

STATE OF ARIZONA
DEPARTMENT OF WATER RESOURCES
GROUNDWATER MANAGEMENT SUPPORT SECTION
500 North Third Street - Phoenix, Arizona 85004-3903
Phone (602) 417-2470 Fax (602) 417-2422



WELL DRILLER REPORT

This report should be prepared by the Driller in all detail and filed with the Department within 30 days following completion of the well.

1. Owner's Name: Arizona Department of Environmental Quality
Address: 400 W Congress St #433 Tucson Az. 85701
Street City State Zip Telephone Number
2. Drilling Firm: Boart Longyear
Address: 7773 W Seldon Ln. Peoria Az. 85345 623-486-1881
Street City State Zip Telephone Number
3. Location: NW 1/4 NE 1/4 NW 1/4 of Section 27 Township 13 S Range 13 E
10 Acre 40 Acre 160 Acre
4. Well Registration No. 55- 586372 (Required)
5. Permit No. _____ (If issued)

DESCRIPTION OF WELL

6. Total Depth of Hole 212 ft.
7. Type of Casing PVC Sch 80
8. Diameter and length of casing 4 inches from 210' to 0' inches from _____ to _____
9. Method of sealing at reduction points _____
10. Perforated from 150' to 210 from _____ to _____ from _____ to _____
11. Size of cuts .020 Number of cuts per foot Factory
12. If screen was installed: Length 69 feet. Diameter 4 inches. Type PVC Sch 80
13. Method of construction Sonic Drill
(drilled, dug, driven, bored, jetted, etc.)
14. Date started 6 17 2001
Month Day Year
15. Date completed 6 22 2001
Month Day Year
16. Depth to water 160 ft. (If flowing well, so state).
17. Describe point from which depth measurements were made, and give sea-level elevation if available Ground level

18. If flowing well, state method of flow regulation:
19. Remarks: Also set 2" Sch 40 Well (Pirch)
Cased 68'-0', Slotted .020 Screen 48'-68'
Neat Cement 138.7'-84', Hydrated Chips
84'-70', Silica Sand 70'-68', Then Well

DO NOT WRITE IN THIS SPACE
OFFICE RECORD

Registration No. _____

File No. 586372

Received D(13-13)27 BAB By _____

Entered _____ By _____

RECEIVED JUL 10 2001

BAC

**ARIZONA DEPARTMENT OF WATER RESOURCES
GROUNDWATER MANAGEMENT SUPPORT SECTION**

IRA-11

MAIL TO: P.O. BOX 458, PHOENIX, ARIZONA 85001-0458
FOR INFORMATION: CALL MONICA ORTIZ AT 602-417-2470

RECEIVED
MAR 30 2001
GROUNDWATER MGMT

NOTICE OF INTENTION TO DRILL MONITOR/PIEZOMETER WELL

PLEASE READ GENERAL INSTRUCTIONS AND CONDITIONS ON REVERSE SIDE OF THIS FORM BEFORE COMPLETING.

1. Well/land Location:

13 N/S 13 E/W 27
Township Range Section
NW 1/4 NE 1/4 NW 1/4
10 Acre 40 Acre 160 Acre

2. Position location of the well on the land:

Latitude 32 ° 16 ' 44 "
Longitude 111 ° 00 ' 19 "

3. County: Pima

4. Owner of the well:

ADEQ
Name
400 W. Congress St. #433
Mailing Address
Tucson, AZ 85701
City State Zip
Telephone No. 520-628-6733

5. Lessee of the land of wellsite:

Friedman Recycling of Tucson
Name
1825 West Price Road
Mailing Address
Tucson, AZ 85705
City State Zip
Telephone No. _____

6. Owner of the Land of Wellsite:

Garold C. Brown Family Ltd. P.
Name
8325 East Golf Links Road
Mailing Address
Tucson, AZ 85730
City State Zip
Telephone No. _____

7. Consulting firm:

URS
Name
Bill Petroustson
Contact Person
Telephone No. 520-5294141

8. Purpose of well drilled pursuant to this notice:

Monitor
Piezometer _____

9. If for deepening or modifying, list well registration number:

55- _____

* FOR DEPARTMENT USE ONLY
File No. D(1343)27BAC
Filed 3-30-01 By WB
Input _____ By _____
DUPLICATE
Mailed 4-10-01 By WB
Registration 55-586372
AMA/INA TUCSON
W/S 09 S/B 16
MO. _____

W-X

10. Will this proposed well be associated with a permit: Yes _____ No

If yes, Permit No. _____

11. Construction will start:

03-05-01
Month Day Year

12. Period well will remain in use:

Indefinite Months/Years

13. For monitoring wells, is pump equipment to be installed?

Yes No _____

(a) If yes, design pump capacity:

10 gpm

(b) What use will be made of the water:

Water Quality analyses

14. Drilling Firm:

Boart Longyear
Name
7773 W. Seldon Lane
Mailing Address
Peoria AZ 85345
City State Zip
800-808-2420
Telephone No.
83
DWR License Number
A 04
ROC License Category

15. Proposed method of abandonment of well after project is completed: Drill out, fill to surface with cement slurry.

_____, pursuant to R12-15-816.

16. Is this well to monitor existing contamination? yes Potential contamination: _____ Please explain: _____

17. If construction plans have been coordinated with Arizona Department of Environmental Quality, who is the agency contact? _____

Matt Doolen

18. If construction plans have been coordinated with Arizona Department of Water Resources, who is the agency contact? _____

VARIANCE GRANTED

SPECIAL REQUIREMENTS

19. WELL CONSTRUCTION PLAN:

- a) Drilling method (mud rotary, hollow-stem auger, etc.) Rotasonic
- b) Borehole diameters: 11 inches from 0 feet to 100 feet.
8 5/8 inches from 100 feet to 200 feet.
- c) Casing materials (PVC, steel, hollow-stem auger, etc.)
material PVC diameter 4 inches from 0 feet to 200 feet.
material _____ diameter _____ inches from _____ feet to _____ feet.
- d) Method of sealing at reductions No reductions
- e) Annular seal materials (cement, grout, etc.); method of placement (tremied, circulated):
material grout 3-5% Bentonite grout method tremie from 0 feet to 148 feet.
material Bentonite seal method tremie from 148 feet to 153 feet.
- f) Filter packs (state material):
material #30 Tacna sand from 153 feet to 155 feet.
material #8-12 Silica sand from 155 feet to 200 feet.
- g) Perforations or screen specifications:
Type 0.020 inch slots from 160 feet to 200 feet.
Type _____ from _____ feet to _____ feet.
- h) Method of well development (bail, air lift, surge) surge and bail
- i) Will surface or conductor casing extend above grade?: Yes _____ No X *amended per letter dated 4-5-01 JR*

20. Include detailed construction diagram showing expected water depth in feet below land surface, and details of vault, if specified.

I state that this Notice is filed in compliance with Rule A.A.C. R12-15-809, is complete and correct to the best of my knowledge and belief and that I understand the conditions set forth on this form.

GARROLD C. BROOKIN Garrold Brown 3/21/01
 Typed or Printed Name and Title Signature Land Owner Lessee of Wellsite, Title Date

Necessary Steps and Instructions to Obtain Drilling Authority (Monitor/Piezometer Wells)

1. Arizona Revised Statutes ("A.R.S.") § 45-596 provides that prior to drilling a monitor or piezometer well, a Notice of Intention to Drill must be filed with the Department. To assist you in understanding the substantive requirements for this application, copies of A.R.S. § 45-596 and Arizona Administrative Code ("A.A.C.") R12-15-810 are available thru the department bookstore.
2. Information to complete items 1, 2, and 3 may be available from your County Tax Receipt or your County Assessors Office.
3. Information to complete item 9 is available from your copy of the original Notice of Intent to Drill or our Records Division at (602)417-2405.
4. Information to complete items 11, 14 and 15 may be available from your driller.
5. If an individual other than the land owner or lessee signs this notice, an original notarized letter of authorization from the land owner/lessee, stating that the individual has permission to sign this specific Notice on his or her behalf, must accompany the Notice of Intention to Drill a Monitor/Piezometer Well.
6. Please complete two original notices with original signatures and include a \$10.00 check or money order for the processing fee, in accordance with A.R.S. § 45-113. Submit them to: P.O. Box 458, Phoenix, Arizona 85001-0458.

TIME FRAME FOR REVIEW OF YOUR APPLICATION

Within 15 days after receipt of your Notice of Intention, the Arizona Department of Water Resources ("Department") will determine whether your application should be granted or denied, unless this time is extended for lack of a complete application. If your application is incomplete, the Department will notify you in writing and will specify what information is necessary to make the application complete. Until the missing information is received, the time frame for review of your application will be suspended. Your application will not be complete until all of the requested information is received. If you do not supply the missing information within sixty (60) days, the Department may deem your application withdrawn and close the file.

At the end of its review, the Department will send you written notice either granting or denying your application for drilling authority. If your application is approved, the Drill Card will be mailed directly to the drilling company. If denied, the Department's notice will state justification for the denial and an explanation of your right to appeal.

Construction and Follow-up Requirements

1. Construction and abandonment standards for all wells must be in accordance with Department Rules.
2. A.A.C. Rule R12-15-811(H)(2) requires a monitor well to be identified as such on the vault cover or at the top of the steel casing. Identification information must include the well registration number.
3. Pursuant to A.R.S. § 45-596(E), drilling, deepening or modification of the well must be completed within one year after the date of the Notice of Intent.
4. A Well Driller Report is required within thirty (30) days of completion of drilling. Within thirty (30) days after installation of pumping equipment in monitor wells, a Completion Report must be filed with the Department.
5. Pump equipment may not be installed on a well drilled for piezometer purposes. If a monitor well is pumped, pumping is limited to the maximum amount required for monitor purposes, but in no case may exceed 35 gallons per minute and an annual total volume of 10 acre feet.
6. Special construction standards required pursuant to A.A.C. Rule R12-15-821: _____

**ARIZONA DEPARTMENT OF WATER RESOURCES
GROUNDWATER MANAGEMENT SUPPORT SECTION
500 North Third Street
Phoenix, Arizona 85004**

VARIANCE GRANTED

THIS AUTHORIZATION SHALL BE IN POSSESSION OF THE DRILLER DURING ALL DRILL OPERATIONS

WELL REGISTRATION NO: 55-586372

AUTHORIZED DRILLER: BOART LONGYEAR COMPANY

LICENSE NO: 83

NOTICE OF INTENTION TO DRILL A MONITOR WELL(S) HAS BEEN FILED WITH THE DEPARTMENT BY:

WELL OWNER: ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY 400 W CONGRESS STE #433 TUCSON, AZ 85701

The well(s) is/are to be located in the:

SW ¼ of the NE ¼ of the NW ¼ Section 27 Township 13 SOUTH Range 13 EAST

No. of wells in this project: 1

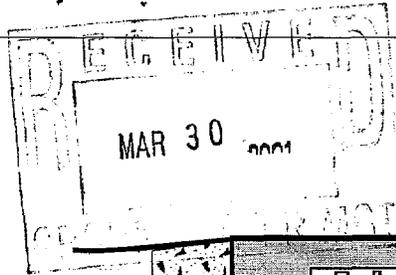
THIS AUTHORIZATION EXPIRES AT MIDNIGHT ON THE 29TH DAY OF MARCH, 2002

MS

GROUNDWATER MANAGEMENT SUPPORT

**THE DRILLER MUST FILE A LOG OF THE WELL
WITHIN 30 DAYS OF COMPLETION OF DRILLING**





WELL BORING:

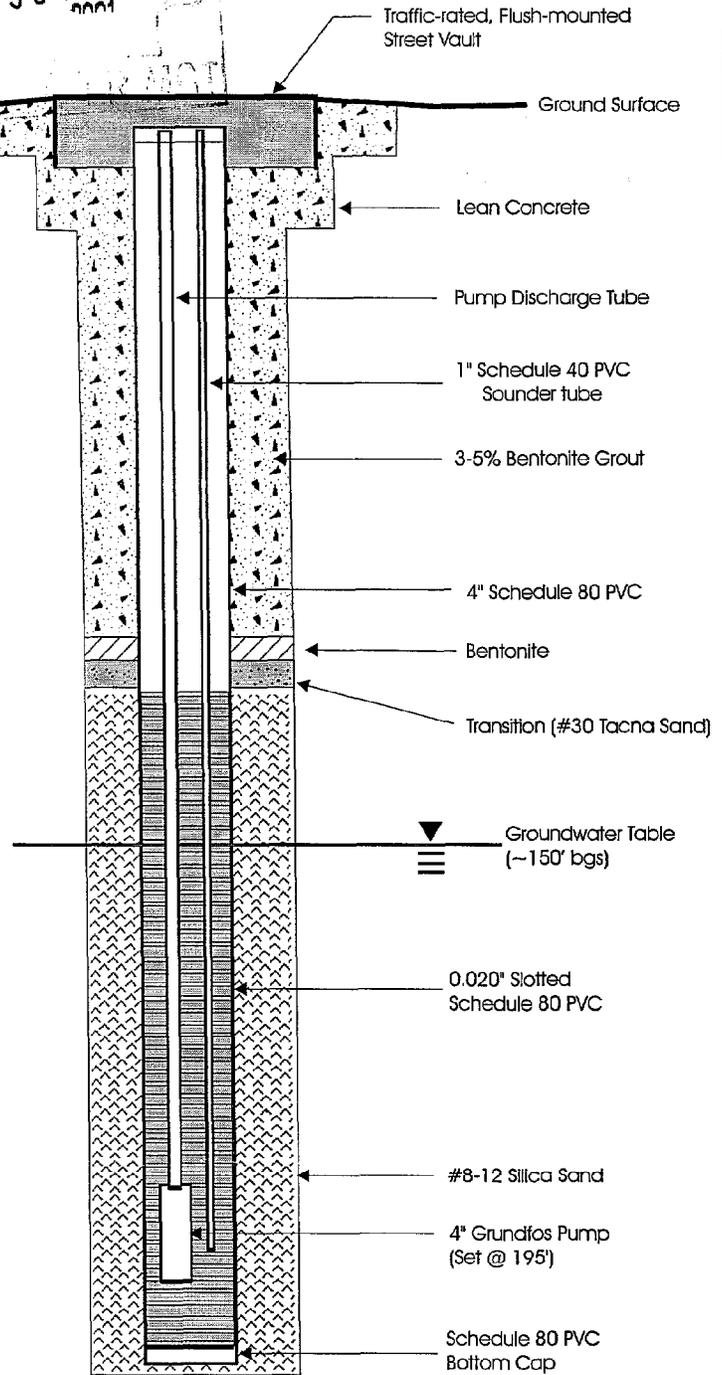
Total Depth 200'
 Casing Diameter 11"
 Depth Interval 0'-100'
 Casing Diameter 8.625"
 Depth Interval 100'-200'
 Drilling Method Rotasonic

WELL CONSTRUCTION:

Casing length 200'
 Material Schedule 80 PVC
 Diameter 4"
 Surface Seal 0 to 5'
 Seal Material Lean Concrete
 Backfill 5' to 148'
 Backfill Material Portland Grout (3-5% bentonite)
 Placement Method Tremie Pipe
 Seal Interval 148'-153'
 Seal Material Bentonite
 Placement Method Tremie Pipe
 Transition Interval 153'-155'
 Transition Material #30 Tacna Sand
 Placement Method Tremie Pipe
 Gravel Pack Interval 155'-200'
 Gravel Pack Material #8-12 Silica Sand
 Placement Method Tremie Pipe
 Depth to Top of Perforation Zone ... 160'
 Screened Interval 160'-200'
 Perforated Type Slotted
 Perforation Size 0.020"

SURFACE CONSTRUCTION:

Surface Completion Flush Mount
 Protective Casing 12" x 20"
 Surface Protection Low Carbon Steel (per ADWR)



NOT TO SCALE

VARIANCE GRANTED

SPECIAL REQUIREMENTS

55-586372
 "IRA-11"

PROPOSED SHALLOW REGIONAL MONITOR WELLS
Remedial Investigation/Feasibility Study
Miracle Mile WQARF Site



ARIZONA DEPARTMENT OF WATER RESOURCES

500 North 3rd Street, Phoenix, Arizona 85004
Telephone (602) 417-2470
Fax (602) 417-2422



JANE DEE HULL
Governor

RITA PEARSON MAGUIRE
Director

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
400 W CONGRESS STE #433
TUCSON, AZ 85701

Registration No. 55-586372
File No. D(13-13) 27 BAC

Dear Well Owner:

Enclosed for your records is an annotated copy of the Notice of Intention to Drill a well. This is returned to you as evidence of compliance with A.R.S. §45-596. A drilling card has been mailed to your designated driller. Prior to drilling he must have it in his possession.

Since this well is being drilled as a Monitor well, or for Cathodic Protection, Grounding, Geotechnical or Piezometer purposes, our standard driller report form is also being furnished to the driller. He is required to complete it and return it to the Department within 30 days after the completion of the well. A Completion Report form is being furnished for monitor wells where pump installation is authorized. This must be completed within thirty days of installation as required by A.R.S. §45-600.

A Change of Well Information form is enclosed for your future use . If you deem it necessary to change the location of the proposed well, please notify the Department on the enclosed form. A properly amended Drilling Card will then be issued and must be in possession of the driller before drilling begins. During the drilling of a new well, if it is determined that it must be abandoned, then a Well Abandonment Completion Report must be submitted per R12-15-816.F.

Per A.R.S. §45-593, the person to whom a well is registered shall notify this Department of a change of ownership of the well and/or information pertaining to the physical characteristics of the well, in order to keep the well registration file current and accurate.

Sincerely,

A handwritten signature in cursive script that reads "Toni Bergeman".

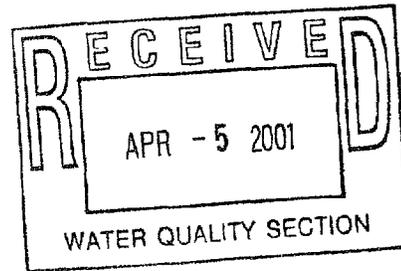
Toni Bergeman
Water Resource Technician
Groundwater Management Support Section

Enclosures



April 5, 2001

Ms. Shannon Reif
Groundwater Management Section
Arizona Department of Water Resources
P. O. Box 458
Phoenix, AZ 85001-0458



Re: NOIs
Proposed Monitor Wells
Miracle Mile WQARF site

Dear Ms. Reif:

Please amend the applications for 55-586370, 55-586371, and 55-586372 to reflect the details of the enclosed monitor well construction diagrams.

Sincerely,
URS Corporation

Bill Petrouson

URS Corporation
Cambria Corporate Center
1790 East River Road, Suite E 300
Tucson, AZ 85718-5876
Tel: 520.529.1141
Fax: 520.529.2449

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ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Governor Jane Dee Hull

Jacqueline E. Schafer, Director

March 12, 2001

SROSPU01,081

E-II-5240.2.11

Arizona Department of Water Resources
Hydrology Division
Attn: Shannon Reif
500 North 3rd Street
Phoenix, AZ 85004

Re: Miracle Mile WQARF Site - Groundwater Monitor Well Installation - Request for Variance

Dear Shannon:

The Arizona Department of Environmental Quality (ADEQ), as owner of the proposed wells listed below, requests a variance in the construction of six groundwater monitor wells (see attached table). ADEQ is installing these wells as part of the Remedial Investigation at the Miracle Mile WQARF site. These monitor wells will be constructed with schedule 80 PVC casing in the upper 20' of the wells instead of the required 20' of steel casing.

The "Notice of Intention to Drill Monitor/Piezometer Well" applications are currently being reviewed by the land owners and will be forwarded to ADWR's Groundwater Management Support Section when available.

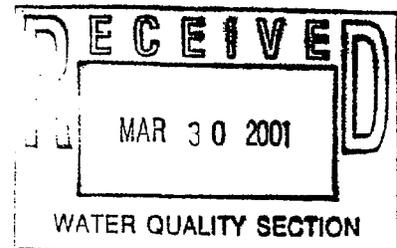
Please contact me at (520) 628-6722 if you need additional information. Thank you for assisting in ADEQ's investigations at the Miracle Mile site.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Doolen".

Matt Doolen
Project Manager

c: Mike Fulton - Supervisor SPU/Reading File



ARIZONA DEPARTMENT OF WATER RESOURCES

Hydrology Division
500 North Third Street, Phoenix, Arizona 85004
Telephone (602) 417-2448
Fax (602) 417-2425



JANE DEE HULL
Governor

RITA PEARSON
MAGUIRE
Director

April 5, 2001

Arizona Department of Environmental Quality
Attn: Matt Doolen
400 West Congress, Suite #433
Tucson, Arizona 85701

Re: Variance for Three Monitor Wells
#55-586370 T13S, R13E, Section 27 BAC (IRA-12)
#55-586371 T13S, R13E, Section 27 BAC (IRA-16)
#55-586372 T13S, R13E, Section 27 BAC (IRA-11)

Dear Mr. Doolen:

The Arizona Department of Water Resources (ADWR) received your request on March 30, 2001, for a variance in the construction of six groundwater monitoring wells located in Pima County. At this time, ADWR is granting a variance for the construction of the above referenced three monitor wells. These wells will be installed as part of the Remedial Investigation at the Miracle Mile WQARF site.

ADWR approves the request for the following variance:

- Thermoplastic inner casing (riser) with a watertight cap may be used in lieu of steel (R12-15-811(B)(1)).

The following *special requirements* are conditions for this variance (R12-15-821):

- The PVC inner casings (risers) shall comply with ASTM Standard Guide D5092, Section 6.5.
- The wells shall be constructed per the "Variance Granted" Notice of Intention to Drill.
- The wells shall be abandoned (decommissioned) per A.A.C. R12-15-816.

Any questions should be directed to Shannon Reif at 602-417-2400, x7270.

Sincerely,

A handwritten signature in cursive script, appearing to read "Frank Corkhill".

Frank Corkhill,
Supervisor, Technical Support Section

cc: Owner
File

ARIZONA DEPARTMENT OF WATER RESOURCES

Water Quality Assurance Program
500 North Third Street, Phoenix, Arizona 85004
Telephone 602 417-2473
Fax 602 417-2426



JANE DEE HULL
Governor

**RITA PEARSON
MAGUIRE**
Director

April 5, 2001

Arizona Department of Environmental Quality
Attn: Matt Doolen
400 W. Congress Street #433
Tucson, Arizona 85701

RE: Well Registration #55-586370 through 55-586372

Dear Mr. Doolen:

The Department of Water Resources recently received your Notice of Intention to Drill three (3) monitor wells in Township 13 South, Range 13 East, Section 27. This location has been determined to be in proximity to a contaminated groundwater area known as the Miracle Mile Water Quality Assurance Revolving Fund (WQARF) remedial site.

Please be advised that according to R12-15-851, you are required to notify the Department at least two (2) business days in advance of commencement of well drilling activities for the above referenced wells. You may submit this required notice to the Department by either letter or facsimile, and the Department must receive it at least two (2) business days prior to drilling.

Mailing Address:
Water Quality Assurance Program
Arizona Department of Water Resources
500 N. 3rd Street
Phoenix, AZ 85004

Facsimile Number:
(602) 417-2426

If you have any questions, please contact the WQARF Section at (602) 417-2473.

Sincerely,

A handwritten signature in black ink that reads "Shannon L. Reif".

Shannon L. Reif
Water Quality Section

AD5Q

WELL REGISTRY No. 55- 586370-72 CADASTRAL LOCATION: DC(13-13)27BAK

Date Received 3-30-01 Date to Water Quality 4/2/01

Date Returned to GMSS 4-5-01 Date to Hydrology 4-5-01

Variance Letter Received Yes No
Well diagram Received Yes No

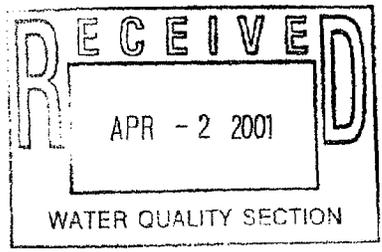
TYPE OF WELL:

Monitor/Piezometer 3 Other _____
Domestic _____ NOI to Abandon _____
Geotechnical _____

WATER QUALITY - WOARF ANALYST COMMENTS:

Dulling 3 monitor wells located
in the buffer zone of
Miracle Mill WOARF site

Site Map attached - Referred to Hydrologist
Subbasin Map attached - Returned to GMSS



WATER QUALITY APPROVAL:

Granted
Not granted _____
Letter issued

Signature: Shannon L. Reef Date: 04-05-01

HYDROLOGY DIVISION - WOARF HYDROLOGIST COMMENTS:

55-586370 = "IRA-12" **SPECIAL REQUIREMENTS**
55-586371 = "IRA-16"
55-586372 = "IRA-11" **VARIANCE GRAN**

HYDROLOGY DIVISION APPROVAL:

Granted
Not Granted _____
Letter Issued _____

Variance Not Required _____
Granted
Not Granted _____
Letter issued

Signature: Shannon L Reef Date: 4-5-01

4/5