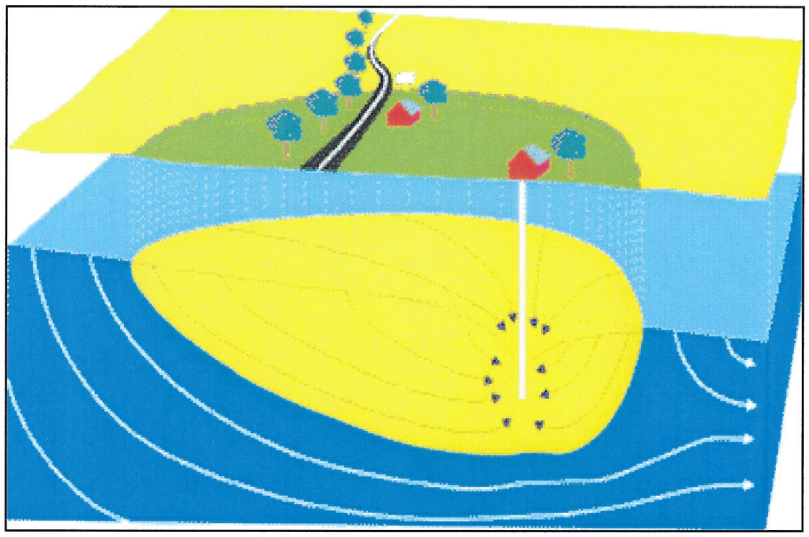
SOURCE WATER ASSESSMENT

FOR THE LAFARGE-CHURCHVILLE QUARRY

HARFORD COUNTY, MD



Prepared By
Water Management Administration
Water Supply Program
September 2005

MDE

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SUMMARY

The Maryland Department of the Environment's Water Supply Program (WSP) has conducted an assessment of the vulnerability of the LaFarge-Churchville Quarry ground water supply to contamination. The required components of this report as described in Maryland's Source Water Assessment Plan (SWAP) are: 1) delineation of an area that contributes water to the source, 2) identification of potential sources of contamination, and 3) determination of the susceptibility of the water supply to contamination. Recommendations for protecting the drinking water supply conclude this report.

The sources of the LaFarge-Churchville Quarry water supply draw water from an unconfined fractured rock aquifer known as the James Run Gneiss Formation. Unconfined aquifers are generally vulnerable to any activity on the land surface that occurs within the wellhead protection area (WHPA). The system currently uses one production well to obtain potable water for sanitary purposes. The system exclusively uses bottled water for drinking. A second potable well serving an asphalt laboratory on-site is considered a private system since it regularly serves only 2 employees, and is not connected to Well 1. Since this well is on quarry property and draws from the same aquifer as Well 1, it was also included in this report. The WHPA was delineated using U.S. EPA approved methods specifically designed for each source.

Potential sources of contamination within the assessment area were identified based on site visits, database reviews and land use maps. Well information and water quality data were also reviewed. Figures showing land use and potential contaminant sources within the Wellhead Protection Area and an aerial photograph of the well locations are enclosed at the end of the report.

The susceptibility analysis for the LaFarge-Churchville Quarry water supply is based on a review of the water quality data, potential sources of contamination, aquifer characteristics, and well integrity. It was determined that the LaFarge-Churchville Quarry water supply is susceptible to contamination by volatile organic compounds. Should the EPA adopt a drinking water standard for radon-222, the wells may also be susceptible to this naturally occurring contaminant based on regional data from nearby sources drawing from the same aquifer. The LaFarge-Churchville Quarry water supply was determined not susceptible to inorganic compounds, synthetic organic compounds, and microbiological pathogens. The susceptibility to other radionuclides could not be determined at this time due to the absence of sampling data for this system.

INTRODUCTION

The LaFarge-Churchville Quarry Water System is located about 2.2 miles south of Churchville, and about 4 miles east of Bel Air in Harford County (Figure 1). The quarry has approximately 37 employees on-site during any given workday. State regulations designate this type of facility as a nontransient noncommunity water system, which is defined as a public water system that regularly serves at least 25 of the same individuals over 6 months per year. The water is supplied by one production well used for sanitary purposes only. The employees exclusively use bottled water for drinking. A second potable well on quarry property supplies an asphalt laboratory. It regularly serves only two employees and is considered a private water system since it is not connected to the primary production well. Ground water that collects at the base of the quarry is pumped out and used for process water, dust suppression, or is discharged to James Run. The quarry and well locations are shown on Figure 1 and in Appendix A.

WELL INFORMATION

Well information was obtained from the Water Supply Program's database, site visits, well completion reports, and sanitary survey inspection reports. A review of well data and sanitary surveys of the LaFarge-Churchville Quarry water system indicates that the wells meet current well construction standards for grouting and casing. Well 1 is located outside in a wooded area upgradient and to the northwest of the scale house building. The private system well is also outside and located to the east of the asphalt lab building (Appendix A). The well casings extend about 2 feet above ground surface and there is positive drainage away from the wells. Therefore, they should not be prone to flooding from storm water runoff. A former production well located about 10 feet from the northwest corner of the scale house building has been sealed with grout according to Plant Operator Howard Aidolf (Appendix A). Table 1 is a summary of the well construction data.

PLANT ID	SOURCE NAME	WELL PERMIT NO.	TOTAL DEPTH (ft.)	CASING DEPTH (ft.)	YEAR DRILLED	AQUIFER
01	WELL 1	HA735395	225	42	1979	JAMES RUN GNEISS
00	ABANDONED WELL	HA734917	225	42	1978	
	LAB WELL	HA943537	200	80	2000	

Table 1. LaFarge-Churchville Quarry Well Construction Information

Water Appropriation Permit No. HA1978G019 allocates the system to use an average of 400,000 gallons per day (gpd) and 480,000 gpd in the month of maximum use. The quarry pit captures most of this ground water, which is used for process water and dust suppression on-site, or is discharged to James Run. The ground water from Well 1 used by the 37 employees for sanitary purposes is estimated to be less than 1,000 gpd, and is therefore a "small" quantity with respect to the overall appropriation permit limits for this system.

HYDROGEOLOGY

The LaFarge-Churchville Quarry is located in the eastern Piedmont Physiographic Province, which is characterized by strongly folded and faulted metamorphic rocks with granitic and mafic intrusions (Nutter, 1977). Based on the Geologic Map of Harford County (MGS, 1968), two geologic formations underlie the quarry. Metagabbro and Amphibolite of early Paleozoic age underlie the eastern areas of the quarry while the western portion of the site is underlain by the James Run Gneiss possibly of late Precambrian age. The James Run Gneiss is described as a sharply layered, thin to thick bedded gneiss composed of biotite-quartz-plagioclase gneiss, and quartz amphibolite. The metagabbro and amphibolite is described as a weakly to strongly lineated metagabbro and epidote amphibolite (Nutter & Otton, 1969). The rocks weather to form residual soils known as saprolite, which often retains the relic structure of the parent rocks. The supply wells described in this report are completed in the James Run Gneiss Formation.

The primary porosity and permeability of this aquifer is small due to the crystalline nature of the rock. Ground water moves through secondary porosity, fractures, and joint openings, and is recharged by precipitation percolating through the overlying soils, and saprolite. The residual soils and decomposed rock overlying the James Run Gneiss function as a ground water reservoir that feeds the fracture systems that supply water to the wells (GTA, 1999). The yield of a well in crystalline rock depends primarily on the number of fractures penetrated by the well. Typically, the water table in the aquifer mimics the surface topography. The fractured rock aquifers in this area are unconfined.

SOURCE WATER ASSESSMENT AREA DELINEATION

For ground water systems, a Wellhead Protection Area (WHPA) is considered the source water assessment area for the system. Ground water flow in unconfined fractured rock aquifers is complex and cannot be accurately modeled by a homogeneous analytical model. As defined in Maryland's SWAP, source water protection areas for "small" public water systems using an average of less than 10,000 gallons per day (gpd) in unconfined fractured-rock aquifers is a fixed radius of 1,000 feet around each well. The radius is based on calculating the land area needed to provide a yield of 10,000 gpd assuming a 400 gpd per acre recharge rate (drought year recharge conditions) and a safety factor. Well 1 and the Lab Well at the LaFarge-Churchville Quarry both withdraw ground water from the James Run Gneiss Formation. Since the delineated radial recharge areas around each well overlap, they were combined to form one larger WHPA for conservative purposes (Figures 1 & 2). The delineated protection area is 128.1 acres.

POTENTIAL SOURCES OF CONTAMINATION

Potential sources of contamination are classified as either point or non-point sources. Examples of point sources of contamination are leaking underground storage tanks, controlled hazardous substance generators, general permit sites, and ground water contamination sites. These sites are generally associated with commercial or industrial facilities that use or store chemical substances that may, if inappropriately handled, contaminate ground water via a discrete point location. Non-point sources of contamination are associated with certain types of land use practices such as the use of pesticides, application of fertilizers, animal wastes, or septic systems that may lead to ground water contamination over a larger area.

The WSP met with LaFarge employee, Scott Bosley on 7/13/05 to discuss water quality concerns, and to observe the integrity of the wells. Also, data was collected regarding the locations of the wells using Global Positioning System (GPS) equipment, and a windshield survey was conducted to locate and map potential sources of contamination located within and near the WHPA.

Point Sources

A review of MDE contaminant databases as well as the field surveys revealed some potential point sources of contamination within and near the LaFarge-Churchville Quarry WHPA. Facilities that have underground storage tanks (USTs), those classified as controlled hazardous substance generators (CHS), and general permit sites (GP) are located within or near the WHPA (Figure 2). In addition, miscellaneous sites (MISC) such as a fertilizer supply company that stores and sells chemicals are also shown on Figure 2. Table 2 lists the facilities identified and their potential types of contaminants. The contaminants are based on generalized categories and often the potential contaminant depends on the specific chemicals and processes being used or which had been used at the facility. The potential contaminants are not limited to those listed. Potential contaminants are grouped as Volatile Organic Compounds (VOC), Synthetic Organic Compounds (SOC), Heavy Metals (HM), Nitrate/Nitrite (NN), and Microbiological Pathogens (MP).

ID	Type[1]	Site Name	Address	Potential Contaminant[1]
1	CHS, GP	LaFarge-Churchville Quarry	1219 Calvary Rd.	VOC, HM, MP
2	UST, MISC	Rush Contracting Co.	900 Calvary Rd.	VOC, SOC, NN

Table 2. Potential Contaminant Point Sources within or near the LaFarge-Churchville Quarry Wellhead Protection Area (see Figure 2 for locations)

[1] CHS = controlled hazardous substance generators, UST = underground storage tanks, GP = general permit sites MISC = miscellaneous sites, VOC = volatile organic compounds, SOC = synthetic organic compounds, HM = heavy metals NN = nitrate/nitrite, MP = microbiological pathogens

The MDE Oil Control Program reports an open case located near the LaFarge-Churchville Quarry WHPA. The site had an UST removed in 2004, but still has an underground heating oil tank beneath an existing structure on the property. The site is mapped as an UST as shown on Figure 2. A summary of this case can be found in Appendix C. The reader may contact the Oil Control Program for additional information.

Inspections of facilities located within and near the WHPA were completed by MDE staff to determine the potential of any unpermitted ground water discharges (e.g. open floor drains) to the unconfined aquifer. No violations were reported. The reader may contact the MDE Ground Water Permits Program for information regarding the specific inspections performed.

A General Permit was issued to the LaFarge-Churchville Quarry for the mining of metagabbro, amphibolite, and gneissic rock. The permit also covers surface water discharges, and general industrial stormwater from this facility (Figure 2 & Table 2). Database summaries of this permit are found in Appendix B. The reader may contact the MDE Mining or Wastewater Permits program for additional information.

Accidental discharges to the ground from the asphalt plant processes and testing lab on-site could be a potential source of VOCs to the water supply. Residential and commercial underground heating oil tanks, and other hazardous chemicals are potential point sources of contaminants that could enter the water supply if they are not properly maintained, handled, and stored. Spills during the transportation of chemical products along MD Rt. 136 and on quarry property are potential sources of contaminants that could reach the water supply.

Non-Point Sources

The Maryland Office of Planning's 2002 digital land use map for Harford County was used to determine the predominant types of land use in the LaFarge-Churchville Quarry WHPA (Figure 3). The breakdown of land use types is shown on Table 3. Note that extractive (quarry property) makes-up the largest portion of land use in the WHPA followed by cropland, and then forested land.

LAND USE TYPE	TOTAL AREA (acres)	PERCENTAGE OF WHPA
Extractive	79.63	62.18
Cropland	19.41	15.16
Forest	18.28	14.27
Water	10.74	8.39
Total Area	128.06	100.00

Table 3. Land Use in the LaFarge-Churchville Quarry WHPA (See Figure 3)

The use of private septic systems, lawn maintenance and landscaping activities in residential and commercial areas, and agricultural fields are all potential non-point sources of nitrates, microbial pathogens, and SOCs to ground water. Private septic systems are commonly associated with nitrate loading of ground water and pose a potential risk to the aquifer that supplies water to the LaFarge-Churchville Quarry.

Storm water runoff is also a concern since it may contain various contaminants that could infiltrate into the ground near the production wells. The application of de-icing chemicals on this and other nearby roads during the winter months may be a source of chlorides to the water supply. Stagnant water that collects at the quarry bottom could also be a source of microbial pathogens.

A review of the Maryland Office of Planning 2003 Harford County Sewerage Coverage Map indicates that there are no plans for public sewerage service in this area.

WATER QUALITY DATA

Water Quality data was reviewed from the Water Supply Program's database and system files for Safe Drinking Water Act contaminants. The State's SWAP defines a threshold for reporting water quality data as 50% of the Maximum Contaminant Level (MCL). If a monitoring result is at or greater than 50% of a MCL, this assessment will describe the sources of such a contaminant and, if possible, locate the specific sources which are the cause of the elevated contaminant level. The system uses no water treatment, and therefore all reported sampling data is indicative of raw water directly from the source.

In the past, this system was allowed to reduce monitoring for certain drinking water contaminants since they are a registered bottled water facility. Earlier this year, EPA directed MDE to revise this policy thereby requiring bottled water facilities to again monitor for all Safe Drinking Water Act Contaminants. For this reason, data gaps exist for certain compounds when analyzing the historical water quality results at this facility. A review of the available monitoring data since 1996 indicates that the LaFarge-Churchville Quarry water supply meets the current drinking water standards. The water quality sampling results are summarized on Table 4.

PLANT ID	Nitrate		SOCs		VOCs		IOCs (except nitrate)		Radionuclides	
	No. of Samples	No. of samples > 50% MCL	No. of Samples	No. of samples > 50% MCL	No. of Samples	No. of samples > 50% MCL	No. of Samples	No. of samples > 50% MCL	No. of Samples	No. of samples > 50% MCL
01	14	0	1	0	9	5*	1	0	0	?

Table 4. Summary of Water Quality Samples for the LaFarge-Churchville Quarry Water Supply

*All samples were collected from the asphalt lab sink from 1992-1993

Inorganic Compounds (IOCs)

No IOCs were detected above 50% of their respective MCLs from the one complete set of sampling data collected on 2/25/97. From the 14 sets of nitrate sampling data collected from 1996-2004, detections are well below levels of concern in all of the samples. The MCL for nitrate is 10 parts per million (ppm). The average nitrate level since 1996 is 2.36 ppm.

Volatile Organic Compounds (VOCs)

The only VOC detected from the 9 sets of available sampling data since 1990 is trichloroethylene (TCE). This compound was detected persistently above the 50% MCL threshold of 5 ppb from 1992-1993 in samples collected at the quarry's asphalt laboratory (Table 5). TCE was not detected from the latest round of sampling data conducted on 6/28/05.

CONTAMINANT	MCL (ppb)	SAMPLE DATE	RESULT (ppb)
TRICHLOROETHYLENE	5	18-Aug-92	3
	5	4-Nov-92	3
	5	25-Feb-93	2
	5	12-May-93	4
	5	1-Sep-93	2
	5	**27-Oct-93**	**16**
	5	22-Feb-94	2

Table 5. VOC Detects in the LaFarge-Churchville Quarry Water Supply

Note: Results in bold are above the MCL

Synthetic Organic Compounds (SOCs)

No SOCs were detected from the single sampling event conducted on 2/25/97.

Radionuclides

No water samples have been submitted for laboratory analysis of radionuclides.

Microbiological Contaminants

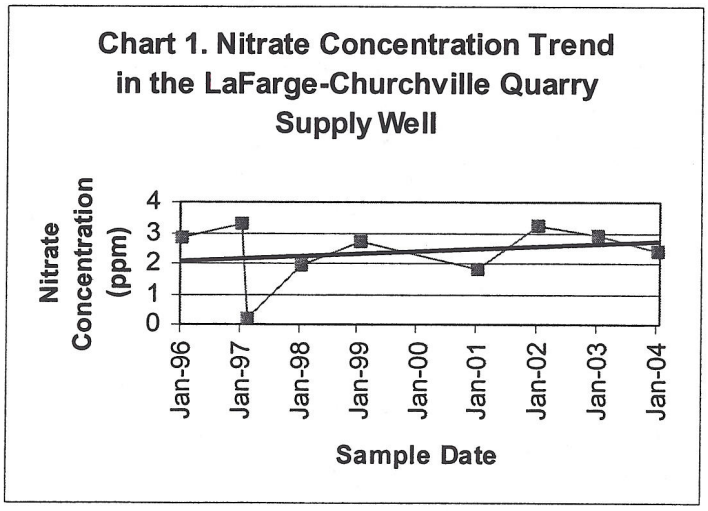
Since the water system has no disinfection treatment, all reported sampling data is indicative of raw water directly from the source. Therefore, quarterly routine bacteriological samples that are required by the Safe Drinking Water Act were used to evaluate whether Well 1 is ground water under the influence of surface water (GWUDI). From the 36 routine bacteriological samples collected since 1996, none were positive for coliform bacteria.

SUSCEPTIBILITY ANALYSIS

The LaFarge-Churchville Quarry wells obtain water from an unconfined fractured rock aquifer. Wells in unconfined aquifers are generally vulnerable to any activity on the land surface that occurs within the WHPA. Therefore, managing this area to minimize the risk to the aquifer and continued routine monitoring of contaminants is essential in assuring a safe drinking water supply. The susceptibility of the wells to contamination is determined for each group of contaminants based on the following criteria: (1) available water quality data, (2) presence of potential contaminant sources in the WHPA, (3) aquifer characteristics, (4) well integrity, and (5) the likelihood of change to the natural conditions.

Inorganic Compounds (IOCs)

Nitrate is not present in the ground water supply at levels above 50% of its MCL of 10 ppm. Chart 1 shows the nitrate concentration trend over the past nine years. The available data shows that nitrate levels have been slightly increasing, but not appreciably, over this timeframe. Sources of nitrate can generally be traced back to land use. Fertilizer applied to agricultural fields, residential lawns, and effluent from residential and commercial on-site septic systems are non-point sources of nitrate in ground water. A review of Table 3 indicates that cropland covers 15.2% of the LaFarge-Churchville Quarry recharge area. Based on 2003 data, there are no plans for public sewer service in this area.



Nitrate is present in wastewater as a result of the conversion of organic nitrogen compounds to inorganic nitrate. Excess nitrate from manure and fertilizer that is not used by crops leaches into the ground water during recharge periods. Nitrate present in the LaFarge-Churchville Quarry water source are likely related to on-site septic systems, and agricultural practices. No other IOCs were detected at

levels of concern from one set of sampling data for this water system. Therefore, based on 9 years of nitrate data and very limited testing for metals, the LaFarge-Churchville Quarry water supply is **not** susceptible to IOCs including nitrate.

Volatile Organic Compounds (VOCs)

The only volatile organic compound that was persistently detected at levels above 50% of its MCL of 5 ppb between 1992-1993 from available sampling data is trichloroethylene or TCE (Table 4). No VOCs were detected from the latest round of sampling data collected on 6/28/05. TCE is used in asphalt testing, and as a waste solvent for metal degreasing processes. An asphalt plant and laboratory are located on the quarry property. The TCE detections from 1992-1994 were from samples collected at the asphalt laboratory, and therefore the source is most likely from the asphalt operation and/or testing on-site. Potential VOC point sources including the quarry were identified within and near the WHPA (Figure 2 & Table 2).

Due to the vulnerable nature of unconfined aquifers, and past TCE detections in sampling results coupled with the potential contaminant sources within or near the WHPA, the LaFarge-Churchville Quarry water system **is** susceptible to VOC contamination.

Synthetic Organic Compounds (SOCs)

The current land use shown in Figure 3 suggests that the potential non-point sources of SOCs located within the WHPA are agricultural areas that account for 15.2%. Pesticides and chemicals used on agricultural fields are a potential threat. However, if applied properly using Best Management Practices (BMPs), this should not pose a significant SOC risk to the WHPA.

No SOCs were detected from a single set of sampling data collected in 1997 for this system. A potential point source of SOCs was identified at Rush Contracting, about 0.4 miles north of the WHPA (Figure 2). However, the open fertilizer and mulch piles identified during the site survey do not appear to be impacting the water supply due to their location outside the WHPA, and from the available SOC water quality results. Based on this limited data analysis, the ground water supply at LaFarge-Churchville Quarry is **not** susceptible to SOCs.

Radionuclides

Nontransient noncommunity water systems are currently not regulated for radionuclides. Therefore, no water samples have been submitted for laboratory analysis of radionuclides at the LaFarge-Churchville Quarry to date. Samples collected at nearby water systems in Harford County from the James Run Gneiss Formation have reported radon-222 concentrations that exceed the more conservative proposed MCL of 300 pCi/L with detections as high as 1900 pCi/L. Gross alpha, gross beta, and radium have also been detected at low concentrations below their respective MCLs in this aquifer. There is currently no MCL for radon-222, however EPA has proposed an MCL of 300 picocuries per

liter (pCi/L) or an alternative of 4000 pCi/L if the State has a program to address the more significant risk from radon in indoor air. The source of radon and other radiological contaminants in ground water can be traced back to the natural occurrence of uranium in rocks. Radon may be prevalent in ground water of crystalline rock aquifers due to the radioactive decay of uranium bearing minerals in the bedrock.

Based on regional sampling data and the potential for the James Run Gneiss aquifer to have radon-222 at elevated concentrations, the LaFarge-Churchville Quarry water supply ***may be susceptible*** to radon-222 based on the lower proposed MCL. The susceptibility to other radionuclides cannot be determined for this system to date due to the lack of available sampling data.

Microbiological Contaminants

Based on quarterly routine bacteriological data since 1996, the LaFarge-Churchville Quarry Well 1 was determined not to be under the direct influence of surface water. Hence, the well is **not** susceptible to any microbiological contaminant present at the surface including *Giardia and Cryptosporidium*.

MANAGEMENT OF THE WHPA

Form a Local Planning Team

- LaFarge should take an active role in addressing the protection of the water supply. The facility should work with the County Health and Planning Departments, farmers, businesses, and residents located within and near the WHPA to reach a consensus on how to protect the water supply.

Public Awareness and Outreach

- Pamphlets and flyers given to LaFarge employees will help educate them about Wellhead Protection.
- Results of this assessment should be made available to all employees of this facility if requested.
- Being aware of the WHPA boundaries will assist employees and others at the quarry to use "common sense" practices with regard to the handling, placement and proper storage of chemicals, petroleum and other contaminants on facility grounds. Common sense practices can go a long way in protecting an unconfined fractured rock aquifer from contamination.

Planning/New Development

- LaFarge should consider Wellhead Protection while planning any proposed quarry expansions or new construction on facility property to ensure that this will not have any adverse affects on the water quality of the aquifer.

Monitoring

- The facility should stay in contact with MDE's Oil Control Program for updates on existing and new open cases within the WHPA.
- Continue to monitor for all Safe Drinking Water Act contaminants as required by MDE.

Changes in Use

- Any increase in pumpage or addition of new wells to the system may require revisions to the WHPA. The system is required to contact the Water Supply Program when an increase in pumpage is applied for and when new wells are being considered.

Additional Recommendations for the LaFarge-Churchville Quarry

- LaFarge should review the potential sources of contaminants within and near the WHPA and update them if necessary.
- Periodic inspections and a regular maintenance program for the supply wells will ensure their integrity and protect the aquifer from contamination.
- The abandoned well near the scale house building that is disconnected from the system should be properly abandoned and sealed according to current State well construction regulations. COMAR 26.04.04.11 F requires that the well casing be removed, ripped, or perforated to assure that sealing material fills all annular spaces and voids in the formation. A certified well driller under the supervision of the County Health Department or MDE shall perform the proper abandonment and sealing operation. Improperly abandoned wells may provide a direct route for ground water contamination to an aquifer.

REFERENCES

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Geo-Technology Associates, Inc., 1999, Hydrologic Investigation Churchville Quarry/Fannin & Cail Properties Harford County, Maryland: GTA Job No. 95231, 13 p.

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Nutter, L.J., 1977, Ground -Water Resources of Harford County Maryland: Maryland Geological Survey Bulletin No. 32, 44 p.

Nutter, L.J., and Otton, E.G., 1969, Ground-Water Occurrence in the Maryland Piedmont: Maryland Geological Survey Report of Investigations 10, 56 p.

OTHER SOURCES OF DATA

Water Appropriation and Use Permit: HA1978G019
Public Water Supply Inspection Reports
MDE Water Supply Program Oracle® Database
MDE Waste Management Sites Database
Department of Natural Resources 1998 Digital Orthophoto Quarter Quadrangles for Bel Air and Aberdeen
USGS 7.5 Minute Series Topographic Maps, Bel Air & Aberdeen Quadrangles
Maryland Office of Planning 2002 Harford County Digital Land Use Map
Maryland Office of Planning 2003 Harford County Digital Sewerage Coverage Map
ADC® Digital Maps for Harford County
MD State Highway Administration Roads Map

FIGURES

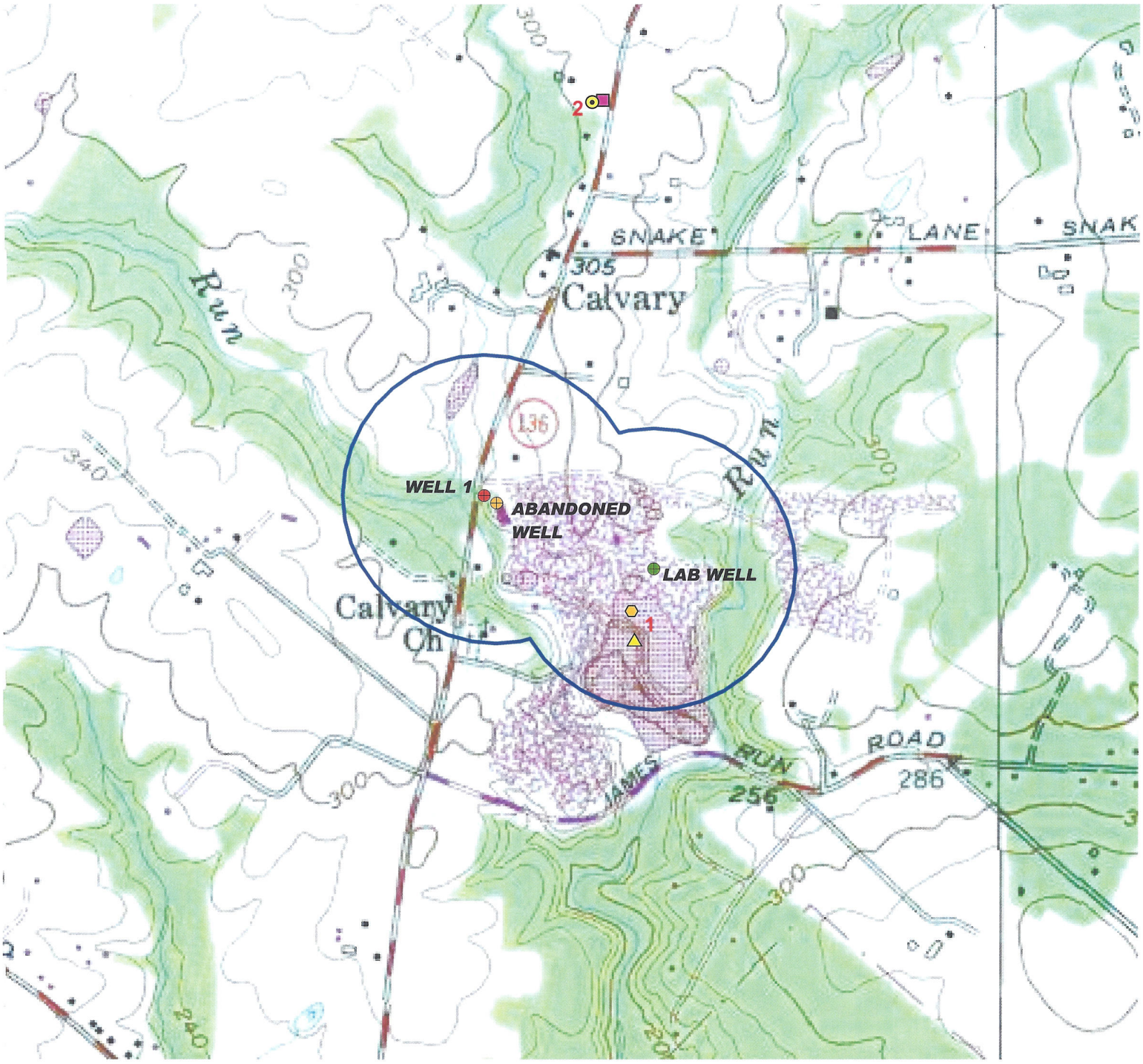


Figure 2. LaFarge-Churchville Quarry Wellhead Protection Area with Potential Contaminant Sources

LEGEND

Lafarge-Churchville Quarry Wells

- Abandoned Wells
- Private Supply Wells
- Supply Wells
- Wellhead Protection Area
- Underground Storage Tanks
- Controlled Hazardous Substance Generators
- General Permit Sites
- Miscellaneous Sites

N

1000 0 1000 Feet

Base Map: USGS 7.5 Minute Series Quads for Bel Air, and Aberdeen

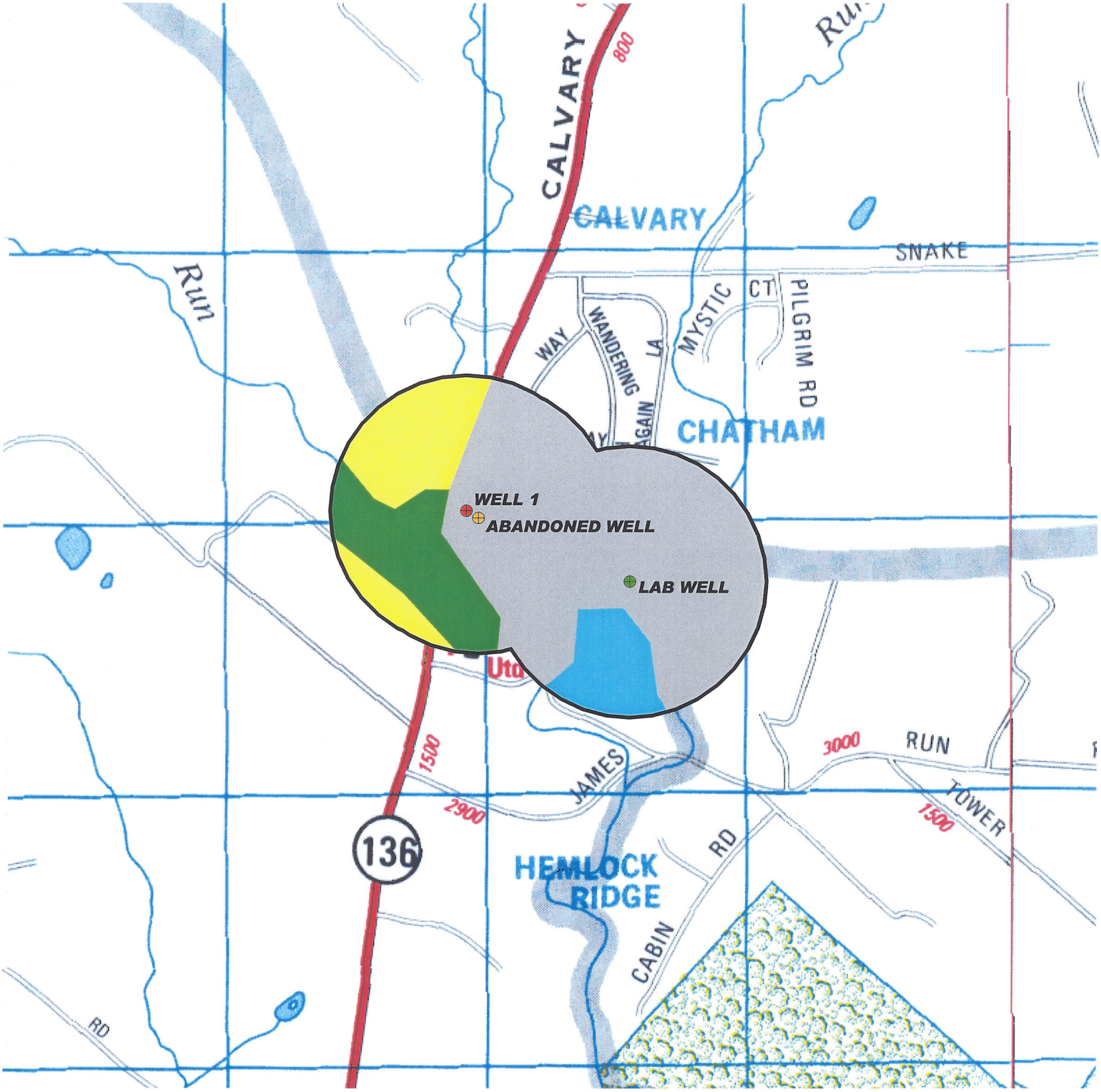


Figure 3. Land Use in the LaFarge-Churchville Quarry Wellhead Protection Area

LEGEND

Lafarge-Churchville Quarry Wells

- Private Supply Wells
- Abandoned Wells
- Supply Wells
- Wellhead Protection Area

Harford County Land Use

- Extractive
- Cropland
- Forest
- Water

N

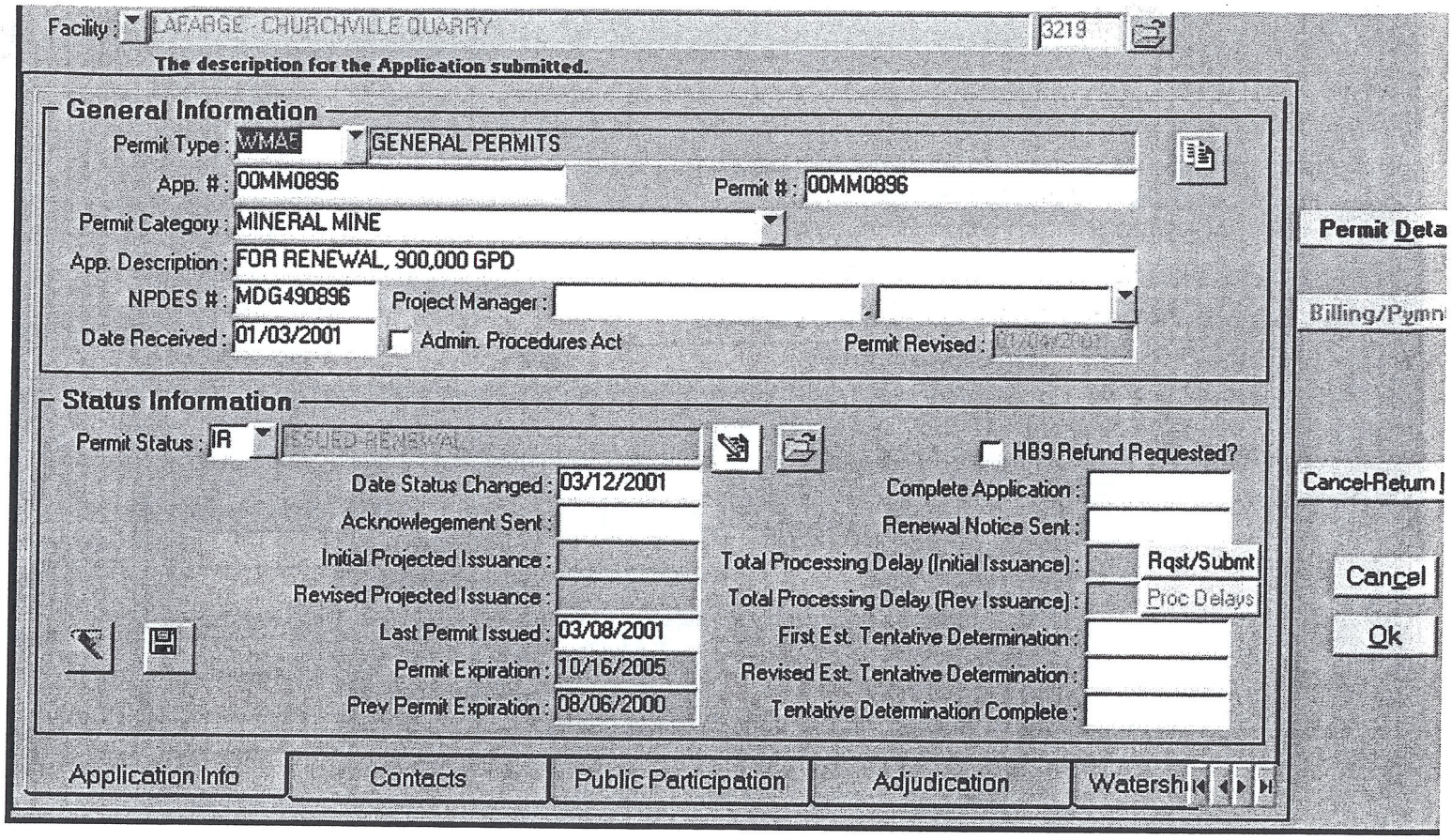
1000 0 1000 Feet

Base Maps: MD Dept. of Planning 2002 Land Use Map, and ADC Digital Map for Harford County

APPENDICES

APPENDIX B

Summary of General Permit Sites within the WHPA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3219
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Permit Category : MINERAL MINE
App. Description : FOR RENEWAL, 900,000 GPD
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Project Manager :
Date Received : 01/03/2001
Admin. Procedures Act
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Billing/Pymn
Status Information
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HB9 Refund Requested?
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Acknowlegement Sent :
Renewal Notice Sent :
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Rqst/Submt
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Proc Delays
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First Est. Tentative Determination :
Permit Expiration : 10/16/2005
Revised Est. Tentative Determination :
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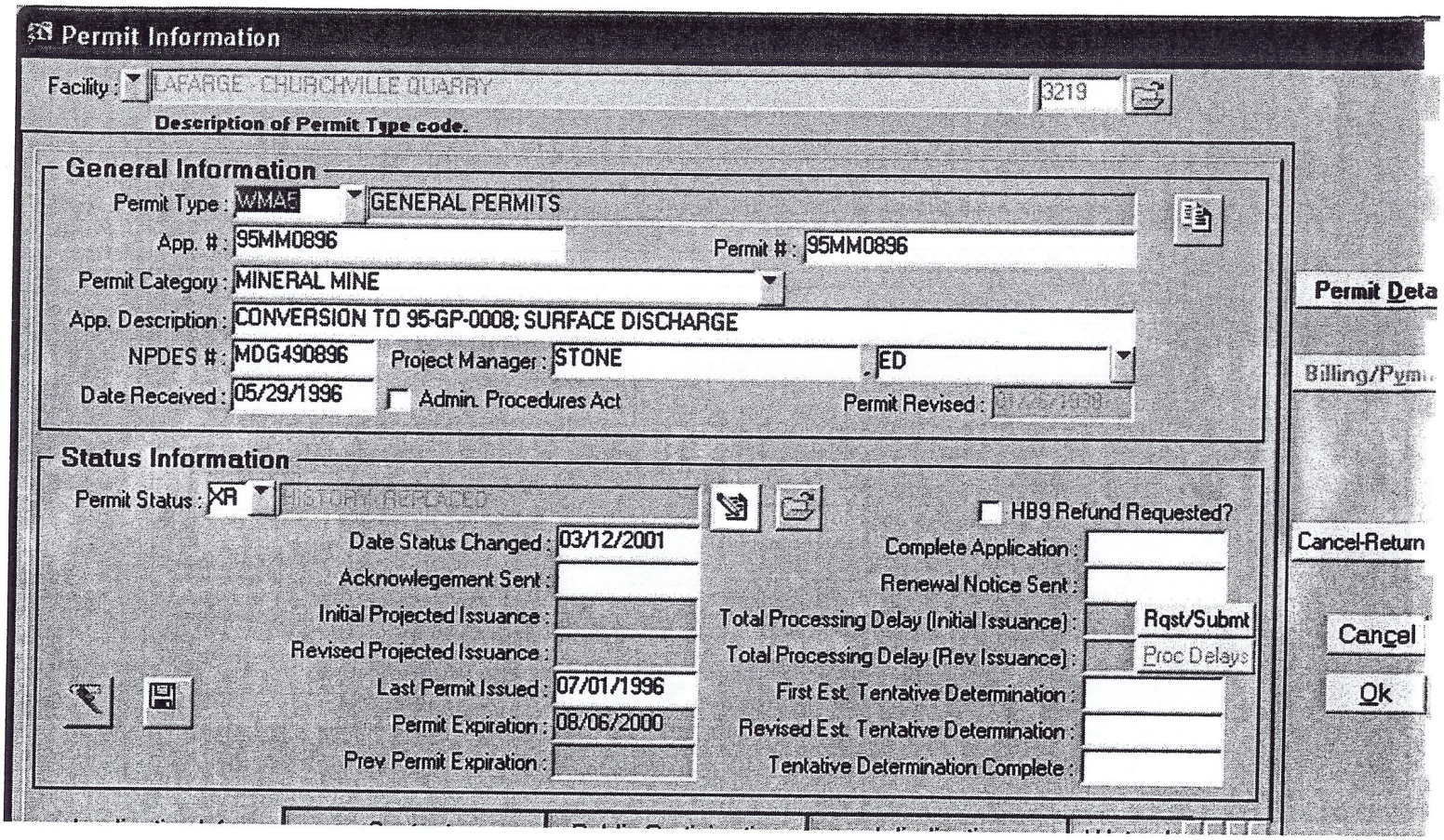

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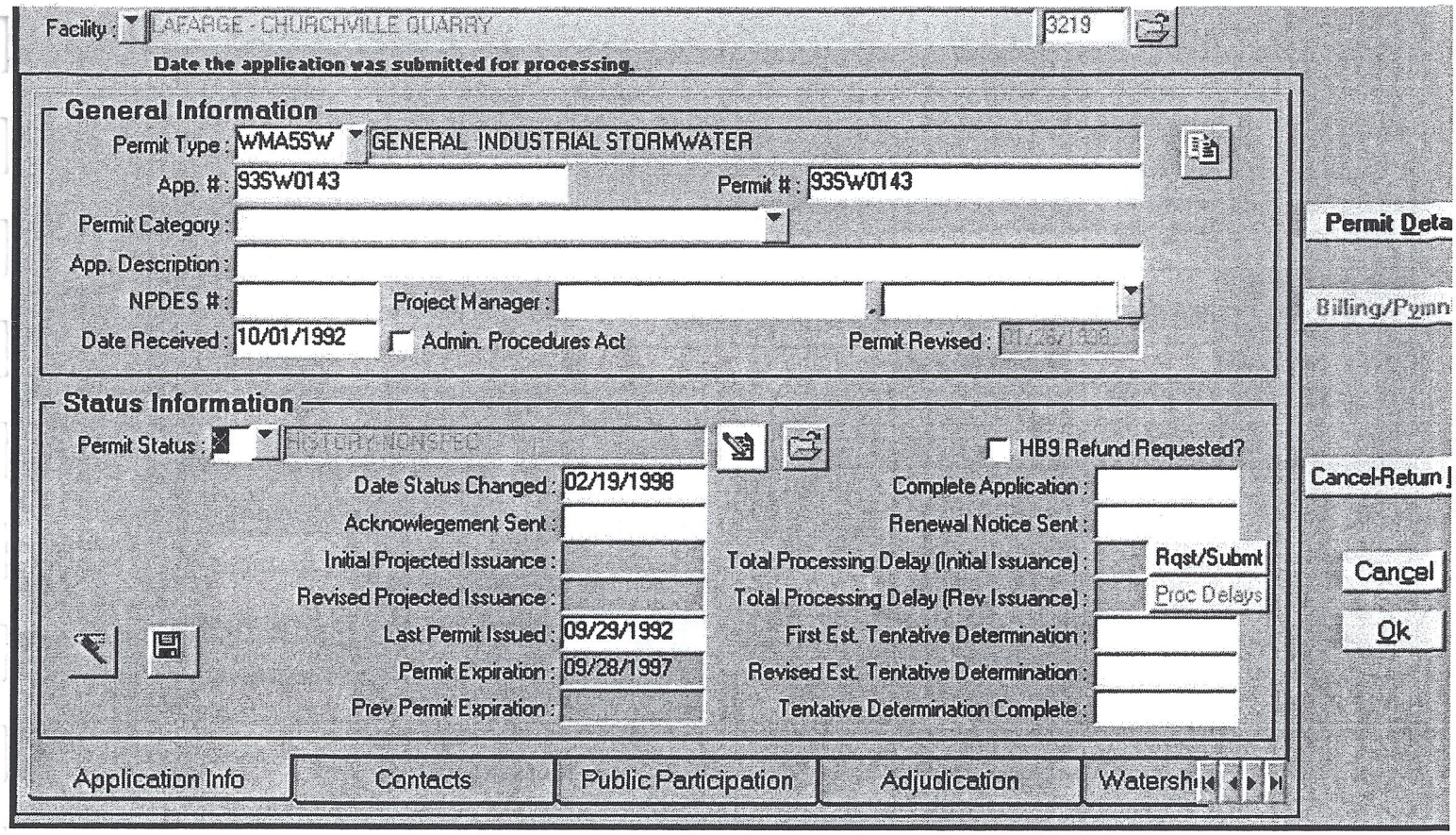
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Date the application was submitted for processing.
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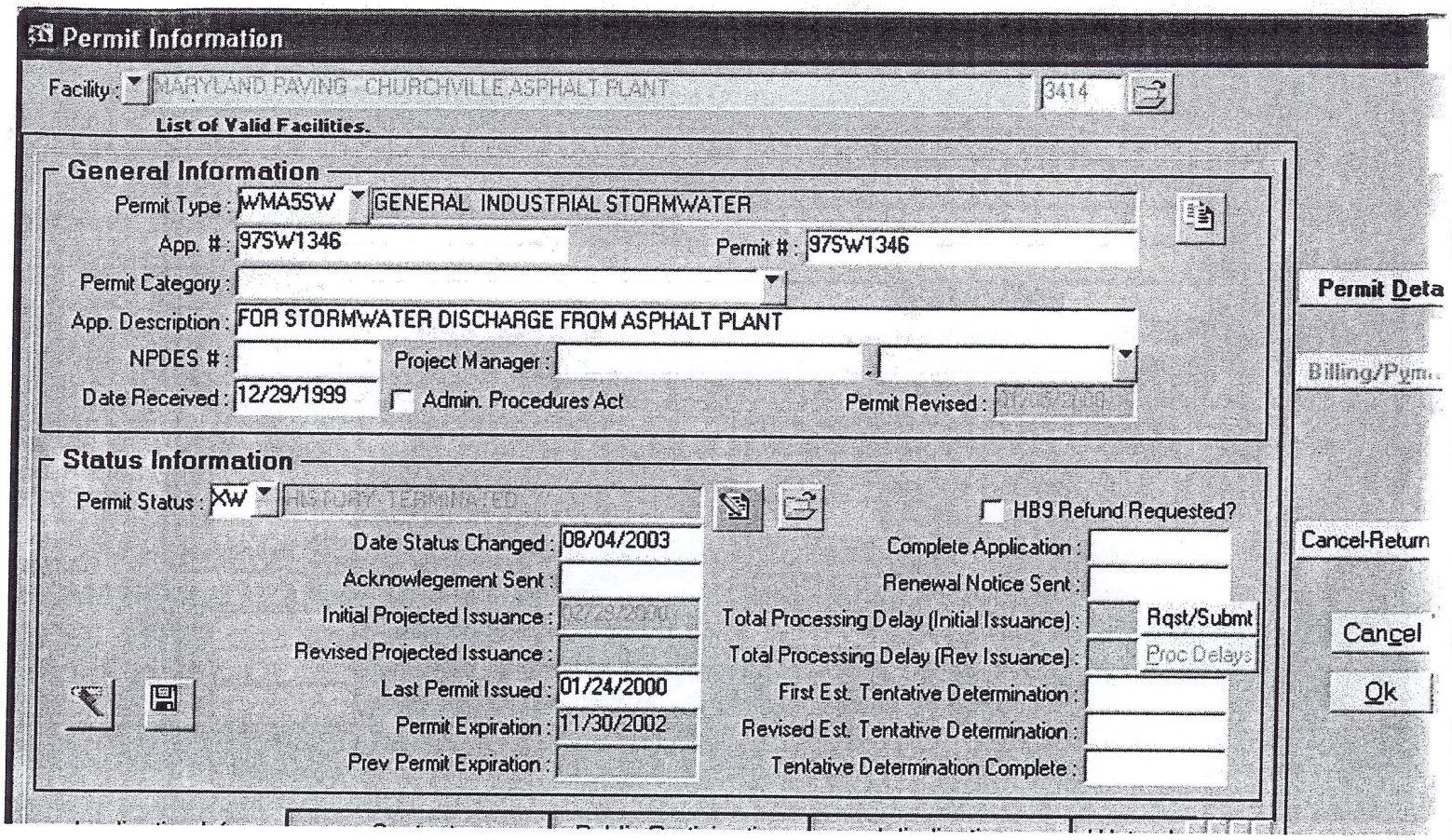
Complete Application :
Acknowlegement Sent :
Renewal Notice Sent :
Initial Projected Issuance :
Total Processing Delay (Initial Issuance) :
Rqst/Submt
Revised Projected Issuance :
Total Processing Delay (Rev Issuance) :
Proc Delays
Last Permit Issued :
09/29/1992
First Est. Tentative Determination :
Permit Expiration :
09/28/1997
Revised Est. Tentative Determination :
Prev Permit Expiration :
Tentative Determination Complete :
Application Info
Contacts
Public Participation
Adjudication
Watersh
Permit Deta
Billing/Pymn
Cancel-Return
Cancel
Ok



COVERED BY LAFARGE PERMIT.

APPENDIX C

Summary of MDE Oil Control Program Open Cases Near WHPA

CASE NO.	NAME	LOCATION	STATUS AS OF AUGUST 2005
05-0687HA	Rush Contracting	900 Calvary Rd. Churchville, MD 21028	UST was removed. No contamination was present in underlying soils. Water quality samples from on-site well showed no VOC detects. Case is still open because there is a second UST (heating oil) beneath an existing structure on the property. Oil Control Program required it to be removed or sealed in-place. The company was granted an extension for the completion of this project.

MDE Oil Control Program Open Cases near the LaFarge-Churchville Quarry Wellhead Protection Area