY DATA SHEET

IDENTITY: ISOSYNTH VX 110 BF
(As Used on Label and List)

SEE SECTION II

SECTION 313 SUPPLIER NOTIFICATION

THIS PRODUCT CONTAINS THE FOLLOWING TOXIC CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT OF 1986 AND OF CFR 372.

CAS #	CHEMICAL NAME	% BY WEIGHT
NOT APPLICABLE		

PLEASE NOTE THAT IF YOU REPACKAGE OR OTHERWISE REDISTRIBUTE THIS PRODUCT TO INDUSTRIAL CUSTOMERS A NOTICE SIMILIAR TO THIS ONE SHOULD BE SENT TO THOSE CUSTOMERS.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED ACCURATE BY STUART-IRONSIDES, INC. HOWEVER, NO WARRANTY, EXPRESSED OR IMPLIED, IS GIVEN REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED ON THE USE THEREOF.

CYPRUS PLATEAU MINING CORPORATION
A Cyprus Amax Company

Cyprus Plateau Mining Corporation
Post Office Drawer PMC
Price, Utah 84501
(801) 637-2875

September 22, 1997

97 SEP 25 AM 9:33
BUREAU OF LAND MANAGEMENT

Mr. Dick Manus
Area Manager
Bureau of Land Management
125 South 600 West
Price, Utah 84501

Re: Equipment Abandonment, Star Point Mine Closure, Cyprus Plateau Mining Corporation

Dear Mr. Manus:

As we have evaluated the abandonment of certain areas of the mine, it appears that it is both practical and economical to abandon certain items of equipment in place rather than attempt to bring them to the surface for disposal. We believe that this can be accomplished without any impact on other resources and in full compliance with the regulations.

Therefore, please accept this letter as our request for BLM approval of the abandonment of the 3rd North area with the seals to be put in place just north of the proposed 4th West section. As a part of this abandonment, it is our intent to abandon the longwall in place at the conclusion of our mining operations. During the final stages of our operations, all equipment will be drained of viscous petroleum products and emulsion fluid for the longwall will not be replace as it is consumed for the last three (3) days of its operation. During this period, only water will be used for the operation of the shields. All petroleum products will be removed from the underground area and appropriately disposed of. Under these circumstances, we see no risk of contamination of ground water and no risk of damage to any other resources on the public lands.

We would appreciate receiving you approval of this abandonment as indicated above.

Sincerely,

Art Palm
Acting General Manager

AP/jp

USDI-BLM PRICE OFFICE
RECEIVED
SEP 25 '97
MGR
ASST MGR
COAL
MINERALS
REC/CULT
SUPPORT
RANGELAND
LANDS
LAWENFORCE
COPY ALL EMP

CYPRUS PLATEAU MINING CORPORATION
A Cyprus Amax Company

Cyprus Plateau Mining Corporation
Post Office Drawer PMC
Price, Utah 84501
(801) 637-2875

October 29, 1997

SR / PR REC - OCT 29 1997

Mr. Dick Manus
Bureau of Land Management
Price River Resource Area Office
125 South, 600 West
P.O. Box 7004
Price, Utah 84501

RE: Abandonment of Longwall Equipment Starpoint No. 2 Mine

Dear Mr. Manus:

More clarification was requested from your office concerning the amount of petroleum fluids normally present in the longwall system. A list of equipment to be left in place and the type of fluid contained follows:

Item of Equipment	**Status**	**Type of Fluid**	**Normal Capacity**
Head drive 650 fluid coupler for face conveyor (gearbox removed)	Will be drained	Dexron II ATF	12 gallons
Tail drive face conveyor	Recovered		
Stage Loader 487 fluid coupler	Will be drained	Dexron II ATF	5 gallons
Stage Loader Gearbox	Will be drained	Century PowerGear 150 320+	8 gallons
Crusher 487 fluid Coupler	Will be drained	Dexron II ATF	5 gallons
Crusher Gearbox	Will be drained	Century PowerGear 150 320+	6.5 gallons
Shearer Ranging Arms (2)	Will be drained	Century PowerGear 150 320+	24 gallons

Shearer Haulage gearboxes (2)	Will be drained	Century PowerGear 150 320+	30 gallons
Shearer Hydraulics	Will be drained	Chevron 150 68	55 gallons (max. estimate)
Shields	Ran with water only last 3 days	MSDS Sheet previously provided	2% to 5% of water for shields

The fluids to be removed from the equipment will be properly disposed.

Should any questions arise, contact Johnny Pappas at 636 2289 or me at 472 0475 after November 4, 1997.

Sincerely,

Tom Hurst

Tom Hurst
Mining Engineer

c. Two, BLM
Art Palm
Johnny Pappas
Jack Trackemas

File Gov. 1.6.3

CYPRUS PLATEAU MINING CORPORATION
A Cyprus Amax Company

Cyprus Plateau Mining Corporation
Post Office Drawer PMC
Price, Utah 84501
(801) 637-2875

December 1, 1997

USDI-BLM PRICE OFFICE
RECEIVED
DEC -2 '97

Ms. Janette S. Kaiser
Forest Supervisor
Manti-La Sal National Forest
599 West Price River Drive
Price, Utah 84501

RE: Star Point Mine Longwall

Dear Ms. Kaiser:

Enclosed is a copy of our Environmental Consultant's (Hansen, Allen & Luce, Inc.) evaluation of the hydrogeologic and environmental impacts resulting from the abandonment of the mechanical longwall equipment within Panel 42 of the Castle Valley Ridge Coal Lease Tract. Also enclosed is a Field Service Report from Barney Pennell (Joy Mining Machinery) where he inspected the longwall and noted that all fluids have been drained from the longwall.

After your review of the aforementioned, should you have any questions please do not hesitate to contact me at (435) 472-4741 or Art Palm at (435) 636-2205.

Sincerely,

Johnny Pappas
Sr. Environmental Engineer

Enclosures

Chrono: JP971203.LTR

cc: BLM

JOY MINING MACHINERY
A Harnischfeger Industries Company

Report No.
101

Field Sales and Service Report

☐ Repetitive Problem

Company: Cypress Amax	**Date of Call:** November 15 1997
Mine Name: Plateau	**Report by:** Barney Pennell
Location: Price Utah 84501	**Region:** West, USA

Person(s) Interviewed (& Title): Max Davis		
Model: 3 LS	**Serial No:** LWS 225	**Delivery Date:**
In Service Date:	**Tonnage:**	**Hourmeter:**

☐ New Machine ☒ Rebuilt Machine ☐ **Action Request From:**

Report Quick References

☐ Sales/Commerical ☐ Warranty/PRP
☐ Competition ☐ Performance
☒ Other:

Group Function	Assembly

REPORT DETAILS

This letter is in reference to the 3Lslongwall shearer to be left on the face at Cypress Amax Plateau mine. On November 15 1997 I was accompanied to the longwall face by Mr. Max Davis to inspect this shearer to check if all the (oil) had been drained from this piece of equipment. Upon entering the longwall face I checked the H./G. ranging arm,H./G. haulage, T./G. haulage, T./G. ranging arm gear cases and found all gearcases to be drained and the drain plugs left open. I also checked the hyd. Oil tank and found it to be drained as well with the drain left open.

HANSEN ALLEN & LUCE INC

SALT LAKE AREA OFFICE
6771 South 900 East
Midvale, Utah 84047
Phone: (801) 566-5599

Mr. Johnny Pappas
Cyprus Plateau Mining Company
P.O. Drawer PMC
Price, Utah 84501

November 18, 1997

RE: Hydrogeologic Issues Related to Longwall Abandonment Within Castle Valley Ridge.

Dear Johnny:

As requested, we have completed our evaluation of the hydrogeologic and Environmental impacts resulting from the proposed abandonment of the mechanical longwall equipment within Panel 42 of the Castle Valley Ridge Coal Lease Tract. Factors identified and evaluated follow:

Water Level History

Initial hydrogeologic investigations of the Gentry Ridge Coal tract completed in the late 1980's and early 1990's projected a southward trending groundwater gradient which would be intercepted by mining within a short distance south of the Graben Crossing. Further clarification regarding where the water might be encountered during mining was made following the completion of drill holes P92-01-WD, P92-02-WD and P92-04-WD. Water was subsequently encountered within the 3rd South Mains just south of 1st Right (see Figure 1 attached).

The potentiometric surface completed in 1993 showed that overall ground water movement was to the south-southwest. It was concluded at that time that mining conducted south of 1st Right would generally be beneath the local water table and would require pumping. Mining north of 1st Right would be above the water table and would likely only encounter occasional perched or isolated water. These conditions have been verified during mining.

It was further concluded that mining south within Gentry Ridge would lower the local water table as water was pumped eastward across the graben, and that once mining was complete, it would make a partial recovery. The impacts of this pumping have been documented through data collected and submitted to the Division of Oil, Gas & Mining.

Attached graphs for in-mine wells P92-01A-WD, P92-01B-WD, P92-01C-WD, P92-02-WD, and P92-04-WD show a consistent decline in water levels as mining advanced southward. The graphs

for wells P92-01C-WD, P92-02-WD, and P92-04-WD also show a partial recovery of water level following termination of mining. Graphs for wells P92-01A-WD and P92-01B-WD show little or no recovery to date.

The overall lack of water entering the mine from northern mine sections is also verified through a review of pumping data collected from the Graben Goose pump. As shown in the attached figure, pumping levels declined substantially during the mid 1990's when mining retreated from the Gentry Ridge area and moved northward into Castle Valley Ridge. As shown in the figure, pumping subsequent to this move reduced from an all time high of 1,398 gpm to a current flow of approximately 50 gpm.

Current/Future Water Table

The in-mine ponded water level noted on November 4, 1997 was found at the intersection of Cross-Cut 82 with the #3 Entry, and at the intersection of Cross-Cut 83 with the #2 Entry as shown on the attached figure. As shown on Figure 1, the current water level is below (south) of the dry/wet interface noted during mine development. Current data taken from the monitoring wells identified above shows an approximate overall net decline in water level (depending upon well location) to be between 25 and 118 feet. Overlaying 1993 water level data over mine workings containing the abandoned Longwall unit shows that the water level is in excess of 210 feet below the mine workings. Current water levels would be greater than 210 feet deep since local water levels have dropped since 1993 as documented above. Since long term water levels can not rise to the pre-mining levels noted on Figure 1 (due to tunnel diversions), there is no possibility of the mine being flooded with base groundwater.

It is unlikely that future water levels will ever rise to the historic water level recorded during mine development. Mining has created large voids which have the capability of not only moving water more freely (with less resistence), but to store large volumes of water. This large reservoir of water appears to be enhancing the movement of ground water by providing a direct recharge source to local north-south trending faults and fractures. The impacts of historic and post mining of the Gentry Ridge tract are well documented by CPMC and Castle Valley Special Services District (CVSSD). Records show that current post mining flows in the Tie Fork well system are higher than pre mining flows. The increased flow noted at the Tie Fork wells would tend to indicate that water has either been re-routed, or is moving more freely. The decreased water levels within the mine are believed to indicate that decreased resistance is the main driving force for increased Tie Fork flows.

Some concern has been raised about the possibility of inundating the abandoned Longwall Unit through either mine seepage or a rising water table. It has been determined following our in-mine site visit, and after a review of mine maps, that water could not back up into Castle Valley Ridge to the point where it would inundate the Longwall unit. The strike and dip of mined coal sections

will redirect any in-mine flows southward without the possibility of significant damming, or without the possibility of discharging from any mine portal. Portal discharge is highly unlikely since there are numerous in-mine routes that the water would take prior to backing up sufficiently to drain from a portal location. This is an obvious conclusion which can be reached by reviewing in-mine well data within Gentry Ridge.

The Longwall unit is located near the extreme north end of the abandoned mine workings, and is itself located just west of a natural ridge. As shown on Figure 1, any water found within the mains just north and east of the Longwall will move east, then southward. Similarly, any water found north and west of the Longwall, will move within the gob area to the south and west. Any pooling which could occur within the gob area behind the Longwall unit will overtop down gradient tunnel intersections and continue to move southward away from the abandoned section. A small floor seep located approximately midway along the Longwall unit is discussed hereafter.

Longwall Unit

The Longwall unit has been abandoned within Panel 42 (the northernmost panel) beneath the Castle Valley Ridge. Mining was terminated and the Longwall unit abandoned when a sandstone unit began "pinching out" the coal seam. At the time of abandonment, this sandstone unit accounted for an approximate 25% of the active coal face. Roof conditions in the Longwall gob were also found to be very unstable.

Potential Water Impacts

One small seep was found in the vicinity of the Longwall unit. This seep was located approximately midway along its length, and amounted to an approximate 1/4 gpm. The seep was found to flow parallel to the Longwall unit for a few feet before moving westward into the gob area. No other seeps were found to enter, or have the potential to enter the longwall face area. It is believed that the natural hydrogeology of the area precludes substantial flows beneath the Castle Valley Ridge. The natural strike and dip of the local coal seem will effectively divert any potential anticipated flows around the longwall face.

Potential Humidity and Gas Impacts

According to mine personnel, the oxygen content within the abandoned mine section is anticipated to drop to an approximate 5 to 10 percent of current levels. Although of some significance, air content is not the major factor in the deterioration of metals. According to Dr. Free from the University of Utah Metallurgical Department, the greatest cause of metal deterioration is humidity. Sulfur gas emissions also have some increased corrosion effect. Dr. Free also indicated that corrosion rates are significantly reduced when high strength metals are used

The discussion lead to the overall conclusion that the metals will likely deteriorate over a significant length of time. However, even though the metals *may* deteriorate, the Longwall unit itself will have little to no potential impact upon the local hydrogeology. This conclusion is reached based on the facts that 1) without a transport mechanism (ie: water flow), the metals can not be transported, and 2) even if some water were to move through the area, the quantity and rate of deterioration would be so small that the impact would in all likelihood be non detectible.

Potential Impact from Operating Fluids

The potential for impact from leaking operating fluids is minimal. The total amount of hydraulic and operating fluids which were contained within the Longwall unit and their status are provided in the following table. Small quantities of fluid may remain within some equipment that can not be fully drained due to the configuration of the compartment itself. The potential for impact from any fluids remaining is believed to be insignificant for the following reasons.

- Only a small volume remains in the combined equipment.
- Any future corrosion and release of the remaining fluids would be gradual.
- The coal seam would likely adsorb any fluids which could potentially leak from a the abandoned unit.

No impacts from hydraulic fluids associated with longwall operations have been noted in culinary water sources including Tie Fork wells. Furthermore, no impacts are anticipated as a result of Longwall abandonment.

STATUS OF EQUIPMENT TO BE ABANDONED IN-PLACE

EQUIPMENT ITEM	TYPE OF FLUID	NORMAL CAPACITY (GALLONS)	STATUS
Head drive 650 fluid coupler for face conveyor (gearbox is removed)	Dextron II ATF	12	Drained
Stage Loader 487 fluid coupler	Dextron II ATF	5	Drained
Stage Loader Gearbox	Century PowerGear 150 320+	8	Drained
Crusher 487 Fluid Coupler	Dextron II ATF	5	Drained

EQUIPMENT ITEM	TYPE OF FLUID	NORMAL CAPACITY (GALLONS)	STATUS
Crusher Gearbox	Century PowerGear 150 320+	6.5	Drained
Shearer Ranging Arms (2)	Century PowerGear 150 320+	24	Drained
Shearer Hydraulics	Chevron 150 68	55	Drained
Shields	Water*	2-5%	Drained

- According to mine personnel during our in-mine site visit, shields ran with water only last 10 days of operation.

Safety

According to mine personnel, one of the reasons that the Longwall has been abandoned at its current location is due to roof instability. Roof conditions immediately behind the Longwall unit were found to be highly friable and the area was noted by Longwall operators during mining to cave rapidly. Several access tunnels were noted in our in-mine site review to have caved. Attempts were required within the main tunnels located just south of the abandoned Longwall unit to prevent the roof structure from caving into the ongoing mining operation. It is believed that there would be a significant safety issue should attempts be made to remove the Longwall from its current location.

Potential Monitoring Locations

A review of overall hydrogeologic conditions would indicate that hydrologic monitoring of the abandoned mine area is not needed. Furthermore, there are only two existing locations which could be used as long term "indicator" sites for monitoring. The first and most obvious are the Tie Fork wells since these sources are monitored as part of the CVSSD water supply on a regular basis. CVSSD collects and analyzes this data. To date, mining impacts upon these water supplies have been limited to a temporary reduction of flow. No quality impacts have yet been observed.

Although believed infeasible, a second long term monitoring location may be Surface Well 92-10-01. This well is located west-southwest of the Panel 42 gob area and *may* be within the "general" flow path of water exiting the area containing the abandoned Longwall unit. Sampling from this source would however be difficult since 1) the site is relatively isolated requiring foot or

helicopter access, 2) the well is only a two inch diameter well thereby making the taking of samples difficult, and 3) the well is deep thereby limiting pumping options.

Summary, Conclusions and Recommendations

Based on our review of in-mine conditions, information gained from mine personnel, from personal hydrogeologic knowledge of the site and vicinity, and from a review of mine mapping, it is concluded that the abandonment of the Longwall unit within Panel 42 of the Castle Valley Coal Lease Tract has a low probability of having any long term hydrogeologic impact potential to either the subsurface environment or local culinary water supplies. Because of the conditions found with the mine, it is therefore recommended that the Longwall unit be abandoned "in place". It is further recommended that Tie Fork wells be referenced as the "indicator" source for any mining impacts resulting from mining within the Gentry and Castle Valley Coal Lease Tracts. CPMC should be advised immediately by CVSSD should any deterioration of water quality be noted.

Please call should you have and comments, questions or concerns regarding the material submitted herein.

Sincerely,

David E. Hansen, Ph.D., P.E.
Principal - Project Manager

Figure 31
Well P92-01A-WD
Water Level Graph

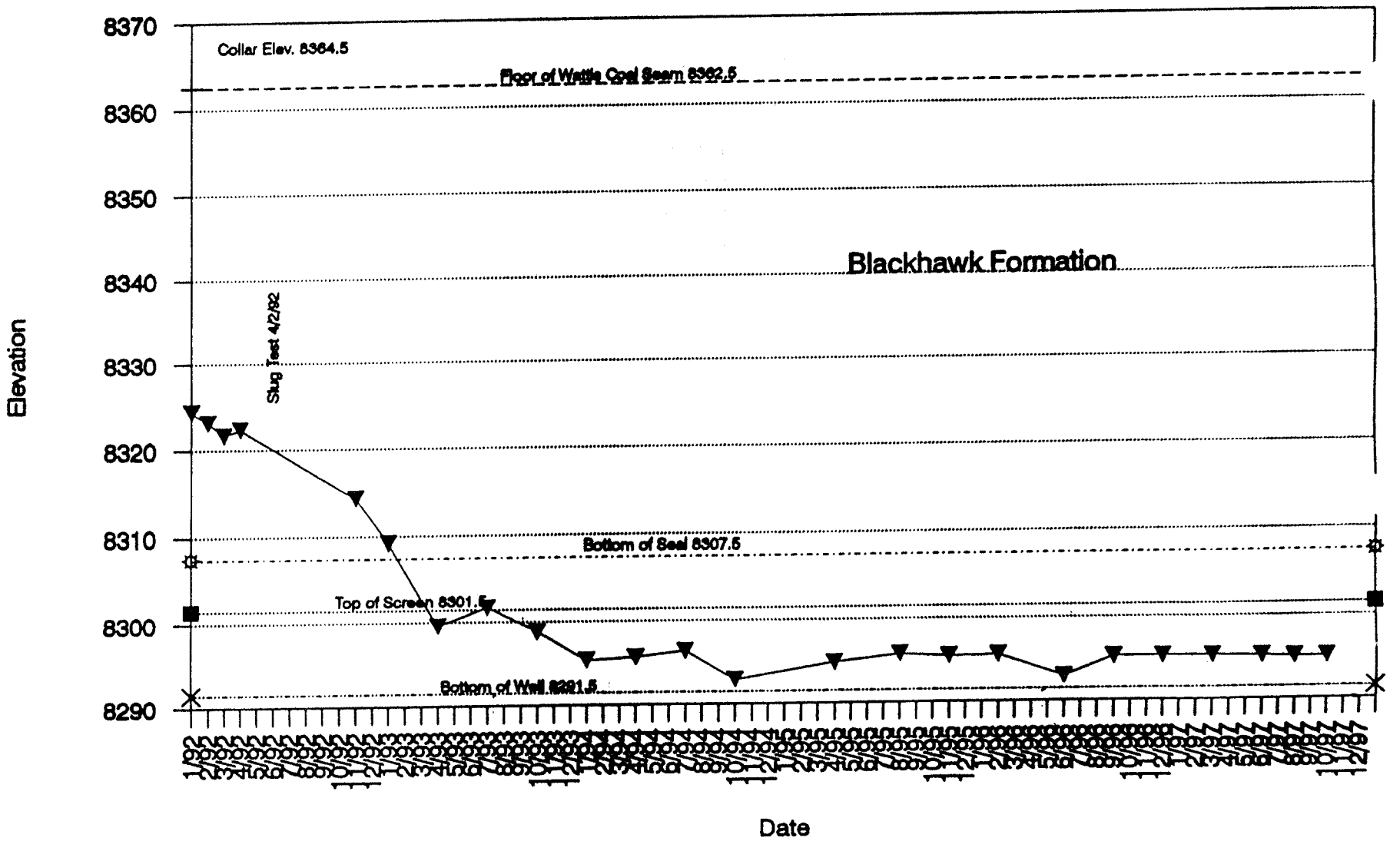


Figure 32
Well P92-01B-WD
Water Level Graph

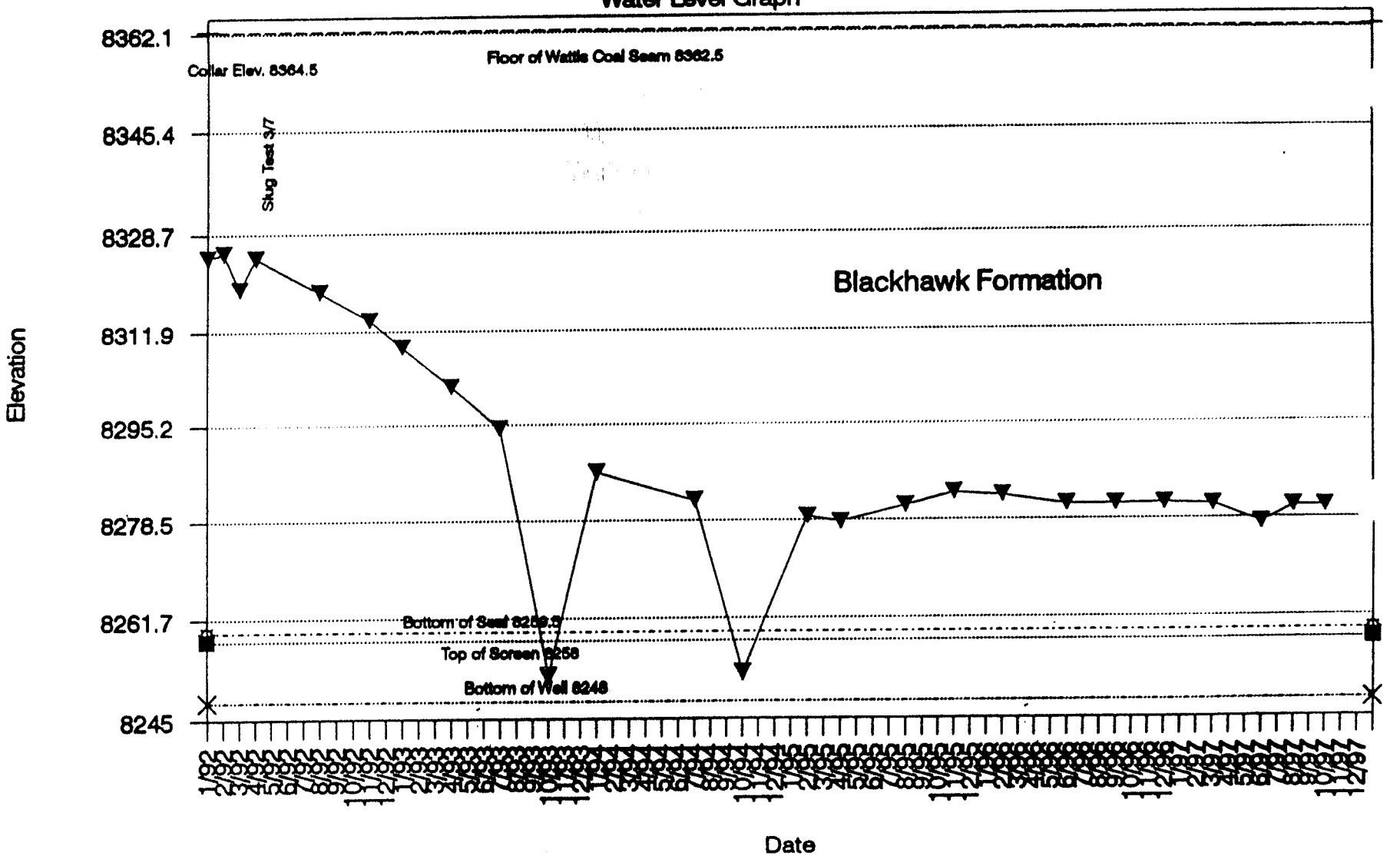


Figure 33
Well P92-01C-WD
Water Level Graph

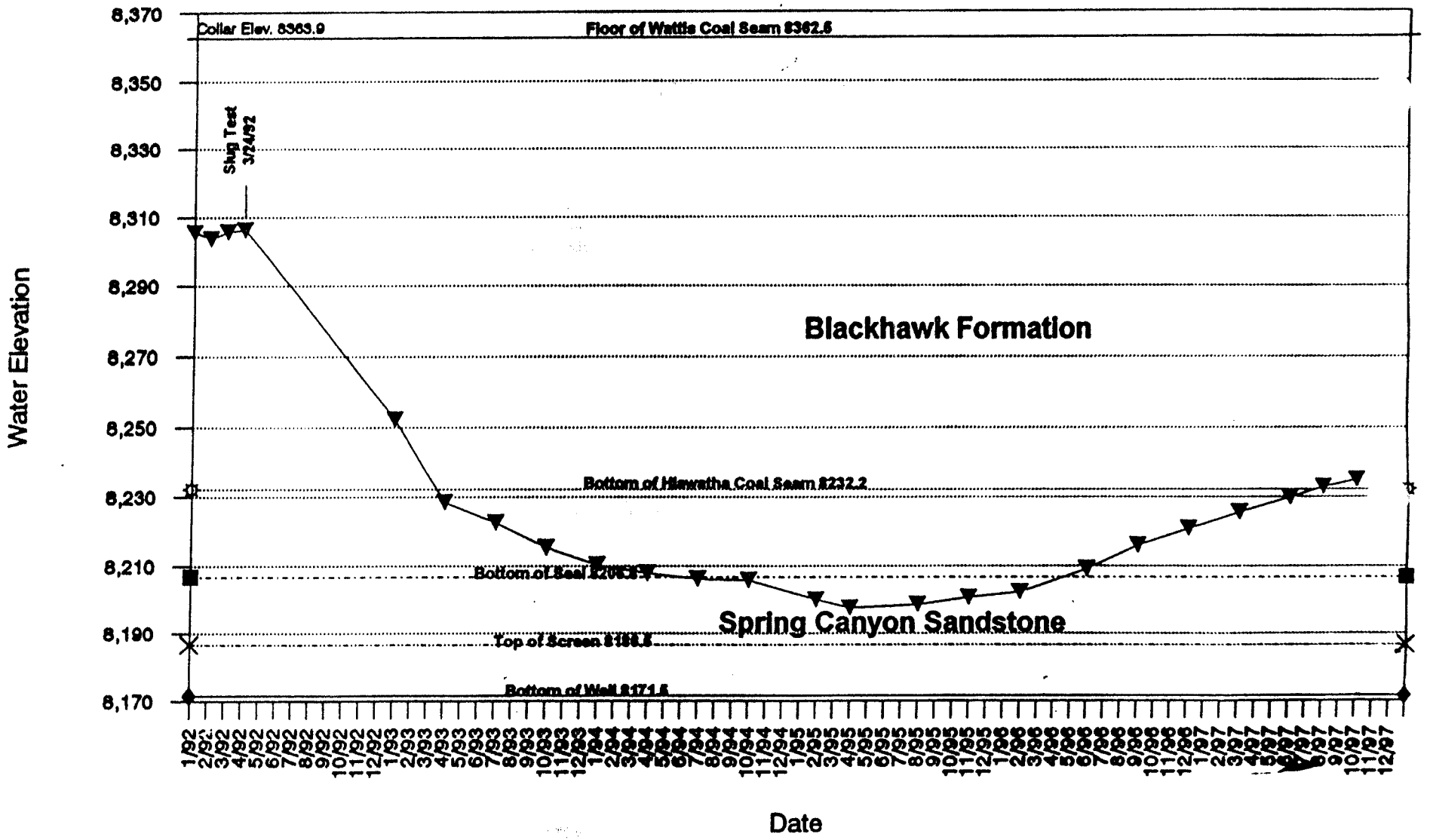


Figure 34
Well P92-02-WD
Water Level Graph

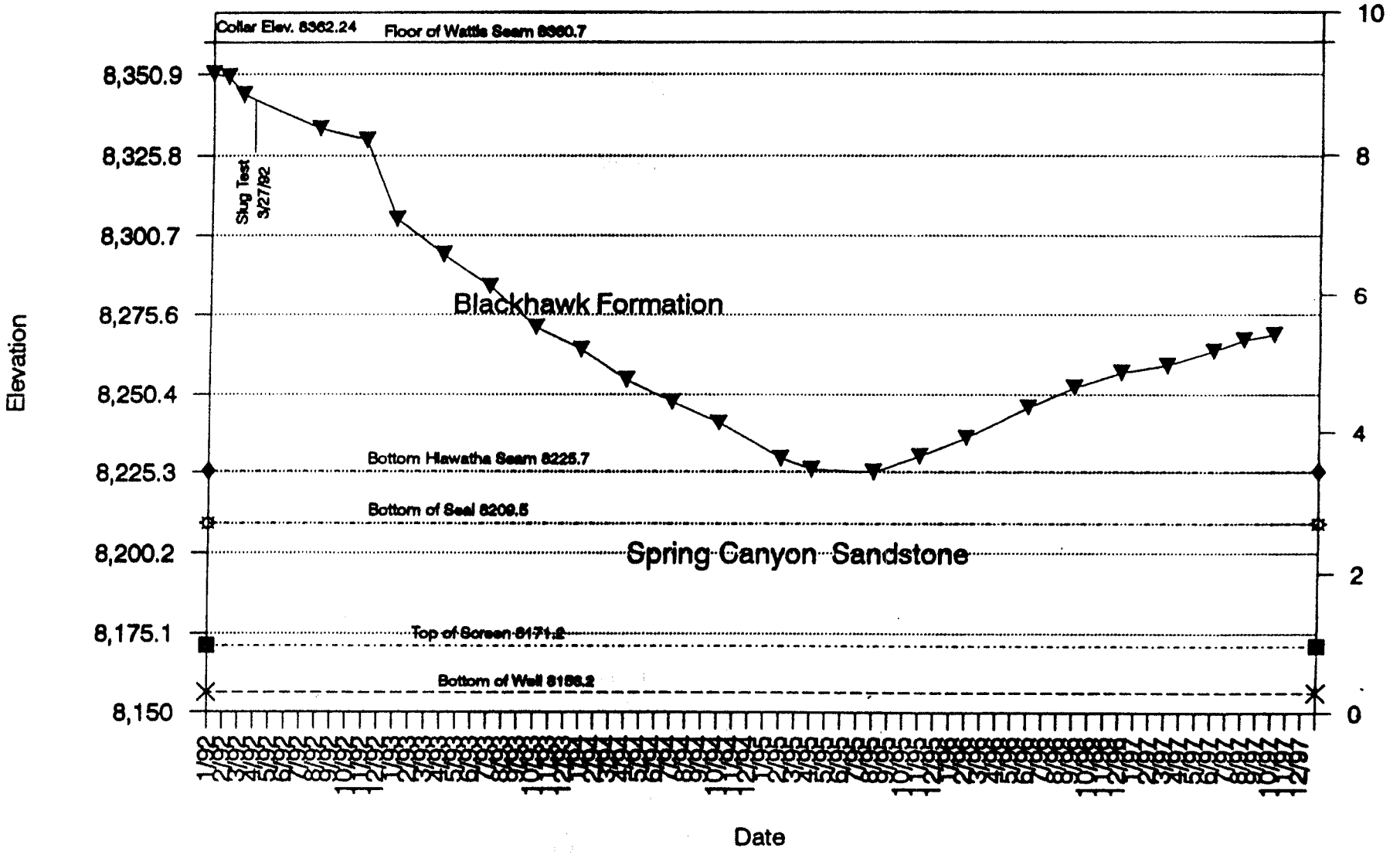
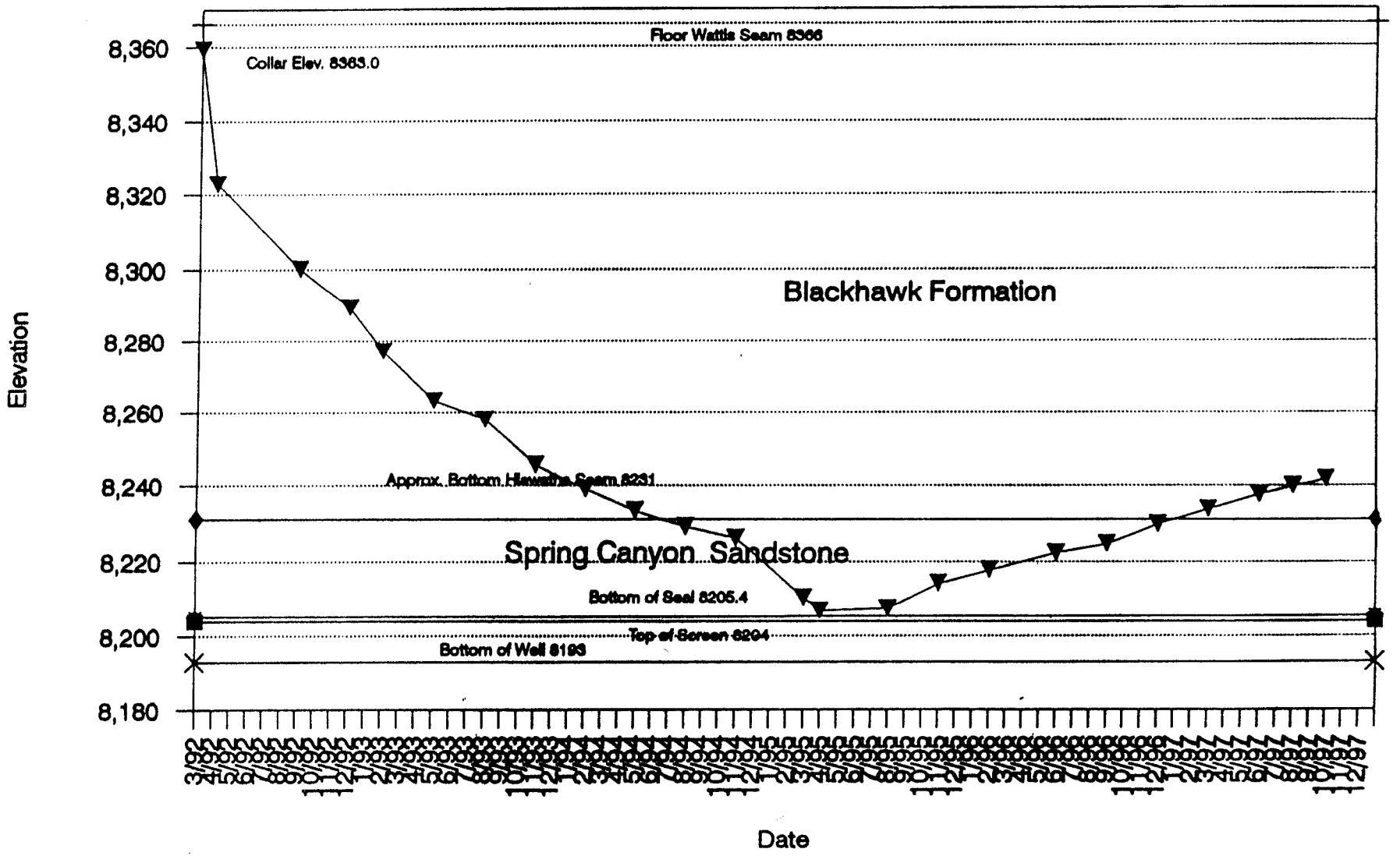


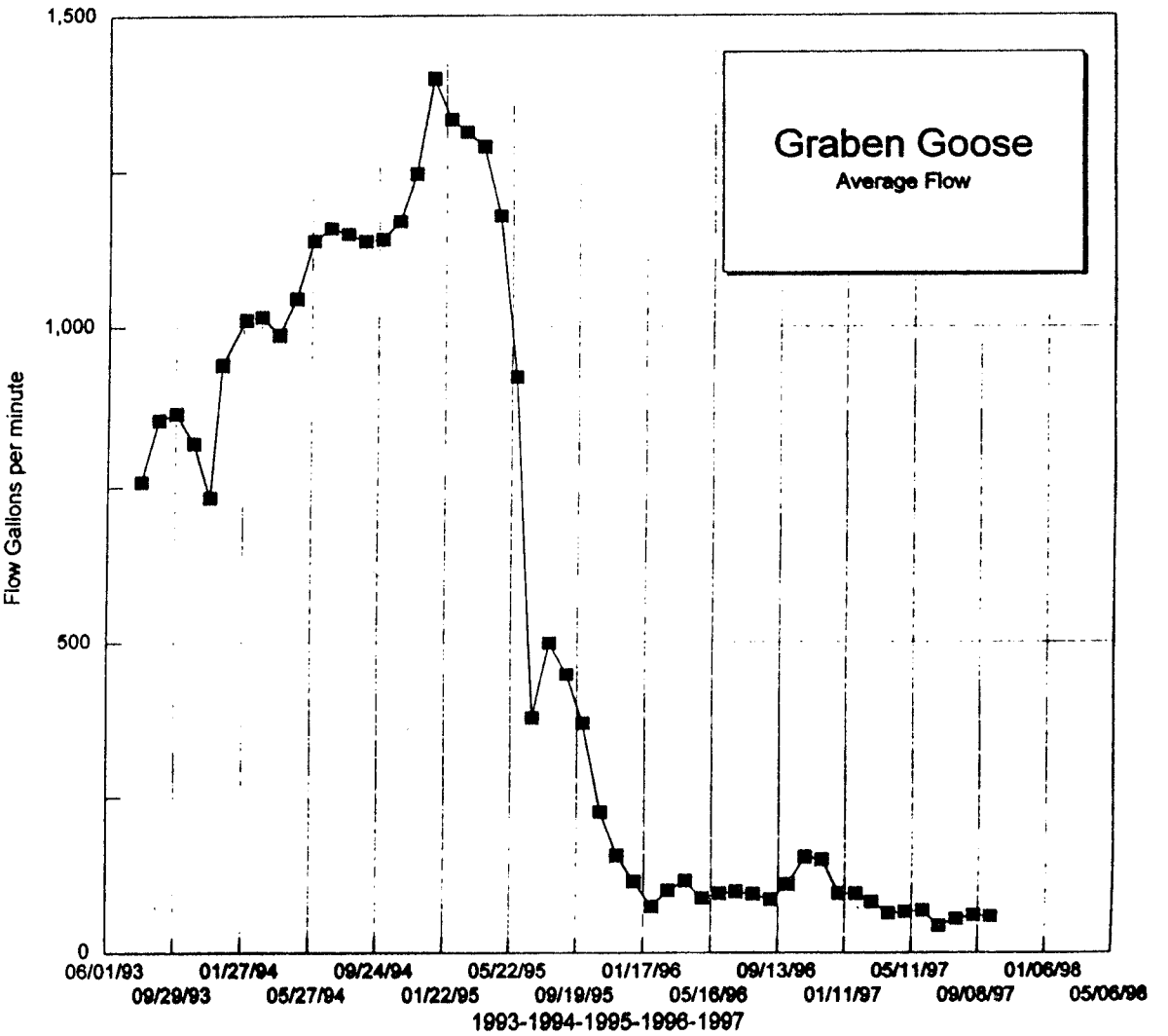
Figure 36
Well P92-04-WD
Water Level Graph

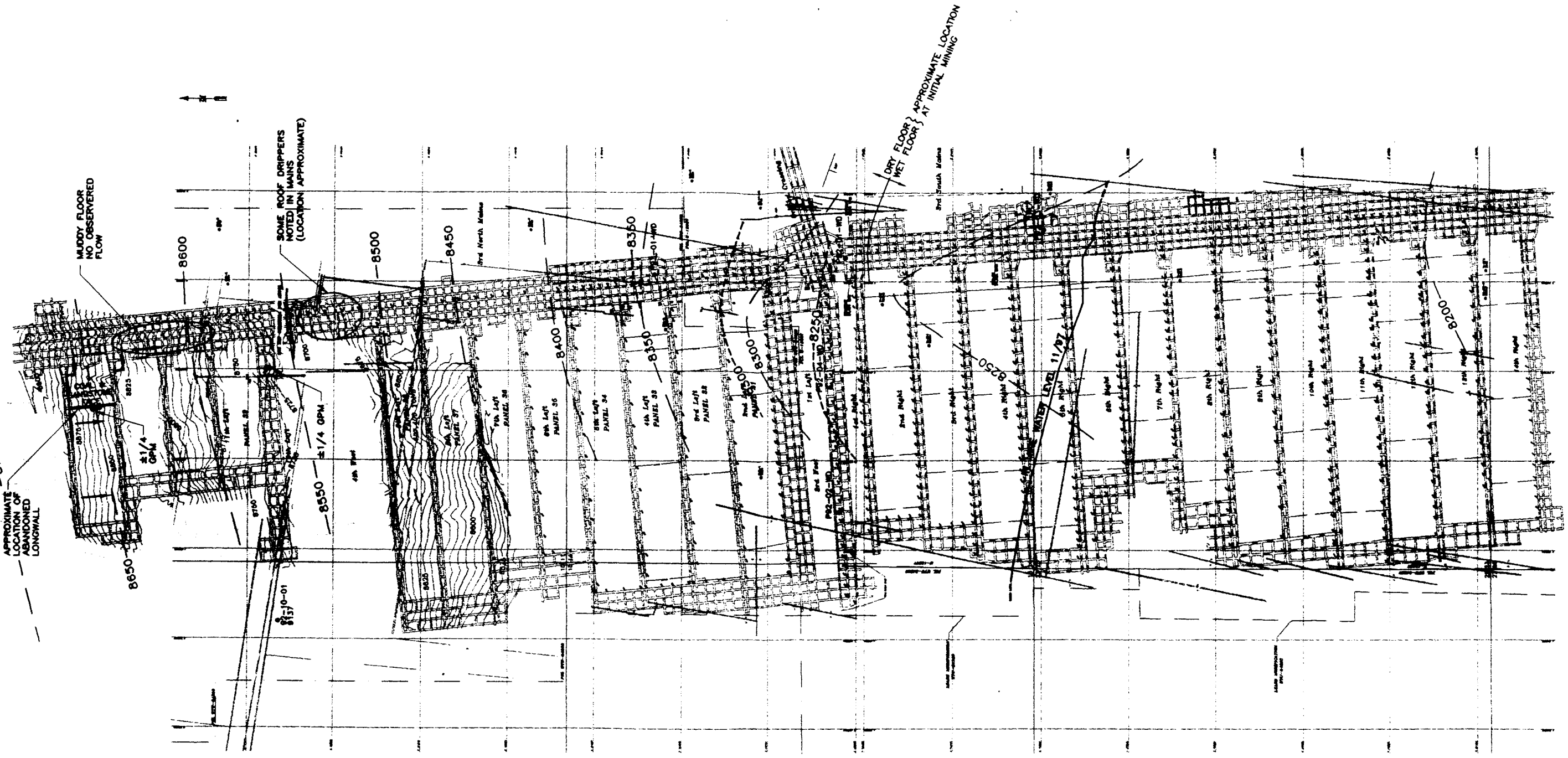


Tom Hurst

WATER METER READINGS AT GRABEN GOOSE

DATE	Flow	Avg Flow	two Month Avg	
31-Jul-93	758	758		
30-Aug-93	855	807	807	
30-Sep-93	865	826	860	
31-Oct-93	818	824	842	
30-Nov-93	733	806	776	
20-Dec-93	941	828	837	
31-Jan-94	1,011	854	976	
28-Feb-94	1,016	875	1,014	
31-Mar-94	987	887	1,002	
30-Apr-94	1,045	903	1,016	
31-May-94	1,136	924	1,091	
30-Jun-94	1,156	943	1,146	
31-Jul-94	1,147	959	1,152	
31-Aug-94	1,135	972	1,141	
30-Sep-94	1,138	983	1,137	
31-Oct-94	1,168	994	1,153	
30-Nov-94	1,246	1,009	1,207	
31-Dec-94	1,398	1,031	1,322	
31-Jan-95	1,333	1,047	1,365	
28-Feb-95	1,312	1,060	1,323	
31-Mar-95	1,289	1,071	1,301	
30-Apr-95	1,177	1,076	1,233	
31-May-95	922	1,069	1,049	
30-Jun-95	377	1,040	649	
31-Jul-95	498	1,018	437	
31-Aug-95	445	996	473	
30-Sep-95	368	973	407	
31-Oct-95	226	946	297	
30-Nov-95	155	919	191	
31-Dec-95	114	892	135	
31-Jan-96	74	866	94	
29-Feb-96	100	842	87	
31-Mar-96	116	820	108	
30-Apr-96	88	798	102	
31-May-96	95	778	92	
30-Jun-96	98	759	97	
31-Jul-96	94	741	96	
31-Aug-96	85	724	90	
30-Sep-96	110	708	98	
31-Oct-96	153	694	132	
30-Nov-96	149	681	151	
31-Dec-96	95	667	122	
31-Jan-97	95	654	95	
28-Feb-97	82	641	89	
31-Mar-97	63	628	73	
30-Apr-97	66	616	65	Estimate
31-May-97	68	604	67	
30-Jun-97	42	592	55	
31-Jul-97	54	581	48	
31-Aug-97	60	571	57	
30-Sep-97	58	561	59	
31-Oct-97				
30-Nov-97				
31-Dec-97				





NOTE: SEEP DESIGNATIONS ARE NOT ALL INCLUSIVE.

LEGEND

- PROJECTED 1993 WATER LEVELS
- PROJECTED 1997 WATER LEVELS
- POTENTIAL FLOW PATH
- SEEP AREA

FILE NAME: 002\19-100\Contour_Workings map.dwg
FILE DATE: November 18, 1997 (DRB)

PLOT OPTIONS: PLOT IN = DWG UNITS: 1=1
PLOT AREA: 33.22.8

ORIGIN: DVIEW:

XREF FILE 002\19-100\Tb-plot.dwg, Full-Contour.dwg, North help.dwg.
NAME(S): Northend2.dwg, South half.dwg

HANSEN ALLEN & LUCE INC
CONSULTANTS ENGINEERS
Salt Lake City Utah

PROJECT ENGINEER

DESIGNED DEH
DRAFTED DRB
CHECKED DEH
DATE NOVEMBER 1997

NO.	DATE	REVISIONS	BY	APVD.
3				
2				
1				

SCALE 1" = 600'

VERIFY SCALE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH, ADJUST SCALES ACCORDINGLY.

CYPRUS PLATEAU MINING COMPANY

HYDROGEOLOGY ASSOCIATED WITH LONGWALL ABANDONMENT

FIGURE NO. 1 OF 1

002-19-100

12/96