



PRAIRIE ISLAND INDIAN COMMUNITY  
LEGAL DEPARTMENT

August 21, 2009

Mr. William Storm, Project Manager  
Minnesota Department of Commerce  
85 7<sup>th</sup> Place East, Suite 500  
Saint Paul, Minnesota 55101-2198

Re: Comments on the final EIS for PUC Docket E002/CN-08-509 (Extended Power Uprate) and PUC Docket E002/GS-08-690 (Site Permit Application)

Dear Mr. Storm:

The Prairie Island Indian Community (Community or Tribe) would like to offer the following comments regarding the final Environmental Impact Statement (FEIS) prepared by the Minnesota Department of Commerce, Office of Energy Security (OES), for the above-referenced PUC dockets. The Community's comments are limited to the extended power uprate and site permit dockets (PUC No. E002/CN08-509, E002/GS-08-690).

We remain concerned that by combining the uprate and dry cask storage dockets, the Prairie Island Indian Community has been placed in an untenable situation. The Community still finds it difficult to separate cumulative and integrated health and safety concerns, including cumulative and integrated environmental and health impacts, that could be related to either the uprate or the expansion of dry cask storage, such as increased radiation. While we may not be able to comment on the dry cask storage docket (Chapter 2) due to our agreement with Xcel, we would like full disclosure as to our health risks from the uprate and the expansion of the Independent Spent Fuel Storage Installation (ISFSI), especially considering that given the Obama Administration's recent decision to cut funding for Yucca Mountain, the "temporary" or "interim" storage site will likely remain long after the PINGP is decommissioned.

According to the summary for the FEIS, each chapter reflects each of the proposed projects and each chapter will be reviewed for adequacy by its respective reviewing body. This implies that each chapter of the FEIS could be treated as a stand-alone document, since they are separate dockets with different reviewing agencies. It should be noted, however, that there are discussions in Chapter 2 (i.e., environmental justice, cumulative impacts, and emergency response) that also pertain to the uprate docket, but are not found in Chapter 1. It is not clear to us whether the respective reviewing bodies will evaluate the entire FEIS or just their respective chapters. Since there are discussions in Chapter 2 that pertain to and are lacking in Chapter 1, we recommend that the reviewing agencies be made aware that they must review the entire FEIS to get a full understanding of the project(s) and their respective impacts.

Although much of Chapter 2 has been revised to reflect the comments submitted on the draft EIS, very little of Chapter 1 appears to have been revised. We do appreciate the fact that information regarding our Community has been updated.

#### Proceeding is Premature

As we have stated in both our scoping comments and comments on the draft EIS, we remain concerned that the uprate CON and site permit applications are premature. The Nuclear Regulatory Commission (NRC) is currently completing its review of Xcel's license extension application for the Prairie Island Nuclear Generating Plant (PINGP). The NRC's review will include the issuance of a Supplemental Environmental Impact Statement (SEIS) and a Safety Evaluation Report (SER).

The SER is a safety and engineering analysis of the PINGP; that is, an expert determination of whether the PINGP 1 and 2 can operate safely for an additional 20 years. A draft SER was issued by the NRC on June 4, 2009. The fact that there is no discussion of this important document, let alone a mention of its existence is remarkable. Chapter 2 contains a discussion about and links to the NRC's Generic Environmental Impact Statement (GEIS) for license extension. The GEIS is a generic environmental impact analysis that applies to all nuclear power plants in the United States. The PINGP SER applies only to PINGP.

#### Final EIS is Inadequate

As many commenters have noted, too much of the information in the draft EIS was copied verbatim from either Xcel's Certificate of Need (CON) application to the Public Utility Commission (PUC) or its Environmental Report (ER) submitted to the NRC as part of its License Renewal Application.

Very little of Chapter 1 has changed. In spite of numerous letters, remarking on the fact that too much of the draft EIS was copied from either the Xcel's CON application or ER, most of the sections in the final version of Chapter 1 are exactly the same (i.e., copied

from either the CON or the ER). As well, there are no references that would alert the reader that much of the source material for the FEIS is from the applicant.

The fact that so much of the draft and final EIS, including its conclusions, is copied from the Applicant's sources (ER and/or CON application) casts doubt on the State's conclusions regarding unavoidable impacts from the uprate.

It is disappointing that neither the Minnesota Pollution Control Agency (MPCA) nor the MN Department of Natural Resources (MDNR) had an active role in preparing the final EIS, even though several commenters (on the draft EIS) mentioned this. There are important concerns, relative to water quality, thermal, and aquatic impacts that should have been evaluated by these agencies, who not only have the expertise, but the mandate to protect Minnesota's waters and resources. It appears that the MPCA and the MN DNR have been reduced to submitting their comments in writing like "the public."

For these reasons, among others, this FEIS fails to meet the requirements of Minnesota Rules 7849.5300 (EIS Preparation) or Minnesota Statutes 116D.04 (Environmental Impact Statements). Other specific deficiencies are addressed more fully below.

#### Comments of PINGP Study Group and Michael Childs, Jr.

We support and incorporate by reference the comments submitted by the PINGP Study Group and Michael Childs, Jr. regarding this docket.

#### Alternatives

Most of the Alternatives analysis (Section 3.0) in the final EIS is the same as the draft EIS. In our comments on the draft EIS, we identified some areas where more information was needed:

1. The alternative analysis (Section 3.0 of the draft) did not adequately discuss the effect Xcel's wind energy mandate of 2600 MW by 2020, would have on the CON application. The result of the 2020 wind mandate, 2600 MW, is greater than two PINGP's (at current level of 1044 MW's). This is a significant amount of wind energy that is mandated to be available, yet there is no analysis of the 2600 MW, relative to the 164 MW's via the uprate.
2. The Next Generation Energy Act mandated statewide goal of 1.5 percent annual energy savings. There is still no information regarding Xcel's total energy portfolio and what effect a 1.5 percent energy savings would have on that total portfolio (i.e., total number of MW's) and how it relates to the 164 MW uprate application.

There appears to be "new" discussion (i.e., in bold print to indicate new text) in Section 3.2 (Demand Side Management) of Xcel's Conservation Improvement Programs (CIPs)

and how meeting these goals would be challenging. A closer examination of this “new” discussion with the draft EIS reveals that this is just a re-ordering of statements and conclusions that came directly from Xcel’s CON application.

The response to our comments was either silence or a generic “this is a consideration for the MN Public Utilities Commission.” We commented on this because we felt that it was important to know (roughly) how many megawatts could be saved through DSM and how many megawatts will be saved through the implementation of the Next Generation Energy Act. It was our understanding that the purpose of the FEIS was to disclose ALL of the information to the decision-makers, in this case the MN PUC. How can the Commission make a determination relative to the need for an additional 164 megawatts via the uprate, when all of the alternatives have not been fully examined?

What is new and significant, in the Alternatives section of Chapter 1 is the following paragraph:

According to Xcel, the demand for electrical power will continue to grow at an average rate of 0.86% percent per year or an average of an additional 89 MW for the Xcel Energy service area each year. (Chapter 1, page 26 of FEIS) (emphasis added)

The April 2009 draft EIS stated that, according to Xcel, the demand for electrical power would continue to grow at an average rate of 2.6 percent per year or an average of an additional 240 MW for the Xcel Energy service area each year (Chapter 1, page 25 of the draft EIS) (emphasis added).

The ramifications of this 67 percent reduction in the growth rate of demand (for electrical power) are completely ignored in the FEIS. How can there continue to be a need for the 164 MWs when Xcel’s own (and revised) analysis shows that the growth rate for electricity is significantly lower than previously estimated?

That this is over Xcel’s Service area is also significant. The question for the MN PUC is has the need for the additional 164 MW’s, resulting from the uprate, given this new and significant information, been adequately demonstrated?

This decrease in the growth rate of demand is also documented by the US Department of Energy (DOE). According to the DOE’s Energy Information Administration, “from 2000 to 2007, increases in electricity demand averaged 1.1 percent per year. The slowdown in demand growth is projected to continue over the next 23 years, as a result of efficiency gains in response to rising energy prices and new efficiency standards for lighting, heating and cooling, and other appliances.”

Source: <http://www.eia.doe.gov/oiaf/aeo/electricity.htm>

### Human and Environmental Impacts

Section 4.5 of the FEIS addresses the potential impacts on public health and safety that could result from implementation of the proposed EPU. Apparently relying on 2006 monitoring reports, including the 2006 Environmental Radiation Data Report cited in footnote 18, the FEIS states: “In 2006, no federal or state standards or guidelines were exceeded anywhere in the state, including near the nuclear power generating plants. Monitoring data can be accessed through the Minnesota Department of Health and Wisconsin Department of Health Services’ web sites.<sup>19, 20</sup>” FEIS at 57. The web site links cited in footnotes 18 and 19 do not appear to support all of the issues contained in the conclusory statement in the FEIS. More troubling, however, is that the FEIS has not been updated to include or analyze the most current information available, the Minnesota Department of Health’s Environmental Monitoring Report 2007-2008, and the 2007 and 2008 REMP Reports provided by the Applicant (each of these reports is available at <http://www.health.state.mn.us/divs/eh/radiation/monitor/environdatareport.html>). Again, the fact that there is no discussion of this important document in the FEIS, let alone a mention of its existence, is remarkable.

#### I. General comments on the MDH Report 2007-2008 (not addressed in the FEIS):

A review of the most current information demonstrates that the FEIS conclusion that “no federal or state standards or guidelines were exceeded” is not only based on insufficient data, but is also patently false. To begin with, the data relied upon by MDH is insufficient. Among other things,

- (i) There are no monitoring data for terrestrial and aquatic biota (organisms, snails, worms, etc.), flora (moss, plants, barks, etc.), fish and mollusk, small mammals (rodents, birds, etc.);
  - (ii) There are no sediment samples at or near the PINGP along the shorelines upstream and downstream from the Plant;
  - (iii) The number of biosphere samples and strategic sampling locations are too few for any credible Environmental Health & Safety (EHS) effects and EIS assessment; and
  - (iii) There is no consultation with PIIC concerning the critical endpoints and receptors representative of the tribal cultural values and subsistence way of life at and in the vicinity of the PINGP and Prairie Island.
- 1) The MDH Environmental Monitoring Report 2007-2008 Uses the Wrong Units for Radioactivity Concentration in Air.

The wrong units are used for radioactivity concentration in air, i.e., pCi/L, which should be used only for radioactivity concentration in water or liquid (milk), starting at page 10 and continuing throughout the cited MDH Report – i.e., “Air Sampling Results for Monticello Nuclear Generating Plant Results in pCi/L.” This repeated technical mistake is unacceptable for any EHS-effects and environmental monitoring reports.

- 2) The MDH Environmental Monitoring Report 2007-2008 reports Radium 226 liquid concentration levels that are up to 20 times higher than the Maximum Contaminant Level of 5 pCi/L.

Something is seriously wrong (or alarmingly dangerous) with the values of reported Ra-226 liquid concentration data (in water and milk). They are too high for consumption and the subsequent gamma radiation corresponding to the reported water concentrations of Radium-226 (and possibly Radium-228, which is not reported and is of critically more toxicity)<sup>1</sup> in water and milk at several PI locations. See Environmental Monitoring Report 2007-2008 (Tables 8, 10, and 12), which are available for review at <http://www.health.state.mn.us/divs/eh/radiation/monitor/environdatareport.html>.

The MDH-reported ranges of the measured water concentrations of Ra-226 for 2007-2008 (cf. data samples collected both upstream and downstream of the Prairie Island, see for example in Table 8, its last column on the right for Ra-226) and the measured milk concentrations (cf. Table 10) are 70-99 pCi/L, or equivalently in the mean about 3.0 Bq/L (Bequerels per liter), which is many times higher than the acceptable maximum level of gamma radiation in drinkable liquid (water or milk) of 1.0 Bq/L any where in the world!

These alarming results raise significant questions – none of which is addressed by the FEIS. If the Radium-226 concentrations are so high for 2007-2008, why has no one at MDH and/or Xcel-PINGP informed all potentially affected parties (including the PIIC and the public) about these alarming findings of unacceptably high level of Ra-226? Why hasn't the same EHS-effects concern been made known for the previous years, i.e., before 2007-2008? Were such high levels of supposedly “naturally occurring” Radium-226 not detected or noticed previously?

MDH should substantiate its latest reports for environmental monitoring of Ra-226 concentrations with more specific information, sampling procedures and protocols, and raw laboratory analysis results so that independent experts of radiation-induced diseases and health physics may examine and evaluate these problems in depth. The FEIS is deficient in its failure to address this significant issue. Without this information, the FEIS

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<sup>1</sup> Ra-226 (cf. the unstable radionuclides/isotopes Ra-113 to Ra-130, with the most toxic one is Ra-228) is often of natural source(s) which when Radium disintegrates, can form the radioactive Radon gas and concurrently releases the gamma radiation.

fails to adequately assess the cumulative and integrated environmental and health impacts of the proposed extended power uprate.

3) The Xcel-PINGP REMP Report of 2008 Glosses Over The Alarming Ra-226 Results.

At about the same release time of the MDH report, Xcel-PINGP also made similar notes of the supposedly naturally-occurring Radium and its relatively high gamma radiation, but did not provide any specific references for such critical observation. At page 10 of its PINGP REMP Report of 2008, Xcel is relatively dismissive of the gross beta concentration averages:

Gross beta concentrations averaged 11.6 pCi/L throughout the year, ranging from 6.0-13.1 pCi/L. These concentrations are consistent with levels observed from 1993 through 2007. The most likely contribution is the relatively high levels of naturally-occurring radium. Gamma spectroscopy indicates the presence of lead and bismuth isotopes, which are daughters of the radium decay chain. There is no indication from the 2008 data of any effect of plant operation.

2008 REMP Report at 10. However, because Xcel-PINGP is not required by NRC or the State of MN to perform the mentioned Radium-226 and related gamma-radiation analysis (such analysis has been done and is under the monitoring control of MDH), Xcel-PINGP has not provided any further information and/or supporting evidence for their above passing remark, unless its intent was to attribute the possible cause of potentially detected radiogenic diseases on Prairie Island to other “naturally occurring” sources. Particularly considering the high Radium-226 levels reported and discussed above, these troubling findings cannot and should not be so quickly and casually dismissed. Further study and analysis is clearly needed.

Xcel should substantiate its latest reports for environmental monitoring of Ra-226 concentrations with more specific information, sampling procedures and protocols, and raw laboratory analysis results so that independent experts of radiation-induced diseases and health physics may examine and evaluate these problems in depth. The FEIS is deficient in its failure to address this significant issue. Without this information, the FEIS fails to adequately assess the cumulative and integrated environmental and health impacts of the proposed extended power uprate.

4) The MDH Environmental Monitoring Report 2007-2008 Confirms that Better Monitoring Technology Is Available.

On a more positive note, the MDH Environmental Monitoring Report 2007-2008 does reveal that the Community’s request for use of best available technology to provide real-time, remote, computer network-linked monitoring is readily achievable. For example,

page 3 of the report discusses the Remote Sensor Technology/Data for the DRM of detection of Gamma Radiation from the ISFSI:

The major components of the Minnesota Department of Health environmental monitoring program are sample collection, data analysis, and interpretation. Around the Monticello Nuclear Generating Power Plant and the Prairie Island Nuclear Generating Power Plant samples that are collected include: air, surface water, and milk. Ambient gamma radiation doses are monitored through the use of thermoluminescent dosimeters. Well water samples are also collected only near the Prairie Island plant.

Besides those samplings, since 1995 Minnesota Department of Health has received data from two pressurized ion chambers (PIC) located near the Independent Spent Fuel Storage Installation (ISFSI). *Data from the PICs is transmitted to a computer. Every fifteen minutes a modem relays that data, via phone line, to a Minnesota Department of Health computer. The system also conveys alarm messages to Minnesota Department of Health staff members if the radiation levels are significantly high or communication between the PIC and the computer is disrupted.*

In the fall of 2008 Monticello began storing spent fuel in its own ISFSI on site. This ISFSI is monitored using a Data Radiation Monitor (DRM) to measure dose rates gamma radiation. *Readings are taken approximately every four seconds and transmitted via radio waves to a base computer. Minnesota Department of Health connects to the base computer and receives dose rate readings. As with the Prairie Island monitoring system, alarm messages are sent if communication is disrupted or radiation levels are exceeded.*

MDH Environmental Monitoring Report 2007-2008 at 3 (emphasis added). This technology can and should be expanded to all forms of radiation. The remote sensors currently employed can be improved with extended software and computer chips to transmit the monitored measurements and data directly from the monitoring site to any designated computer or servers, including those of the PIIC, for further effective emergency response and preparedness and to address the Community's EHS concerns.

#### Additional Impacts

Page vi (Summary) states that Section 4 (Human and Environmental Impacts) will focus on the "additional impacts (emphasis added) to human health and environmental welfare that would result if the 164 MW uprate were to be implemented." This seems to be at odds with the statement in Chapter 1, Section 4.5 Health and Safety (page 55), that "the EPU does not create any new or different sources of offsite radiological doses from the

PINGP operation, and it does not involve significant increases in present radiation levels.”

What are the base impacts if the uprate will result in additional impacts?

*Thermal impacts*

As we stated earlier, we are disappointed that neither the MPCA nor the MN DNR were actively involved in the preparation of the draft (or final) EIS.

We do not believe that the thermal impacts to the Mississippi have been adequately characterized.

The MPCA recommended (in their May 8, 2009 comment letter on the draft EIS) that the FEIS should provide additional details regarding the thermal modeling that has been done to determine potential temperature increases resulting from the uprate and the PINGP's ability to meet effluent limitations. This information was not included in the analysis in Chapter 1 of the FEIS and should be made available. We do note that additional information, relative to heat balance calculation at uprate conditions was contained in Chapter 3 (responses to comments), but not in Chapter 1, Section 4 Human and Environmental Impacts.

In their comment letter, the MPCA does not state the current permit conditions would be met, especially under low flow conditions, if the uprate were implemented. The expert opinion of the MPCA must be part of the official record of the docket. The conclusion reached in the FEIS, that the uprate will increase the temperature of the circulating water by a maximum of 3 degrees and that the thermal discharge to the Mississippi River will remain within the limits of the current NPDES/SDS permit, is the same conclusion presented by Xcel in their CON application. Where is the independent, expert analysis and confirmation of the projected impact?

In their comments on the draft EIS, the MN DNR noted that 1987 H.G. Stefan study (to study the PINGP's effect on residual heat input to Lake Pepin) did not contemplate a 10 percent increase in thermal loading to the Mississippi River.

Another Study H.G. Stefan also demonstrated that the surface waters of the river actually flow back upstream (back to Sturgeon Lake) when winds are out of the S, SE, SW, E or W (varying with the speed of the wind). As we noted in our draft EIS comments, this would certainly impact not only the thermal pollution -- instead of distributing and discharging downstream, it would be pushed back upstream, potentially impacting aquatic species, like the federally-listed Higgins eye mussel. This could also potentially affect the radiological effluents from the PINGP as well.

We support the DNR's recommendation that, as a condition of the site permit, Xcel Energy be required to initiate a study that would update the Stefan studies, including an analysis of impacts to Sturgeon Lake, and that Xcel be required to expand its cooling tower capacity. Based on the Community's own preliminary analysis, the potential for adverse impacts upstream remain very real – and as of yet unaddressed – in the FEIS. See Exhibit 1.

### Radiological Concerns

As the closest neighbors to the PINGP, the Prairie Island Indian Community is concerned about health impacts from increased radiological releases, resulting from the uprate. While we appreciate the update to the FEIS, relative to cancer studies and incidence, we believe that our concerns have not been addressed. This concern is underscored by the statement on page 90 that past cancer incidence studies “were not able to address cancer rates in the Prairie Island Indian Community members who reside near the plant.”

We would like to see more study concerning expected increases in radiological releases, corresponding dose rate increases, and expected cancer rates for our Community, not the State or the county. Where is the discussion of cumulative impacts to the Prairie Island Indian Community from the continued operation of the PINGP at a higher rate? Why is there discussion of cumulative impacts in the dry cask storage docket (Chapter) and NOT in the uprate docket (Chapter)?

### Tritium

The FEIS also fails to address the possible causes of highly fluctuating and gradually increasing Tritium emissions from PINGP in the recent years into both the water and atmosphere. See Exhibit 2. Tritium, of course, is considered a tracer for all radioactive contaminants that are found in PINGP's emissions. These tritium (and other radioactive contaminant) emissions would be carried by the Southeast wind toward the PIIC Reservation, and toward other communities and members of the public under other wind scenarios.

Exhibit 3, which is provided by Technical Associates, Inc., illustrate the similar schematic blue print of the primary and secondary cycles of cooling water for all pressurized water reactors, such as those operated by Xcel-PINGP. What is missing from the standard diagram is the “tertiary cycle of cooling water” of more critical importance to the evaluation of the radioactive (solid, liquid and gaseous) wastes generated by the PWRs, known as the Chemical and Volume Control System (CVCS) process, the operating data and information of which can and should be requested from Xcel and the NRC for a comprehensive investigation of the possible causes of the fluctuations and gradually increasing trends of radioactive effluents (and their radionuclides concentrations), and possibly other leakage events associated with the CVCS process.

The reported Tritium concentration in the PINGP liquid and air effluents has been used as a tracer to determine and assess other more serious problems of other long-lived radionuclides associated with the operation and waste management practices at the Plant. However more data and information kept by both Xcel and NRC concerning the "Chemical and Volume Control Cycle" process should be made available, analyzed, including in a supplement for the FEIS. The FEIS is deficient in its failure to address this significant issue. Without this information, the FEIS fails to adequately assess the cumulative and integrated environmental and health impacts of the proposed uprate.

We do not believe that the potential for tritium increases has been adequately studied in the final EIS. Since the late 1980's tritium has been found in the tribe's groundwater. The final EIS discusses spikes in tritium levels in certain wells and attributes the spikes to "plant operations." In addition, the FEIS states (Chapter 1, page 85) that Xcel believes that these higher levels of tritium (in groundwater) may be due to "prior leakage of the discharge pipe or inadvertent discharge of turbine sump water into the area." According to Xcel's 2008 Radioactive Effluent Report, there was an abnormal release of tritium via the turbine building sump (TBS) in July of 2008. Xcel's 2008 Radiological Environmental Monitoring (REMP) report identified high tritium levels (higher than background) in samples from monitoring wells near the TBS.

We recognize that that the detected levels of tritium were below the EPA drinking water standard. These leaks and "inadvertent discharges, however, mean that tritium is entering the environment through an unapproved pathway. This should not be glossed over. There is a problem with "plant operations" that needs to be addressed.

#### Electromagnetic Fields

Section 4.5 (Health and Safety) provides new information regarding increases in magnetic field strength resulting from the uprate. The FEIS estimates that there will be a 15 percent increase in magnetic field strength, on the high voltage transmission lines, from 107 milliGauss (mG) to 123 mG. What is lacking is any discussion relative to health impacts from this increase in electromagnetic field strength.

We are aware that there is no consensus among scientists whether the electromagnetic energy emanating from the power lines would have a measurable human health impact. Some studies suggest exposure to EMF's increases the risk for certain diseases.

Since there is no scientific consensus on whether human health is compromised, there is NO assurance that there are NO adverse health effects (i.e., chronic health effects, increased risks to cancer). Many members of our community live right across from these power lines. We recommend that Xcel be required to measure and evaluate electromagnetic energy emanating from the PINGP's transmission lines.

### Environmental Justice

We appreciate the new discussion on Environmental Justice, which pertains to our community. We wonder, however, why the Environmental Justice discussion is limited to just Chapter 2 (the dry cask storage docket).

According to the FEIS (Chapter 2), “For the cumulative impacts discussed in this section, the Prairie Island Indian Community (PIIC) is a community of persons for whom there are environmental justice concerns. These concerns can be roughly divided into two parts: (1) concerns with radiological impacts from normal operations at Prairie Island, and (2) concerns of uncertainty and risk should there be an incident at the PINGP or Prairie Island ISFSI. Of these two, the latter is likely the greater concern.”

Furthermore, the final EIS states “Radiological impacts to the general public related to normal operations of the PINGP and Prairie Island ISFSI are projected to be within federal regulatory guidelines and are not anticipated to be significant. Thus, radiological impacts will be within federal guidelines and not significant for the PIIC. This said, the PIIC is the closest community to the Prairie Island site. Additionally, this EIS assumes a linear no-threshold model for radiological impacts due to low-level radiation exposures. Thus, PIIC members will receive slightly higher exposure levels and doses than communities at a greater distance. These doses will create a small incremental risk that the PIIC will bear differentially from other communities.”

We would appreciate it if the MN Department of Health could explain to our Community Members (and others living in close proximity to the PINGP) how these higher exposure levels and doses impact their health. As well, please elaborate on the small, incremental risk that we will bear.

Why was the Environmental Justice discussion, relative to impacts from the operation of the PINGP not included in Chapter 1, the uprate docket, which pertains to operations of the PINGP? Again, we have stated repeatedly that combining the dockets makes it difficult for our concerns to be fully evaluated. The section of Chapter 2 seems to support our view. This aspect of the FEIS should be (or should have been) more fully evaluated. We would like to know what these exposure levels and doses are and how they will affect our tribal members.

With regard to risk to our Community, the FEIS states, “The likely larger uncertainty and incremental risk borne by the PIIC is the uncertainty related to an incident at the PINGP or Prairie Island ISFSI. As discussed in this section [Section 5.4, Chapter 2], the probabilities associated with such incidents are projected to be very low; consequently their impacts are not anticipated to be significant. Nonetheless, there is uncertainty. This uncertainty is borne by all communities surrounding Prairie Island, but likely most directly felt by those communities which could be impacted should an incident occur, e.g., PIIC, City of Red Wing. As discussed in Chapter 1, Section 4.5, this uncertainty

may be associated with socio-psychological impacts. “

Both the draft and final EIS minimizes the psychological impacts associated with living next to a nuclear power plant. We requested, in our scoping comments and our comments on the draft EIS, that the psychological impacts associated with living next to a nuclear power plant be recognized and evaluated. This is an Environmental Justice issue. No other community, in the vicinity of the PINGP is experiencing the same level of psychological impacts.

With respect to an incident at the PINGP, we are the closest community, we would be negatively and disproportionately impacted. This discussion appears to be absent in the uprate docket (Chapter 1). There appears to be discussion of the City of Red Wing not being able to respond to an emergency at the PINGP (in Chapter 2). The ramifications to the Prairie Island Indian Community, in the event of an incident at the PINGP, should have been included in Chapter 1.

Our community faces a number of unique impacts:

No other community is as close to the PINGP 1 and 2 as the Prairie Island Indian Community. No other community is impacted, in as many ways, as the Prairie Island Indian Community. Furthermore, these impacts will have a cumulative environmental justice impact on our community.

No other community is subjected to chronic radiological releases from the PINGP 1 and 2. This will also increase if the uprate is approved by the PUC and the NRC. For many of our members, their exposure to low levels of radiation is for their entire lifetime.

Our youth are worrying about the effects of an accident on their community and their futures; no other community has documented the same concerns.

High-voltage power lines from the PINGP 1 and 2 are located immediately next to several of our homes.

No other community has tritium leaching into its groundwater from the PINGP 1 and 2.

Our community would be devastated by an accident—our homeland would be gone, our culture would be decimated, our means of providing an income to tribal members would be gone. No other community has these concerns.

Because of the aforementioned reasons, we do not believe that this FEIS has fully demonstrated the need for the additional 164 MWs nor disclosed all of the potential impacts that could result if the uprate is implemented. We appreciate this opportunity to

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August 21, 2009  
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provide these comments on the final EIS for the extended power uprate for the PINGP.  
We look forward to participating in this process.

Respectfully submitted,

/s/ Philip R. Mahowald

Philip R. Mahowald  
General Counsel  
Prairie Island Indian Community

Exhibits (As Stated)

# *DRAFT*

## **PINGP-Sturgeon Lake**

**Preliminary open water circulation and transport results based on a 2D-model using AquaSea Code**

*PINGP Tracer Modeling for  
Sturgeon Lake*



*July 2009*

# AquaSea

## Software:

AquaSea is a software package developed to solve the shallow water flow and transport equations using the Galerkin finite element method.

## Flow Model:

The AquaSea flow model can simulate water level variations and flows in response to various forcing functions in lakes, estuaries, bays and coastal areas. The water levels and flows are approximated in numerical finite element grid and calculated on the basis of information of the bathymetry, bed resistance coefficients, wind field and boundary conditions.

Calculated velocities are depths averages (2D approximation).

## Software

# Sturgeon Lake & Mississippi River System

March 23-31, 2009

Mississippi Discharge:

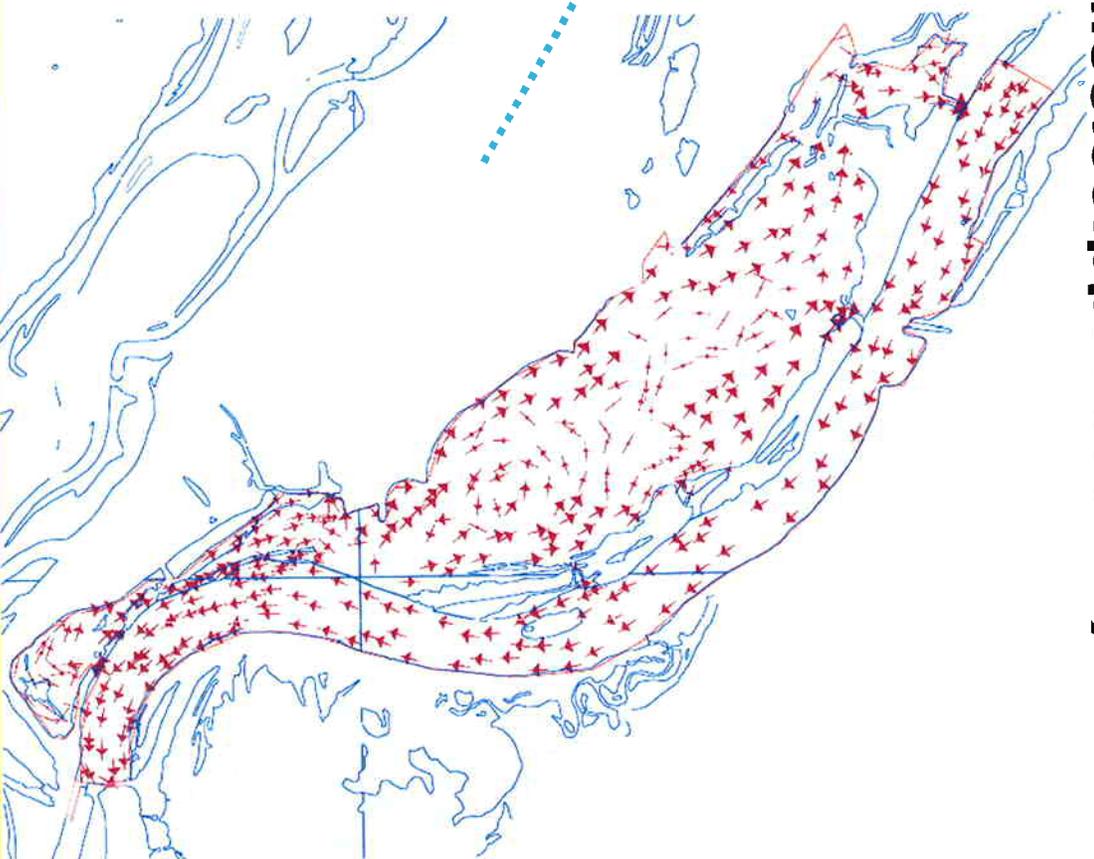
Q = 4000 cfs (113 m<sup>3</sup>/s)

Wind Speed : 10 m/s

Wind Direction: 120 Grad

Wind Shear Stress:  $1.5 \times 10^{-6}$

PINGP Intake/Outlet: 22 m<sup>3</sup>/s



## Flow Results: March 09

PINGP Tracer Modeling for  
Sturgeon Lake

July 2009

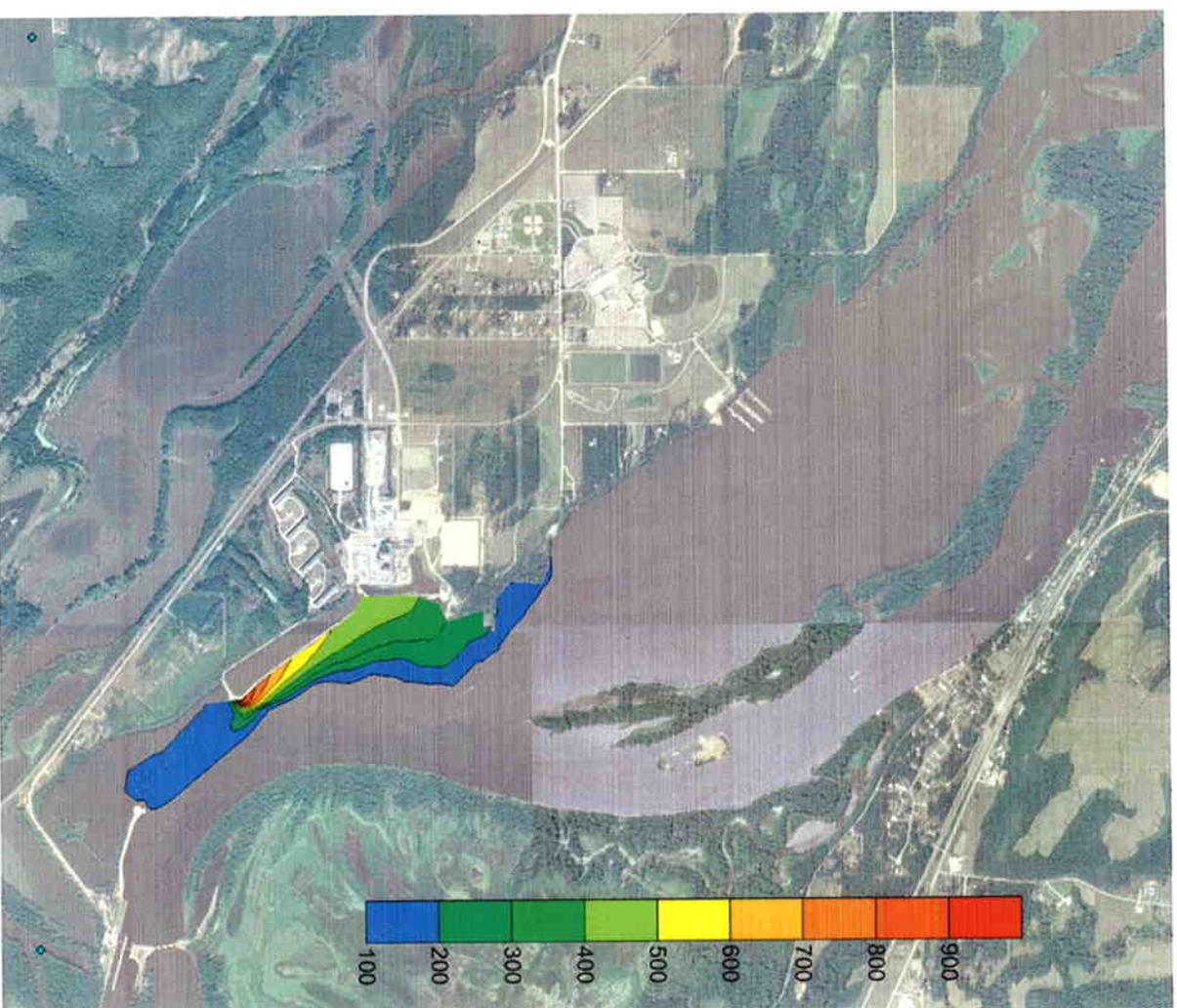
# Tracer

Time

After 12 hr

Continuous Release at  
PINGP Outlet

$Q=22 \text{ m}^3/\text{s}$   
and  
Concentration = 1000 units



# Tracer

PINGP Tracer Modeling for  
Sturgeon Lake

July 2009

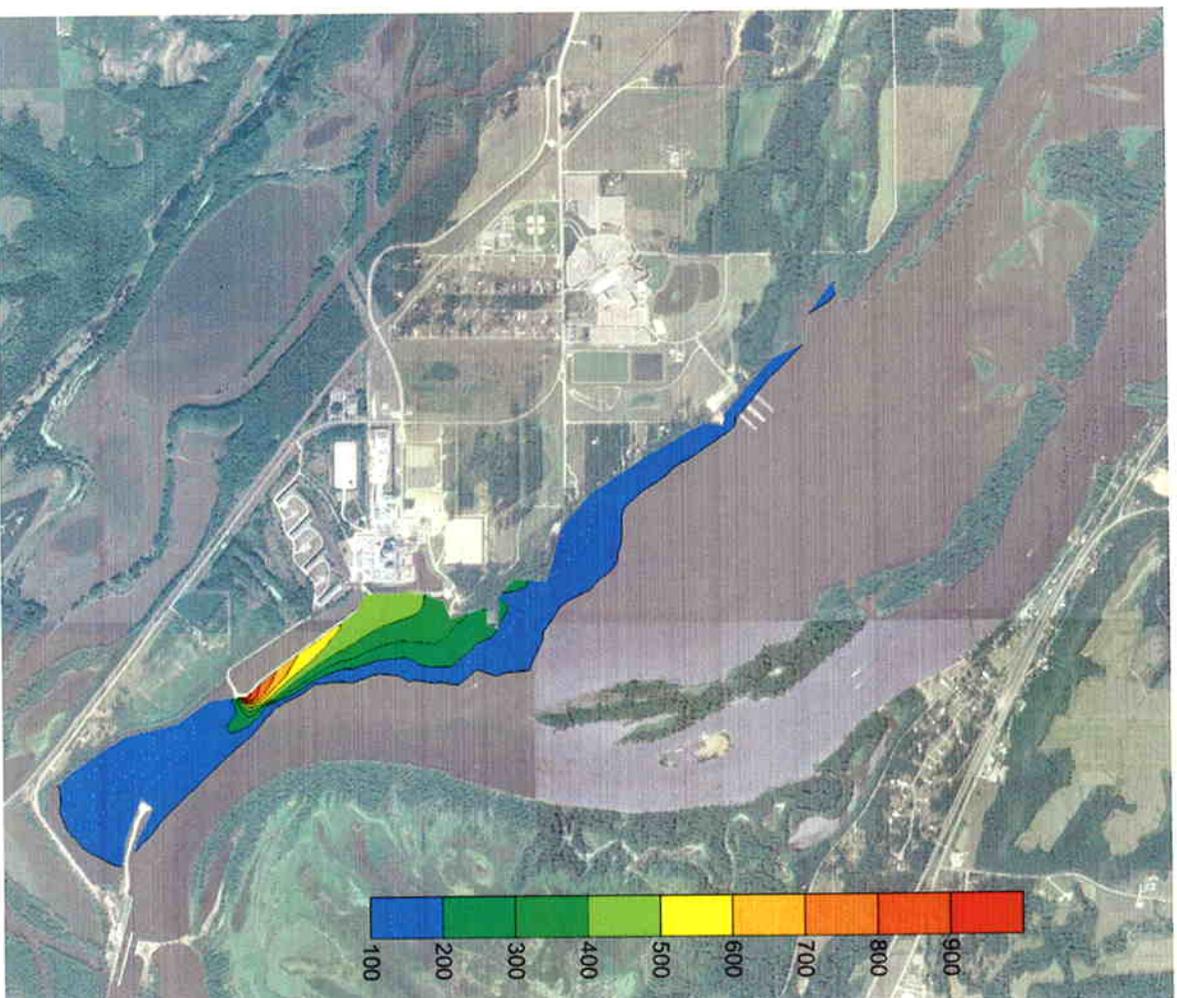
# Tracer

Time

After 36 h

Continuous Release at  
PINGP Outlet

$Q=22 \text{ m}^3/\text{s}$   
and  
Concentration = 1000 units



## Tracer

# Tracer

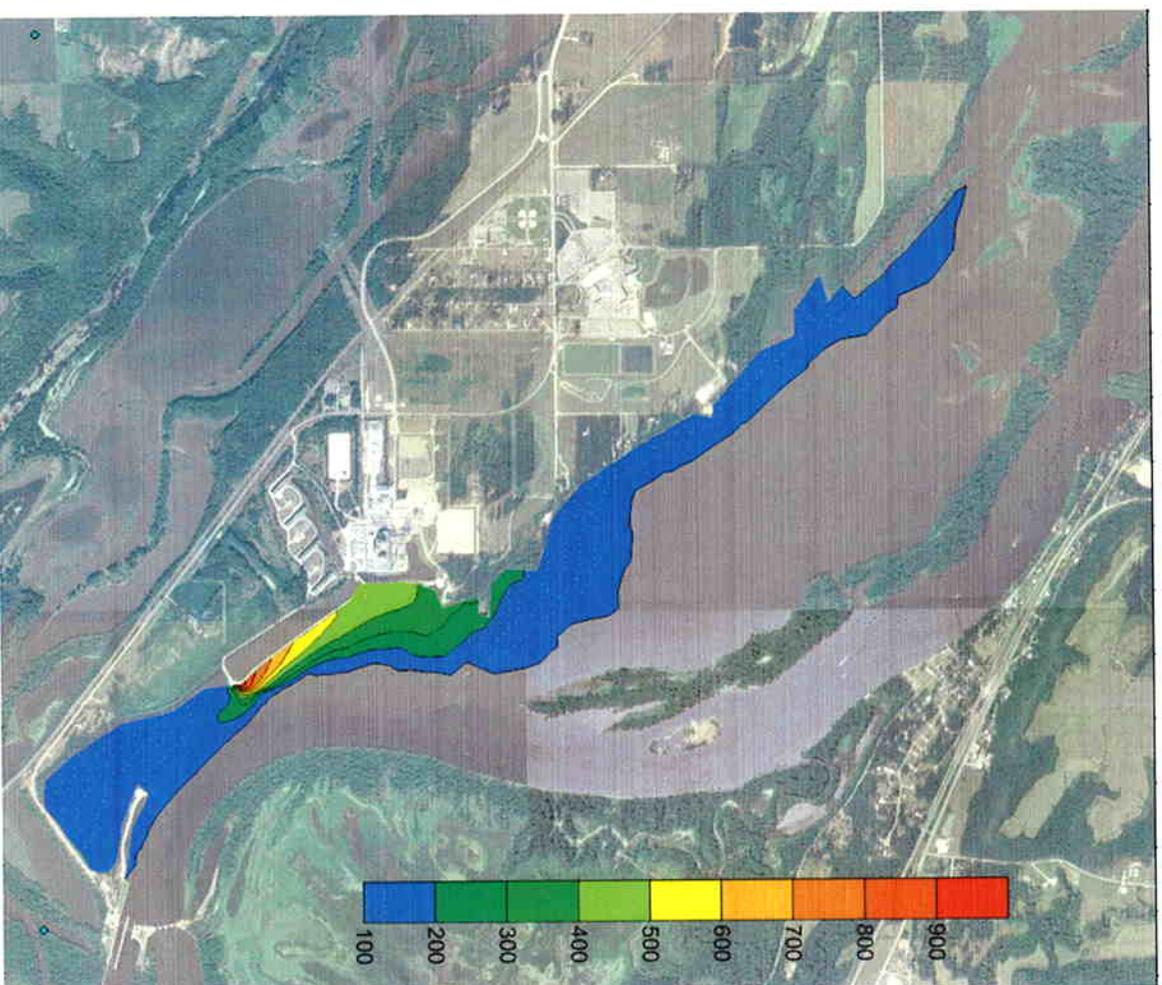
Time

After 60 h

Continuous Release at  
PINGP Outlet

$Q = 22 \text{ m}^3/\text{s}$

and  
Concentration = 1000 units



# Tracer

PINGP Tracer Modeling for  
Sturgeon Lake

July 2009

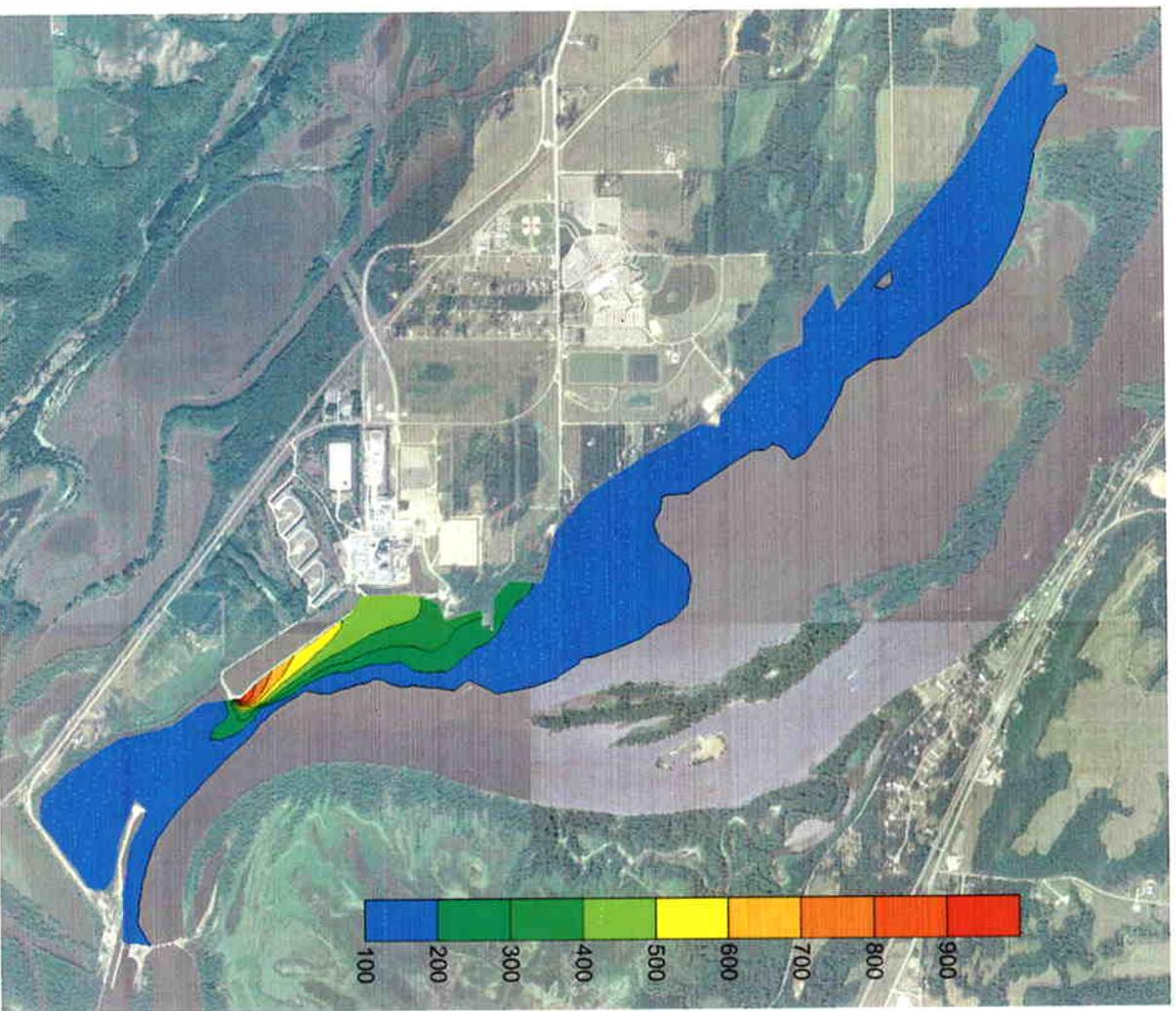
# Tracer

Time

After 84 h

Continuous Release at  
PINGP Outlet

$Q = 22 \text{ m}^3/\text{s}$   
and  
Concentration = 1000 units



# Tracer

PINGP Tracer Modeling for  
Sturgeon Lake

July 2009

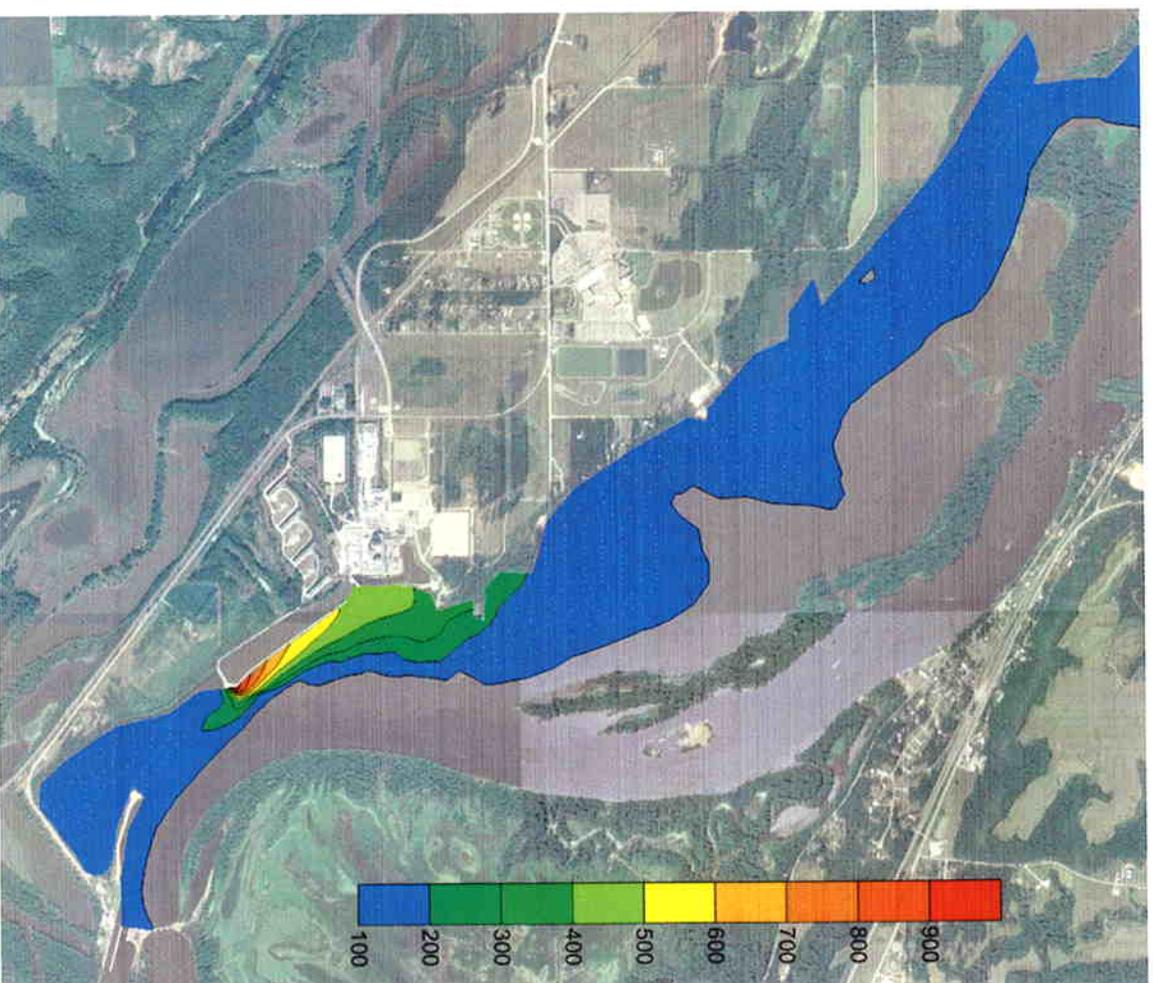
# Tracer

Time

After 108 h

Continuous Release at  
PINGP Outlet

$Q=22 \text{ m}^3/\text{s}$   
and  
Concentration = 1000 units



# Tracer

PINGP Tracer Modeling for  
Sturgeon Lake

July 2009

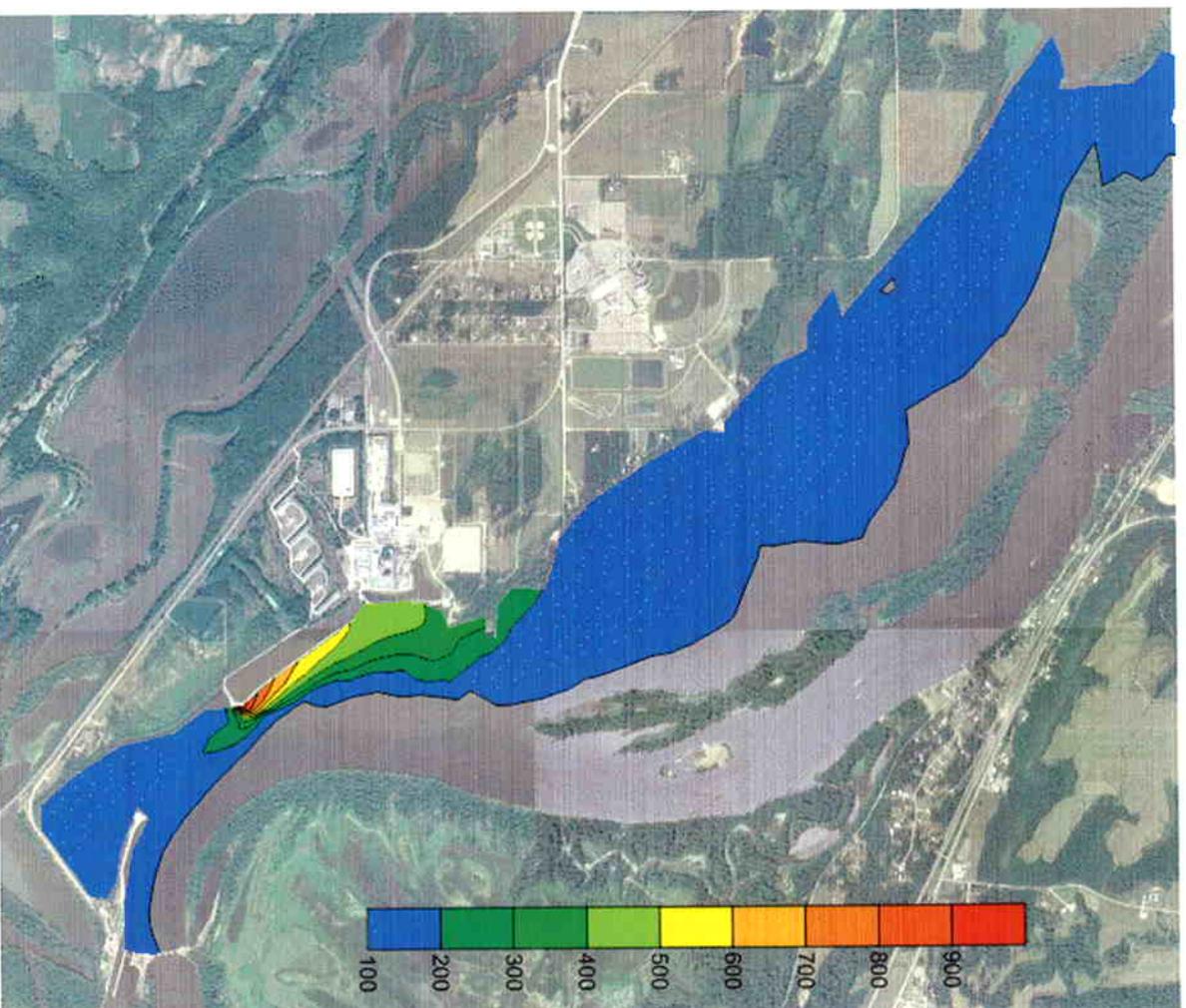
# Tracer

Time

After 132 h

Continuous Release at  
PINGP Outlet

$Q=22 \text{ m}^3/\text{s}$   
and  
Concentration = 1000 units



# Tracer

PINGP Tracer Modeling for  
Sturgeon Lake

July 2009

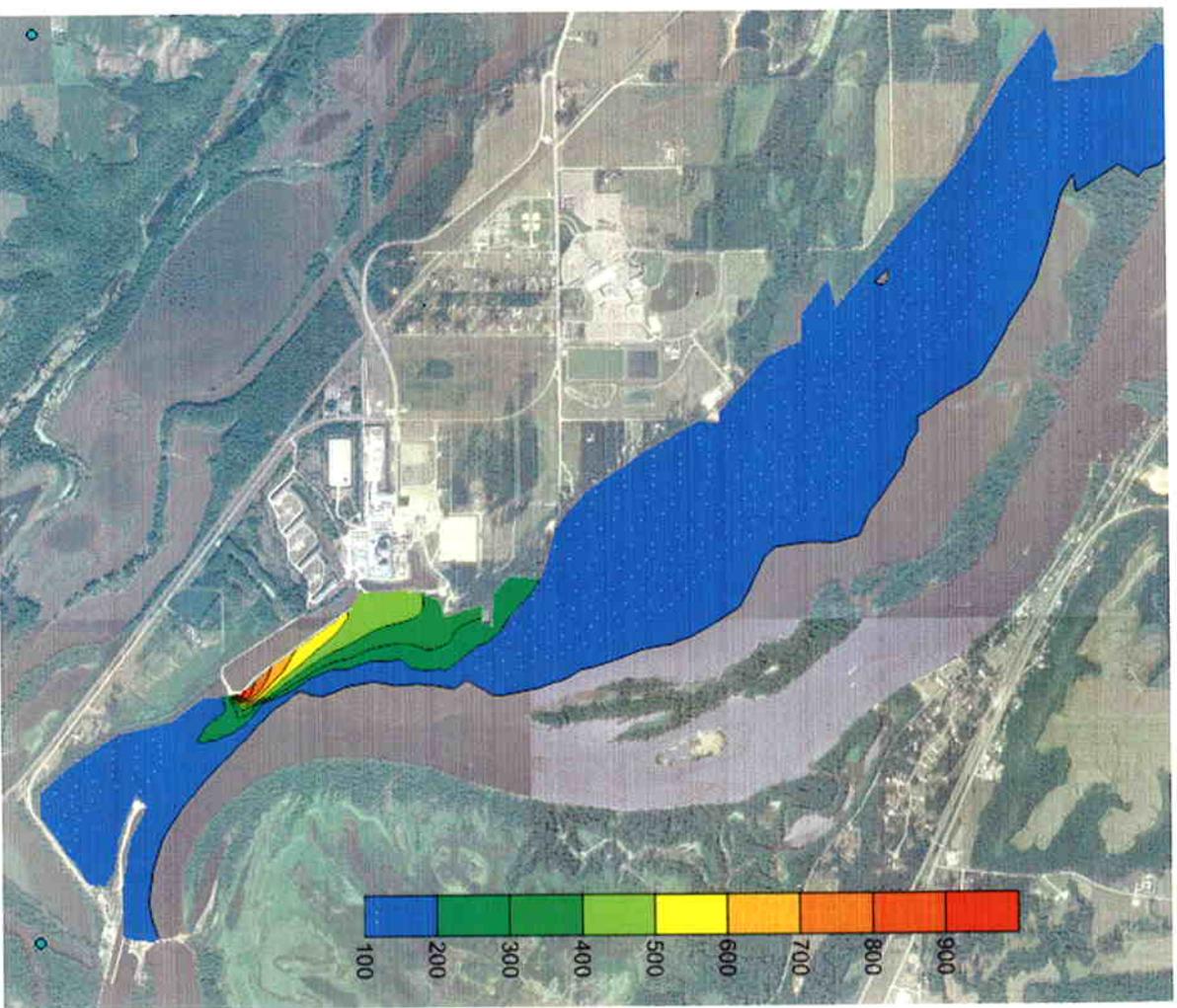
# Tracer

Time

After 156 h

Continuous Release at  
PINGP outlet

$Q = 22 \text{ m}^3/\text{s}$   
and  
Concentration = 1000 units



# Tracer

PINGP Tracer Modeling for  
Sturgeon Lake

July 2009

# Tracer

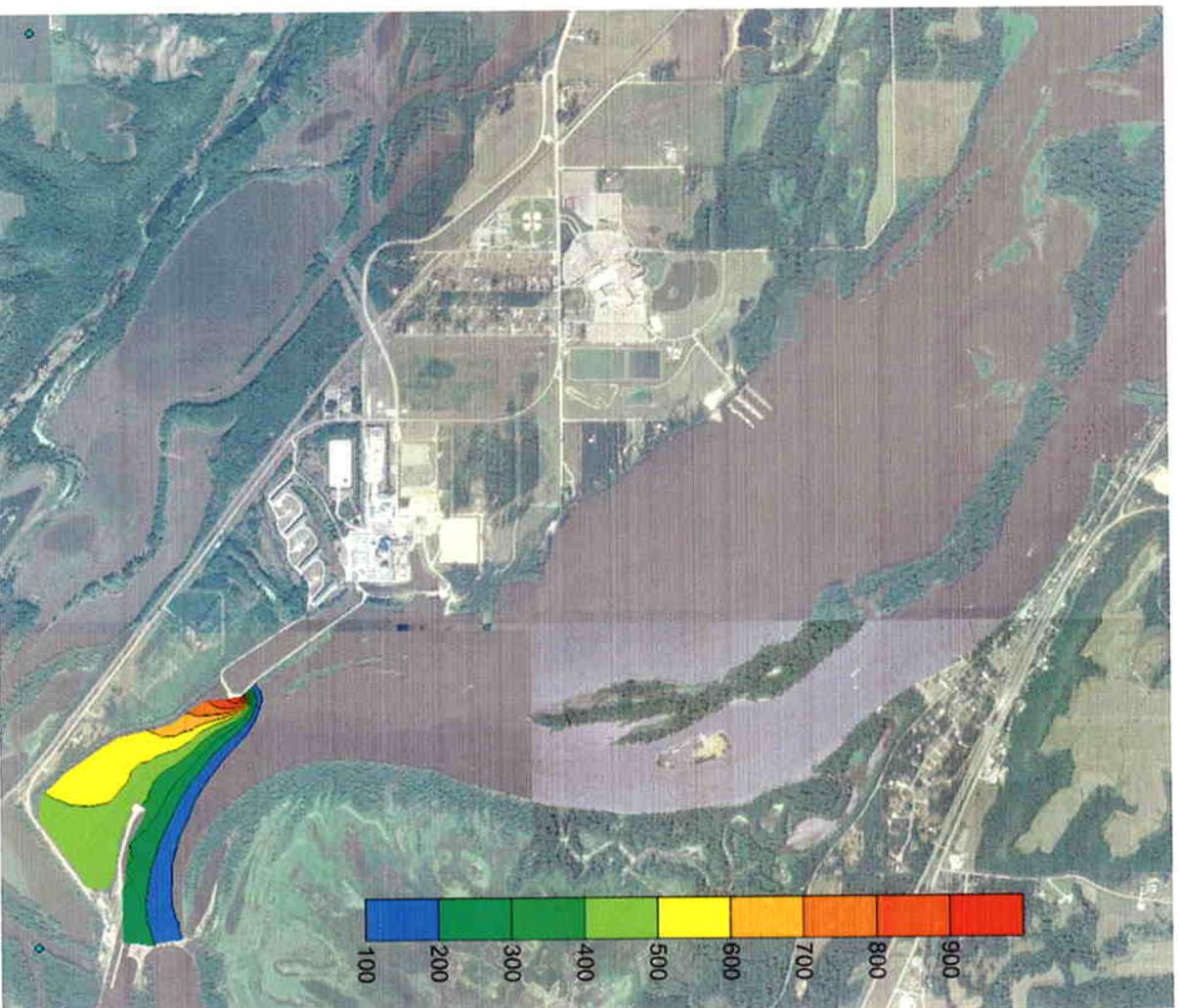
Time

After 240 h

Continuous Release at  
PINGP Outlet

$Q = 22 \text{ m}^3/\text{s}$   
and

Concentration = 1000 units

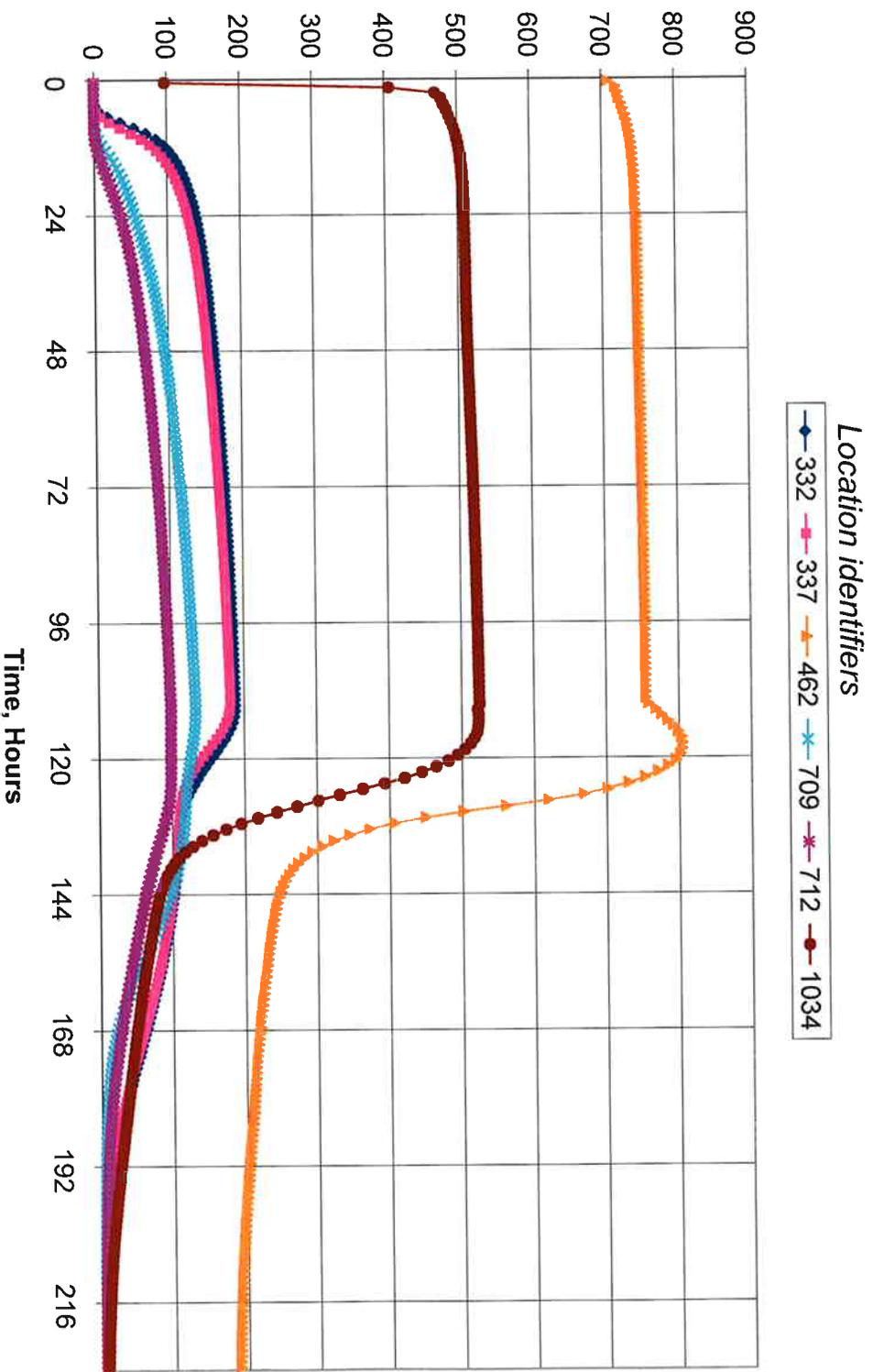


# Tracer

PINGP Tracer Modeling for  
Sturgeon Lake

July 2009

# Development of Tracer Concentration Profiles in Sturgeon Lake Over Time (Hours) Under Variable Wind Conditions



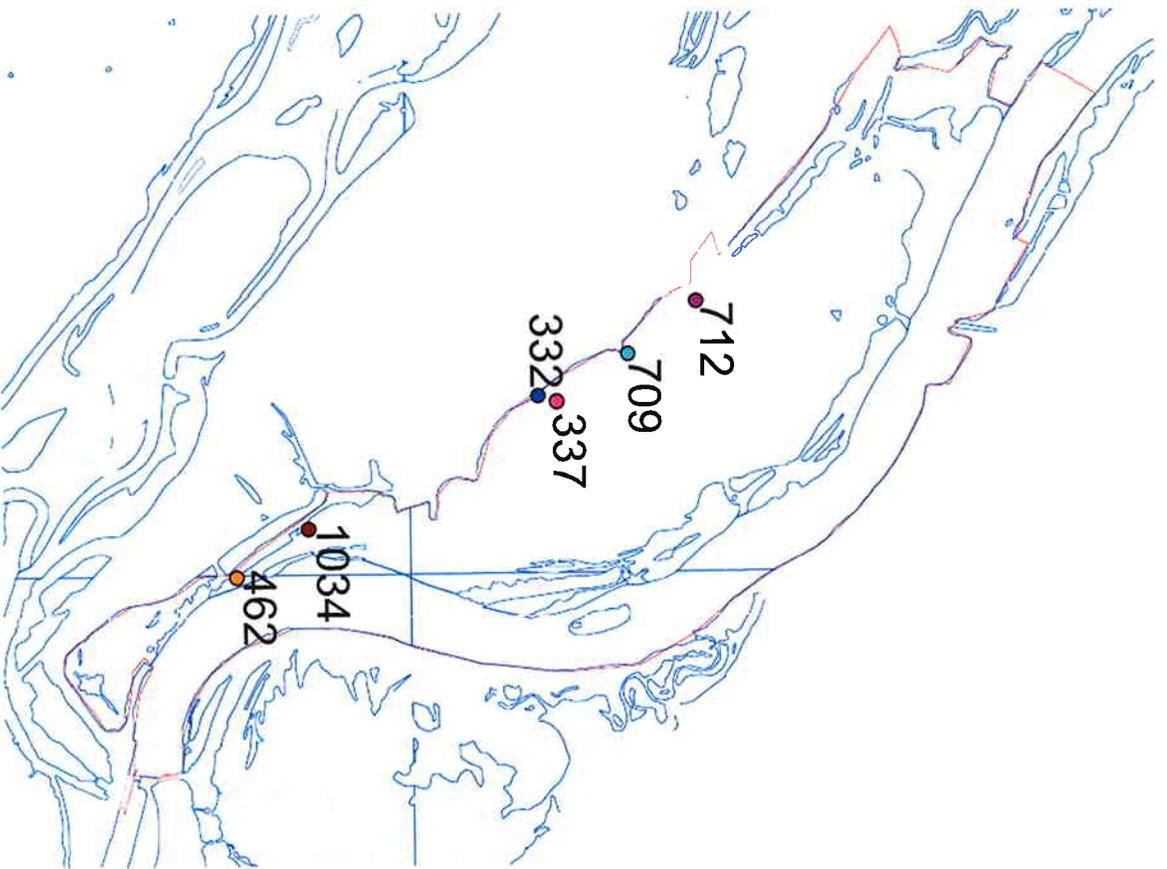
PINGP Tracer Modeling for Sturgeon Lake

July 2009

## Sturgeon-Mississippi

# Sturgeon-Mississippi

## Location Identifiers



PINGP Tracer Modeling for  
Sturgeon Lake

July 2009

# Sturgeon Lake

## Velocity Field

Velocity field without

(dark arrows)

and with wind

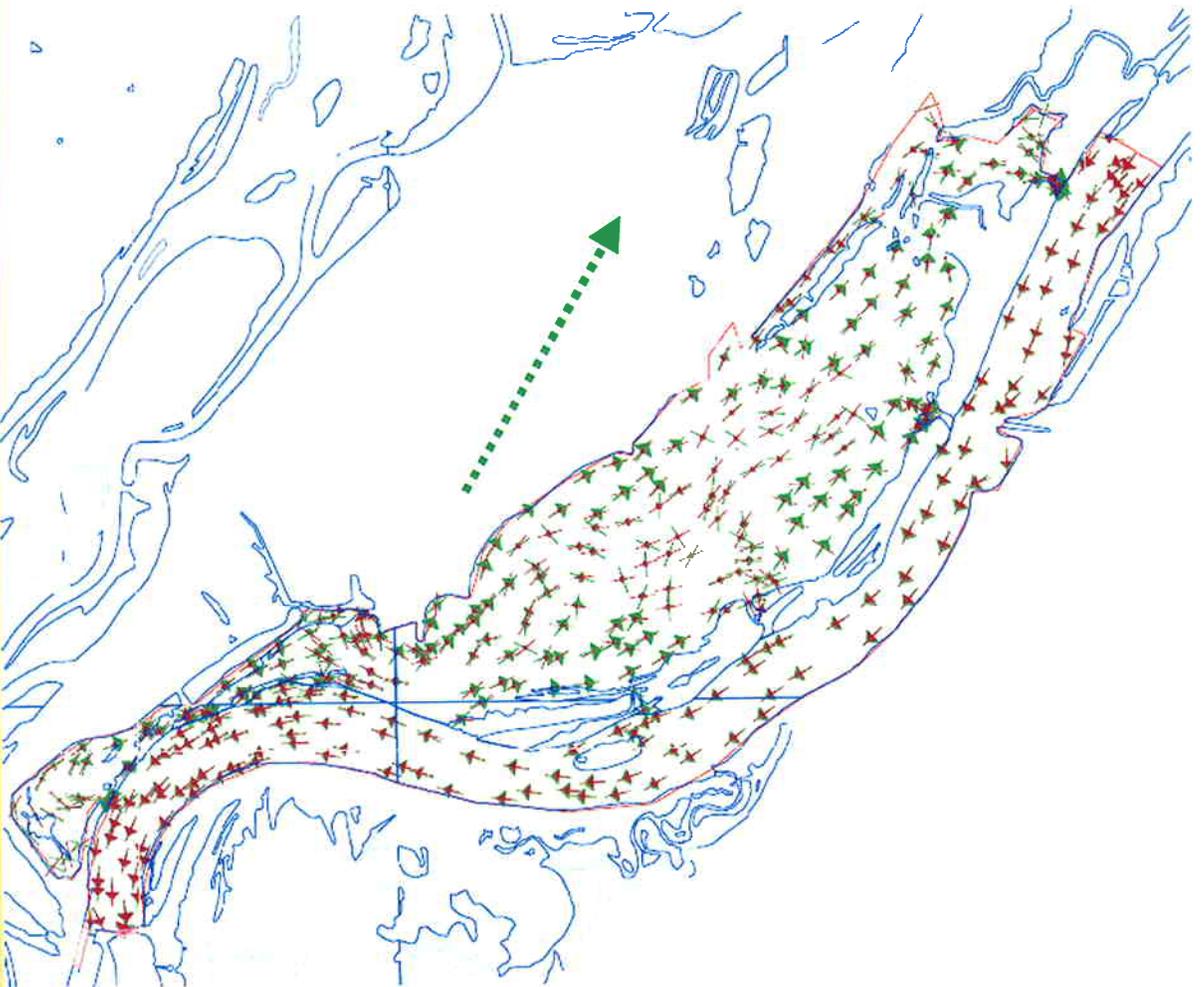
(green arrows)

Wind Speed:

10 m/s (~19.4 knots)

Wind Direction

120 Grad (SEE)



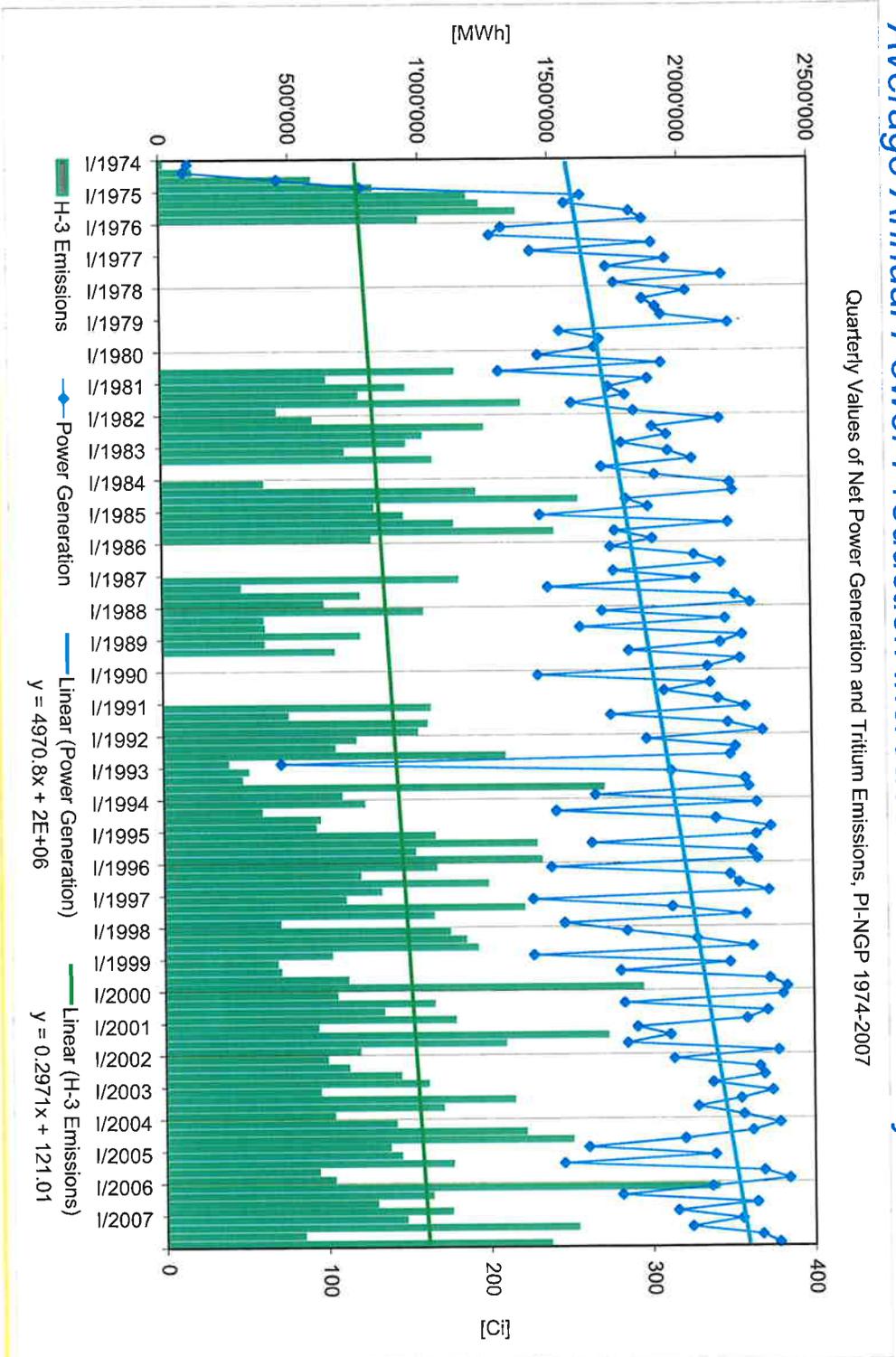
# Tritium

## Quarterly Tritium Emission and Power Production at PINGP

Average Annual Tritium Emission Increase: ~1.2 Ci/yr

Average Annual Power Production Increase: ~20'000 MWh/yr

Quarterly Values of Net Power Generation and Tritium Emissions, P1-NGP 1974-2007



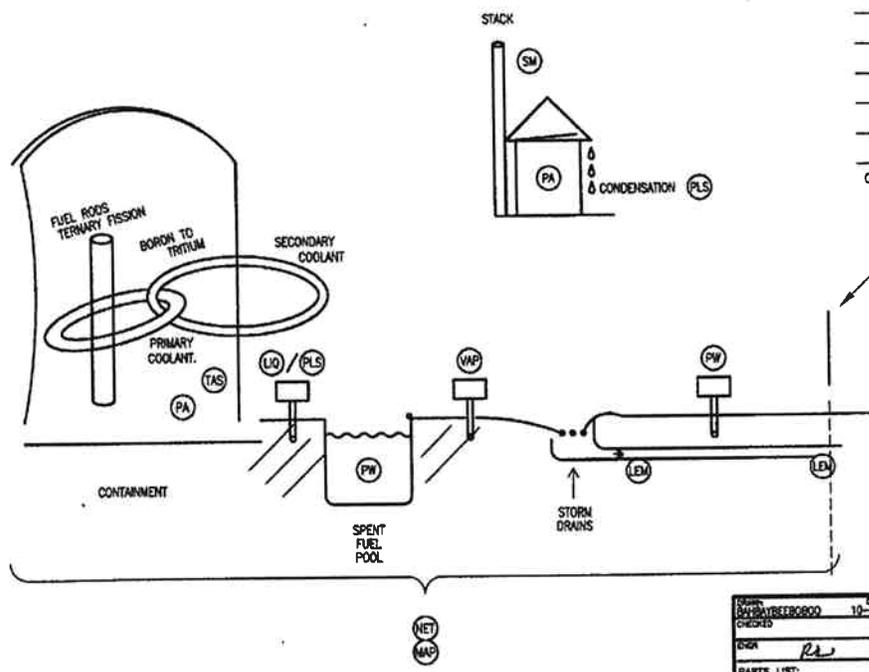
Tritium Emissions

July 2009



DWG NO. B-13013 SH 1

PWR GROUND-WATER MONITORING SYSTEM  
TRITIUM, STRONTIUM, ETC.



REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	REVISED AND REDRAWN "B" SIZE ON CAD	10-08-08	

model 357	SM	STACK MONITORS
SSS-33MB4	LEM	LIQUID EFFLUENT MONITORS
VAP-X (H3)	VAP	VAPOR EXTRACTION DETECTORS
model 400	PA	PORTABLE AIR MONITORS
LIQ-(H3)	LIQ	PORTABLE WATER PUSH MONITORS
SSS-22P	PLS	PORTABLE LIQUID SCINTILLATOR
TASC	TAS	TRITIUM AIR SAMPLER
ORO-NET OVERDRIVE	ORO	PLANT-WIDE RAD NETWORK
MAP-GWATER	MAP	GROUND WATER AND PLUME MAPPING SOFTWARE

PWR-G-WATER

DRAWN BY: <u>RE</u> CHECKED: <u>RE</u> PARTS LIST: NEXT DRAWING: INSTRUMENT: SUBASSEMBLY:	DATE: 10-08-08 TITLE: <b>SYSTEM OVERVIEW</b> SEE: B PROGRAM PWR-G-WATER DWG NO.: B-13013 SCALE: NONE SHEET: 1 OF 1	<b>TECHNICAL ASSOCIATES</b> 7001 ETON AVENUE • CANOGA PARK, CAL. 91303 • (818) 883-7043
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