

**Agency: Commerce, Community and Economic Development****Grants to Municipalities (AS 37.05.315)****Grant Recipient: Anchorage****Federal Tax ID: 92-0170439****Project Title:****Project Type: Planning and Research**

# Anchorage - Sand Lake Watershed Drinking Water Studies

**State Funding Requested: \$250,000****House District: Anchorage Areawide (16-32)**

Future Funding May Be Requested

**Brief Project Description:**

The overall goals of this project are to prevent contamination of local water wells and identify wells that are at risk of contamination or that may become contaminated so that remedial action may be implemented.

**Funding Plan:**

Total Project Cost:	\$800,000
Funding Already Secured:	(\$50,000)
FY2013 State Funding Request:	<u>(\$250,000)</u>
Project Deficit:	\$500,000

*Funding Details:**2008 \$50,000 AK State Legislature funds***Detailed Project Description and Justification:**

Sand Lake Watershed Drinking Water Studies

Results of 2008 Funding, and Plans for 2011-12 Funding

From the Alaska Legislature

The Sand Lake community has effectively spent most of the \$50,000 appropriation from the 2008 Alaska Legislature to drill two monitoring wells that have disproved previous Municipality of Anchorage and Alaska Department of Environmental Conservation assertions that all wells and aquifers in the Sand Lake area are protected by thick confining layers. The government assertions provided the foundation for Municipal approval of new development in the Sand Lake Gravel pits. The first well, drilled in a residential neighborhood reliant on private wells, found an aquifer at a depth of 90 feet unprotected by any significant silt or clay layers. The second well identified two other aquifers at depths of approximately 215 ft and 310 ft confirming the complicated geology of the area.

The Municipality of Anchorage has also entered into an agreement to create a landfill in one of the two exposed aquifers in the Gravel Pit, without adequate plans for groundwater monitoring to protect adjacent downgradient well owners. Many well owners downgradient of the Lucy Pit tap a relatively shallow sand and gravel aquifer.

These two events by themselves show the critical need to continue funding of the Sand Lake Watershed Studies to define groundwater flow systems and monitor groundwater quality to assure residents that their well-water supplies are reasonably

safe. In addition, past reports of fouled wells and the results of two legislature-funded studies by UAA and UAF confirmed that aquifers are not protected by continuous confining layers and that degradation of groundwater quality through urban development is a real possibility.

Approximately 3000 Sand Lake area residents rely on local wells for their water supply.

The ADEC has acknowledged that wells in urbanizing areas are at risk of contamination and has recommended that risk assessments be conducted to clarify the risks of contamination of private wells. Before these studies can be performed, however, additional work is needed to determine the vulnerability of aquifers in order to make the risk assessments meaningful. The 2008 UAF study, for example, found that wells previously thought to be protected by thick confining layers, do, in fact, provide water containing atmospheric tritium from testing of thermonuclear devices that has been recharged into the groundwater system within approximately the past 50 years. Additional testing for tritium is needed.

2008 Study Findings (<http://www.sandlakecc.org/wp-content/uploads/2009/04/Sand-Lake-Final-Report-011210.pdf>)

The 2008 funds were used to drill two wells tapping aquifers of different depths at one strategically selected site in a residential neighborhood directly downgradient of the exposed aquifer/South Pond. The drilling confirms that the exposed aquifer penetrated by the South Pond is present in the residential neighborhood and there appears to be a continuous flow system between the two areas.

The findings directly refuted previous assertions that all wells are protected by continuous confining units in the area. Preliminary findings have been presented to the Sand Lake Community Council. With limited funding, the 2008 studies have established a "proof of concept" that a groundwater monitoring network can be cost-effectively established to provide fact-based assurances to local homeowners that well-water supplies are reasonably safe but that continued vigilance and monitoring of potential source of contamination is warranted.

#### 2012 and Ongoing Studies

The primary goals of the Sand Lake Watershed Studies are to prevent contamination of local water wells, provide an early detection system if groundwater becomes impaired, and provide some assurance to residents on an ongoing basis that their well-water supplies are reasonably safe.

Attached is a budget document showing the proposed expenditure of \$250,000/yr for each of the next three years to establish a network of monitoring wells in the Sand Lake area.

The goals of the Watershed Studies will be achieved by implementation of the following objectives:

- Monitor groundwater quality at new dedicated sentinel monitoring wells that are strategically placed between potential source areas of contamination and private wells. The sentinel wells will form an early warning system for contaminants.

Two to three nested well clusters are planned for 2012. At least two clusters are targeted for completion between the Lucy Pit, which is in the process of being filled and an adjacent neighborhood served by private wells.

- Installation and testing of the new wells will also provide additional detailed data for mapping aquifers and flow systems in the Sand Lake area and provide a better understanding of the vulnerability of local wells to contamination.

- To supplement data from the new wells, a publicly available database will be developed and expanded from the recent previous work that will track knowledge of water quality in the area.

- Public education activities will be conducted to inform residents of the findings of the studies and how to prevent groundwater contamination. Findings will be incorporated into the Sand Lake Area Plan, now being initiated by the Municipality of Anchorage.

The results of the watershed studies will be used to disseminate information about water treatment alternatives for arsenic and prioritize funding and studies for further expansion of public water and sewer into the Sand Lake area.

#### Community Review

The Sand Lake Watershed Studies are regularly reviewed at Sand Lake Community Council meetings and are supported by past resolutions. The current proposal for funding in 2011 is supported by the attached resolution.

#### Project Timeline:

The study and testing has already started and will continue (with funding) until FY14 when the study is scheduled to conclude.

#### Entity Responsible for the Ongoing Operation and Maintenance of this Project:

Municipality of Anchorage

#### Grant Recipient Contact Information:

Name: J.A, Munter Consulting, Inc.  
 Title: Principal Hydrogeologist  
 Address: 5701 Penny Circle  
 Anchorage, Alaska 99516  
 Phone Number: (907)345-0165  
 Email: jamunter@arctic.net

Has this project been through a public review process at the local level and is it a community priority?  Yes  No

# Sand Lake Community Council

Sand Lake Community Council c/o Community Councils Center • 1057 W. Fireweed Suite 100 • Anchorage, Alaska 99503  
E-Mail: [mail@sandlakecc.org](mailto:mail@sandlakecc.org) or [slccpresident@gmail.com](mailto:slccpresident@gmail.com) Web: <http://www.sandlakecc.org>



Date: February 14<sup>th</sup> 2011

## Sand Lake Community Council Resolution 2011-03

**SUBJECT: REQUEST PARNELL ADMINISTRATION TO NOT VETO LEGISLATIVE APPROPRIATION FOR LONG TERM DRINKING WATER MONITORING.**

WHEREAS the Sand Lake Community Council has authored numerous resolutions over the last nine years (2002-2011) expressing concern about the Westpark, f/k/a Kincaid Estates (KE) Subdivision project, including the developer's several plat submissions to the Municipality of Anchorage Platting Board; and,

WHEREAS that resolutions have commonly addressed possible adverse impacts upon ground waters due to subdivision development and the approximately 3,000 persons on private water wells near the subdivision; and,

WHEREAS the Alaska Dept. of Environmental Conservation (DEC) issued a report in May 2003 with unsubstantiated findings that the KE project would not adversely affect local ground waters; and ignored the fact that residents submitted at least 14 water complaints to the DEC,

WHEREAS the Sand Lake community's legislators had UAA conduct a 3<sup>rd</sup> Party review of the 2003 DEC report, and WHEREAS the UAA report stating "in our opinion, the arguments for concluding that various protective measures exist at the site of the proposed development to ensure groundwater resources protection are not substantiated by site specific knowledge;" and

WHEREAS, the South Anchorage Concerned Coalition has attempted through letter requests in June 2007 to ask DEC to review and reevaluate its report in light of the UAA report and pending UAF study and the DEC has yet to respond; and,

NOW, WHEREFORE, the Sand Lake Community Council resolves the following requests of the Parnell Administration:

1. That the Sand Lake Community Council does hereby support long term sentry monitoring wells with initial costs of \$250,000 to determine the effects of the Kincaid Estates Subdivision in the old Sand Lake Gravel Pit on private and Community Wells.
2. That the long term monitoring take into account the 2004 UAA Study, the 2008 UAF study and the 2010 UAA/AWC/Munter Study to guide them in selection of locations of monitoring wells.
3. That Sand Lake Community Council's legislative delegation, Sen. McGuire and Rep. Costello, meet with DEC to explain the importance of long term drinking water monitoring in the Sand Lake Community.

ADOPTED, this 14<sup>th</sup> day of February 2011 in Anchorage  
Alaska by the Sand Lake Community Council.

A handwritten signature in black ink, appearing to read "Daniel Burgess", is written over a horizontal line. The signature is fluid and cursive.

Daniel Burgess

Sand Lake Community Council President

**From:** Lawrence V. Albert Attorney at Law [<mailto:albertl@alaska.net>]  
**Sent:** Wednesday, February 23, 2011 7:20 PM  
**To:** Rep. Mia Costello  
**Cc:** 'William Watson'  
**Subject:** Sand Lake Community Council Request for Appropriation on Groundwater Investigations

To Rep. Costello:

I have been asked by Will Watson on behalf of the Sand Lake Community Council to express my support for funding groundwater investigations in FY 2012-13.

Attached is a letter I wrote to Governor Parnell regarding comparable funding passed by the Legislature for the FY 2011-12 budget.

Neither the Governor's Office, the Office of Management and Budget, nor the Department of Environmental Conservation (DEC) provided any explanation for the veto in last year's budget.

DEC has done absolutely nothing to support further investigations after it issued a superficial and flawed report in 2003 that can only be characterized as junk science.

Your office is welcome to contact me if it has any questions or seeks additional information regarding the history of this issue.

Lawrence V. Albert  
Attorney at Law  
P. O. Box 200934  
Anchorage, Alaska 99520  
Tel: (907) 243-2172  
Fax: (907) 243-5476

**Agency: Commerce, Community and Economic Development****Grants to Municipalities (AS 37.05.315)****Grant Recipient: Anchorage****Project Title:**

# Anchorage - Sand Lake Watershed Studies

**State Funding Requested: \$ 250,000****House District: 27 - N**

Future Funding May Be Requested

**Brief Project Description:**

Map aquifers, understand groundwater flow systems, provide early detection monitoring for contaminants, assess risks to wells, and conduct contaminant prevention activities.

**Funding Plan:****Total Cost of Project: \$250,000**Funding Secured*Amount      FY*Other Pending Requests*Amount      FY*Anticipated Future Need*Amount      FY*

There is no other funding needed

**Detailed Project Description and Justification:**

The overall goal of this project is to prevent contamination of local water wells and identify wells that are at risk of contamination or that may become contaminated so that remedial action may be implemented. It is of critical importance to determine and monitor the surface aquifers influence on underlying aquifers.

The specific objectives of the Sand Lake watershed studies are to map aquifers, understand groundwater flow systems, provide early detection monitoring for contaminants, assess risks to wells, and conduct contaminant prevention activities. These objectives will be achieved through an inventory and sampling of existing wells, drilling and testing of new sentinel monitoring wells in multiple aquifers, and performing Source Water Assessments through established protocols. Public education will be an important component of the work at all stages.

**Project Timeline:**

FY 09

**Entity Responsible for the Ongoing Operation and Maintenance of this Project:**

Municipality of Anchorage

**Grant Recipient Contact Information:**

Contact Name: Will Watson

Phone Number:

Address:

Email: watson@alaska.net

Total Project Snapshot Report

FY 2009 Capital Budget

TPS Report 49692

Has this project been through a public review process at the local level and is it a community priority?  Yes  No

*For use by Co-chair Staff Only:*

**SAND LAKE WATERSHED STUDIES**

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**Proposed budget**

Item	Number	Cost (each)	original 1-yr			3-yr total
			Total	Year 1	Year 2	
Source water assessments	9	\$7,000	\$63,000			\$63,000
Workplans and permitting	1	\$21,000	\$21,000	\$15,000	\$6,000	\$21,000
Access Development	1	\$30,000	\$30,000	\$30,000		\$30,000
Construct new monitoring well clusters (avg 500 ft ea @\$75/ft plus geologist 63 hr ea @85/hr)	7	\$42,857	\$300,000	\$85,000	\$215,000	\$300,000
Hydraulic testing and monitoring (aquifer test and dataloggers)	9	\$5,000	\$45,000	\$15,000	\$30,000	\$45,000
Water Sampling and laboratory analysis	100	\$1,500	\$150,000	\$30,000	\$120,000	\$150,000
Neighborhood and monitoring well database and Quality Assurance review	1	\$40,000	\$40,000	\$8,000	\$27,000	\$40,000
Contract Administration and Project Management (approx. 7% of total)	1	\$50,000	\$50,000	\$15,000	\$25,000	\$50,000
Data analysis and reporting (320 hrs @avg \$100/hr)	1	\$32,000	\$32,000	\$7,000	\$15,000	\$32,000
Contaminant prevention (public education, source reduction, etc.)	1	\$50,000	\$50,000	\$10,000	\$20,000	\$50,000
Administrative overhead (rent, utils, accounting, HR, etc.)	1	\$95,000	\$95,000	\$35,000	\$35,000	\$95,000
<b>Total</b>			<b>\$876,000</b>	<b>\$250,000</b>	<b>\$493,000</b>	<b>\$876,000</b>

**Assumptions**

1. funding will go to a nonprofit who will contract out the work to multiple contractors, administer the funds, and coordinate with other agencies.
2. all data obtained will be publicly available and property owners will cooperate.
3. All reports will be peer and publicly reviewed in draft form prior to completion.
4. No inflation adjustment

**South Anchorage Concerned Coalition (SACC) Chronology**  
**February 2008**

- 02/17/08 Alaska Journal of Commerce, quotes from Kristin Ryan, DEC manager. **“Ryan said residents should consider going on city water.” “Really, no one who lives in an urban area should be drinking well water.” This quote is not consistent with May 2003 DEC report.** It is problematic, and raises questions of internal cover-up as DEC staff was aware in 2003 of potential problems of development in porous gravel, as revealed in the 2003 FOIA request. See Fall 2003 newsletter quotes below.
- 02/11/08 Sand Lake Community Council passed Resolution stating support for Drinking Water and Soil Investigation & **for DEC to reconcile inconsistencies with UAA Findings.**
- 12/14/07 Two decisions from Alaska Supreme Court on two separate Developer plats. On Plat 1 Court found that the MOA Platting need not have technical expertise to decide science related issues. The Plat 2 decision remanded Plat 2 back to the MOA Board of Appeals for consideration.
- 12/10/07 Sand Lake Community Council passed Resolution **that an independent study**, exclusive of the DEC be conducted by qualified professionals, and the draft report be subjected to public review prior to a final report being issued.
- 12/07 Despite input from citizens and Sand Lake Community Council ADEC announces it will not revisit the DEC 2003 report.
- 08/07 SACC Summer 2007 Newsletter (and all prior newsletters) **sent to approximately 400 residents who live around the Pit.** Highlights relationship of Mayor Begich and Developer to Lobbyist Bill Bobrick, who lobbied on behalf of Developer.
- 04/07 SACC Supreme Court Appearance on Plat 2, Filling the aquifer option.
- 02/07 SACC Supreme Court Appearance on Plat 1, Not-filling the aquifer option. Approximately 40 residents attended.
- Summer 06 **UAF data collection program begins.** Primary Investigator Dr. Douglas Kane. Study funded by legislature, approximately \$175,000, administered by DNR.
- 01/07 SACC Winter Newsletter, notification of Supreme Court Appearance.
- 01/06 SACC Winter Newsletter, notification of MOA Mayor Begich coming to Sand Lake Community Council meeting, and **notice that Developer denies access to Pit for Testing.**
- 11/05 SACC appeals superior court decisions to Supreme Court.
- 09/05 Superior Court affirms Platting board decision. Superior Court denies SACC’s motion to include UAA Report that discredits DEC report because it came in after the record was closed.

- Winter 05 SACC newsletter reports AWWU coming to Calvary Church on upcoming meeting with community.
- 07/05 SACC newsletter reports opinion of Board of Adjustment member Mr. Mike Jenson's decision after considering the UAA report. **"Water quality is an important property right. A plat, which potentially affects this right, deserves special scrutiny. The Sand Lake neighboring properties contain as many as 217 wells serving over 1400 persons. I find the UAA report concludes that the ADEC's approval was flawed and that Terrasat's reports are not credible. The scientific evidence presented determines that additional test wells at greater depths are warranted. They would cause relatively little delay and expense in light of the important property right which deserves protection. (Etc.)"**
- 11/04 Anchorage Chronicle runs cover story reports problems with wells around Pit after the Developers graded the Pit in the summer. **Interviewed residents who had complaints about their wells after exposed aquifer barriers breached by heavy flooding.**
- 11/04 SACC newsletter to ask homeowners to report any changes in drinking water. **Also reports complaints regarding Kristin Ryan approving the publishing of unsubstantiated information to the public as if they were facts.** In addition informs public as to conclusions of UAA report that points out the conclusions of ADEC and MOA are without scientific basis.
- Fall 2004 **During the heavy rains of September 2004 when storm water controls failed, sending water, sediment and possibly toxic substances over fabric barriers into the exposed aquifer. The fall 2004 rains and sediment turned the color of the exposed aquifer to a distinctive reddish brown color** that was also seen in the color of sediment suddenly showing up for the first time (since the mid 1970s) on filters of residents around the pit. **Fourteen(14) complaints filed with DEC/DNR after this event as sediment caused many residents filters to clog and water to be contaminated.** Other residents did not file complaints due to trust factor with State and MOA. Community never received satisfactory response from DEC.
- 10/06/04 **UAA issues 3<sup>rd</sup> party review, "Review of Geologic and Hydrogeologic Studies Related to Proposed Kincaid Estates Subdivision. 70 pages, Principal Investigator Dr. Lee Ann Munk. Reported "Many findings and conclusions of our study are not consistent with the "Findings of Fact and Decision" that the Municipality of Anchorage Platting Board has listed."** The UAA report finds that the data are not present to conclude that the aquifers are protected in direct contradiction of 2003 DEC report
- 7/1/04 UAA begins comprehensive review of record, including ADEC report, MOA and Developer's reports. **Study cost approximately \$65,000, funded by legislature, contracted by legislature.**
- Summer 04 SACC newsletter reports on ongoing litigation and Rep. Rokeberg's work in the Community to protect citizens water.

- Summer 04 SACC notifies public by mail and email as to the DNR providing a Temporary Water Use Permit to Kincaid LLC to withdraw 80,000 gallons per day from a deep well on tract 1.
- 05/04 SACC newsletter stating status of upcoming hearings.
- 04/04 SACC newsletter reports that **the MOA board of appeals found there was insufficient evidence to support the prior Platting Board's decision that the drinking water of Sand Lake residents would be protected by the proposed development.** Plat #2 was remanded back to the Platting Board with an order to have a public hearing and deliberate on the evidence. Reports Rep. Rokeberg, Rep. McGuire and Sen. Stevens procure funding for 3<sup>rd</sup> party review.
- 04/04 SACC coordinated letter campaign to Mayor Begich asking for postponement of other Plats being brought forward by the developer for the same piece of land. The Mayor did not agree with the public even though the Board found them not to protect the health and safety of the community.
- Spring 04 SACC newsletter: Informs public about a Ch. 11 as lead story stating a **"Cover Up" regarding the ADEC management not representing the scientific data and opinions of the ADEC professional staff.**
- 02/04 Sand Lake Community Council overwhelmingly passes resolution on February 9, 2004, **"The SLCC strongly disapproves the approval of all plats, conditional use permits and fill and grading permits for the Sand Lake Gravel Pit because of serious questions regarding the health and safety of neighborhoods.** The SLCC asks the MOA to retract all the plats (approved and pending), conditional use permit (lift station) permits and fill and grading permits for the Sand Lake Pit because of DEC and MOA improprieties."
- 01/04 SACC newsletter discusses meeting with Rep. Norm Rokeberg and his assertion that the ADEC made unfounded claims. **Rep. Rokeberg has asked the ADEC to retract the report based on unsubstantiated findings as well as non-factual information.**
- 12/03 Mayor Begich attends SLCC meeting December 8, 2003, and tells community **he is not going to follow through on promise of 3<sup>rd</sup> party review,** stating "That opportunity has been lost." Many were concerned as his Representative at the October Sand Lake Community Council stated the 3<sup>rd</sup> party review would go forward as promised.
- Winter 03 **SACC newsletter notifies public that the building industry proposed ordinance that would prevent citizens from appealing the Platting Board decisions to the Assembly.** (Subsequently after Mark Begich being elected, he advocated a non-elected board settle appeals brought by the public. Soon after it became law and the public no longer had elected officials deciding appeals.)

- Fall 03 SACC newsletter reports DEC **Freedom of Information Act (FOIA)** Request highlights including from a Jan. 29, 03' memo from DEC scientist Abigail McQueen to James Weise manager stating **"In fact, any development in an existing gravel site could result in a significant potential to cause the contamination of public water systems."** Also from the FOIA: Feb. 19, 2002, From Janice Adair (DEC scientist) to Keven Kleweno (engineer) & James Weise (Manager), **"However, there is no way to know just how many private source wells there are in the area and their impact on the deeper aquifer."** **"...there could be a pressure drop that would allow contaminates to move from the upper unconfined aquifer surfacing in the gravel pits to contaminate the deeper aquifer."**
- Sept. 2003 J.A. Munter Consulting and Prof. Anne Pasch review of 2003 ADEC report demonstrates numerous errors and deficiencies. **Despite multiple requests never responded to by ADEC or MOA.**
- Late Summer 03 SACC newsletter reports on July 7, 2003 Anchorage Planning and Zoning denied the Developer a conditional use permit
- Summer 03 SACC newsletter states the remand of appeal to the Anchorage Assembly serving as Board of Adjustment for two reasons 1) Inadequate drinking water studies provided by Hultquist 2) No covenants were provided by the developer. The newsletter also states that Keven Kleveno who was appointed as lead engineer for the project, and according to James Weise has resigned with over 10 years on the job. **The newsletter states that DEC manager James Weise, signatory to the 2003 DEC report is a no-show at the Community Council meeting.**
- Spring 03 SACC newsletter says **"Representative Rokeberg conducted a survey of Sand Lake citizens. The survey results demonstrated 80% of the residents feel that both the MOA and ADEC did a poor job serving as regulators for the proposed Sand Lake development."** The newsletter also states developer pursuing multiple plats for same piece of ground.
- 05/13/03 Board of Adjustment Finding of Fact & Decision. **Board found in favor of citizens remanding to Platting Board for "additional testing of potential contaminants and mapping of aquifers and water flow" and ordered a public hearing.** MOA decision made without consideration of DEC report; DEC report issued simultaneous to Board's report.
- 05/12/03 **ADEC releases controversial report,** "A Summary of the Engineering and Hydrogeologic Assessment of the Proposed Kincaid Estates S/D and the Potential Impact to Surrounding Public Drinking Water Systems and Ground Water Resources of the Area." **No public comments were responded to or incorporated into DEC report.** UAA subsequently discredited the DEC report.
- 01/03 SACC letter to Community addressing the problems and health and safety issues that confront the public with proposed development of over 700 homes in the Pit.
- 12/02 Letter from the ADEC dated December 9, 2002 states, **"... the DW/WW Program (ADEC) has chosen to provide oversight for this project in particular."**

- 11/02 Letter from the ADEC dated November 22, 2002 states the following, "... there could be a condition that has a significant potential to cause or allow the pollution or contamination of public water systems in the area."
- Sept. 02 SACC newsletter stating "Mayor Wuerch Stonewalls Citizens." During a July 29, 2002 meeting with Rep. Andrew Halcro, Eric Wohlforth, Will Watson and Dee Essert, the mayor stated, "**I will condemn your wells if I have to.**" A less than veiled threat to the community if they pursue a path of challenging the MOA, Developers and mortgage holders.
- 05/16/02 SACC notifies MOA of intention to Appeal MOA Action.
- 05/15/02 Platting Board approves Plat on hydrology and water protection issues.
- 05/08/02 J.A. Munter Consulting, Inc. letter to Will Watson Re: Review of groundwater analyses related to proposed Kincaid Estates S/D. Munter is a consulting hydrologist and former DNR principal hydrologist. Munter Criticizes Terrasat's analysis as inadequate and disagrees with MOA Planning Dept. recommendation.
- 05/01/02 Platting Board issues Findings of Fact for 10873. Plat is conditionally approved pending further examination of hydrology, water quality and groundwater resources issues.
- 04/17/02 Terrasat, "Final Review of Ground Water Occurrences & Potential Impacts Due to Development of the Proposed Kincaid Estates S/D."
- 3/20/02 Platting Board initial hearing on Case 10873, a/k/a Plat 1, for entire Pit.
- 3/14/02 Rep. Andrew Halcro, Alaska Legislature, review of Terrasat report "Groundwater Resource Evaluation for Proposed Kincaid Estates Subdivision."
- 12/17/01 Hultquist submits preliminary plat application to MOA for a 233 acre parcel, for 640 lots in the Sand Lake gravel Pit.

\*Please note, this chronology is not comprehensive. It is aimed at providing some detail as to events over the years of controversy.

SAND LAKE WATERSHED STUDIES

The overall goals of this project are to prevent contamination of local water wells and identify wells that are at risk of contamination or that may become contaminated so that remedial action may be implemented. It is of critical importance to determine and monitor the influence of the surface aquifer on underlying aquifers.

The specific objectives of the Sand Lake watershed studies are to map aquifers, understand groundwater flow systems, provide early detection monitoring for contaminants, assess risks to wells, and conduct contaminant prevention activities. These objectives will be achieved through an inventory and sampling of existing wells, drilling and testing of new sentinel monitoring wells in multiple aquifers, and performing Source Water Assessments through established protocols. Public education will be an important component of the work at all stages.

**Proposed budget**

Item	Number	Cost (each)	FY12	
			Year 2	start date end date
Source water assessments	0	\$7,000		
Workplans and permitting	1	\$9,000	\$9,000	10/3/2011 11/19/2011
Access Development	1	\$10,000	\$10,000	11/20/2011 1/31/2012
Construct new mon. well clusters	3	\$35,000	\$105,000	2/1/2012 2/28/2012
Hydraulic testing and monitoring (aquifer test and dataloggers)	3	\$5,000	\$15,000	3/1/2012 6/1/2012
Water Sampling and laboratory analysis	1	\$46,000	\$46,000	3/1/2012 6/1/2012
Neighborhood and monitoring well database and Quality Assurance review	1	\$10,000	\$10,000	3/1/2012 6/1/2012
Contract Administration and Project Management (approx. 6% of total)	1	\$15,000	\$15,000	10/3/2011 9/30/2012
Data analysis and reporting	1	\$10,000	\$10,000	6/1/2012 9/30/2012
Contaminant prevention (public education, source reduction, etc.)	1	\$5,000	\$5,000	10/3/2011 9/30/2012
Administrative overhead (rent, utils, accounting, HR, etc.)	1	\$25,000	\$25,000	10/3/2011 9/30/2012
<b>Total</b>			<b>\$250,000</b>	

Capital funds needed:

- Notes and Assumptions:
1. \*Funding for year 1 was approved in 2008. (FY09)
  2. all data obtained will be publicly available.
  3. All reports will be peer and publicly reviewed in draft form prior to completion.
  4. No inflation adjustment