DOE will produce only one SITREP per day which will be transmitted at 0600.

DEPARTMENT OF ENERGY SITUATION REPORT
Earthquake & Tsunami in Japan
15 April 2011
0600 (EDT) UPDATE

Yellow highlighted text indicates updates to this version. Older items will be deleted as necessary to minimize the size of this report and facilitate quick reading.

Note: Beginning with the 1800 March 31 SITREP, each entry is labeled with the time and date of the latest SITREP that updated the information. Paragraphs with no indicated time were prepared prior to the 1800 March 31 SITREP and were included as the latest information available. Less frequent information updates are available from Japanese agencies. (0600, 4/2 SITREP)

(NOTE: JST = EDT + 13 hours; EDT = GMT/UTC – 4 hours).

POWER PLANT UPDATE AND OTHER NUCLEAR ISSUES

There are no new developments at Fukushima per discussion with IAEA Incident and Emergency Response Center and per NISA web site. (0600 4/15 SITREP)

Per Kyodo News, the Atomic Energy Society of Japan stated Friday that nuclear fuel inside the crippled reactors (1-3) at Fukushima has partially melted and settled at the bottom of the pressure vessels in the shape of grains. (0600 4/15 SITREP)

Per NHK, TEPCO says it has decided to make temporary payments to affected residents for damages. The compensation is to cover residents within 30 kilometers of the damaged power plant who have been instructed to evacuate or stay indoors to avoid radiation. (0600 4/15 SITREP)

Per NHK, at a news conference on Wednesday, TEPCO noted its concern that the spent fuel rods in the storage pool of the No. 4 reactor may be damaged based on interim results of an analysis of samples taken from the pool water on Tuesday. It said levels of radioactive substances including iodine-131 in the samples were higher than those in storage pools under normal circumstances, suggesting that some of the spent fuel may have been damaged. TEPCO says it found 220 becquerels of iodine-131 per cubic centimeter of water, as well as 88 becquerels of cesium-134 and 93 becquerels of cesium-137. The firm says the materials are usually produced by nuclear fission. (0600 4/15 SITREP)

Other Nuclear Facilities

Per Kyodo news, the number 1 reactor at Onagawa NPP sustained a jolt on 7 April (aftershock) which was again larger than the design basis. (0600 4/15 SITREP)

AR/40

Update on Reactor Containment Vessels:

Per NHK, nitrogen gas is continuing to be injected into the Number 1 reactor containment vessel without any interruptions since it was temporarily suspended after the April 11 earthquake. However, the pressure level has remained flat over the past few days suggesting that certain gases may be leaking out of the vessel. TEPCO says there has been no significant change in radiation levels around the plant. (1800 4/12 SITREP)

Updates on Cooling Efforts and Cooling Water Management:

No information

Radiation Detection Updates:

Per JAIF 2100 JST Apr 13, radiation level: 0.55 mSv/h at the south side of the office building, 30μSv/h at the West gate, 73μSv/h at the Main gate. (0600 4/14 SITREP)

(Official Use Only) Field Measurements Update (0600 4/15 SITREP):

Recent events of past 24 hours:

- **Modeling and Assessment**
  - Continued to normalize models to field measurements, assess time correlated deposition, and correlate dose rate measurements with actual weather patterns
- **Field Monitoring**
  - **Aerial Monitoring**
    - AMS UH-1: Surveyed the Joint U.S. and Japan Flight Area at 500 ft AGL at 1000 ft line spacing.
    - AMS C-12: Conducted surveys in the 30 and 60 km circle from approximately 10 to 40 kilometers west of Fukushima-Daiichi between the cities of Koriyama on the south and Watary on the North at 1000ft AGL 2000 line spacing to further complete the aerial survey.
  - **Ground Monitoring**
    - Established the Katsurao infield location and additional battery capability on the J-Village infield.
    - One field team deployed to begin RSI mobile surveys of AMS survey area east of Koriyama and Sukagawa
    - One field team collected air sample and conducted beta and gamma surveys at Yokuska.
    - Continued monitoring activities at the US Embassy Japan and the Embassy Resident Towers in Tokyo, CMOC TOC at Yokota AB, and Yokusuka Naval Base
      - One team deployed to Embassy to collect comparative data with USMC survey position (Insitu and removable contamination)

- **Sampling and Lab Analysis**
  - Continued analysis of air samples at GEL Laboratory
  - Initiated prioritization of soil samples for analysis at Savannah River Site

- **Medical Consultation**
  - Nothing substantial to report

Planned operations over the next 24 hours:

- **Aerial Monitoring**
  - AMS C-12: Weather and winds permitting, will conduct a survey to fill gaps inside the 60km arc at 1000ft AGL 2000 line spacing to further complete the aerial survey.
    - Two areas have been identified as priorities, wind and weather will drive which are surveyed.
  - AMS UH-1: Weather and winds permitting, will survey the high plane of Nagal-Nanyo-Yonezawa in the western mountains north west of Fukushima at 500 ft AGL at 1000 ft line spacing.

- **Ground Monitoring**
  - Begin beta/gamma surveys east of Koriyama.
    - Radionuclide evaluations are to include PIC and in-situ measurement assessment of gamma isotopes
  - Continue RSI mobile surveys of AMS survey area east of Koriyama and Sukagawa
  - Continue monitoring activities at the US Embassy Japan and the Embassy Resident Towers in Tokyo, CMOC TOC at Yokota AB, and Yokusuka Naval Base
- **Sampling and Analysis**
  - Continued analysis of air samples at GEL Laboratory
  - Receive and initiate analysis of soil samples at Savannah River Site

<u>Updates by Reactor Unit (updated each SITREP)</u>

- **Fukushima Daiichi Unit 1 reactor**
  - Per JAIF at 0000 JST 15 April, reactor parameters are: RPV pressure (A) 0.428 MPaG, (B) 0.953 MPaG; water level (A) -1.60 (B) -1.55 meters below the top of the fuel rods; SFP temperature is 26 °C. Reactor pressure vessel temperature@ water feed nozzle 197.0.5 °C. Containment vessel pressure 0.185 MPa abs (1500 JST 15 Apr). (0600 4/15 SITREP)
  - Nitrogen gas injection to the reactor containment vessel of unit1 was suspended and was resumed at 2334 JST. (0600, 4/12 SITREP)
  - On March 24, the NRC estimated that Unit 1 had 70% core damage.
  - The reactor vessel and primary containment are intact.
  - Unit #1 contains 292 elements.

- **Fukushima Daiichi Unit 2 reactor**
  - Per JAIF 0000 JST 15 April, RPV pressure (A) -0.018 MPaG, (B) -0.023MPaG; water level -1.45 meters below the top of the fuel rods; containment vessel pressure 0.090 MPa abs; Reactor pressure vessel temperature @ water feed nozzle 150.0.9 °C. SFP water temperature is 66°C. (0600 4/15 SITREP)
  - On April 11, the NRC estimated that Unit 2 had 30% core damage.
  - NRC EOC status update 1200 EDT 11 April , may begin injecting Nitrogen on 20 April (0600, 4/13 SITREP).
  - Unit#2 SFP contains 587 elements.

- **Fukushima Daiichi Unit 3 reactor**
  - Per JAIF, 0000 JST 15 April, water level (A) -1.80 (B) -2.25 meters below the top of the fuel rods; containment vessel pressure 0.1043 MPa abs; reactor pressure vessel temperature @ water feed nozzle 91.2 °C. SFP temperature is 59°C. RPV pressure (A) -0.019 MPaG, (B) -0.085 MPaG. (0600 4/15 SITREP)
  - On April 11, the NRC estimated that Unit 3 had 25% core damage.
  - Per JAIF 1200 JST 9 April, Unit #3 SFP contains 514 elements
  - NRC EOC status update 1200 EDT Nitrogen injection delayed due to problems accessing equipment on 11 April

- **Fukushima Daiichi Unit 4 reactor**
  - Per NHK news release, as of 2111 JST 13 April, TEPCO indicated that water temperature in the spent fuel storage pool at the No. 4 reactor in the Fukushima nuclear plant has risen to about 90 degrees Celsius. (0600, 4/14 SITREP)
  - TEPCO took the temperature on Tuesday using an extending arm on a special vehicle. It found the temperature was much higher than the normal level of under 40 degrees. To cool the fuel, TEPCO sprayed 195 tons of water for 6 hours on Wednesday morning. The company thinks the pool's water level was about 5 meters lower than normal, but 2 meters above the fuel rods. TEPCO believes the water level is likely to rise by about one meter after the water spraying on Wednesday. (0600, 4/14 SITREP)
  - TEPCO found 220 becquerels of iodine-131 per cubic centimeter of water, as well as 88 becquerels of cesium-134 and 93 becquerels of cesium-137. Also, levels of radioactive substances including iodine-131 in the samples were higher than those in storage pools under normal circumstances, suggesting that some of the spent fuel may have been damaged. (0600, 4/14 SITREP)
  - Per JAIF, as of 1200 JST 13 April, the SFP water temp was 37°C (0600, 4/14 SITREP). This data is in conflict with the news release, see above.
  - Unit 4 is shutdown with the core removed to the spent fuel pool in December for maintenance on the reactor.
  - Unit #4 SFP contains 1331 irradiated fuel assemblies, plus 204 fresh fuel assemblies.

- **Fukushima Daiichi Unit 5 reactor**
  - Unit 5 was in a refueling outage at the time of the earthquake.

- Per JAIF, as of 0600 JST 15 April, the SFP water temp was 35.8°C (0600 4/15 SITREP)
- Unit #5 SFP contains 946 elements.

- **Fukushima Daiichi Unit 6 reactor**
  - Unit 6 was in a refueling outage at the time of the earthquake.
  - Per JAIF, as of 0600 JST 15 April, SFP water temp was 24.5°C (0600 4/15 SITREP)
  - Unit #6 SFP contains 876 elements.

- **Fukushima Daiichi Common Spent Fuel Pool**
  - No change in condition/status several days. (0600, 4/14 SITREP)

- **Fukushima Daiichi Dry Cask Storage Building**
  - No change in condition/status several days. (0600, 4/14 SITREP)

Sources include:
Federation of Electric Power Companies of Japan
Nuclear Industrial Safety Agency

Links:
http://www.jaif.or.jp/english/
http://www.tepco.co.jp/en/index-e.html
http://nei.cachefly.net/newsandevents/information-on-the-japanese-earthquake-and-reactors-in-that-region/
http://www.iaea.org/
http://www.mext.go.jp/english/
https://iportalwc.doe.gov/
http://www.nisa.meti.go.jp/english/
http://www.fepc.or.jp/english/
http://english.kyodonews.jp/
http://www3.nhk.or.jp/nhkworld/

Other Information

UPDATE ON USG COORDINATION

- INL 4 person team authorized to travel to Tokyo 4/12, training overlap with Qinetic Team, then deploy to Tsukuba City/AIST for training with GOJ/TEPCO. (0600 4/12 SITREP)

- **Bilateral Coordination**:

  - Muon tomography application is being considered. (0600 4/15 SITREP)

  - AMS (0600 4/15 SITREP)

- Attended Cabinet Office working meeting to prioritize GOJ requests for assistance including aerial monitoring missions.
- Demonstrated HPGe and discussed associated technical issues with personnel from MAFF, MHLW, and NISA:
  - Cooling
  - Detector size
  - Applications

- Conducted an AMS-demonstration and Joint AMS operations discussion Yokota with MEXT and JAEA. (0600, 4/14 SITREP)

- **Nuclear Incident Team:**
  - Provided ground monitoring and aerial measuring data spreadsheets to CDC, FDA, HHS, USDA, EPA, NRC, DHS, NR, DIA, NCMI, and WH
  - Finalized rotation for deployed personnel
    Triage completed spectral analysis of USFJ C-12 aircraft oil coolers

Media Reports

"Japan continues to struggle to remove highly toxic water at plant" The difficult task of removing highly radioactive water at the crisis-hit Fukushima Daiichi nuclear power plant continued Thursday, with the level of polluted water in the plant's underground trench found to be edging up again that morning after some 660 tons were pumped out. The removal of some 60,000 tons of contaminated water from the basements of the Nos. 1 to 3 reactor turbine buildings as well as trenches connected to them is vital, as the water is hampering work to restore key cooling functions of the reactors lost in the March 11 killer earthquake and ensuing tsunami. Plant operator Tokyo Electric Power Co. pumped out about 660 tons of highly radioactive water Tuesday and Wednesday from one of the trenches to a "condenser" inside the nearby No. 2 reactor turbine building, where in normal operations steam from the reactor is converted into water. But the Nuclear and Industrial Safety Agency said that the water level at the vertical part of the trench as of 7 a.m. Thursday had increased by about 3.5 centimeters from the level observed at 6 p.m. Wednesday. The level of the water is 2.5 centimeters lower than just before the water-transferring mission started. Hidehiko Nishiyama, the agency's spokesman, said that the rise in the water level is likely linked to the continued injection of water injection into the No. 2 reactor core, which is necessary to prevent the nuclear fuel inside from overheating. "As there is believed to be around 20,000 tons of water (in the No. 2 reactor turbine building and the trench connected to it), we feel the difficulty of lowering the level of the water in a stable manner," he said. Tokyo Electric, known as TEPCO, is preparing to transfer more of the highly radioactive water into a facility for nuclear waste disposal in the plant, which can accommodate 30,000 tons of liquid. The water in and around the No. 2 reactor turbine building is believed to contain higher concentrations of radioactive substances than other contaminated water found at the site, and is believed to originate from the No. 2 reactor's core, where fuel rods have partially melted. TEPCO also started looking into how to check the quake resistance of already heavily damaged

reactor buildings at the site in line with an order issued Wednesday by the government's nuclear regulatory agency, in light of strong aftershocks from the March 11 quake. The agency has told the utility to immediately examine the buildings and consider reinforcement work if they are judged as not sufficiently quakeproof. TEPCO, however, has said that it cannot "immediately conduct an investigation" unless it confirms the safety of areas where checkups will be conducted. To enhance preparation for tsunami waves triggered by aftershocks and other emergency situations, emergency diesel power or vehicle-mounted power sources are to be placed at higher ground, while backup units for water injection to the troubled Nos. 1 to 3 reactors are expected to be installed, according to the nuclear agency.

Thursday, April 14, 2011 15:53 +0900 (JST)

http://english.kyodonews.jp/news/2011/04/85401.html (0600, 4/14 SITREP)

"Radiation in seawater drops but remains high" The operator of the disabled Fukushima Daiichi nuclear power station says radiation levels in seawater near the plant are on the decline, but remain high. Tokyo Electric Power Company says it detected 100 becquerels of iodine-131 per cubic centimeter in samples collected near the water intake of the No.2 reactor on Tuesday afternoon. That represents 2,500 times the legal limit. The density was down from 7.5 million times the limit found in the same area on April 2nd. The decline in radioactivity levels comes after the firm stopped highly radioactive water from leaking through a pit outside the reactor on April 6th. The company released 1,320 tons of relatively low radioactive water into the ocean near the outlets of the No.5 and No.6 reactors for the 6 days through April 9th. The company discovered 1.7 becquerels of iodine-131 per cubic centimeter in seawater samples taken from a zone about 30 meters north of the outlets on Tuesday afternoon. That amounts to 43 times the legal limit. The firm also found 1.1 becquerels of the radioactive element in seawater samples collected near a beach 16 kilometers south of the plant on Tuesday morning. That represents 28 times the legal limit. Radiation levels at the same spot have remained almost the same since April 5th.

Thursday, April 14, 2011 07:28 +0900 (JST)

http://www3.nhk.or.jp/daily/english/14_01.html (0600, 4/14 SITREP)

"Most spent fuel not damaged at No. 4 reactor" TEPCO says most of the spent fuel in the storage pool of the No. 4 reactor is apparently undamaged. At a news conference on Wednesday, the firm said the finding is based on interim results of an analysis of samples taken from the pool water on Tuesday. But it said levels of radioactive substances including iodine-131 in the samples were higher than those in storage pools under normal circumstances, suggesting that some of the spent fuel may have been damaged. TEPCO says it found 220 becquerels of iodine-131 per cubic centimeter of water, as well as 88 becquerels of cesium-134 and 93 becquerels of cesium-137. The firm says the materials are usually produced by nuclear fission.

Wednesday, April 13, 2011 21:08 +0900 (JST)

http://www3.nhk.or.jp/daily/english/13_37.html (0600, 4/14 SITREP)

CONTACT INFORMATION:
Nuclear Incident Team in the Emergency Operations Center

(b)(6)

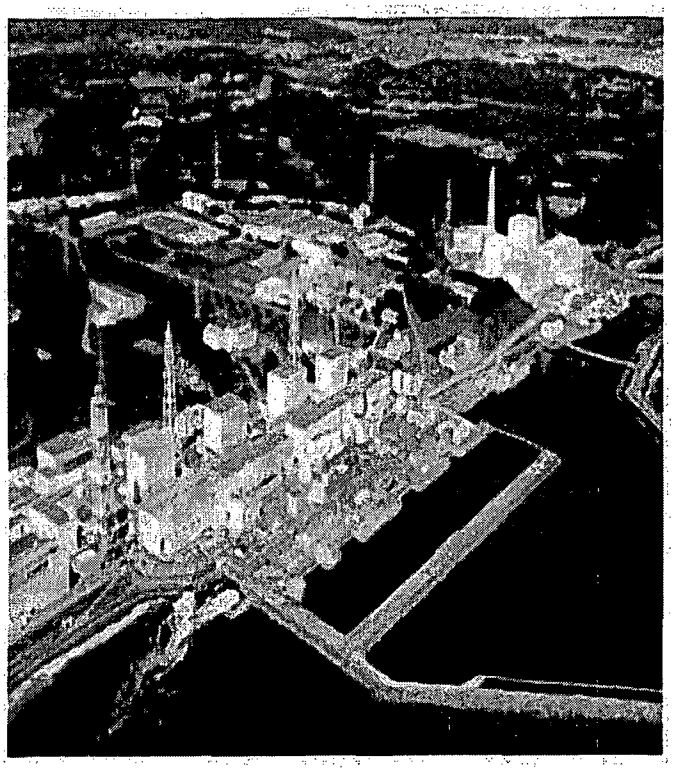
Office of the Deputy Secretary 202-586-5500

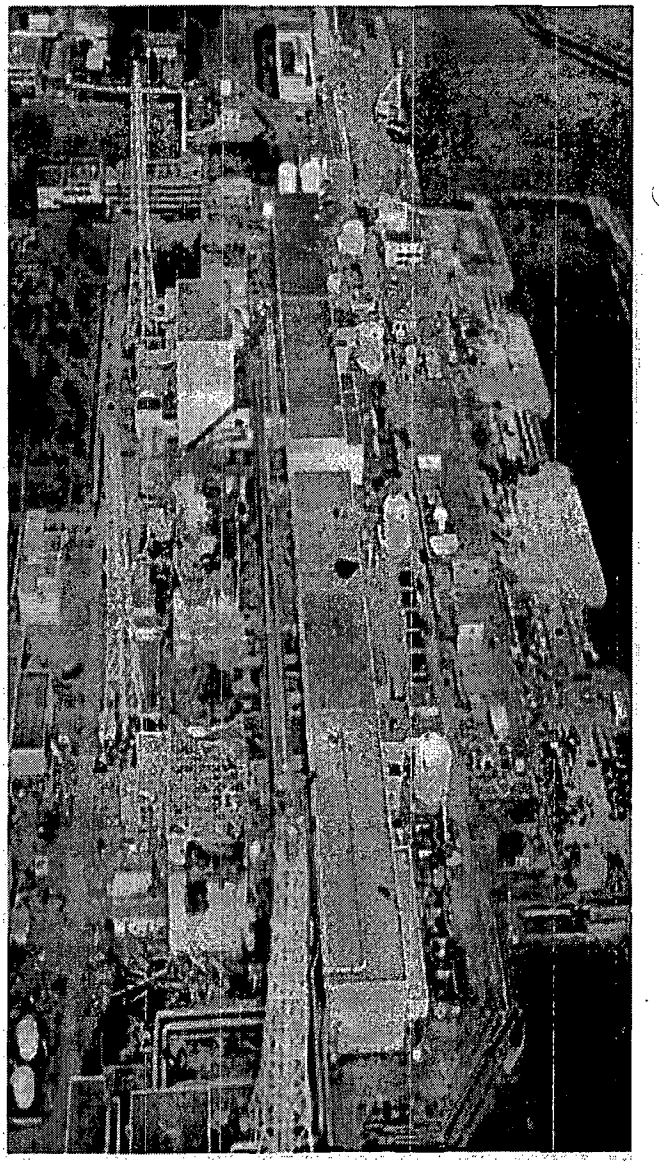
Watch Schedule

April 14: 0400-0800
Casey Ruberg
Brian Robinson

April 15: 0400-0800
Chris Behan
Ronald Hagen

Japan Earthquake Response
April 15, 2011 // 0600 EDT





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This information is for limited distribution to those with a NEED TO KNOW and should not be forwarded outside your agency or organization without prior clearance from U.S. DOE

Contact: DOE/NNSA Nuclear Incident Team: (b)(6)

DOE/NNSA Objective

- **Objective:** Collect data and provide measurement results and technical advice on radioactive contamination and radiation exposure:
  - In support of the State Department in advising American citizens on protective action and evacuation guidelines
  - In support of DoD in its efforts to safely conduct humanitarian assistance/disaster relief (HA/DR) operations and advise on departure/return of military dependents
  - In support of the Government of Japan (GOJ) in producing guidelines on relocation and use of agricultural lands

Desired End-state: *Successful transfer of supplementary equipment and expertise to GOJ to facilitate large-scale, long-term monitoring and sampling efforts; DOE/NNSA provides intermediate assistance in the form of reachback and laboratory analysis support to GOJ and DoD*

Current Status

- TEPCO began pumping 660 tons low-level contaminated radioactive water from Unit 2 turbine trench to condensers. Level of radioactive water in trench and basement of No. 2 reactor turbine building decreasing
- Small amounts of radioactive strontium detected in soil and plants outside 30-kilometer zone around Fukushima Dai-ichi plant.
- TEPCO continues injecting nitrogen gas into Unit 1 reactor containment vessel to prevent possible hydrogen explosion. TEPCO plans to inject nitrogen into Unit 2 on April 20. Nitrogen injection into Unit 3 delayed due to problems accessing equipment
- Reactors 1-4 and spent fuel pools generally stable and continue to receive fresh water injections (see text SITREP for detailed info)

DOE/NNSA Emergency Response

- **Command, Control, Coordination:**
  - ***Nuclear Incident Team (NIT):*** Coordinating overall response
  - ***Policy Working Group (PWG):*** Coordinating overall policy
  - ***Senior Energy Official:*** Primary Manager of deployed field teams
  - ***Liaisons:*** DART, USPACOM, USAID, NRC
- **Modeling and Assessment**
  - ***National Atmospheric Release Advisory Center (NARAC):*** Conducting predictive radioactive atmospheric dispersion modeling
  - ***Consequence Management Home Team (CMHT)**:*** Providing scientific assessment of ground measurements and AMS flights
- **Field Monitoring**
  - ***Consequence Management Response Team (CMRT)**:*** Conducting ground monitoring, air sampling and initial results analysis
  - ***Aerial Measuring System (AMS):*** Conducting aerial detection for mapping radiological ground material deposits. Currently 2 platforms: 1 Fixed, 1 Rotary
- **Sampling and Lab Analysis**
  - ***Lawrence Livermore and Los Alamos National Labs (LLNL & LANL):*** Conducting airborne contamination monitor filter analysis
  - ***Savannah River Site (SRS)*****: Conducting radionuclide analysis of soil samples
- **Medical Consultation**
  - ***Radiation Emergency Assistance Center/Training Site (REAC/TS):*** Providing medical advice about radiological exposure

Deployed* (42)

Yokota AB

(1) SEO
(1) SEO Staff
(36) Field Monitoring

US Embassy Tokyo

(4) DART LNO

**The number deployed does not currently reflect DOE/NNSA personnel assisting in nuclear energy (NE) aspects of the response.*

Augmented by personnel from the DOE/NNSA* ***Regional Assistance Program (RAP)

Significant Events: Past 24 Hrs.

Bilateral Coordination:

- Attended Cabinet Office working group meeting to prioritize GOJ requests for assistance including aerial monitoring missions.
- Demonstrated HPGe and discussed associated technical issues with personnel from MAFF, MHLW, and NISA:
  - Cooling
  - Detector size
  - Applications
- Conducted an AMS-demonstration and Joint AMS operations discussion Yokota with MEXT and JAEA.
- Continuing work on *a Bi-Lateral Joint Monitoring and Assessment Strategy* to be implemented between GOJ and USG

Significant Events: Past 24 Hrs.

Aerial Monitoring Operations

- AMS C-12: Conducted surveys in the 30 and 60 km circle from approximately 10 to 40 kilometers west of Fukushima-Daiichi between the cities of Kōriyama on the south and Watari on the North at 1000ft AGL 2000 line spacing to further complete the aerial survey.
- AMS UH-1: Surveyed the Joint U.S. and Japan Flight Area at 500 ft AGL at 1000 ft line spacing.

Field Monitoring Operations

- Established the Katsurao infield location and additional battery capability on the J-Village infield.
- One field team deployed to begin RSI mobile surveys of AMS survey area east of Kōriyama and Sukagawa
- One field team collected air sample and conducted beta and gamma surveys at Yokosuka.
- Continued monitoring activities at the US Embassy Japan and the Embassy Resident Towers in Tokyo, CMOC TOC at Yokota AB, and Yokosuka Naval Base
  - One team deployed to Embassy to collect comparative data with USMC survey position (In situ and removable contamination)

Significant Events: Past 24 Hrs.

Modeling and Assessment

- NARAC continued to normalize models to field measurements, assess time correlated deposition, conduct trend analysis, and correlate dose rate measurements with actual weather patterns

Sampling and Analysis

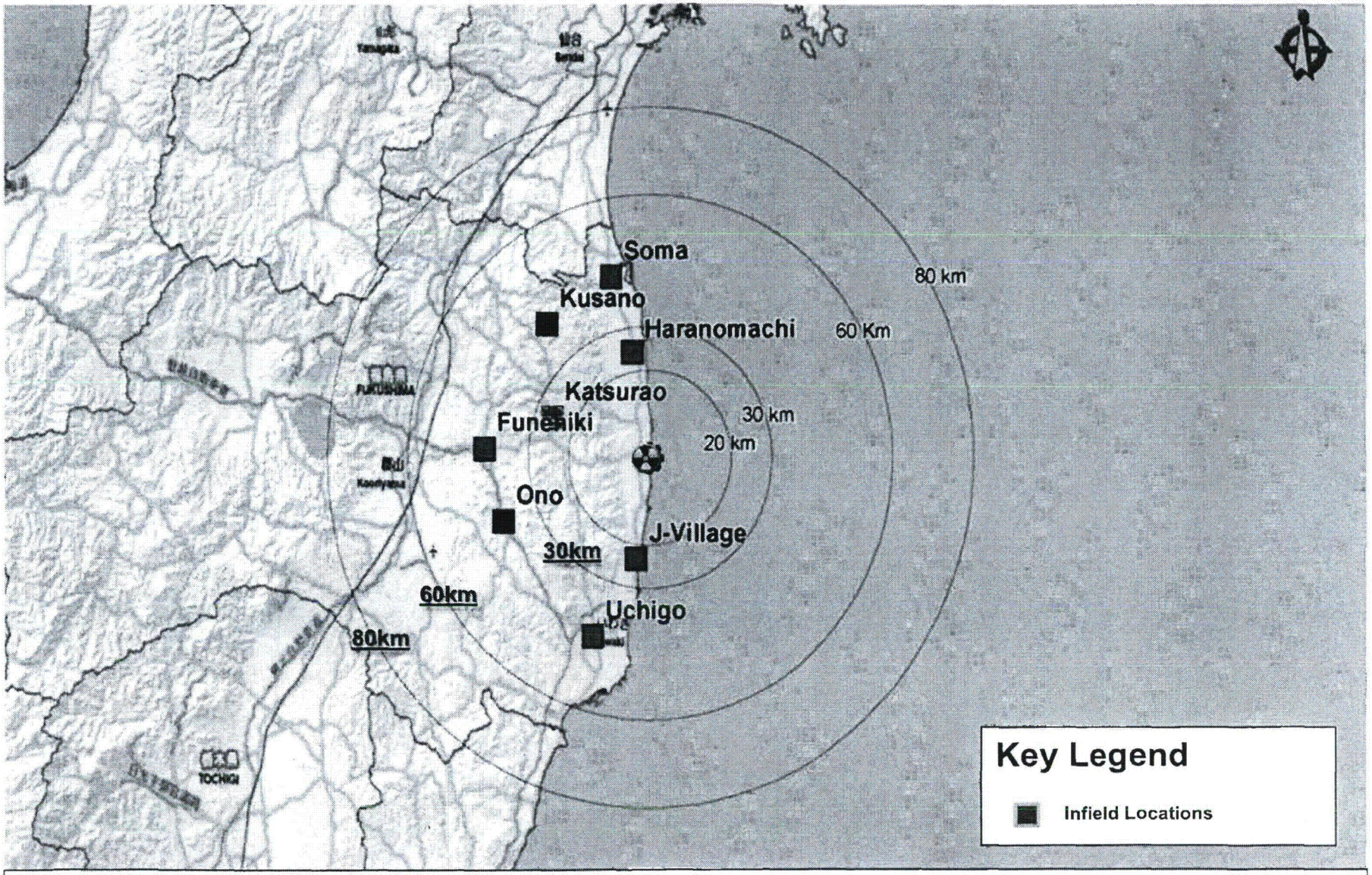
- Continued analysis of air samples at GEL Laboratory
- Initiated prioritization of soil samples for analysis at Savannah River Site

Medical Consult

- Nothing substantive to report

Nuclear Incident Team

- Provided ground monitoring and aerial measuring data spreadsheets to CDC, FDA, HHS, USDA, EPA, NRC, DHS, NR, DIA, NCMI, and WH
- Finalized rotation for deployed personnel



Early Warning Array, Infield Locations
April 14, 2011 Operational Period

National Nuclear Security Administration

Data Inputs

- **Monitoring**
  - 339* hours total flying time for Aerial Measuring System (AMS) fixed and rotary-wing

    * UH-1 still in-flight at time of SitRep
  - Over 150,000 total field measurements taken by DOE, DoD, and GOJ fixed stations and deployed teams
- **Sampling**
  - 511 total air samples taken at US facilities throughout Japan for lab analysis in US
  - 52 total ground samples taken throughout Japan for lab analysis in US
  - 89 Japan soil samples received, in-processed, and being prepared by SRS Environmental Lab for analysis
    - 6 AFRAT soil samples processed for shipment to SRNL on 4/16.

Organizations Providing Data

- **Consequence Management Response Team**
  - CMRT
  - AMS
  - AFRAT
- **External US**
  - Japan Emergency Command Center, US Embassy, Tokyo
  - USAF, BSC Commander
  - USAF, WC-135 Constant Phoenix
  - Futenma Marine Corps Air Station
  - Nuclear Regulatory Commission
  - Naval Reactors
- **Japan**
  - Ministry of Foreign Affairs (MOFA)
  - Nuclear Safety Technology Center (NUSTEC)
  - Tokyo Electric Power Company (TEPCO)
  - Ministry of Agriculture, Forestry and Fisheries (MAFF)
  - Ministry of Education, Culture, Sports, Science, and Technology (MEXT)
  - Ministry of Health, Welfare and Labor
  - Nuclear and Industrial Safety Agency (NISA)
  - Nuclear Safety Commission

Guide to Interpretation

US EPA Derived Response Levels (DRLs) for Evacuation and Relocation

- **Early Phase DRL**

  If a person is in danger of receiving an external radiation dose of 1 Rem over 4 days, the EPA recommends evacuation until radiation levels decrease. This area is indicated by red.

- **First Year DRL**

  If a person is in danger of receiving an external radiation dose greater than 2 Rem during the first year, the EPA recommends relocation until radiation levels decrease. This is not an urgent action because the dose is received over a full year. This area is indicated by orange.

- **Fifty Year DRL**

  If a person is in danger of receiving an external radiation dose greater than 5 Rem over 50 years, the EPA recommends relocation until radiation levels decrease. This is not an urgent action because the dose is received over fifty years. This area falls within the second year DRL.

- **Second Year DRL**

  If a person is in danger of receiving an external radiation dose of greater than 0.5 Rem in the second year (or any subsequent year), the EPA recommends relocation until radiation levels decrease. This area is indicated by yellow.

These calculations account for multiple variables. For instance, radiation is most intense in the first days following its release therefore dose reduction may be met by evacuating early in the response.

Protective actions are frequently expressed in dose rates. The dose rate is an indicator that residents would accumulate the threshold dose if they stayed in the area the entire time expressed (e.g. 1 year, 2 years, 50 years).

Guide to Interpretation

Areas at Risk for Agricultural Contamination

Aerial measurements can indicate areas where agricultural monitoring and sampling should occur, although they cannot directly determine the amount of contamination of agricultural products grown in these areas.

AMS monitoring results in areas beyond 25 miles from the Fukushima Daiichi reactors show areas where dose rates are many times higher than historical background.

The measured external dose rates in these areas are not high enough to warrant evacuation or relocation of the population, however, lower levels of radioactive contamination in agricultural products provide more of a risk because the radioactive material can be ingested into the body. Agricultural monitoring in these areas may be warranted.

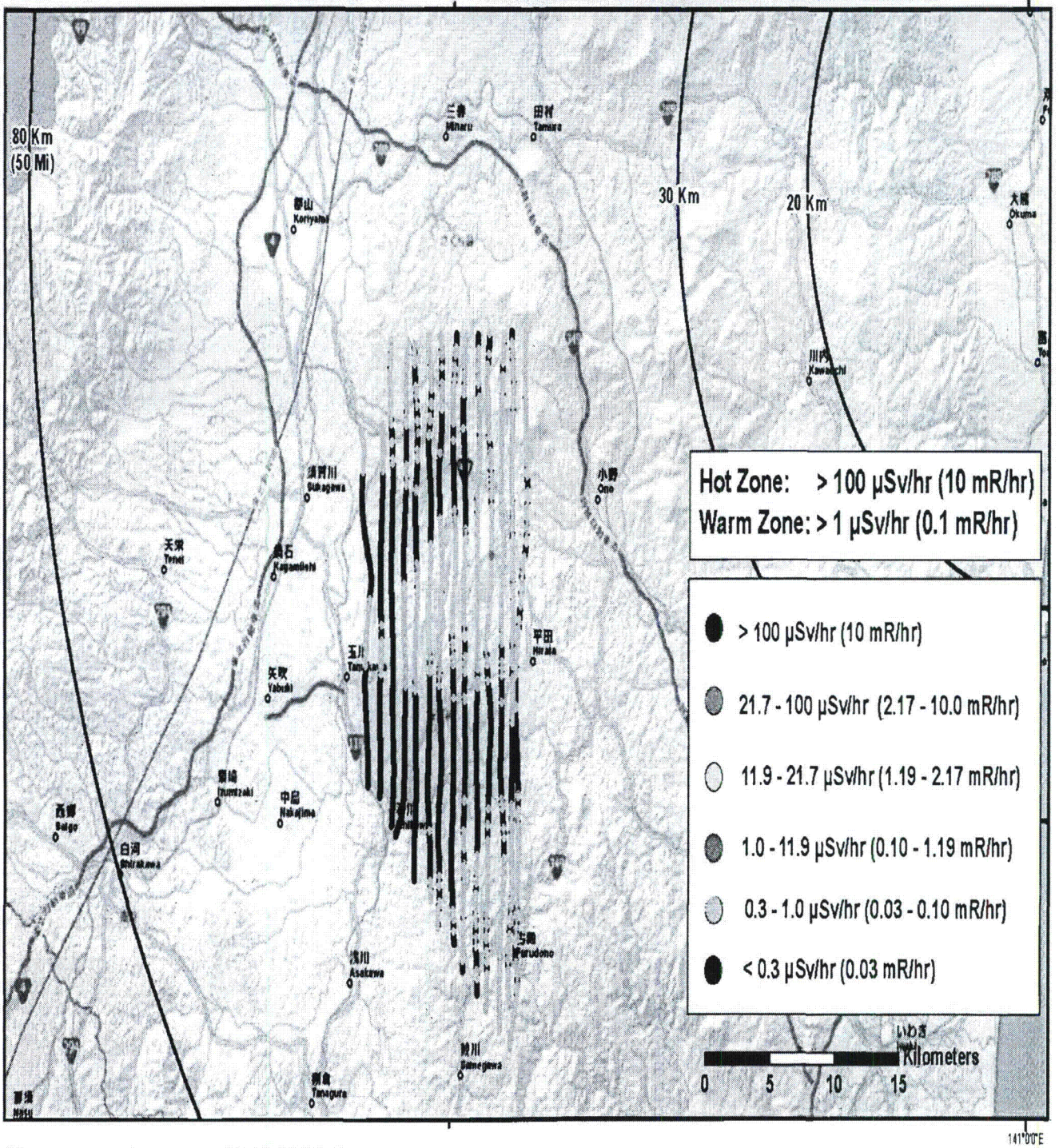
- Areas 10 to 100 times historical background are indicated by green.
- Areas 2 to 10 times historical background are indicated by light blue.
- Areas at or near historical background are indicated by dark blue.

National Nuclear Security Administration

Aerial Monitoring Results

C-12 Flight (April 14, 2011)

FUKUSHIMA DAIICHI JAPAN



Map created on 04142011 2035 JST

Name: CMOC C-12 Results 04142011

~~Official Use Only~~

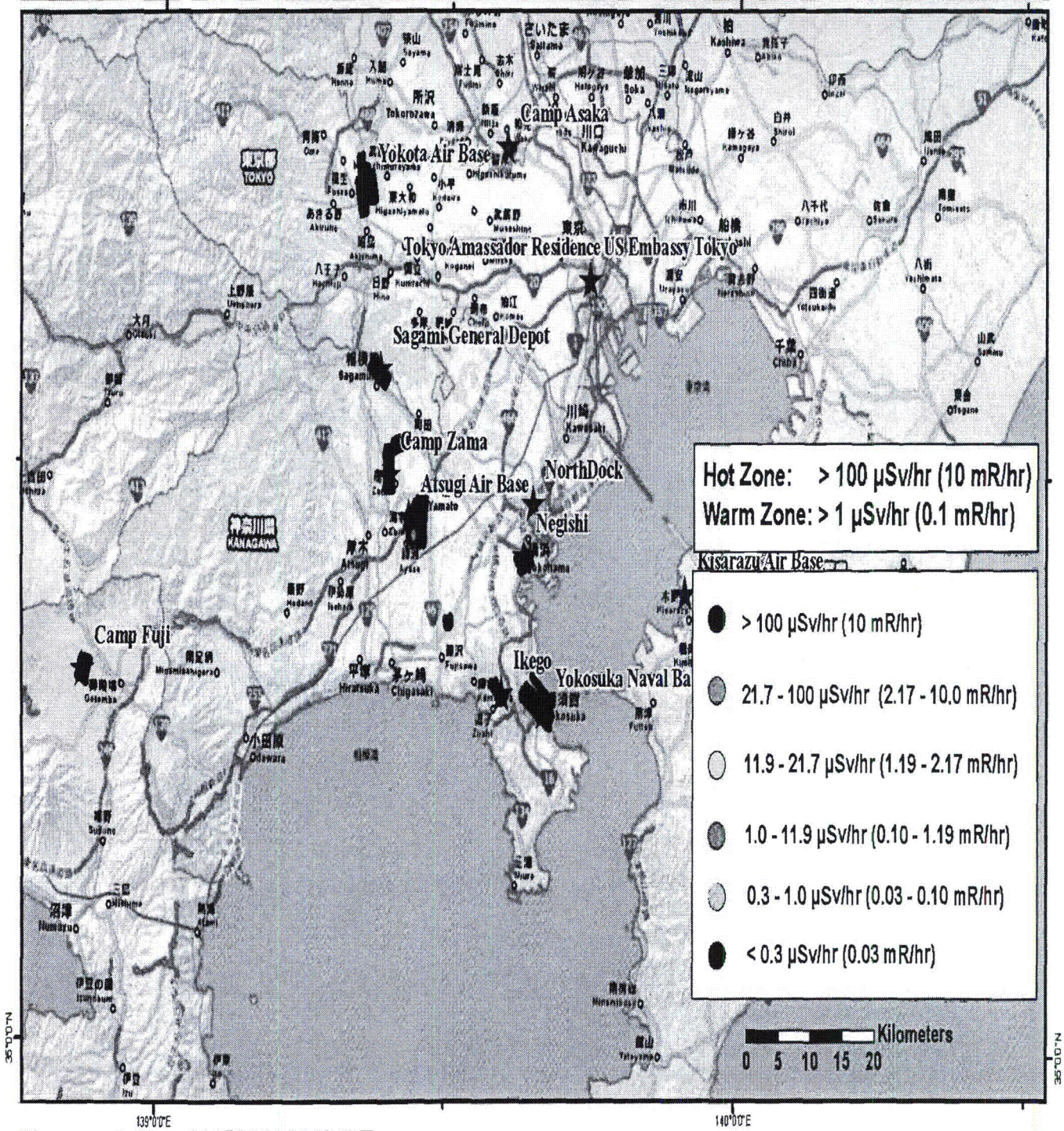
Nuclear Incident Team DOE NIT Contact (b)(6)

National Nuclear Security Administration

Aerial Monitoring Results

UH-1 Flight (April 14, 2011)

FUKUSHIMA DAIICHI JAPAN

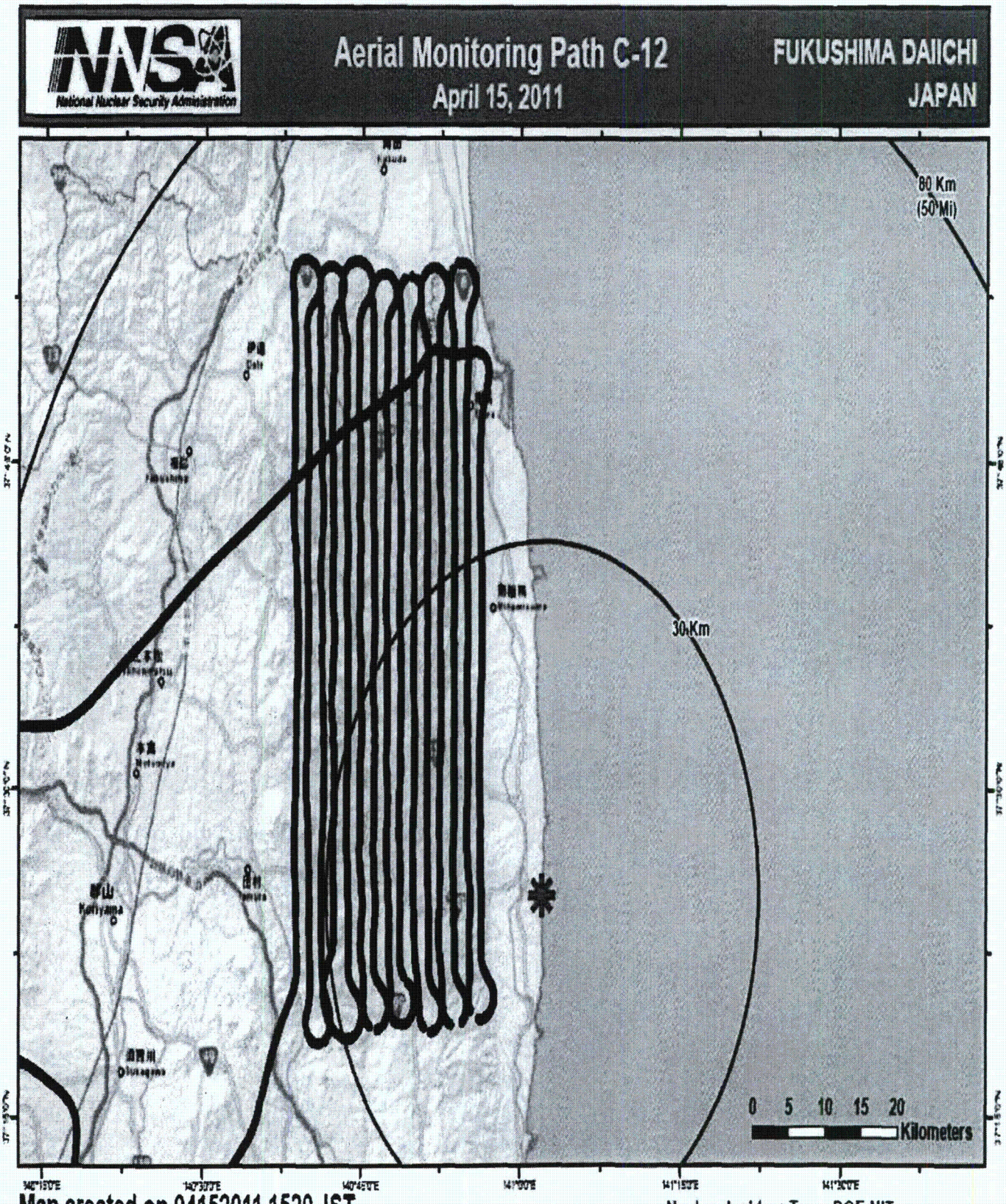


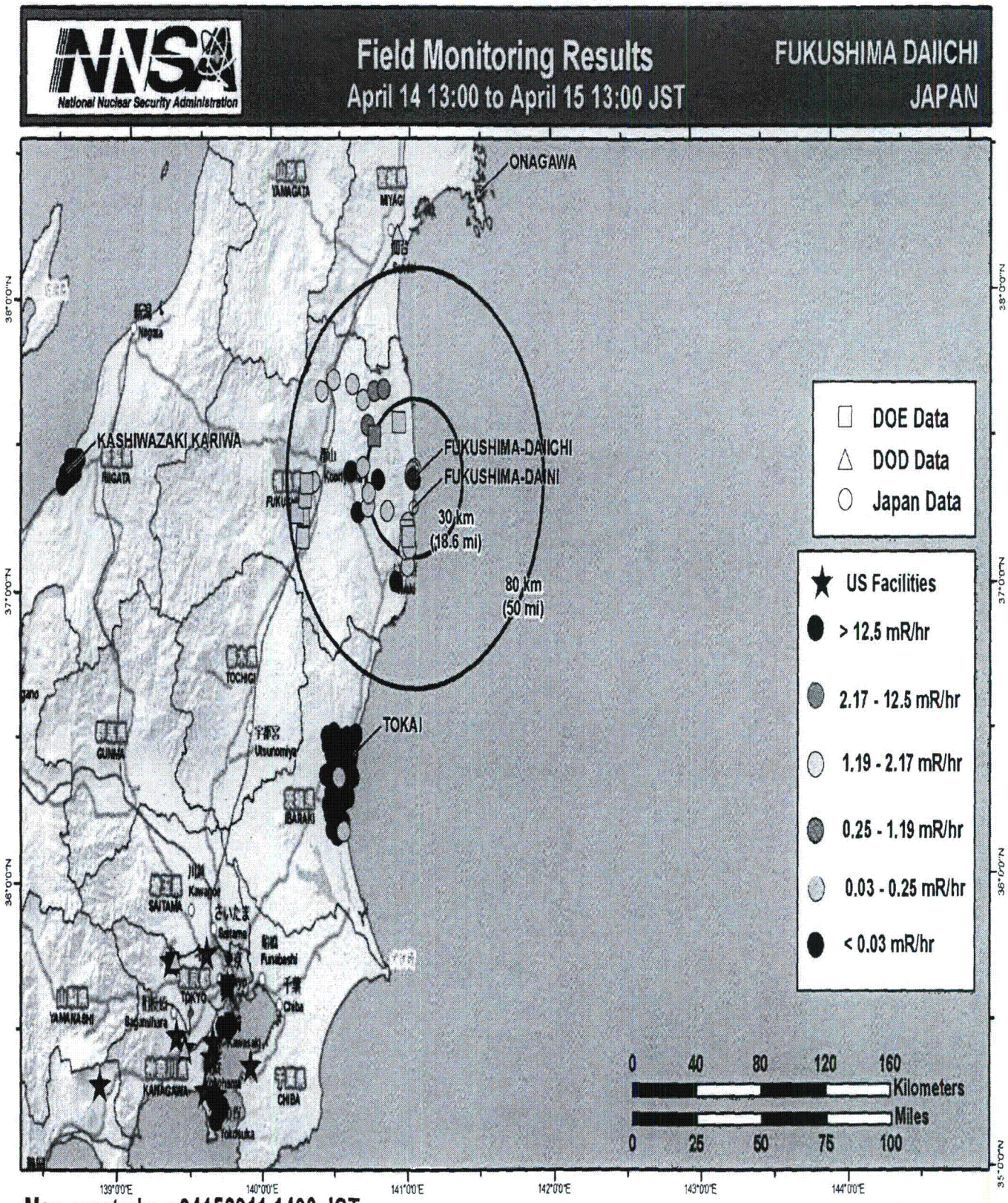
Map created on 04152011 0245JST

Name: CMOC UH-1 Results 04142011

~~Official Use Only~~

Nuclear Incident Team DOE NIT Contact (b)(6)


National Nuclear Security Administration
Aerial Monitoring Path C-12
April 15, 2011
FUKUSHIMA DAIICHI
JAPAN
80 Km
(50 Mi)
30 Km
0 5 10 15 20
Kilometers
Map created on 04152011 1520 JST
Name: NIT C-12 Path 04152011
UNCLASSIFIED
Nuclear Incident Team DOE NIT
Contact
(b)(6)



Map created on 04152011 1400 JST

Name: NIT 24hrsMonitoringResults 14Apr2011 1300

UNCLASSIFIED

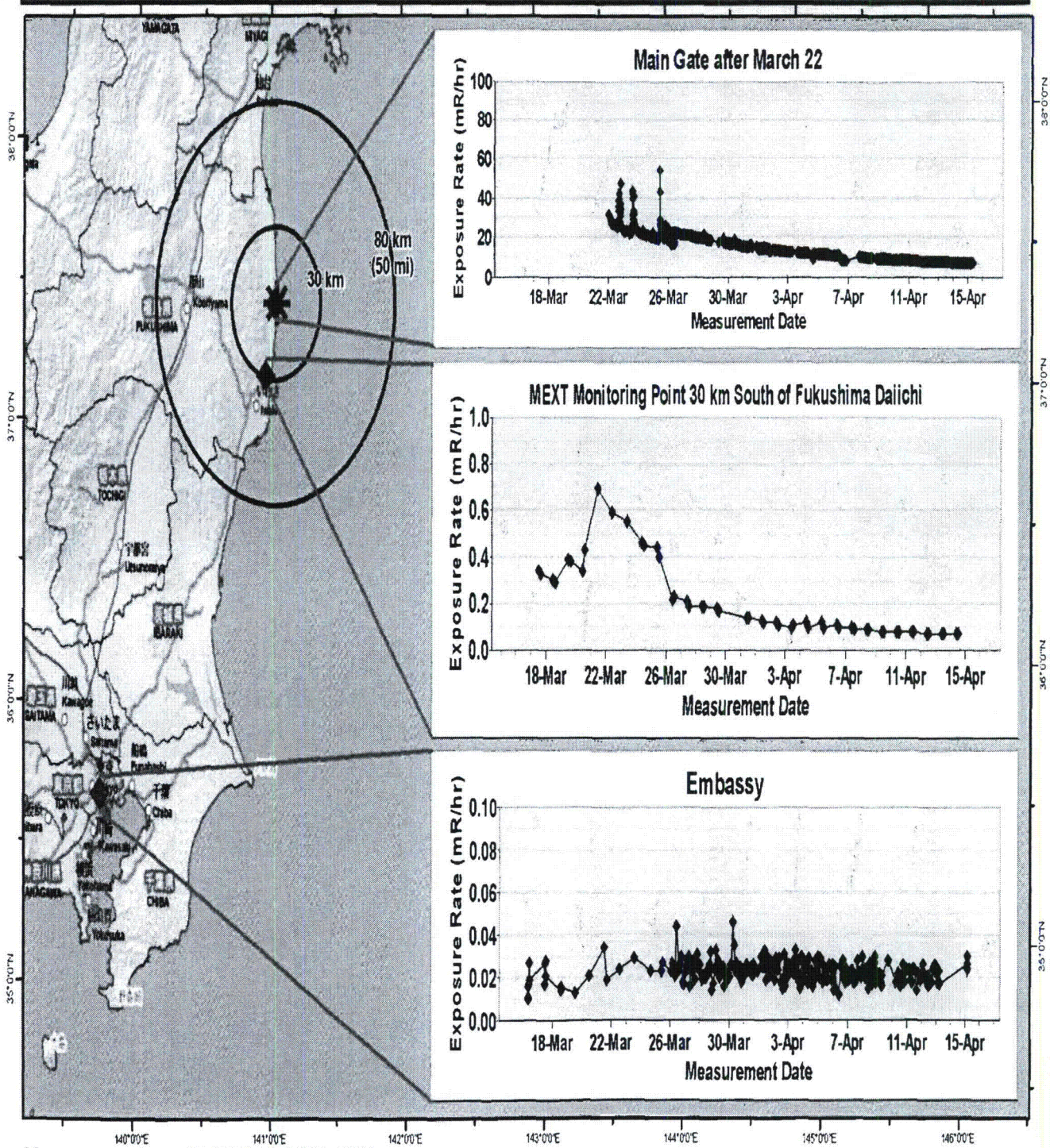
Nuclear Incident Team DOE NIT

Contact (b)(6)

Exposure Rate Trends
From Fukushima South to the U.S. Embassy

FUKUSHIMA DAIICHI
JAPAN

National Nuclear Security Administration



Map created on 04152011 1500 JST

Name: CMHT MonTrend 14Apr2011 Simplified

UNCLASSIFIED

Nuclear Incident Team DOE NIT

Contact (b)(6)

Ground Deposition
Guide to Interpretation

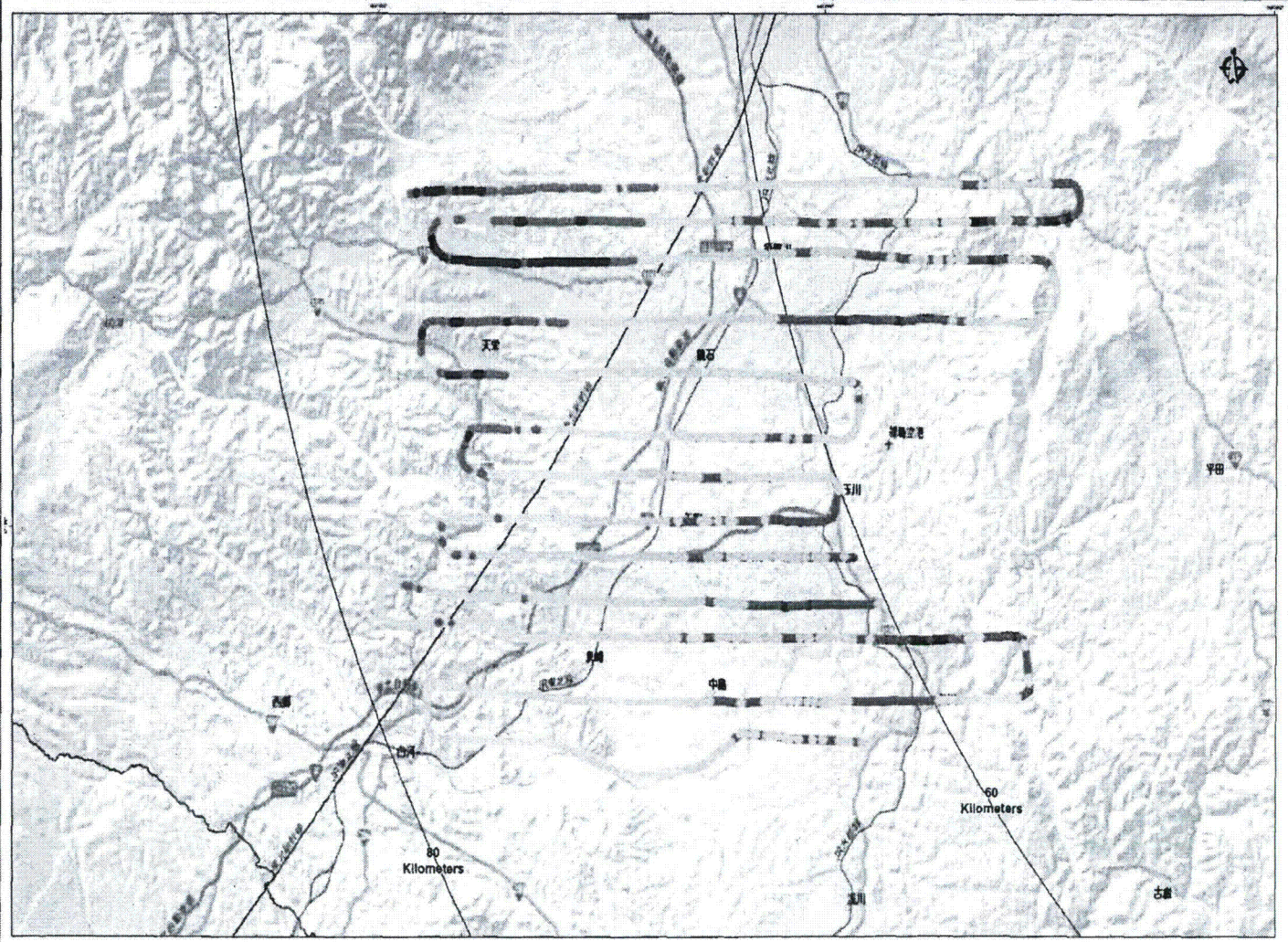
- Isotopic Deposition is extracted from AMS spectral data
  - Cs-134 was chosen because it can be quantified most accurately from the aerial data
  - Quantities of Cs-137 and other isotopes of concern can be inferred from isotopic ratios measured on the ground with high-resolution equipment
- 05 April UH-1 survey chosen for accuracy
  - Lower altitude yields higher quality spectra and better sensitivity
  - Good topographic data available for altitude corrections
  - We've taken many ground measurements in this area
- Maximum concentration (in red) is 3.8×10^5 Bq/m^2 (85% of first year relocation PAG)
- Further analysis is ongoing to reduce uncertainty and display inferred Cs-137 deposition
- Initial estimates are that Cs-137 to 134 ratio is 1
- Results corroborated by Japanese measurements

National Nuclear Security Administration

Cs-134 Deposition

UH-1 Survey Date: April 05, 2011

FUKUSHIMA DAIICHI JAPAN



Deposition - Bq/m²

- 2.7e+005 - 3.8e+005
- 2.0e+005 - 2.6e+005
- 1.2e+005 - 1.9e+005
- 7.5e+004 - 1.1e+005
- 5.7e+004 - 7.4e+004
- 3.8e+004 - 5.6e+004
- 2.1e+004 - 3.7e+004

Technical Considerations and Notes:
- Caution should be used when correlating aerial measurements to ground based measurements and activities at specific locations.
- A correction has been added for deviations in height above ground level based on altitude and the local topography

Not For Public Distribution

Flight Information:
UH-1 Nominal Altitude at 500 ft Above Ground Level, Speed 70 knots

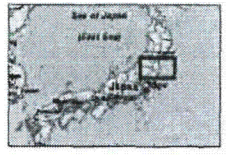
This map was produced by the Geographic Information Systems department of NNSA's Remote Sensing Laboratory (RSL) at Nellis AFB, Las Vegas, Nevada. HSIP Gold 2010, ESRI World Street Map, and GMHT databases were used for map generation.

RSL map identification number is:
Cs134_Deposition_04052911.mxd

1:75,000

0 1 2 3 4 5 Kilometers

0 1 2 3 4 5 Miles



Map created on 4/13/2011 02:30:00 AM JST

UNCLASSIFIED

UNCLASSIFIED

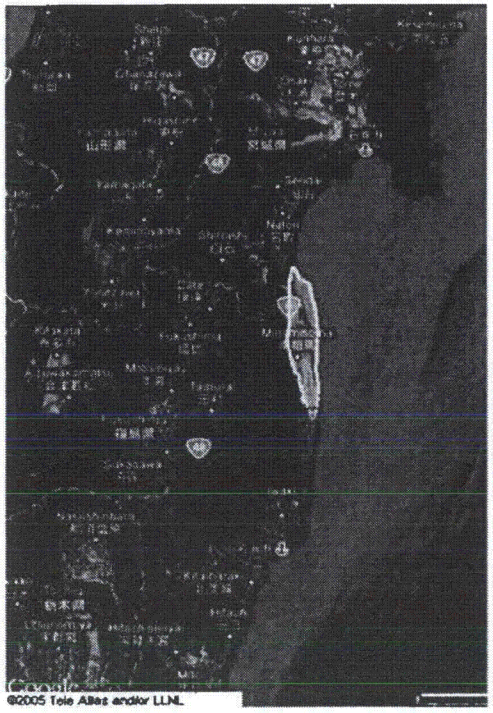
Aerial and Ground Monitoring Data Assessment

- An assessment of measurements gathered through 12 April continues to show:
  - Radiation levels consistently below actionable levels for evacuation or relocation outside of 25 miles
  - Radiological material has not deposited in significant quantities since 19 March
- An assessment of measurements gathered at US military installations in the Tokyo area through 12 April shows:
  - Radiation levels far below actionable levels for evacuation or relocation
  - All aerial measurements at US facilities were less than 32 μR/hr - a level that poses no known health risk
  - Monitoring of these locations will continue although no increases in deposited radiation are anticipated
- NARAC received local meteorological data from 14 March from GOJ; ECD 14 April to run the NARAC models to provide more accurate deposition

Forecasted Weather
April 16, 2011 (JST)

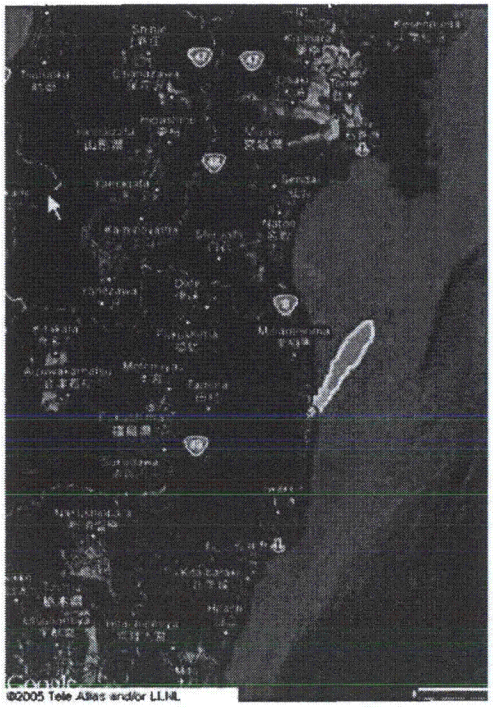
04/16/11 04:00 JST

4/15/11 19:00 Zulu



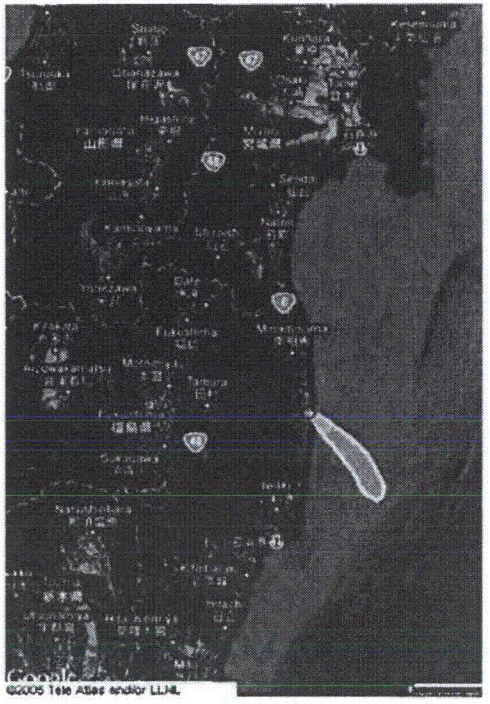
04/16/11 12:00 JST

4/16/11 03:00 Zulu



04/16/11 20:00 JST

4/16/11 11:00 Zulu



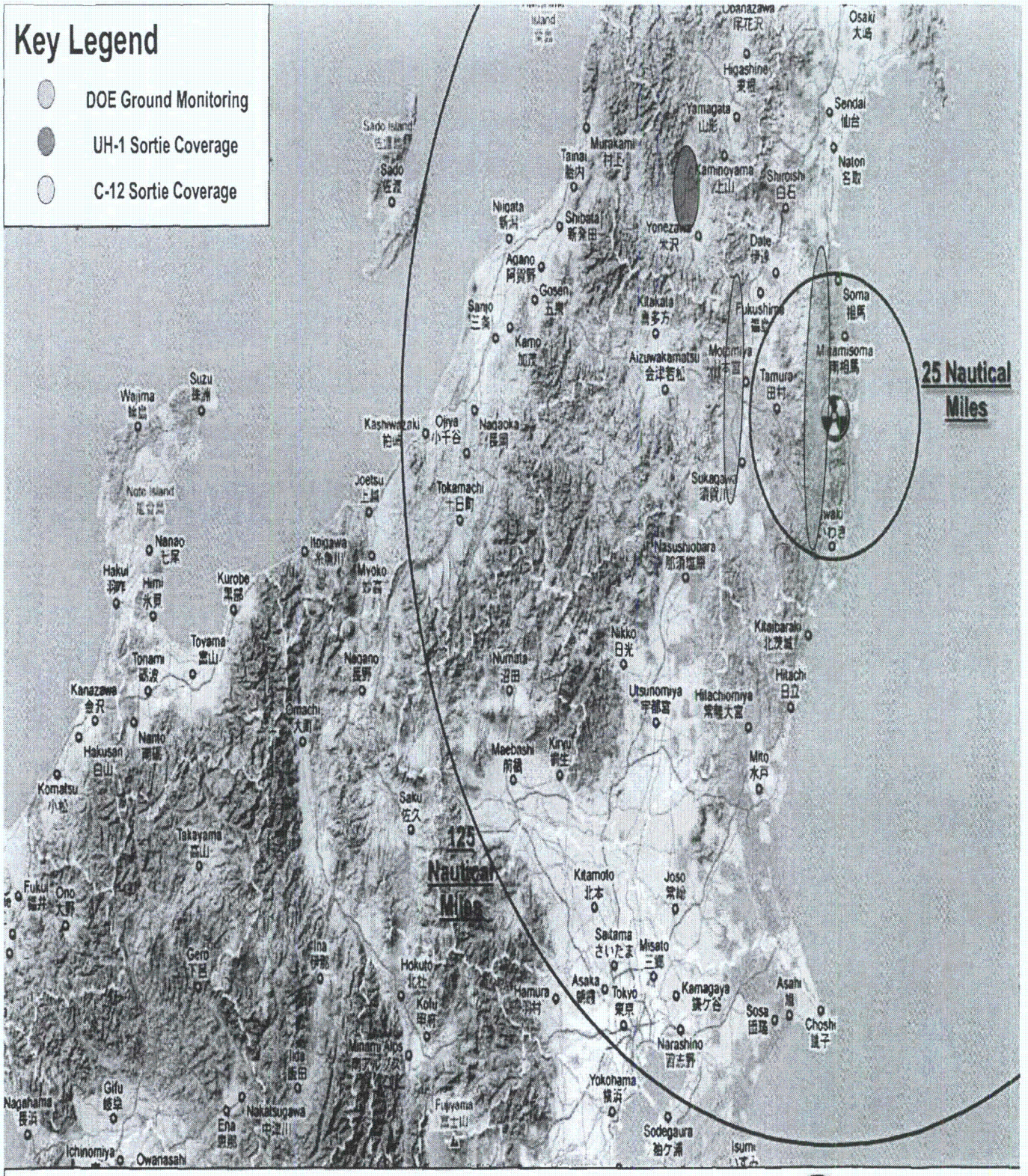
Planned Operations: Next 24 Hrs

Field Monitoring (Aerial)

- AMS C-12: Weather and winds permitting, will conduct a survey to fill gaps inside the 60km arc at 1000ft AGL 2000 line spacing to further complete the aerial survey.
  - Two areas have been identified as priorities, wind and weather will drive which are surveyed.
- AMS UH-1: Weather and winds permitting, will survey the high plane of Nagel-Nanyo-Yonezawa in the western mountains north west of Fukushima at 500 ft AGL at 1000 ft line spacing.

Field Monitoring (Ground)

- Begin beta/gamma surveys east of Kōriyama.
  - Radionuclide evaluations are to include PIC and in situ measurement assessment of gamma isotopes
- Continue RSI mobile surveys of AMS survey area east of Kōriyama and Sukagawa
- Continue monitoring activities at the US Embassy Japan and the Embassy Resident Towers in Tokyo, CMOC TOC at Yokota AB, and Yokosuka Naval Base



Planned Aerial/Field Monitoring Operations

April 16, 2011 Operational Period

National Nuclear Security Administration

DOE will produce only one SITREP per day which will be transmitted at 0600.

DEPARTMENT OF ENERGY SITUATION REPORT
Earthquake & Tsunami in Japan
16 April 2011
0600 (EDT) UPDATE

Yellow highlighted text indicates updates to this version. Older items will be deleted as necessary to minimize the size of this report and facilitate quick reading.

Note: Beginning with the 1800 March 31 SITREP, each entry is labeled with the time and date of the latest SITREP that updated the information. Paragraphs with no indicated time were prepared prior to the 1800 March 31 SITREP and were included as the latest information available. Less frequent information updates are available from Japanese agencies. (0600, 4/2 SITREP)

(NOTE: JST = EDT + 13 hours; EDT = GMT/UTC – 4 hours).

POWER PLANT UPDATE AND OTHER NUCLEAR ISSUES

Per IAEA status report (1200 JST 16 April),

- Unmanned helicopter flight completed and video recorded to assess status of Units 1 to Unit 4 reactor buildings (0600 4/16 SITREP).
- NISA (Agency for Natural Resources & Energy) directed TEPCO to continue monitoring, sample biota, perform EIS, and present results to public on potential long term effects of water discharge to marine environment (0600 4/16 SITREP).
- On the ocean-side of the Inlet Bar Screen, three additional steel plates (total of six installed to date) were installed in front of the Unit 2 screen to minimize migration of contaminated water to the sea (0600 4/16 SITREP).

Per Kyodo News, the Atomic Energy Society of Japan stated Friday that nuclear fuel inside the crippled reactors (1-3) at Fukushima has partially melted and settled at the bottom of the pressure vessels in the shape of grains. (0600 4/15 SITREP)

Per NHK, TEPCO says it has decided to make temporary payments to affected residents for damages. The compensation is to cover residents within 30 kilometers of the damaged power plant who have been instructed to evacuate or stay indoors to avoid radiation. (0600 4/15 SITREP)

Per NHK, at a news conference on Wednesday, TEPCO noted its concern that the spent fuel rods in the storage pool of the No. 4 reactor may be damaged based on interim results of an analysis of samples taken from the pool water on Tuesday. It said levels of radioactive substances including iodine-131 in the samples were higher than those in

AR/42

storage pools under normal circumstances, suggesting that some of the spent fuel may have been damaged. TEPCO says it found 220 becquerels of iodine-131 per cubic centimeter of water, as well as 88 becquerels of cesium-134 and 93 becquerels of cesium-137. The firm says the materials are usually produced by nuclear fission. (0600 4/14 SITREP)

Per IAEA status report (1200 JST 16 April) Lighting to Central Control Rooms for Units 1-4 and in parts of Units 1-4 Turbine Building is restored. (0600 4/16 SITREP).

Other Nuclear Facilities
Per Kyodo news, the number 1 reactor at Onagawa NPP sustained a jolt on 7 April (aftershock) which was again larger than the design basis. (0600 4/15 SITREP)

Update on Reactor Containment Vessels:

Per NHK, nitrogen gas is continuing to be injected into the Number 1 reactor containment vessel without any interruptions since it was temporarily suspended after the April 11 earthquake. However, the pressure level has remained flat over the past few days suggesting that certain gases may be leaking out of the vessel. TEPCO says there has been no significant change in radiation levels around the plant. (1800 4/12 SITREP)

Updates on Cooling Efforts and Cooling Water Management:

No information

Radiation Detection Updates:

Per JAIF 2100 JST Apr 13, radiation level: 0.55 mSv/h at the south side of the office building, 30μSv/h at the West gate, 73μSv/h at the Main gate. (0600 4/14 SITREP)

(Official Use Only) Field Measurements Update (0600 4/16 SITREP):

Recent events of past 24 hours:

- **Modeling and Assessment**
  - Continued to normalize models to field measurements, assess time correlated deposition, and correlate dose rate measurements with actual weather patterns
- **Field Monitoring**
  - **Aerial Monitoring**
    - AMS C-12: Conducted survey flights to fill gaps inside the 60km arc at 1000ft AGL 2000 line spacing to further complete the aerial survey.
      - Maintenance issues prevented the fulfillment of the mission.

- AMS UH-1: Surveyed the high plane of Nagal-Nanyo-Yonezawa in the western mountains north west of Fukushima at 500 ft AGL at 1000 ft line spacing.
  - Weather issues caused the survey to be discontinued.
- **Ground Monitoring**
  - Began beta/gamma surveys east of Koriyama.
  - Radionuclide evaluations include PIC and in-situ measurement assessment of gamma isotopes
  - Completed RSI mobile surveys of AMS survey area east of Koriyama and Sukagawa
  - Continued monitoring activities at the US Embassy Japan and the Embassy Resident Towers in Tokyo, CMOC TOC at Yokota AB, and Yokusuka Naval Base
    - One team deployed to Embassy to collect comparative data with USMC survey position (Insitu and removable contamination)

- **Sampling and Lab Analysis**
  - Continued analysis of air samples at GEL Laboratory
  - Initiated prioritization of soil samples for analysis at Savannah River Site

- **Medical Consultation**
  - Nothing substantial to report

Planned operations over the next 24 hours:

- **Aerial Monitoring**
  - AMS C-12: Weather and winds permitting, will continue conduct a survey to fill gaps inside the 60km arc at 1000ft AGL 2000 line spacing to further complete the aerial survey.
    - Two areas have been identified as priorities, wind and weather will drive which are surveyed.
  - AMS UH-1: Weather and winds permitting, will begin surveying the southern half of the 60km to 80 km arc starting at Kitaibaraki at 500 ft AGL and 1000 ft line spacing.
- **Ground Monitoring**
  - Continue beta/gamma surveys approximately 20 km East of Fukushima and Koriyama to approximately 10 km from the East coast .
    - Radionuclide evaluations are to include PIC and in-situ measurement assessment of gamma isotopes
  - Continue monitoring activities at the US Embassy Japan and the Embassy Resident Towers in Tokyo, CMOC TOC at Yokota AB, and Yokusuka Naval Base
- **Sampling and Analysis**
  - Continued analysis of air samples at GEL Laboratory
  - Receive and initiate analysis of soil samples at Savannah River Site

Updates by Reactor Unit (updated each SITREP)

- **Fukushima Daiichi Unit 1 reactor**
  - Per JAIF at 1400 JST 15 April, reactor parameters are: RPV pressure (A) 0.430 MPaG, (B) 0.985 MPaG; water level (A) -1.65 (B) -1.65 meters below the top of the fuel rods; SFP temperature is 26 °C. Reactor pressure vessel temperature@ water feed nozzle 195.4 °C. Containment vessel pressure 0.190 MPa abs. (0600 4/16 SITREP)
  - Nitrogen gas injection to the reactor containment vessel of unit1 was suspended and was resumed at 2334 JST. (0600, 4/12 SITREP)
  - On March 24, the NRC estimated that Unit 1 had 70% core damage.
  - The reactor vessel and primary containment are intact.
  - Unit #1 contains 292 assemblies in the spent fuel storage pool.

- **Fukushima Daiichi Unit 2 reactor**
  - Per JAIF 1400 JST 15 April, RPV pressure (A) -0.018 MPaG, (B) -0.023MPaG; water level -1.50 meters below the top of the fuel rods; containment vessel pressure 0.090 MPa abs; Reactor pressure vessel temperature @ water feed nozzle 146.6 °C. SFP water temperature is 62°C. (0600 4/16 SITREP)
  - On April 11, the NRC estimated that Unit 2 had 30% core damage.
  - NRC EOC status update 1200 EDT 11 April , may begin injecting Nitrogen on 20 April (0600, 4/13 SITREP).
  - Unit#2 SFP contains 587 assemblies in the spent fuel storage pool.

- **Fukushima Daiichi Unit 3 reactor**
  - Per JAIF, 1400 JST 15 April, water level (A) -1.80 (B) -2.25 meters below the top of the fuel rods; containment vessel pressure 0.1040 MPa abs; reactor pressure vessel temperature @ water feed nozzle 89.6 °C. SFP temperature is 59°C. RPV pressure (A) -0.021 MPaG, (B) -0.085 MPaG. (0600 4/16 SITREP)
  - On April 11, the NRC estimated that Unit 3 had 25% core damage.
  - Unit #3 SFP contains 514 assemblies in the spent fuel storage pool.
  - NRC EOC status update 1200 EDT Nitrogen injection delayed due to problems accessing equipment on 11 April

- **Fukushima Daiichi Unit 4 reactor**
  - Per NHK news release, as of 2111 JST 13 April, TEPCO indicated that water temperature in the spent fuel storage pool at the No. 4 reactor in the Fukushima nuclear plant has risen to about 90 degrees Celsius. (0600, 4/14 SITREP)
  - TEPCO took the temperature on Tuesday using an extending arm on a special vehicle. It found the temperature was much higher than the normal level of under 40 degrees. To cool the fuel, TEPCO sprayed 195 tons of water for 6 hours on Wednesday morning. The company thinks the pool's water level was about 5 meters lower than normal, but 2 meters above the fuel rods. TEPCO believes the water level is likely to rise by about one meter after the water spraying on Wednesday. (0600, 4/14 SITREP)

- TEPCO found 220 becquerels of iodine-131 per cubic centimeter of water, as well as 88 becquerels of cesium-134 and 93 becquerels of cesium-137. Also, levels of radioactive substances including iodine-131 in the samples were higher than those in storage pools under normal circumstances, suggesting that some of the spent fuel may have been damaged. (0600, 4/14 SITREP)
- Per JAIF, as of 1200 JST 13 April, the SFP water temp was 37°C (0600, 4/14 SITREP). This data is in conflict with the news release, see above.
- Unit 4 is shutdown with the core removed to the spent fuel pool in December for maintenance on the reactor.
- Unit #4 SFP contains 1331 irradiated fuel assemblies, plus 204 fresh fuel assemblies.

- **Fukushima Daiichi Unit 5 reactor**
  - Unit 5 was in a refueling outage at the time of the earthquake.
  - Per JAIF, as of 1400 JST 15 April, the SFP water temp was 35.2°C (0600 4/16 SITREP)
  - Unit #5 SFP contains 946 assemblies in the spent fuel storage pool.

- **Fukushima Daiichi Unit 6 reactor**
  - Unit 6 was in a refueling outage at the time of the earthquake.
  - Per JAIF, as of 1400 JST 15 April, SFP water temp was 25.0°C (0600 4/16 SITREP)
  - Unit #6 SFP contains 876 assemblies in the spent fuel storage pool.

- **Fukushima Daiichi Common Spent Fuel Pool**
  - No change in condition/status several days. (0600, 4/14 SITREP)

- **Fukushima Daiichi Dry Cask Storage Building**
  - No change in condition/status several days. (0600, 4/14 SITREP)

Sources include:
Federation of Electric Power Companies of Japan
Nuclear Industrial Safety Agency

Links:
http://www.jaif.or.jp/english/
http://www.tepco.co.jp/en/index-e.html
http://nei.cachefly.net/newsandevents/information-on-the-japanese-earthquake-and-reactors-in-that-region/
http://www.iaea.org/
http://www.mext.go.jp/english/
https://iportalwc.doe.gov/
http://www.nisa.meti.go.jp/english/
http://www.fepc.or.jp/english/
http://english.kyodonews.jp/
http://www3.nhk.or.jp/nhkworld/

Other Information

UPDATE ON USG COORDINATION

- INL 4 person team authorized to travel to Tokyo 4/12, training overlap with Qinetic Team, then deploy to Tsukuba City/AIST for training with GOJ/TEPCO. (0600 4/12 SITREP)

- **Bilateral Coordination**:

  - Muon tomography application is being considered. (0600 4/15 SITREP)

    - AMS (0600 4/15 SITREP)
      - Attended Cabinet Office working meeting to prioritize GOJ requests for assistance including aerial monitoring missions.
      - Demonstrated HPGe and discussed associated technical issues with personnel from MAFF, MHLW, and NISA:
        - Cooling
        - Detector size
        - Applications

  - Conducted an AMS-demonstration and Joint AMS operations discussion Yokota with MEXT and JAEA. (0600, 4/14 SITREP)

- **Nuclear Incident Team:**
  - Provided ground monitoring and aerial measuring data spreadsheets to CDC, FDA, HHS, USDA, EPA, NRC, DHS, NR, DIA, NCMI, and WH
  - Finalized rotation for deployed personnel
    Triage completed spectral analysis of USFJ C-12 aircraft oil coolers

Media Reports

"Japan continues to struggle to remove highly toxic water at plant" The difficult task of removing highly radioactive water at the crisis-hit Fukushima Daiichi nuclear power plant continued Thursday, with the level of polluted water in the plant's underground trench found to be edging up again that morning after some 660 tons were pumped out. The removal of some 60,000 tons of contaminated water from the basements of the Nos. 1 to 3 reactor turbine buildings as well as trenches connected to them is vital, as the water is hampering work to restore key cooling functions of the reactors lost in the March 11 killer earthquake and ensuing tsunami. Plant operator Tokyo Electric Power Co. pumped out about 660 tons of highly radioactive water Tuesday and Wednesday from one of the trenches to a "condenser" inside the nearby No. 2 reactor turbine building, where in normal operations steam from the reactor is converted into water. But the Nuclear and

Industrial Safety Agency said that the water level at the vertical part of the trench as of 7 a.m. Thursday had increased by about 3.5 centimeters from the level observed at 6 p.m. Wednesday. The level of the water is 2.5 centimeters lower than just before the water-transferring mission started. Hidehiko Nishiyama, the agency's spokesman, said that the rise in the water level is likely linked to the continued injection of water injection into the No. 2 reactor core, which is necessary to prevent the nuclear fuel inside from overheating. "As there is believed to be around 20,000 tons of water (in the No. 2 reactor turbine building and the trench connected to it), we feel the difficulty of lowering the level of the water in a stable manner," he said. Tokyo Electric, known as TEPCO, is preparing to transfer more of the highly radioactive water into a facility for nuclear waste disposal in the plant, which can accommodate 30,000 tons of liquid. The water in and around the No. 2 reactor turbine building is believed to contain higher concentrations of radioactive substances than other contaminated water found at the site, and is believed to originate from the No. 2 reactor's core, where fuel rods have partially melted. TEPCO also started looking into how to check the quake resistance of already heavily damaged reactor buildings at the site in line with an order issued Wednesday by the government's nuclear regulatory agency, in light of strong aftershocks from the March 11 quake. The agency has told the utility to immediately examine the buildings and consider reinforcement work if they are judged as not sufficiently quakeproof. TEPCO, however, has said that it cannot "immediately conduct an investigation" unless it confirms the safety of areas where checkups will be conducted. To enhance preparation for tsunami waves triggered by aftershocks and other emergency situations, emergency diesel power or vehicle-mounted power sources are to be placed at higher ground, while backup units for water injection to the troubled Nos. 1 to 3 reactors are expected to be installed, according to the nuclear agency.

Thursday, April 14, 2011 15:53 +0900 (JST)

http://english.kyodonews.jp/news/2011/04/85401.html (0600, 4/14 SITREP)

"Radiation in seawater drops but remains high" The operator of the disabled Fukushima Daiichi nuclear power station says radiation levels in seawater near the plant are on the decline, but remain high. Tokyo Electric Power Company says it detected 100 becquerels of iodine-131 per cubic centimeter in samples collected near the water intake of the No.2 reactor on Tuesday afternoon. That represents 2,500 times the legal limit. The density was down from 7.5 million times the limit found in the same area on April 2nd. The decline in radioactivity levels comes after the firm stopped highly radioactive water from leaking through a pit outside the reactor on April 6th. The company released 1,320 tons of relatively low radioactive water into the ocean near the outlets of the No.5 and No.6 reactors for the 6 days through April 9th. The company discovered 1.7 becquerels of iodine-131 per cubic centimeter in seawater samples taken from a zone about 30 meters north of the outlets on Tuesday afternoon. That amounts to 43 times the legal limit. The firm also found 1.1 becquerels of the radioactive element in seawater samples collected near a beach 16 kilometers south of the plant on Tuesday morning. That represents 28 times the legal limit. Radiation levels at the same spot have remained almost the same since April 5th.

Thursday, April 14, 2011 07:28 +0900 (JST)

http://www3.nhk.or.jp/daily/english/14_01.html (0600, 4/14 SITREP)

"Most spent fuel not damaged at No. 4 reactor" TEPCO says most of the spent fuel in the storage pool of the No. 4 reactor is apparently undamaged. At a news conference on Wednesday, the firm said the finding is based on interim results of an analysis of samples taken from the pool water on Tuesday. But it said levels of radioactive substances including iodine-131 in the samples were higher than those in storage pools under normal circumstances, suggesting that some of the spent fuel may have been damaged. TEPCO says it found 220 becquerels of iodine-131 per cubic centimeter of water, as well as 88 becquerels of cesium-134 and 93 becquerels of cesium-137. The firm says the materials are usually produced by nuclear fission.

Wednesday, April 13, 2011 21:08 +0900 (JST)

http://www3.nhk.or.jp/daily/english/13_37.html (0600, 4/14 SITREP)

CONTACT INFORMATION:
Nuclear Incident Team in the Emergency Operations Center

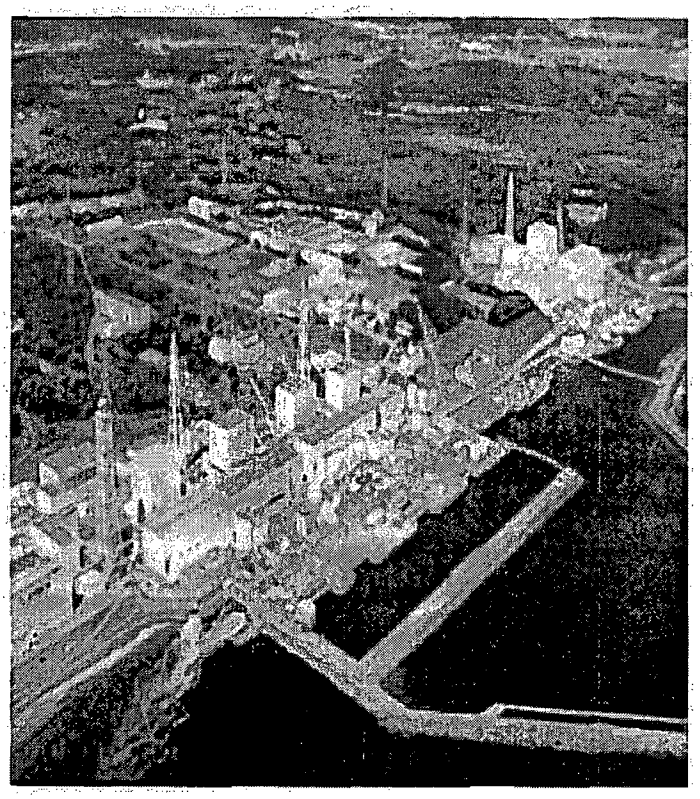
(b)(6)

Office of the Deputy Secretary 202-586-5500

Watch Schedule

April 16:	0400-0800
Alan Felser	
Andrew Griffith	
April 17:	0400-0800
Paul Adamson	
Trevor Cook	

Japan Earthquake Response
April 16, 2011 // 0600 EDT



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This information is for limited distribution to those with a NEED TO KNOW and should not be forwarded outside your agency or organization without prior clearance from U.S. DOE

Contact: DOE/NNSA Nuclear Incident Team: (b)(6)

DOE/NNSA Objective

- **Objective:** Collect data and provide measurement results and technical advice on radioactive contamination and radiation exposure:
  - In support of the State Department in advising American citizens on protective action and evacuation guidelines
  - In support of DoD in its efforts to safely conduct humanitarian assistance/disaster relief (HA/DR) operations and advice on departure/return of military dependents
  - In support of the Government of Japan (GOJ) in producing guidelines on relocation and use of agricultural lands

Desired End-state: *Successful transfer of supplementary equipment and expertise to GOJ to facilitate large-scale, long-term monitoring and sampling efforts; DOE/NNSA provides intermediate assistance in the form of reachback and laboratory analysis support to GOJ and DoD*

Current Status

- TEPCO continues injecting nitrogen gas into Unit 1 reactor containment vessel to prevent possible hydrogen explosion.
- TEPCO plans to inject nitrogen into Unit 2 on April 20. Nitrogen injection into Unit 3 delayed due to problems accessing equipment
- Units1 to 4 reactor buildings and spent fuel pools generally stable and continue to receive fresh water injections (see text SITREP for detailed info).
- Unmanned helicopter flight completed and video recorded to assess status of Units 1 to 4 reactor buildings.
- NISA (Agency for Natural Resources & Energy) directed TEPCO to continue monitoring, sample biota, perform EIS, and present results to public on potential long term effects of water discharge to marine environment.
- On the ocean-side of the Inlet Bar Screen, three additional steel plates (total of six installed to date) were installed in front of the Unit 2 screen to minimize migration of contaminated water to the sea.

DOE/NNSA Emergency Response

- **Command, Control, Coordination:**
  - ***Nuclear Incident Team (NIT):*** Coordinating overall response
  - ***Policy Working Group (PWG):*** Coordinating overall policy
  - ***Senior Energy Official:*** Primary Manager of deployed field teams
  - ***Liaisons:*** DART, USAID, NRC
- **Modeling and Assessment**
  - ***National Atmospheric Release Advisory Center (NARAC):*** Conducting predictive radioactive atmospheric dispersion modeling
  - ***Consequence Management Home Team (CMHT)**:*** Providing scientific assessment of ground measurements and AMS flights
- **Field Monitoring**
  - ***Consequence Management Response Team (CMRT)**:*** Conducting ground monitoring, air sampling and initial results analysis
  - ***Aerial Measuring System (AMS):*** Conducting aerial detection for mapping radiological ground material deposits. Currently 2 platforms: 1 Fixed, 1 Rotary
- **Sampling and Lab Analysis**
  - ***Lawrence Livermore and Los Alamos National Labs (LLNL & LANL):*** Conducting airborne contamination monitor filter analysis
  - ***Savannah River Site (SRS)**:*** Conducting radionuclide analysis of soil samples
- **Medical Consultation**
  - ***Radiation Emergency Assistance Center/Training Site (REAC/TS):*** Providing medical advice about radiological exposure

Deployed* (38)

Yokota AB

(1) SEO
(1) SEO Staff
(33) Field Monitoring

US Embassy Tokyo

(3) DART LNO

**The number deployed does not currently reflect DOE/NNSA personnel assisting in nuclear energy (NE) aspects of the response.*

***Augmented by personnel from the DOE/NNSA Regional Assistance Program (RAP)*

Significant Events: Past 24 Hrs.

Bilateral Coordination:

- Meeting with Embassy personnel to discuss implications of transitioning from OHDACA funding to GOJ/US organizations

Significant Events: Past 24 Hrs.

Aerial Monitoring Operations

- AMS C-12: Conducted survey flights to fill gaps inside the 60km arc at 1000ft AGL 2000 line spacing to further complete the aerial survey.
  - Maintenance issues prevented the fulfillment of the mission.
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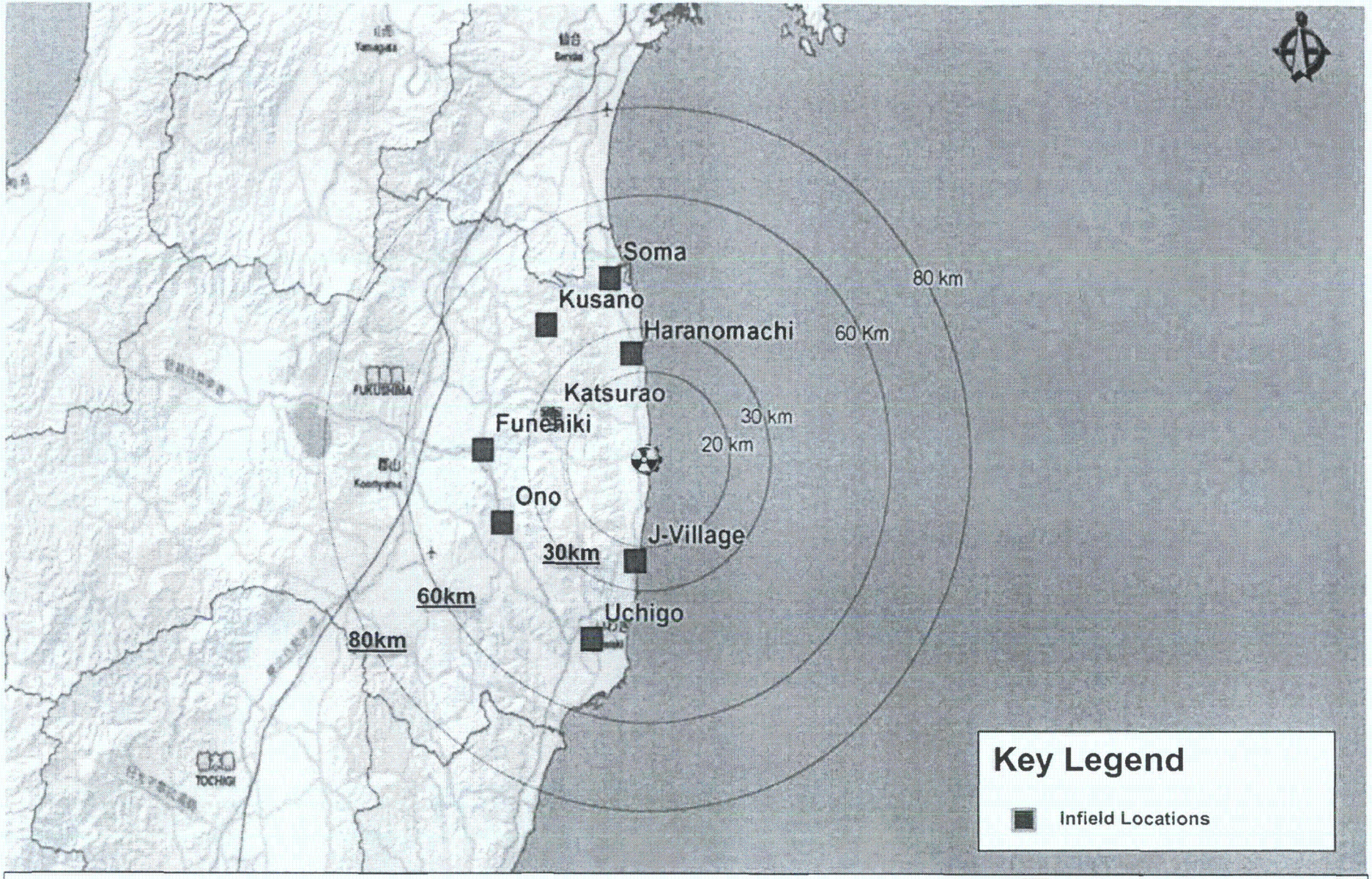
  - One team deployed to Embassy to collect comparative data with USMC survey position (In situ and removable contamination)

Infield Monitoring System, Field Team



Infield Monitoring System
April 16, 2011 Operational Period

National Nuclear Security Administration

Data Inputs

- **Monitoring**
  - 352 hours total flying time for Aerial Measuring System (AMS) fixed and rotary-wing
  - Over 158,000 total field measurements taken by DOE, DoD, and GOJ fixed stations and deployed teams
- **Sampling**
  - 540 total air samples taken at US facilities throughout Japan for lab analysis in US
  - 52 total ground samples taken throughout Japan for lab analysis in US
  - 89 Japan soil samples received, in-processed, and being prepared by SRS Environmental Lab for analysis
    - 6 AFRAT soil samples processed for shipment to SRNL on 4/18.

Organizations Providing Data

- **Consequence Management Response Team**
  - CMRT
  - AMS
  - AFRAT
- **External US**
  - Japan Emergency Command Center, US Embassy, Tokyo
  - USAF, BSC Commander
  - USAF, WC-135 Constant Phoenix
  - Futenma Marine Corps Air Station
  - Nuclear Regulatory Commission
  - Naval Reactors
- **Japan**
  - Ministry of Foreign Affairs (MOFA)
  - Nuclear Safety Technology Center (NUSTEC)
  - Tokyo Electric Power Company (TEPCO)
  - Ministry of Agriculture, Forestry and Fisheries (MAFF)
  - Ministry of Education, Culture, Sports, Science, and Technology (MEXT)
  - Ministry of Health, Welfare and Labor
  - Nuclear and Industrial Safety Agency (NISA)
  - Nuclear Safety Commission

Guide to Interpretation

Areas at Risk for Agricultural Contamination

Aerial measurements can indicate areas where agricultural monitoring and sampling should occur, although they cannot directly determine the amount of contamination of agricultural products grown in these areas.

AMS monitoring results in areas beyond 25 miles from the Fukushima Daiichi reactors show areas where dose rates are many times higher than historical background.

The measured external dose rates in these areas are not high enough to warrant evacuation or relocation of the population, however, lower levels of radioactive contamination in agricultural products provide more of a risk because the radioactive material can be ingested into the body. Agricultural monitoring in these areas may be warranted.

- Areas 10 to 100 times historical background are indicated by green.
- Areas 2 to 10 times historical background are indicated by light blue.
- Areas at or near historical background are indicated by dark blue.

Guide to Interpretation

US EPA Derived Response Levels (DRLs) for Evacuation and Relocation

- **Early Phase DRL**

  If a person is in danger of receiving an external radiation dose of 1 Rem over 4 days, the EPA recommends evacuation until radiation levels decrease. This area is indicated by red.

- **First Year DRL**

  If a person is in danger of receiving an external radiation dose greater than 2 Rem during the first year, the EPA recommends relocation until radiation levels decrease. This is not an urgent action because the dose is received over a full year. This area is indicated by orange.

Fifty Year DRL

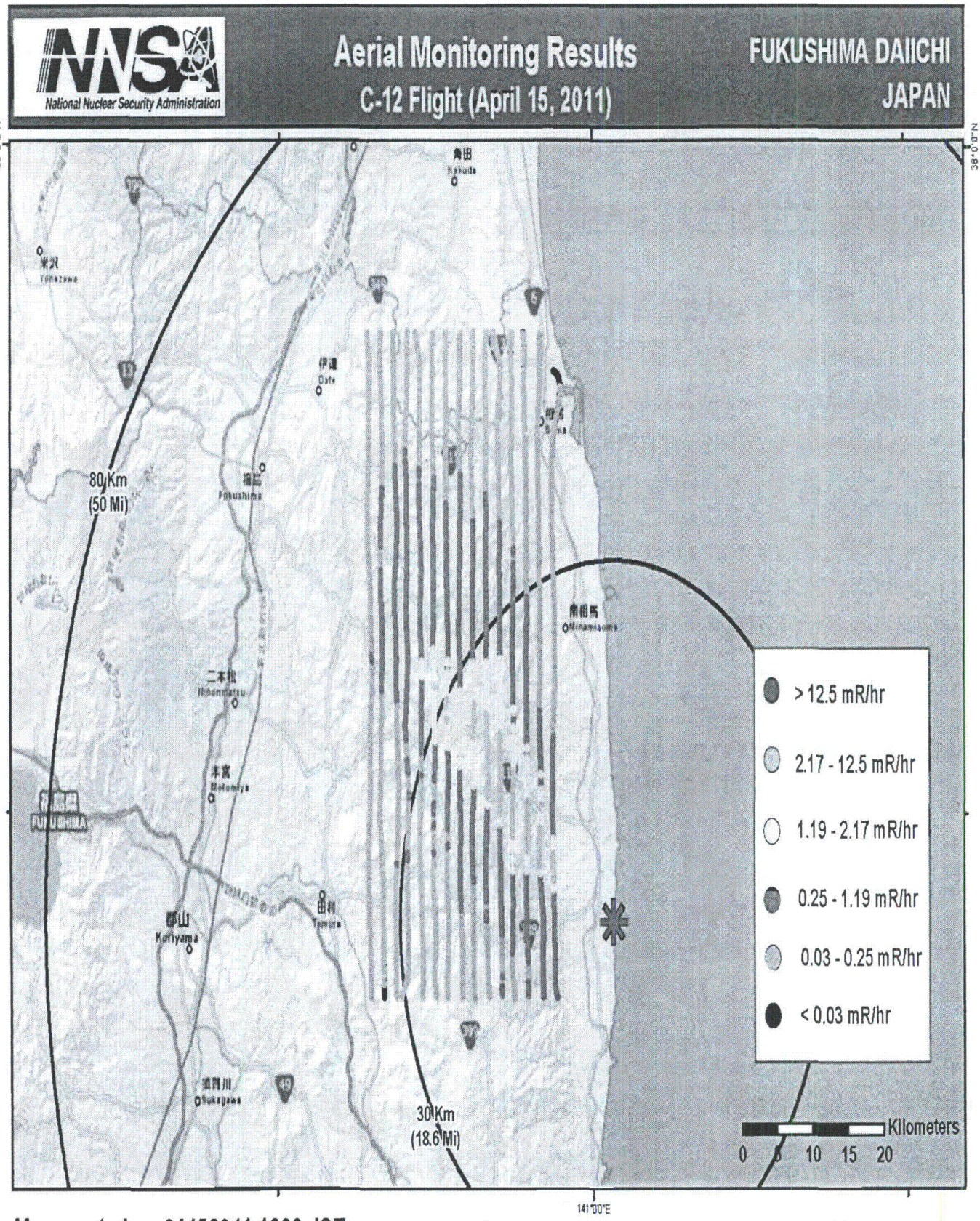
If a person is in danger of receiving an external radiation dose greater than 5 Rem over 50 years, the EPA recommends relocation until radiation levels decrease. This is not an urgent action because the dose is received over fifty years. This area falls within the second year DRL.

Second Year DRL

If a person is in danger of receiving an external radiation dose of greater than 0.5 Rem in the second year (or any subsequent year), the EPA recommends relocation until radiation levels decrease. This area is indicated by yellow.

These calculations account for multiple variables. For instance, radiation is most intense in the first days following its release therefore dose reduction may be met by evacuating early in the response.

Protective actions are frequently expressed in dose rates. The dose rate is an indicator that residents would accumulate the threshold dose if they stayed in the area the entire time expressed (e.g. 1 year, 2 years, 50 years).



Map created on 04152011 1600 JST

Name: NIT C-12 Results 04152011

UNCLASSIFIED

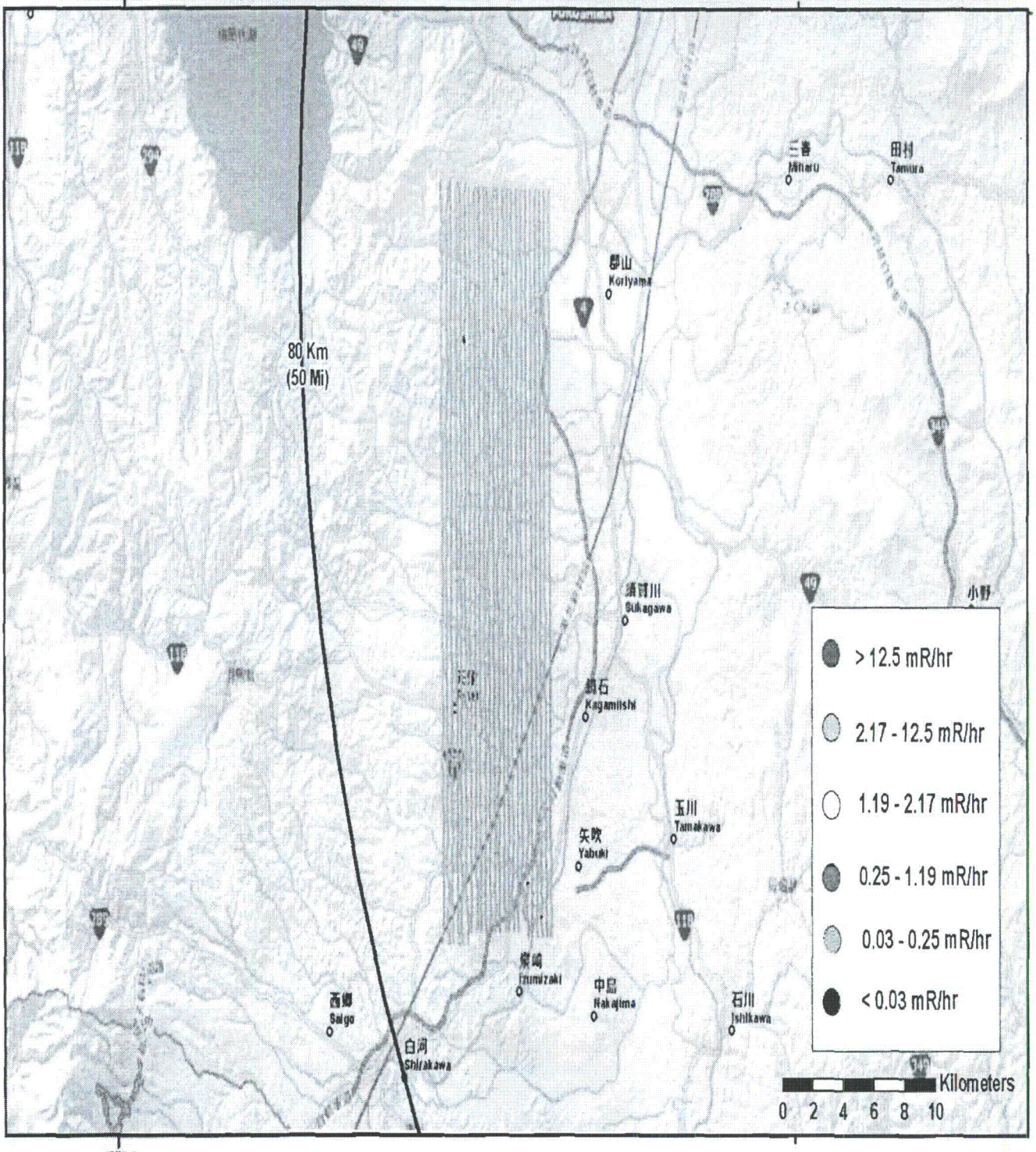
Nuclear Incident Team DOE NIT

Contact (b)(6)

National Nuclear Security Administration

Aerial Monitoring Results
UH-1 Flight (April 15, 2011)

FUKUSHIMA DAIICHI
JAPAN



Map created on 04152011 2200 JST

Name: NIT UH-1 Results 04152011

UNCLASSIFIED

Nuclear Incident Team DOE NIT

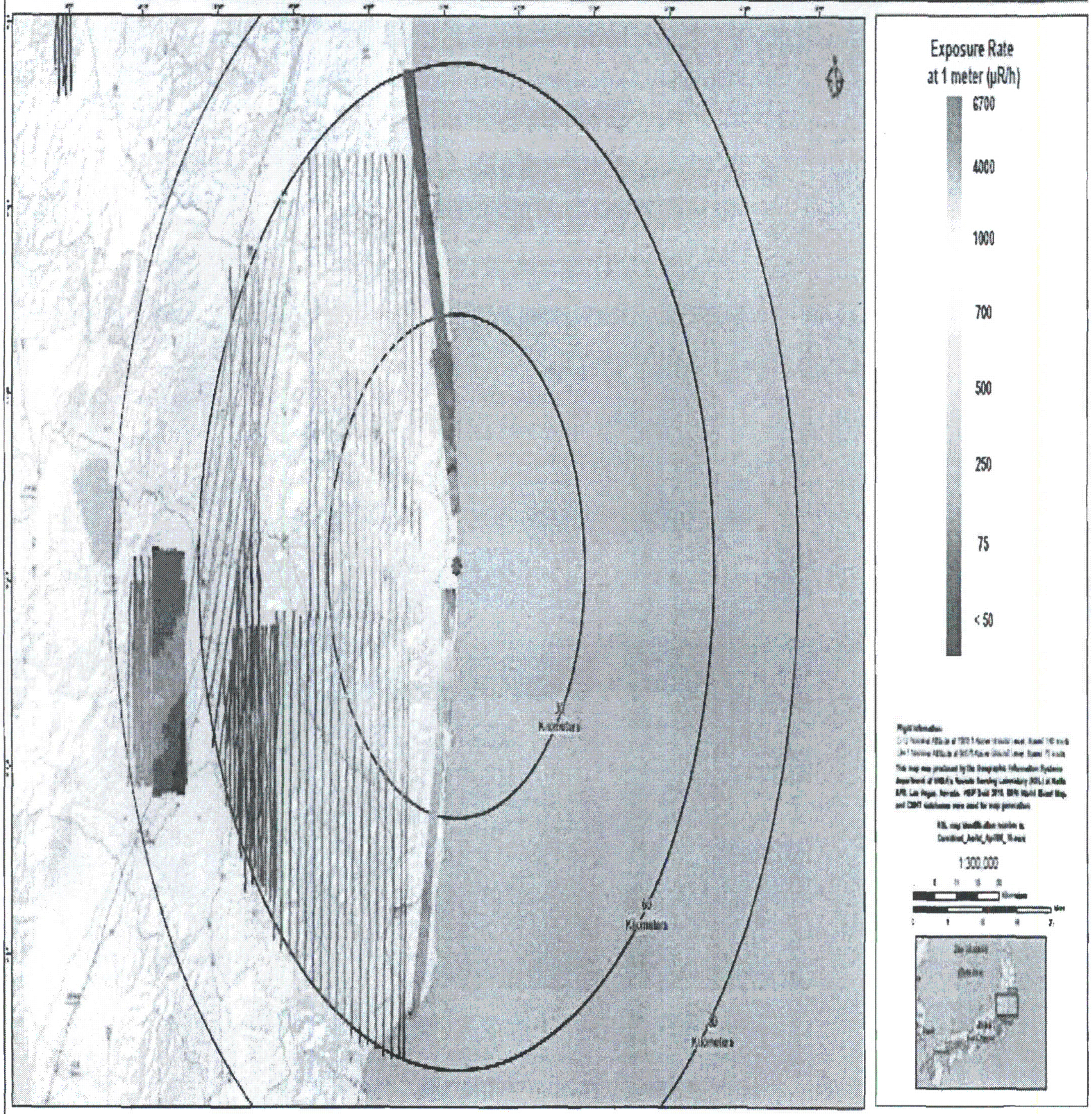
Contact (b)(6)

National Nuclear Security Administration

Aerial Monitoring Results

Combined Survey Dates: April 06 to April 15, 2011

FUKUSHIMA DAIICHI JAPAN



Map created on 4/16/2011 11:30:00 AM JST

UNCLASSIFIED

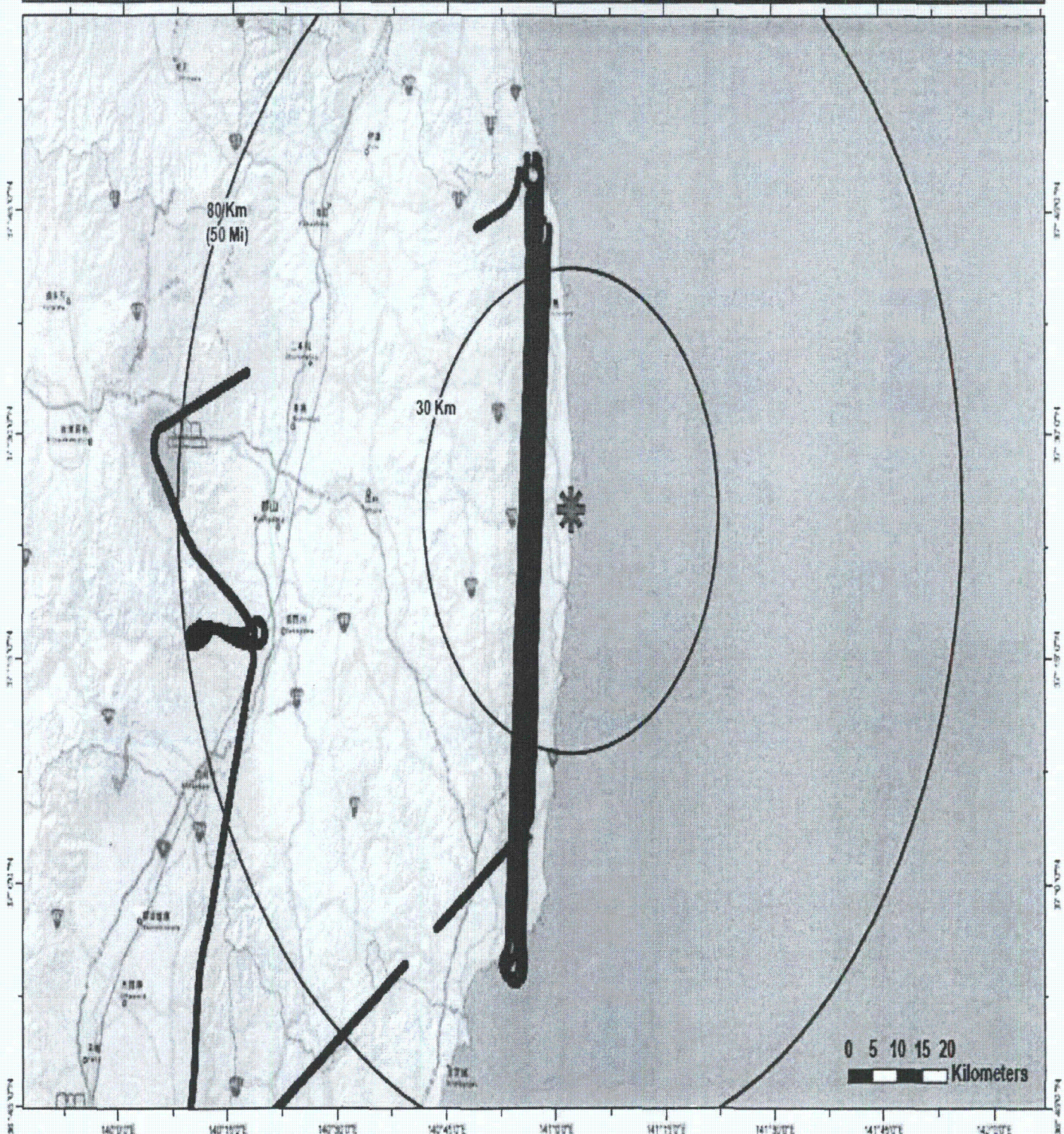
UNCLASSIFIED

National Nuclear Security Administration

Aerial Monitoring Path C-12

April 16, 2011

FUKUSHIMA DAIICHI
JAPAN



Map created on 04162011 1350 JST

Name: NIT C-12 Path 04162011

UNCLASSIFIED

Nuclear Incident Team DOE NIT
Contact (b)(6)

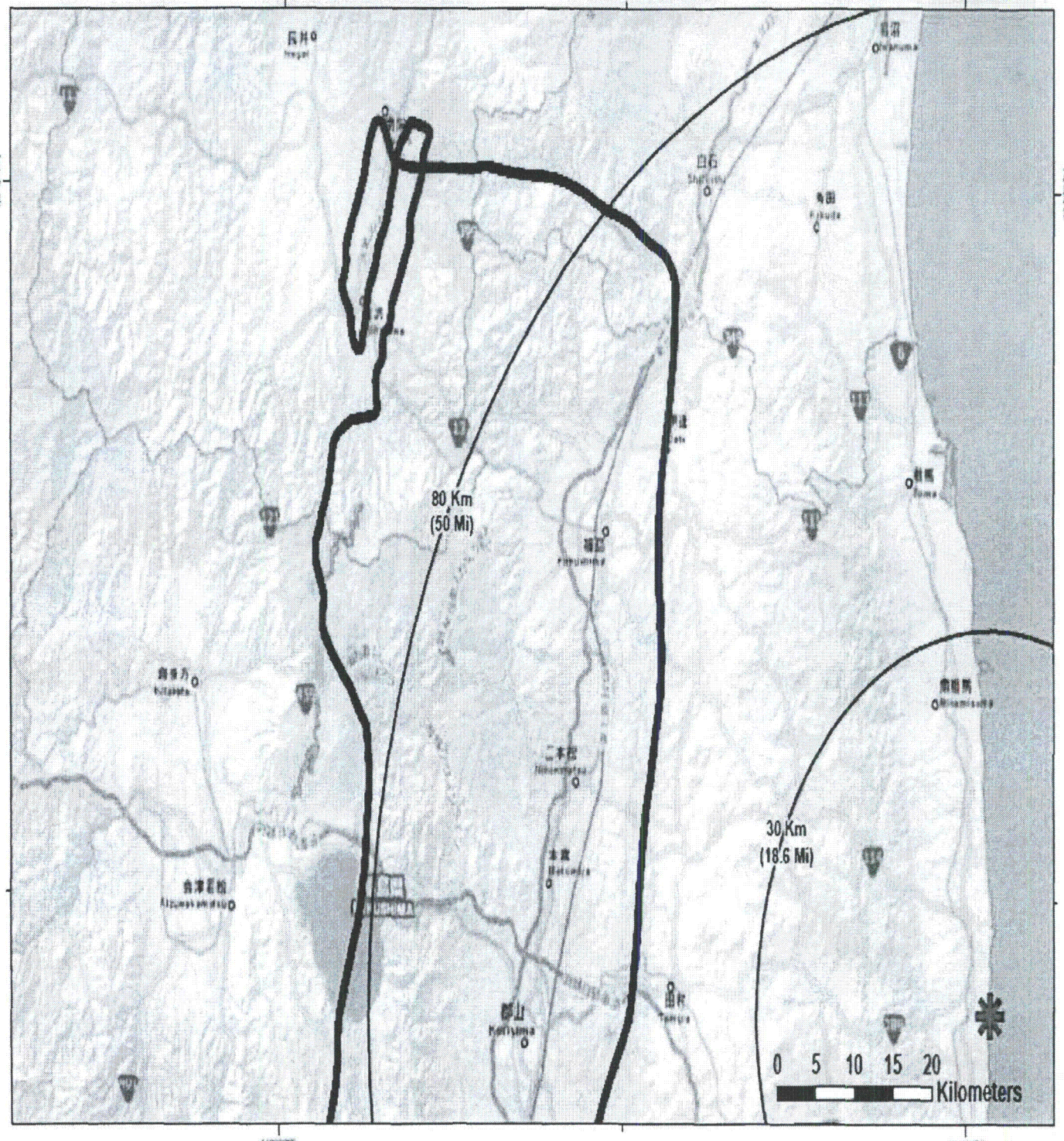
National Nuclear Security Administration

Aerial Monitoring Path UH-1

April 16, 2011

FUKUSHIMA DAIICHI

JAPAN



Map created on 04162011 1450 JST

Name: NIT UH-1 Path 04162011

UNCLASSIFIED

Nuclear Incident Team DOE NIT

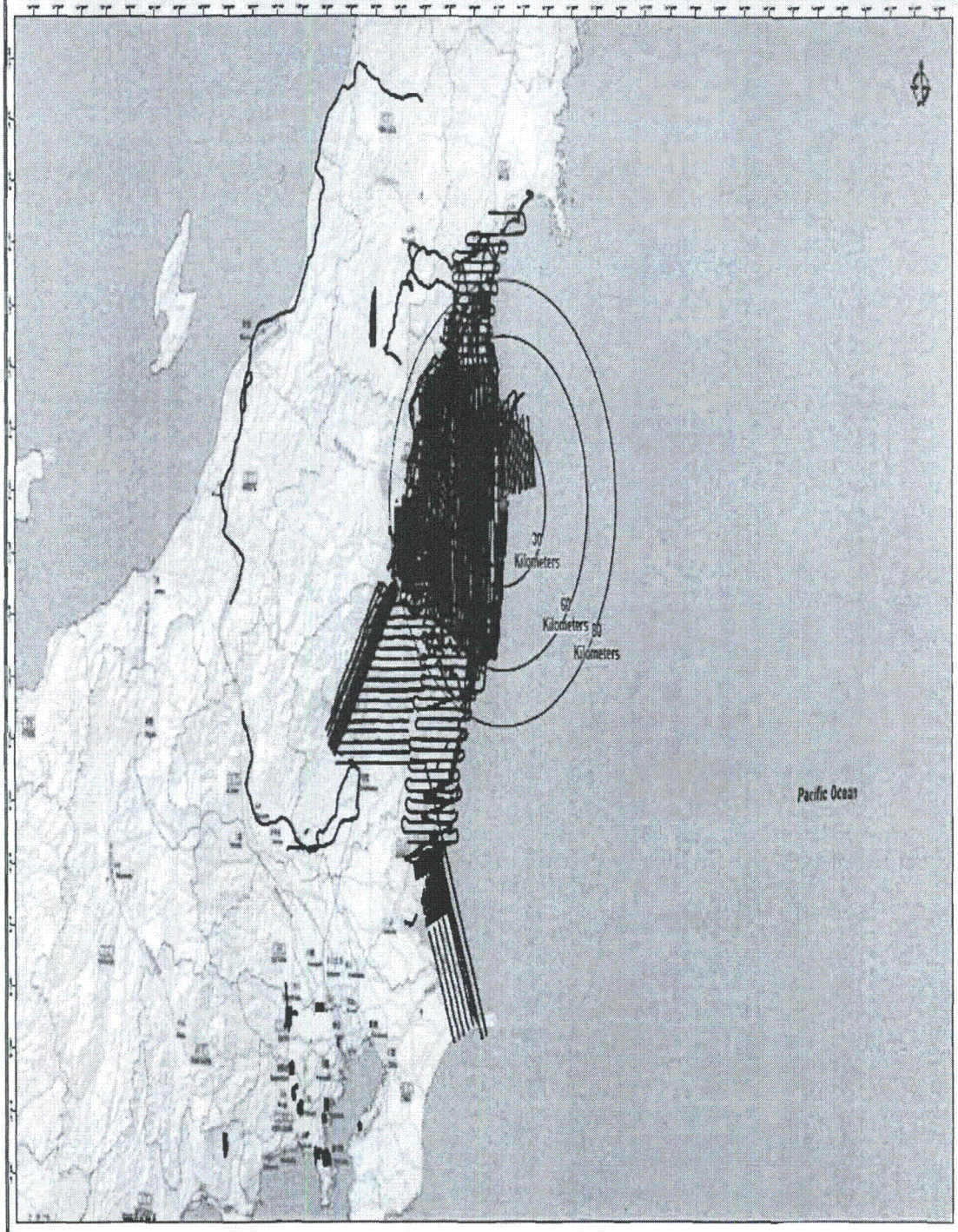
Contact (b)(6)

Aerial Monitoring Results

C-12, UH-1, H-60 - March 17 - April 15, 2011

FUKUSHIMA DAIICHI JAPAN

National Nuclear Security Administration



* Fukushima Daiichi

Approximately 8,500 Square Miles Total Area Flown
Over 12,000 Square Miles Including Overlap

Not For Public Distribution

Flight information:

This Map was produced by the Geospatial Information Systems department of NNSA's Remote Sensing Laboratory (RSL) at Nellis AFB, Las Vegas, Nevada. RSP Data: 2010, ESRI World Street Map, and CIRHT databases were used for map generation.

RSL map identification number is: Combined_Aerial_All_Flights.mxd

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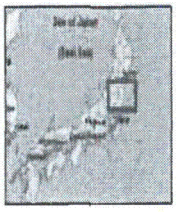
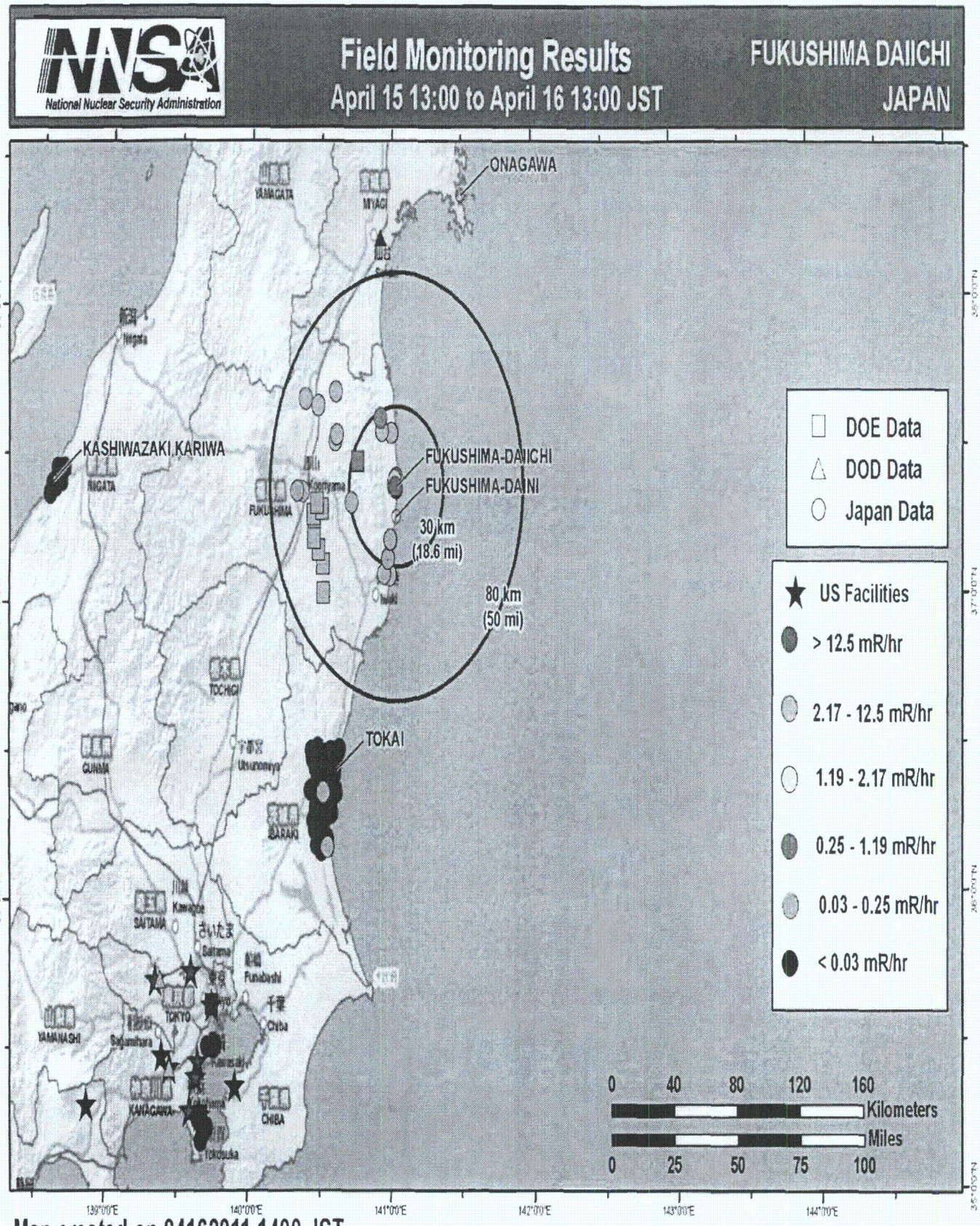


Map created on 4/16/2011 03:30:00 PM JST



Map created on 04162011 1400 JST

Name: NIT 24hrsMonitoringResults 15Apr2011 1300

UNCLASSIFIED

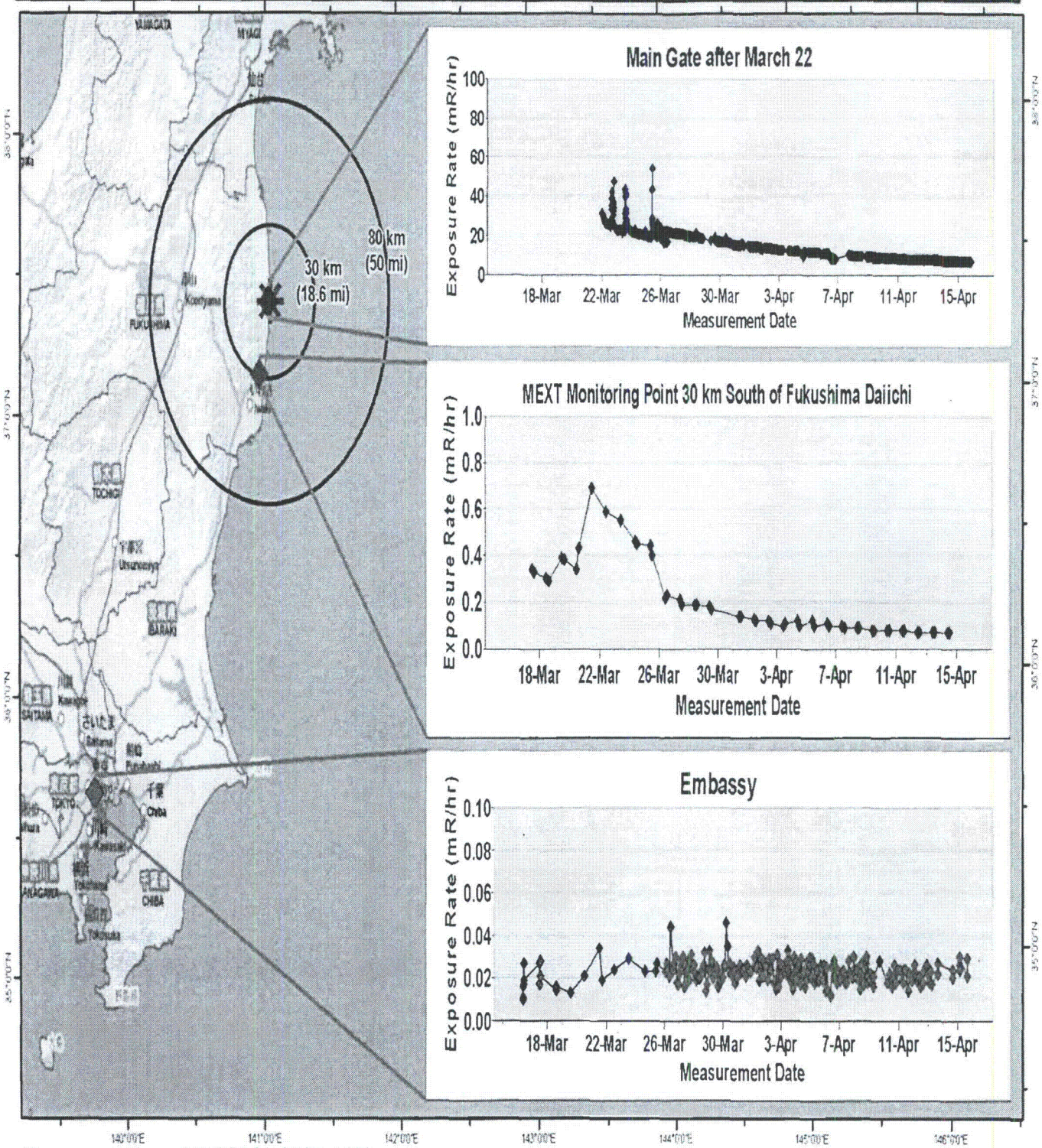
Nuclear Incident Team DOE NIT

Contact (b)(6)

National Nuclear Security Administration

Exposure Rate Trends
From Fukushima South to the U.S. Embassy

FUKUSHIMA DAIICHI
JAPAN



Map created on 04162011 1500 JST

Name: CMHT MonTrend 15Apr2011 Simplified

UNCLASSIFIED

Nuclear Incident Team DOE NIT

Contact (b)(6)

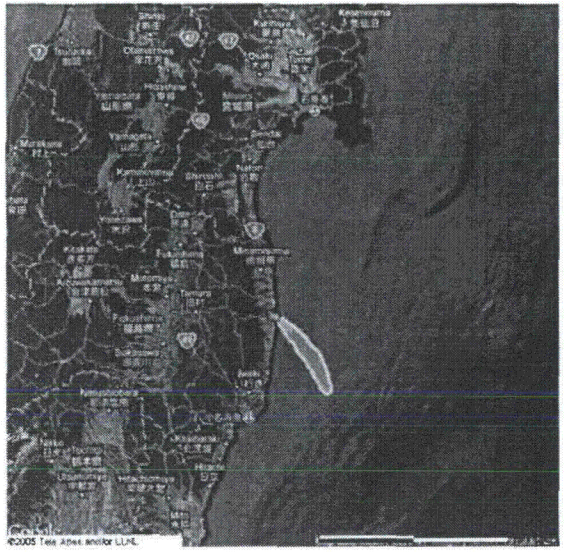
Aerial and Ground Monitoring Data Assessment

- An assessment of measurements gathered through 15 April continues to show:
  - Radiation levels consistently below actionable levels for evacuation or relocation outside of 25 miles
  - Radiological material has not deposited in significant quantities since 19 March
- An assessment of measurements gathered at US military installations in the Tokyo area through 15 April shows:
  - Radiation levels far below actionable levels for evacuation or relocation
  - All aerial measurements at US facilities were less than 32 μR/hr - a level that poses no known health risk
  - Monitoring of these locations will continue although no increases in deposited radiation are anticipated
- NARAC integrated sensor data and wind fields based on Japan, regional, and site weather observations data to refine models to provide more accurate deposition

Forecasted Weather
April 17, 2011 (JST)

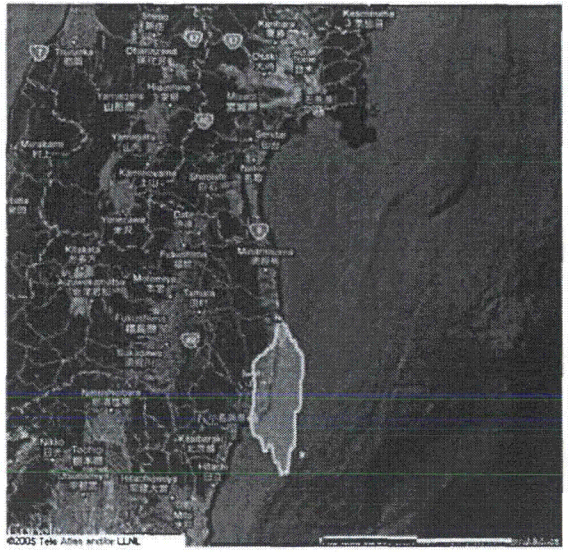
04/17/11 04:00 JST

4/16/11 19:00 Zulu



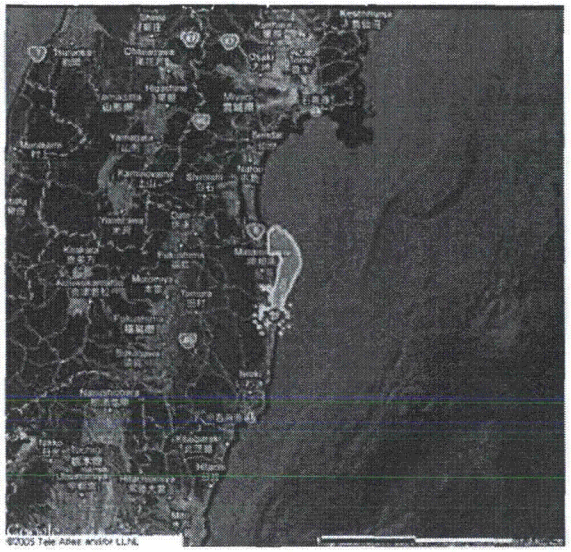
04/17/11 12:00 JST

4/17/11 03:00 Zulu



04/17/11 20:00 JST

4/17/11 11:00 Zulu



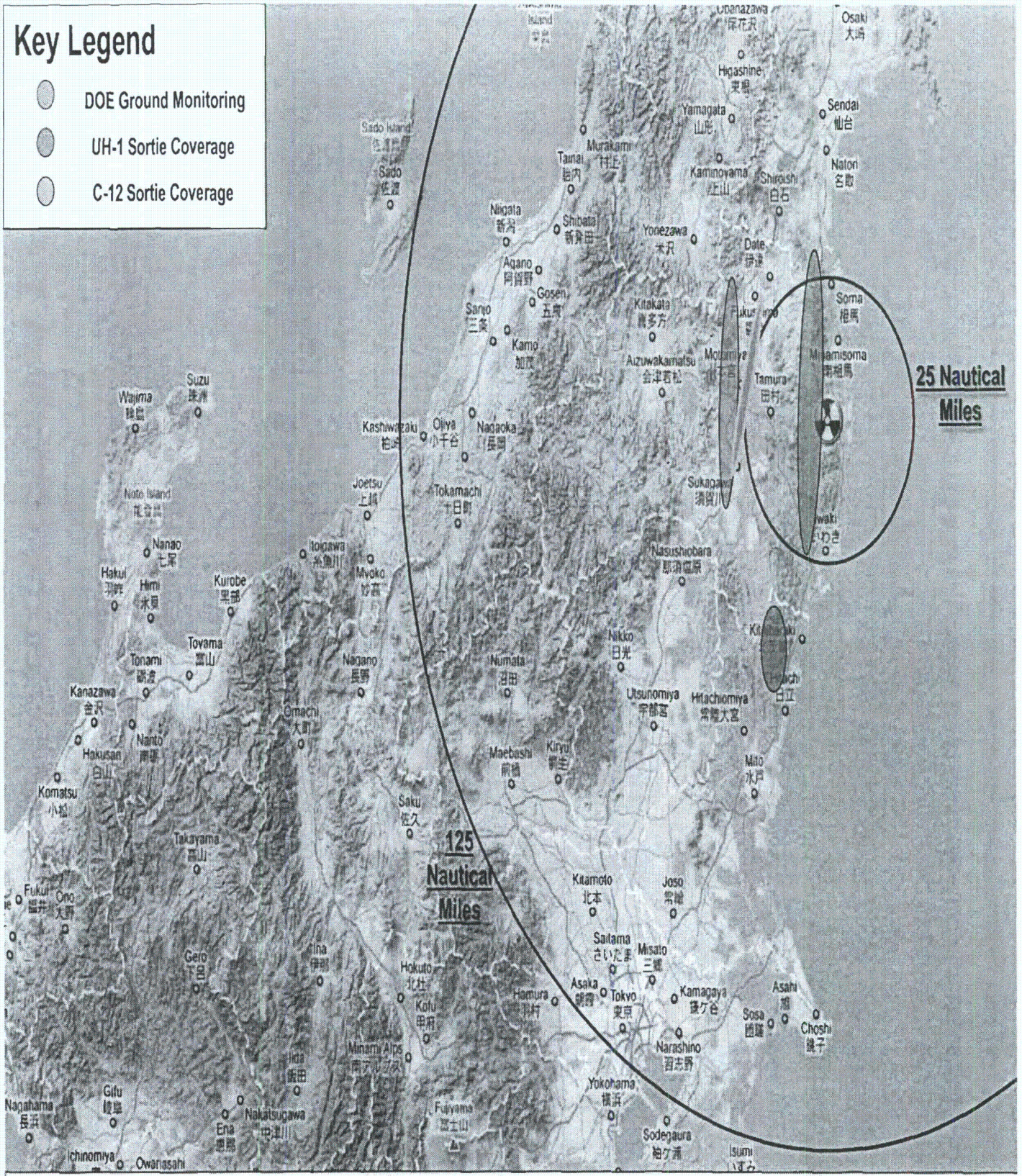
Planned Operations: Next 24 Hrs

Field Monitoring (Aerial)

- AMS C-12: Weather and winds permitting, will continue conduct a survey to fill gaps inside the 60km arc at 1000ft AGL 2000 line spacing to further complete the aerial survey.
  - Two areas have been identified as priorities, wind and weather will drive which are surveyed.
- AMS UH-1: Weather and winds permitting, will begin surveying the southern half of the 60km to 80 km arc starting at Kitaibaraki at 500 ft AGL and 1000 ft line spacing.

Field Monitoring (Ground)

- Continue beta/gamma surveys approximately 20 km East of Fukushima and Koriyama to approximately 10 km from the East coast .
  - Radionuclide evaluations are to include PIC and in-situ measurement assessment of gamma isotopes
- Continue monitoring activities at the US Embassy Japan and the Embassy Resident Towers in Tokyo, CMOC TOC at Yokota AB, and Yokusuka Naval Base



Planned Aerial/Field Monitoring Operations

April 17, 2011 Operational Period

National Nuclear Security Administration

DOE will produce only one SITREP per day which will be transmitted at 0600.

DEPARTMENT OF ENERGY SITUATION REPORT
Earthquake & Tsunami in Japan
20 April 2011
0600 (EDT) UPDATE

Yellow highlighted text indicates updates to this version. Older items will be deleted as necessary to minimize the size of this report and facilitate quick reading. Each entry is labeled with the time and date of the latest SITREP that updated the information. Less frequent information updates are available from Japanese agencies. (0600, 4/18 SITREP)

(NOTE: JST = EDT + 13 hours; EDT = GMT/UTC – 4 hours).

POWER PLANT UPDATE AND OTHER NUCLEAR ISSUES

TEPCO says the amount of highly radioactive water at Fukushima No. 2 reactor is slightly lower. TEPCO began moving water to an on-site waste processing facility yesterday. The utility company says the level of contaminated water in a tunnel linked to No. 2 is one centimeter lower than the previous day as of 0700 JST Wednesday. That amounts to a reduction of 210 tons of the water in the tunnel, pumped out at a rate of 10 tons per hour. (0600 4/20 SITREP)

Per NHK, Prime Minister Naoto Kan is expected to announce his government will soon impose an order to prohibit people from entering within a 20-kilometer radius (12 miles) of the Fukushima NPP. Kan is expected to visit Fukushima Prefecture as early as Thursday. Such a zone would be legally enforceable, in contrast with the current evacuation, which is technically voluntary. (0600 4/20 SITREP)

Per the IAEA and NHK, Deputy Director General Denis Flory announced that a team of experts will investigate the cause of the accident and the safety measures that were taken after the March 11th earthquake and tsunami that crippled the plant. The IAEA will consult with the Japanese government to decide when to conduct the investigation. It hopes to release the results at a ministerial-level meeting in June. (0600 4/20 SITREP)

Per NHK, TEPCO will spray a chemical hardening agent around the damaged Fukushima Daiichi nuclear power plant to prevent the migration of radioactive dust and soil. Spraying of the the polymer emulsion on top of debris near the reactor buildings is scheduled to start April 26. The operation is part of TEPCO's restoration roadmap announced on April 17. Two weeks ago, test coating began with an emulsion widely used in construction sites to settle dust and prevent the debris around a common spent fuel storage pool from scattering. Per TEPCO, the polymer has hardened the debris and that radiation levels in the plant's compound have remained relatively low. Spraying around the reactor buildings is scheduled to finish by the end of May, and in the rest of the compound by the end of June. Next, the reactor buildings will be covered with huge filter curtains to prevent any further spread of radioactive materials. (0600 4/19 SITREP)

AR/44

Per IAEA, the distribution boards for the pumps injecting water to the reactor pressure vessels of Units 1, 2 and 3 of the Fukushima Daiichi Nuclear Power Plant were transferred to higher ground on 15th April as a countermeasure against another tsunami. To minimize the liberation of radioactive material into the ocean, two sandbags filled with Zeolite were placed between the Inlet Screen Pump Room of Unit 1 and Unit 2. On April 17, five sandbags filled with Zeolite were placed between the Inlet Screen Pump Room of Unit 2 and Unit 3. The Zeolite material is designed to capture specific radioactive elements. The Zeolite material will be sampled and analyzed periodically to determine the effectiveness of this procedure. (0600 4/19 SITREP)

Other Nuclear Facilities

No new information

Update on Reactor Containment Vessels:

No new information

Updates on Cooling Efforts and Cooling Water Management:

Per NHK, TEPCO has begun transferring highly radioactive water from the No.2 reactor to a waste processing facility at the Fukushima Daiichi power plant. To prepare for the operation, cracks in the walls of the facility were sealed and measures were in place to prevent contaminated water from leaking. The operation started April 19 after NISA checked procedures and safety measures. About 25,000 tons of highly contaminated water has accumulated in the basement of the turbine building and a tunnel connected to the No.2 reactor. TEPCO says it plans to move about 480 tons of the water a day and it will take about 26 days to move about 10,000 tons to the waste facility near the No.4 reactor. An estimated 67,500 tons of radioactive water has accumulated at the plant. With more water being pumped into the reactors to restore the cooling system, the quantity is expected to rise and further hamper operations to bring the crisis under control. (0600 4/19 SITREP)

Per NISA and TEPCO, a concrete pump vehicle was used to spray water into Fukushima Daiichi Unit 4 on April 19 from 1608 to 1728 JST. (0600 4/20 SITREP)

(Official Use Only) Field Measurements Update (0600 4/20 SITREP):

Recent events of past 24 hours:

- **Bilateral Coordination**
  - Held Sub Working Group meeting to discuss USG/GOJ joint survey priorities
    - USG/GOJ agreed to make this a weekly meeting

- Coordination of GOJ-USG meeting to discuss Aerial Measurement System Data for Friday 4/22

- **Aerial Monitoring Operations**
  - AMS C-12: Completed two gaps within the 30 km circle at 1000ft AGL and 2000 foot line spacing. One north of the Fukushima-Daiichi plant and one south of the plant along the coast line.
  - AMS UH-1: Completed two gaps within the 30 km circle at 1000ft AGL and 2000 foot line spacing. One north of the Fukushima-Daiichi plant and one south of the plant along the coast line.

- **Field Monitoring Operations**
  - Conducted RSI, HPGe, Victorean 451P Micro-R meter, and PIC surveys for comparative survey along AMS test line. Collected one soil sample at each of four pre-defined points along test line.
  - Conducted RSI survey along the length of Tokohu Highway from Yokota to coast town of Narita.
  - Continued monitoring activities at the US Embassy Japan and the Embassy Resident Towers in Tokyo, Yokota AB, and Yokosuka Naval Base

Planned operations over the next 24 hours:

- **Field Monitoring (Aerial)**
  - AMS C-12: No flights scheduled. C12 will fly serpentine pattern over main deposition areas approximately twice weekly.
  - AMS UH-1: Weather and winds permitting, will fly UH-1 Flight 2 box west of Kitaibaraki at 1000ft AGL and 2000 foot line spacing.

- **Field Monitoring (Ground)**
  - Continue beta/gamma surveys, RSI survey in the 60km to 80 km ring (Sector 2) starting from half way between Sukagawa and Koriyama working clock wise.
    - Radionuclide evaluations are to include PIC and in-situ measurement assessment of gamma isotopes
  - Conduct RSI surveys of the 60km to 80 km ring starting from Koriyama working clock wise.
  - Continue monitoring activities at the US Embassy Japan and the Embassy Resident Towers in Tokyo, Yokota AB, and Yokosuka Naval Base

<u>Updates by Reactor Unit (updated each SITREP)</u>

- **Fukushima Daiichi Unit 1 reactor**
  - Per JAIF at 0000 JST 20 April, reactor parameters are: RPV pressure (A) 0.423 MPaG, (B) 1.070 MPaG; water level (A) -1.60 (B) -1.65 meters below the top of the fuel rods; SFP temperature is 36 °C. Reactor pressure vessel temperature@

water feed nozzle 164.1 °C. Containment vessel pressure 0.165 MPa abs. (0600 20 April SITREP)
- Per IAEA at 0600 UTC 17 April fresh water injection ongoing at 6 m^3/hr.
- Per IAEA, at 0600 UTC 17 April data shows that both reactor pressure instruments A and B show an increasing trend, but at different rates, NISA has indicated that some instruments in the reactor vessel may not be working properly.
- Per JAIF at 1700 JST 16 April, The originally planned amount of Nitrogen has been injected by April 16th but injection will continue to maintain the concentration of nitrogen in the vessel.
- On March 24, the NRC estimated that Unit 1 had 70% core damage. JAIF reports this as a TEPCO estimate based on radiation level in containment.
- The reactor vessel status is unknown. Containment vessel is estimated to be intact.
- Per JAIF at 1115 JST 17 April a remote controlled robot is being used to examine the inside of the Unit 1 reactor building.
- Per JAIF at 1115 JST 17 April, and IAEA 2140 UTC 16 April, two sandbags with zeoliteon absorbent were installed near the seawater screen between units 1 and 2
- Unit #1 contains 292 assemblies in the spent fuel storage pool.

- **Fukushima Daiichi Unit 2 reactor**
  - Per JAIF 0000 JST 20 April, RPV pressure (A) -0.020 MPaG, (B) -0.027MPaG; water level at (A) -1.50 (B) -2.00 meters below the top of the fuel rods; containment vessel pressure 0.080 MPa abs; Reactor pressure vessel temperature @ water feed nozzle 133.4 °C. SFP water temperature is 72°C **(this indicates a 23°C increase in SFP water temperature since the JAIF 1200 19 April report – IAEA Incident and Emergency Center was contacted to assist in understanding this increase).** (0600 4/20 SITREP)
  - Per IAEA at 0600 UTC 17 April fresh water injection ongoing at 7 m^3/hr.
  - Per IAEA at 0200 UTC 18 April, fresh water injection (45 tonnes) to the spent fuel was carried out via spent fuel line of Unit 2 and completed by 16 April 0254 UTC, when the pool was confirmed to be filled with water.
  - On April 11, the NRC estimated that Unit 2 had 30% core damage. JAIF reports this as a TEPCO estimate based on radiation level in containment.
  - NRC EOC status update 1200 EDT 11 April , may begin injecting Nitrogen on 20 April (0600, 4/13 SITREP).
  - Per JAIF at 1115 JST 17 April and IAEA 2140 UTC 16 April, two sandbags with zeoliteon absorbent were installed near the seawater screen between units 1 and 2 and five sandbags with zeoliteon absorbent were install near the seawater screen between units 2 and 3
  - Unit#2 SFP contains 587 assemblies in the spent fuel storage pool.

- **Fukushima Daiichi Unit 3 reactor**
  - Per JAIF, 0000 JST 20 April, water level (A) -1.85 (B) -2.25 meters below the top of the fuel rods; containment vessel pressure 0.1041 MPa abs; reactor pressure

vessel temperature @ water feed nozzle 98.5 °C, this is a 3.7°C decrease since the last sitrep. SFP temperature is 55°C. RPV pressure (A) -0.038 MPaG, (B) -0.087 MPaG. (0600 4/20 SITREP)

- Per IAEA at 0600 UTC 17 April fresh water injection ongoing at 7 m^3/hr.
- On April 11, the NRC estimated that Unit 3 had 25% core damage. JAIF reports this as a TEPCO estimate based on radiation level in containment.
- Unit #3 SFP contains 514 assemblies in the spent fuel storage pool.
- Per JAIF at 1115 JST 17 April seven sandbags with zeoliteon absorbent were installed near the seawater screen between units 2 and 3
- Per JAIF at 1115 JST 17 April a remote controlled robot is being used to examine the inside of the Unit 3 reactor building.
- NRC EOC status update 1200 EDT Nitrogen injection delayed due to problems accessing equipment on 11 April.

- **Fukushima Daiichi Unit 4 reactor**
  - Per NHK news release, as of 2111 JST 13 April, TEPCO indicated that water temperature in the spent fuel storage pool at the No. 4 reactor in the Fukushima nuclear plant has risen to about 90 degrees Celsius. (0600, 4/14 SITREP)
  - TEPCO took the temperature on Tuesday using an extending arm on a special vehicle. It found the temperature was much higher than the normal level of under 40 degrees. To cool the fuel, TEPCO sprayed 195 tons of water for 6 hours on Wednesday morning. The company thinks the pool's water level was about 5 meters lower than normal, but 2 meters above the fuel rods. TEPCO believes the water level is likely to rise by about one meter after the water spraying on Wednesday. (0600, 4/14 SITREP)
  - TEPCO found 220 becquerels of iodine-131 per cubic centimeter of water, as well as 88 becquerels of cesium-134 and 93 becquerels of cesium-137. Also, levels of radioactive substances including iodine-131 in the samples were higher than those in storage pools under normal circumstances, suggesting that some of the spent fuel may have been damaged. (0600, 4/14 SITREP)
  - Per JAIF, 0730 JST 16 April, the water temperature in Spent Fuel Pool is 49°C, per thermography.
  - Unit 4 is shutdown with the core removed to the spent fuel pool in December for maintenance on the reactor.
  - Unit #4 SFP contains 1331 irradiated fuel assemblies, plus 204 fresh fuel assemblies in the spent fuel storage pool.

- **Fukushima Daiichi Unit 5 reactor**
  - Unit 5 was in a refueling outage at the time of the earthquake.
  - Per JAIF, as of 0600 JST 20 April, the SFP water temp was 36.6°C. (0600 4/20 SITREP)
  - Unit #5 SFP contains 946 assemblies in the spent fuel storage pool.

- **Fukushima Daiichi Unit 6 reactor**
  - Unit 6 was in a refueling outage at the time of the earthquake.

- Per JAIF, as of 0600 JST 20 April, SFP water temp was 31.0°C. (0600 4/20 SITREP)
- Unit #6 SFP contains 876 assemblies in the spent fuel storage pool.

- **Fukushima Daiichi Common Spent Fuel Pool**
  - No change in condition/status several days. (0600, 4/14 SITREP)

- **Fukushima Daiichi Dry Cask Storage Building**
  - No change in condition/status several days. (0600, 4/14 SITREP)

Sources include:
Federation of Electric Power Companies of Japan
Nuclear Industrial Safety Agency

Links:
http://www.jaif.or.jp/english/
http://www.tepco.co.jp/en/index-e.html
http://nei.cachefly.net/newsandevents/information-on-the-japanese-earthquake-and-reactors-in-that-region/
http://www.iaea.org/
http://www.mext.go.jp/english/
https://iportalwc.doe.gov/
http://www.nisa.meti.go.jp/english/
http://www.fepc.or.jp/english/
http://english.kyodonews.jp/
http://www3.nhk.or.jp/nhkworld/

Other Information

UPDATE ON USG COORDINATION

Bilateral Coordination:

No new information

Media Reports

TOKYO, April 20, **French company to decontaminate Daiichi water.** French nuclear reactor maker Areva says it has agreed with TEPCO to build a facility to decontaminate the water at Fukushima. CEO Anne Lauvergeon told reporters in Tokyo that Areva will build the facility to remove radioactive substances from the contaminated water. http://www3.nhk.or.jp/daily/english/society.html (0600 4/20 SITREP)

TOKYO, April 20, **Robots face difficulties.** TEPCO says radioactive debris and high humidity are hampering the investigation by robots at Fukushima. The company began using remote-controlled robots to explore the first three reactor buildings on Sunday and

Monday. At the Number 2 reactor building, the robot's camera lens was instantly clouded by high humidity. TEPCO officials think that the steam is coming from the damaged section of the reactor's suppression pool. But they have not found a way to resolve the problem as the steam could be highly toxic.
http://www3.nhk.or.jp/daily/english/20_06.html (0600 4/20 SITREP)

TOKYO, April 19, **TEPCO to Check if Plutonium Leaked to Seabed.** The operator of the Fukushima Daiichi nuclear power plant says it will examine the seabed off the facility to ensure that no plutonium has leaked into the ocean. Tokyo Electric Power Company said on Monday it will conduct the inspection as plutonium is heavier than other radioactive materials and could have accumulated on the floor. Plutonium is a radioactive substance that could cause lung cancer if inhaled. TEPCO earlier detected small quantities of plutonium in the soil around the plant. But it said the amount is too small to harm human health. So far, no plutonium has been found in the air and sea water samples from around the plant. TEPCO senior official Junichi Matsumoto said there is little doubt that plutonium has leaked from the plant during the accident. The soil samples have been found to be contaminated with a small amount of the material. He said the company will continue with the examination so that residents can feel safe.
http://www3.nhk.or.jp/daily/english/19_04.html (0600 4/19 SITREP)

TOKYO, April 19, **Kyodo, Government Aims to Establish Reconstruction Task Force, Nuclear Crisis Panel.** The government is aiming to set up a task force within the Cabinet to lead reconstruction efforts following the March 11 earthquake and tsunami as well as a separate panel to discuss the rebuilding of areas affected by the ongoing nuclear crisis in Fukushima Prefecture, a bill to be submitted to the current Diet session showed Monday. Under the bill, the reconstruction task force, to be headed by Prime Minister Naoto Kan, would set a basic policy for recovery and make arrangements with related organizations. With no sign that the nuclear crisis at the radiation-leaking Fukushima Daiichi nuclear power plant is abating, a separate panel would be created comprising the heads of local governments in affected areas and experts, as reconstruction around the plant could be delayed compared with other disaster-hit areas, according to the bill.
http://english.kyodonews.jp/news/2011/04/86278.html (0600 4/19 SITREP)

CONTACT INFORMATION:
Nuclear Incident Team in the Emergency Operations Center

(b)(6)

Office of the Deputy Secretary 202-586-5500

Watch Schedule

April 19: 0400-0800
Regina Carter
Matt Hutmaker

April 20	0400-0800
Chris Behan	
Andy Griffith	
April 21	
Heather Looney	0400-0800
Steve Reeves	